



FULL LINE CATALOG FLUID POWER PRODUCTS



ROSS CONTROLS

Safety-Related Products

- Safety Exhaust Double Valves
- Safety Exhaust Sensing Valves
- Energy Isolation Lockout & Exhaust Valves L-O-X®
- Soft-Start Valves EEZ-ON®
- Load Holding Valves
- Safe Cylinder Return Double Valves
- Hazardous Locations – Explosion-Proof Valves
- Safety Hydraulic Valve Systems

A0.1 – A7.7

Press Safety Double Valves for Clutch/Brake Controls

- Control Reliable Double Valves DM²® Series
- Control Reliable Double Valves SERPAR® 35 Series
- Double Valves Crossflow™ 35 Series

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Base Mounted Valves and Serial Bus Communication

- ISO 15407-1 & ISO 15407-2 Valves
- ISO 5599-1 & ISO 5599-2 Valves
- Serial Communications
- ANSI Valves
- SAE Valves
- Miniature Valves
- Pack Valves

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- Directional Control Poppet Valves
- Directional Control Poppet Valves
- Directional Control Spool Valves
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- Compact Valves

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SAFETY-RELATED PRODUCTS



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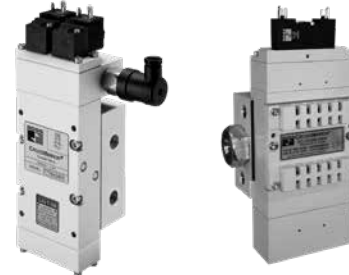
Safety Exhaust Control Reliable Energy Isolation Double Valves



Safety Exhaust & Safety Exhaust/Energy Isolation Sensing Valves



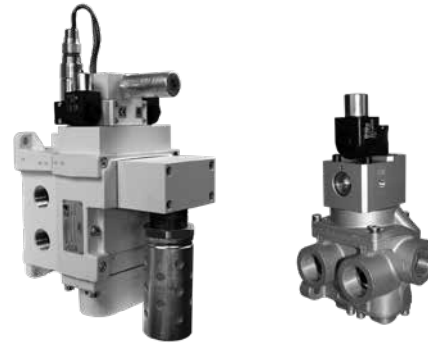
Energy Isolation Lockout and Lockout with Soft-Start Valves



Safe Cylinder Return Control Reliable Double Valves



Cylinder Stop and Load Holding Pilot Operating Check Valves



Hazardous Locations Explosion-Proof Valves



Hydraulic Block & Bleed Valve Systems



Hydraulic Block & Stop Valve Systems



Hydraulic Dual Block & Stop Valve Systems

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Consult
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Cautions and Warranty

- Compatible Lubricants
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Inside Cover



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A0.3



SAFETY EXHAUST CONTROL RELIABLE MONITORED VALVES



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CONTROL RELIABLE DOUBLE VALVES M35 SERIES – KEY FEATURES:

- Pressure sensors - allow for external monitoring of valve state
- Modular or threaded port connection - allows modular connection to Air Entry System (Lockout Valve, FRLs)
- Integrated EEZ-ON® (soft-start) module option
- LED indicators - aid troubleshooting
- Includes high-flow, clog-resistant silencer

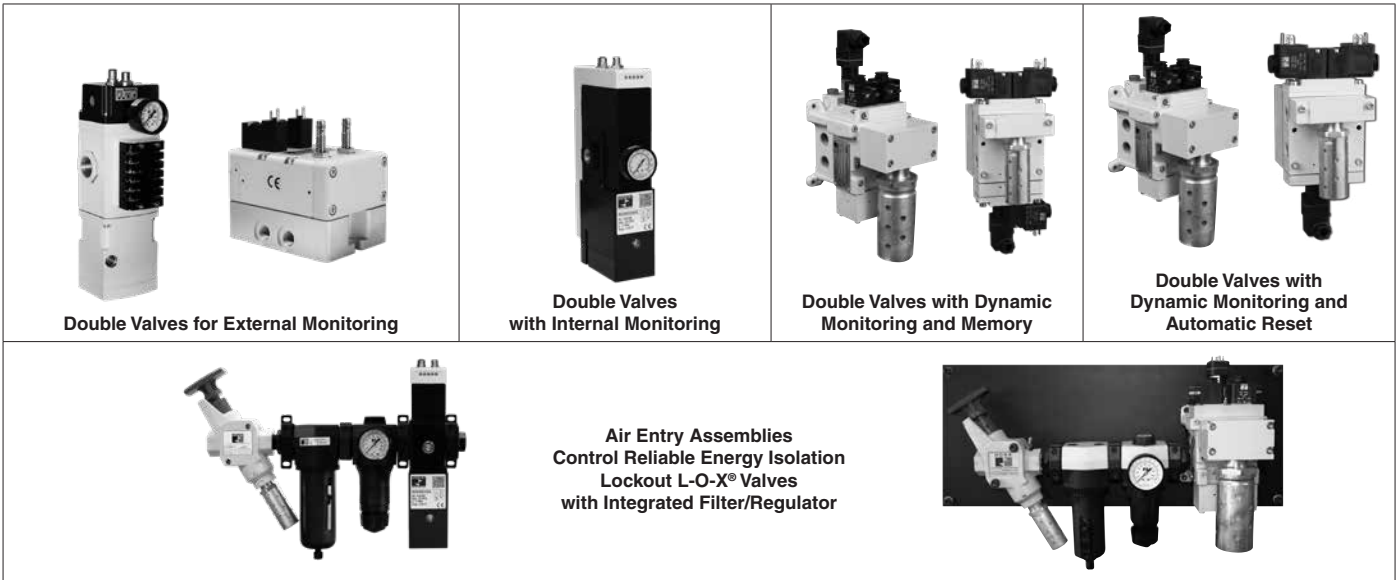
CONTROL RELIABLE DOUBLE VALVES RSe Series – KEY FEATURES

- Rapid response for minimum actuating time
- Status indicator provides valve condition (ready-to-run) feedback
- Position sensors for valve fault monitoring – external monitoring device required
- Well-proven spool valve design for reliable, smooth function
- External pilot supply port is a standard feature
- Base-mounting design

CONTROL RELIABLE DOUBLE VALVES DM SERIES – KEY FEATURES

- Rapid response time to minimize stopping time
- Status Indicator switch for valve condition (ready-to-run) feedback
- Highly contaminant tolerant poppet construction
- Explosion proof solenoid pilot available, for more information consult ROSS

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM2® Series D double valves for mechanical power press applications.

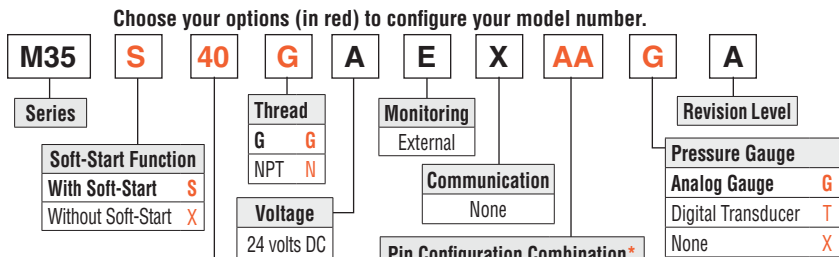


VALVE TYPE SERIES	Category	AVAILABLE PORT SIZES								MAX. FLOW Cv						MONITORING					RESET		Page
		1/8	1/4	3/8	1/2	3/4	1	1 1/2	Port Size						Integrated Soft-Start	External	Internal	Automatic	Solenoid				
									1/8	1/4	3/8	1/2	3/4	1						1 1/2			
M35	4										7.5	7.5										A1.3 - A1.5	
RSe	4								0.75	0.85		1.81										A1.6 - A1.7	
MCSE												3.9										A1.8 - A1.9	
DM ²⁰ C	4								2.61	2.61	10	13	20	64								A1.10 - A1.12	
	DM ²⁰ Series C Preassembled Wiring Kits																			A1.13			
DM ²⁰ E	4								2.4	2.4												F2.14 - F2.16	
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DM ¹ C	4								2.61	2.61	10	13	13								A1.18 - A1.20		
	DM ¹ Series C Preassembled Wiring Kits																			A1.21			
DM ¹ E	4								2.4	2.4											F2.22 - F2.24		
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Air Entry Assemblies	with MCSE Series Safety Exhaust Double Valves																			A1.26			
	with M35 Series Safety Exhaust Double Valves																			A1.27			
	with DM ²⁰ Series C Safety Exhaust Double Valves																			A1.28			
	with DM ²⁰ Series E Safety Exhaust Double Valves																			A1.29			

Control Reliable Double Valves for External Monitoring

Safety Exhaust (Dump) M35 Series

3/2 Double Valve with or without EEZ-ON® (Soft-Start) Module



Port Size			Exhaust Type		
Inlet	Outlet	Exhaust			
1/2	1/2	-	Built-in Silencer	40	
3/4	3/4	-	Built-in Silencer	50	
1/2	1/2	1	Threaded Exhaust Flange*	46	
3/4	3/4	1	Threaded Exhaust Flange*	56	

* Silencer not included but recommended, see accessories.

Pin Configuration Combination*

Solenoid	Sensor	
A	A	AA
A	B	AB
A	C	AC
C	C	CC
D	B	DB
D	C	DC

* Pinouts details, see below.



Model with EEZ-ON®(Soft-Start) and Pressure Gauge



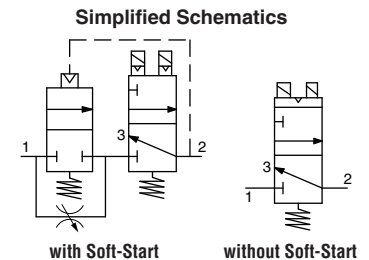
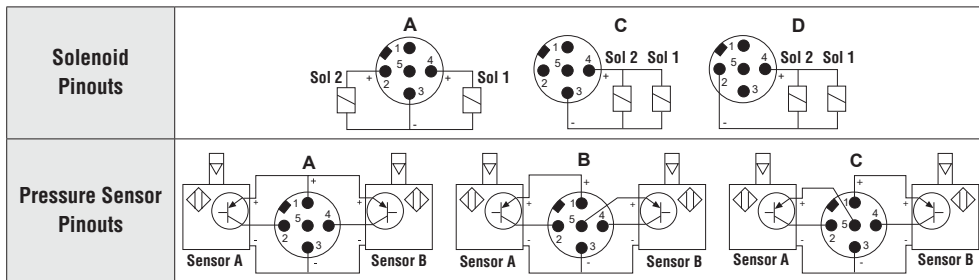
Model without EEZ-ON®(Soft-Start) and Pressure Gauge

Port Size	Basic Size	Soft Start	Valve with Built-in Silencer			Valve with Threaded Exhaust Flange		
			Cv		Weight lb (Kg)	Cv		Weight lb (Kg)
			1-2	2-3		1-2	2-3	
1/2	8	With	4.1	7.5	6.5 (2.9)	4.1	7.57	6.6 (3.0)
1/2	8	Without	4.3	7.5	4.2 (1.9)	4.3	7.57	4.3 (2.0)
3/4	8	With	4.1	7.5	6.5 (2.9)	4.1	7.57	6.6 (3.0)
3/4	8	Without	4.3	7.5	4.2 (1.9)	4.3	7.57	4.3 (2.0)

Digital Pressure Transducer Specifications	Pressure Range psig (bar)	Electrical Output	Electrical Connection	Pressure Port Size	Weight lb (Kg)
	0 (0) to 145 (10)	(1) PNP with (1) 4-20ma	M8, 4 Pin	1/8 NPT male	0.099 (0.045)



Digital Transducer



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Redundant, 3/2 Normally Closed, Dual Poppet	Operating Pressure	30 to 150 psig (2 to 10 bar)
Actuation	Solenoid pilot operated with air assisted spring return. One solenoid per valve element (2 total) – both to be operated synchronously.	Pressure Sensors (2 per valve)	PNP solid state
Mounting	Type: In-line mounted - modular/threaded Orientation: Any, preferably vertical	Pressure Sensors Current Consumption (each sensor)	<23mA (each without contacts)
Solenoids	According to VDE 0580; Rated for continuous duty	Monitoring	Dynamic, cyclical, external with customer supplied equipment. Monitoring should check state of both valve pressure sensors with any and all changes in state of valve control signals.
Voltage	24 volts DC	Minimum Operation Frequency	Once per month, to ensure proper function
Power Consumption (each solenoid)	1.5 watts	Maximum Recommended Allowable Discordance Time:	150 msec
Enclosure Rating	According to DIN 400 50 IP 65	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Electrical Connection	Two 5-pin M12 connectors	Functional Safety Data: Category 4, PL e; B _{10D} : 25,000,000; SIL 3; MTTFD= B _{10D} /(0.1x _{nop}), (n _{op} =number of annual operation cycles)	Certifications: CE Marked for applicable directives, DGVU, CSA/UL.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Compressed air according to ISO 8573-1 Class 7:4:4		

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM® Series D double valves for mechanical power press applications.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



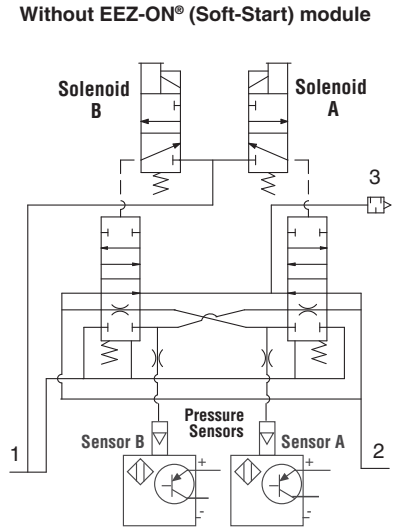
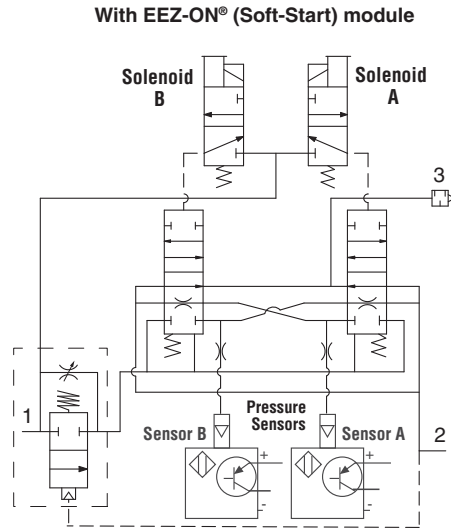
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A

Valves Schematics

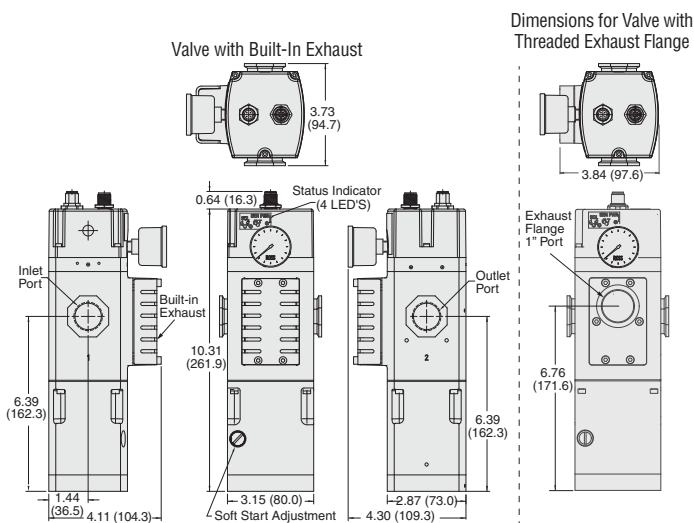


An Integration Guide for the M35 Series valves is available from ROSS to provide information such as operation & monitoring, and validation test procedure for valve operation and external monitoring logic.

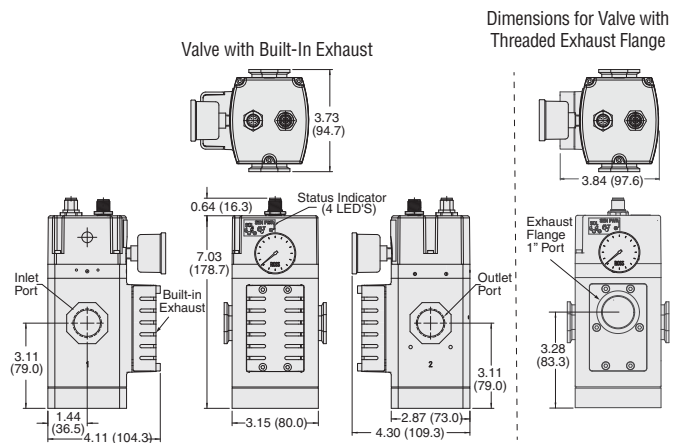
Exhaust Time – Normal and Faulted Conditions (s)													
Volume ft ³ (L)	Normal or Faulted	Valve with Built-in Silencer						Valve with Threaded Exhaust Flange					
		Operating Pressure psig (bar)						Operating Pressure psig (bar)					
		30 (2)		90 (6)		145 (10)		30 (2)		90 (6)		145 (10)	
		to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)
0.071 (2)	N	0.055	0.071	0.094	0.112	0.120	0.135	0.052	0.070	0.093	0.113	0.123	0.142
	F	0.072	0.098	0.147	0.183	0.200	0.247	0.065	0.091	0.137	0.175	0.203	0.272
0.35 (10)	N	0.131	0.208	0.317	0.393	0.424	0.507	0.120	0.191	0.308	0.409	0.437	0.520
	F	0.185	0.301	0.533	0.710	0.789	1.024	0.163	0.300	0.503	0.697	0.805	1.048
0.71 (20)	N	0.226	0.379	0.597	0.746	0.804	0.971	0.204	0.342	0.577	0.779	0.829	0.992
	F	0.326	0.555	1.016	1.368	1.526	1.997	0.285	0.562	0.961	1.349	1.558	2.017
1.41 (40)	N	0.416	0.721	1.155	1.451	1.564	1.899	0.373	0.645	1.115	1.519	1.615	1.937
	F	0.608	1.063	1.983	2.685	3.000	3.941	0.530	1.086	1.878	2.655	3.064	3.957
5.30 (150)	N	1.462	2.604	4.227	5.326	5.743	7.006	1.301	2.310	4.071	5.588	5.934	7.130
	F	2.160	3.855	7.298	9.929	11.107	14.635	1.874	3.968	6.919	9.834	11.345	14.622

Valve Dimensions – inches (mm)

Models with optional EEZ-ON® (soft-start) module

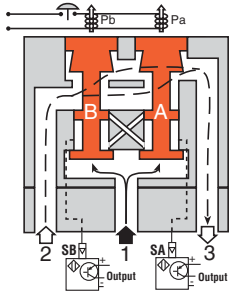


Models without EEZ-ON® (soft-start) module



Control Reliable Double Valves for External Monitoring

M35 Series Valve Operation & Options

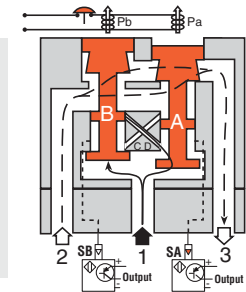
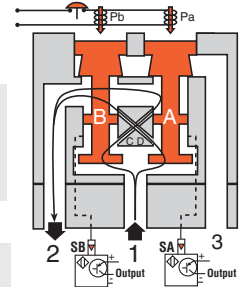


Conditions at Start: Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pressure signals at both sensors SA and SB are exhausted. Sensors outputs SA and SB are ON.

Normal Operation: Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Sensing pressure signals go to each pressure sensor and become equal to inlet pressure. Sensors outputs SA and SB are OFF.

Completion of Normal Cycle: Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described at left.

Detecting a Malfunction: A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below 2% of inlet pressure. Full sensing air pressure from side A goes to sensor SA, and a reduced pressure goes to sensor SB. This full pressure signal causes sensor outputs SA to turn OFF. Sensor outputs SB, with a reduced pressure signal, does not turn OFF. An external monitoring system can detect the malfunction by monitoring the condition of the sensors SA and SB. The external monitoring system may then react accordingly by shutting down the power to the valve solenoids and any other components deemed necessary to stop the machine.



A
A2

ACCESSORIES & OPTIONS

M35 Series valves have both modular receptacles for piping and female threaded ports inside receptacles, which allows either modular connection or direct piping. Mounting accessories listed below are used for modular connection to ROSS MD Series filter-regulator units.

Mounting Brackets & Clamp for Module Connections	
Description	Model Number
Bracket and Screw	R-A118-103
Clamp	R-A118-105
Bracket, Screw, and Clamp	R-A118-105M



End Ports		Model Number	
Port Size	Type	NPT Threads	G Threads
1/2	Female	R-118-100-4	R-118-100-4W
	Male	R-118-109-4F	R-118-109-4FW
3/4	Female	R-118-100-6	R-118-100-6W
	Male	R-118-109-6F	R-118-109-6FW

Extra Port Blocks		
Port Size	Model Number	
	NPT Threads	G Threads
1/2	R-118-106-4	R-118-106-4W



Pressure Gauge	Port Size	Model Number*	Pressure Range psig (bar)	Case Diameter inches (mm)
	1/8	5400A1002	0-160 (0-11)	1.5 (38)

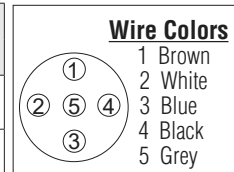
* Center back mounting; male pipe threads.



Silencers for Threaded Exhaust Flange Option	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)	
			NPT Threads	R/Rp Threads		Length	Width
	1	Male	5500A6003	D5500A6003	14.6	5.4 (138)	2.0 (51)



Wiring Kits	Solenoid Connector		Cord Type/Termination		Kit Number	Length meters (feet)	Cord Quantity
	Type	Form	End 1	End 2			
Prewired Connector		M12 5-pin, straight A-coded	Female	Flying Leads	2644B77	5 (16.4)	2
			Female	Male	2645B77	5 (16.4)	2



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



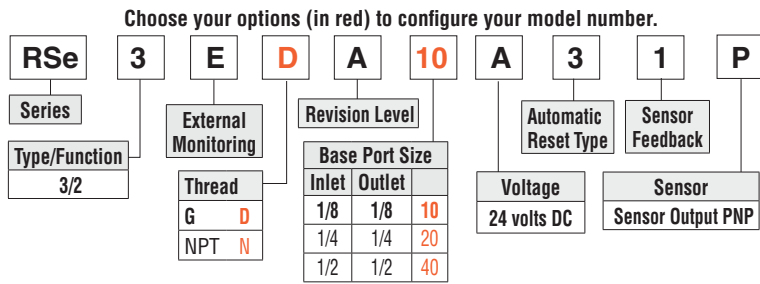
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Control Reliable Double Valves for External Monitoring

Safety Exhaust (Dump) RSe Series

A 3/2 Redundant Double Valve – Sub-base Mounted



(Certifications pending)



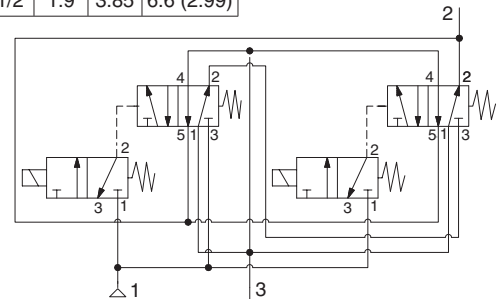
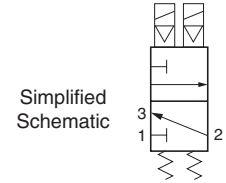
A2

The 3/2 RSe Series valve is designed to supply air to a zone or entire machine/system until signaled to shut off and exhaust residual downstream pneumatic energy from the machine. Thus, reducing the hazards associated with the presence of residual energy during employee access and/or minor servicing. The safety function of the 3/2 RSe Series valve is to shut off supply of pneumatic energy and to exhaust any pneumatic energy from downstream of obstructions such as check valves and closed center function valves.

The RSe Series valves are designed for external monitoring for safe, redundant operation of the valves. The RSe Series valves are constructed of redundant, 3/2 spool type valves, and have an overall function of a single solenoid pilot-operated, spring return valve. Each single valve in the RSe Series is equipped with a PNP proximity sensor. Monitoring both of these sensors on each actuation and de-actuation of the RSe Series valve provides a diagnostic coverage of 99%. Monitoring of these sensors is to be done by an external monitoring system.

An Integration Guide for the RSe Series Valves is available from ROSS to provide information such as operation & monitoring, and validation test procedure for valve operation and external monitoring logic.

Port Size	C _v		Weight lb (Kg)
	1-2	2-3	
1/8	0.44	1	2.9 (1.3)
1/4	0.7	1.47	3.7 (1.7)
1/2	1.9	3.85	6.6 (2.99)



Exhaust Time – Normal and Faulted Conditions (s)	Volume ft ³ (L)	Normal or Faulted	Port Size 1/8						Port Size 1/4						Port Size 1/2					
			Operating Pressure psig (bar)						Operating Pressure psig (bar)						Operating Pressure psig (bar)					
			30 (2)		90 (6)		145 (10)		30 (2)		90 (6)		145 (10)		30 (2)		90 (6)		145 (10)	
			to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)
0.071 (2)	N	F	0.212	0.319	0.391	0.506	0.578	0.698	0.159	0.218	0.290	0.354	0.420	0.493	0.184	0.219	0.290	0.321	0.395	0.430
		F	0.250	0.358	0.432	0.547	0.597	0.715	0.197	0.272	0.361	0.445	0.476	0.560	0.197	0.231	0.316	0.351	0.446	0.488
0.35 (10)	N	F	0.871	1.418	1.704	2.257	2.545	3.073	0.574	0.854	1.098	1.392	1.679	2.007	0.392	0.561	0.658	0.810	1.003	1.165
		F	1.084	1.602	1.897	2.451	2.590	3.114	0.775	1.135	1.461	1.851	1.892	2.294	0.407	0.574	0.744	0.901	1.228	1.429
0.71 (20)	N	F	1.695	2.792	3.344	4.447	5.005	6.043	1.094	1.649	2.108	2.689	3.253	3.901	0.652	0.989	1.119	1.421	1.763	2.083
		F	2.126	3.158	3.729	4.831	5.082	6.113	1.494	2.213	2.836	3.609	3.662	4.462	0.669	1.001	1.280	1.587	2.205	2.605
1.41 (40)	N	F	3.344	5.539	6.625	8.826	9.924	11.982	2.132	3.239	4.127	5.284	6.400	7.687	1.171	1.845	2.039	2.642	3.284	3.920
		F	4.211	6.269	7.391	9.591	10.066	12.110	2.942	4.370	5.586	7.125	7.203	8.798	1.193	1.857	2.350	2.961	4.161	4.957
5.30 (150)	N	F	12.410	20.651	24.670	32.911	36.980	44.647	7.845	11.983	15.233	19.554	23.710	28.515	4.027	6.552	7.104	9.360	11.645	14.022
		F	15.676	23.380	27.537	35.771	37.475	45.096	10.888	16.232	20.712	26.465	26.677	32.643	4.075	6.564	8.238	10.514	14.915	17.896

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Pilot Supply	Internal or External
Actuation	Solenoid pilot operated with spring return One solenoid per valve element – both to be operated synchronously	Operating Pressure	With Internal Pilot Supply: 43 to 145 psig (3 to 10 bar) With External Pilot Supply: 0 to 145 psig (0 to 10 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
Mounting	Type: Base Orientation: Any, preferably vertical	Monitoring	Dynamic, cyclical, external with customer supplied equipment. Monitoring should check state of both valve position sensors with any and all changes in state of valve control signals.
Solenoids	Version as per VDE 0580. Rated for continuous duty Electrical connection according to EN 175301-803 Form C Enclosure rating according to DIN 400 50 IP 65	Minimum Operation Frequency	Once per month, to ensure proper function
Voltage	24 volts DC	Maximum Recommended Allowable Discardance Time:	250 msec
Power Consumption (each solenoid)	1.5 watts on DC	Construction Material	Valve Body: Cast Aluminum Poppet: Stainless Steel Seals: Buna-N
Proximity Sensors (2 per valve)	PNP		
Current Consumption (each sensor)	<23mA		
Temperature	Ambient/Media: 40° to 120°F (4° to 50°C)		
Flow Media	Compressed, filtered air according to ISO 8573-1 Class 7:4:4		
		Pending Functional Safety Data	

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM[®] Series D double valves for mechanical power press applications.

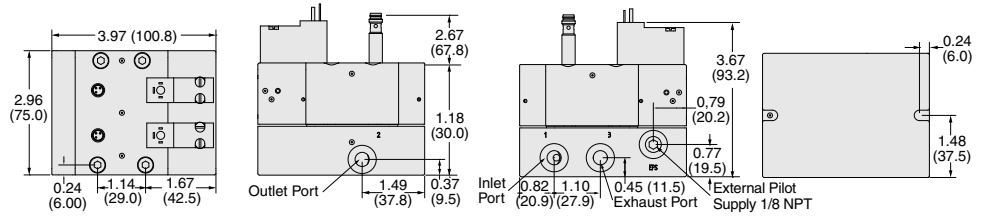
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Control Reliable Double Valves for External Monitoring

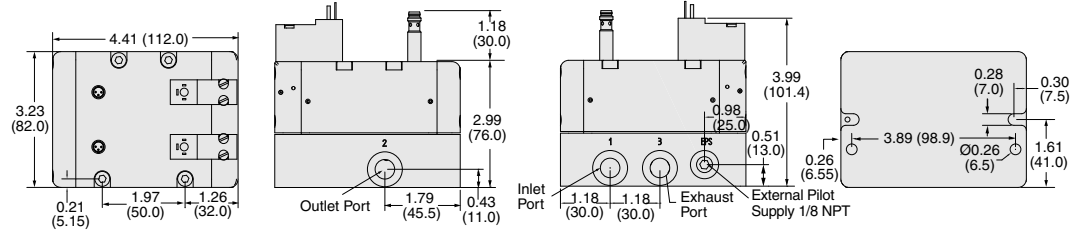
RSe Series Valve Overview & Options

Valve Dimensions – inches (mm)

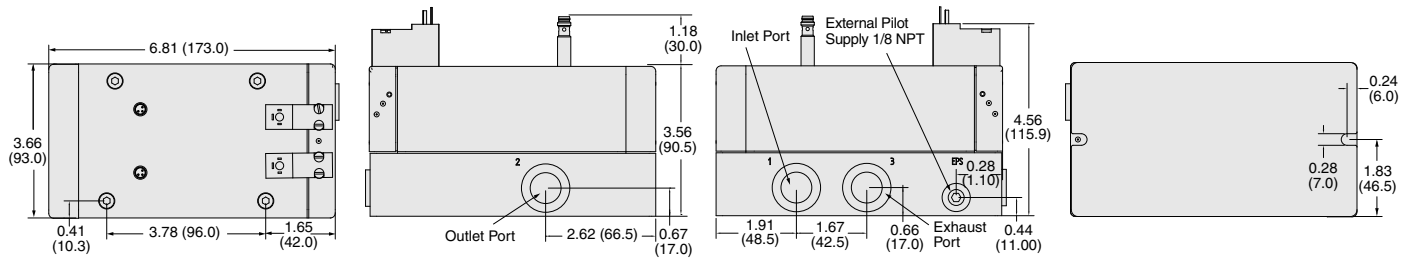
Port Size 1/8



Port Size 1/4



Port Size 1/2



A

A2

ACCESSORIES & OPTIONS

Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Length	Width	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	0.9 (21)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	0.9 (21)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	1.3 (32)	0.2 (0.1)



Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

Electrical Connectors

Connection	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Model Number	
					Without Light	Lighted Connector 24 Volts DC
Solenoid	EN 175301-803 Form C	Prewired Connector (18 gauge)	3 (10)	8-mm	2449K77	2450K77-W
	DIN 43650 Form C	Connector Only	–	–	2452K77	2453K77-W
Feedback Sensor	M8 Connector (sensing)	Prewired Connector	2 (6.5)	–	249L74	–

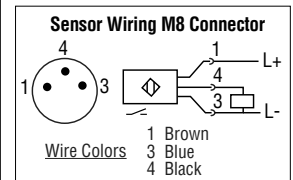
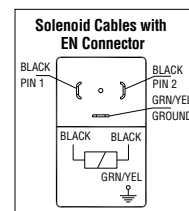


CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Preassembled Wiring Kits

Connector Type	Model Number*	Length meters (feet)
	Lighted Connector	
EN 175301-803 Form C (solenoids) M8 (sensors)	2657B77	2 (6.5)

* Each cable has one connector. This kit includes 2 cables for the sensors (M8), and 2 cables (EN 175301-803 Form C) with connector plus a cord grip for each.

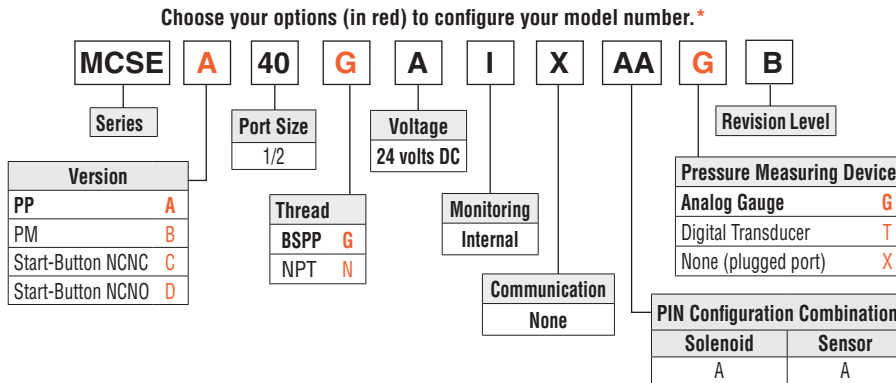


Control Reliable Double Valves with Monitoring

Safety Exhaust (Dump) MCSE Series

A 3/2 Double Valve with EEZ-ON® (Soft-Start) Function

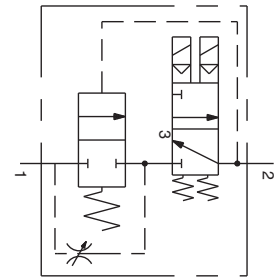
SIL 3
Functional Safe
Cat. 4
PL e



MCSE Valve shown with Pressure Gauge

* EEZ-ON® Soft-Start function can be disabled if not needed.
Sintered bronze silencer included.

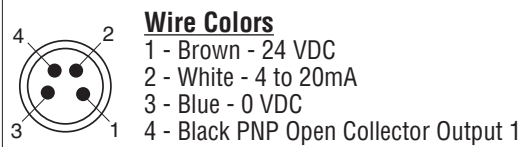
Port Size			C _v		Weight lb (kg)
Inlet	Outlet	Exhaust	1-2	2-3	
1/2	1/2	1/2	3.9	9.4	9.26 (4.2)



Digital Pressure Transducer Specifications				
Pressure Range psig (bar)	Electrical Output	Electrical Connection	Pressure Port Size/Type	Weight lb (Kg)
0 (0) to 145 (10)	(1) PNP with (1) 4-20ma	M8, 4 Pin	1/8 NPT male	0.099 (0.045)

For Digital Pressure Readout, Analog 4-20mA Output, and Transistor Switching Output.

Sensor Pinout with Analog Output



APPLICATIONS: Up to Cat. 4, PL e, e.g., pneumatic control processes, air dump/release.

STANDARD SPECIFICATIONS (for valves on this page):

Design	Redundant, 3/2 Normally Closed, Dual Poppet	Flow Media	Permissible medium Compressed air acc. to ISO 8573-1 Max. particle size 5-µm Oil content of compressed air 0...1 mg/m ³ The oil content of compressed air must remain constant during the life cycle.
Actuation	Electromagnetically externally piloted with air-assisted spring return. One magnet per valve element (2 in total) - both must be operated simultaneously.		Inlet Pressure
Mounting	Type: In-line mounted - modular/threaded Orientation: Any, preferably vertical	Monitoring	Dynamic, cyclic, internal
Electrical Data	See next page	Minimum Operation Frequency	Once per month, to ensure proper function
Standard Voltages	24 volts DC	Functional Safety Data	DC: High, 99% CCF: >65 B10D: see ROSS SISTEMA Library Could be used up to Cat 4, PL e, SIL 3
Temperature	Ambient/Media: 40° to 120°F (4° to 50°C) For temperatures below 4°C, the compressed air must be dried according to ISO 8573-3, class 7.		

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM® Series D double valves for mechanical power press applications.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

ELECTRICAL DATA

Supply voltage	Power pack/mains supply SELV power pack in accordance with DIN EN 60950 for operation in a PELV circuit in accordance with EN/IEC 60204-1	Protection class according to IEC 60529/EN 60529	IP65 (only when assembled and with all electrical plugs connected)
Inputs S12, S22, X2	24 V DC, 8 mA	Electrical connections	1x plug and 1x socket, 5-pin, M12
Clock output S11, 21	20 V DC, 10 mA per output	Tightening delay	< 150 ms
Cable length	1500 m at 1.5 mm ² 2500 m at 2.5 mm ²	Drop-out delay	In case of emergency stop: < 10 ms In case of power failure: < 10 s
Line resistance	max. 40 Ω	Override time in case of voltage drop	5 ms
Power consumption	280 mA	Time until ready for operation after switch on	> 1.0s
		Switching capacity of signal outputs	41–42: 24 V DC, 0.2 A

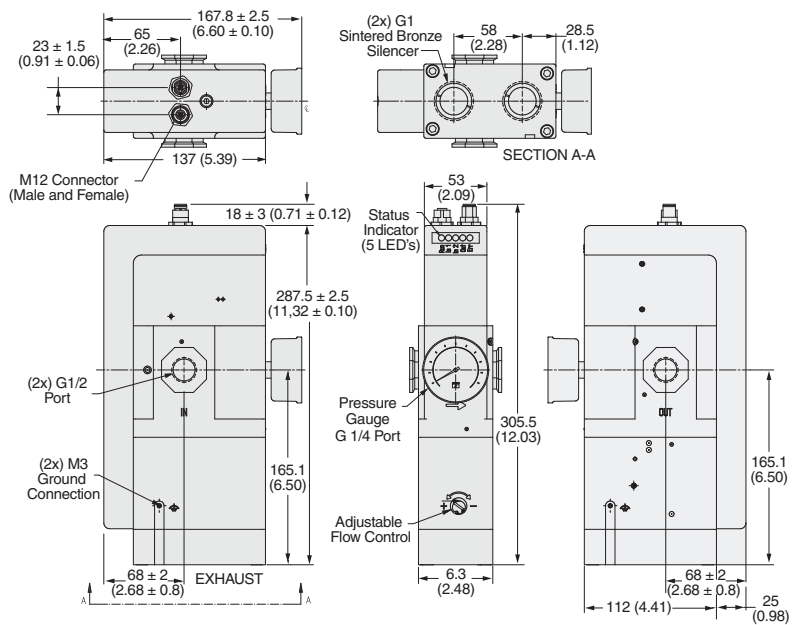
The MCSE Series double valves are safety components designed and manufactured in accordance with Machinery Directive 2006/42/EC. Its intended use is to control ventilation and exhaust in compressed air systems or similar applications, as well as to avoid unexpected switch-on and release of energy in pneumatic tubing systems and end devices in the industry.

The MCSE Series double valves are designed for safe, redundant operation and have internal monitoring. The valves consist of redundant 3/2 valves and have the overall function of an externally piloted valve with spring return.

Soft-Start

The MCSE Series double valves have a EEZ-ON® soft-start function. The function of the soft-start module is that the output pressure increases slower than normal during pressurization, until it reaches approximately 50% of the inlet pressure. The valve then opens fully at this point and fills the system with the full flow rate. This feature can be used to reduce the surge of a sudden, quick pressure application of cylinders. This function is particularly useful when inline flow controllers are placed in the cylinder control lines. The soft-start function could be bypassed by fully opening.

Valve Dimensions – inches (mm)



OPTIONS

Wiring Kit	Kit Number	Length
	2431H77	Wiring Kit - 5 meters (16.4 feet). Includes two cords, and the cord grips.

Control Reliable Double Valves with Dynamic Monitoring and Memory

Safety Exhaust (Dump) DM²® Series C

A

Basic Size 2, 4, 8, 12 and 30

Dynamic Monitoring With Complete Memory: Memory, monitoring, and air flow control functions are simply integrated into two identical valve elements. Valves lock-out due to asynchronous movement of valve elements during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.

An Action is Required for Reset – cannot be reset by removing and re-applying supply pressure. Reset can only be accomplished by the integrated electrical (solenoid) reset.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without in-line lubrication.

Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition.

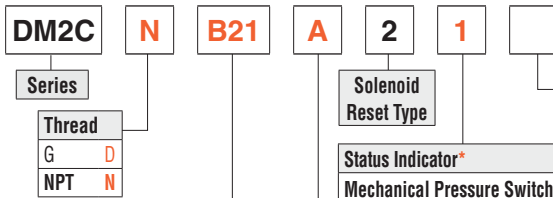
Silencers: All models include high flow, clog resistant silencers.

Mounting: Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

Basic Size 12 and 30

Intermediate Pilots: Increases pilot air flow for fast valve response, making it possible to use the same size solenoids as valve sizes 2, 4 & 8, thereby reducing electrical power requirements for these larger valves.

Choose your options (in red) to configure your model number.



Basic Size	Port Size		Revision Level	
	Inlet	Outlet		
2	1/4	1/4	B	B20
	3/8	3/8		B21
	Valve Only (No Base)		B	B2X
4	1/2	1/2	A	A42
	Valve Only (No Base)			A
8	3/4	3/4	A	A54
	1	1		A55
	Valve Only (No Base)		A	A5X
12	1	1	A	A66
	Valve Only (No Base)			A
30	1½	2	A	A88
	Valve Only (No Base)			A

Voltage*	
24 volts DC	A
110 volts AC, 50 Hz	B
120 volts AC, 50/60 Hz	B

* For other voltages consult ROSS.

Other OPTIONS	
EN 175301-803 Form A*	Leave (connector not included) Blank
M12 (connector included)	005

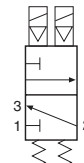
*See options for connectors or wiring kits.

Basic Size	Inlet Port Size	Cv		Weight lb (Kg)
		1-2	2-3	
2	1/4	1.67	2.61	5.3 (2.4)
	3/8	2.17	3.57	5.3 (2.4)
4	1/2	3.01	6.51	5.9 (2.6)
	8	3/4	4.20	9.36
		1	4.32	9.36
12	1	8.68	17.31	15.3 (3.7)
30	1½	20.11	55.10	34.7 (15.1)

Valve and base assembly with status indicator.



ISO 13849-1
CAT 4, PL e



Simplified Schematic

Explosion proof valves available, see explosion proof valves.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual Poppet	Flow Media	Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46)
Mounting	Type: Base Orientation: Vertically with pilot solenoids on top	Operating Pressure	Basic Size 2: 45 to 150 psig (3.1 to 10.3 bar). Basic Size 4, 8, 12, 30: 30 to 120 psig (2.1 to 8.3 bar)
Solenoids	According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty	Mechanical Pressure Switch (Status Indicator) Rating	Contacts - 0.1 A, 125/250 volts AC; 0.1 A, 30 volts DC; 0.3 A, 60 volts DC
Voltage/Power Consumption (each solenoid)	Basic Size 2, 4, 12 & 30 Primary and Reset Solenoids: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC	Solid State Pressure Switch (Status Indicator) Rating	Supply Voltage - 8-30 V DC, Current Consumption <4mA
	Basic Size 8 Primary Solenoids: 15 watts on DC; 36 VA inrush and 24.6 VA holding on AC Reset Solenoids: 6.0 watts on DC; 15.8 VA inrush and 10.4 VA holding on AC	Monitoring	Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout
Enclosure Rating	IP65, IEC 60529	Minimum Operation Frequency	Once per month, to ensure proper function
Electrical Connection	EN 175301-803 Form A, or M12	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient: 15° to 122°F (-10° to 50°C) Media: 40° to 175°F (4° to 80°C)	Functional Safety Data:	Category 4, PL e; B _{10D} : 20,000,000; PFH _D : 7.71x10 ⁻⁹ ; MTTFD: 301.9 (n _{op} : 662400) Certifications: CE Marked for applicable directives, DGVV Test, CSA/UL, TSSA for appropriately tested valves. Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM²® Series D double valves for mechanical power press applications.

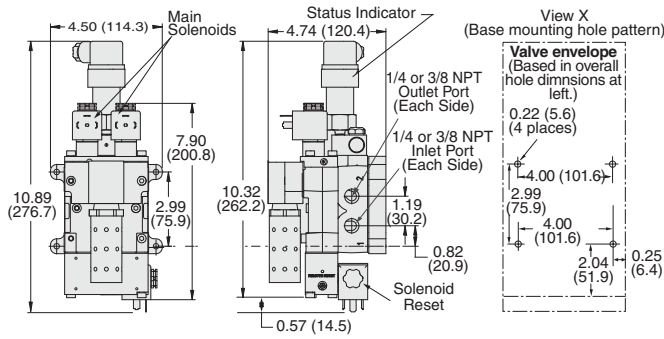
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Control Reliable Double Valves with Dynamic Monitoring and Memory

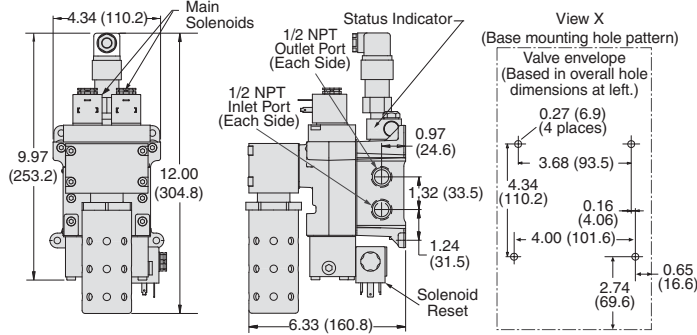
DM²® Series C Valve Technical Data

Valve Dimensions – inches (mm)

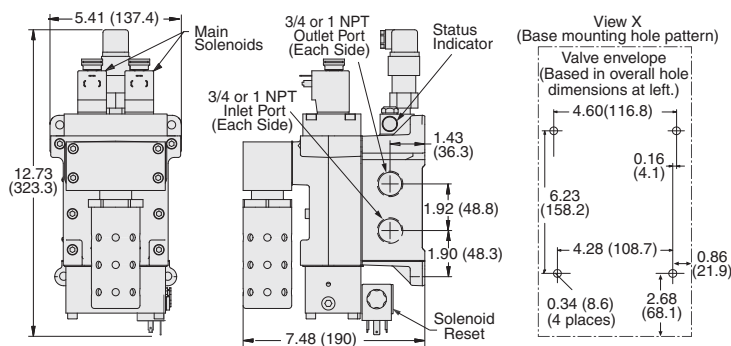
Basic Size 2



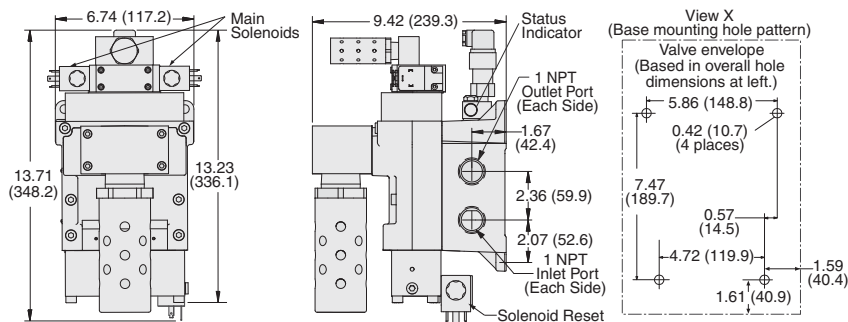
Basic Size 4



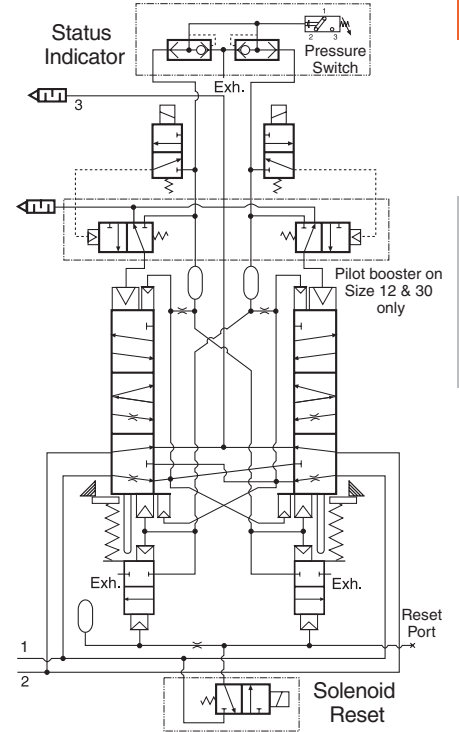
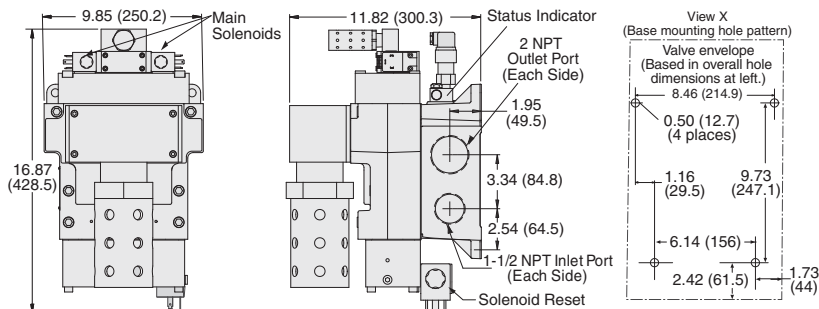
Basic Size 8



Basic Size 12



Basic Size 30



Schematic - Valve de-actuated

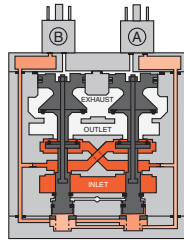


Control Reliable Double Valves with Dynamic Monitoring and Memory

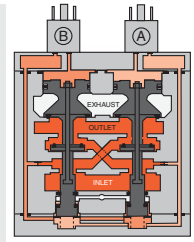
DM²® Series C Valve Operation & Options

A

Valve De-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply/timing chambers A and B. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position. (Air passages shown out of position and reset adapter omitted for clarity.)

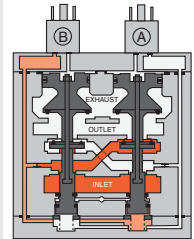


Valve Actuated: Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position, where inlet air flow to crossover passages is fully open, inlet poppets are fully open and exhaust poppets are fully closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.

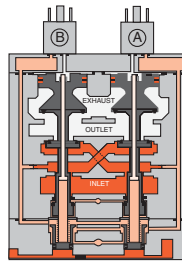


A2

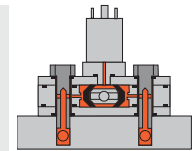
Valve Locked-out: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element. Air pressure in the crossover acts on the differential of side B stem diameters creating a latching force. Side A is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position. Inlet air flow on side A into its crossover is restricted, and flows through the open inlet poppet on side B, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.



Resetting the Valve: The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied. A remote reset signal must be applied to reset the valve. Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset (Reset adapter added to illustration.). De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize. Reset pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid mounted on the reset adapter. De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize. Reset air pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid, or a manual push button mounted on the reset adapter.



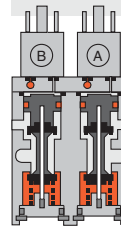
Status Indicator: The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Status indicator in normal ready-to-run position.

Basic Size 12 and 30 valves require relatively large pilots to actuate and de-actuate the main valve elements. In order to achieve extremely quick valve response for such large pilots, a 2-stage solenoid pilot system is incorporated into the design. This keeps the required electrical current to operate the pilots to a minimum.

Basic Size 12 & 30 pilots



ACCESSORIES & OPTIONS

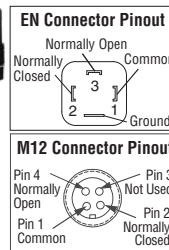
Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
		Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
		Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Downstream Pressure Monitoring

Pressure Switches/Sensor			
Connection Type	Model Number	Port Threads	
Pressure Switch EN 175301-803 Form A	586A86	1/8 NPT	
Pressure Switch M12	1153A30	M10x1	
Solid State Pressure Sensor M12	1335B30W		

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Redundant Downstream Feedback Switch

Model Number	Port Threads
RC026-13	3/8 NPT

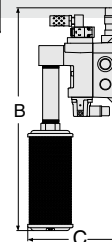
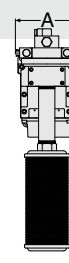
- May be installed downstream on all double valves
- Provides a redundant means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling



High-Flow, Noise Reduction Silencer Kits

Port Size	Kit Number*		Flow scfm (l/s)	Dimensions inches (mm)			
	NPT Threads	G Threads		A	B (NPT)	B (G)	C
4	2324H77	2329H77	800 (378)	4.34 (110.2)	19.06 (484.1)	21.40 (543.6)	7.27 (184.7)
8	2325H77	2329H77	800 (378)	5.41 (137.4)	21.18 (538.0)	23.52 (597.4)	8.41 (213.6)
12	2326H77	2330H77	2080 (982)	6.74 (117.2)	25.85 (656.6)	28.20 (716.3)	10.66 (270.8)
30	2327H77	2331H77	7200 (3398)	9.85 (250.2)	41.55 (1055.4)	41.55 (1055.4)	13.47 (342.1)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.



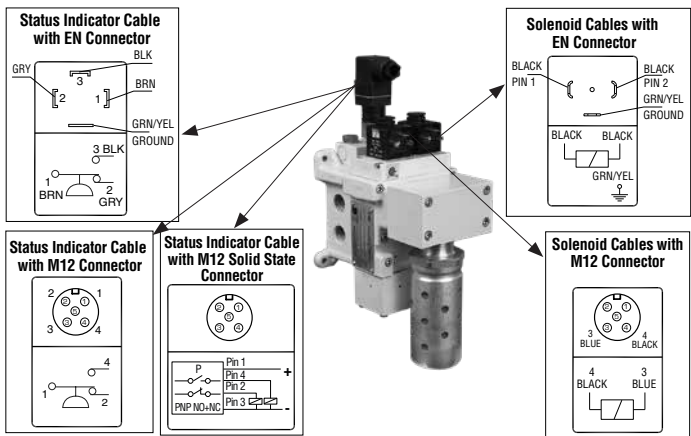
Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.

Preassembled Wiring Kits

A

Preassembled Wiring Kits				
Solenoid Connector Type	Kit Number*			Length meters (feet)
	Connector without Light	Lighted Connector		
		24 Volts DC	120 Volts AC	
EN 175301-803 Form A	2283H77	2532H77-W	2532H77-Z	5 (16.4)
	2284H77	2533H77-W	2533H77-Z	10 (32.8)
M12	2288H77	-	-	5 (16.4)
	2289H77	-	-	10 (32.8)

* Each cable has one connector.
These kits include 1 cable for the status indicator, and 3 cables with connector plus a cord grip for each.



A2

Wiring Kits with J-Box

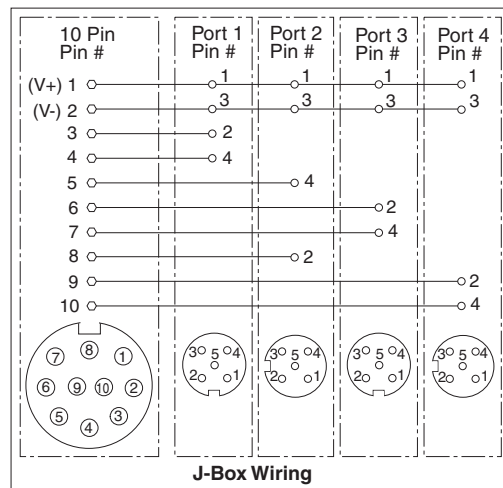
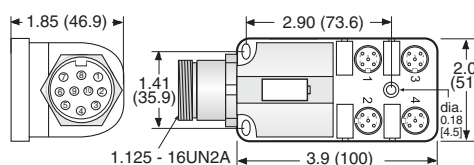
Connector Types	Kit Number*	Length meters (feet)
M12 - DIN	2249H77	1 (3.3)
M12 - M12	2250H77	1 (3.3)

*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM^{2®} Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and a EN connector on the other end (M12-DIN).

Standard valves come with DIN type solenoid connections, but could be bought with M12 type connections as well. Therefore we also offer a kit that provides solenoid cables with an M12 connector on each end (M12-M12).



10 PIN MINI Cable

Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

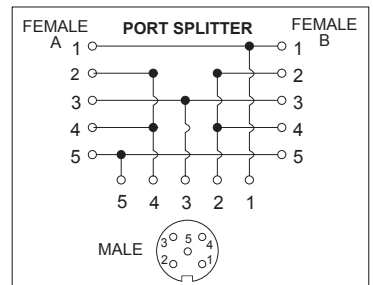
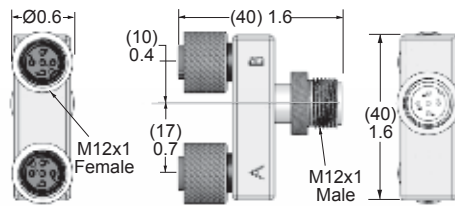
- | | | | |
|-------------------|----------------------------|---------------|----------------|
| PIN # | PIN # | Wire Colors: | Wire Colors: |
| 1 +24 volts DC | 6 - | Orange | Orange w/Black |
| 2 Common volts DC | 7 Remote Reset | Blue | Red |
| 3 - | 8 - | White w/Black | Green/Yellow |
| 4 Solenoid A | 9 Remote Valve Fault Light | Red w/Black | Black |
| 5 Solenoid B | 10 Remote System OK Light | Green w/Black | White |



Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)

Some customers prefer to monitor downstream pressure in addition to using the DM^{2®} or DM¹ Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).



Pressure switch available separately, see valve options.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Control Reliable Double Valves with Dynamic Monitoring and Memory

Safety Exhaust (Dump) DM²® Series E

A

Dynamic Monitoring with Memory: Memory, monitoring, and air flow control functions are integrated into two identical valve elements for CAT 4 applications, except control of the clutch/brake mechanism on mechanical power press. Valves lock-out if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.

An Action is Required for Reset – cannot be reset by removing and re-applying supply pressure or electrical power. Reset can only be accomplished by the integrated electrical (solenoid) reset.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without in-line lubrication.

Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition.

Silencers: All models include high flow, clog resistant silencers.

Mounting: In-line mounted with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included).



ISO 13849-1
CAT 4, PL e

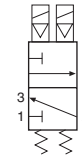


A2

Choose your options (in red) to configure your model number.

DM2E	N	A	20	A	2	1	
Series	Revision Level			Solenoid Reset Type	Status Indicator		Connection Type
Thread	Basic Size	Port Size Inlet	Port Size Outlet		Mechanical		EN 175301-803 Form A* Leave (connector not included) Blank
G D	2	1/4	1/4		Pressure Switch 1		M12 (connector included) 005
NPT N		3/8	3/8		None X		*See options for connectors or wiring kits.
	Exhaust port size 1/2"		20				
			21				
				24 volts DC			
				A			
				110 volts AC, 50 Hz			
				B			
				120 volts AC, 50/60 Hz			
				* For other voltages consult ROSS.			

Inlet Port Size	Cv		Weight lb (Kg)
	1-2	2-3	
1/4	1.3	2.4	5.6 (2.43)
3/8	2.2	2.4	5.6 (2.43)



Simplified Schematic

STANDARD SPECIFICATIONS (for valves on this page):

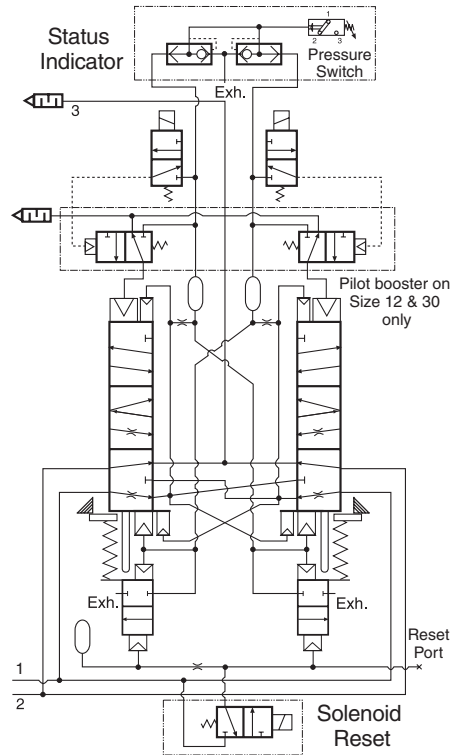
Construction Design	Dual Poppet	Mechanical Pressure Switch (Status Indicator) Rating	Contacts - 0.1 A, 125/250 volts AC; 0.1 A, 30 volts DC; 0.3 A, 60 volts DC
Mounting	Type: Line Orientation: Preferably horizontally (valve on top of base) or vertically with pilot solenoids on top	Solid State Pressure Switch (Status Indicator) Rating	Contacts - 0.1 A, 125/250 volts AC; 0.1 A, 30 volts DC; 0.3 A, 60 volts DC Supply Voltage - 8-30 V DC, Current Consumption <4mA
Solenoids	According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty	Monitoring	Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout
Voltage/Power Consumption (each solenoid)	24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC	Minimum Operation Frequency	Once per month, to ensure proper function
Enclosure Rating	IP65, IEC 60529	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Electrical Connection	EN 175301-803 Form A, or M12	Functional Safety Data:	Category 4, PL e; B _{10D} : 20,000,000; PFH _D : 7.71x10 ⁻⁹ ; MTTF _D : 301.9 (n _{op} : 662400)
Temperature	Ambient: 15° to 122°F (-10° to 50°C) Media: 40° to 175°F (4° to 80°C)	Certifications:	CE Marked for applicable directives, DGUV Test, CSA/UL, TSSA for appropriately tested valves
Flow Media	Filtered, lubricated or unlubricated air (mineral oils according to DIN 51519, viscosity classes 32-46)	Vibration/Impact Resistance:	Tested to BS EN 60068-2-27
Operating Pressure	30 to 120 psig (2.1 to 8.3 bar)		

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM²® Series D double valves for mechanical power press applications.

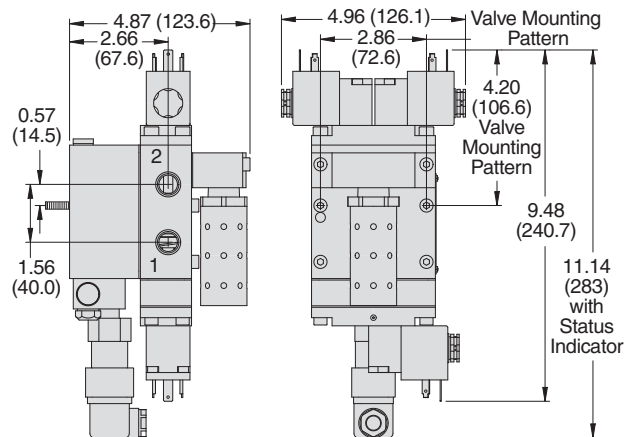
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Schematic - Valve de-actuated



Valve Dimensions – inches (mm)

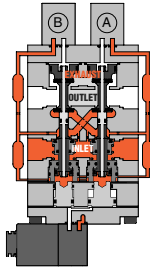


Control Reliable Double Valves with Dynamic Monitoring and Memory

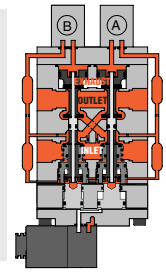
DM²® Series E Valve Operation & Options

A

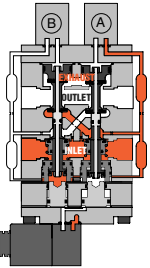
Valve De-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages from the inlet chamber is restricted by orifices that allow air pressure to bypass the lower inlet poppets. Flow is sufficient to quickly pressurize the pilot supply/timing chambers on both sides A and B. The upper inlet poppets prevent air flow from the crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the de-actuated position. (Air passages shown out of position for clarity.)



Valve Actuated: Energizing the pilot solenoids simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated position, where inlet air flow to outlet is open and both exhaust poppets are closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the main solenoids causes the valve elements to return to the ready-to-run (de-actuated) position.



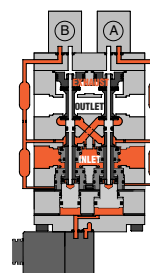
A2



Asynchronous Operation: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will shift into a locked-out position. In the locked-out position, one crossover and its related timing chambers will be exhausted, and the other crossover and its related timing chambers will be pressurized. The valve element (side A) that is partially actuated has pilot air available to actuate it, but there is no air pressure on the return piston to de-actuate that valve element. Air pressure in the crossover acts on the differential of side A stem diameters creating a latching force. Side B is in the de-actuated position, but has no pilot air available to actuate with and has full pressure on its upper and lower inlet poppets and return piston to hold it in place. Inlet air flow on side B into its crossover is restricted and flows through the open upper inlet poppet on side A, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. Also, the return springs can only return the valve elements to the intermediate (locked-out) position. Therefore, the valve will remain in the locked-out position even if the inlet air supply is removed and re-applied. A reset signal must be applied intentionally in order to reset the valve.

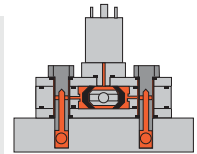
Resetting the Valve: Reset is accomplished by momentarily energizing the reset solenoid. Actuation of the reset solenoid provides inlet air pressure to the reset pistons which physically push the main valve elements to their de-actuated position. Inlet air pressurizes the crossovers and volume chambers, thereby applying air to the return pistons which then hold the upper inlet poppets on seat. De-actuation of the reset solenoid removes pressure from the lower side of the reset pistons, thus allowing them to return to their de-actuated position.

Reset Anti-tie-down Feature: Attempting to energize the valve's main solenoids while the reset solenoid is energized will cause side B to shift (overcoming the pressure on the small reset piston), but side A will not move due to the pressure on the larger reset piston on that side. This will cause the valve to go into and remain in the locked-out position until a reset signal is applied while the main solenoids are de-energized.



Status Indicator:

The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or when inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



OPTIONS

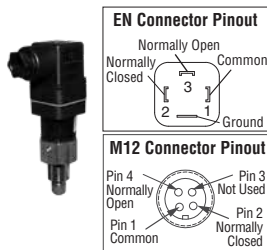
Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
		Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
		Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
		Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Downstream Pressure Monitoring

Pressure Switches		
Connection Type	Model Number	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Redundant Downstream Feedback Switch	Model Number	Port Threads
	RC026-13	3/8 NPT

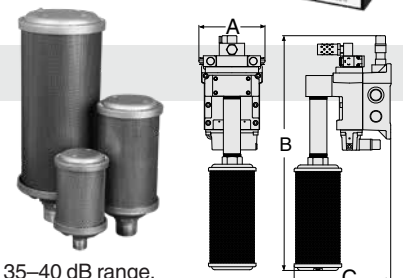
- May be installed downstream on all double valves
- Provides a redundant means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling



High-Flow, Noise Reduction Silencer Kits

Basic Size	Kit Number*		Avg. C _v	Dimensions inches (mm)			
	NPT Threads	R Threads		A	B (NPT)	B (R)	C
2	2323H77	2328H77	256 (121)	4.96 (126.1)	14.24 (361.7)	16.05 (407.7)	5.68 (144.3)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.



Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

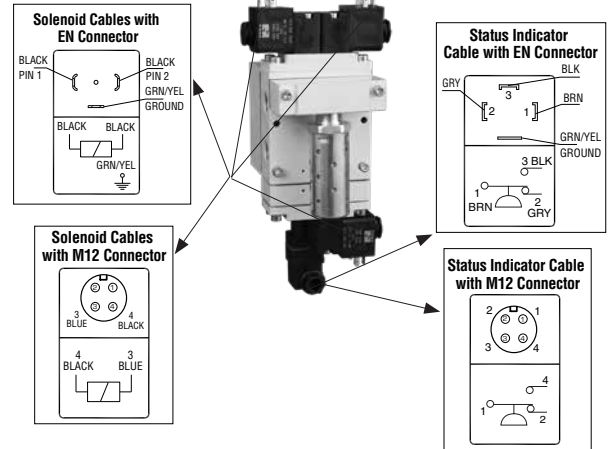
Wiring Kits

A
A2

Preassembled Wiring Kits				
Solenoid Connector Type	Kit Number*			Length meters (feet)
	Connector without Light	Lighted Connector		
		24 Volts DC	120 Volts AC	
EN 175301-803 Form A	2283H77	2532H77-W	2532H77-Z	5 (16.4)
	2284H77	2533H77-W	2533H77-Z	10 (32.8)
M12	2288H77	-	-	5 (16.4)
	2289H77	-	-	10 (32.8)

* Each cable has one connector.

These kits include 1 cable for the status indicator, and 3 cables with connector plus a cord grip for each.



Wiring Kits with J-Box

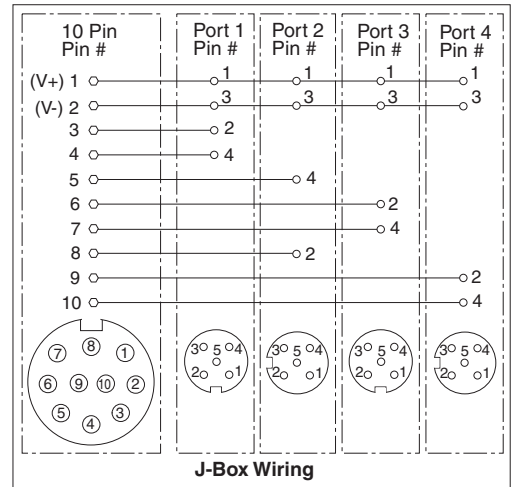
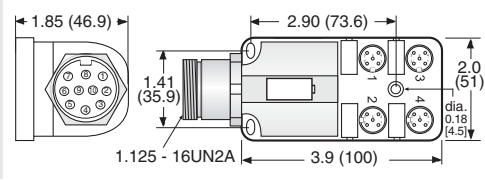
Connector Types	Kit Number*	Length meters (feet)
M12 - DIN	2249H77	1 (3.3)
M12 - M12	2250H77	1 (3.3)

*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM² Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and a EN connector on the other end (M12-DIN).

Standard valves come with DIN type solenoid connections, but could be bought with M12 type connections as well. Therefore we also offer a kit that provides solenoid cables with an M12 connector on each end (M12-M12).

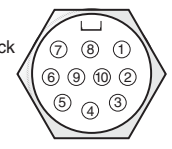


10 PIN MINI Cable

Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

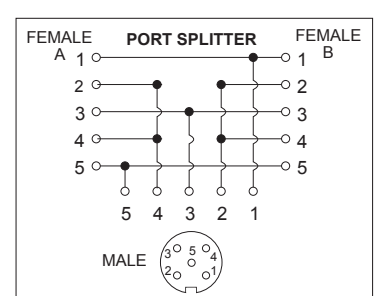
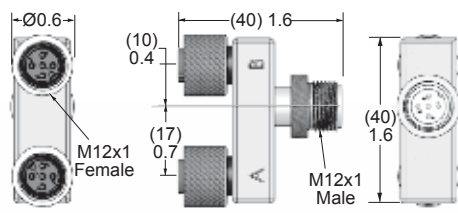
- | | | | |
|-------------------|----------------------------|---------------|----------------|
| PIN # | PIN # | Wire Colors: | Wire Colors: |
| 1 +24 volts DC | 6 - | Orange | Orange w/Black |
| 2 Common volts DC | 7 Remote Reset | Blue | Red |
| 3 - | 8 - | White w/Black | Green/Yellow |
| 4 Solenoid A | 9 Remote Valve Fault Light | Red w/Black | Black |
| 5 Solenoid B | 10 Remote System OK Light | Green w/Black | White |



Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)

Some customers prefer to monitor downstream pressure in addition to using the DM² or DM¹ Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).



Pressure switch available separately, see valve options.

Control Reliable Double Valves with Dynamic Monitoring and Automatic Reset

Safety Exhaust (Dump) DM¹ Series C

A

Dynamic Monitoring: Monitoring and air flow control functions are integrated into two identical valve elements for CAT 4 applications. The valve exhausts downstream air if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply. If the abnormality clears itself, the valve will return to the ready-to-run state; there is no memory of the abnormal behavior, as in the ROSS DM² Series E and DM² Series C products that require an intentional reset following lockout.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without in-line lubrication.

Ready-to-run: If an abnormality clears itself upon the removal of electricity to both solenoids, it will be ready-to-run again. It does not remember the abnormality and stay in a locked-out state until intentionally reset. Therefore, cumulative abnormalities may go undetected.

Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the “ready-to-run” condition or has experienced abnormal function. MUST be integrated into machine controls in order to prevent run signal until fault is cleared in valve. This indicator only reports status, it is not part of a lockout function.

Silencers: All models include high flow, clog resistant silencers.

Mounting: Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

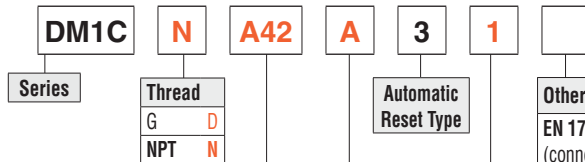
A2



ISO 13849-1
CAT 4, PL e



Choose your options (in red) to configure your model number.



Basic Size	Port Size		Revision Level	Code
	Inlet	Outlet		
2	1/4	1/4	B	B20 B21
	3/8	3/8		
4	1/2	1/2	A	A42 A4X
	Valve Only (No Base)			
8	3/4	3/4	A	A54 A55
	1	1		

Voltage*

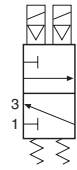
24 volts DC	A
110 volts AC, 50 Hz	B
120 volts AC, 50/60 Hz	B

* For other voltages consult ROSS.

Status Indicator*

Mechanical Pressure Switch	1
Solid State Pressure Sensor	2
None /Valve Only (N/A)	X

*Installed in the base.



Simplified Schematic

Basic Size	Inlet Port Size	Cv		Weight lb (Kg)
		1-2	2-3	
2	1/4	1.67	2.61	5.3 (2.4)
	3/8	2.17	3.57	5.3 (2.4)
4	1/2	3.01	6.51	5.9 (2.6)
8	3/4	4.20	9.36	8.4 (3.7)
	1	4.32	9.36	8.4 (3.7)

Valve and base assembly with status indicator.

Explosion proof solenoid pilot available for basic size 2 & 4 valves, for more information consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual Poppet	Operating Pressure	Basic Size 2: 45 to 150 psig (3.1 to 10.3 bar). Basic Size 4 & 8: 30 to 120 psig (2.1 to 8.3 bar)
Mounting	Type: Base Orientation: Preferably horizontally (valve on top of base) or vertically with pilot solenoids on top	Mechanical Pressure Switch (Status Indicator) Rating	Contacts - 0.1 A, 125/250 volts AC; 0.1 A, 30 volts DC; 0.3 A, 60 volts DC
Solenoids	According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty	Solid State Pressure Switch (Status Indicator) Rating	Supply Voltage - 8-30 V DC, Current Consumption <4mA
Voltage/Power Consumption (each solenoid)	Basic Size 2 & 4 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz. 5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC. Basic Size 8 15 watts on DC; 36 VA inrush and 24.6 VA holding on AC	Monitoring	Dynamically, cyclically, internally during each actuating and de-actuating movement
Enclosure Rating	IP65, IEC 60529	Minimum Operation Frequency	Once per month, to ensure proper function
Electrical Connection	EN 175301-803 Form A, or M12	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient: 15° to 122°F (-10° to 50°C) Media: 40° to 175°F (4° to 80°C)	Functional Safety Data:	Category 4, PL e; B _{10D} : 20,000,000; PFH _D : 7.71x10 ⁻⁹ ; MTTFD: 301.9 (n _{op} : 662400) Certifications: CE Marked for applicable directives, DGVV Test, CSA/UL, TSSA for appropriately tested valves. Vibration/Impact Resistance: Tested to BS EN 60068-2-27.
Flow Media	Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46)		

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM² Series D double valves for mechanical power press applications.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

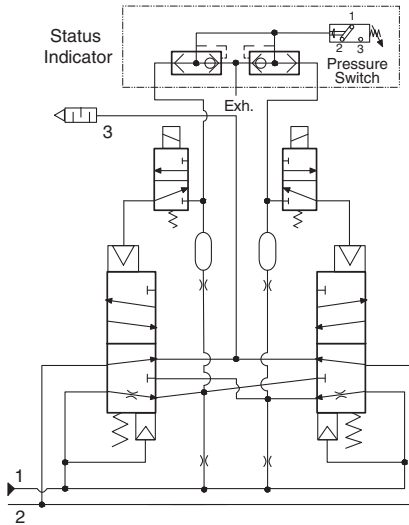
Control Reliable Double Valves with Dynamic Monitoring and Automatic Reset

DM¹ Series C Valve Technical Data

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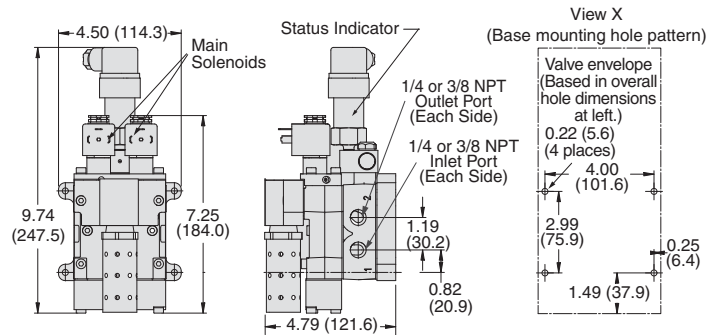
A2

Schematic - Valve de-actuated

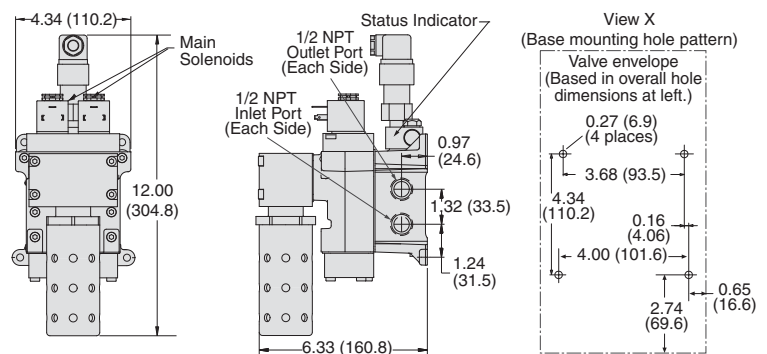


Valve Dimensions – inches (mm)

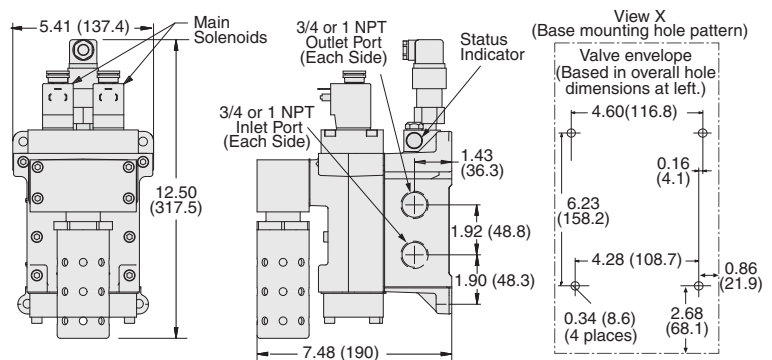
Basic Size 2



Basic Size 4



Basic Size 8

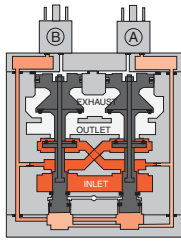


Control Reliable Double Valves with Dynamic Monitoring and Automatic Reset

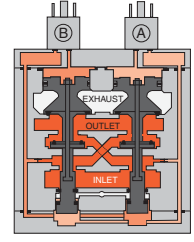
DM¹ Series C Valve Operation & Options

A

Valve De-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages from the inlet chamber is restricted by orifices that allow air pressure to bypass the lower inlet poppets. Flow is sufficient to quickly pressurize the pilot supply/timing chambers on both sides A and B. The upper inlet poppets prevent air flow from the crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the de-actuated position. (Internal air passages shown out of the valve body for clarity.)



Valve Actuated: Energizing the pilot solenoids simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated position, where inlet air flow to outlet is open and both exhaust poppets are closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the main solenoids causes the valve elements to return to the ready-to-run (de-actuated) position.

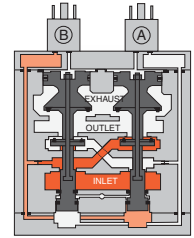


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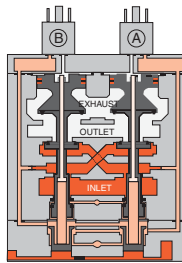
Asynchronous Operation: If the valve elements operate in a sufficiently asynchronous manner on ACTUATION, the valve will shift into a position where one crossover and its related timing chambers will be exhausted, and the other crossover and its related timing chambers will be pressurized.

In the illustration, side B is in the de-actuated position, but has no pilot air available to actuate with and has full pressure on its upper and lower inlet poppets and return piston to hold it in place.

Inlet air flow on side B into its crossover is restricted and flows through the open upper inlet poppet on side A, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. Once the main solenoids are de-energized, actuating pressure is removed from the top of the main pistons and then the lower inlet poppet return spring along with inlet air pressure acting on the side A return piston will push side A back into the de-actuated position. Inlet air pressurizes the crossovers and volume chambers. Pressure in the crossovers helps hold the upper inlet poppets on seat. The valve will then be in the ready-to-run position. On the next attempt to actuate normally, if side B is still unable to actuate synchronously with side A, the same sequence of events described above will occur again.

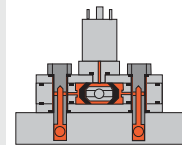


WARNING: If asynchronous operation occurs while DE-ACTUATING, the pilot supply/timing chambers on one side will still be exhausted as described above. However, this could be a temporary situation because the cause of the asynchronous operation may be able to correct itself allowing the stuck or slow acting side of the valve to eventually move back into the de-actuated position. Once the slow or stuck side has de-actuated, the pilot supply/timing chambers that were exhausted will then repressurize. If an external monitoring system is only checking the status indicator periodically this fault signal could be missed. The machine's safety system must be designed to ensure that this does not cause a hazardous situation.



Status Indicator:

The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve operation is sufficiently asynchronous or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Status indicator in normal ready-to-run position

OPTIONS

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
		Connector for threaded conduit (1/2 inch electrical conduit fittings)		10-mm	371K77	383K77-W	383K77-Z
		Connector Only	–	–	723K77	724K77-W	724K77-Z
		Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Downstream Pressure Monitoring

Pressure Switches/Sensor			EN Connector Pinout	M12 Connector Pinout	Redundant Downstream Feedback Switch	Model Number	Port Threads
Connection Type	Model Number	Port Threads					
EN 175301-803 Form A	586A86	1/8 NPT				RC026-13	3/8 NPT
M12 Pressure Switch	1153A30	M10x1					
M12 Solid State Pressure Sensor	1335B30W						

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

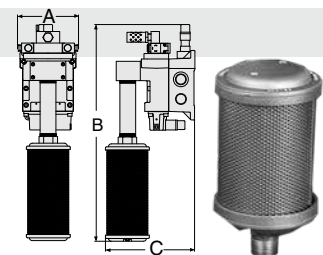
- May be installed downstream on all double valves
- Provides a redundant means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

High-Flow, Noise Reduction Silencer Kits

Basic Size	Kit Number*		Flow scfm (l/s)	Dimensions inches (mm)			
	NPT Threads	G Threads		A	B (NPT)	B (G)	C
2, 4	2324H77	2329H77	800 (378)	4.34 (110.2)	19.06 (484.1)	21.40 (543.6)	7.27 (184.7)
8	2325H77	2339H77	800 (378)	5.41 (137.4)	21.18 (538.0)	23.52 (597.4)	8.41 (213.6)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.

Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

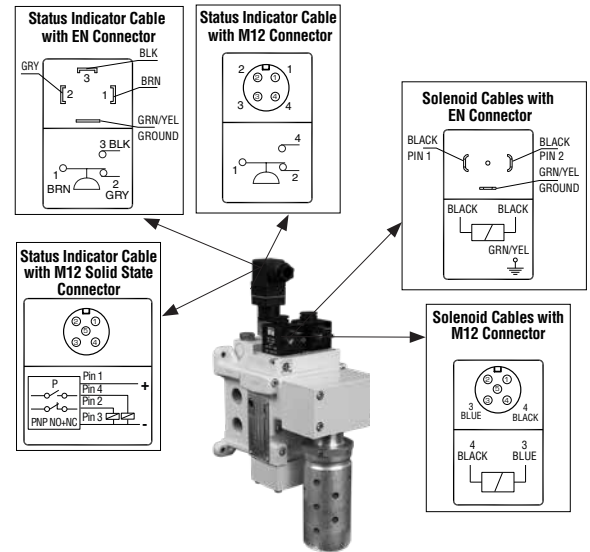
Wiring Kits

Preassembled Wiring Kits				
Solenoid Connector Type	Kit Number			Length meters (feet)
	Connector without Light	Lighted Connector		
		24 Volts DC	120 Volts AC	
EN 175301-803 Form A	2243H77	2268H77-W	2268H77-Z	5 (16.4)
	2244H77	2269H77-W	2269H77-Z	10 (32.8)
M12	2245H77	-	-	5 (16.4)
	2246H77	-	-	10 (32.8)

These kits include 2 cables with either EN or M12 connectors for the solenoids. All cables include cord grips.

Status Indicator kit ordered separately.

Status Indicator Kits	Solenoid Connector Type	Kit Number	Length meters (feet)	Description
	EN 175301-803 Form A	2247H77	5 (16.4)	Status Indicator kits include one cable with EN or M12 connector and a cord grip.
		2248H77	10 (32.8)	
	M12	2241H77	5 (16.4)	
		2242H77	10 (32.8)	



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A2

Wiring Kits with J-Box

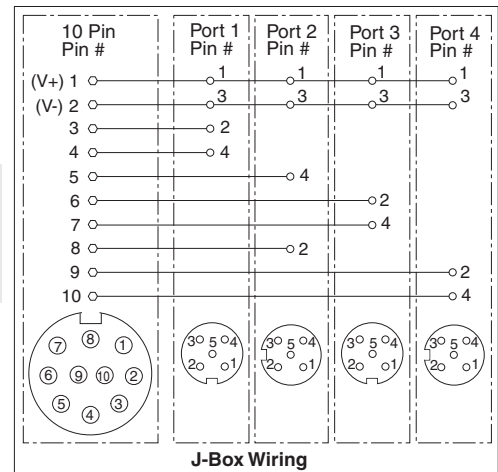
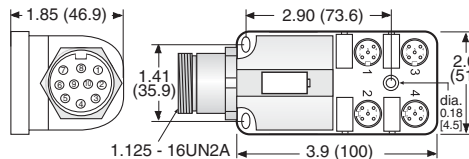
Connector Type	Kit Number*	Length meters (feet)
M12 - DIN	2249H77	1 (3.3)
M12 - M12	2250H77	1 (3.3)

*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM²⁰ Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and an EN connector on the other end (M12-DIN).

Standard valves come with DIN type solenoid connections, but could be bought with M12 type connections as well. Therefore we also offer a kit that provides solenoid cables with an M12 connector on each end (M12-M12).



10 PIN MINI Cable

Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

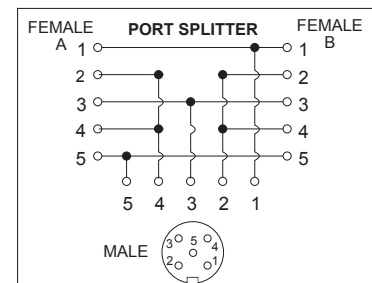
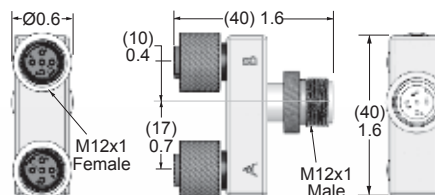
PIN #	PIN #	Wire Colors:	Wire Colors:
1 +24 volts DC	6 -	Orange	Orange w/Black
2 Common volts DC	7 Remote Reset	Blue	Red
3 -	8 -	White w/Black	Green/Yellow
4 Solenoid A	9 Remote Valve Fault Light	Red w/Black	Black
5 Solenoid B	10 Remote System OK Light	Green w/Black	White



Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)

Some customers prefer to monitor downstream pressure in addition to using the DM²⁰ or DM¹ Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).



Pressure switch available separately, see valve options.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Control Reliable Double Valves with Damic Monitoring and Automatic Reset

Safety Exhaust (Dump) DM¹ Series E

A

Dynamic Monitoring: Monitoring and air flow control functions are integrated into two identical valve elements for CAT 4 applications. The valve exhausts downstream air if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply. If the abnormality clears itself, the valve will return to the ready-to-run state; there is no memory of the abnormal behavior, as in the ROSS DM²⁰ Series E and DM²⁰ Series C products that require an intentional reset following lockout.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without in-line lubrication.

Ready-to-run: If an abnormality clears itself upon the removal of electricity to both solenoids, it will be ready-to-run again. It does not remember the abnormality and stay in a locked-out state until intentionally reset. Therefore, cumulative abnormalities may go undetected.

Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the “ready-to-run” condition or has experienced abnormal function. This indicator only reports status, it is not part of a lockout function.

Silencers: All models include high flow, clog resistant silencers.

Mounting: In-line mounted with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included).

A2



ISO 13849-1
CAT 4, PL e

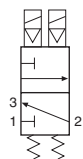


Choose your options (in red) to configure your model number.

DM1E	N	A	20	A	3	1	
Series	Revision Level	Automatic Reset Type	Status Indicator	Connection Type			
Thread			Mechanical Pressure Switch	EN 175301-803 Form A* Leave Blank			
G D			None X	M12 (connector included) 005			
NPT N				*See options for connectors or wiring kits.			
Basic Size	Port Size Inlet	Port Size Outlet	Exhaust port size 1/2"				
2	1/4	1/4	20				
	3/8	3/8	21				
				Voltage*			
				24 volts DC A			
				110 volts AC, 50 Hz B			
				120 volts AC, 50/60 Hz B			
				* For other voltages consult ROSS.			

Connection Type	Options
EN 175301-803 Form A*	Leave Blank
M12 (connector included)	005
*See options for connectors or wiring kits.	

Inlet Port Size	C _v		Weight lb (Kg)
	1-2	2-3	
1/4	1.3	2.4	5.0 (2.27)
3/8	2.2	2.4	5.0 (2.27)



Simplified Schematic

STANDARD SPECIFICATIONS (for valves on this page):

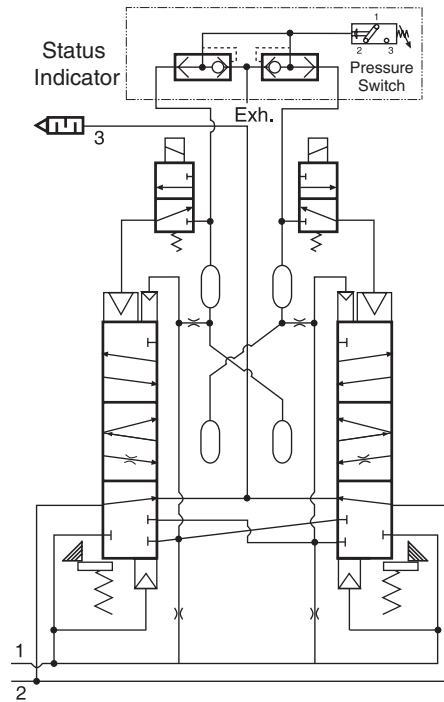
Construction Design	Dual Poppet	Operating Pressure	30 to 120 psig (2.1 to 8.3 bar)
Mounting	Type: Line Orientation: Preferably horizontally (valve on top of base) or vertically with pilot solenoids on top	Pressure Switch (Status Indicator) Rating	Contacts - 0.1 A, 125/250 volts AC; 0.1 A, 30 volts DC; 0.3 A, 60 volts DC
Solenoids	According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty	Monitoring	Dynamically, cyclically, internally during each actuating and de-actuating movement
Voltage/Power Consumption (each solenoid)	24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC	Minimum Operation Frequency	Once per month, to ensure proper function
Enclosure Rating	IP65, IEC 60529	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Electrical Connection	EN 175301-803 Form A, or M12	Functional Safety Data: Category 4, PL e; B ₁₀₀ : 20,000,000; PFH _D : 7.71x10 ⁻⁹ ; MTTFD: 301.9 (n _{op} : 662400) Certifications: CE Marked for applicable directives, DGVU Test, CSA/UL, TSSA for appropriately tested valves. Vibration/Impact Resistance: Tested to BS EN 60068-2-27	
Temperature	Ambient: 15° to 122°F (-10° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered, lubricated or unlubricated air (mineral oils according to DIN 51519, viscosity classes 32-46)		

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM²⁰ Series D double valves for mechanical power press applications.

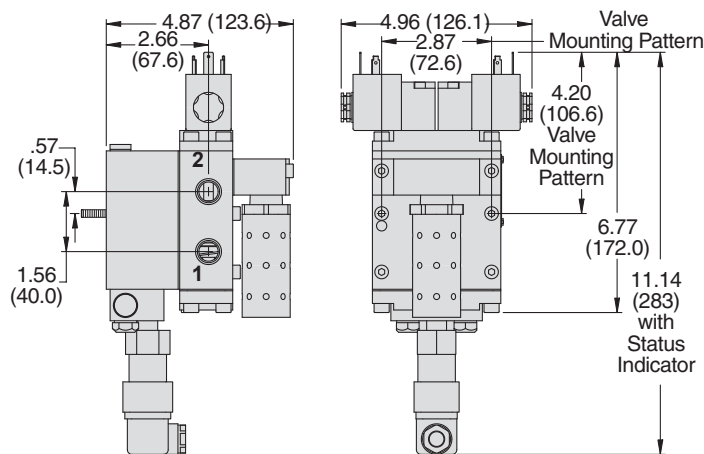
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Schematic - Valve de-actuated



Valve Dimensions – inches (mm)



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

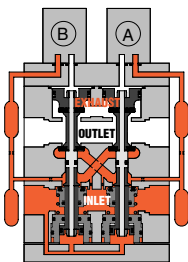


Control Reliable Double Valves with Dynamic Monitoring and Automatic Reset

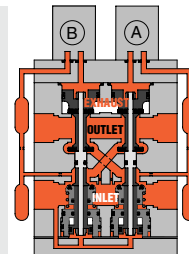
DM¹ Series E Valve Operation & Options

A

Valve De-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages from the inlet chamber is restricted by orifices that allow air pressure to bypass the lower inlet poppets. Flow is sufficient to quickly pressurize the pilot supply/timing chambers on both sides A and B. The upper inlet poppets prevent air flow from the crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the de-actuated position. (Internal air passages shown out of the valve body for clarity.)



Valve Actuated: Energizing the pilot solenoids simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated position, where inlet air flow to outlet is open and both exhaust poppets are closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the main solenoids causes the valve elements to return to the ready-to-run (de-actuated) position.

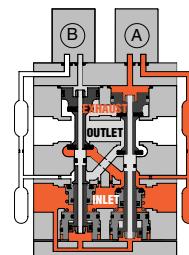


A2

Asynchronous Operation: If the valve elements operate in a sufficiently asynchronous manner on ACTUATION, the valve will shift into a position where one crossover and its related timing chambers will be exhausted, and the other crossover and its related timing chambers will be pressurized.

In the illustration, side B is in the de-actuated position, but has no pilot air available to actuate with and has full pressure on its upper and lower inlet poppets and return piston to hold it in place.

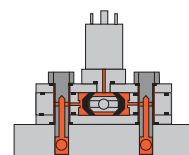
Inlet air flow on side B into its crossover is restricted and flows through the open upper inlet poppet on side A, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. Once the main solenoids are de-energized, actuating pressure is removed from the top of the main pistons and then the lower inlet poppet return spring along with inlet air pressure acting on the side A return piston will push side A back into the de-actuated position. Inlet air pressurizes the crossovers and volume chambers. Pressure in the crossovers helps hold the upper inlet poppets on seat. The valve will then be in the ready-to-run position. On the next attempt to actuate normally, if side B is still unable to actuate synchronously with side A, the same sequence of events described above will occur again.



Valve in restricted outlet to exhaust state


WARNING: If asynchronous operation occurs while DE-ACTUATING, the pilot supply/timing chambers on one side will still be exhausted as described above. However, this could be a temporary situation because the cause of the asynchronous operation may be able to correct itself allowing the stuck or slow acting side of the valve to eventually move back into the de-actuated position. Once the slow or stuck side has de-actuated, the pilot supply/timing chambers that were exhausted will then repressurize. If an external monitoring system is only checking the status indicator periodically this fault signal could be missed. The machine's safety system must be designed to ensure that this does not cause a hazardous situation.

Status Indicator: The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve operation is sufficiently asynchronous or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Status indicator in normal ready-to-run position

OPTIONS

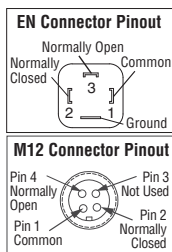
Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
		Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
		Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
		Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Downstream Pressure Monitoring

Pressure Switches		
Connection Type	Model Number	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Redundant Downstream Feedback Switch	Model Number	Port Threads
	RC026-13	3/8 NPT

- May be installed downstream on all double valves
- Provides a redundant means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

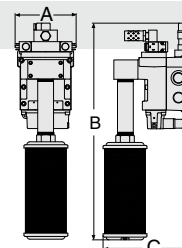


High-Flow, Noise Reduction Silencer Kits

Basic Size	Kit Number*		Avg. C _v	Dimensions inches (mm)			
	NPT Threads	G Threads		A	B (NPT)	B (G)	C
2	2323H77	2328H77	256 (121)	4.96 (126.1)	14.24 (361.7)	16.05 (407.7)	5.68 (144.3)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.

Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

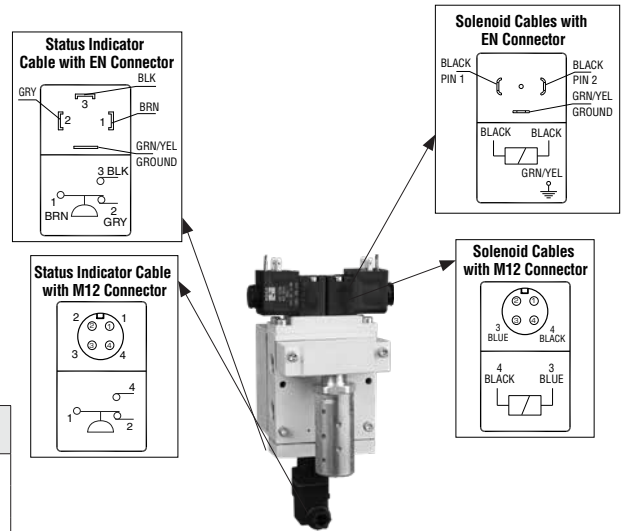
Wiring Kits

Preassembled Wiring Kits				
Solenoid Connector Type	Kit Number			Length meters (feet)
	Connector without Light	Lighted Connector		
		24 Volts DC	120 Volts AC	
EN 175301-803 Form A	2243H77	2268H77-W	2268H77-Z	5 (16.4)
	2244H77	2269H77-W	2269H77-Z	10 (32.8)
M12	2245H77	-	-	5 (16.4)
	2246H77	-	-	10 (32.8)

These kits include 2 cables with either EN or M12 connectors for the solenoids. All cables include cord grips.

Status Indicator kit ordered separately.

Status Indicator Kits	Solenoid Connector Type	Kit Number	Length meters (feet)	Description
	EN 175301-803 Form A	2247H77	5 (16.4)	Status Indicator kits include one cable with EN or M12 connector and a cord grip.
		2248H77	10 (32.8)	
	M12	2241H77	5 (16.4)	
		2242H77	10 (32.8)	



Wiring Kits with J-Box

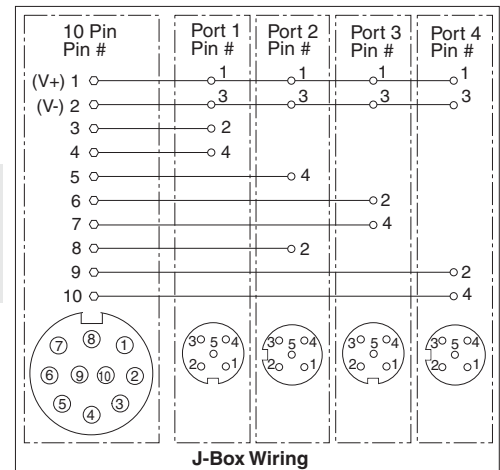
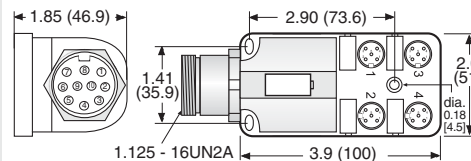
Connector Type	Kit Number*	Length meters (feet)
M12 - DIN	2249H77	1 (3.3)
M12 - M12	2250H77	1 (3.3)

*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM²⁰ Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and an EN connector on the other end (M12-DIN).

Standard valves come with DIN type solenoid connections, but could be bought with M12 type connections as well. Therefore we also offer a kit that provides solenoid cables with an M12 connector on each end (M12-M12).



10 PIN MINI Cable

Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

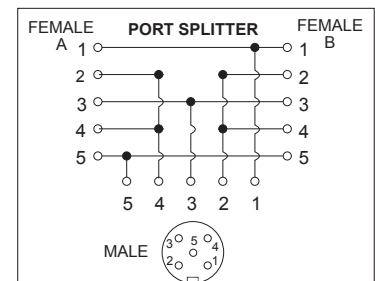
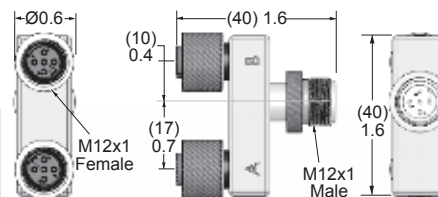
PIN #	PIN #	Wire Colors:	Wire Colors:
1 +24 volts DC	6 -	Orange	Orange w/Black
2 Common volts DC	7 Remote Reset	Blue	Red
3 -	8 -	White w/Black	Green/Yellow
4 Solenoid A	9 Remote Valve Fault Light	Red w/Black	Black
5 Solenoid B	10 Remote System OK Light	Green w/Black	White



Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)

Some customers prefer to monitor downstream pressure in addition to using the DM¹ Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).



Pressure switch available separately, see valve options.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Air Entry Assemblies

with Double Valves for Monitoring

Safety Exhaust/Energy Isolation

M35 Series

A

Control Reliable Energy Isolation M35 Series Double Valves with or without Soft-Start Module, Manual Lockout L-O-X® Valves with Integrated Filter, Regulator, & Lubricator Combinations

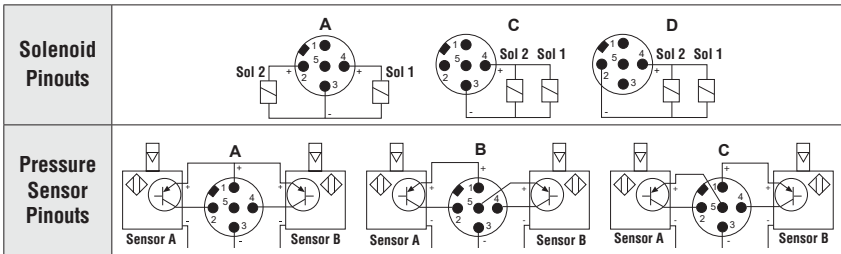
SIL 3 Functional Safe
Cat. 4 PL e

Pre-engineered panel mountable design with air entry via a filter and regulator “FR”, or filter, regulator and lubricator “FRL”. Includes M35 Series Double Valve with or without Soft-Start function. Applications include Pneumatic Control and Air Dump/Release.



Choose your options (in red) to configure your valve assembly model number.

M35	S	L	R	2U	40	G	A	E	X	AA	G	A
Series	Lockout Valve Type*	Thread	Voltage	Communication	Monitoring	Revision Level						
M35 Valve	L-O-X® L	G G	24 volts DC	None	External	Pressure Gauge (for M35 valve)						
With Soft-Start S	Modular L-O-X® M	NPT N				Analog Gauge G						
No Soft-Start X	No L-O-X® X					Digital Transducer T						
	* Silencer included.					None X						
Filter, Regulator, Lubricator	Extra Port	Port Size		Exhaust Type		Pin Configuration Combination*						
Integrated Filter/Regulator F	(in relation to M35 valve)	Inlet	Outlet	Exhaust		Solenoid	Sensor					
Filter and Regulator R	Location	Size	Code			A	A	AA				
Filter, Regulator, and Lubricator L	Upstream	1/4	2U			A	B	AB				
No Filter, Regulator, Lubricator X	Upstream	3/8	3U			A	C	AC				
	Upstream	1/2	4U			C	C	CC				
	Downstream	1/4	2D			D	B	DB				
	Downstream	3/8	3D			D	C	DC				
	Downstream	1/2	4D									
	Both	1/4	2B									
	Both	3/8	3B									
	Both	1/2	4B									
	None	NA	XX									



Mounting Accessories

M35 Series valves have both modular receptacles for piping and female threaded ports inside receptacles, which allows either modular connection or direct piping. Mounting accessories listed below are used for modular connection to ROSS MD series filter-regulator units.

Mounting Brackets & Clamp for Module Connections	
Description	Model Number
Bracket and Screw	R-A118-103
Clamp	R-A118-105
Bracket, screw, and Clamp	R-A118-105M



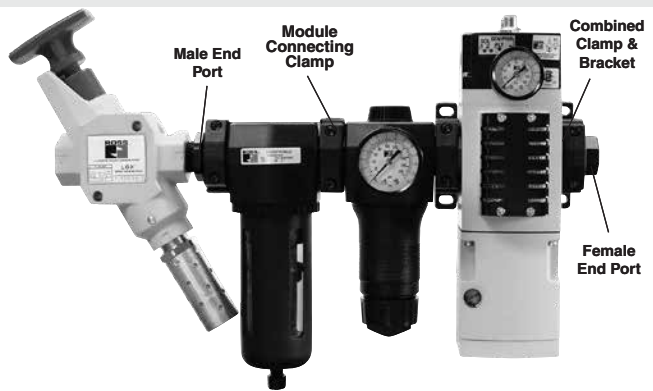
Extra Port Blocks		
Port Size	Model Number	
	NPTF Threads	G Threads
1/2	R-118-106-4	R-118-106-4W



End Ports		
Port Size	Model Number	
	NPTF Threads	G Threads
1/2	R-118-100-4	R-118-100-4W
3/4	R-118-100-6	R-118-100-6W



Male End Ports		
Port Size	Model Number	
	NPTF Threads	G Threads
1/2	R-118-109-4F	R-118-109-4FW
3/4	R-118-109-6F	R-118-109-6FW



NOTE: Per specifications and regulations, lockout L-O-X® products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES. These valve assemblies are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



Air Entry Assemblies

with Double Valves with Internal Monitoring

Safety Exhaust/Energy Isolation

MCSE Series



A

Control Reliable Energy Isolation MCSE Series Double Valves with Soft-Start Function, Manual Lockout L-O-X® Valves with Integrated Filter, Regulator, & Lubricator Combinations

Pre-engineered panel mountable design with air entry via a filter and regulator “FR”, or filter, regulator and lubricator “FRL”. Includes MCSE Series Double Valve with or without Soft-Start function. Applications include Pneumatic Control and Air Dump/Release.



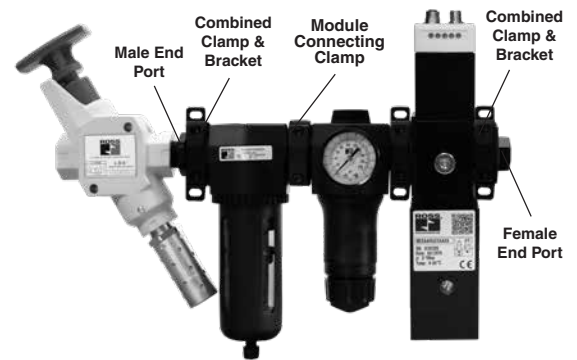
A2

Choose your options (in red) to configure your valve assembly model number.

MCSE	A	L	R	2U	G	A	I	X	AA	G	B
Series											
Version											
PP	A										
PM		B									
Start-Button NCNC			C								
Start-Button NCNO				D							
Lockout Valve Type*											
L-O-X®	L										
Modular L-O-X®		M									
No L-O-X®			X								
* Silencer included.											
		Filter, Regulator, Lubricator									
		Integrated Filter/Regulator			F						
		Filter and Regulator				R					
		Filter, Regulator, and Lubricator					L				
		No Filter, Regulator, Lubricator						X			
						Extra Port (in relation to MCSE valve)					
						Location	Size	Code			
						Upstream	1/2	4U			
						Downstream	1/2	4D			
						Both	1/2	4B			
						None	NA	XX			
									Monitoring		
									Internal		
									Communication		
									None		
									Voltage		
									24 volts DC		
									Thread		
						G	G				
						NPT	N				
									Revision Level		
									Pressure Measuring Device (for MCSE valve)		
									Analog Gauge		
									G		
									Digital Transducer		
									T		
									None (plugged port)		
									X		
									PIN Configuration Combination		
									Solenoid	Sensor	
									A	A	

Mounting Accessories

MCSE Series valves have both modular receptacles for piping and female threaded ports inside receptacles, which allows either modular connection or direct piping. Mounting accessories listed below are used for modular connection to ROSS MD series filter-regulator units.



Mounting Brackets & Clamp for Module Connections		
Description	Model Number	
Bracket, Screw, Clamp and Mounting Adapter	2737K77*	
Clamp	R-A118-105	

* Bracket, Screw, Clamp and Mounting Adapter shown above.

Extra Port Blocks			
Port Size	Model Number		
	NPTF Threads	G Threads	
1/2	R-118-106-4	R-118-106-4W	

End Ports			
Port Size	Model Number		
	NPTF Threads	G Threads	
1/2	R-118-100-4	R-118-100-4W	
3/4	R-118-100-6	R-118-100-6W	

Male End Ports			
Port Size	Model Number		
	NPTF Threads	G Threads	
1/2	R-118-109-4F	R-118-109-4FW	
3/4	R-118-109-6F	R-118-109-6FW	

NOTE: Per specifications and regulations, lockout L-O-X® products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES. These valve assemblies are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Air Entry Assemblies

with Double Valves with Internal Monitoring

Safety Exhaust/Energy Isolation
RC Series

A

DM2[®] Series C Double Valves, Manual Lockout L-O-X[®] Valves with Filter and Regulator

SIL 3
Functional Safe

Cat. 4
PL e

Pre-engineered panel-mounted design with air entry via a filter and regulator “FR”, or filter, regulator and lubricator “FRL”

Includes DM2[®] Series C Double Valve with Monitoring & Memory:

- a) Self-contained dynamic monitoring system requires no further valve monitoring controls,
- b) Dynamic memory of abnormal function prevents unintentional reset with removal of air or electricity

All necessary features for safety applications are included:

- a) Electrical reset valve,
- b) Status indicator switch for valve condition (ready-to-run) feedback



A2

Air Entry Assembly	Port Size		Model Number#	Air Entry Type	C _v		Dimensions inches (mm)		
	1, 2	3			NPT Threads	1-2	2-3	Length	Width
DM2 [®] Series C	1/2	1/2	RC408-06W	FR	3	10	24.0 (610)	14.5 (369)	7.4 (187)
			RC408L-06W	FRL	4.4	13	24.0 (610)	15.7 (399)	8.3 (211)
	3/4	3/4	RC412-06W	FR	4.4	13	27.0 (686)	19.0 (483)	9.0 (229)
			RC412L-06W	FRL	3	10	24.0 (610)	14.5 (369)	7.4 (187)
	1	1	RC416-06W	FR	4.4	13	24.0 (610)	15.7 (399)	8.3 (211)
			RC416L-06W	FRL	4.4	13	31.0 (788)	19.0 (483)	9.0 (229)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., RC408-06Z.

M12 connectors available, consult ROSS.

Silencer included. Standard Air Entry Assemblies supplied with metal bowl and automatic drain.

Custom designs available, consult ROSS. Explosion proof solenoid pilot available, for more information consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Air Entry Assemblies with DM²® & DM¹ Series E Safety Exhaust/Energy Isolation Double Valves with Dynamic Monitoring, with or without Memory RC Series

DM²® Series E Double Valves, Manual Lockout L-O-X® Valves with Integrated Filter/Regulator

Cat. 4
PL e

A

Pre-engineered panel-mounted design with air entry via a filter and regulator “FR”, or filter, regulator and lubricator “FRL”.

Includes DM²® Series E Double Valve with Monitoring & Memory:

- a) Self-contained dynamic monitoring system requires no further valve monitoring controls,
- b) Dynamic memory of abnormal function prevents unintentional reset with removal of air or electricity.

All necessary features for safety applications are included:

- a) Electrical reset valve,
- b) Status indicator switch for valve condition (ready-to-run) feedback.

Mounting plate included.



A2

Air Entry Assemblies	Port Size		Model Number# NPT Threads	Air Entry Type	C _v		Dimensions inches (mm)		
	1, 2	3			1-2	2-3	Length	Width	Depth
Cat-4 with DM ² ® Series E	1/4	1/2	RC404-09W	FR	1.3	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM ² ® Series E	3/8	1/2	RC406-09W	FR	2.2	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM ² ® Series E	1/4	1/2	RC404L-09W	FRL	1.3	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM ² ® Series E	3/8	1/2	RC406L-09W	FRL	2.2	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., RC404-09Z.

M12 connectors available, consult ROSS.

Silencer included. Standard Air Entry Assemblies supplied with metal bowl and manual drain.

Custom designs available, consult ROSS.

DM¹ Series E Double Valves, Manual Lockout L-O-X® Valves with Integrated Filter/Regulator

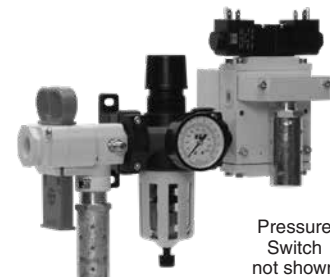
Cat. 4
PL e

Pre-engineered panel-mounted design with air entry via a filter and regulator “FR”, or filter, regulator and lubricator “FRL”.

Includes DM¹ Series E Double Valve with Monitoring:

- a) Self-contained dynamic monitoring system requires no further valve monitoring controls,
- b) Ready-to-run: If an abnormality clears itself upon the removal of electricity to both solenoids, it will be ready-to-run again. It does not remember the abnormality & stay in a locked-out state until intentionally reset. Therefore, cumulative abnormalities may go undetected,
- c) Status indicator switch for valve condition (ready-to-run) feedback.

Mounting plate included.



Pressure Switch not shown

Air Entry Assemblies	Port Size		Model Number# NPT Threads	Air Entry Type	C _v		Dimensions inches (mm)		
	1, 2	3			1-2	2-3	Length	Width	Depth
Cat-4 with DM ¹ Series E	1/4	1/2	RC304-09W	FR	1.3	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM ¹ Series E	3/8	1/2	RC306-09W	FR	2.2	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM ¹ Series E	1/4	1/2	RC304L-09W	FRL	1.3	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM ¹ Series E	3/8	1/2	RC306L-09W	FRL	2.2	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., RC304-09Z.

M12 connectors available, consult ROSS.

Silencer included. Standard Air Entry Assemblies supplied with metal bowl and manual drain.

Custom designs available, consult ROSS.

NOTE: Per specifications and regulations, lockout L-O-X® products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES. These valve assemblies are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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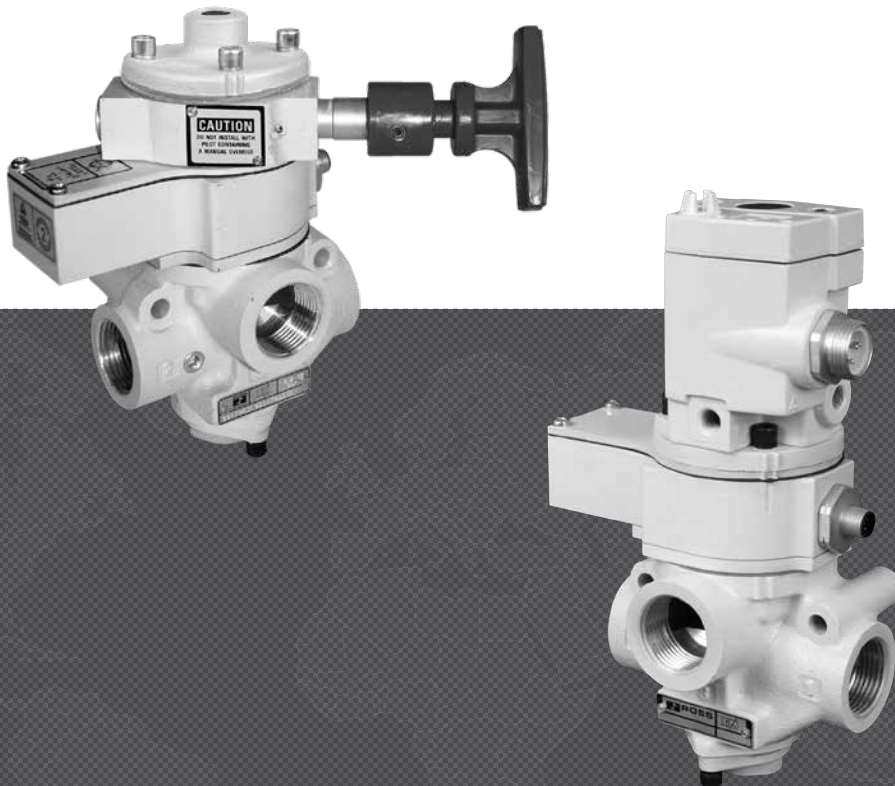


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A1.29



SAFETY EXHAUST SENSING VALVES FOR EXTERNAL MONITORING



ROSS CONTROLS

SENSING VALVES – KEY FEATURES

- Senses internal position & state
- Electrical feedback via DPST switch (Double-Pole Single-Throw)
- Directly operated safety-rated force-guided positive-break status switch (DPST)
- Poppet construction for near zero leakage & dirt tolerance
- A diagnostic coverage (DC) of 90% can be obtained by monitoring the safety switch status
- *Explosion proof solenoid pilot available, for more information consult ROSS*

VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES													FUNCTIONS					Page					
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center		5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Pressure Controlled	
2/2 SV27 Series																						29			A2.3 - A2.6	
3/2 SV27 Series																						71			A2.4 - A2.7	
SV27 Series with Lockout Valve																						32			A2.8 - A2.9	
Air Entry Assemblies																										A2.10

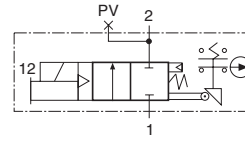
Sensing Valves for External Monitoring – Solenoid Pilot Controlled

Safety Exhaust (Dump) SV27 Series

Cat. 2
PL c

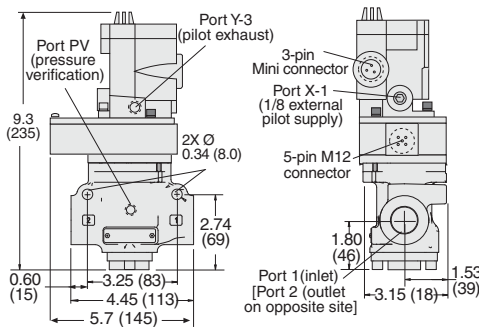
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2-Way 2-Position Valves					
Port Size 1, 2	Body Size	Valve Model Number#		C _v 1-2	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	SV27NC105407PSAA1D	SV27DC105407PSAA1D	7.7	4.6 (2.1)
3/4	3/4	SV27NC105507PSAA1D	SV27DC105507PSAA1D	9	4.6 (2.1)
1	3/4	SV27NC105607PSAA1D	SV27DC105607PSAA1D	9	4.6 (2.1)
1	1 1/4	SV27NC107607PSAA1D	SV27DC107607PSAA1D	24	8.1 (3.7)
1 1/4	1 1/4	SV27NC107707PSAA1D	SV27DC107707PSAA1D	29	8.1 (3.7)
1 1/2	1 1/4	SV27NC107807PSAA1D	SV27DC107807PSAA1D	29	8.1 (3.7)

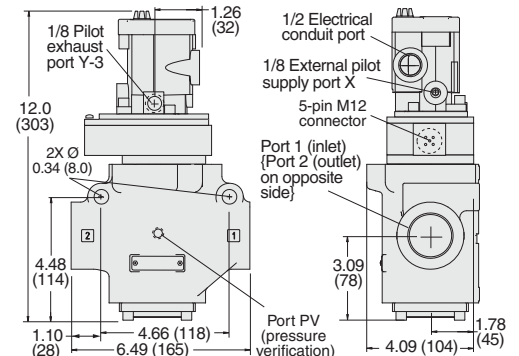


Valve Dimensions – inches (mm)

Body Size 3/4



Body Size 1 1/4

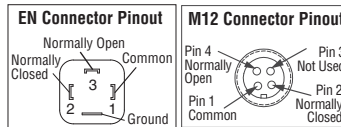


ACCESSORIES & OPTIONS

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30		

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

Indicator Light Kits	
Kit Number	
24 volts DC	110-120 volts AC 50-60 Hz
862K87-W	862K87-Z

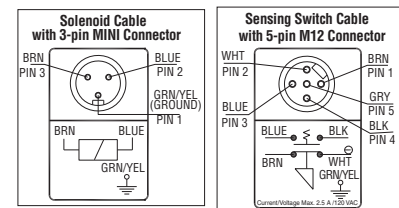


Pop-Up Indicator	Model Number**	988A30
	** 1/8 NPT port threads.	

Manual Override Kits		
BUTTON Type	Locking Type	Model Number*
FLUSH	Non-Locking	790K87
	Locking	792K87
EXTENDED	Non-Locking	791K87
EXTENDED with PALM	Non-Locking	984H87

Preassembled Wiring Kits		
Kit Number*	Length meters (feet)	Description
2239H77	4 (13.1)	These kits include two cables with a cord grip on each cable. One cable has a 3-pin MINI connector for the solenoid, and one has a 5-pin M12 (Micro) connector for the sensing switch.
2240H77	10 (32.8)	

* Cable has one connector.



Integrated Double-Pole Single-Throw Switch (DPST) Switch States

Contact conditions during switch travel (0 to 6 mm).

For valves basic size 3/4 & 1-1/4, the DPST switch is actuated whenever the valve is not in the normal home position.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC <i>NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.</i>
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Solenoids	AC or DC power; Rated for continuous duty	Manual Override	Flush; rubber, non-locking
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Safety Integrity Level (SIL)	Flush - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Functional Safety Data	Category 2, PL d; B _{10D} : Valve - 20,000,000, Switch - 2,000,000; PFH _b : 2.35x10 ⁻⁷ ; MTTFD: 98.15 (n _{op} : 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Vibration/Impact Resistance	Calculated to BS EN 60068-2-27
Flow Media	Filtered air		
Pilot Supply	Internal or External		
Operating Pressure	40 to 150 psig (2.8 to 10.3 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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A2.3

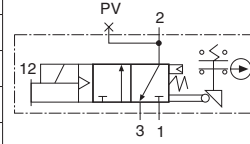
Sensing Valves for External Monitoring – Solenoid Pilot Controlled

Safety Exhaust (Dump) SV27 Series

A

Port Size		Body Size	Valve Model Number#		C _v		Weight lb (kg)
1, 2	3		NPT Threads	G Threads	1-2	2-3	
1/2	1	3/4	SV27NC305407PSAA1D	SV27DC305407PSAA1D	6.3	9.2	4.5 (2.0)
3/4	1	3/4	SV27NC305507PSAA1D	SV27DC305507PSAA1D	7.7	11	4.5 (2.0)
1	1	3/4	SV27NC305607PSAA1D	SV27DC305607PSAA1D	8	12	4.5 (2.0)
1	1½	1¼	SV27NC307607PSAA1D	SV27DC307607PSAA1D	23	34	7.8 (3.5)
1¼	1½	1¼	SV27NC307707PSAA1D	SV27DC307707PSAA1D	30	32	7.8 (3.5)
1½	1½	1¼	SV27NC307807PSAA1D	SV27DC307807PSAA1D	30	31	7.8 (3.5)
1½	2½	2	SV27NC309807PSAA1D	SV27DC309807PSAA1D	68	70	18.1 (8.2)
2	2½	2	SV27NC309907PSAA1D	SV27DC309907PSAA1D	70	70	18.1 (8.2)
2½	2½	2	SV27NC309957PSAA1D	SV27DC309957PSAA1D	70	71	18.1 (8.2)

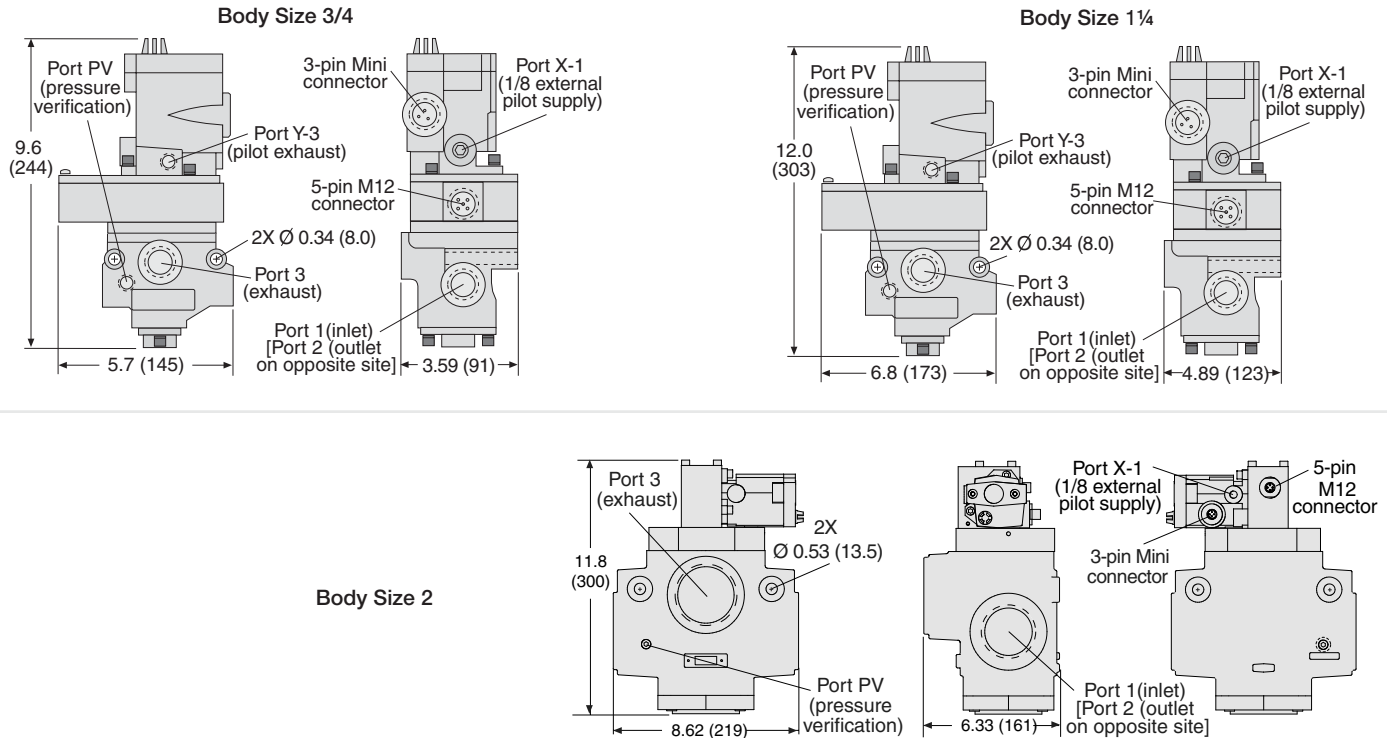
Cat. 2
PL c



Voltage: 1D=24 VDC; 1A=110-120 VAC, 50/60 Hz, e.g., SV27NC305407PSAA1A. For other voltages, consult ROSS.

A3

Valve Dimensions – inches (mm)



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Solenoids	AC or DC power; Rated for continuous duty	Manual Override	Flush; rubber, non-locking
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Safety Integrity Level (SIL)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Functional Safety Data	Category 2, PL d; B ₁₀₀ : Valve - 20,000,000, Switch - 2,000,000; PFH ₀ : 2.35x10 ⁻⁷ ; MTTFD ₀ : 98.15 (n ₀₀ : 7360); DC (obtained by monitoring safety switch status): 99%; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Vibration/Impact Resistance	Calculated to BS EN 60068-2-27
Flow Media	Filtered air		
Pilot Supply	Internal or External		
Operating Pressure	40 to 150 psig (2.8 to 10.3 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Accessories & Options

A

Silencers	Port Size	Thread Type	Model Number		Avg. C _v
			NPT Threads	R/Rp Threads	
	1	Male	5500A6003	D5500A6003	14.6
	1½	Female	5500A8001	D5500A8001	29.9
	2½	Female	5500A9002	D5500A9002	103.7
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.					
Flow Media: Filtered air.					



Port size 1 thru 1½



Port size 2½

Pressure Switches			EN Connector Pinout	M12 Connector Pinout
Connection Type	Model Number*	Port Threads		
EN 175301-803 Form A	586A86	1/8 NPT		
M12	1153A30			

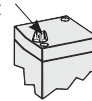
*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Pop-Up Indicator	Model Number**	988A30
	** 1/8 NPT port threads.	



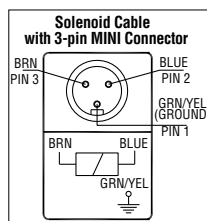
Indicator Light Kits	Kit Number		Indicator Light
	24 volts DC	110-120 volts AC 50-60 Hz	
	862K87-W	862K87-Z	



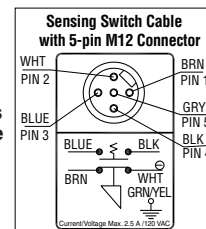
Manual Override Kits	Flush Button			Extended Button			Extended Button with Palm		
	Locking Type	Kit Number		Locking Type	Kit Number		Locking Type	Kit Number	
	Non-Locking	790K87		Non-Locking	791K87		Non-Locking	984H87	
Locking	792K87	Locking	-	Locking	-				

Preassembled Wiring Kits		
Kit Number*	Length meters (feet)	Description
2239H77	4 (13.1)	These kits include two cables with a cord grip on each cable. One cable has a 3-pin MINI connector for the solenoid, and one has a 5-pin M12 (Micro) connector for the sensing switch.
2240H77	10 (32.8)	

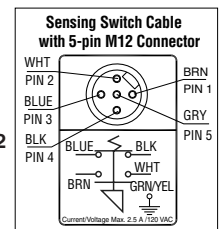
* Cable has one connector.



for valves
basic size
3/4 & 1¼



for valves
basic size 2



Integrated Double-Pole Single-Throw Switch (DPST) Switch States	For basic size 3/4 & 1-1/4	For basic size 2	Notes
Contact conditions during switch travel (0 to 6 mm). 		3-4 (NC) 1-2 (NO) 3-4 (NC) 1-2 (NO)	For valves basic size 3/4 & 1-1/4, the DPST switch is actuated whenever the valve is not in the normal home position. For valves basic size 2, the DPST switch is only actuated whenever the valve is in the normal home position.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



A3

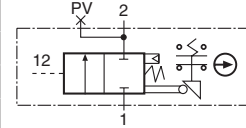
Sensing Valves for External Monitoring – Pressure Controlled

Safety Exhaust (Dump) SV27 Series

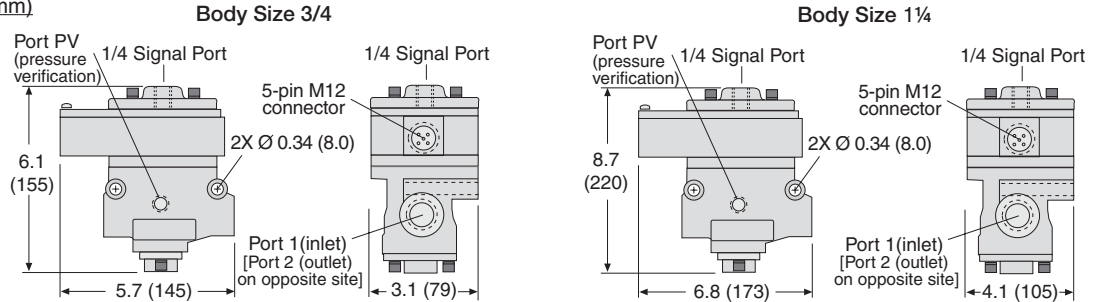
A

2-Way 2-Position Valves					
Port Size 1, 2	Body Size	Valve Model Number		C _v 1-2	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	SV27NC105405ASAA	SV27DC105405ASAA	7.7	3.4 (1.6)
3/4	3/4	SV27NC105505ASAA	SV27DC105505ASAA	9	3.4 (1.6)
1	3/4	SV27NC105605ASAA	SV27DC105605ASAA	9	3.4 (1.6)
1	1 1/4	SV27NC107605ASAA	SV27DC107605ASAA	24	6.7 (3.0)
1 1/4	1 1/4	SV27NC107705ASAA	SV27DC107705ASAA	29	6.7 (3.0)
1 1/2	1 1/4	SV27NC107805ASAA	SV27DC107805ASAA	29	6.7 (3.0)

Cat. 2
PL c



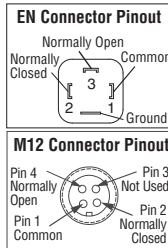
Valve Dimensions – inches (mm)



Not intended as a pressure trapping device; Please see Pilot Operated Check Sensing Valves, pages F4.13-F4.16.

ACCESSORIES & OPTIONS

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	



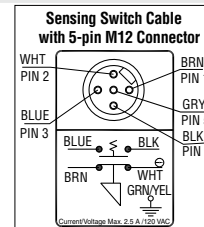
Pop-Up Indicator	Model Number**	988A30
	** 1/8 NPT port threads.	



Preassembled Wiring Kits

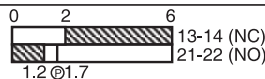
Kit Number	Length meters (feet)	Description
2241H77	5 (16.4)	These kits include one cable with a cord grip. Cable has a 5-pin M12 (Micro) connector for the sensing switch.
2242H77	10 (32.8)	

* Cable has one connector.



Integrated Double-Pole Single-Throw Switch (DPST) Switch States

Contact conditions during switch travel (0 to 6 mm).



For valves basic size 3/4 & 1-1/4, the DPST switch is actuated whenever the valve is not in the normal home position.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Functional Safety Data	- Category 2, PL d; B ₁₀₀ : Valve - 20,000,000, Switch - 2,000,000; PFH ₀ : 2.35x10 ⁻⁷ ; MTTFD ₀ : 98.15 (n _{top} : 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours
Flow Media	Filtered air	Vibration/Impact Resistance:	Calculated to BS EN 60068-2-27
Pilot Supply	External	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.
Operating Pressure	40 to 150 psig (2.8 to 10.3 bar) Pilot supply pressure must be equal to or greater than inlet pressure.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

A3

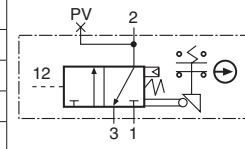
Sensing Valves for External Monitoring – Pressure Controlled

Safety Exhaust (Dump) SV27 Series

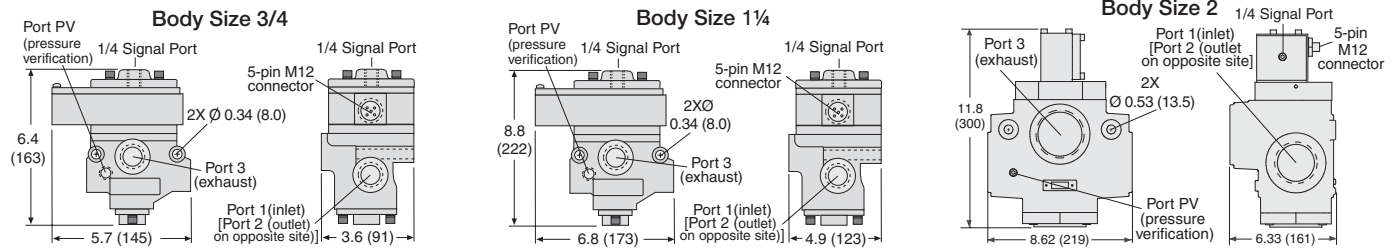
3-Way 2-Position Valves							
Port Size	Body Size	Valve Model Number		C _v		Weight lb (kg)	
		NPT Threads	G Threads	1-2	2-3		
1/2	1	3/4	SV27NC305405ASAA	SV27DC305405ASAA	6.3	9.2	3.3 (1.5)
3/4	1	3/4	SV27NC305505ASAA	SV27DC305505ASAA	7.7	11	3.3 (1.5)
1	1	3/4	SV27NC305605ASAA	SV27DC305605ASAA	8	12	3.3 (1.5)
1	1½	1¼	SV27NC307605ASAA	SV27DC307605ASAA	23	34	6.4 (2.9)
1¼	1½	1¼	SV27NC307705ASAA	SV27DC307705ASAA	30	32	6.4 (2.9)
1½	1½	1¼	SV27NC307805ASAA	SV27DC307805ASAA	30	31	6.4 (2.9)
1½	2½	2	SV27NC309805ASAA	SV27DC309805ASAA	68	70	17.2 (7.8)
2	2½	2	SV27NC309905ASAA	SV27DC309905ASAA	70	70	17.2 (7.8)
2½	2½	2	SV27NC309955ASAA	SV27DC309955ASAA	70	71	17.2 (7.8)

Cat. 2
PL c

A



Valve Dimensions – inches (mm)



A3

ACCESSORIES & OPTIONS

Silencers				
Port Size	Thread Type	Model Number*		Avg. C _v
		NPT Threads	R/Rp Threads	
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9
2½	Female	5500A9002	D5500A9002	103.7

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

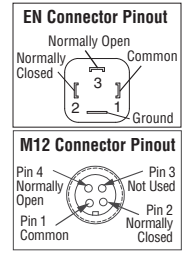
Port size
1 & 1½



Port size 2½

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



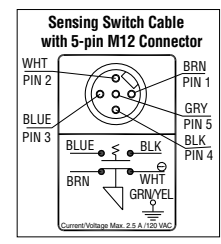
Pop-Up Indicator	Model Number**	988A30
	** 1/8 NPT port threads.	



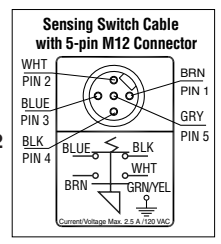
Preassembled Wiring Kits		
Kit Number	Length meters (feet)	Description
2241H77	5 (16.4)	These kits include one cable with a cord grip. Cable has a 5-pin M12 (Micro) connector for the sensing switch.
2242H77	10 (32.8)	

* Cable has one connector.

for valves basic size 3/4 & 1¼



for valves basic size 2



Integrated Double-Pole Single-Throw Switch (DPST) Switch States

Contact conditions during switch travel (0 to 6 mm).

For basic size 3/4 & 1-1/4	For basic size 2
0 to 2 mm: 13-14 (NC)	0 to 1.15 mm: 3-4 (NC)
2 to 6 mm: 21-22 (NO)	1.15 to 1.8 mm: 1-2 (NO)

For valves basic size 3/4 & 1-1/4, the DPST switch is actuated whenever the valve is not in the normal home position.
For valves basic size 2, the DPST switch is only actuated whenever the valve is in the normal home position.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Valve Body: Cast Aluminum
Mounting Type	In-line	Poppet: Acetal and Stainless Steel
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Seals: Buna-N
Flow Media	Filtered air	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Pilot Supply	External	Functional Safety Data - Category 2, PL d; B _{10D} : Valve - 20,000,000, Switch - 2,000,000; PFH ₀ : 2.35x10 ⁻⁷ ; MTTFD: 98.15 (n _{0p} : 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours
Operating Pressure	40 to 150 psig (2.8 to 10.3 bar) Pilot supply pressure must be equal to or greater than inlet pressure.	Vibration/Impact Resistance: Calculated to BS EN 60068-2-27
Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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A2.7

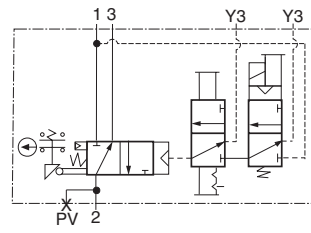
Sensing Valves with Lockout L-O-X[®] Control for External Monitoring – Solenoid Pilot Controlled

Safety Exhaust/Energy Isolation SV27 Series

A

3-Way 2-Position Valves							
Port Size		Body Size	Valve Model Number#		C _v		Weight lb (kg)
1, 2	3		NPT Threads	G Threads	1-2	2-3	
1/2	1	3/4	SV27NC3L5407PSAA1D	SV27DC3L5407PSAA1D	6.3	9.2	5.5 (2.5)
3/4	1	3/4	SV27NC3L5507PSAA1D	SV27DC3L5507PSAA1D	7.7	11	5.5 (2.5)
1	1	3/4	SV27NC3L5607PSAA1D	SV27DC3L5607PSAA1D	8	12	5.5 (2.5)
1	1½	1¼	SV27NC3L7607PSAA1D	SV27DC3L7607PSAA1D	23	34	9.0 (4.0)
1¼	1½	1¼	SV27NC3L7707PSAA1D	SV27DC3L7707PSAA1D	30	32	9.0 (4.0)
1½	1½	1¼	SV27NC3L7807PSAA1D	SV27DC3L7807PSAA1D	30	32	9.0 (4.0)

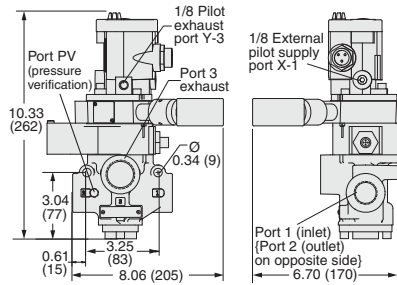
Cat. 2
PL c



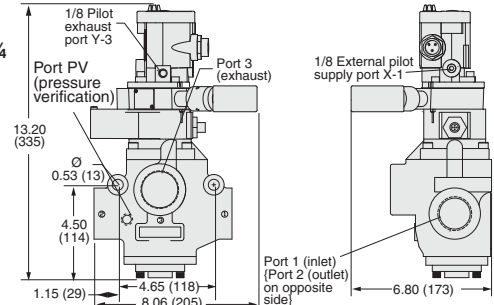
Voltage: 1D=24 VDC; 1A=110-120 VAC, 50/60 Hz, e.g., SV27NC3L5407PSAA1A. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

Body Size 3/4



Body Size 1¼



A3

ACCESSORIES & OPTIONS

Silencers	Port Size	Thread Type	Model Number*		Avg. C _v
			NPT Threads	R/Rp Threads	
	1	Male	5500A6003	D5500A6003	14.6
	1½	Female	5500A8001	D5500A8001	29.9
	2½	Female	5500A9002	D5500A9002	103.7



Port size 2½

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	



*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.

Multiple Lockout Device	Model Number	356A30
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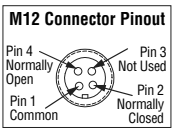
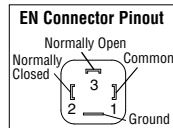
Pop-Up Indicator

Model Number**	988A30
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** 1/8 NPT port threads.

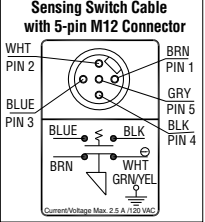
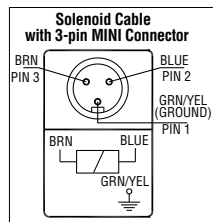


Indicator Light Kits	Kit Number	
	24 V DC	110-120 V AC 50-60 Hz
	862K87-W	862K87-Z

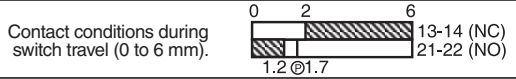


Preassembled Wiring Kits

Kit Number*	Length meters (feet)	Description
2239H77	4 (13.1)	These kits include two cables with a cord grip on each cable. One cable has a 3-pin MINI connector for the solenoid, and one has a 5-pin M12 (Micro) connector for the sensing switch.
2240H77	10 (32.8)	



Integrated Double-Pole Single-Throw Switch (DPST) Switch States



For valves basic size 3/4 & 1-1/4, the DPST switch is actuated whenever the valve is not in the normal home position.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N; Fluorocarbon
Solenoids	AC or DC power; Rated for continuous duty	Manual Override	Flush; rubber, non-locking
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	Functional Safety Data - Category 2, PL d; B _{10D} : Valve - 20,000,000, Switch - 2,000,000; PFH _D : 2.35x10 ⁻⁷ ; MTTFD _D : 98.15 (n _{top} : 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Vibration/Impact Resistance	Calculated to BS EN 60068-2-27
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	Internal or External		
Operating Pressure	40 to 150 psig (2.8 to 10.3 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

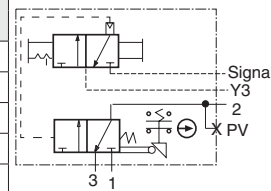
IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



Sensing Valves with Lockout L-O-X® Control for External Monitoring – Pressure Controlled

Safety Exhaust/Energy Isolation SV27 Series

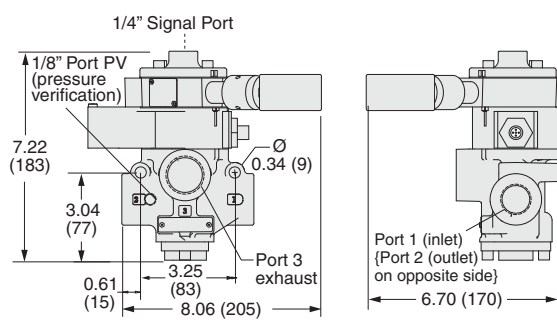
3-Way 2-Position Valves							
Port Size		Body Size	Valve Model Number		C _v		Weight lb (kg)
1, 2	3		NPT Threads	G Threads	1-2	2-3	
1/2	1	3/4	SV27NC3L5405ASAA	SV27DC3L5405ASAA	6.3	9.2	4.3 (2.0)
3/4	1	3/4	SV27NC3L5505ASAA	SV27DC3L5505ASAA	7.7	11	4.3 (2.0)
1	1	3/4	SV27NC3L5605ASAA	SV27DC3L5605ASAA	8	12	4.3 (2.0)
1	1½	1¼	SV27NC3L7605ASAA	SV27DC3L7605ASAA	23	34	7.4 (3.4)
1¼	1½	1¼	SV27NC3L7705ASAA	SV27DC3L7705ASAA	30	32	7.4 (3.4)
1½	1½	1¼	SV27NC3L7805ASAA	SV27DC3L7805ASAA	30	32	7.4 (3.4)



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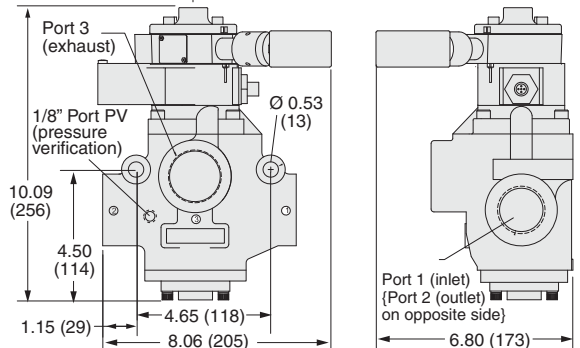
Valve Dimensions – inches (mm)

Body Size 3/4



1/4" Signal Port

Body Size 1¼



A3

ACCESSORIES & OPTIONS

Silencers	Port Size	Thread Type	Model Number*		Avg. C _v
			NPT Threads	R/Rp Threads	
	1	Male	5500A6003	D5500A6003	14.6
	1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.



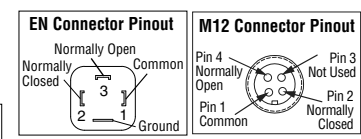
Pressure Switches	Connection Type	Model Number*	Port Threads
	M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

Multiple Lockout Device	Model Number	356A30
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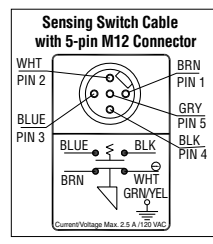


Pop-Up Indicator	Model Number**	988A30
	** 1/8 NPT port threads.	



Preassembled Wiring Kits		
Kit Number	Length meters (feet)	Description
2241H77	5 (16.4)	These kits include one cable with a cord grip. Cable has a 5-pin M12 (Micro) connector for the sensing switch.
2242H77	10 (32.8)	

* Cable has one connector.



Integrated Double-Pole Single-Throw Switch (DPST) Switch States	Contact conditions during switch travel (0 to 6 mm).	Diagram	Notes
	0-2 mm: 13-14 (NC)		For valves basic size 3/4 & 1-1/4, the DPST switch is actuated whenever the valve is not in the normal home position.
	2-6 mm: 21-22 (NO)		

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N; Fluorocarbon
Mounting Type	In-line	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Functional Safety Data	- Category 2, PL d; B _{10p} : Valve - 20,000,000, Switch - 2,000,000; PFH _s : 2.35x10 ⁻⁷ ; MTTFD _s : 98.15 (n _{0p} : 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours
Flow Media	Filtered air	Vibration/Impact Resistance	Calculated to BS EN 60068-2-27
Pilot Supply	External	NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.	
Operating Pressure	40 to 150 psig (2.8 to 10.3 bar) Pilot supply pressure must be equal to or greater than inlet pressure.	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC NOTE: Electrical life of switch varies with conditions and voltage, rated in excess of 15 million cycles.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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SV27 Sensing Valves, Manual Lockout L-O-X® Valves with Integrated Filter/Regulator

Cat. 2
PL c

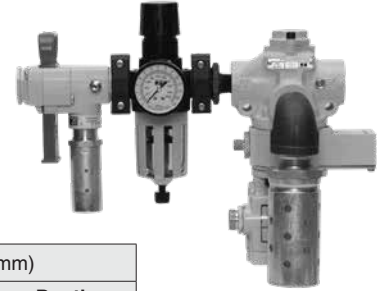
Pre-engineered panel-mounted design with air entry via filter and regulator "FR", or filter, regulator, and lubricator "FRL".

Includes 3/2 Normally Closed Sensing Valve which senses poppet position and state.

Electrical feedback via DPST switch (Double-Pole Single-Throw).

Applications include Air Dump and Trapped-Pressure Release.

Mounting plate included.



Air Entry Assemblies	Port Size		Model Number# NPT Threads	Air Entry Type	C _v		Dimensions inches (mm)		
	1, 2	3			1-2	2-3	Length	Width	Depth
CAT-2 with SV27	1/2	1	RC208-09W	FR	6.3	9.2	14.80 (374.9)	11.00 (279.0)	6.60 (167.7)
			RC208L-09W	FRL	6.3	9.2	14.80 (374.9)	11.00 (279.0)	6.60 (167.7)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., RC208-09Z.

M12 connectors available, consult ROSS.

Silencers included. Standard Air Entry Assemblies supplied with metal bowl and automatic drain.

A3

Custom designs available, consult ROSS.

Explosion proof solenoid pilot available, for more information consult ROSS.

SV27 Sensing Valves, Manual Lockout L-O-X® Valves with Filter and Regulator

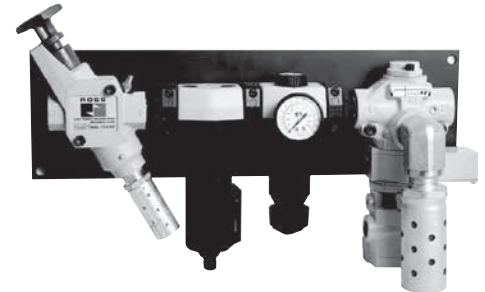
Cat. 2
PL c

Pre-engineered panel-mounted design with air entry via filter and regulator "FR", or filter, regulator, and lubricator "FRL"

Includes 3/2 Normally Closed Sensing Valve .

Applications include Air Dump and Trapped-Pressure Release.

Mounting plate included.



Air Entry Assemblies	Port Size		Model Number# NPT Threads	Air Entry Type	C _v		Dimensions inches (mm)		
	1, 2	3			1-2	2-3	Length	Width	Depth
CAT-2 with SV27	1/2	1/2	RC208-06W	FR	6.3	9.2	23.0 (585)	12.8 (326)	6.7 (171)
			RC208L-06W	FRL	7.7	11	23.0 (585)	12.8 (326)	6.7 (171)
	3/4	3/4	RC212-06W	FR	8.0	12	28.0 (712)	17.0 (432)	9.5 (242)
			RC212L-06W	FRL	6.3	9.2	23.0 (585)	12.8 (326)	6.7 (171)
	1	1	RC216-06W	FR	7.7	11	23.0 (585)	12.8 (326)	6.7 (171)
			RC216L-06W	FRL	8.0	12	31.8 (808)	17.0 (432)	9.5 (242)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., RC208-06Z.

M12 connectors available, consult ROSS.

Silencers included. Standard Air Entry Assemblies supplied with metal bowl and automatic drain.

Custom designs available, consult ROSS.

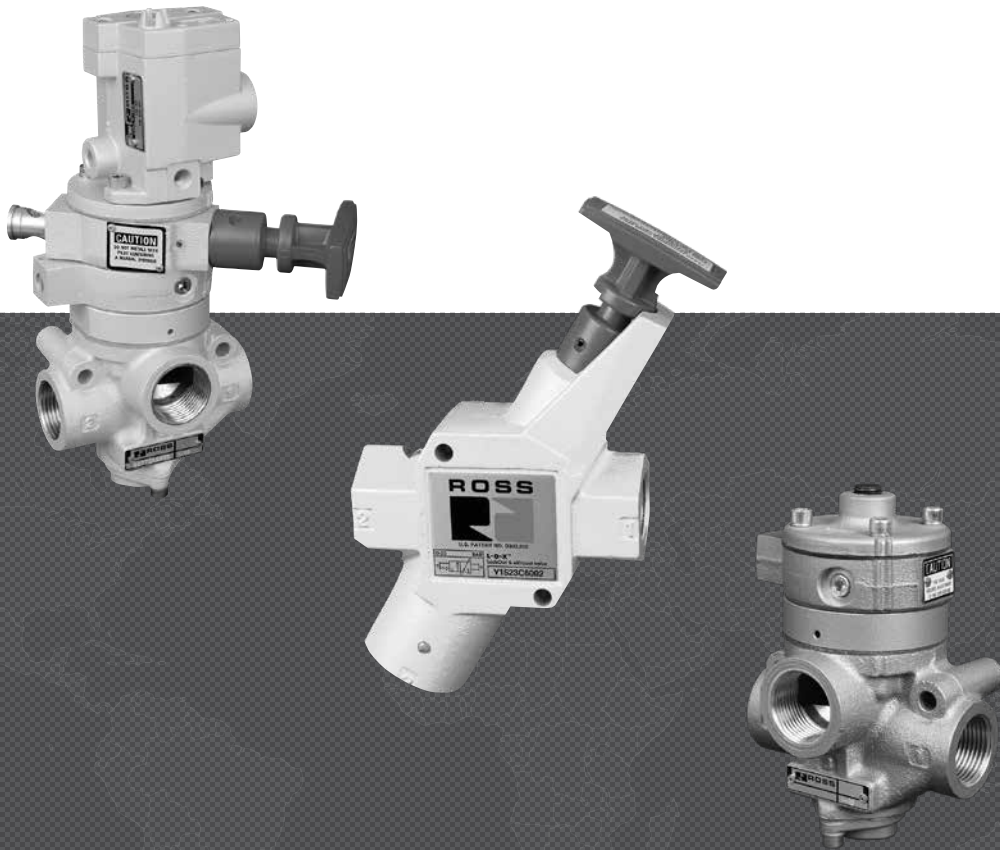
Explosion proof solenoid pilot available, for more information consult ROSS.

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



ENERGY ISOLATION LOCKOUT & SOFT-START VALVES



ROSS CONTROLS

MANUAL LOCKOUT & EXHAUST L-O-X® VALVES – KEY FEATURES

- Fluorocarbon slipper seals for easy shifting, even after long periods of inactivity
- Easily identified by yellow body with red handle
- Integrated sensing port for pressure verification
- Lockable only in the OFF position
- Has a full size exhaust port (equal to or larger than supply)
- Simple push/pull of the large handle provides positive direct manual operation

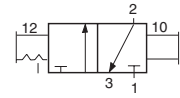
MANUAL LOCKOUT L-O-X® VALVES WITH SOFT-START EEZ-ON® – KEY FEATURES

- Easily identified by blue handle
- Gradual re-application of pneumatic pressure prevents rapid equipment movement at startup
- Lockable only in the OFF position
- Has a full size exhaust port (equal to or larger than supply)
- Positive action (2 positions only)
- Simple push/pull of the large blue handle provides positive direct manual operation
- Integrated sensing port for pressure verification

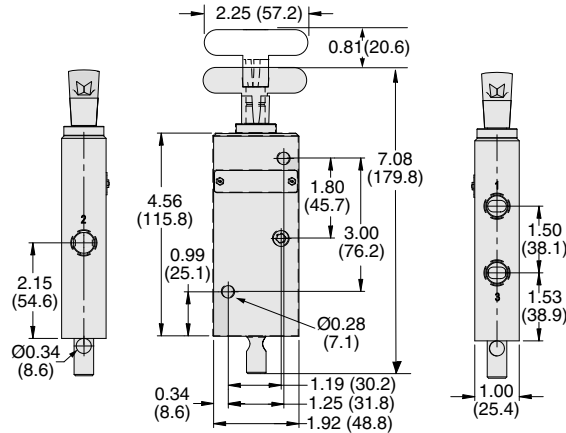
VALVE TYPE	VALVE SERIES	AVAILABLE PORT SIZES											FUNCTIONS		Max Flow (Cv)	Solenoid Control	Pressure Control	Page		
		1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	3	2/2	3/2							
Manual Lockout & Exhaust L-O-X® Valves																				
Slim-Line	15																2.67			A3.3
Modular	15																5.6			A3.4
Classic	15																19.25			A3.5
High-Capacity	15																40.38			A3.6
Stainless Steel	15																39			A3.7 - A3.8
Stainless Steel Cabinet for Wash-Down Applications	RCO																9			A3.9
Piloted Valves with Manual Lockout L-O-X® Control																				
	27																70			A3.10 - A3.11
	27																70			A3.12
	L-O-X®																140			A3.13
	L-O-X®																140			A3.14
Soft-Start EEZ-ON® Valves																				
	27																30			A3.15 - A3.16
	27																29			A3.17
	27																			A3.18 - A3.19
Manual Lockout L-O-X® Valves with Soft-Start EEZ-ON® Operation																				
Modular	15																5.6			A3.20
Classic	15																16.2			A3.21
Piloted Valves with Manual Lockout L-O-X® & Soft-Start EEZ-ON® Operation																				
Manual Pilot Controlled	27																30			A3.22
Solenoid Pilot Controlled	27																30			A3.23 - A2.24



3-Way 2-Position Valve						
Port Size		Valve Model Number		C _v		Weight lb (kg)
1, 2	3	NPT Threads	G Threads	1-2	2-3	
1/4	3/8	Y1523D2002	YD1523D2002	1.84	1.79	0.9 (0.4)
3/8	3/8	Y1523D3012	YD1523D3012	2.67	2.64	0.9 (0.4)



Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

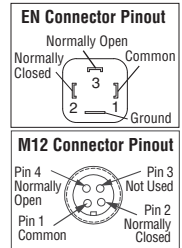
Silencers			
Port Size	Thread Type	Model Number	Avg. C _v
3/8	Male - NPT	5500A3013	2.7
	Male - R/Rp	D5500A3013	2.7

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



Pressure Switches		
Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Pop-Up Indicator	Model Number**	988A30
	** 1/8 NPT port threads.	



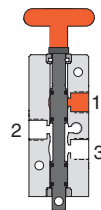
Multiple Lockout Device	Model Number	356A30
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VALVE OPERATION

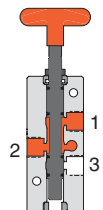
Valved Closed

When the red handle is pushed inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port. While servicing or maintaining machinery, the L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently where potential for human injury exists.



Valve Open

When the red handle is pulled outward supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position.



If a system requires gradual buildup of downstream pressure, see manual L-O-X® valves with EEZ-ON® operation.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Lock Hole	Diameter: 0.27 inch (7.0 mm) Length of Hole: 0.43 inch (10.9 mm)
Mounting Type	In-line	Construction Material	Valve Body: Bar Stock Aluminum Spool: 316 Stainless Steel Seals: Fluorocarbon
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Fluid Media	Filtered air		
Operating Pressure	0 to 145 psig (0 to 10 bar)		

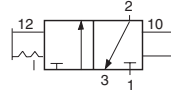
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

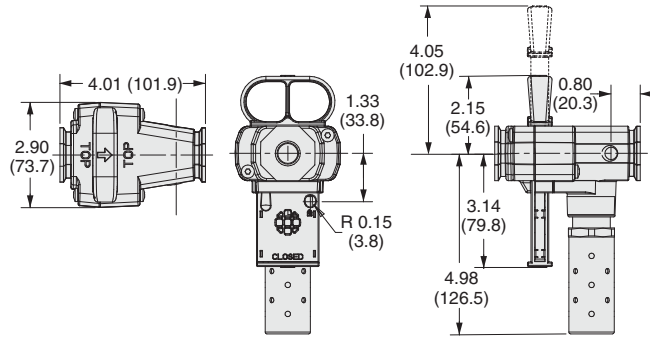
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3-Way 2-Position Valve,						
Port Size		Valve Model Number		C _v		Weight lb (kg)
1, 2	3	NPT Threads	G Threads	1-2	2-3	
1/4	3/4	Y1523A2003	YD1523A2003	3.7	7.8	1.7 (0.8)
3/8	3/4	Y1523A3003	YD1523A3003	5.1	8.3	1.7 (0.8)
1/2	3/4	Y1523A4003	YD1523A4003	5.5	8.6	1.8 (0.8)
3/4	3/4	Y1523A5013	YD1523A5013	5.6	8.1	1.8 (0.8)



Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

Silencers

Port Size	Thread Type	Model Number	Avg. C _v
3/4	Male - NPT	5500A5003	11.5
	Male - R/Rp	D5500A5003	11.5

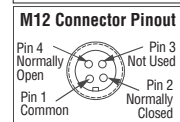
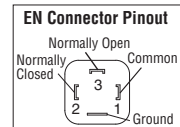
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Pop-Up Indicator

Model Number**	988A30
** 1/8 NPT port threads.	



Multiple Lockout Device

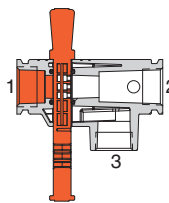
Model Number	356A30
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VALVE OPERATION

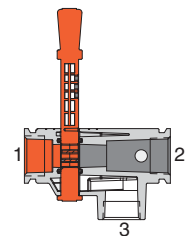
Valved Closed

When the red handle is pushed inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port. While servicing or maintaining machinery, the L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently where potential for human injury exists.



Valve Open

When the red handle is pulled outward supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position.



If a system requires gradual buildup of downstream pressure, see manual L-O-X® valves with EEZ-ON® operation.

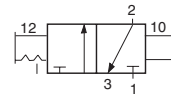
STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Lock Hole	Diameter: 0.27 inch (7.0 mm) Length of Hole: 0.43 inch (10.9 mm)
Mounting Type	Modular; In-line	Construction Material	Valve Body: Cast Aluminum Spool: 316 Stainless Steel Seals: Fluorocarbon
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Fluid Media	Filtered air		
Operating Pressure	0 to 200 psig (0 to 14 bar)		

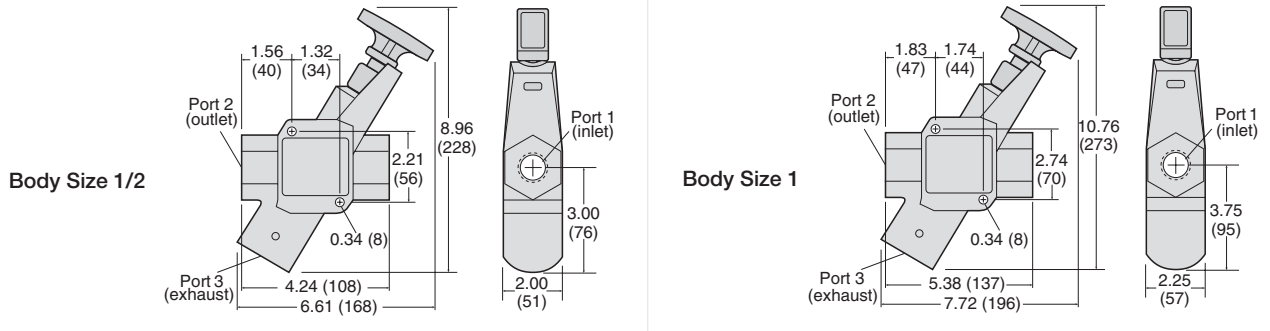
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valve							
Port Size		Body Size	Valve Model Number		C _v		Weight lb (kg)
1, 2	3		NPT Threads	G Threads	1-2	2-3	
3/8	3/4	1/2	Y1523C3002	YD1523C3002	4.74	3.57	2.0 (0.9)
1/2	3/4	1/2	Y1523C4002	YD1523C4002	7.10	4	2.0 (0.9)
3/4	3/4	1/2	Y1523C5012	YD1523C5012	8.26	4.10	2.0 (0.9)
3/4	1 1/4	1	Y1523C5002	YD1523C5002	13.12	8.98	3.0 (1.4)
1	1 1/4	1	Y1523C6002	YD1523C6002	16.56	9.52	3.0 (1.4)
1 1/4	1 1/4	1	Y1523C7012	YD1523C7012	19.25	9.74	3.0 (1.4)



Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

Silencers

Port Size	Thread Type	Model Number	Avg. C _v
3/4	Male - NPT	5500A5003	11.5
	Male - R/Rp	D5500A5003	11.5
1 1/4	Male - NPT	5500A7013	16.4
	Male - R/Rp	D5500A7013	16.4

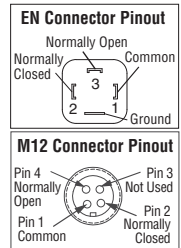
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Pop-Up Indicator

Model Number**	988A30
** 1/8 NPT port threads.	



Multiple Lockout Device

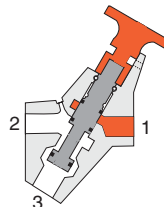
Model Number	356A30
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VALVE OPERATION

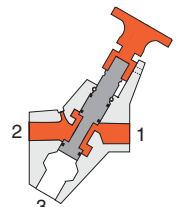
Valved Closed

With a short push of the red handle inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port at the bottom of the valve. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently where potential for human injury exists or while servicing machinery.



Valve Open

When the red handle is pulled out, supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position. The handle is not designed to be locked in this position, thereby providing for ready shut-off when necessary.



If a system requires gradual buildup of downstream pressure, see manual L-O-X® valves with EEZ-ON® operation.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Operating Pressure	0 to 300 psig (0 to 20.7 bar)
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Spool: 316 Stainless Steel Seals: Fluorocarbon
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Fluid Media	Filtered air		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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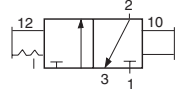
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Manual Lockout & Exhaust L-O-X[®] Valves High-Capacity

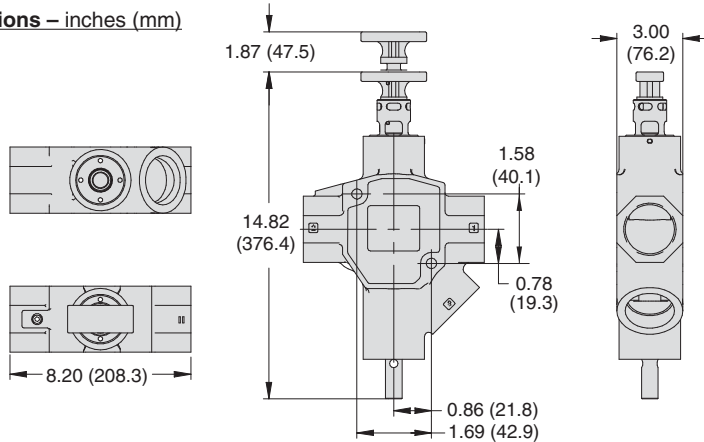
Energy Isolation 15 Series

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3-Way 2-Position Valve						
Port Size		Valve Model Number		C _v		Weight lb (kg)
1, 2	3	NPT Threads	G Threads	1-2	2-3	
1½	2	Y1523C8002	YD1523C8002	35.53	50.98	8.3 (3.7)
2	2	Y1523C9012	YD1523C9012	40.38	52.23	8.3 (3.7)



Valve Dimensions – inches (mm)



Valves can be padlocked in two locations, at the handle or at the end of the spool.

ACCESSORIES & OPTIONS

Silencers

Port Size	Thread Type	Model Number	Avg. C _v
2	Female - NPT	5500B9001	34.2
	Female - R/Rp	D5500B9001	34.2

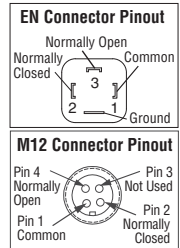
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Pop-Up Indicator

Model Number**	988A30
** 1/8 NPT port threads.	



Multiple Lockout Device

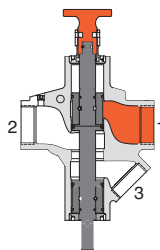
Model Number	356A30
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VALVE OPERATION

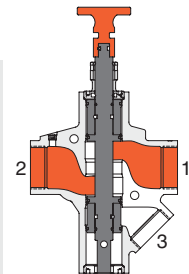
Valved Closed

With a short push of the red handle inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port while servicing or maintaining machinery. Padlock the L-O-X[®] valve in this position to prevent the handle from being pulled outward inadvertently to avoid potential for human injury while servicing machinery.



Valve Open

When the red handle is pulled out, supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position. The handle is not designed to be locked in this position, thereby providing for ready shut-off when necessary.



If a system requires gradual buildup of downstream pressure, see manual L-O-X[®] valves with EEZ-ON[®] operation.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Lock Hole	Diameter: 0.27 inch (7.0 mm) Length of Hole: 0.43 inch (10.9 mm)
Mounting Type	In-line		Construction Material
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Fluid Media	Filtered air		
Operating Pressure	0 to 300 psig (0 to 20.7 bar)		

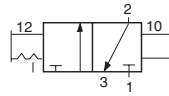
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manual Lockout & Exhaust L-O-X® Valves Stainless Steel

Energy Isolation 15 Series

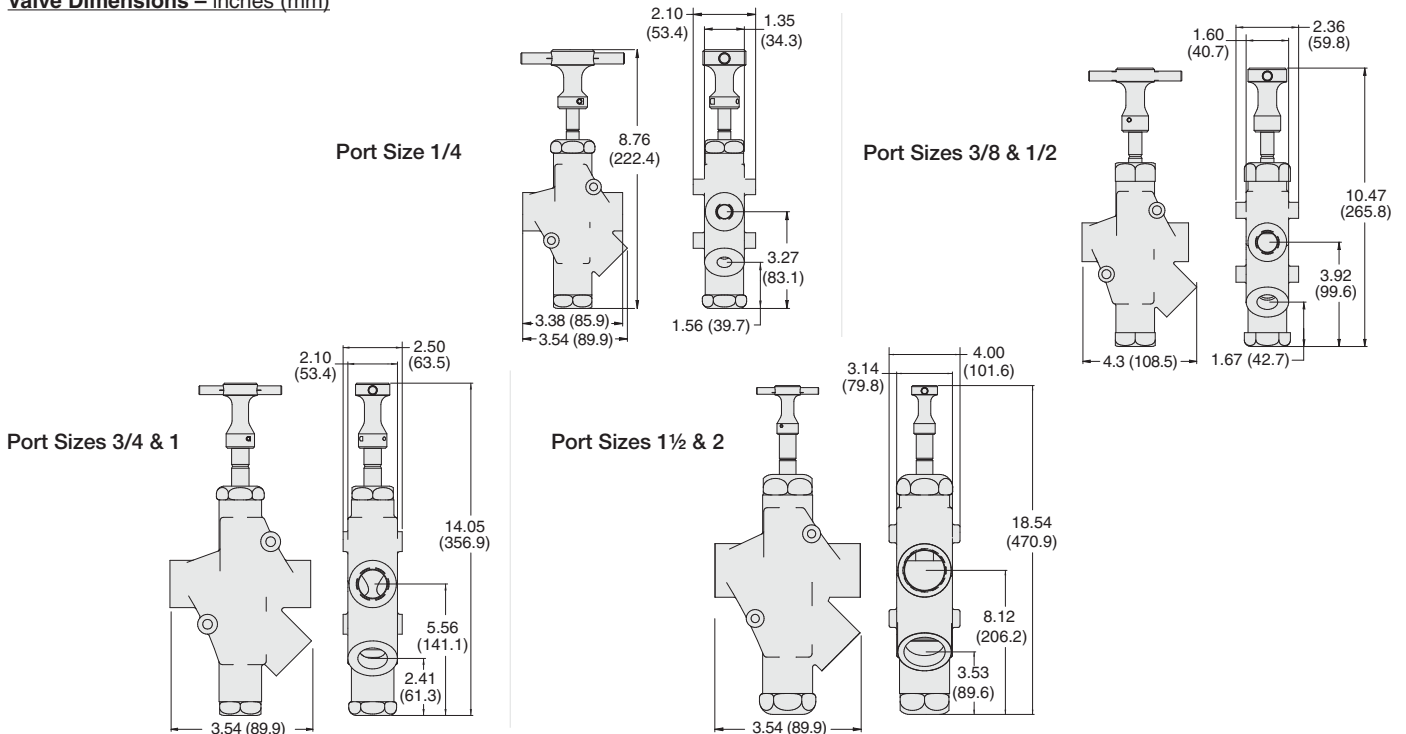
3-Way 2-Position Valve						
Port Size		Valve Model Number		C _v		Weight lb (kg)
1, 2	3	NPT Threads	G Threads	1-2	2-3	
1/4	1/4	1523B2004	D1523B2004	2.14	2.08	3.75 (1.70)
3/8	1/2	1523B3004	D1523B3004	5.79	6.24	6.0 (2.72)
1/2	1/2	1523B4004	D1523B4004	5.79	6.24	6.0 (2.72)
3/4	1	1523B5004	D1523B5004	14.30	17	13.0 (5.89)
1	1	1523B6004	D1523B6004	14.30	17	13.0 (5.89)
1½	2	1523B8004	D1523B8004	39	45	35.0 (15.87)
2	2	1523B9004	D1523B9004	39	45	35.0 (15.87)



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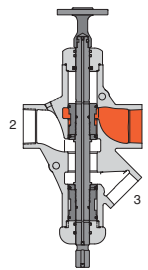
Valve Dimensions – inches (mm)



VALVE OPERATION

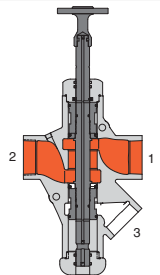
Valve Closed

With a push of the handle inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port while servicing or maintaining machinery. Padlock the L-O-X® valve in this position to prevent the handle from being pulled outward inadvertently to avoid potential for human injury while servicing machinery.



Valve Open

When the handle is pulled out, supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position. The handle is not designed to be locked in this position, thereby providing for ready shut-off when necessary.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Lock Hole	Diameter: Port Sizes 1/4 thru 2: 0.34 inch (8.64 mm) Length of Hole: Port Size 1/4: 0.44 in (11.17 mm). Port Size 1/2: 0.47 in (11.93 mm) Port Size 1 and 2: 0.55 inch (13.97 mm).
Mounting Type	In-line		
Temperature	Ambient/Media: 30° to 175°F (-1° to 80°C) <i>Note: For lower temperature ratings, consult ROSS.</i>	Construction Material	Valve Body: 316 Stainless Steel Spool: 316 Stainless Steel Seals: Fluorocarbon
Fluid Media	Filtered air		
Operating Pressure	0 to 300 psig (0 to 20.7 bar)		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Stainless Steel Silencers

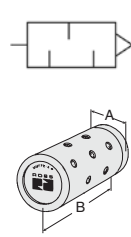
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- Supplied with a standard pipe thread fitting for attaching directly to the exhaust ports of air-operated equipment
 - » Models with 1/4" & 1/2" port size, all thread forms, have all stainless steel construction
 - » Models with 1" port size and NPT threads have all stainless steel construction
 - » Models with 1" port size and BSPT threads have standard construction consisting of nickel plated cold rolled steel
 - » Models with 2" port size, all thread forms, have standard construction consisting of nickel plated cold rolled steel

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		A	B	
1/4	Male	5500B2004	D5500B2004	1.44	0.56 (14.2)	1.75 (44.5)	0.05 (0.23)
1/2	Male	5500B4004	D5500B4004	3.01	0.87 (22.1)	2.75 (69.7)	0.25 (0.11)
1	Male	5500B6004	D5500B6004	10.41	1.31 (33.3)	3.87 (98.3)	0.45 (0.20)
2	Male	5500A9004	D5500A9004	28.11	2.37 (60.2)	5.50 (139.7)	1.5 (0.68)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.

Flow Media: Filtered air.



Silencers for Stainless Steel L-O-X® Air Entry Assemblies

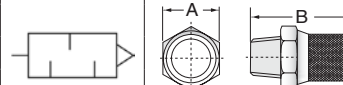
- 316 Stainless Steel sintered element silencers used to protect ports open to the atmosphere.

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)	
		NPT Threads	BSP Threads		A	B
1/4	Male	5500A2005	D5500A2005	1.5	0.67 (17)	1.50 (38)
1/2	Male	5500A4005	D5500A4005	3.5	0.94 (24)	2.17 (55)
1	Male	5500A6005	D5500A6005	5.7	1.41 (36)	2.95 (75)

Pressure Range: 0 to 174 psig (0 to 12 bar) maximum.

Flow Media: Filtered air.

Seals: Nitrile.



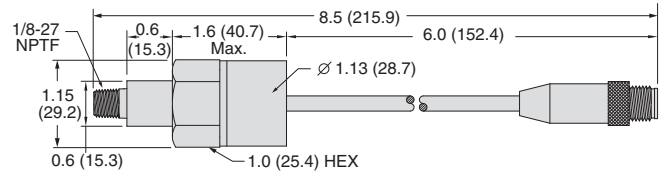
Stainless Steel Pressure Switch

- 316 Stainless Steel Body
- Nitrile Seals
- DPDT (Double-Pole Double-Throw Switch)
- Factory preset 5 psi (falling)

Inlet Port Size	Model Number	Weight lb (kg)
1/8	1162A30	0.23 (.01)



NPT port threads.

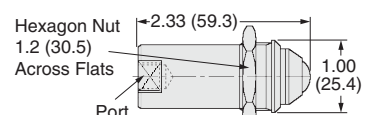


Stainless Steel Visual Indicator

- 316 Stainless Steel Body, internals and Springs
- Nitrile Seals
- Visual Indicator piston, Acetal
- Visual Indicator assembly, Acetal with acrylic lens

Inlet Port Size	Model Number	Dimensions inches (mm)		Weight lb (kg)
		A	B	
1/8	1155H30	2.33 (59.3)	1.00 (25.4)	0.22 (0.1)

NPT port threads.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Stainless Steel Cabinet for Wash-Down Applications

Pneumatic Energy Isolation (LOTO) Air Entry Assemblies

- Stainless steel control cabinet includes filter/regulator and Category 4 DM²® Series valve for Air Entry Control
- Stainless steel construction, designed for wash-down areas
- Control cabinet is built with slanted top to avoid pooling
- Control Reliable Energy Isolation

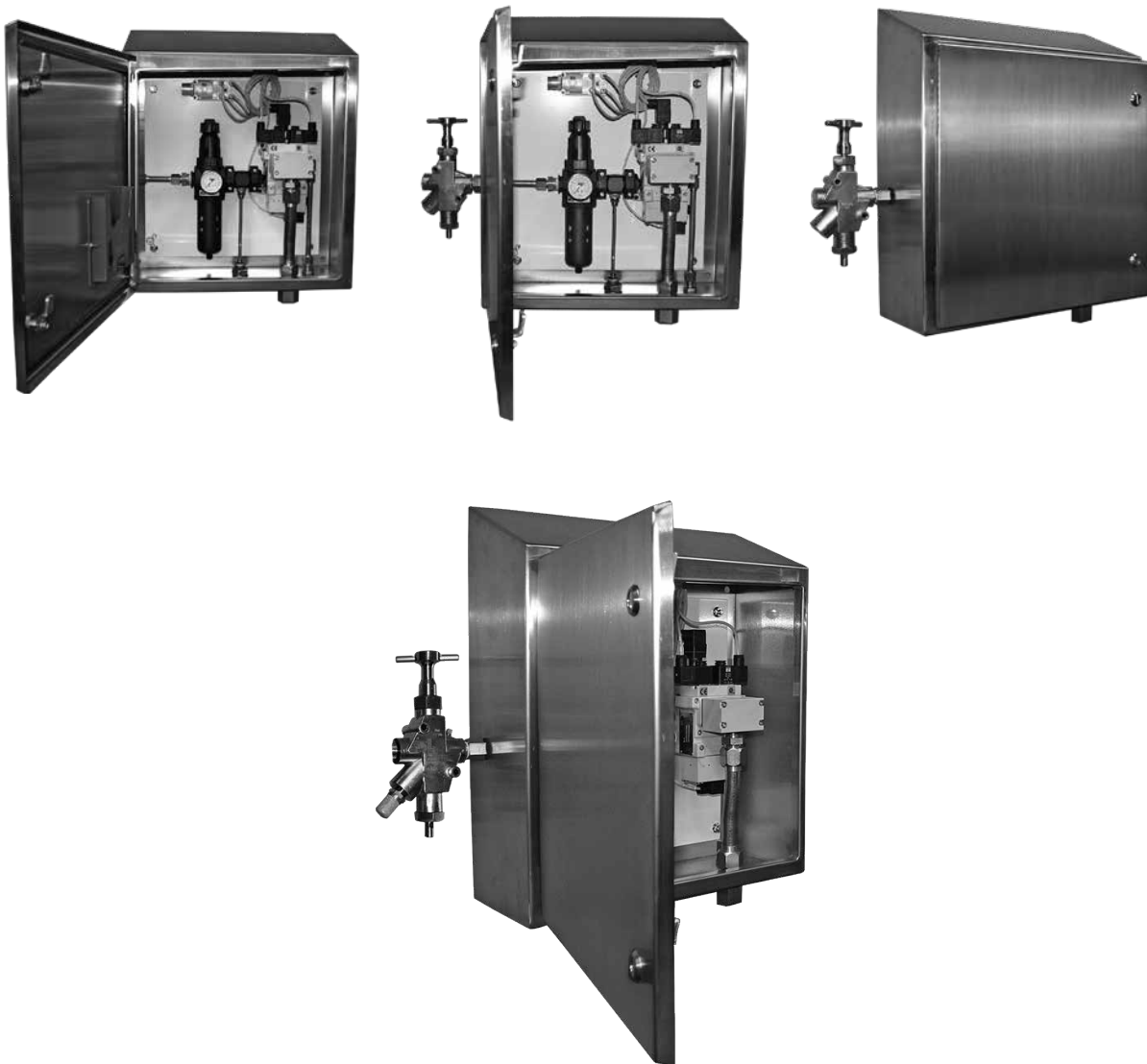
Cat. 2
PL c

Cat. 3
PL d

Cat. 4
PL e

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APPLICATIONS:

- Chemical Processing • Forestry • Mining • Pharmaceutical
- Pulp and Paper • Oil and Gas • Off-shore Industries

Will build to your specifications!

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.



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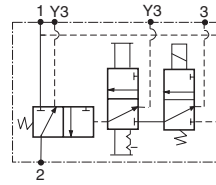
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3-Way 2-Position Valve

Port Size			Body Size	Valve Model Number		C _v		Weight lb (kg)
1, 2	3	NPT Threads		G Threads	1-2	2-3		
1/4	1/2	3/8	Y2773A2072W	YD2773A2072W	2.5	3.1	3.5 (1.6)	
3/8	1/2	3/8	Y2773A3072W	YD2773A3072W	3.6	5.3	3.5 (1.6)	
1/2	1/2	3/8	Y2773A4082W	YD2773A4082W	3.3	5.3	3.5 (1.6)	
1/2	1	3/4	Y2773A4072W	YD2773A4072W	6.3	9.2	4.3 (1.9)	
3/4	1	3/4	Y2773A5072W	YD2773A5072W	7.7	11	4.3 (1.9)	
1	1	3/4	Y2773A6082W	YD2773A6082W	8	12	4.3 (1.9)	
1	1½	1¼	Y2773A6072W	YD2773A6072W	23	34	8.0 (3.6)	
1¼	1½	1¼	Y2773A7072W	YD2773A7072W	30	32	8.0 (3.6)	
1½	1½	1¼	Y2773A8082W	YD2773A8082W	30	31	8.0 (3.6)	
1½	2½	2	Y2773A8072W	YD2773A8072W	68	70	17.5 (7.9)	
2	2½	2	Y2773A9072W	YD2773A9072W	70	70	17.5 (7.9)	
2½	2½	2	Y2773A9082W	YD2773A9082W	70	71	17.5 (7.9)	



**Cat. 1
PL b**



Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., Y2773A2072Z. For other voltages, consult ROSS.

ACCESSORIES & OPTIONS

Silencers

Port Size	Thread Type	Model Number		Avg. C _v
		NPT Threads	R/Rp Threads	
1/2	Male	5500A4003	D5500A4003	4.7
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9
2½	Female	5500A9002	D5500A9002	103.7

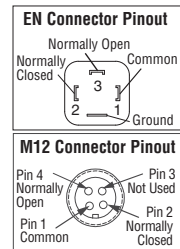
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Pop-Up Indicator

Model Number**	988A30
** 1/8 NPT port threads.	



Multiple Lockout Device

Model Number	356A30
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Indicator Light Kits

Kit Number		Indicator Light
24 volts DC	110-120 volts AC 50-60 Hz	
862K87-W	862K87-Z	

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	Body Size 3/8 thru 1½: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar)
Solenoids	AC or DC power; Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N; Fluorocarbon
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Power Consumption (each solenoid)	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		

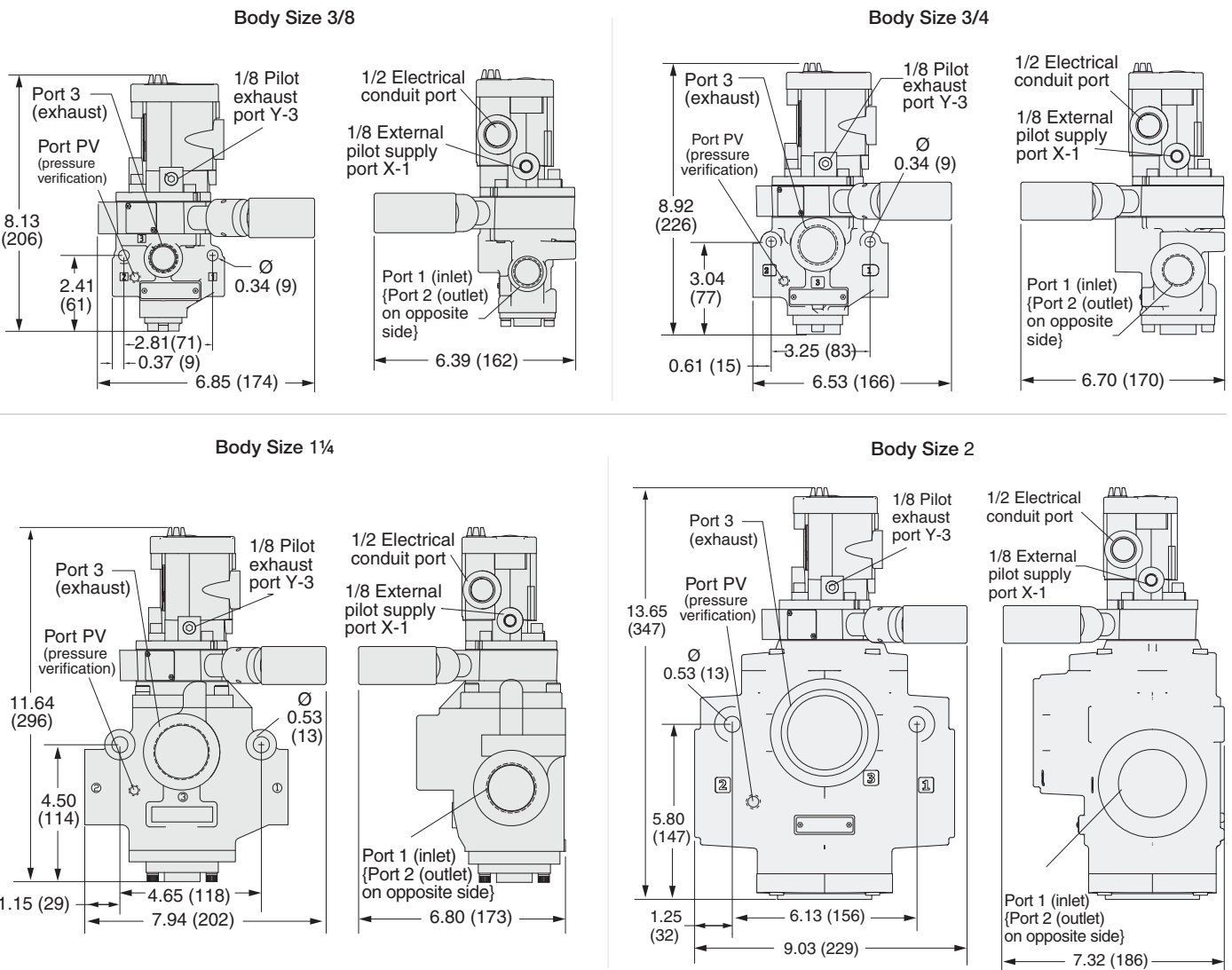
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Piloted Valves with Manual Lockout L-O-X® Control Solenoid Pilot Controlled

Energy Isolation 27 Series

Valve Dimensions – inches (mm)

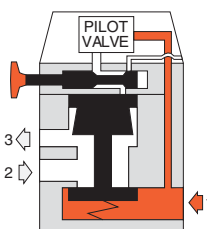


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VALVE OPERATION

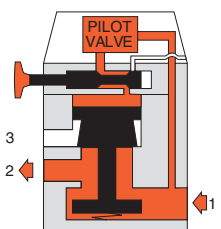
Pilot De-energized

With the solenoid pilot de-energized (regardless of the position of the L-O-X® handle) the inlet poppet remains closed. The outlet port is connected to the exhaust port so that pressure in the downstream lines is vented to atmosphere.



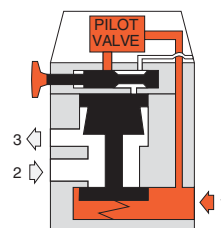
Pilot Energized

With the solenoid pilot energized and the L-O-X® control in the open position, air can flow from inlet to outlet port. The exhaust port is closed.



L-O-X® Valve Closed

With the handle pushed inward, the L-O-X® control is closed, and air to the valve piston is cut off. This allows the inlet poppet to be closed by its spring and the pressure of the inlet air. The outlet is connected to exhaust so downstream pressure is vented.



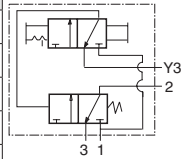
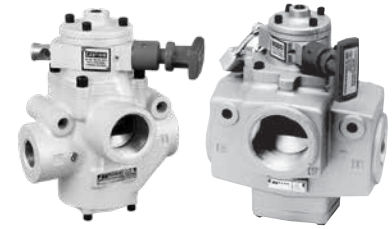
Piloted Valves with Manual Lockout L-O-X® Control Pressure Controlled

Energy Isolation 27 Series

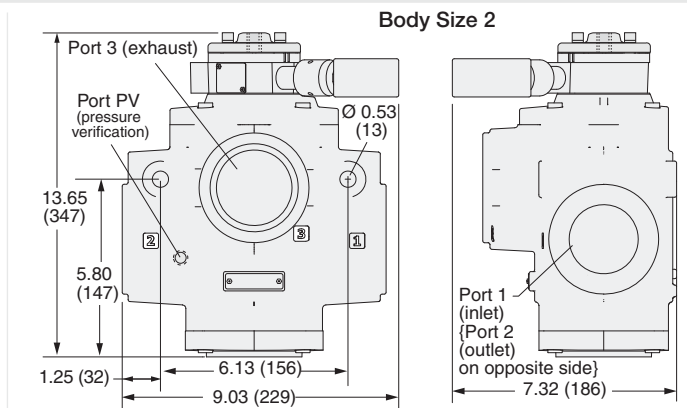
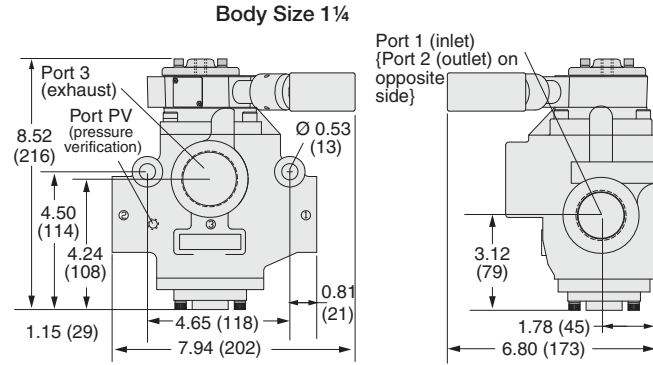
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3-Way 2-Position Valve, Internal Pressure Controlled								
Port Size			Body Size	Valve Model Number		C _v		Weight lb (kg)
1, 2	3	NPT Threads		G Threads	1-2	2-3		
1	1½	1¼	Y2783A6006	YD2783A6006	23	34	7.0 (3.2)	
1¼	1½	1¼	Y2783A7006	YD2783A7006	30	32	7.0 (3.2)	
1½	1½	1¼	Y2783A8016	YD2783A8016	30	31	7.0 (3.2)	
1½	2½	2	Y2783A8006	YD2783A8006	68	70	15.3 (6.9)	
2	2½	2	Y2783A9006	YD2783A9006	70	70	15.3 (6.9)	
2½	2½	2	Y2783A9016	YD2783A9016	70	71	15.3 (6.9)	



Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

Silencers				
Port Size	Thread Type	Model Number		Avg. C _v
		NPT Threads	R/Rp Threads	
1½	Female	5500A8001	D5500A8001	29.9
2½	Female	5500A9002	D5500A9002	103.7

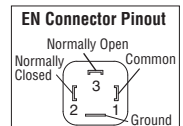
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



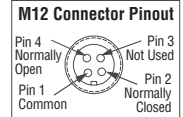
Port size 1½ thru 2 Port size 2½

Pressure Switches		
Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Pop-Up Indicator	Model Number**	988A30
	** 1/8 NPT port threads.	

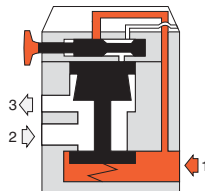


Multiple Lockout Device	Model Number	356A30
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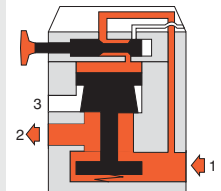


VALVE OPERATION

Valve Closed With a short push of the red handle inward the flow of supply air is blocked and downstream air is exhausted via the exhaust port. Air pressure on the inlet and exhaust poppets produces a large closing force. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.



Valve Open With the red handle pulled out, pilot air flows to the top of the actuating piston, causing it to open the inlet poppet. Supply air then flows freely from inlet to outlet, and the exhaust port is blocked. A detent keeps the L-O-X® handle in the open position. The handle is designed not to be locked in the open position, thereby allowing for quick shut-off when necessary.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N; Fluorocarbon
Mounting Type	In-line	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	Body Size 1¼: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar)		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Piloted Valves with Manual Lockout L-O-X[®] Control

Solenoid Pilot Controlled

Energy Isolation

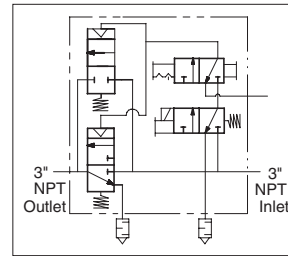
L-O-X[®] Series

3 Inch L-O-X[®] Valve for Lockout

3-Way 2-Position Valve

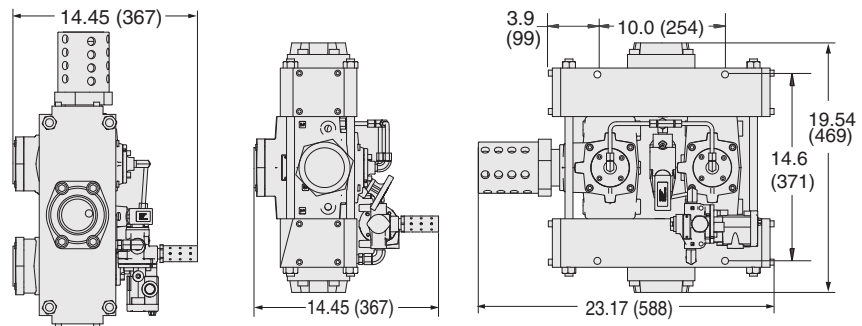
Port Size		Valve Model Number#	C _v		Weight lb (kg)
1, 2	3	NPT Threads	1-2	2-3	
3	2½	Y3900A0896W	140	71	115 (53.0)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., Y3900A0896Z.
For other voltages, consult ROSS.



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Valve Dimensions – inches (mm)



OPTIONS

Multiple Lockout Device

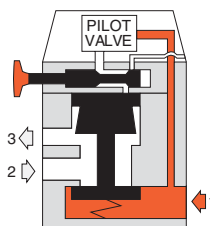
Model Number 356A30



VALVE OPERATION

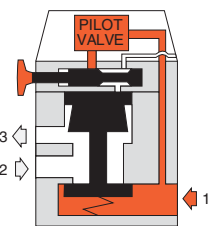
Pilot De-energized

With the solenoid pilot de-energized (regardless of the position of the L-O-X[®] handle) the inlet poppet remains closed. The outlet port is connected to the exhaust port so that pressure in the downstream lines is vented to atmosphere.



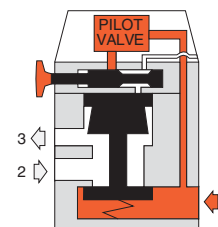
Pilot Energized

With the solenoid pilot energized and the L-O-X[®] control in the open position, air can flow from inlet to outlet port. The exhaust port is closed.



L-O-X[®] Valve Closed

With the handle pushed inward, the L-O-X[®] control is closed, and air to the valve piston is cut off. This allows the inlet poppet to be closed by its spring and the pressure of the inlet air. The outlet is connected to exhaust so downstream pressure is vented.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	AC or DC power; Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: 316 Stainless Steel Seals: Fluorocarbon
Power Consumption (each solenoid)	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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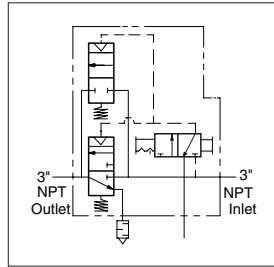
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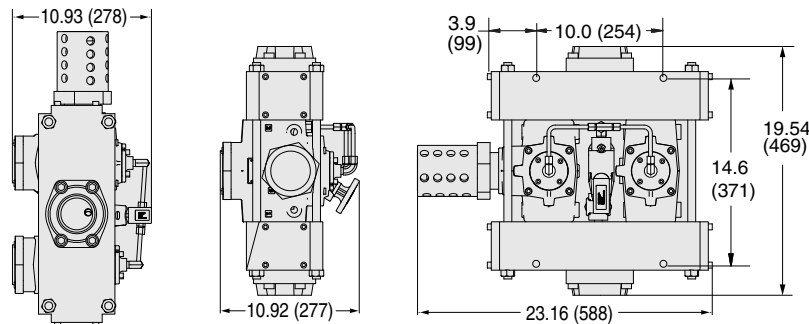
3 Inch L-O-X® Valve for Lockout

3-Way 2-Position Valve

Port Size		Valve Model Number	C _v		Weight lb (kg)
1, 2	3	NPT Threads	1-2	2-3	
3	2½	Y3900A0829	140	71	110 (49.9)



Valve Dimensions – inches (mm)



OPTIONS

Multiple Lockout Device

Model Number

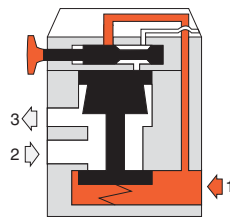
356A30



VALVE OPERATION

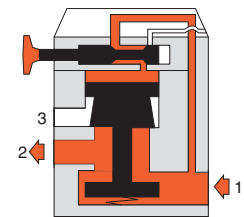
Valve Closed

With a short push of the red handle inward the flow of supply air is blocked and downstream air is exhausted via the exhaust port. Air pressure on the inlet and exhaust poppets produces a large closing force. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.



Valve Open

With the red handle pulled out, pilot air flows to the top of the actuating piston, causing it to open the inlet poppet. Supply air then flows freely from inlet to outlet, and the exhaust port is blocked. A detent keeps the L-O-X® handle in the open position. The handle is designed not to be locked in the open position, thereby allowing for quick shut-off when necessary.

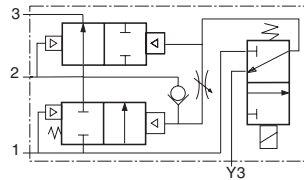


STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Valve Body: Cast Aluminum
Mounting Type	In-line	Spool: 316 Stainless Steel
Temperature	40° to 175°F (4° to 80°C)	Seals: Fluorocarbon
Flow Media	Filtered air	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Pilot Supply	External	
Operating Pressure	30 to 150 psig (2 to 10 bar)	

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valve								
Port Size 1, 2, 3	Body Size	Valve Model Number#		C _v		Weight lb (kg)		
		NPT Threads	G Threads	1-2	2-3			
1/4	1/2	3/8	2773B2037W	D2773B2037W	2.5	3.1	4.5 (2.0)	
3/8	1/2	3/8	2773B3037W	D2773B3037W	3.6	5.3	4.5 (2.0)	
1/2	1/2	3/8	2773B4047W	D2773B4047W	3.3	5.3	4.5 (2.0)	
1/2	1	3/4	2773B4037W	D2773B4037W	10	13	5.0 (2.3)	
3/4	1	3/4	2773B5037W	D2773B5037W	12	15	5.0 (2.3)	
1	1	3/4	2773B6047W	D2773B6047W	12	16	5.0 (2.3)	
1	1½	1¼	2773A6037W	D2773A6037W	23	34	8.8 (4.0)	
1¼	1½	1¼	2773A7037W	D2773A7037W	30	32	8.8 (4.0)	
1½	1½	1¼	2773A8047W	D2773A8047W	30	31	8.8 (4.0)	

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2773B2037Z For other voltages, consult ROSS.




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ACCESSORIES & OPTIONS


Silencers				
Port Size	Thread Type	Model Number		Avg. C _v
		NPT Threads	R/Rp Threads	
1/2	Male	5500A4003	D5500A4003	4.7
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9


Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.




Indicator Light Kits		Indicator Light
Kit Number		
24 volts DC	110-120 volts AC 50-60 Hz	
862K87-W	862K87-Z	

Manual Overrides

Flush Button		
Locking Type	Kit Number	
Non-Locking	790K87	
Locking	792K87	

Extended Button		
Locking Type	Kit Number	
Non-Locking	791K87	

Extended Button with Palm		
Locking Type	Kit Number	
Non-Locking	984H87	

NOTE: The 3/2 EEZ-ON® valve is also available with a L-O-X® adapter so that both L-O-X® and EEZ-ON® functions are consolidated in a single valve.

STANDARD SPECIFICATIONS (for valves on this page):

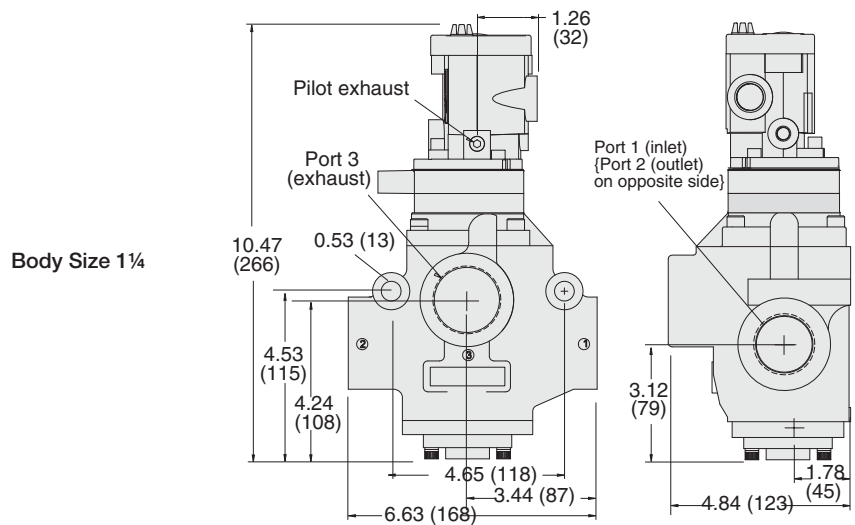
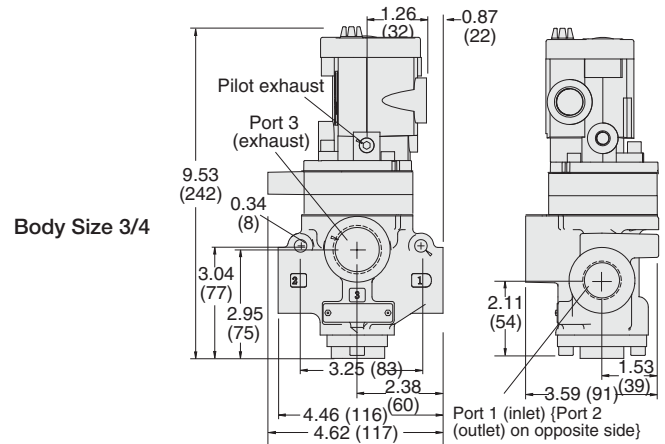
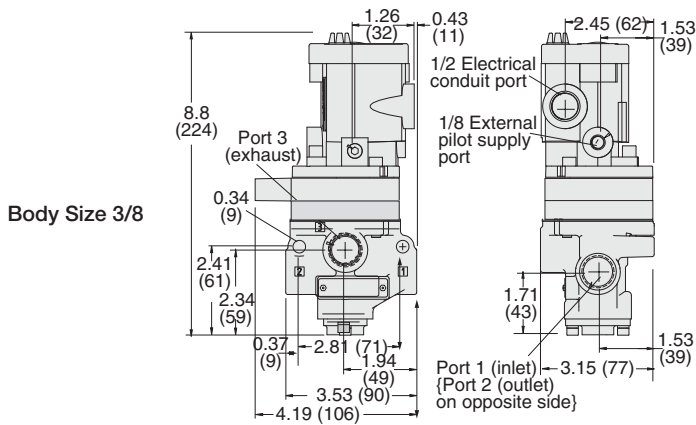
Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	AC or DC power; Rated for continuous duty	Operating Pressure	15 to 150 psig (1 to 10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT≥1, for details see certificate.	
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

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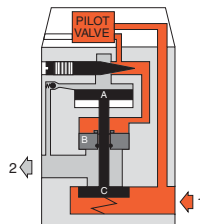
Valve Dimensions – inches (mm)



VALVE OPERATION

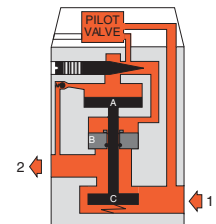
Pilot Not Energized

Pilot air is blocked by the pilot. Any downstream pressure forces piston B (which slides on the valve stem) upward. This opens the exhaust port and vents the downstream line.



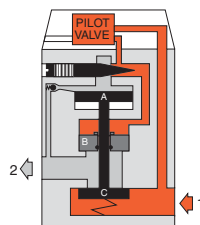
Full Pressure

When the pressure on piston A reaches approximately 50 percent of inlet pressure, it is forced downward and opens inlet poppet C. Full inlet pressure now flows freely to the outlet port.



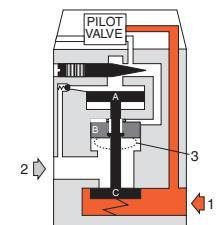
Pilot Energized

Pilot air forces piston B downward to close the exhaust port. Pilot air also flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston A.



Pilot De-energized

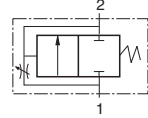
Air above pistons A and B is exhausted through the exhaust port of the pilot valve. Air above poppet C forces sliding piston B upward so that the main exhaust port is opened and the pressurized air is exhausted.





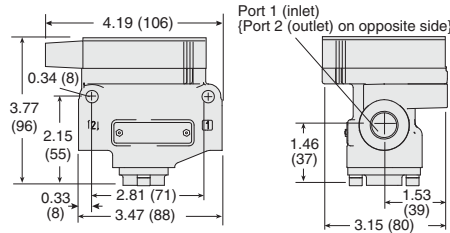
A
A1

2-Way 2-Position Valves					
Port Size	Body Size	Valve Model Number		C _v	Weight lb (kg)
		NPT Threads	G Threads		
1/4	3/8	2781A2007	D2781A2007	2.3	1.5 (0.7)
3/8	3/8	2781A3007	D2781A3007	3.8	1.5 (0.7)
1/2	3/8	2781A4017	D2781A4017	4	1.5 (0.7)
1/2	3/4	2781A4007	D2781A4007	13	2.3 (1.0)
3/4	3/4	2781A5007	D2781A5007	15	2.3 (1.0)
1	3/4	2781A6017	D2781A6017	16	2.3 (1.0)
1	1¼	2781A6007	D2781A6007	24	6.0 (2.7)
1¼	1¼	2781A7007	D2781A7007	29	6.0 (2.7)
1½	1¼	2781A8017	D2781A8017	29	6.0 (2.7)

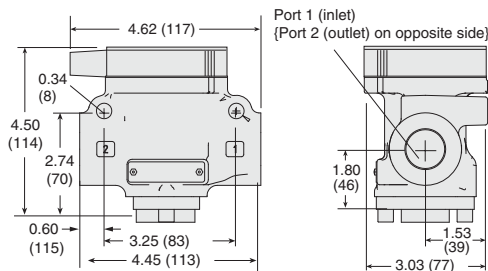


Valve Dimensions – inches (mm)

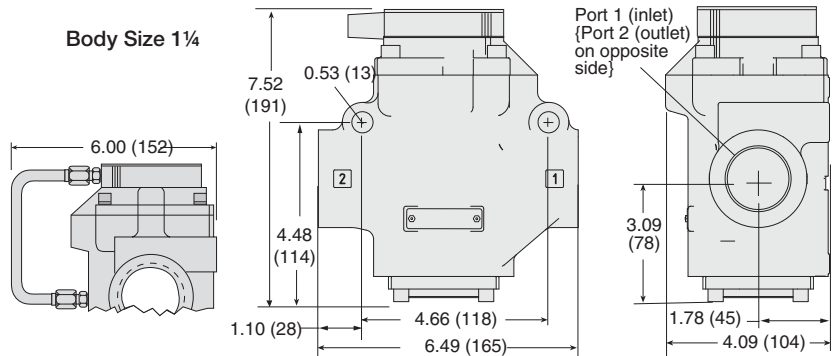
Body Size 3/8



Body Size 3/4



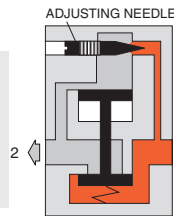
Body Size 1¼



VALVE OPERATION

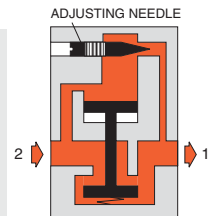
Air Pressure to Inlet

When air pressure is first applied to the inlet, air flow to the piston is restricted by the adjustable needle in the delay orifice. Downstream air pressure gradually builds up at a rate determined by the setting of the adjustable needle.



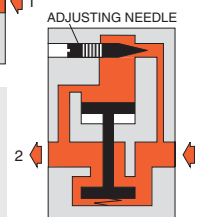
Inlet Pressure Removed

When inlet pressure is removed, the exhausting downstream air pressure keeps the inlet poppet open until the downstream pressure drops by approximately 90 percent. The remaining pressure is exhausted via the delay orifice.



Valve Opens to Full Flow

When downstream air pressure reaches approximately 40 to 60 percent of inlet pressure, the valve element shifts to the full open position and there is full air flow to the downstream components. This condition continues as long as inlet air pressure is present.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10 bar)		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



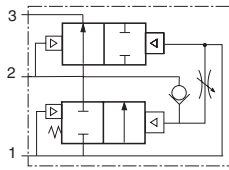
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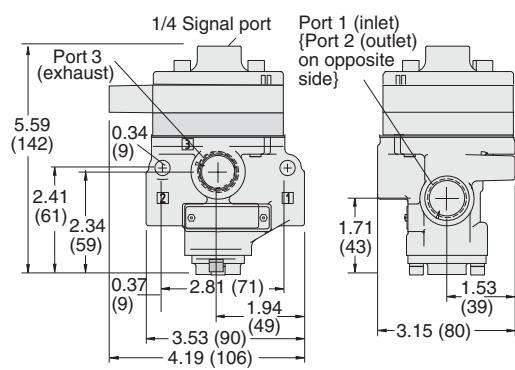
A1

3-Way 2-Position Valve								
Port Size		Body Size	Valve Model Number		C _v		Weight lb (kg)	
1, 2	3		NPT Threads	G Threads	1-2	2-3		
1/4	1/2	3/8	2783C2037	D2783C2037	2.5	3.1	4.5 (2.0)	
3/8	1/2	3/8	2783C3037	D2783C3037	3.6	5.3	4.5 (2.0)	
1/2	1/2	3/8	2783C4047	D2783C4047	3.3	5.3	4.5 (2.0)	
1/2	1	3/4	2783C4037	D2783C4037	10	13	5.0 (2.3)	
3/4	1	3/4	2783C5037	D2783C5037	12	15	5.0 (2.3)	
1	1	3/4	2783C6047	D2783C6047	12	16	5.0 (2.3)	
1	1½	1¼	2783B6037	D2783B6037	23	34	8.8 (4.0)	
1¼	1½	1¼	2783B7037	D2783B7037	30	32	8.8 (4.0)	
1½	1½	1¼	2783B8047	D2783B8047	30	31	8.8 (4.0)	



Valve Dimensions – inches (mm)

Body Size 3/8



ACCESSORIES

Silencers

Port Size	Thread Type	Model Number		Avg. C _v
		NPT Threads	R/Rp Threads	
1/2	Male	5500A4003	D5500A4003	4.7
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10 bar)		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



27 Series Valve Technical Data & Operation

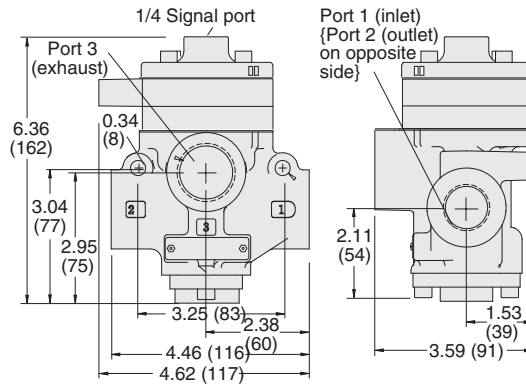
Soft-Start EEZ-ON® Valves Pressure Controlled

Valve Dimensions – inches (mm)

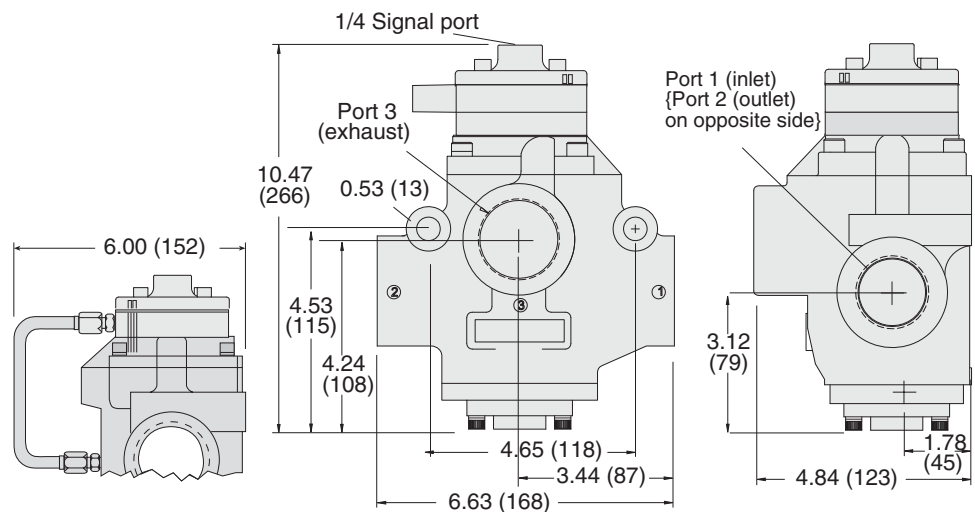
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Body Size 3/4



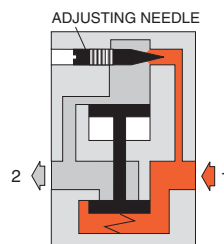
Body Size 1 1/4



VALVE OPERATION

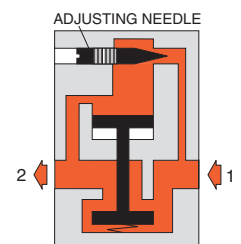
Air Pressure to Inlet

When air pressure is first applied to the inlet, air flow to the piston is restricted by the adjustable needle in the delay orifice. Downstream air pressure gradually builds up at a rate determined by the setting of the adjustable needle.



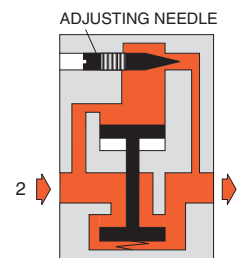
Valve Opens to Full Flow

When downstream air pressure reaches approximately 40 to 60 percent of inlet pressure, the valve element shifts to the full open position and there is full air flow to the downstream components. This condition continues as long as inlet air pressure is present.



Inlet Pressure Removed

When inlet pressure is removed, the exhausting downstream air pressure keeps the inlet poppet open until the downstream pressure drops by approximately 90 percent. The remaining pressure is exhausted via the delay orifice.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Manual Lockout & Exhaust L-O-X® Valves with Soft-Start EEZ-ON®

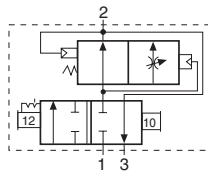
Energy Isolation 15 Series

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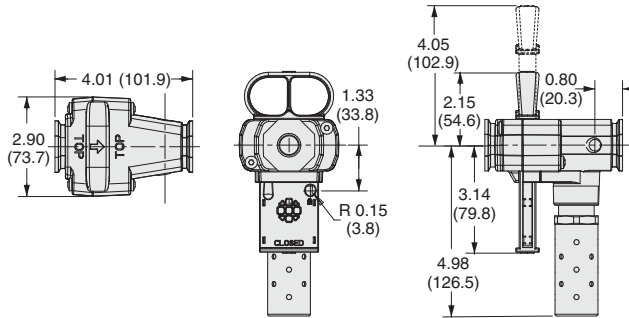
A1

3-Way 2-Position Valve, Modular

Port Size		Valve Model Number		C _v		Weight lb (kg)
1, 2	3	NPT Threads	G Threads	1-2	2-3	
1/4	3/4	Y1523A2103	YD1523A2103	3.7	7.8	1.7 (0.8)
3/8	3/4	Y1523A3103	YD1523A3103	5.1	8.3	1.7 (0.8)
1/2	3/4	Y1523A4103	YD1523A4103	5.5	8.6	1.8 (0.8)
3/4	3/4	Y1523A5113	YD1523A5113	5.6	8.1	1.8 (0.8)



Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

Silencers

Port Size	Thread Type	Model Number	Avg. C _v
3/4	Male - NPT	5500A5003	11.5
	Male - R/Rp	D5500A5003	11.5

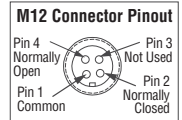
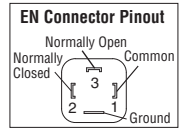
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.



Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Pop-Up Indicator

Model Number**	988A30
** 1/8 NPT port threads.	



Multiple Lockout Device

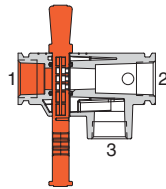
Model Number	356A30
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VALVE OPERATION

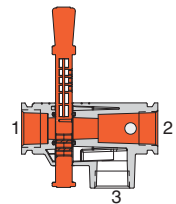
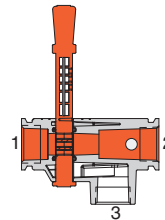
Valved Closed

With a short push of the blue handle inward, the flow of supply is blocked and downstream air is exhausted via the exhaust port at the bottom of the valve. It is required by OSHA that the L-O-X® valves with EEZ-ON® operation be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.



EEZ-ON® Function

The blue handle will only shift part way due to a mechanical stop button allowing only partial flow from inlet to downstream causing the pressure to increase at a slower rate.



Valve Open

Pressing the mechanical stop button allows the blue handle to be shifted completely open allowing full flow from inlet to downstream.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Lock Hole	Diameter: 0.27 inch (7.0 mm) Length of Hole: 0.43 inch (10.9 mm)
Mounting Type	Modular; In-line	Construction Material	Valve Body: Cast Aluminum Spool: 316 Stainless Steel Seals: Fluorocarbon
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Fluid Media	Filtered air		
Operating Pressure	0 to 200 psig (0 to 14 bar)		

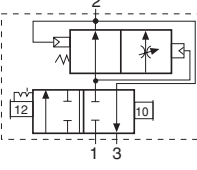
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manual Lockout & Exhaust L-O-X® Valves with Soft-Start EEZ-ON®

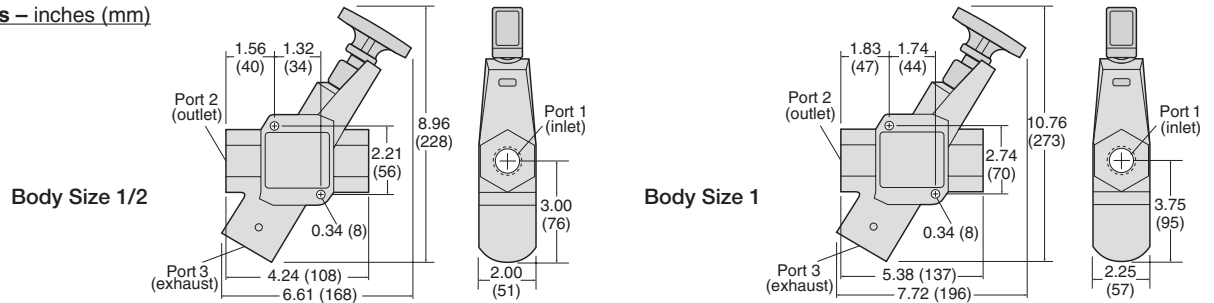
Energy Isolation 15 Series

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A1

3-Way 2-Position Valve, Classic								
Port Size		Body Size	Valve Model Number		C _v		Weight lb (kg)	
1, 2	3		NPT Threads	G Threads	1-2	2-3		
3/8	3/4	1/2	Y1523B3102	YD1523B3102	3.64	2.81	2.0 (0.9)	
1/2	3/4	1/2	Y1523B4102	YD1523B4102	4.86	3.51	2.0 (0.9)	
3/4	3/4	1/2	Y1523B5112	YD1523B5112	5.09	2.91	2.0 (0.9)	
3/4	1 1/4	1	Y1523B5102	YD1523B5102	10.08	8.56	3.0 (1.4)	
1	1 1/4	1	Y1523B6102	YD1523B6102	11.07	8.45	3.0 (1.4)	
1 1/4	1 1/4	1	Y1523B7112	YD1523B7112	11.86	8.46	3.0 (1.4)	



Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

Silencers			
Port Size	Thread Type	Model Number	Avg. C _v
3/4	Male - NPT	5500A5003	11.5
	Male - R/Rp	D5500A5003	11.5
1 1/4	Male - NPT	5500A7013	16.4
	Male - R/Rp	D5500A7013	16.4

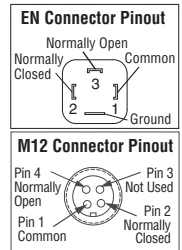
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.



Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Pop-Up Indicator

Model Number**	988A30
** 1/8 NPT port threads.	



Multiple Lockout Device

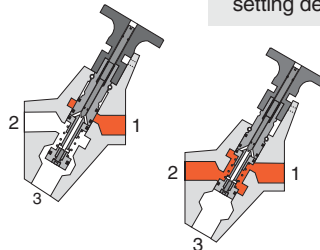
Model Number	356A30
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VALVE OPERATION

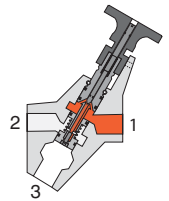
Valved Closed

With a short push of the blue handle inward, the flow of supply is blocked and downstream air is exhausted via the exhaust port at the bottom of the valve. It is required by OSHA that the L-O-X® valves with EEZ-ON® operation be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.



EEZ-ON® Function

With the blue handle pulled out, the adjustable needle valve (accessed through top of handle) setting determines the rate of pressure buildup.



Valve Open

After the blue handle is pulled out and pressure downstream has gradually increased, the valve automatically changes to a fully open state, allowing full flow from inlet to downstream. Full flow is achieved at approximately 50% of inlet pressure.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Operating Pressure	0 to 150 psig (0 to 10 bar)
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Spool: 316 Stainless Steel Seals: Fluorocarbon
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Fluid Media	Filtered air		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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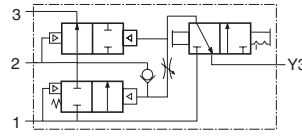
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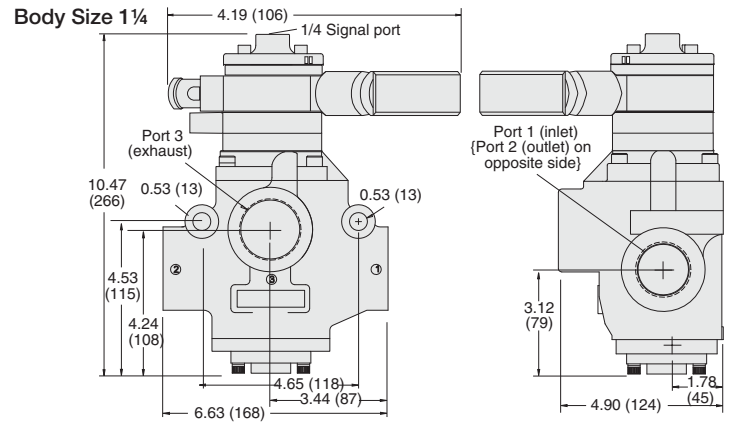
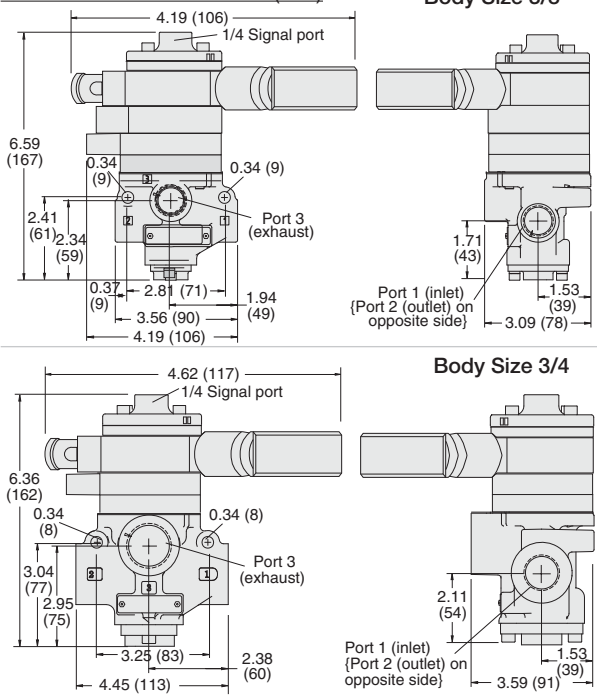
Manual Lockout L-O-X® Valves with Soft-Start EEZ-ON® – Pressure Controlled

Energy Isolation 27 Series

3-Way 2-Position Valve, Manual Lockout Controlled							
Port Size			Valve Model Number		C _v		Weight
1, 2	3	Body Size	NPT Threads	G Threads	1-2	2-3	lb (kg)
1/4	1/2	3/8	Y2783B2055	YD2783B2055	2.5	3.1	4.3 (2.0)
3/8	1/2	3/8	Y2783B3055	YD2783B3055	3.6	5.3	4.3 (2.0)
1/2	1/2	3/8	Y2783B4065	YD2783B4065	3.3	5.3	4.3 (2.0)
1/2	1	3/4	Y2783B4055	YD2783B4055	10	13	4.8 (2.2)
3/4	1	3/4	Y2783B5055	YD2783B5055	12	15	4.8 (2.2)
1	1	3/4	Y2783B6065	YD2783B6065	12	16	4.8 (2.2)
1	1½	1¼	Y2783A6055	YD2783A6055	23	34	7.9 (3.6)
1¼	1½	1¼	Y2783A7055	YD2783A7055	30	32	7.9 (3.6)
1½	1½	1¼	Y2783A8065	YD2783A8065	30	31	7.9 (3.6)



Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS

Silencers				
Port Size	Thread Type	Model Number		Avg. C _v
		NPT Threads	R Threads	
1/2	Male	5500A4003	D5500A4003	4.7
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 290 psig (0 to 20 bar) max.
Flow Media: Filtered air.



Multiple Lockout Device	Model Number	356A30
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VALVE OPERATION

L-O-X® Valve (Handle) Open

Pilot air forces piston B downward to close the exhaust port. Pilot air flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston A.

Full Pressure

With a short push of the red handle inward the flow of supply air is blocked and downstream air is exhausted via the exhaust port. Air pressure on the inlet and exhaust poppets produces a large closing force. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.

L-O-X® Valve (Handle) Closed

Pilot air forces piston B downward to close the exhaust port. Pilot air flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston A.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Construction Material	Valve Body: Cast Aluminum Spool: 316 Stainless Steel Seals: Fluorocarbon
Mounting Type	In-line	Safety Integrity Level (SIL) -	Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Fluid Media	Filtered air		
Pilot Supply	External		
Operating Pressure	40 to 150 psig (2.8 to 10 bar)		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Manual Lockout L-O-X[®] Valves with Soft-Start EEZ-ON[®] – Solenoid Pilot Controlled

Energy Isolation
27 Series

3-Way 2-Position Valve, Manual Lockout Controlled								
Port Size		Body Size	Valve Model Number#		C _v		Weight lb (kg)	
1, 2	3		NPT Threads	G Threads	1-2	2-3		
1/4	1/2	3/8	Y2773B2075W	YD2773B2075W	2.5	3.1	5.3 (2.4)	
3/8	1/2	3/8	Y2773B3075W	YD2773B3075W	3.6	5.3	5.3 (2.4)	
1/2	1/2	3/8	Y2773B4085W	YD2773B4085W	3.3	5.3	5.3 (2.4)	
1/2	1	3/4	Y2773B4075W	YD2773B4075W	10	13	6.0 (2.7)	
3/4	1	3/4	Y2773B5075W	YD2773B5075W	12	15	6.0 (2.7)	
1	1	3/4	Y2773B6085W	YD2773B6085W	12	16	6.0 (2.7)	
1	1½	1¼	Y2773B6075W	YD2773B6075W	23	34	9.5 (4.3)	
1¼	1½	1¼	Y2773B7075W	YD2773B7075W	30	32	9.5 (4.3)	
1½	1½	1¼	Y2773B8085W	YD2773B8085W	30	31	9.5 (4.3)	

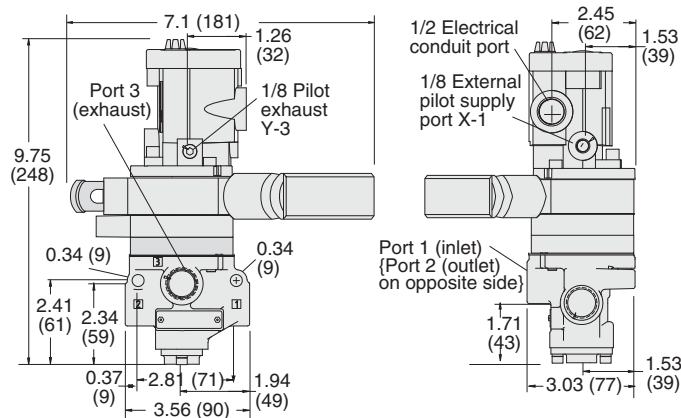
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., Y2773B2075Z. For other voltages, consult ROSS.

Cat. 1
PL b

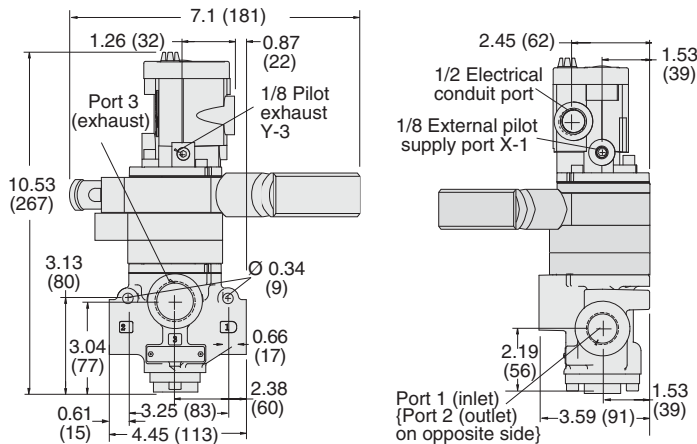


Valve Dimensions – inches (mm)

Body Size 3/8



Body Size 3/4



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	AC or DC power; Rated for continuous duty	Operating Pressure	40 to 150 psig (2.8 to 10.3 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum
Power Consumption (each solenoid)	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz		Poppet: Acetal and Stainless Steel
Temperature	Ambient: 40° to 120°F (4° to 50°C)	Seals: Buna-N; Fluorocarbon	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
	Media: 40° to 175°F (4° to 80°C)		

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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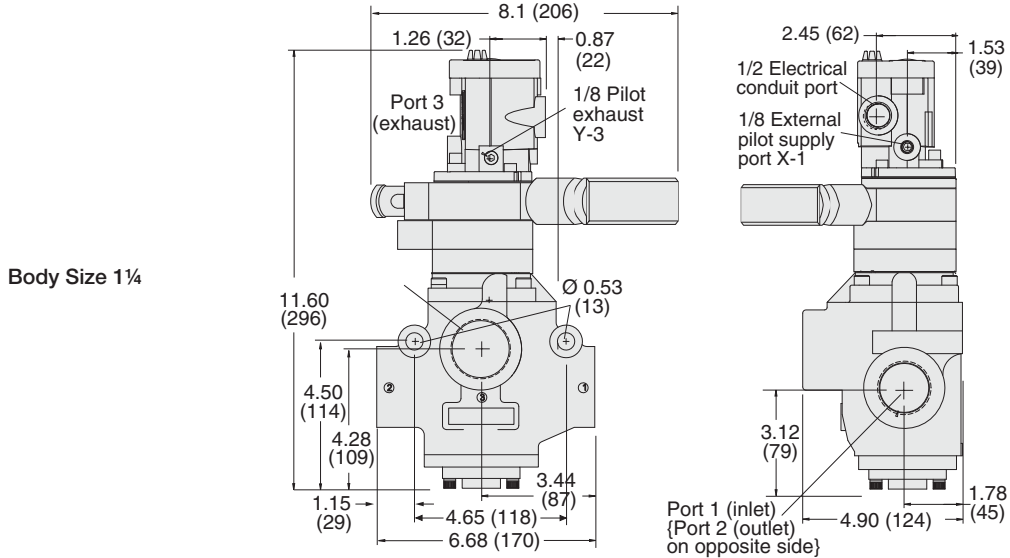
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Manual Lockout L-O-X[®] Valves with Soft-Start EEZ-ON[®] – Solenoid Pilot Controlled

Energy Isolation 27 Series

Valve Dimensions – inches (mm)



ACCESSORIES & OPTIONS


Silencers

Port Size	Thread Type	Model Number		Avg. C _v
		NPT Threads	R/Rp Threads	
1/2	Male	5500A4003	D5500A4003	4.7
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



Indicator Light Kits

Indicator Light Kits	Kit Number		Indicator Light 
	24 volts DC	110-120 volts AC 50-60 Hz	
	862K87-W	862K87-Z	

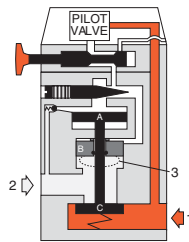
Multiple Lockout Device

Multiple Lockout Device	Model Number	356A30 

VALVE OPERATION

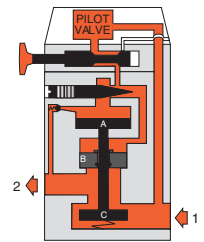
L-O-X[®] Handle Open and Pilot Not Energized

Pilot air is blocked by the pilot. Any downstream pressure forces piston B (which slides on the valve stem) upward. This opens the exhaust port and vents the downstream line.



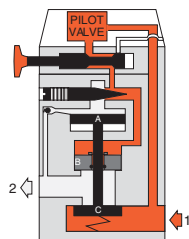
Full Pressure

When the pressure on piston A reaches approximately 50 percent of inlet pressure, it is forced downward and opens inlet poppet C. Full inlet pressure now flows freely to the outlet port.



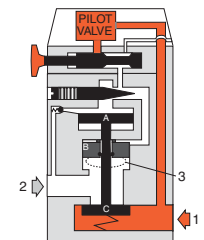
L-O-X[®] Handle Open and Pilot Energized

Pilot air forces piston B downward to close the exhaust port. Pilot air also flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston A.



L-O-X[®] Handle Closed

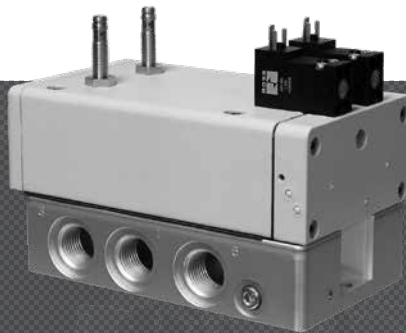
At any time the L-O-X[®] handle can be pushed inward, thereby closing off the flow of pilot air. Pilot air above pistons A and B is then vented to atmosphere. Piston A moves upward and closes inlet poppet C. Sliding piston B also moves upward to open the exhaust port and vents the downstream line.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



SAFE CYLINDER RETURN CONTROL RELIABLE MONITORED VALVES



ROSS CONTROLS

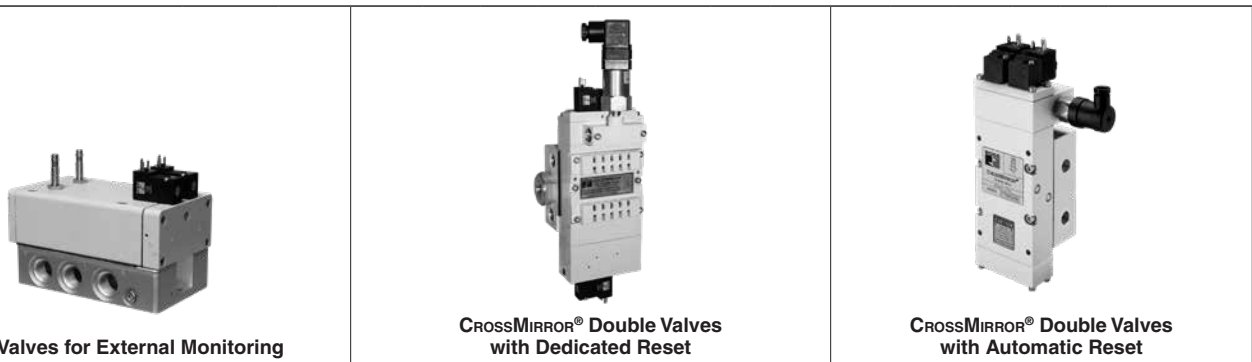
5/2 RSe Series – KEY FEATURES

- Rapid response for minimum actuating time
- Status indicator provides valve condition (ready-to-run) feedback
- Position sensors for valve fault monitoring – external monitoring device required
- Well-proven spool valve design for reliable, smooth function
- External pilot supply port is a standard feature
- Base-mounting design

5/2 CROSSMIRROR® Series – KEY FEATURES

- Can be used as 3/2 Normally Closed or 3/2 Normally Open valve function by plugging the unused outlet port
- Self-contained dynamic monitoring system; no additional monitoring required
- Valve fault results in a lockout condition and prevents unintentional reset with removal of air or electricity
- Reset can be electrical solenoid or remote pneumatic signal
- Status indication switch (ready-to-run) to inform machine controller of valve condition
- Base mounted, stainless steel spool valve construction
- Manifoldable for multi valve applications
- Includes non-clogging safety mufflers; for applications requiring ported exhaust, consult ROSS

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.



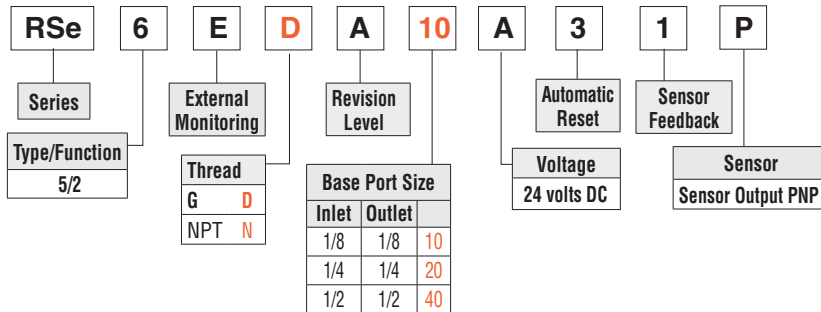
VALVE TYPE	VALVE SERIES	OPERATION		AVAILABLE PORT SIZES					MAX. FLOW Cv					RESET		Page
		AIR PILOT	SOLENOID	1/8	1/4	3/8	1/2	3/4	Port Size					REMOTE	SOLENOID	
									1/8	1/4	3/8	1/2	3/4			
DOUBLE VALVES Designed for External Monitoring																
with Proximity Sensors	RSe								0.85	0.98		2.07				A4.3 - A4.4
DOUBLE VALVES with Dedicated Reset																
with Pressure Switch	CM								1.1	1.1	3.9					A4.5 - A4.8
without Pressure Switch	CM								1.1	1.1	3.9					
Components for MANIFOLD ASSEMBLIES - Solenoid Pilot Controlled																
Valves, Manifold Bases and End Stations for Manifold Assemblies																A4.8
with Pressure Switch	CM								1.1	1.1	3.9					A4.9 - A4.11
without Pressure Switch	CM								1.1	1.1	3.9					
Components for MANIFOLD ASSEMBLIES - Pressure Controlled																
Valves, Manifold Bases and End Stations for Manifold Assemblies																A4.11
DOUBLE VALVES with Automatic Reset																
with Pressure Switch	77								2.8	7.2	7.2					A4.12 - A4.13
without Pressure Switch	77								2.8	7.2	7.2					
PRESSURE CONTROLLED																
with Pressure Switch	77								2.8	7.2	7.2					A4.14 - A4.15
without Pressure Switch	77								2.8	7.2	7.2					

Control Reliable Double Valves for External Monitoring

RSe Series Safe Cylinder Return

5/2 Redundant Double Valve – Sub-base Mounted

Choose your options (in red) to configure your valve model number.



(Certifications pending)



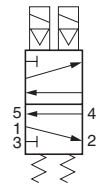
A

Port Size	C _v				Weight lb (Kg)
	1-2	1-4	2-3	4-5	
1/8	0.85	0.58	0.49	0.75	2.9 (1.3)
1/4	0.98	0.79	0.69	0.85	3.7 (1.7)
1/2	2.07	1.54	1.51	1.81	6.6 (2.99)

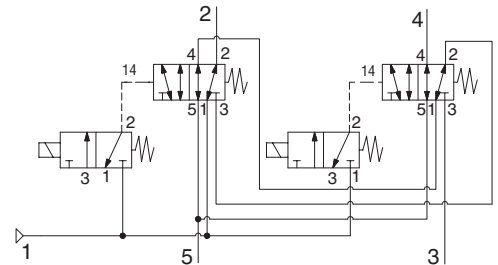
The 5/2 RSe Series valve is designed to control the direction of air flow into and out of a double-acting cylinder or other pneumatic actuator in order to drive the cylinder forward or backward to suit the requirements of the machine operation. However, the RSe Series does this with the same level of control expected of the machine's/system's safety circuit. The safety function of the RSe Series valve is to return the cylinder/actuator to its home "safe" position whenever a fault occurs within the valve. Such a monitoring system must be capable of inhibiting the operation of the valve.

The RSe Series valves are designed for external monitoring for safe, redundant operation of the valves. The RSe Series valves are constructed of redundant, spool type valves, and have an overall function of a single solenoid pilot-operated, spring return valve. Each single valve in the RSe Series is equipped with a PNP proximity sensor. Monitoring both of these sensors on each actuation and de-actuation of the RSe Series valve provides a diagnostic coverage of 99%. Monitoring of these sensors is to be done by an external monitoring system.

Simplified Schematic



A4



An Integration Guide for the RSe Series Valves is available from ROSS to provide information such as operation & monitoring, and validation test procedure for valve operation and external monitoring logic.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Flow Media	Compressed, filtered air according to ISO 8573-1 Class 7:4:4
Actuation	Solenoid pilot operated with air assisted spring return One solenoid per valve element (2 total) – both to be operated synchronously	Pilot Supply	Internal or External
Mounting	Type: Base Orientation: Any, preferably vertical	Operating Pressure	With Internal Pilot Supply: 43 to 145 psig (3 to 10 bar) With External Pilot Supply: 0 to 145 psig (0 to 10 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Version as per VDE 0580. Rated for continuous duty	Monitoring	Dynamic, cyclical, external with customer supplied equipment. Monitoring should check state of both valve position sensors with any and all changes in state of valve control signals.
Enclosure Rating	DIN 400 50 IP 65	Minimum Operation Frequency	Once per month, to ensure proper function
Electrical Connection	Connector Socket according to EN 175301-803 Form C	Maximum Recommended Allowable Discordance Time:	250 msec
Voltage	24 volts DC	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	1.5 watts on DC	<i>Pending</i> Functional Safety Data	
Proximity Sensors (2 per valve)	PNP		
Current Consumption (each sensor)	<23mA		
Temperature	Ambient/Media: 40° to 120°F (4° to 50°C)		

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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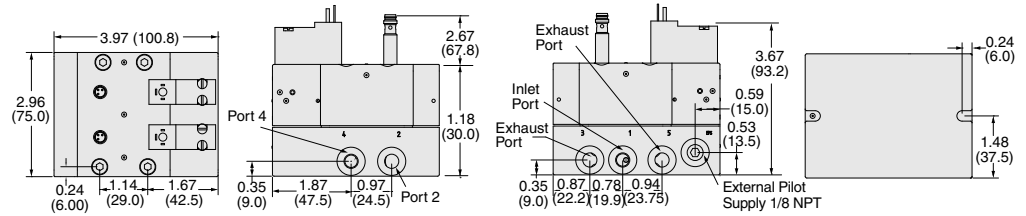
Control Reliable Double Valves for External Monitoring

Safe Cylinder Return RSe Series

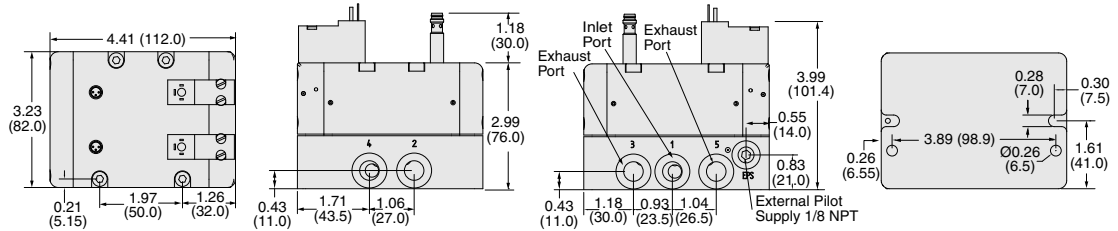
Valve Dimensions – inches (mm)

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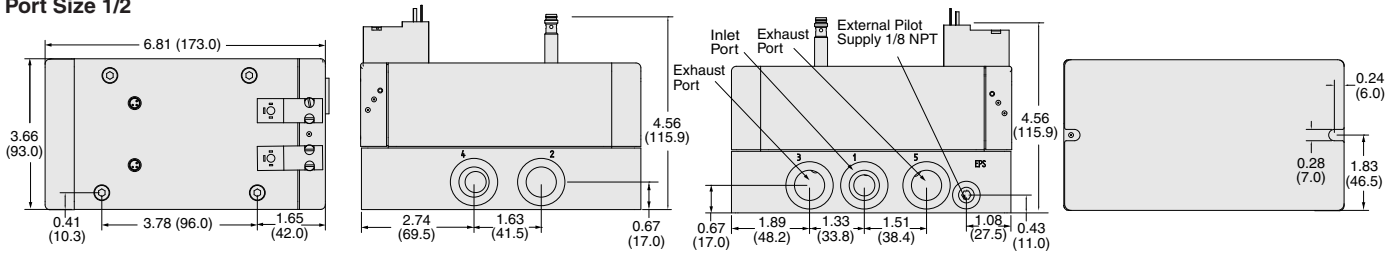
Port Size 1/8



Port Size 1/4



Port Size 1/2



A4

ACCESSORIES & OPTIONS

Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.0 (51)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.



Electrical Connectors

Connection	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Model Number	
					Without Light	Lighted Connector 24 Volts DC
Solenoid	DIN EN 175301-803 Form C	Prewired Connector (18 gauge)	3 (10)	8-mm	2449K77	2450K77-W
	DIN 43650 Form C	Connector Only	–	–	2452K77	2453K77-W
Feedback Sensor	M8 Connector (sensing)	Prewired Connector	2 (6.5)	–	249L74	–

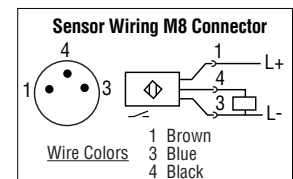
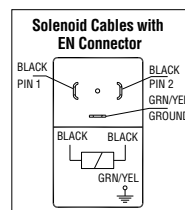


CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Preassembled Wiring Kits

Connector Type	Model Number*	Length meters (feet)
	Lighted Connector	
EN 175301-803 Form C (solenoids) M8 (sensors)	2657B77	2 (6.5)

* Each cable has one connector. This kit includes 2 cables for the sensors (M8), and 2 cables (EN 175301-803 Form C) with connector plus a cord grip for each.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

CROSSMIRROR® Control Reliable Double Valves with Dedicated Reset – Solenoid Pilot Controlled

Safe Cylinder Return CM Series

Valve and Base Assembly

5 Ports, 4-Way 2-Position Valve, Pressure Return											
Port Size	Basic Size	Status Indicator Switch	With Remote Reset		With Solenoid Reset		C _v				Weight lb (kg)
			Valve Model Number#*		Valve Model Number#*		1-2	1-4	2-3	4-5	
			NPT Threads	G Threads	NPT Threads	G Threads					
1/4	0	With#	CM26PNA00A11	CM26PDA00A11	CM26PNA00A21	CM26PDA00A21	0.8	0.6	0.5	1.1	5.85 (2.7)
		Without	CM26PNA00A1X	CM26PDA00A1X	CM26PNA00A2X	CM26PDA00A2X	0.8	0.6	0.5	1.1	5.30 (2.4)
3/8	0	With#	CM26PNA01A11	CM26PDA01A11	CM26PNA01A21	CM26PDA01A21	0.8	0.6	0.5	1.1	5.75 (2.6)
		Without	CM26PNA01A1X	CM26PDA01A1X	CM26PNA01A2X	CM26PDA01A2X	0.8	0.6	0.5	1.1	5.20 (2.4)
1/2	2	With#	CM26PNA22A11	CM26PDA22A11	CM26PNA22A21	CM26PDA22A21	3	2.5	2	3.9	14.45 (6.6)
		Without	CM26PNA22A1X	CM26PDA22A1X	CM26PNA22A2X	CM26PDA22A2X	3	2.5	2	3.9	13.80 (6.3)

Voltage: A=24 VDC; B=110 VAC, 120 VAC; e.g., CM26PNA00B1X.
* Valve includes pressure switch status indicator with DIN type electrical connection, for pressure switch status indicator with M12 type electrical connection consult ROSS.



A

Valves, Manifold Bases, and End Stations for Manifold Assemblies

In addition to the manifold, an end station kit with a check valve must be ordered for each assembly. The number of manifolds with a single supply inlet will be limited to the pressure and flow rate of the system. Too many manifolds may result in too large of an internal pressure drop resulting in valve faults. The manifold end station kit with dual inlet check will allow the manifold to be supplied with air from both ends of the assembly.



A4

Port Size	Basic Size	Status Indicator Switch	Valve without Sub-Base		Manifold Base Model Number		Manifold End Station w/ Check Valve Kit Number		Dual Supply Manifold End Station w/ Check Valves Kit Number		
			With Remote Reset	With Solenoid Reset	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	
1/4	1/4	0	With*	CM26PXA0XA11	CM26PXA0XA21	Y1951D91	YD1951D91	699K86	D699K86	701K86	D701K86
			Without	CM26PXA0XA1X	CM26PXA0XA2X	Y1951D91	YD1951D91	699K86	D699K86	701K86	D701K86
3/8	3/8	0	With*	CM26PXA0XA11	CM26PXA0XA21	Y1949D91	YD1949D91	698K86	D698K86	700K86	D700K86
			Without	CM26PXA0XA1X	CM26PXA0XA2X	Y1949D91	YD1949D91	698K86	D698K86	700K86	D700K86
1/2	1/2	2	With*	CM26PXA2XA11	CM26PXA2XA21	Y1955D91	YD1955D91	702K86	D702K86	704K86	D704K86
			Without	CM26PXA2XA1X	CM26PXA2XA2X	Y1955D91	YD1955D91	702K86	D702K86	704K86	D704K86

Voltage: A=24 VDC; B=110 VAC, 120 VAC; e.g., CM26PXA0XB1X. For other voltages consult ROSS.* Valve includes pressure switch status indicator with DIN type electrical connection, for pressure switch status indicator with M12 type electrical connection consult ROSS.

Explosion proof solenoid pilot available, for more information consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Double Spool and Sleeve	Monitoring	Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.
Mounting Type	Base	Solenoid Reset	Units with solenoid reset include a 3/2 solenoid valve. Energize this solenoid momentarily to reset valve after lock-out condition occurs
Solenoids	According to VDE 0580. Two solenoids, rated for continuous duty	Remote Reset	Remote signal to be supplied by customer's 3/2 valve (connect remote signal line to remote RESET port in valve). Apply signal momentarily to reset valve after fault condition occurs.
Voltage	24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 60 Hz	<i>NOTE: Main solenoids must be off when performing reset procedure.</i>	
Power Consumption (each solenoid)	Size 0: 24 volts DC: 1.5 watts on DC; 110 volts AC, 50 Hz/120 volts AC, 60 Hz: 1.7 watts; 120 volts AC, 60 Hz: 5.0 VA Size 2: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Enclosure Rating	DIN 400 50 IP 65	Functional Safety Data:	Category 4, PL e; B _{10D} : 20,000,000; PFH _b : 7.71x10 ⁻⁹ ; MTTF _D : 301.9 (n _{op} : 662400)
Electrical Connection	Size 0: Connector socket according to EN 175301-803 Form C Size 2: Connector socket according to EN 175301-803 Form A	Certifications:	CE Marked for applicable directives, DGVU Test Vibration/Impact Resistance: Tested to BS EN 60068-2-27
Temperature	Ambient: 40° to 122°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Conformity	ISO 13849-1
Flow Media	Filtered air		
Inlet Pressure	40 to 150 psig (3 to 10 bar)		
Pressure Switch (Status Indicator) Rating	5 amps at 250 volts AC, or 5 amps at 30 volts DC		

Meets Standards EN13736 and ANSI B11.2, Safety requirements for Pneumatic Cylinder Presses and other hazardous pneumatic cylinder applications.

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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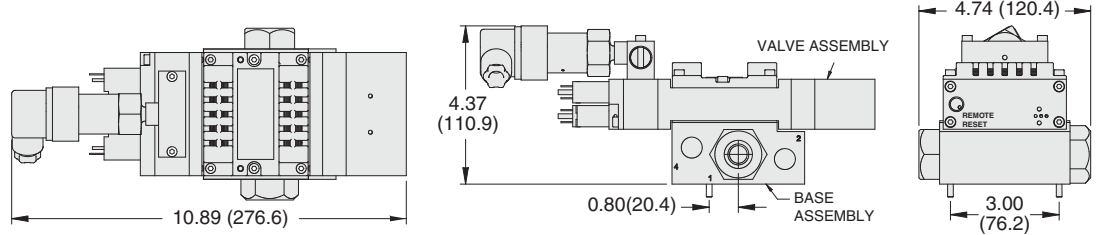
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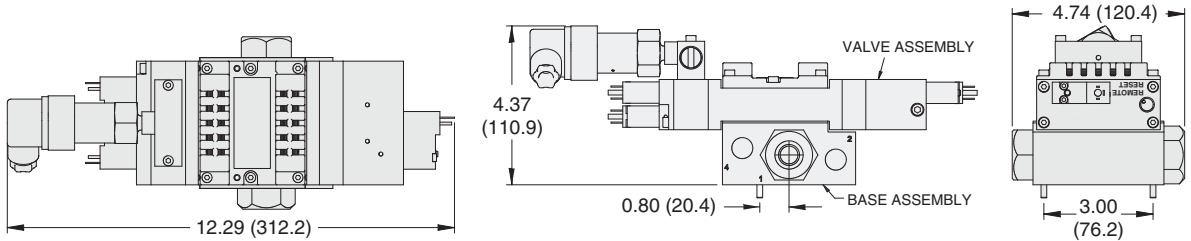
A

Basic Size 0 - Valve and base assembly, with remote reset and with status indicator switch

Valve Dimensions – inches (mm)

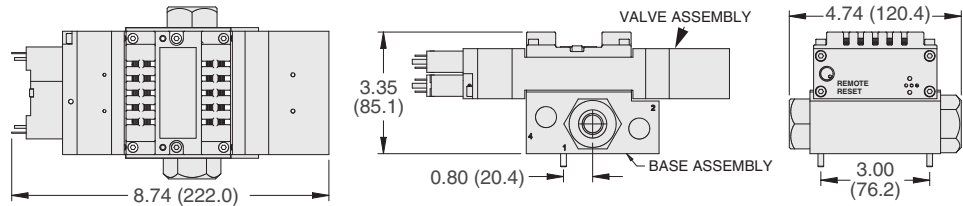


Basic Size 0 - Valve and base assembly, with solenoid reset and with status indicator switch

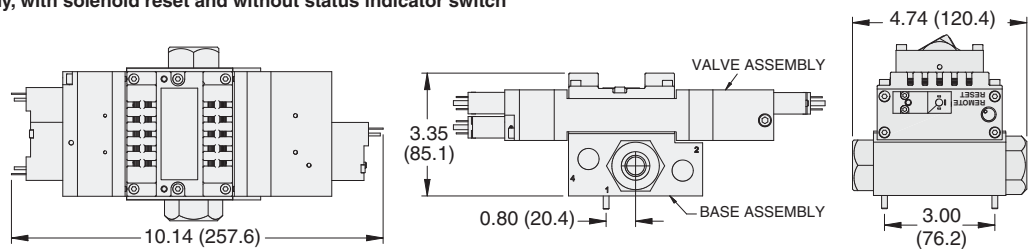


A4

Basic Size 0 - Valve and base assembly, with remote reset and without status indicator switch

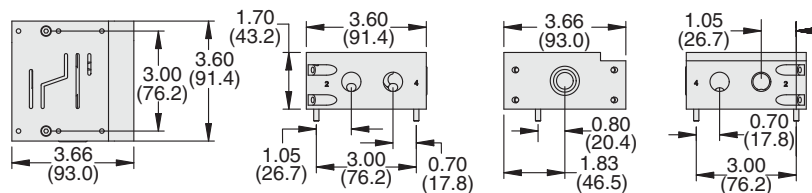


Basic Size 0 - Valve and base assembly, with solenoid reset and without status indicator switch

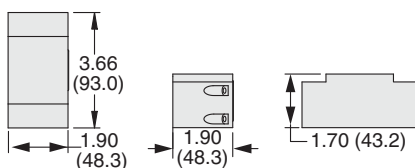


Dimensions – inches (mm)

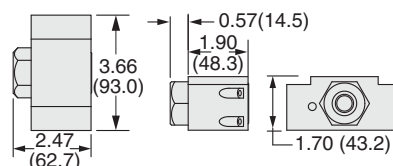
Manifold Base for Basic Size 0



End Station for Basic Size 0



End Station with Check Valve for Basic Size 0



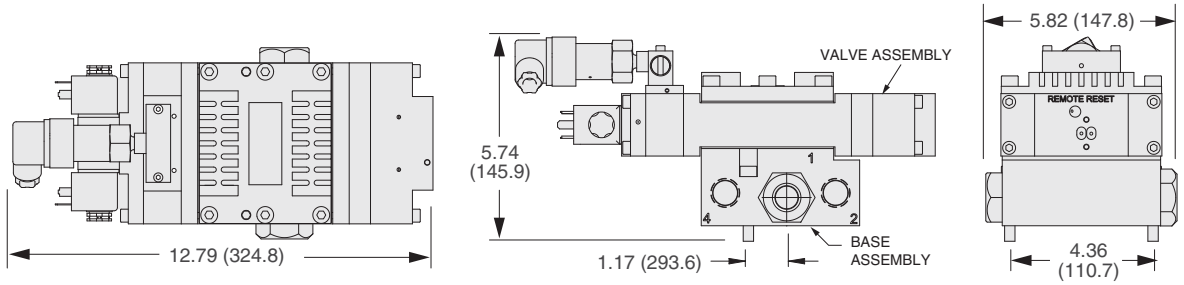
CROSSMIRROR® Control Reliable Double Valves with Dedicated Reset – Solenoid Pilot Controlled

Valve Technical Data CM Series

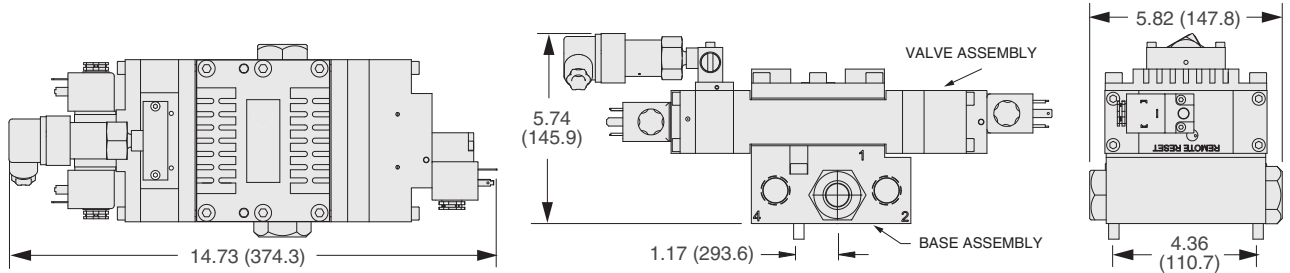
Basic Size 2 - Valve and base assembly, with remote reset and with status indicator switch

Valve Dimensions – inches (mm)

A

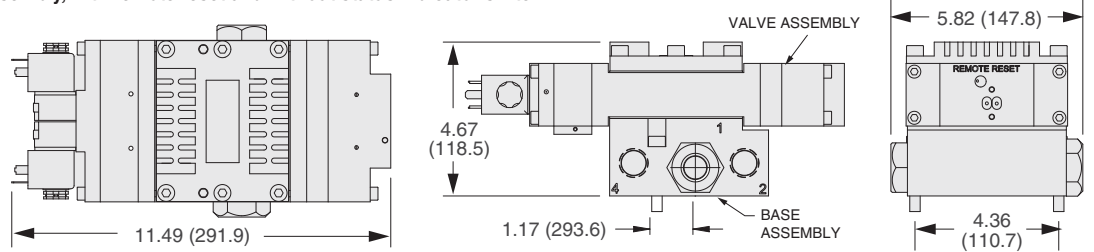


Basic Size 2 - Valve and base assembly, with solenoid reset and with status indicator switch

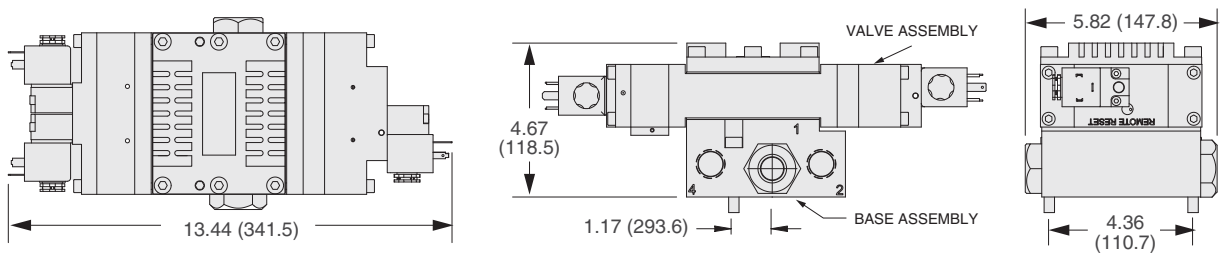


A4

Basic Size 2 - Valve and base assembly, with remote reset and without status indicator switch

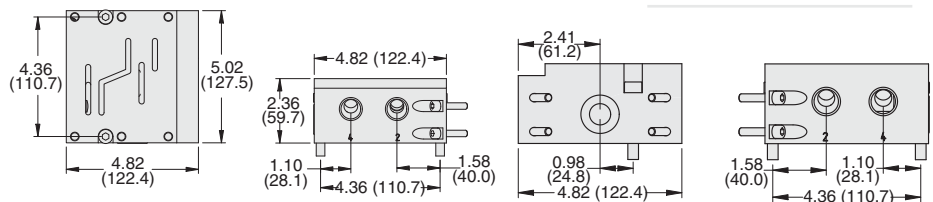


Basic Size 2 - Valve and base assembly, with solenoid reset and without status indicator switch

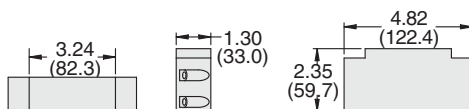


Dimensions – inches (mm)

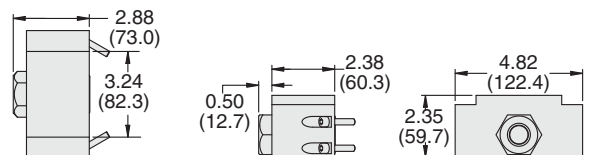
Manifold Base for Basic Size 2



End Station for Basic Size 2



End Station with Check Valve for Basic Size 2



CROSSMIRROR® Control Reliable Double Valves with Dedicated Reset – Solenoid Pilot Controlled

Valve Operation & Options CM Series

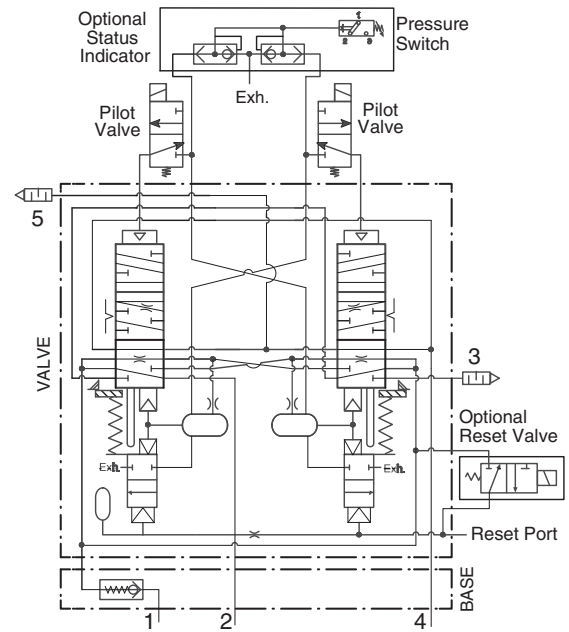
A

Normal Operation: The valve is operated by energizing both pilot solenoids simultaneously. This causes both main valve elements to be actuated so that air from inlet port 1 flows to outlet port 4, but not to port 2. Air downstream of port 2 is exhausted through port 3. When the solenoids are de-energized, both valve elements are de-actuated, and air then flows from inlet port 1 to outlet port 2, but no longer to outlet port 4. Air downstream of port 4 is exhausted through port 5. On first operation, or after repair, the pilot valve supply circuit and inherent monitoring elements may need to be reset.

Valve Locked-out: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element. The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully home position.

Detecting a Malfunction: If the main valve elements are not both actuated or de-actuated synchronously, the valve defaults to the locked-out position so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. The valve must now be “reset” to resume normal operation.

Resetting the Valve: The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied. A remote reset signal must be applied to reset the valve. Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their home position. Actuation of the reset piston also opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset. De-actuation of reset pistons causes the reset poppets to close and pilot supply timing chambers to fully pressurize. Reset pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid (which includes an integral manual reset button) mounted on the reset adapter.



Valve Schematic

Status Indicator: The optional status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.

A4

Electrical Connectors

Basic Valve Size	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
0	EN 175301-803 Form C	Prewired Connector	3 (10)	8-mm	2449K77	2450K77-W	2450K77-Z
		Connector Only	–	–	2452K77	2453K77-W	2453K77-Z
2	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
		Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
		Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
		Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.



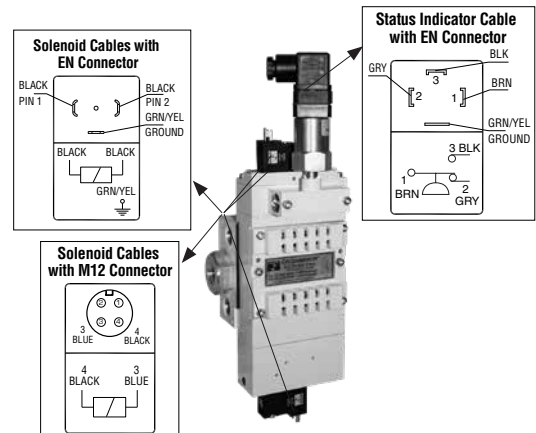
Preassembled Wiring Kits

Basic Valve Size	Solenoid Connector Type	Kit Number			Length meters (feet)
		Connector without Light	Lighted Connector		
			24 Volts DC	120 Volts AC	
0*	EN 175301-803 Form A and Form C	2526H77	2529H77-W	2529H77-Z	5 (16.4)
		2527H77	2530H77-W	2530H77-Z	10 (32.8)
2#	EN 175301-803 Form A	2283H77	2532H77-W	2532H77-Z	5 (16.4)
		2284H77	2533H77-W	2533H77-Z	10 (32.8)
	M12	2288H77	–	–	5 (16.4)
		2289H77	–	–	10 (32.8)

* Each cable has one connector. Kits include 1 cable for the status indicator (EN 175301-803 Form A), and 3 cables (EN 175301-803 Form C) with connector plus a cord grip for each.

Each cable has one connector.

Kits include 1 cable for the status indicator, and 3 cables with connector plus a cord grip for each.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

CROSSMIRROR® Control Reliable Double Valves with Dedicated Reset – Pressure Controlled

Safe Cylinder Return CM Series

Valve and Base Assembly

5 Ports, 4-Way 2-Position Valve, Pressure Return										
Port Sizes		Basic Size	Status Indicator Switch	Valve Model Number*		C _v				Weight lb (kg)
1	2, 4			NPT Threads	G Threads	1-2	1-4	2-3	4-5	
1/4	1/4	0	With#	CM26PNA00P11	CM26PDA00P11	0.8	0.6	0.5	1.1	6.15 (2.79)
			Without	CM26PNA00P1X	CM26PDA00P1X	0.8	0.6	0.5	1.1	5.60 (2.54)
3/8	3/8	0	With#	CM26PNA01P11	CM26PDA01P11	0.8	0.6	0.5	1.1	6.05 (2.74)
			Without	CM26PNA01P1X	CM26PDA01P1X	0.8	0.6	0.5	1.1	5.50 (2.49)
1/2	1/2	2	With#	CM26PNA22P1X	CM26PDA22P1X	3	2.5	2	3.9	14.45 (6.56)
			Without	CM26PNA22P11	CM26PDA22P11	3	2.5	2	3.9	13.80 (6.26)

* Valve includes pressure switch status indicator with DIN type electrical connection, for pressure switch status indicator with M12 type electrical connection consult ROSS.

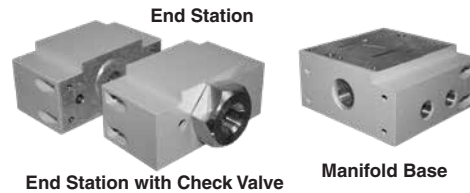


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Valves, Manifold Bases, and End Stations for Manifold Assemblies

In addition to the manifold, an end station kit with a check valve must be ordered for each assembly. The number of manifolds with a single supply inlet will be limited to the pressure and flow rate of the system. Too many manifolds may result in too large of an internal pressure drop resulting in valve faults. The manifold end station kit with dual inlet check will allow the manifold to be supplied with air from both ends of the assembly.



Port Size		Basic Size	Valve without Sub-Base		Manifold Base Model Number		Manifold End Station w/ Check Valve Kit Number		Dual Supply Manifold End Station w/ Check Valves Kit Number	
1	2, 4		Status Indicator Switch	Valve Model Number	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads
1/4	1/4	0	With*	CM26PNA0XP11	Y1951D91	YD1951D91	699K86	D699K86	701K86	D701K86
			Without	CM26PNA0XP1X	Y1951D91	YD1951D91	699K86	D699K86	701K86	D701K86
3/8	3/8	0	With*	CM26PNA0XP11	Y1949D91	YD1949D91	698K86	D698K86	700K86	D700K86
			Without	CM26PNA0XP1X	Y1949D91	YD1949D91	698K86	D698K86	700K86	D700K86
1/2	1/2	2	With*	CM26PNA22P11	Y1955D91	YD1955D91	702K86	D702K86	704K86	D704K86
			Without	CM26PNA22P1X	Y1955D91	YD1955D91	702K86	D702K86	704K86	D704K86

* Valve includes pressure switch status indicator with DIN type electrical connection, for pressure switch status indicator with M12 type electrical connection consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Double spool and sleeve	Monitoring	Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.	
Mounting Type	Base			
Temperature	Ambient: 15° to 122°F (-10° to 50°C) Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N	
Flow Media	Filtered air			
Operating Pressure	40 to 150 psig (3 to 10 bar) Pilot supply pressure must be equal or greater than inlet pressure, but should not exceed maximum inlet pressure	Functional Safety Data: Category 4, PL e; B _{10D} : 20,000,000; PFH _D : 7.71x10 ⁻⁹ ; MTTFD: 301.9 (R _{00P} : 662400) Certifications: CE Marked for applicable directives, DGVV Test Vibration/Impact Resistance: Tested to BS EN 60068-2-27	Conformity	ISO 13849-1
Pressure Switch Rating	0.1 A, 125/250 volts AC; 0.1 A, 30 volts DC; 0.3 A, 60 volts DC			
Pressure Switch signal indicates when the input signals or parts movement is asynchronous.				

Meets Standards EN13736 and ANSI B11.2, Safety requirements for Pneumatic Cylinder Presses and other hazardous pneumatic cylinder applications.

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



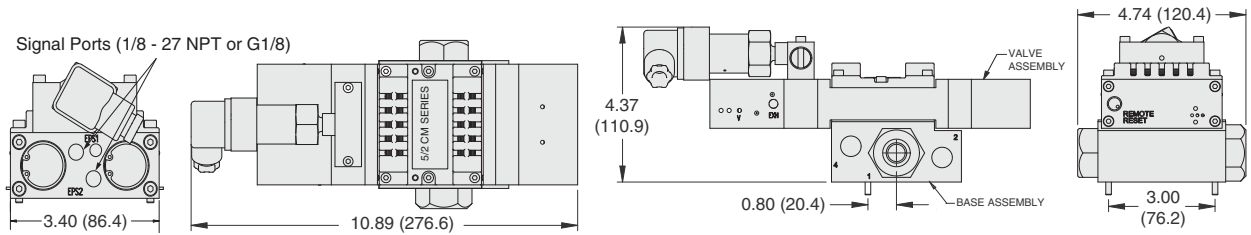
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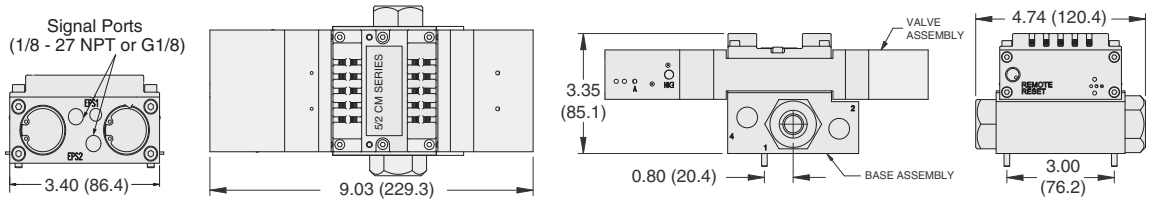
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A Size 0 – Valve and base assembly, with remote reset and status indicator switch

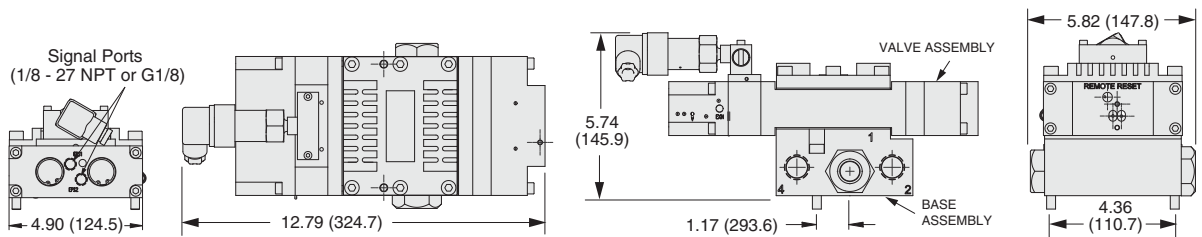
Valve Dimensions – inches (mm)



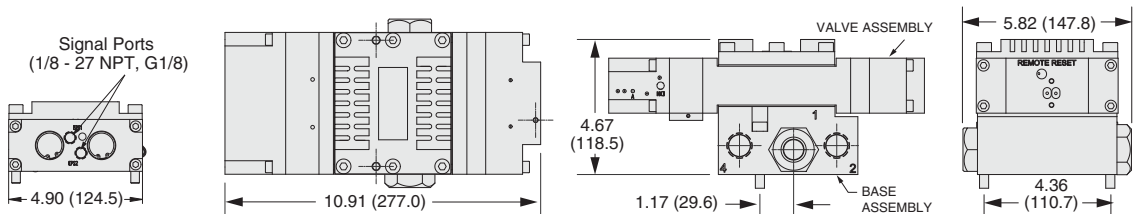
Size 0 – Valve and base assembly, with remote reset and without status indicator switch



Size 2 – Valve and base assembly, with remote reset and status indicator switch

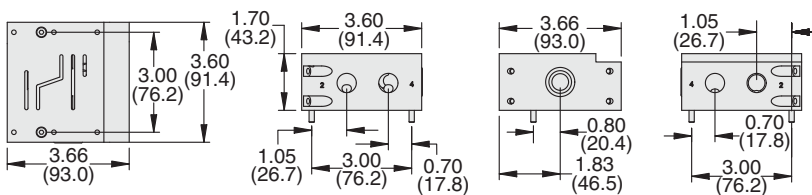


Size 2 – Valve and base assembly, with remote reset and without status indicator switch

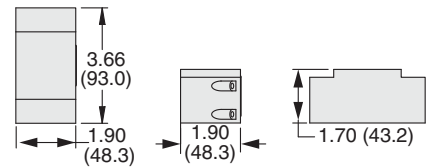


Dimensions – inches (mm)

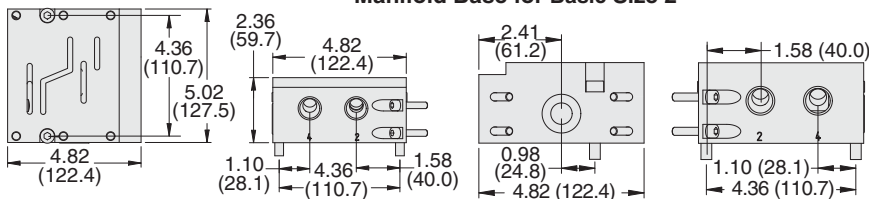
Manifold Base for Basic Size 0



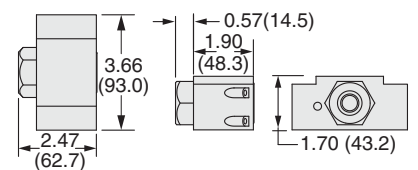
End Station for Basic Size 0



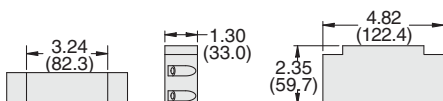
Manifold Base for Basic Size 2



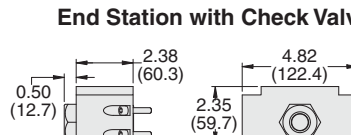
End Station with Check Valve for Basic Size 0



End Station for Basic Size 2



End Station with Check Valve for Basic Size 2



CROSSMIRROR® Control Reliable Double Valves Valve Operation & Options CM Series

with Dedicated Reset – Pressure Controlled

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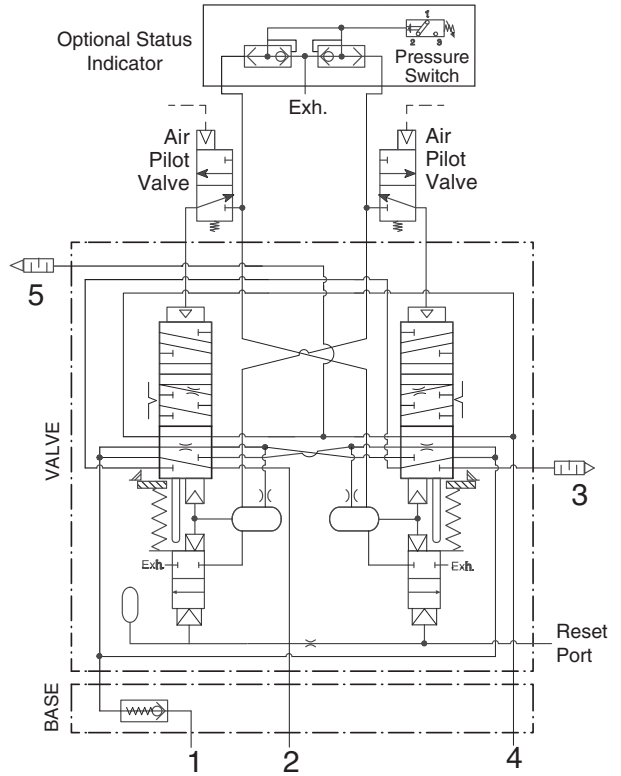
A4

Normal Operation: The valve is operated by pressurizing both pilot supply ports simultaneously. This causes both main valve elements to be actuated so that air from inlet port 1 flows to outlet port 4, but not to port 2. Air downstream of port 2 is exhausted through port 3. When the pilot supply ports are de-pressurized, both valve elements are de-actuated, and air then flows from inlet port 1 to outlet port 2, but no longer to outlet port 4. Air downstream of port 4 is exhausted through port 5. On first operation, or after repair, the pilot valve supply circuit and inherent monitoring elements may need to be reset.

Valve Locked-out: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element. The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully home position.

Detecting a Malfunction: If the main valve elements are not both actuated or de-actuated synchronously, the valve defaults to the locked-out position so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. The valve must now be “reset” to resume normal operation.

Resetting the Valve: The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied. A remote reset signal must be applied to reset the valve. Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their home position. Actuation of the reset piston also opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset. De-actuation of reset pistons causes the reset poppets to close and pilot supply timing chambers to fully pressurize. Reset pressure can be applied by a remote 3/2 normally closed valve.



Valve Schematic

Status Indicator: The optional status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.

OPTIONS – FOR Verification Of Downstream PRESSURE RELEASE

Pressure Switches (Electrical) for Energy Release Verification	Connection Type	Model Number	Port Threads	EN Connector Pinout M12 Connector Pinout
	EN 175301-803 Form A	586A86	1/8 NPT	
	M12	1153A30		
	Factory preset, 5 psi (0.3) - falling			
May be installed on all valves with pressure sensing port. Provides means to verify the release of downstream pressure to next obstruction.				



Redundant Downstream Feedback Switch for Energy Release Verification	Connection Type	Model Number	Port Threads	EN Connector Pinout
	EN 175301-803 Form A	RC026-13	3/8 NPT	
	Factory preset, 5 psi (0.3) - falling			
May be installed downstream on all double valves. Provides a redundant means to verify the release of downstream pressure to next obstruction.				



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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CROSSMIRROR® Control Reliable Double Valves with Automatic Reset – Solenoid Pilot Controlled

Safe Cylinder Return 77 Series

A

This valve is constructed with precision, stainless steel spools as the main valve elements, and is designed to offer added safety to the operation of many pneumatically controlled machines. The Pressure switch provides a signal when valve is in a faulted position.



ISO 13849-1
CAT 4, PL e



5 Ports, 4-Way 2-Position Valve												
Port Sizes	Basic Size	Pressure Switch	Model Number# (valve and base)		C _v				Weight lb (kg)	Model Number# (valve only)	Model Number (base only)	
			NPT Threads	BSPG Threads	1-2	1-4	2-3	4-5			NPT Threads	G Threads
1/2 3/8	2	With*	Y7776A3411W	YD7776A3411W	2	1.6	1.6	2.8	8.4 (3.8)	Y7776A3401W	Y996C91	YD996C91
		Without	Y7776A3410W	YD7776A3410W	2	1.6	1.6	2.8	7.6 (3.4)	Y7776A3400W	Y996C91	YD996C91
3/4 1/2	4	With*	Y7776A4421W	YD7776A4421W	3.2	3.4	2.7	7.2	11.2 (5.1)	Y7776A4401W	Y1049C91	YD1049C91
		Without	Y7776A4420W	YD7776A4420W	3.2	3.4	2.7	7.2	10.2 (4.6)	Y7776A4400W	Y1049C91	YD1049C91
3/4 3/4	4	With*	Y7776A5411W	YD7776A5411W	3.2	3.4	2.7	7.2	11.2 (5.1)	Y7776A4401W	Y1153C91	YD1153C91
		Without	Y7776A5410W	YD7776A5410W	3.2	3.4	2.7	7.2	10.2 (4.6)	Y7776A4400W	Y1153C91	YD1153C91
SAE 12	4	With*	YS7776A4H10W		3.2	3.4	2.7	7.2	11.2 (5.1)	Y7776A4401W	Y1159G91	
		Without	YS7776A4H11W		3.2	3.4	2.7	7.2	10.2 (4.6)	Y7776A4400W	Y1159G91	

Voltage: W=24 VDC; Z=110 VAC, 50 Hz or 120 VAC, 50/60 Hz, e.g., Y7776A3411Z. For other voltages consult ROSS.
** Valve includes pressure switch status indicator with DIN type electrical connection, for pressure switch status indicator with M12 type electrical connection consult ROSS.



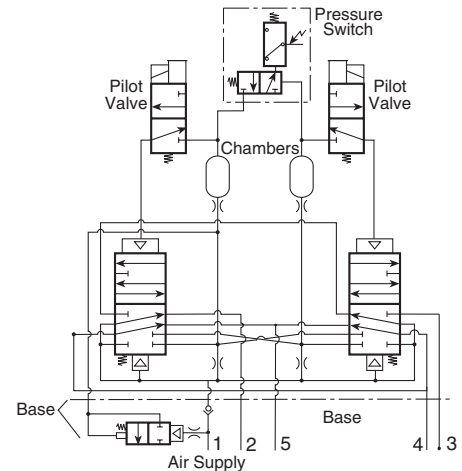
Model with pressure switch shown

Valve Operation

Normal Operation: After installation the valve is operated by energizing both solenoid pilots (S1 and S2) simultaneously. This causes both main valve elements to be actuated so that air from inlet port 1 flows to outlet port 4. Air downstream of port 2 is exhausted through port 3. When the solenoid pilots are de-energizing, both valve elements are de-actuated, and air then flows from inlet port 1 to outlet port 2. Air downstream of port 4 is exhausted through port 5.

Safety Function: If the two main valve elements are not actuated or de-actuated synchronously, within 500 ms, the valve defaults so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. If this abnormal operation is the result of a temporary circumstance, the valve will be ready to resume normal operation as soon as both pilot signal ports have been de-energized and both main valve elements have returned to their normal ready-to-run position. Applying the electrical signal to both solenoids simultaneously will resume normal operation. If the cause of the abnormal operation is still present, the valve will either remain in the default position (pressure on port 2 and not port 4) or will again go into this position on the next actuation attempt. The source of the abnormality must be investigated and corrected before further operation.

Pressure Switch: Valves with model numbers ending in the number 1 have a pressure switch to provide user feedback when movement of the main valve elements was asynchronous.



Explosion proof solenoid pilot available, for more information consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Double Spool and Sleeve	Flow Media	Filtered air
Mounting Type	Base	Inlet Pressure	40 to 150 psig (2.5 to 10.3 bar)
Solenoids	According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three (with pressure switch) or two solenoids (without pressure switch), rated for continuous duty	<i>NOTE: Main solenoids must be off when performing reset procedure.</i>	
Voltage	24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	6.5 watts maximum on DC, 6.5 watts on 50/60 Hz	Functional Safety Data	Category 4, PL e; B ₁₀₀ : 20,000,000; PFH _b : 7.71x10 ⁻⁹ ; MTTF _D : 301.9 (nop: 662400).
Enclosure Rating	IP65, IEC 60529	Certifications	CE Marked for applicable directives, DGVU Test
Electrical Connection	EN 175301-803 Form A. Uses cord-grip connectors at solenoids	Vibration/Impact Resistance	Tested to BS EN 60068-2-27
Temperature	Ambient: 40° to 122°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Conformity	ISO 13849-1

Meets Standards EN13736 and ANSI B11.2, Safety requirements for Pneumatic Cylinder Presses and other hazardous pneumatic cylinder applications.

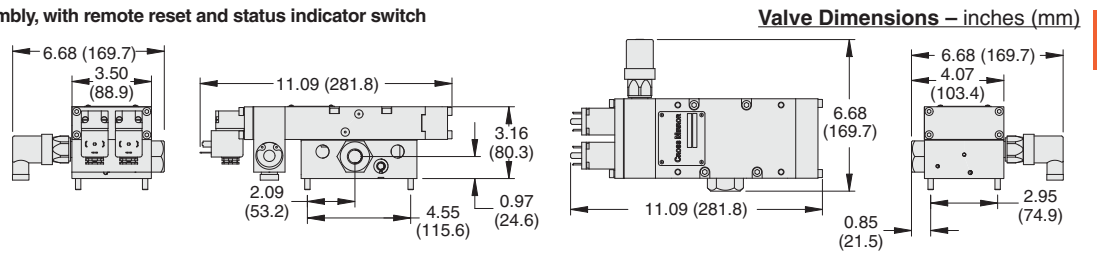
These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

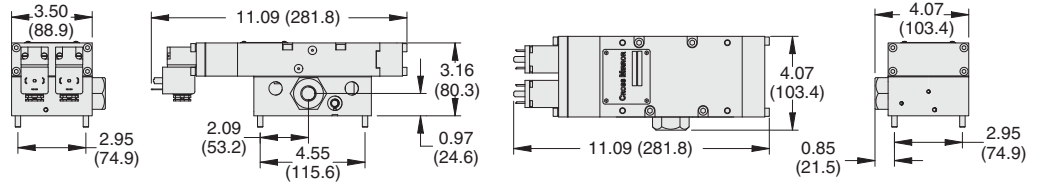
CROSSMIRROR® Control Reliable Double Valves with Automatic Reset – Solenoid Pilot Controlled

Valve Technical Data 77 Series

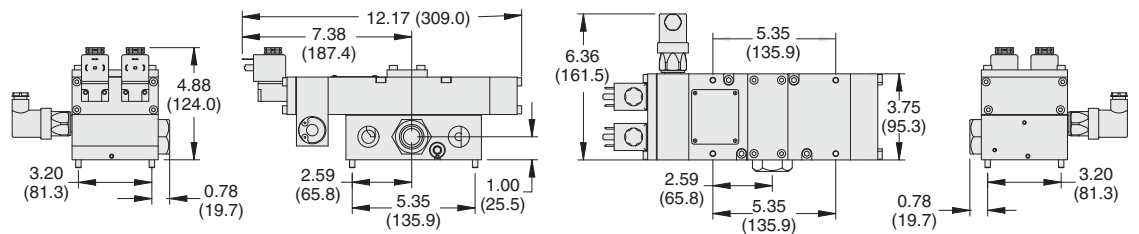
Basic Size 2 – Valve and base assembly, with remote reset and status indicator switch



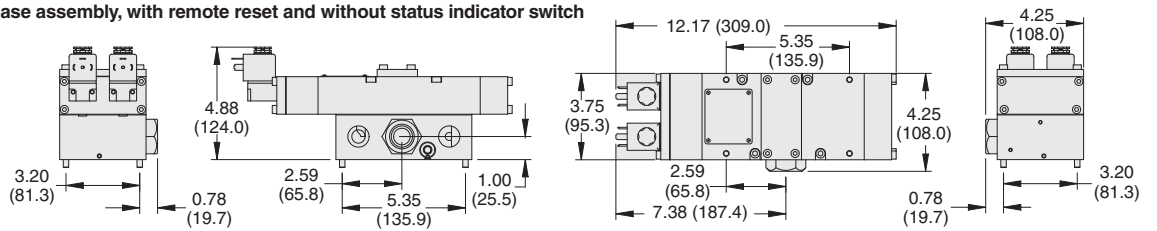
Basic Size 2 – Valve and base assembly, with remote reset and without status indicator switch



Basic Size 4 – Valve and base assembly, with remote reset and status indicator switch



Basic Size 4 – Valve and base assembly, with remote reset and without status indicator switch



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A4

ACCESSORIES & OPTIONS

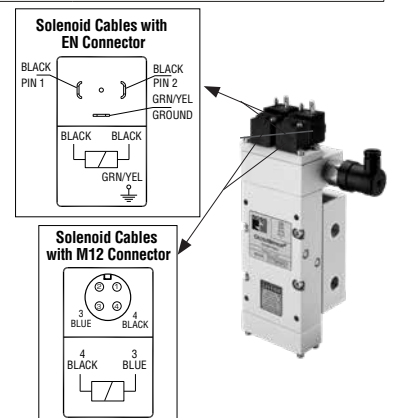
Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z	
	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	10-mm	371K77	383K77-W	383K77-Z	
	Connector Only	–	–	937K87	936K87-W	936K87-Z	

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Pressure Switches & Pressure Switch Connectors	Pressure Switch Model Number		Pressure Switch Connector
	24 Volts DC	120 Volts AC	Model Number
	798E30	518E30	522E30

Preassembled Wiring Kits	Solenoid Connector Type	Kit Number			Length meters (feet)
		Connector without Light	Lighted Connector		
			24 Volts DC	120 Volts AC	
EN 175301-803 Form A	2243H77	2268H77-W	2268H77-Z	5 (16.4)	
		2244H77	2269H77-W	2269H77-Z	10 (32.8)
M12	2245H77	–	–	5 (16.4)	
		2246H77	–	–	10 (32.8)

These kits include 2 cables with either EN or M12 connectors for the solenoids. All cables include cord grips.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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5 Ports, 4-Way 2-Position Valve													
Port Sizes		Basic Size	Pressure Switch	Model Number# (valve and base)		C _v				Weight lb (kg)	Model Number# (valve only)	Model Number (base only)	
1	2, 4			NPT Threads	G Threads	1-2	1-4	2-3	4-5			NPT Threads	G Threads
1/2	3/8	2	With*	Y7786A3411W	YD7786A3411W	2	1.6	1.6	2.8	8.4 (3.8)	Y7786A3401W	Y996C91	YD996C91
			Without	Y7786A3410	YD7786A3410	2	1.6	1.6	2.8	7.6 (3.4)	Y7786A3400	Y996C91	YD996C91
3/4	1/2	4	With*	Y7786A4421W	YD7786A4421W	3.2	3.4	2.7	7.2	11.6 (5.3)	Y7786A4401W	Y1049C91	YD1049C91
			Without	Y7786A4420	YD7786A4420	3.2	3.4	2.7	7.2	10.6 (4.8)	Y7786A4400	Y1049C91	YD1049C91
3/4	3/4	4	With*	Y7786A5411W	YD7786A5411W	3.2	3.4	2.7	7.2	11.6 (5.3)	Y7786A3401W	Y1153C91	YD1153C91
			Without	Y7786A5410	YD7786A5410	3.2	3.4	2.7	7.2	10.6 (4.8)	Y7786A3400	Y1153C91	YD1153C91
SAE 12		4	With*	YS7786A4H11W		3.2	3.4	2.7	7.2	11.6 (5.3)	Y7786A4401W	Y1159G91	
			Without	YS7786A4H10		3.2	3.4	2.7	7.2	10.6 (4.8)	Y7786A4400	Y1159G91	



ISO 13849-1
CAT 4, PL e

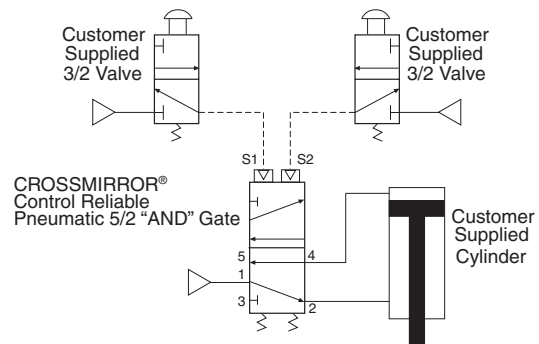


A4

This 77 Series 5/2 CROSSMIRROR® valve is a control reliable, two hand pressure controlled 4-way double valve that is controlled by two separate pneumatic signals essentially providing “AND” gate control for the output ports. Both pilot signals must be provided within approximately 500 milliseconds of each other to actuate the valve. Proper actuation shifts output pressure to port 4. If the valve is not actuated, not provided appropriate pneumatic signals within the discordance window or if the valve actuates abnormally, inlet pressure will only be passed to port 2 - cylinder retracted.

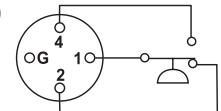
This valve is constructed with precision, stainless steel spools as the main valve elements, and is designed to offer added safety to the operation of many pneumatically controlled machines.

Typical 2-Hand-Anti-Tie-Down Application



Status Indicator (pressure switch)

Terminals 1 and 4 are connected when air pressure is present and the valve is “Ready-to-Run”. If an abnormal operation has occurred or pressure is removed from the valve inlet, terminals 1 and 2 are connected. **Note:** DC voltage pressure switches do not have a ground terminal.



Pin 1: Common
Pin 2: Normally Closed
Pin 3: Not used
Pin 4: Normally Open

ACCESSORIES & OPTIONS

Pressure Switches & Pressure Switch Connectors	Pressure Switch		Pressure Switch Connector
	Model Number		Model Number
	24 Volts DC	120 Volts AC	
	798E30	518E30	522E30

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Double Spool and Sleeve	Pressure Switch signal indicates when the input signals or parts movement is asynchronous.
Mounting Type	Base	
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Construction Material
Flow Media	Filtered air	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Operating Pressure	40 to 100 psig (2.7 to 7 bar) Pilot supply pressure must be equal or greater than inlet pressure, but should not exceed maximum inlet pressure	Functional Safety Data: Category 4, PL e; B ₁₀₀ : 20,000,000; PFH _b : 7.71x10 ⁻⁹ ; MTTF _b : 301.9 (n _{op} : 662400)
Pressure Switch Rating	Max Current 4A, Max 250 volts AC Max Current 50 mA, Max 24 volts DC	Certifications: CE Marked for applicable directives, DGVU Test Vibration/Impact Resistance: Tested to BS EN 60068-2-27
		Conformity
		ISO 13849-1

Meets Standards EN13736 and ANSI B11.2, Safety requirements for Pneumatic Cylinder Presses and other hazardous pneumatic cylinder applications.

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

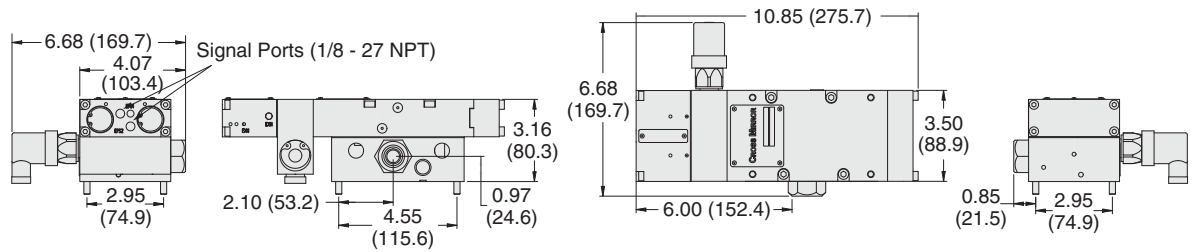
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

CROSSMIRROR® Control Reliable Double Valves with Automatic Reset – Pressure Controlled

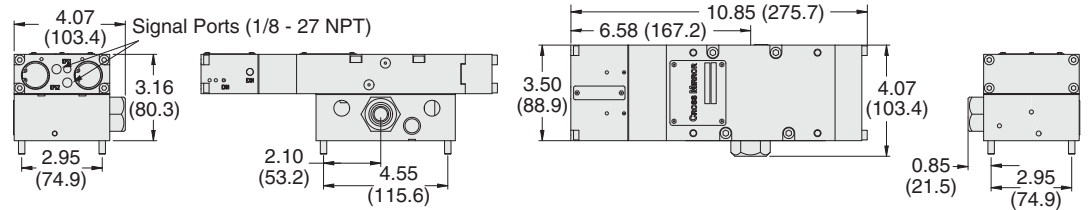
Valve Technical Data 77 Series

Basic Size 2 – Valve and base assembly, with remote reset and status indicator switch

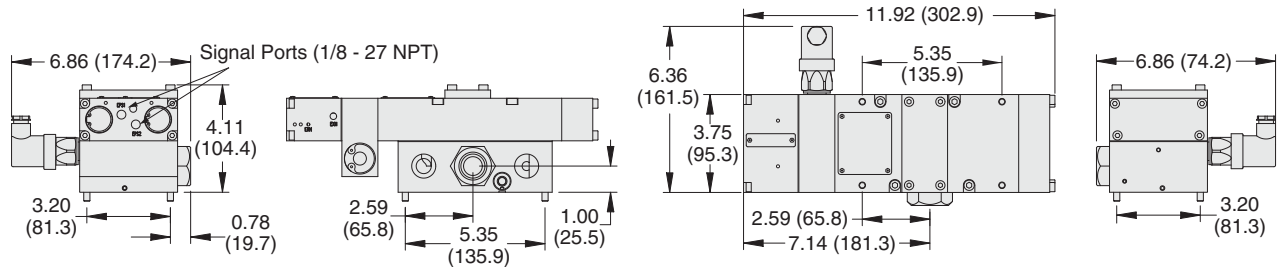
Valve Dimensions – inches (mm)



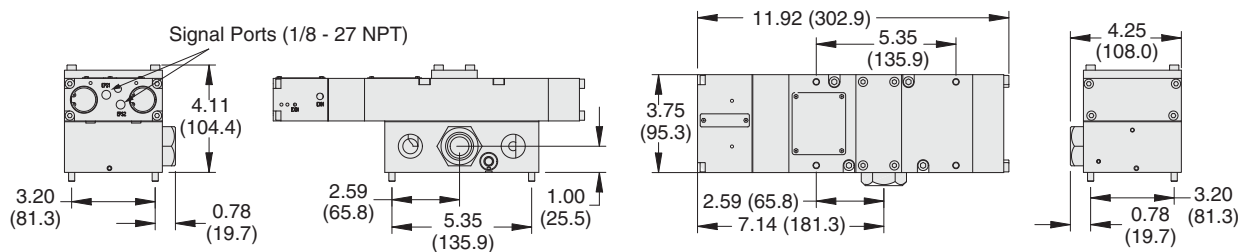
Basic Size 2 – Valve and base assembly, with remote reset and without status indicator switch



Basic Size 4 – Valve and base assembly, with remote reset and status indicator switch



Basic Size 4 – Valve and base assembly, with remote reset and without status indicator switch



Valve Operation

Normal Operation: After installation the valve is operated by pressurizing both pilot supply ports (S1 and S2) simultaneously. This causes both main valve elements to be actuated so that air from inlet port 1 flows to outlet port 4. Air downstream of port 2 is exhausted through port 3.

When the pilot supply ports are de-pressurized, both valve elements are de-actuated, and air then flows from inlet port 1 to outlet port 2. Air downstream of port 4 is exhausted through port 5.

Pressure Switch: Valves with model numbers ending in the number 1 have a pressure switch to provide user feedback when movement of the main valve elements was asynchronous.

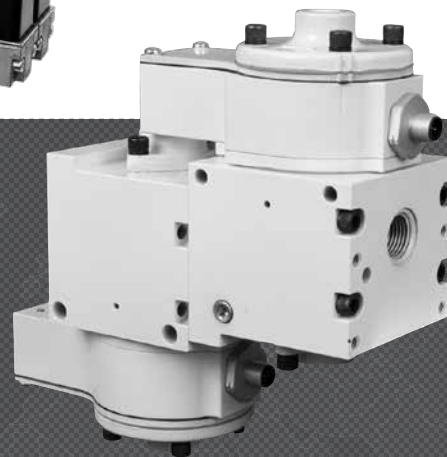
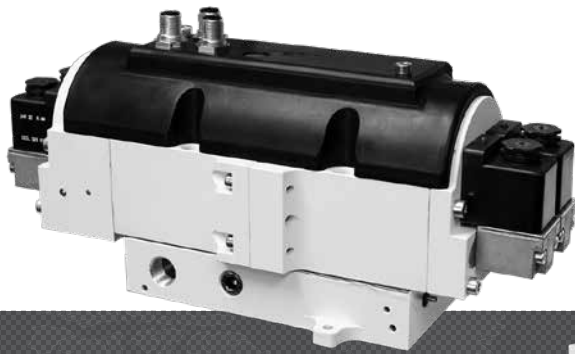
Safety Function: If the two main valve elements are not actuated or de-actuated synchronously, within 500 ms, the valve defaults so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. If this abnormal operation is the result of a temporary circumstance, the valve will be ready to resume normal operation as soon as both pilot signal ports have been de-pressurized and both main valve elements have returned to their normal ready-to-run position. Applying pressure to both signal ports simultaneously will resume normal operation.

If the cause of the abnormal operation is still present, the valve will either remain in the default position (pressure on port 2 and not port 4) or will again go into this position on the next actuation attempt. The source of the abnormality must be investigated and corrected before further operation.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



SAFE CYLINDER CONTROL AND STOP AND LOAD HOLDING VALVES



ROSS CONTROLS

SAFE CYLINDER CONTROL AND STOP CROSSCHECK™ DOUBLE VALVES, CC4 SERIES

– KEY FEATURES

- Closed Center valve function
- Redundant control with position feedback - can achieve Category 4, PL e, when used with proper safety controls
- Designed for external monitoring
- Mid-position sensing - for detection of safe, closed center position
- ROSS poppet technology - fast, reliable, dirt-tolerant, face-sealing, low friction
- LED indicators on solenoids - aids troubleshooting

LOAD HOLDING PILOT OPERATED CHECK SENSING VALVES, SV27 SERIES

– KEY FEATURES

- Poppet construction for near zero leakage & dirt tolerance
- Direct-operated safety-rated status switch (DPST)
- Sistema library data available

LOAD HOLDING PILOT OPERATED CHECK VALVES, RIGHT-ANGLE, 19 SERIES

– KEY FEATURES

- Right-angle design for easy positioning of pipe or tubing
- Inlet ports available with NPTF threaded or push-to-connect fittings
- Galvanized zinc plated brass body construction
- Lube or non-lube operation

LOAD HOLDING PILOT OPERATED CHECK VALVES, 27 SERIES

– KEY FEATURES

- Available with automatic or manual trapped pressure release when pressure is removed from the Blowdown Signal Port (BP)
- Poppet construction for near zero leakage
- Applications include Air Holding and Cylinder Load Holding

VALVE SERIES	Category	OPERATION				AVAILABLE PORT SIZES								MAX. FLOW (Cv)							Integrated Trapped Pressure Relief	Page	
		Air Pilot	Solenoid	Single	Dual	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	Port Size									
														1/8	1/4	3/8	1/2	3/4	1	1¼			1½
CC4	4																			Manual	A5.3 - A5.5		
SV27	2													1	1	2	2					A5.6	
SV27	3														4.5	8.3	20	29	33			A5.7	
SV27	2														4.5	8.3	20	29	33			A5.8	
SV27	3														4.5	8.3	20	29	33			A5.9	
19	1													0.4	0.8	1.2					Optional	A5.10	
27	1													2.2	2.9	3.2						A5.11	
27	1													2.3	3.8	4	7.7	9	24	29	29	A5.12	
27	1													2.2	2.9	3.2					Remote	A5.13	
27	1														2.6	2.8	9.2					Remote	A5.14
27	1														2.6	2.8	9.2					Manual	A5.15
27	1														2.9	3.2	8.5	8.5					A5.16
27	1														2.9	3.2	8.5	8.5				Remote	A5.17
27	1														2.9	3.2	8.5	8.5				Manual	A5.18
27	1														2.9	3.2	8.5	8.5				Solenoid	A5.19

CROSSCHECK™ Control Reliable Double Valves for External Monitoring

Safe Cylinder Control and Stop CC4 Series

A

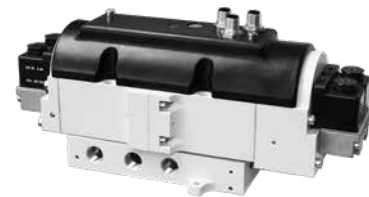
4/3 Safety Directional Valve – Closed Center

HOW TO ORDER

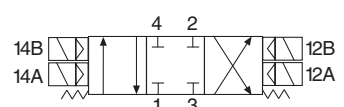
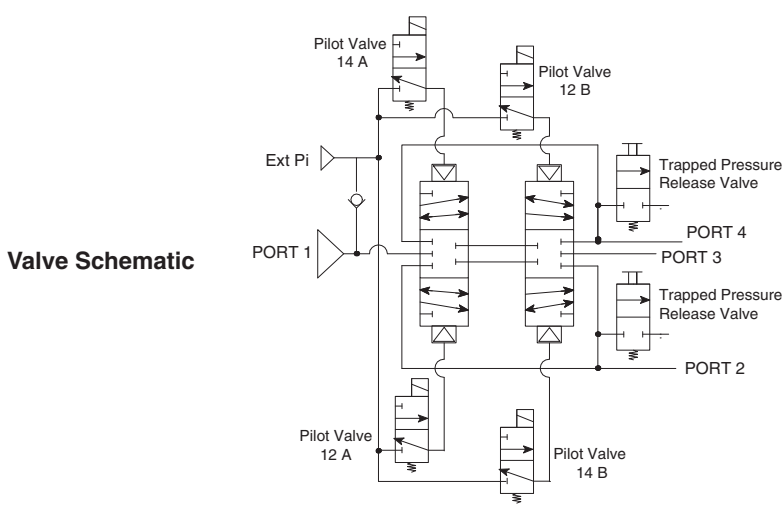
(Choose your options (in red) to configure your valve model number.)

CC4 **M** **22** **G** **A** **E** **X** **S** **A**

Series: CC4
 Pressure Release: Manual **M**, Valve Only (No Base) **X**
 Voltage: 24 volts DC
 Communication: None
 Monitoring: External
 Revision Level: A
 Pin Configuration: Standard
 Thread: BSPP **G**, NPT **N**, Valve Only **X**
 Basic Size: 0, 2
 Base Port Size: Inlet, Outlet
 0: 1/4, 1/4 **22**; 3/8, 3/8 **23**; Valve Only (No Base) **2X**
 2: 1/2, 1/2 **44**; 3/4, 3/4 **45**; Valve Only (No Base) **4X**



CAT 4, PL e (certification pending)



Simplified Schematic

Port Size			Basic Size	C _v				Weight lb (Kg)
Inlet	Outlet	Exhaust		1-2	1-4	2-3	4-3	
1/4	1/4	1/4	0	0.9	0.9	0.7	0.6	11.2 (5.1)
3/8	3/8	3/8	0	0.9	0.9	0.7	0.6	11.2 (5.1)
1/2	1/2	1/2	2	1.7	1.6	1.8	1.7	18.3 (8.3)
3/4	3/4	3/4	2	1.7	1.6	1.8	1.7	18.3 (8.3)

APPLICATIONS: Category 4 applications - e.g., cylinder stop & load holding applications. The CROSSCHECK™ CC4 Series valve is designed to be controlled by a safety controller or safety relay with dual channel outputs and the capability of monitoring the mid-position feedback sensors. The valve is a redundant valve and is driven by 4 solenoid pilot valves - two for extending and two for retracting.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Redundant, 4/3 Closed Center, Dual Poppet	Operating Pressure With Internal Pilot Supply: 60 to 120 psig (4 to 8 bar). With External Pilot Supply: 0 to 120 psig (0 to 8 bar). Pilot Supply: 60 to 120 psig (4 to 8 bar); Pressure must be equal to or greater than inlet pressure
Actuation	Solenoid pilot operated with air assisted spring return. Two solenoid per valve element (4 total) – two for extending and two for retracting	
Mounting	Type: Sub-Base Orientation: Any, but horizontally with solenoids on top is preferred	Static Pressure 0 to 150 psig (0 to 10 bar)
Solenoids	According to VDE 0580; Rated for continuous duty	
Voltage	24 volts DC	Monitoring Dynamic, cyclical, external with customer supplied equipment. Monitoring should check state of both valve mid-position sensors with any and all changes in state of valve control signals.
Power Consumption (each solenoid)	3.5 watts	
Enclosure Rating	According to DIN 400 50 IP 65	Minimum Operation Frequency Once per month, to ensure proper function
Electrical Connection	Two 5-pin M12 connectors	
Temperature	Ambient: 40° to 120°F (4° to 50°C). Media: 40° to 175°F (4° to 80°C)	Maximum Recommended Allowable Discordance Time: 150 msec
Flow Media	Compressed air according to ISO 8573-1 Class 7:4:4	
Pilot Supply	Internal or External	Construction Material Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Online Version
06/25/20



www.rosscontrols.com

A5.3

A5

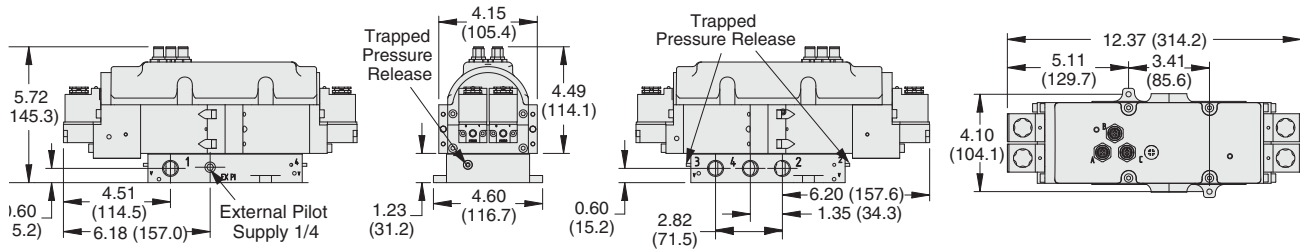
CROSSCHECK™ Control Reliable Double Valves for External Monitoring

Valve Technical Data CC4 Series

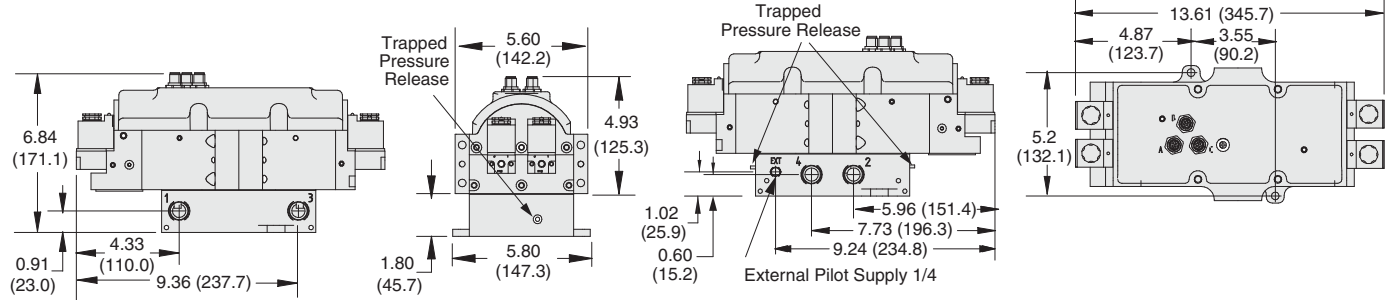
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Port Size 1/4 & 3/8

Valve Dimensions – inches (mm)



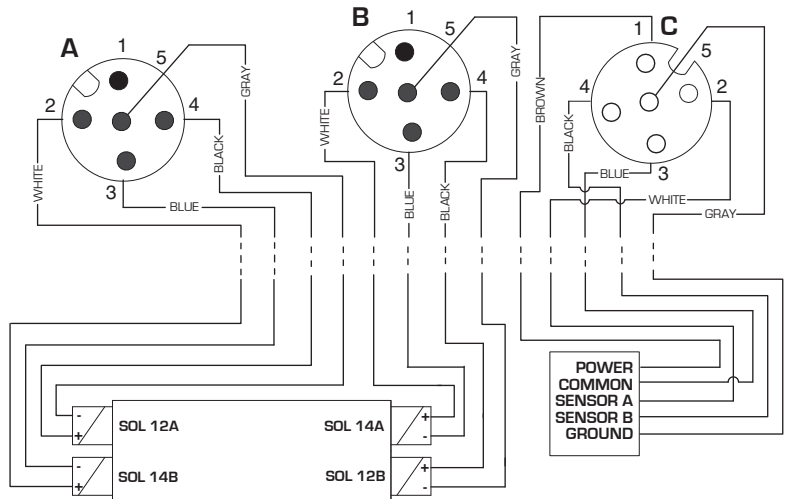
Port Size 1/2 & 3/4



A5

Valve Wiring Diagram

Valve Receptacle Arrangement
A & B - Solenoids
C - Sensor
IEC 61076-2-101
A CODED M12



ACCESSORIES & OPTIONS

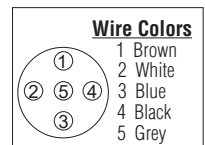
Silencers	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	R/Rp Threads		Width	Length	
			1/4	Male		5500A2003	D5500A2003	
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (92)	0.2 (0.1)	
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)	

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.



Preassembled Wiring Kits

Wiring Kit	Kit Number	Description	Connector Type	Number of Cords	Cord Length meters (feet)
M12 System Cables	2642K77	This kit includes 2 cords with female connector on one end and flying leads on the opposite end, and 1 cord with male connector on one end and flying leads on the opposite end.	5-pin, straight A-coded	3	5 (16.4)

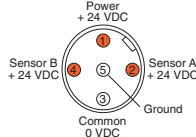
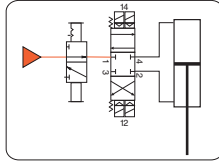
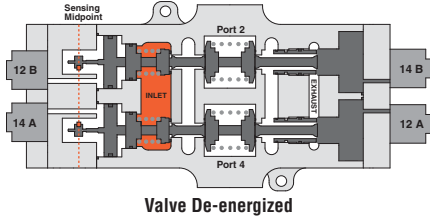


CROSSCHECK™ Control Reliable Double Valves for External Monitoring

Operation Overview CC4 Series

Conditions at Start:

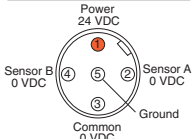
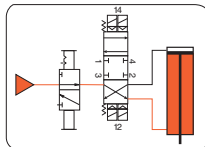
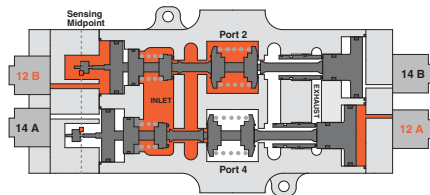
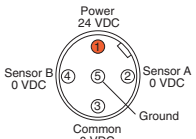
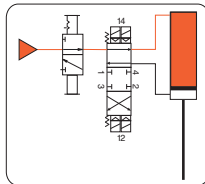
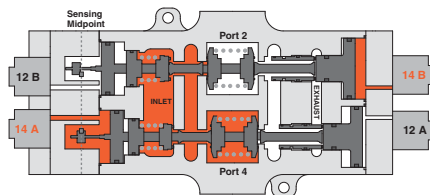
Pressure applied to port 1, but all solenoids off. All ports (1, 2, 3, & 4) are blocked.



Normal Operation:

Energizing both solenoids 14A & 14B causes the valve to shift and supply pressure to port 4 while exhausting pressure from port 2, thus, extending the cylinder. Conversely, energizing solenoids 12A & 12B causes the valve to shift and supply pressure to port 2 while exhausting pressure from port 4, thus, causing the cylinder to retract. Turning all the solenoids off allows the strong return springs to shift the redundant valves back to the center position, which blocks all ports. This traps any downstream pressure in the cylinder and holds it in its current position (see below on the right, image of valve de-energized trapping pressure). Each of the mid-position feedback sensors provide a voltage output when the valve is in the center, safe position, but no voltage output when the valve internals are shifted out of the center position. This provides a detectable center position for both sets of valve internals.

NOTE: Momentary operation of either the 12A & 12B solenoids (or 14A & 14B solenoids) can be utilized to jog the cylinder to intermediate positions instead of just fully extended or fully retracted. This is sometimes referred to as “inching.”



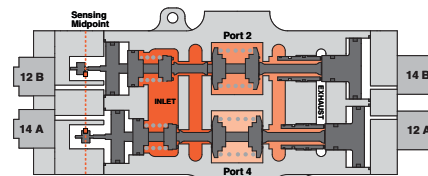
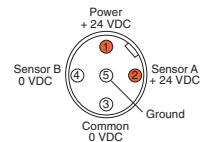
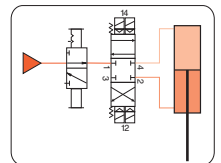
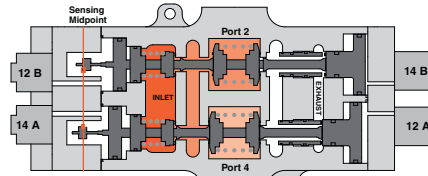
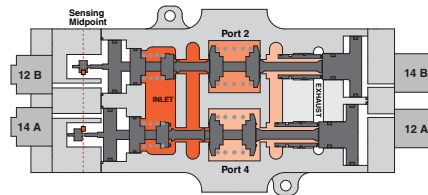
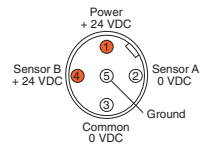
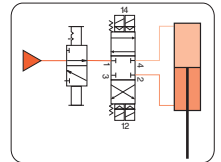
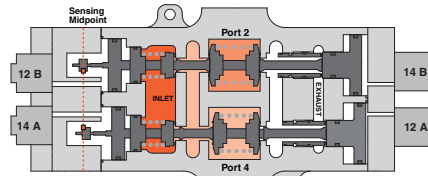
Monitoring:

External monitoring of the CROSSCHECK™ mid-position sensors must be performed by an external monitoring system. Such a monitoring system must be capable of inhibiting the operation of the valve. The safety control system must de-energize the valve's solenoids in the event of a fault within the valve and/or within the safety control system, and check for achievement of the valve center position before allowing an attempt to re-energize the valve. Valve reset is accomplished by de-energizing all of the valve's solenoids. Reset of the safety control system should not occur unless the valve has fully returned to its center position (both sets of internals).

The output voltage of the sensors, when switched on (center position), equals approximately the voltage supplied to the sensors by the safety controller. For example, 24 volts DC In = 24 volts DC Out, etc.

Abnormal Operation:

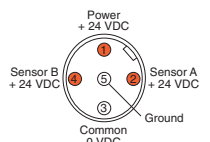
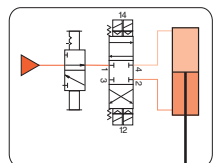
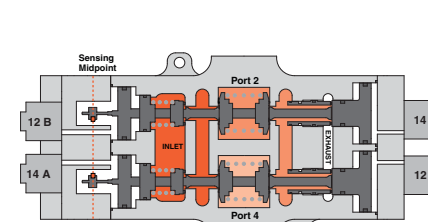
When energizing, if both sets of valve internals do not shift synchronously (either on or off), the CROSSCHECK™ valve will block all ports. While in this fault condition, the valve cannot further pressurize or exhaust the cylinder lines. Also, as long as the fault condition exists, there will be a voltage output from the valve internals that did not shift from center, but there will not be an output from the other valve internals that did shift off center. This provides a detectable fault condition as both sensors need to agree in order to not indicate a fault.



Trapped Pressure Release:

In order to perform machine maintenance, after stopping the machine and performing lockout/tagout, pressure trapped in the cylinder by the CROSSCHECK™ valve can be released (exhausted) by the two manually-operated 2-way valves that are provided in the CROSSCHECK™ valve sub-base - one each per valve outlet port. This provides a way to slowly lower the cylinder to its lowest position.

NOTE: Operating the manual trapped pressure release valves will cause movement of the cylinder. Use caution to avoid any hazards associated with this movement.



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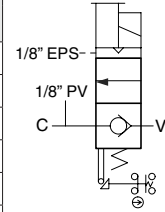
Single Pilot Operated Check Sensing Valves for External Monitoring – Solenoid Pilot Controlled

Load Holding SV27 Series

A

2-Way 2-Position Valves, Normally Closed

Port Size	Body Size	Valve Model Number#		C _v	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	SV27NC115408CSAA1D	SV27DC115408CSAA1D	4.5	5.0 (2.3)
3/4	3/4	SV27NC115508CSAA1D	SV27DC115508CSAA1D	8.3	5.0 (2.3)
1	3/4	SV27NC115608CSAA1D	SV27DC115608CSAA1D	10.3	5.0 (2.3)
1	1 1/4	SV27NC117608CSAA1D	SV27DC117608CSAA1D	20	12.5 (5.6)
1 1/4	1 1/4	SV27NC117708CSAA1D	SV27DC117708CSAA1D	29	12.5 (5.6)
1 1/2	1 1/4	SV27NC117808CSAA1D	SV27DC117808CSAA1D	33	12.5 (5.6)



Cat. 2
PL c

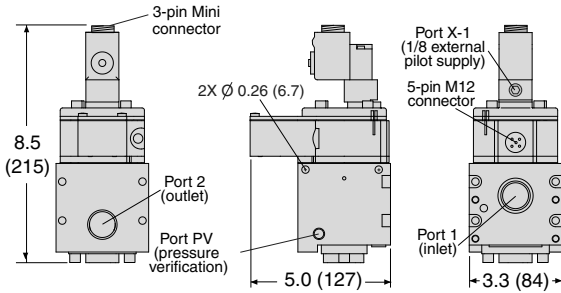


Body Size
1/4 shown

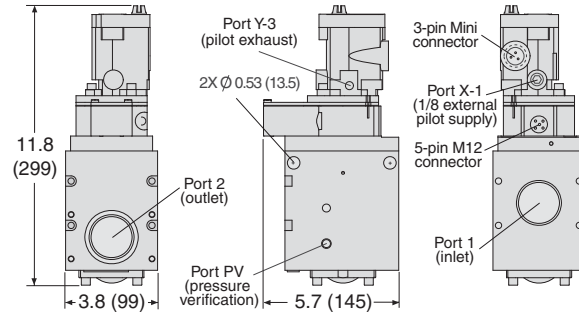
Voltage: 1D= 24 VDC; 1A=110-120 VAC, 50/60 Hz, e.g., SV27NC115408CSAA1A. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

Body Size 3/4 (CNOMO Style Pilot)



Body Size 1 1/4 (Pacer Style Pilot)



A5

ACCESSORIES & OPTIONS

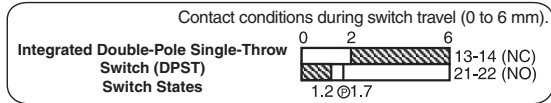
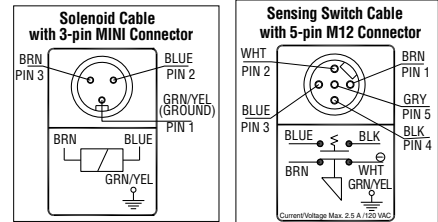
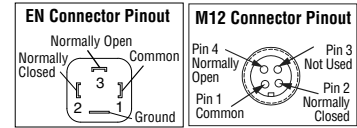
Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

Indicator Light Kits	Kit Number	
	for Pacer Style Pilot	110-120 volts AC 50-60 Hz
	862K87-W	862K87-Z

Preassembled Wiring Kits			
Kit Number*	Length meters (feet)	Number of Cables	Description
2239H77	4 (13.1)	2	The wiring kits come with a cord grip on each cable. One cable has a 3-pin MINI connector for the solenoid and one has a 5-pin M12 (Micro) connector for the sensing switch.
2240H77	10 (32.8)	2	

* Each cable has one connector.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	40 to 150 psig (2.8 to 10.3 bar)
Mounting Type	In-line	Pilot Supply	- When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	AC or DC power; Rated for continuous duty	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption	CNOMO Style Pilot: 6 watts on DC; 11 VA inrush, 8.5 VA holding on 50 or 60 Hz Pacer Style Pilot: 14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Manual Override	Pacer Style Pilot: Flush; rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Category 2, PL d; B ₁₀₀ : Valve - 20,000,000, Switch - 2,000,000; PFH _d : 2.35x10 ⁻⁷ ; MTTFD _d : 98.15 (λ _{top} : 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours	Vibration/Impact Resistance: Calculated to BS EN 60068-2-27
Flow Media	Filtered air		
Pilot Supply	Internal or External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Dual Pilot Operated Check Sensing Valves for External Monitoring – Solenoid Pilot Controlled

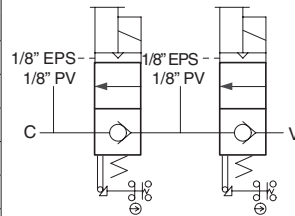
Load Holding SV27 Series

Cat. 3
PL e

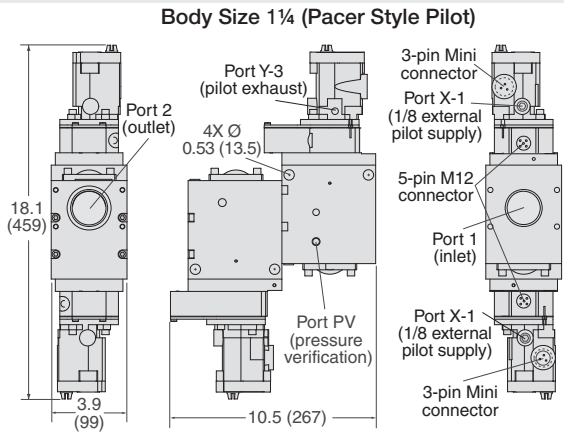
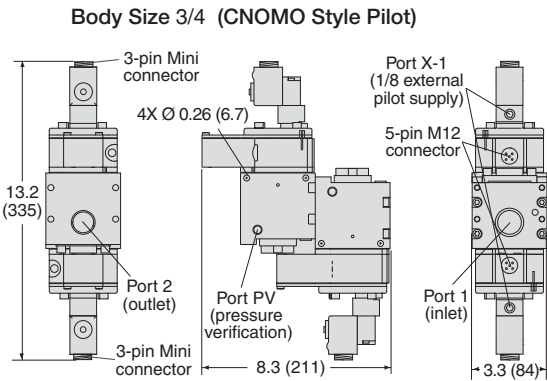
A

2-Way 2-Position Redundant Normally Closed					
Port Size 1, 2	Body Size	Valve Model Number#		C _v 1-2	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	SV27NC555408CSAA1D	SV27DC555408CSAA1D	3.8	10.0 (4.5)
3/4	3/4	SV27NC555508CSAA1D	SV27DC555508CSAA1D	5.6	10.0 (4.5)
1	3/4	SV27NC555608CSAA1D	SV27DC555608CSAA1D	8	10.0 (4.5)
1	1¼	SV27NC557608CSAA1D	SV27DC557608CSAA1D	12	25.0 (11.3)
1¼	1¼	SV27NC557708CSAA1D	SV27DC557708CSAA1D	19	25.0 (11.3)
1½	1¼	SV27NC557808CSAA1D	SV27DC557808CSAA1D	22	25.0 (11.3)

Voltage: 1D= 24 VDC; 1A=110-120 VAC, 50/60 Hz, e.g., SV27NC555408CSAA1A. For other voltages, consult ROSS.



Valve Dimensions – inches (mm)

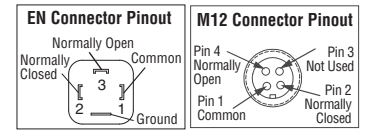


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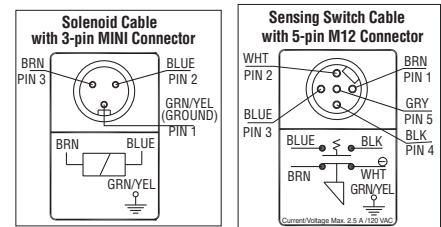
ACCESSORIES & OPTIONS

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30		

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

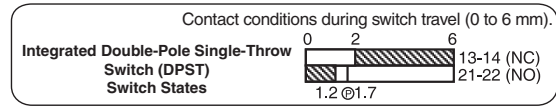


Indicator Light Kits	Kit Number	
	for Pacer Style Pilot	110-120 volts AC 50-60 Hz
	862K87-W	862K87-Z



Preassembled Wiring Kits			
Kit Number*	Length meters (feet)	Number of Cables	Description
2239H77	4 (13.1)	2	The wiring kits come with a cord grip on each cable. One cable has a 3-pin MINI connector for the solenoid and one has a 5-pin M12 (Micro) connector for the sensing switch.
2240H77	10 (32.8)	2	

* Each cable has one connector.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	40 to 150 psig (2.8 to 10.3 bar)
Mounting Type	In-line	Pilot Supply	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	AC or DC power; Rated for continuous duty	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption	CNOMO Style Pilot: 6 watts on DC; 11 VA inrush, 8.5 VA holding on 50 or 60 Hz Pacer Style Pilot: 14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Manual Override	Pacer Style Pilot: Flush; rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Category 2, PL d; B _{10D} : Valve - 20,000,000, Switch - 2,000,000; PFH _D : 2.35x10 ⁻⁷ ; MTTF _D : 98.15 (n _{op} : 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours	Vibration/Impact Resistance: Calculated to BS EN 60068-2-27
Flow Media	Filtered air		
Pilot Supply	Internal or External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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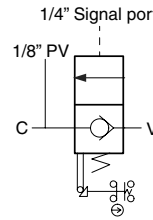
Single Pilot Operated Check Sensing Valves for External Monitoring – Pressure Controlled

Load Holding SV27 Series

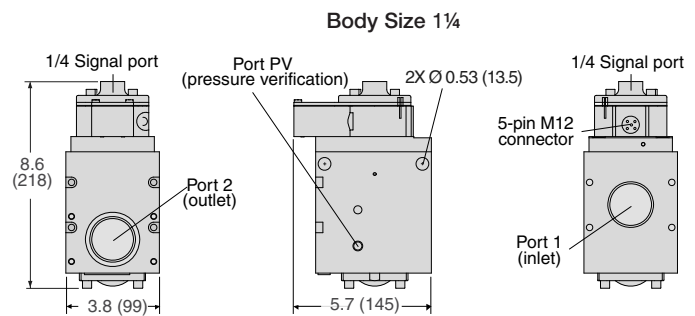
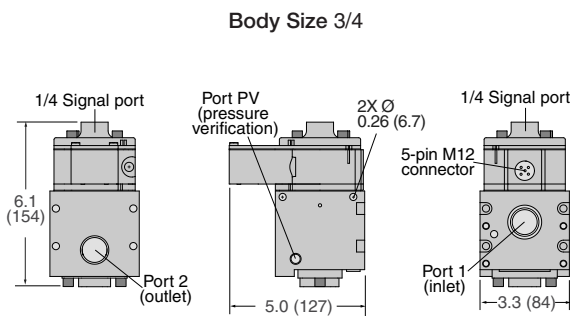
A

2-Way 2-Position Valves					
Port Size	Body Size	Valve Model Number		C _v	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	SV27NC115405ASAA	SV27DC115405ASAA	4.5	4.0 (1.8)
3/4	3/4	SV27NC115505ASAA	SV27DC115505ASAA	8.3	4.0 (1.8)
1	3/4	SV27NC115605ASAA	SV27DC115605ASAA	10.3	4.0 (1.8)
1	1 1/4	SV27NC117605ASAA	SV27DC117605ASAA	20	11.0 (5.0)
1 1/4	1 1/4	SV27NC117705ASAA	SV27DC117705ASAA	29	11.0 (5.0)
1 1/2	1 1/4	SV27NC117805ASAA	SV27DC117805ASAA	33	11.0 (5.0)

Cat. 2
PL c



Valve Dimensions – inches (mm)

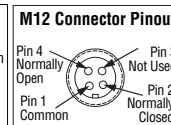
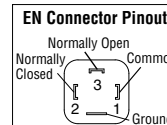


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ACCESSORIES & OPTIONS

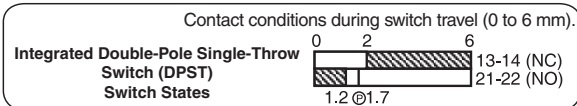
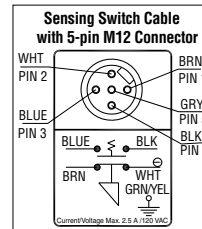
Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Preassembled Wiring Kits			
Kit Number*	Length meters (feet)	Number of Cables	Description
2241H77	5 (16.4)	1	The wiring kits include one cable with a 5-pin M12 connector for the sensing switch, and a cord grip.
2242H77	10 (32.8)	1	

* Each cable has one connector.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Category 2, PL d; B _{10D} : Valve - 20,000,000, Switch - 2,000,000; PFH ₀ : 2.35x10 ⁻⁷ ; MTTF ₀ : 98.15 (n _{0p} : 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours	
Flow Media	Filtered air	Vibration/Impact Resistance: Calculated to BS EN 60068-2-27	
Pilot Supply	External		
Operating Pressure	40 to 150 psig (2.8 to 10.3 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

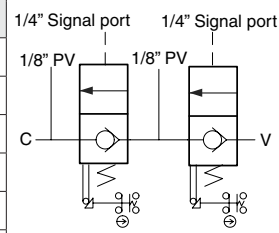
Dual Pilot Operated Check Sensing Valves for External Monitoring – Pressure Controlled

Load Holding SV27 Series

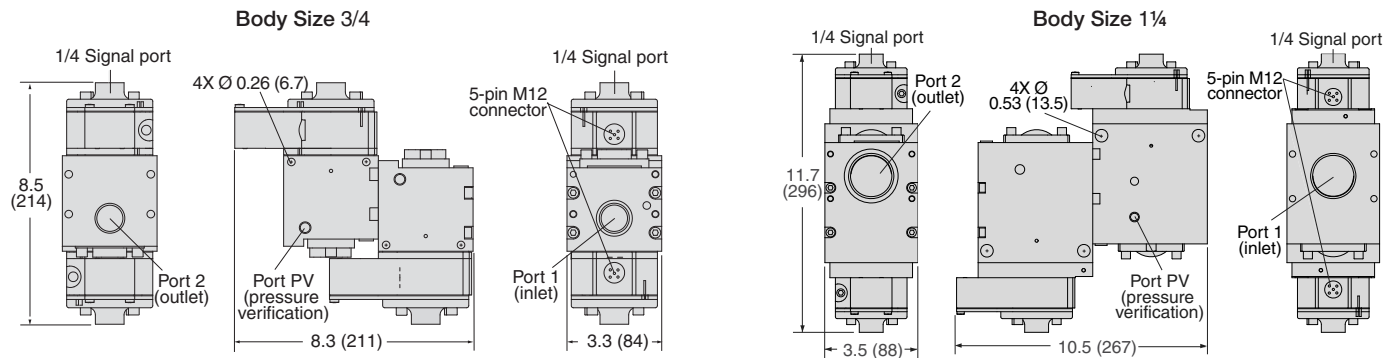
2-Way 2-Position Valves					
Port Size	Body Size	Valve Model Number		C _v	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	SV27NC555405ASAA	SV27DC555405ASAA	3.8	9.0 (4.1)
3/4	3/4	SV27NC555505ASAA	SV27DC555505ASAA	5.6	9.0 (4.1)
1	3/4	SV27NC555605ASAA	SV27DC555605ASAA	8	9.0 (4.1)
1	1 1/4	SV27NC557605ASAA	SV27DC557605ASAA	12	22.0 (10.0)
1 1/4	1 1/4	SV27NC557705ASAA	SV27DC557705ASAA	19	22.0 (10.0)
1 1/2	1 1/4	SV27NC557805ASAA	SV27DC557805ASAA	22	22.0 (10.0)

Cat. 3
PL e

A



Valve Dimensions – inches (mm)

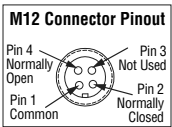
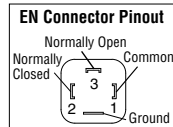


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ACCESSORIES & OPTIONS

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	

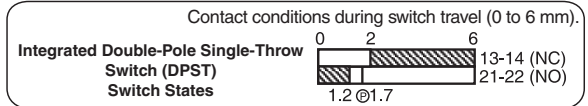
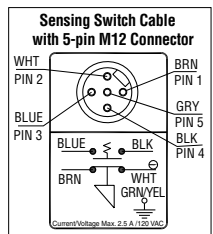
*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Preassembled Wiring Kits#			
Kit Number*	Length meters (feet)	Number of Cables	Description
2241H77	5 (16.4)	1	The wiring kits include one cable with a 5-pin M12 connector for the sensing switch, and a cord grip.
2242H77	10 (32.8)	1	

* Each cable has one connector.

SV27 Redundant PO Check valves (CAT 3), requires 2 kits.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Category 2, PL d; B _{10d} : Valve - 20,000,000, Switch - 2,000,000; PFH _d : 2.35x10 ⁻⁷ ; MTTFD _d : 98.15 (n _{op} : 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours	Vibration/Impact Resistance: Calculated to BS EN 60068-2-27
Flow Media	Filtered air	Operating Pressure	
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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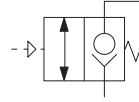
Pilot Operated Check Valves Right-Angle with Threaded Banjo

Cylinder Position Holding 19 Series

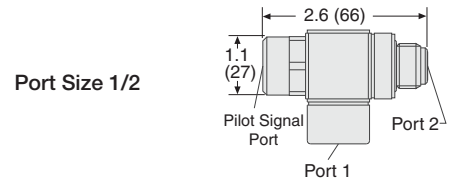
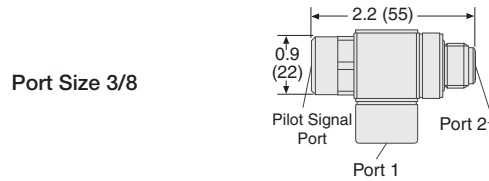
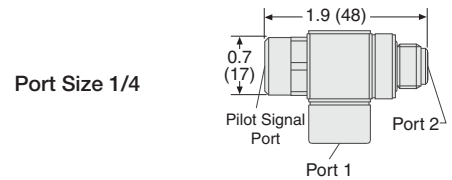
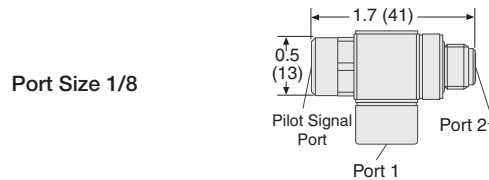
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Models with Threaded Banjo							
Port Size		Port Threads	Valve Model Number	Port 12	C _v		Tightening Torque Max. Ft-lb (Nm)
Port 1 (female threads)	Port 2 (male threads)				1-2	2-1	
1/8	1/8	NPT	1958A1010	10-32 UNF	0.4	0.4	22.13 (30)
1/4	1/4	NPT	1958A2010	10-32 UNF	0.8	0.7	14.75 (20)
3/8	3/8	NPT	1958A3010	10-32 UNF	1.2	1.3	22.13 (30)
1/2	1/2	NPT	1958A4010	10-32 UNF	2.3	2.2	29.50 (40)
1/8	1/8	G	D1958A1010	M5	0.4	0.4	7.38 (10)
1/4	1/4	G	D1958A2010	M5	0.8	0.7	8.85 (12)
3/8	3/8	G	D1958A3010	M5	1.2	1.3	14.75 (20)
1/2	1/2	G	D1958A4010	M5	2.3	2.2	22.13 (30)

**Cat. 1
PL b**

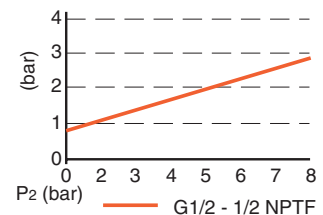
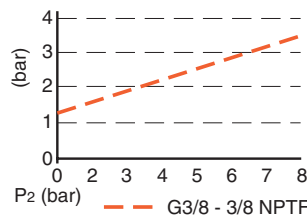
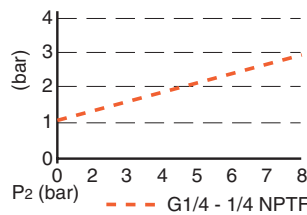
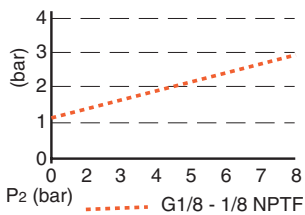


Valve Dimensions – inches (mm)



A5

Signal Pressure: The charts below show the minimum signal pilot port pressure to open the valve versus port 2 pressure (P₂) when there is no pressure at port 1 (P₁ = 0 bar).



ACCESSORIES & OPTIONS

Manual Override	Manual Trapped Pressure Relief Adapter			
	Port 1 (male threads)	Port 2	Port Threads	Model Number*
	5/32 tubing	10/32 – Manual Operated Check	NPT	1998A1015
M5	M5 Manual Operated Check	G	D1998A1010	

* Adapter threads into the signal port.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Mounting Type	In-line	Construction Material	Valve Body: Nickel Plated Brass and Anodized Aluminum Seals: Buna-N
Temperature	Ambient/Media: 15° to 160°F (-10° to 70°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Pilot Operated Check Valves Right-Angle with Push-to-Connect Fitting

Cylinder Position Holding 19 Series

Models with Push-to-Connect Fitting						
Port Size		Valve Model Number	Port 12	C _v		Tightening Torque Max. Ft-lb (Nm)
Port 1* (tube fittings)	Port 2 (male threads)			1-2	2-1	
5/32"	1/8 NPT	1958A1115	10-32 UNF	0.4	0.4	11.06 (15)
1/4"	1/8 NPT	1958A1120	10-32 UNF	0.4	0.4	11.06 (15)
1/4"	1/4 NPT	1958A2120	10-32 UNF	0.8	0.7	14.75 (20)
3/8"	1/4 NPT	1958A2130	10-32 UNF	0.8	0.7	14.75 (20)
3/8"	3/8 NPT	1958A3130	10-32 UNF	1.2	1.3	22.13 (30)
4 mm	1/8 G	D1958A1140	M5	0.4	0.4	7.38 (10)
6 mm	1/8 G	D1958A1160	M5	0.4	0.4	7.38 (10)
8 mm	1/8 G	D1958A1180	M5	0.4	0.4	7.38 (10)
6 mm	1/4 G	D1958A2160	M5	0.8	0.7	8.85 (12)
8 mm	1/4 G	D1958A2180	M5	0.8	0.7	8.85 (12)
10 mm	3/8 G	D1958A3110	M5	1.2	1.3	14.75 (20)

Port 1 tubing size in inches (") or millimeters (mm).

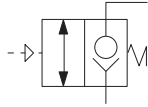
Cat. 1
PL b

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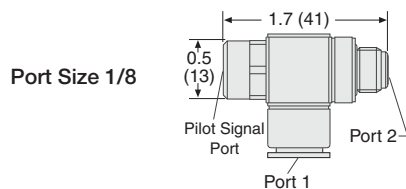


Valve Illustrated with *Optional G Threads Manual Trapped Pressure Relief Adapter*

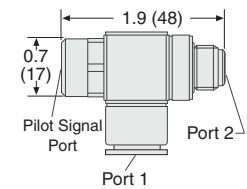
Valve Illustrated with *Optional NPT Threads Manual Trapped Pressure Relief Adapter*



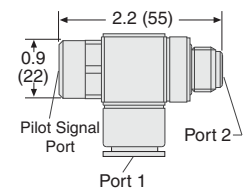
Valve Dimensions – inches (mm)



Port Size 1/4

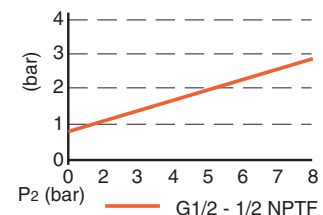
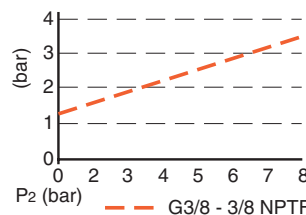
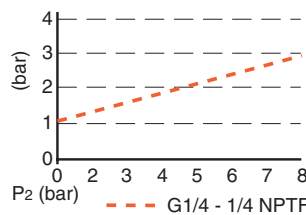
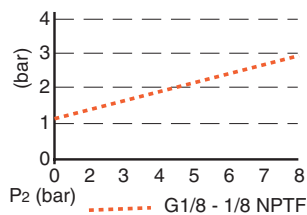


Port Size 3/8



A5

Signal Pressure: The charts below show the minimum signal pilot port pressure to open the valve versus port 2 pressure (P₂) when there is no pressure at port 1 (P₁ = 0 bar).



OPTIONS

Manual Override	Manual Trapped Pressure Relief Adapter			
	Port 1 (male threads)	Port 2	Port Threads	Model Number*
	5/32 tubing	10/32 – Manual Operated Check	NPT	1998A1015
M5	M5 Manual Operated Check	G	D1998A1010	

* Adapter threads into the signal port.



Adapter with NPT Threads

Adapter with G Threads

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Mounting Type	In-line	Construction Material	Valve Body: Nickel Plated Brass and Anodized Aluminum Seals: Buna-N
Temperature	Ambient/Media: 15° to 160°F (-10° to 70°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Single Pilot Operated Check Valves without Trapped Pressure Relief

Load Holding 27 Series

A

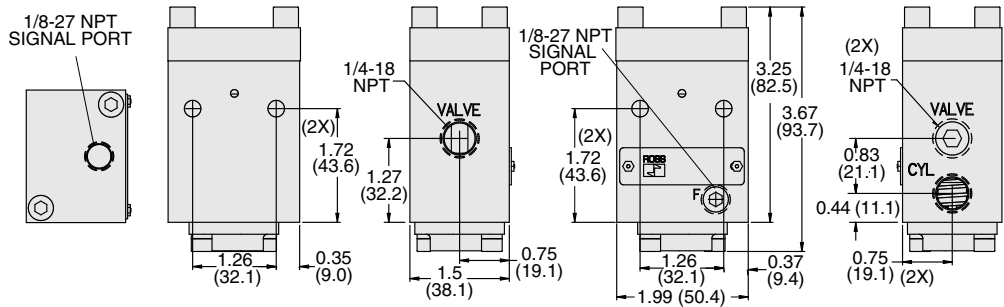
2-Way 2-Position, Pressure Controlled					
Ports Size	Valve Model Number		Signal Port	C _v	Weight lb (kg)
	NPT Threads	G Threads			
1/4	2751A2908	D2751A2908	1/8-27 NPT	2.2	2.3 (1.0)
3/8	2751A3908	D2751A3908	1/8-27 NPT	2.9	2.3 (1.0)
1/2	2751A4915	D2751A4915	1/8-27 NPT	3.2	2.3 (1.0)

**Cat. 1
PL b**

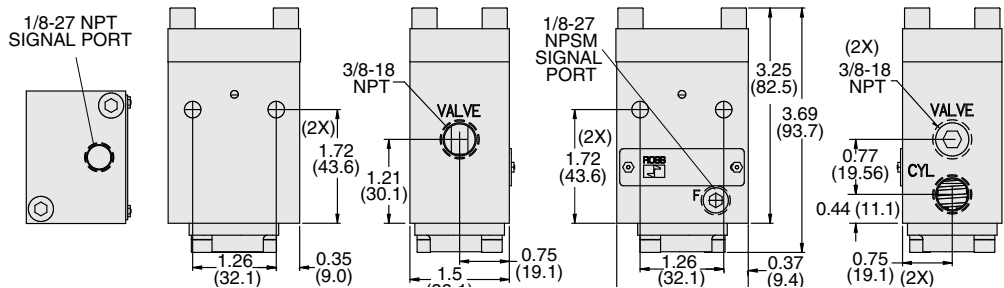


Valve Dimensions – inches (mm)

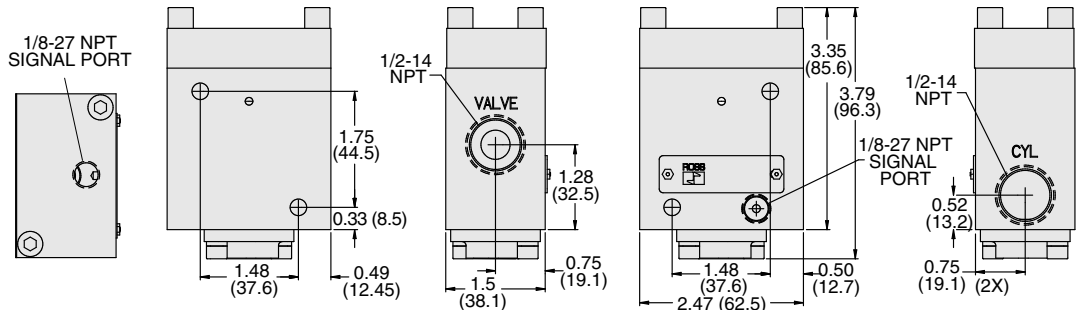
Port Size 1/4



Port Size 3/8



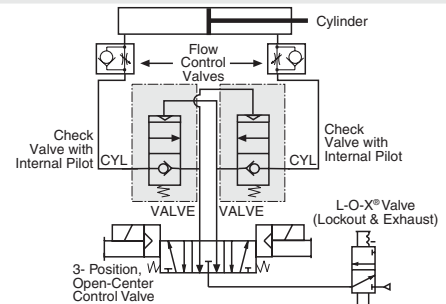
Port Size 1/2



Single Pilot Operated Check Valve Application

CIRCUIT FEATURES:

- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Single Pilot Operated Check Valves without Trapped Pressure Relief

Load Holding
27 Series

2-Way 2-Position, Pressure Controlled						
Ports Size	Body Size	Valve Model Number		Signal Port	C _v	Weight lb (kg)
		NPT Threads	G Threads			
1/4	3/8	2751A2903	D2751A2903	1/4	2.3	1.3 (0.6)
3/8	3/8	2751A3901	D2751A3901	1/4	3.8	1.3 (0.6)
1/2	3/8	2751A4902	D2751A4902	1/4	4	1.3 (0.6)
1/2	3/4	2751A4905	D2751A4905	1/4	7.7	2.3 (1.0)
3/4	3/4	2751A5903	D2751A5903	1/4	9	2.3 (1.0)
1	3/4	2751A6901	D2751A6901	1/4	9	2.3 (1.0)
1	1 1/4	2751B6904	D2751B6904	1/4	24	6.0 (2.7)
1 1/4	1 1/4	2751B7901	D2751B7901	1/4	29	6.0 (2.7)
1 1/2	1 1/4	2751B8902	D2751B8902	1/4	29	6.0 (2.7)

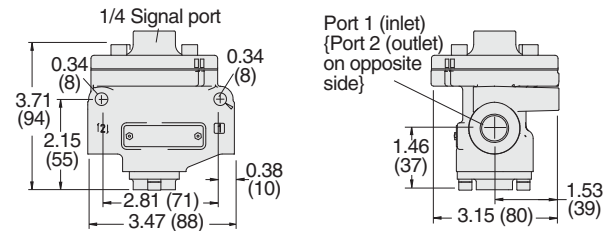
Cat. 1
PL b



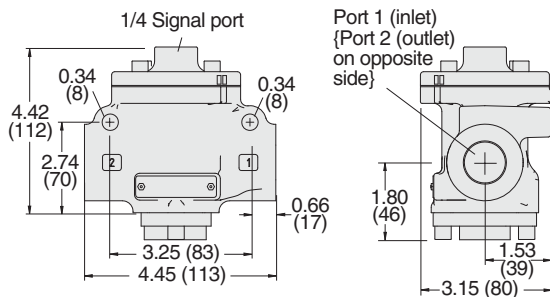
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Valve Dimensions – inches (mm)

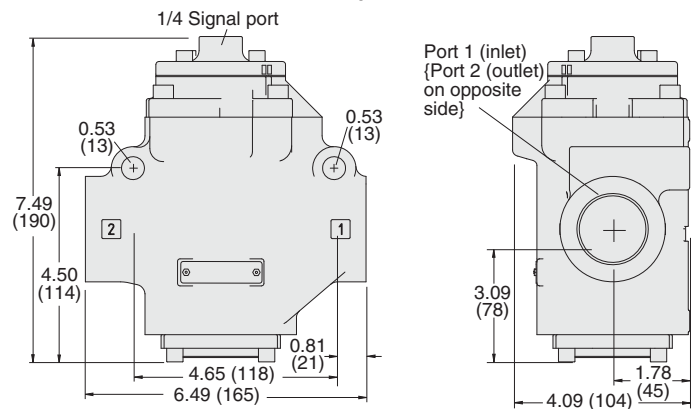
Body Size 3/8



Body Size 3/4



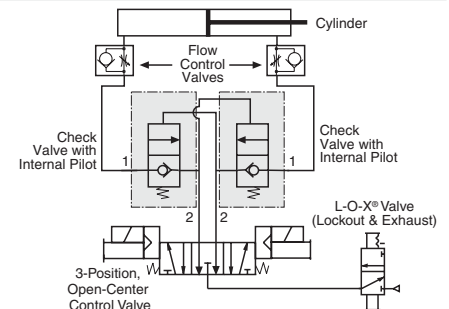
Body Size 1 1/2



Single Pilot Operated Check Valve Application

CIRCUIT FEATURES:

- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10.3 bar) Signal Pressure: Must be equal to or greater than inlet pressure		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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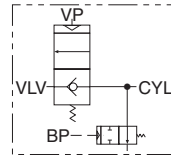
A5

Single Pilot Operated Check Valves with Remote Trapped Pressure Relief

Load Holding
27 Series

A

Ports Size	Valve Model Number		Signal Port	C _v	Weight lb (kg)
	NPT Threads	G Threads			
3/8	2751A3922	D2751A3922	1/8-27 NPT	2.6	1.8 (0.8)
1/2	2751A4922	D2751A4922	1/8-27 NPT	2.8	1.8 (0.8)
3/4	2751A5917	D2751A5917	1/8-27 NPT	9.2	2.9 (3.1)

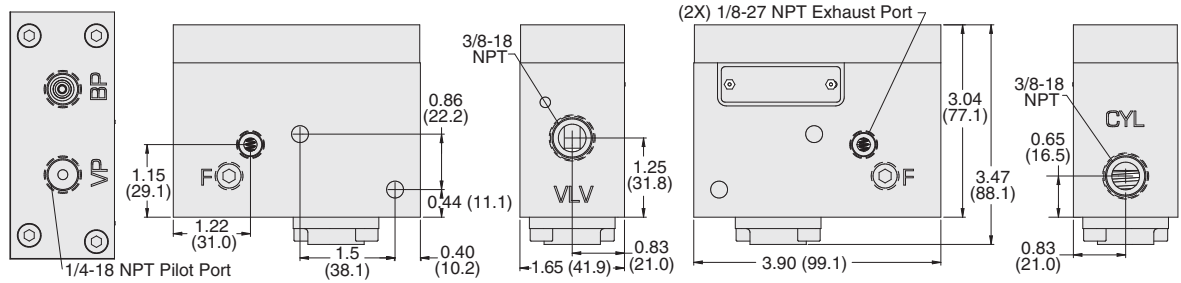


Cat. 1
PL b



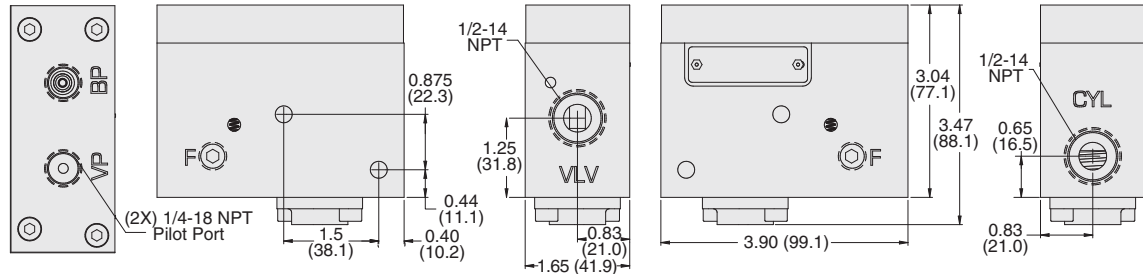
Valve Dimensions – inches (mm)

Port Size 3/8

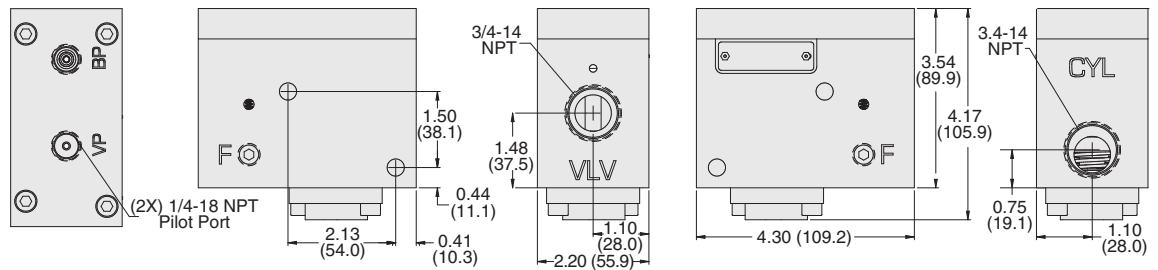


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Port Size 1/2



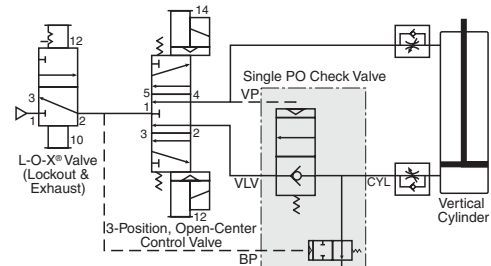
Port Size 3/4



Single Pilot Operated Check Valve with Trapped Pressure Relief Application

CIRCUIT FEATURES:

- Trapped pressure between check valve and cylinder is exhausted when the air supply at the Blowdown Signal Port (BP) is lost or locked-out.
- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Single Pilot Operated Check Valves with Manual Trapped Pressure Relief

Load Holding 27 Series

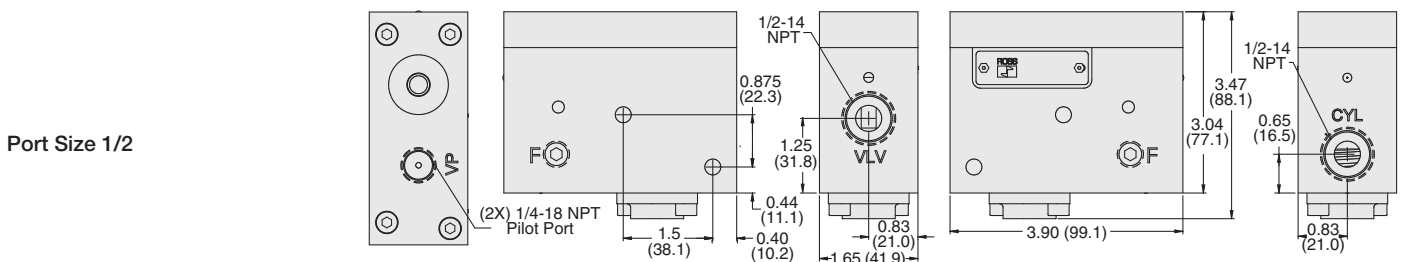
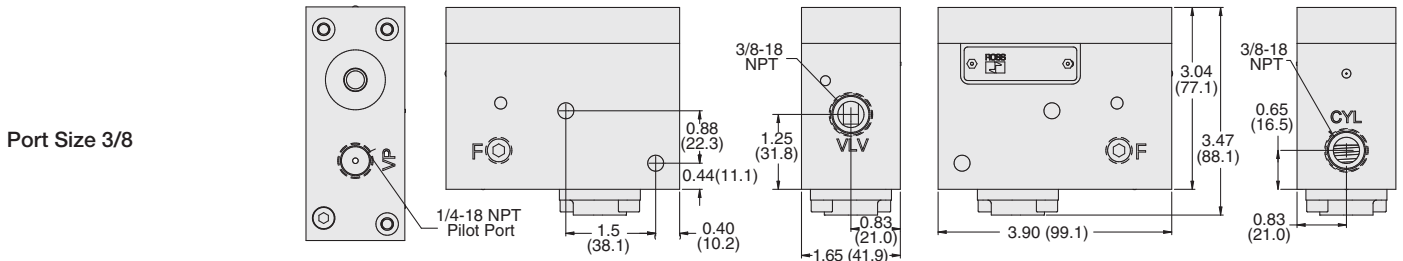
2-Way 2-Position, Pressure Controlled				
Ports Size	Valve Model Number		C _v	Weight lb (kg)
	NPT Threads	G Threads		
3/8	2751A3920	D2751A3920	2.6	1.8 (0.8)
1/2	2751A4920	D2751A4920	2.8	1.8 (0.8)
3/4	2751A5919	D2751A5919	9.2	2.9 (3.1)

Cat. 1
PL b

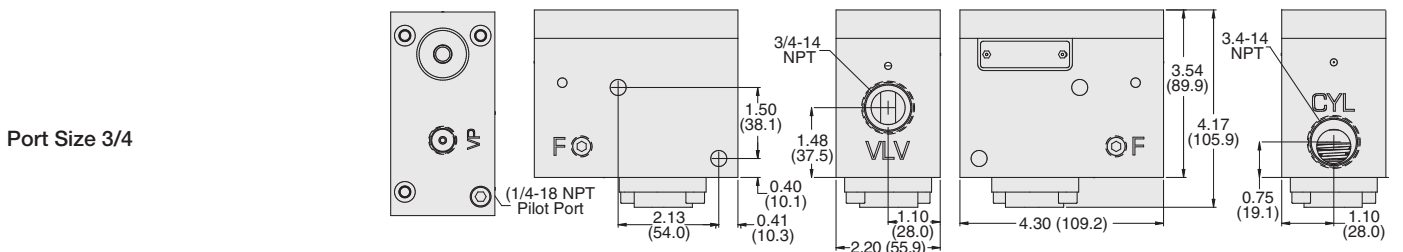


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Valve Dimensions – inches (mm)



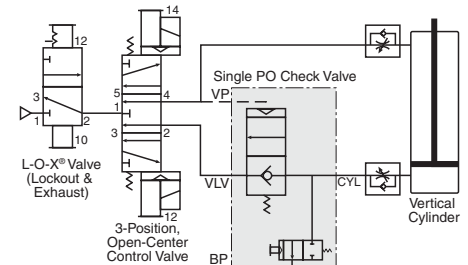
A5



Single Pilot Operated Check Valve with Manual Trapped Pressure Relief Application

CIRCUIT FEATURES:

- Trapped pressure between check valve and cylinder is exhausted when the manual relief button is pressed.
- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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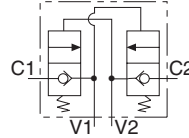
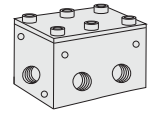
Dual Pilot Operated Check Valves without Trapped Pressure Relief

Load Holding
27 Series

A

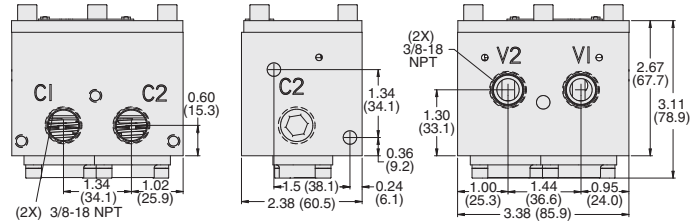
2-Way 2-Position, Pressure Controlled					
Ports Size	Valve Model Number		Signal Port	C _v	Weight lb (kg)
	NPT Threads	G Threads			
3/8	2768C3900	D2768C3900	1/8-27 NPT	2.9	2.0 (0.9)
1/2	2768C4900	D2768C4900	1/8-27 NPT	3.2	2.4 (1.1)
3/4	2768C5900	D2768C5900	1/8-27 NPT	8.5 #	3.8 (1.7)
1	2768A6900	D2768A6900	1/8-27 NPT	8.5 #	6.8 (3.1)

Cat. 1
PL b

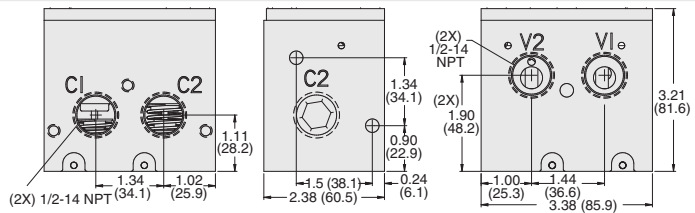


Valve Dimensions – inches (mm)

Port Size 3/8

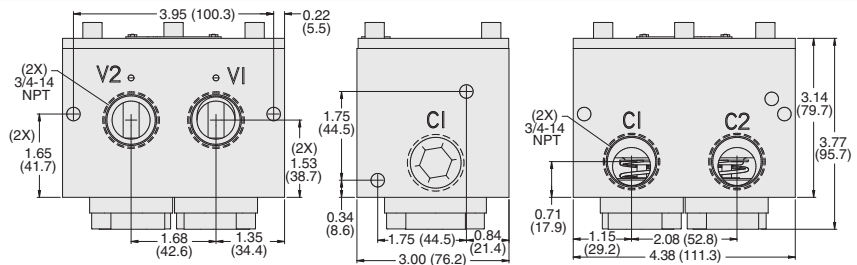


Port Size 1/2

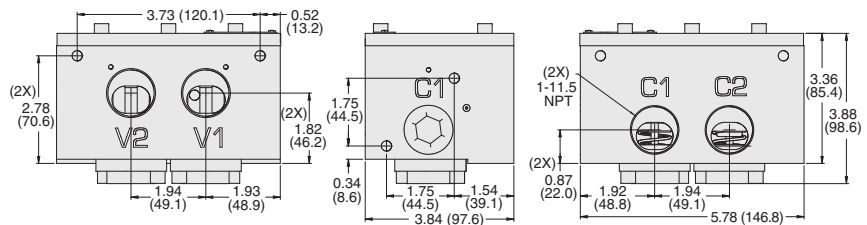


A5

Port Size 3/4



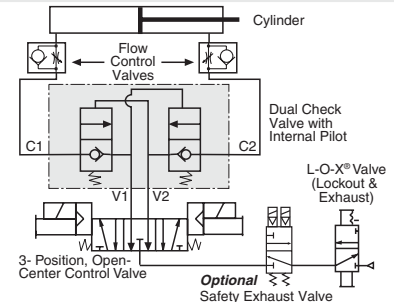
Port Size 1



Dual Pilot Operated Check Valve Application

CIRCUIT FEATURES:

- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Dual Pilot Operated Check Valves with Remote Trapped Pressure Relief

Load Holding 27 Series

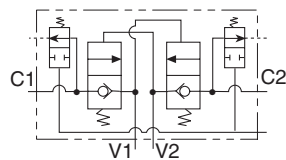
2-Way 2-Position, Pressure Controlled					
Ports Size	Valve Model Number		Signal Port	C _v	Weight lb (kg)
	NPT Threads	G Threads			
3/8	2768D3901	D2768D3901	1/8-27 NPT	2.9	2.3 (1.1)
1/2	2768D4901	D2768D4901	1/8-27 NPT	3.2	2.3 (1.1)
3/4	2768D5901	D2768D5901	1/8-27 NPT	8.5 #	3.8 (1.7)
1	2768D6901	D2768D6901	1/8-27 NPT	8.5 #	7.4 (3.4)

Effective C_v varies with load and pressure drop. Consult ROSS for specifics on your system.

Cat. 1
PL b

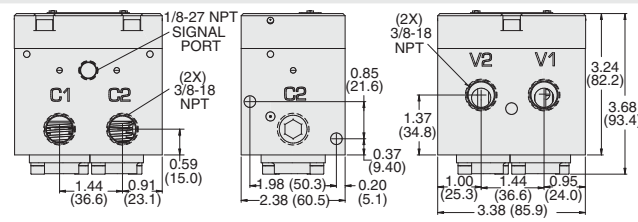


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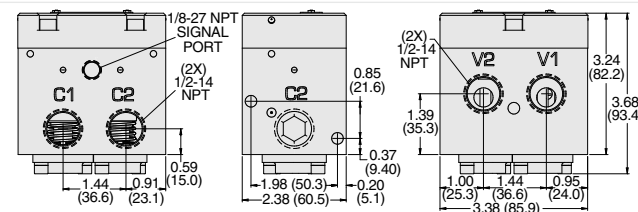


Valve Dimensions – inches (mm)

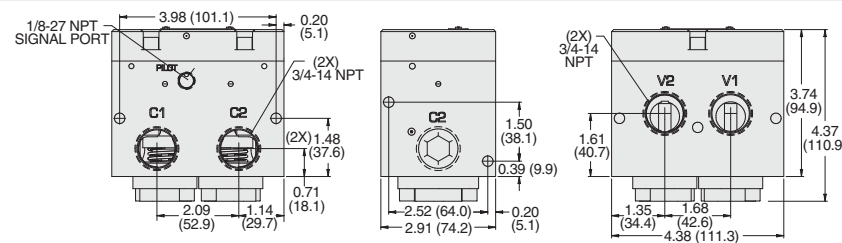
Port Size 3/8



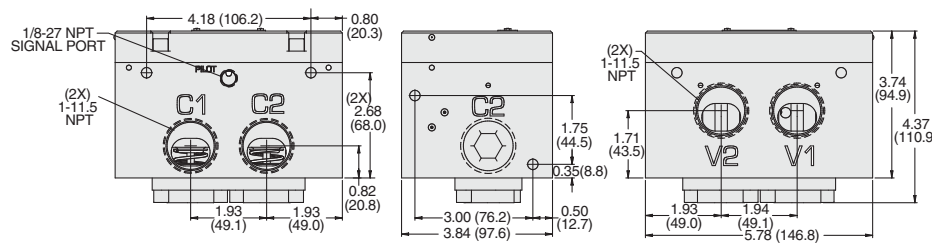
Port Size 1/2



Port Size 3/4



Port Size 1

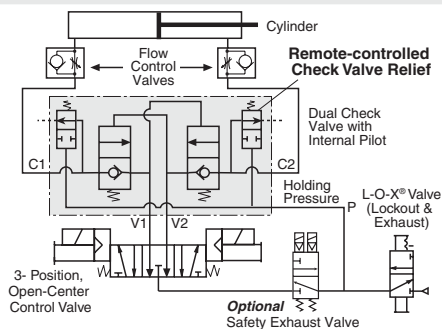


A5

CIRCUIT FEATURES:

- Trapped pressure between check valve and cylinder is exhausted when the air supply at the port "P" is lost or locked-out.
- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.

Dual Pilot Operated Check Valve Remote Trapped Pressure Relief Application



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Dual Pilot Operated Check Valves with Manual Trapped Pressure Relief

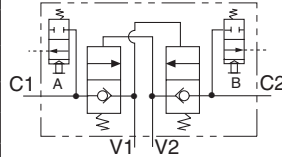
Load Holding
27 Series

A

2-Way 2-Position, Pressure Controlled				
Ports Size	Valve Model Number		C _v	Weight lb (kg)
	NPT Threads	G Threads		
3/8	2768D3904	D2768D3904	2.9	2.3 (1.1)
1/2	2768D4904	D2768D4904	3.2	2.3 (1.1)
3/4	2768D5904	D2768D5904	8.5 #	3.8 (1.7)
1	2768D6904	D2768D6904	8.5 #	6.58 (3.0)

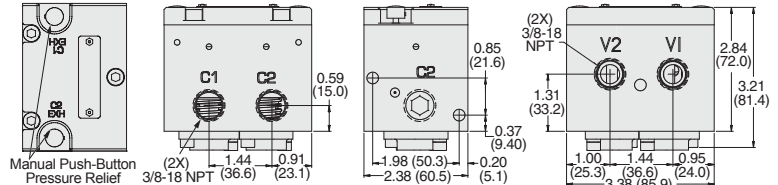
Effective C_v varies with load and pressure drop. Consult ROSS for specifics on your system.

Cat. 1
PL b

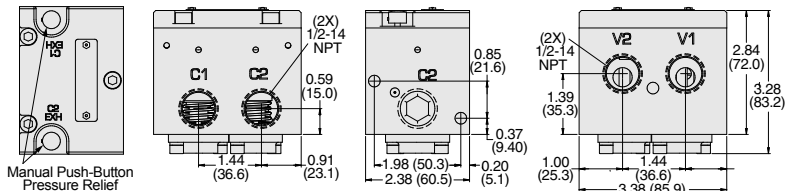


Valve Dimensions – inches (mm)

Port Size 3/8

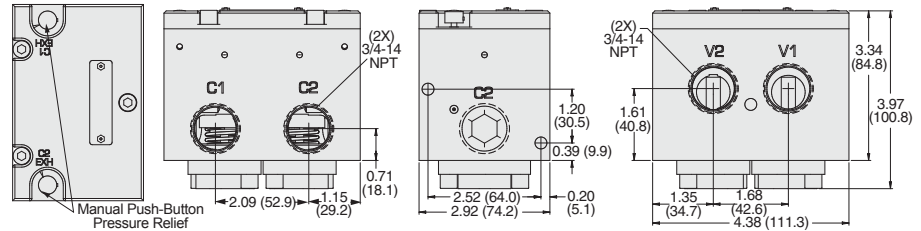


Port Size 1/2

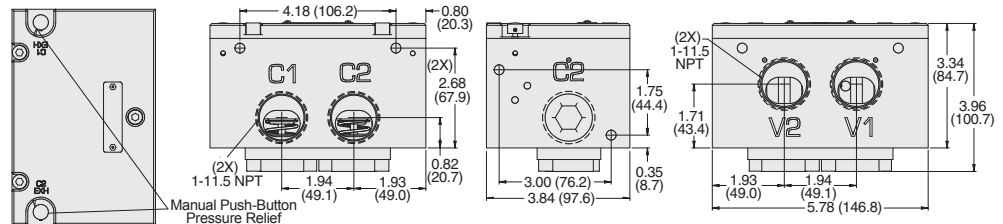


A5

Port Size 3/4



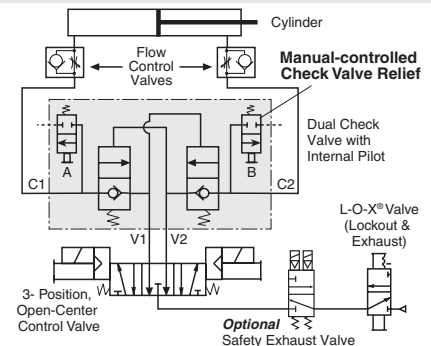
Port Size 1



Dual Pilot Operated Check Valve Manual Trapped Pressure Relief Application

CIRCUIT FEATURES:

- Trapped pressure between check valve and cylinder is exhausted when push buttons A and B are pressed.
- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Valve Body	Cast Aluminum
Flow Media	Filtered air	Construction Material	Poppet: Acetal and Stainless Steel Seals: Buna-N
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Dual Pilot Operated Check Valves with Remote Trapped Pressure Relief – Solenoid Pilot Controlled

Load Holding
27 Series

A

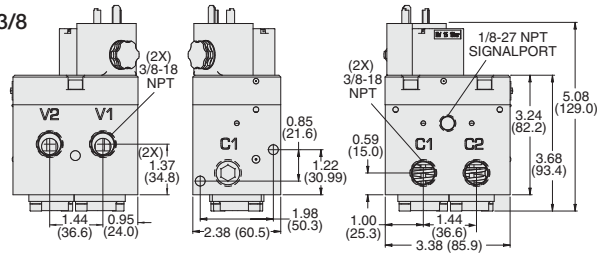
2-Way 2-Position, Solenoid Pilot Controlled

Ports Size	DIN Connector		3-Pin Mini Connector		24 Volts DC 3-Pin Mini		24 Volts DC 4-Pin Micro		Signal Port	C _v
	Valve Model Number#		Valve Model Number#		Valve Model Number		Valve Model Number			
	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads		
3/8	2778D3900W	D2778D3900W	2778D3901W	D2778D3901W	2778D3902	D2778D3902	2778D3904	D2778D3904	1/8-27 NPT	2.9
1/2	2778D4900W	D2778D4900W	2778D4901W	D2778D4901W	2778D4902	D2778D4902	2778D4904	D2778D4904	1/8-27 NPT	3.2
3/4	2778D5900W	D2778D5900W	2778D5901W	D2778D5901W	2778D5902	D2778D5902	2778D5904	D2778D5904	1/8-27 NPT	8.5 #
1	2778D6900W	D2778D6900W	2778D6901W	D2778D6901W	2778D6902	D2778D6902	2778D6904	D2778D6904	1/8-27 NPT	8.5 #

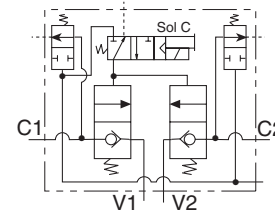
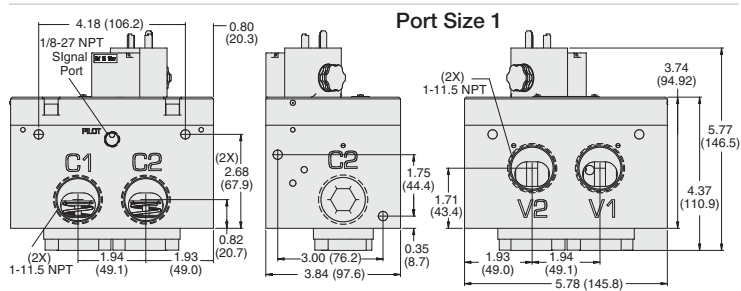
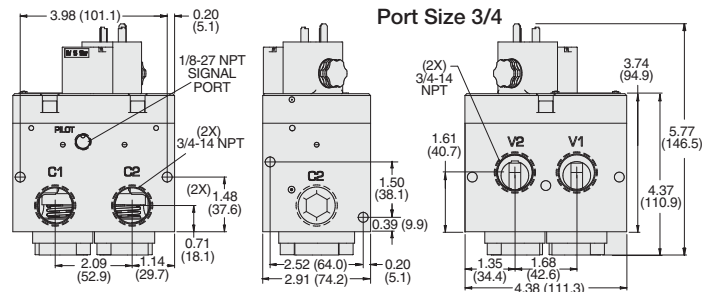
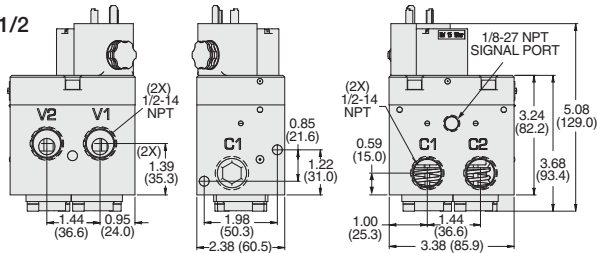
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., D2778D3900Z. For other voltages, consult ROSS.
Effective C_v varies with load and pressure drop. Consult ROSS for specifics on your system.

Valve Dimensions – inches (mm)

Port Size 3/8

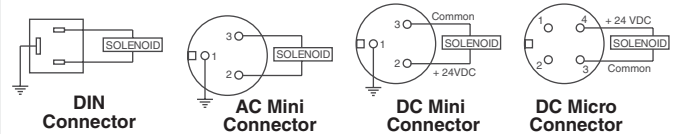


Port Size 1/2



Cat. 1
PL b

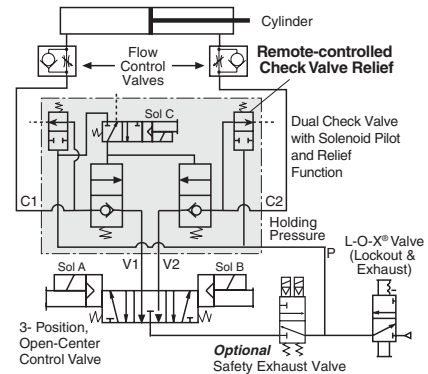
Connector Wiring



Dual Pilot Operated Check Valve Solenoid Pilot Controlled Application

CIRCUIT FEATURES:

- To operate cylinder, simultaneously energize solenoids A and C or B and C.
- Pilot supply and exhaust are independent of control valve.
- Response time is not affected by exhaust restrictions of the control valve.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.
- Pressure in cylinder is exhausted when the air supply at "P" port is lost or locked-out.
- L-O-X® valve provides lockable shut-off of air supply, and exhausting of trapped downstream air.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	AC or DC power; Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10.3 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
Power Consumption (each solenoid)	4.5 watts with 4-pin Micro connector, 60 watts with 3-pin connector; 8 VA inrush, 6 VA holding on AC		Valve Body: Cast Aluminum
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 150°F (4° to 80°C)		Poppet: Acetal and Stainless Steel Seals: Buna-N

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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HAZARDOUS LOCATIONS EXPLOSION-PROOF VALVES



ROSS CONTROLS

DIRECTIONAL CONTROL POPPET 21 & 27 SERIES EXPLOSION PROOF VALVES – KEY FEATURES

- 21 Series - Construction - Metal, Aluminum
- 27 Series - Construction - Acetal internals
- Poppet construction for near zero leakage and high dirt tolerance
- Pilot can rotate, giving the ability to change orientation
- Self-cleaning
- Wear compensating
- Repeatability throughout the life of the valve

VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES										FUNCTIONS			Explosion Proof Certifications			Page						
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double		Max Flow (Cv)	Solenoid Control	Normally Closed	Normally Open	CSA/UL	ATEX#
21 SERIES for Low Temperature																									
21																			29						
21																			31						
21																			25						
27 SERIES Poppet Valves																									
27																			72						
27																			71						
27																			25						
Accessories																								A6.9	

For ATEX certified valves order placement, consult ROSS.

SAFETY EXHAUST DOUBLE VALVES DM²⁰ SERIES C – KEY FEATURES

- Rapid response time to minimize stopping time
- Status Indicator switch for valve condition (ready-to-run) feedback
- Highly contaminant tolerant poppet construction

VALVE TYPE/SERIES	Category	Available Basic Sizes and Port Sizes						MAX. FLOW Cv						Reset			Explosion Proof Certifications		Page														
		2		4		8		12		30		Port Size						Integrated Soft-Start		Remote	Solenoid	CSA/UL	ATEX										
		1/4	3/8	1/2	3/4	1	1	1½	1/4	3/8	1/2	1/2	3/4	1	1	1½																	
Control Reliable Explosion Proof Double Valves																																	
DM ²⁰ C	4																		2.61	2.61	4	10	13	13	20	64							A6.10 -A6.12

Explosion-Proof Control Reliable Double Valves with Dynamic Monitoring & Memory

DM²® Series C Safety Exhaust (Dump)

Basic Size 4, 12 and 30

Dynamic Monitoring With Complete Memory: Memory, monitoring, and air flow control functions are simply integrated into two identical valve elements. Valves lock-out due to asynchronous movement of valve elements during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.

An Action is Required for Reset – cannot be reset by removing and re-applying supply pressure. Reset can only be accomplished by the integrated electrical (solenoid) reset.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without in-line lubrication.

Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition.

Silencers: All models include high flow, clog resistant silencers.

Mounting: Base mounted – with BSP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

Basic Size 12 and 30

Intermediate Pilots: Increases pilot air flow for fast valve response, making it possible to use the same size solenoids as valve sizes 4, thereby reducing electrical power requirements for these larger valves.

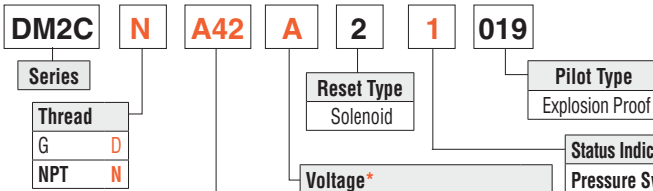


ISO 13849-1
CAT 4, PL e



A

Choose your options (in red) to configure your valve model number.

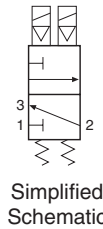
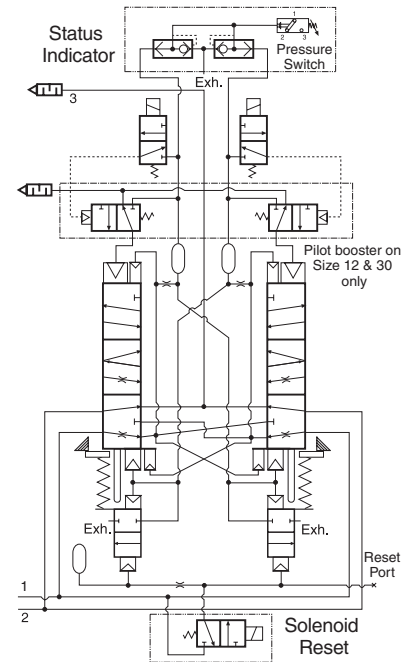


Basic Size	Port Size		Revision Level	
	Inlet	Outlet		
2	1/4	1/4	B	B20
	3/8	3/8		B21
4	1/2	1/2	A	A42
	Valve Only (No Base)			A44X
8	3/4	3/4	A	A54
	1	1		A55
12	1	1	A	A5X
	Valve Only (No Base)			A66
30	1 1/2	2	A	A6X
	Valve Only (No Base)			A88
				A8X

Basic Size	Inlet Port Size	Cv	Weight lb (Kg)
2	1/4	1.67	2.61
	3/8	2.17	3.57
4	1/2	3.01	6.51
	3/4	4.20	9.36
8	1	4.32	9.36
	1 1/2	8.68	17.31
12	1	8.68	17.31
30	1 1/2	20.11	55.10

Basic Size	Inlet Port Size	Cv		Weight lb (Kg)
		1-2	2-3	
2	1/4	1.67	2.61	5.3 (2.4)
	3/8	2.17	3.57	5.3 (2.4)
4	1/2	3.01	6.51	5.9 (2.6)
	3/4	4.20	9.36	8.4 (3.7)
8	1	4.32	9.36	8.4 (3.7)
	1 1/2	8.68	17.31	15.3 (3.7)
12	1	8.68	17.31	15.3 (3.7)
30	1 1/2	20.11	55.10	34.7 (15.1)

Valve and base assembly with status indicator.



Simplified Schematic

Schematic - Valve de-actuated

For ATEX certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual Poppet	Operating Pressure	30 to 120 psig (2 to 8 bar)
Mounting	Type: Base Orientation: Preferably horizontally (valve on top of base) or vertically with pilot solenoids on top	Pressure Switch Rating	Status Indicator: Contacts - 1 amps at 250 volts AC, SPDT Pressure Switch Enclosure: IP66
Solenoids	According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty	Monitoring	Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout
Voltage/Power Consumption (each solenoid)	Primary and Reset Solenoids: 24 volts DC, 4.6 watts; 120 volts AC, 60 Hz, 6.8 volt amps	Minimum Operation Frequency	Once per month, to ensure proper function
Enclosure Rating	IP65, IEC 60529	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Electrical Connection	Three lead wires with 1/2 NPT conduit connection	Functional Safety Data:	Category 4, PL e; B _{10D} : 20,000,000; PFH _D : 7.71x10 ⁻⁹ ; MTTFD: 301.9 (λ _{0op} : 662400)
Temperature	Ambient: 15° to 122°F (-10° to 50°C) Media: 40° to 175°F (4° to 80°C)	Certifications:	CE Marked for applicable directives, DGUV Test, CSA/UL, TSSA for appropriately tested valves.
Flow Media	Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46)	Vibration/Impact Resistance:	Tested to BS EN 60068-2-27.

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM²® Series D double valves for mechanical power press applications.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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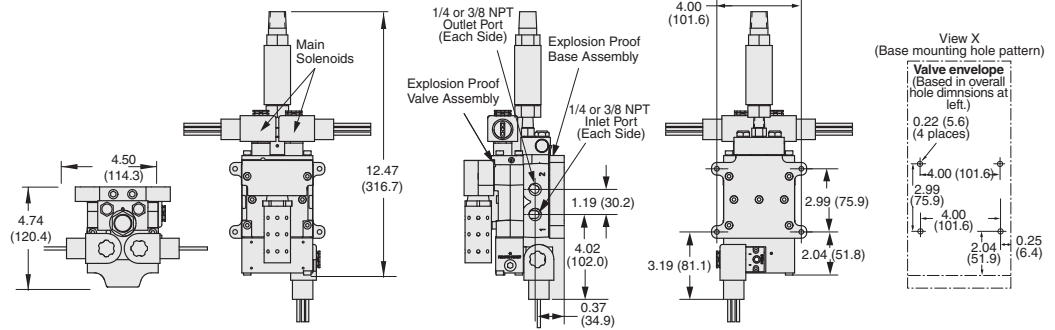
Explosion-Proof Control Reliable Double Valves with Dynamic Monitoring & Memory

Valve Technical Data DM²® Series C

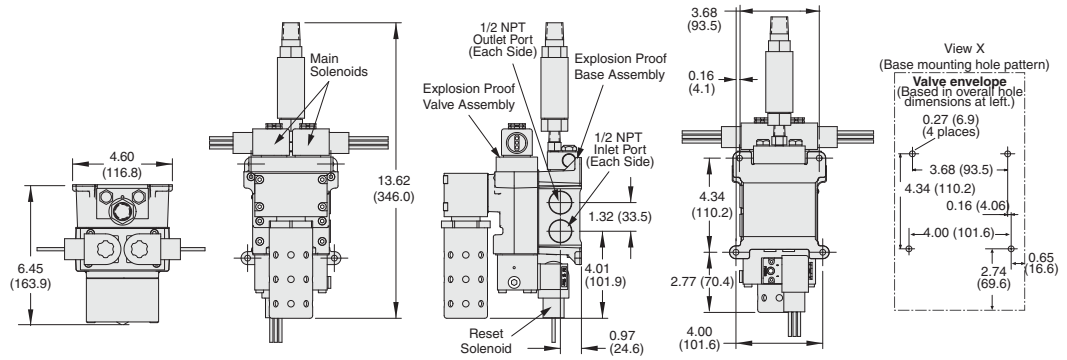
A

Valve Dimensions – inches (mm)

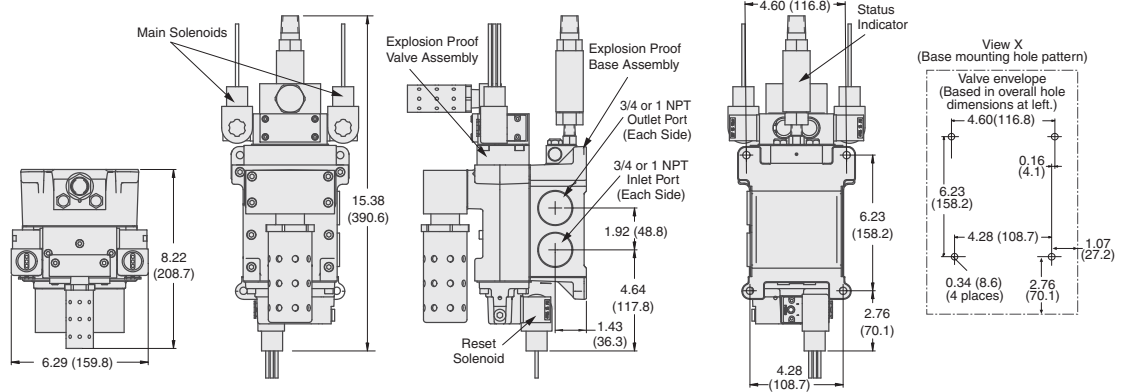
Basic Size 2



Basic Size 4

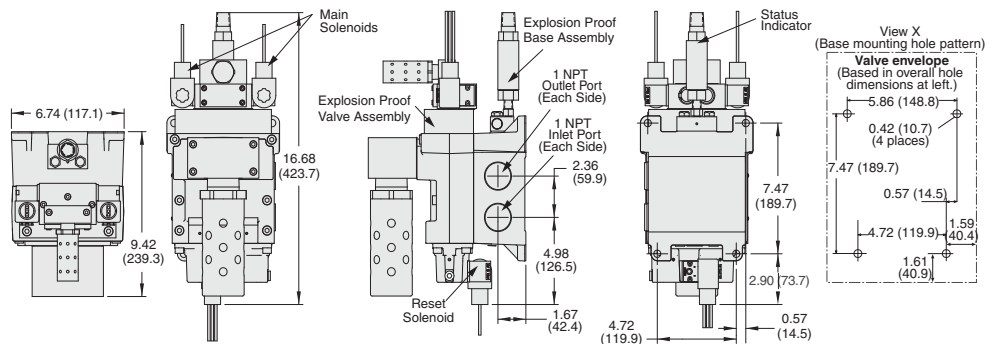


Basic Size 8

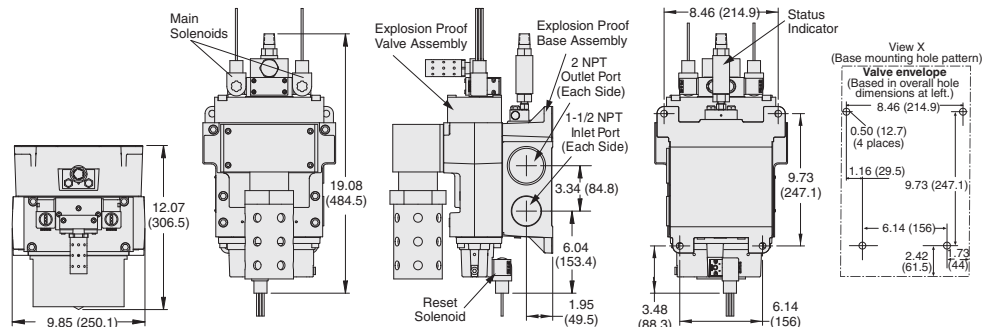


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Basic Size 12



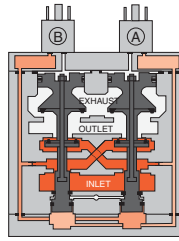
Basic Size 30



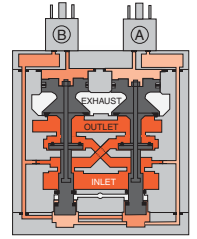
Explosion-Proof Control Reliable Double Valves with Dynamic Monitoring & Memory

DM²® Series C Valve Operation & Options

Valve De-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages from the inlet chamber is restricted by orifices that allow air pressure to bypass the lower inlet poppets. Flow is sufficient to quickly pressurize the pilot supply/timing chambers on both sides A and B. The upper inlet poppets prevent air flow from the crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the de-actuated position. (Internal air passages shown out of the valve body for clarity.)

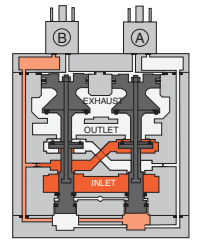


Valve Actuated: Energizing the pilot solenoids simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated position, where inlet air flow to outlet is open and both exhaust poppets are closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the main solenoids causes the valve elements to return to the ready-to-run (de-actuated) position.

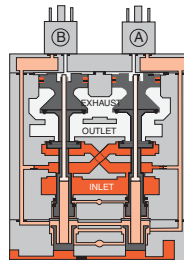


Asynchronous Operation: If the valve elements operate in a sufficiently asynchronous manner on ACTUATION, the valve will shift into a position where one crossover and its related timing chambers will be exhausted, and the other crossover and its related timing chambers will be pressurized.

In the illustration, side B is in the de-actuated position, but has no pilot air available to actuate with and has full pressure on its upper and lower inlet poppets and return piston to hold it in place. Inlet air flow on side B into its crossover is restricted and flows through the open upper inlet poppet on side A, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. Once the main solenoids are de-energized, actuating pressure is removed from the top of the main pistons and then the lower inlet poppet return spring along with inlet air pressure acting on the side A return piston will push side A back into the de-actuated position. Inlet air pressurizes the crossovers and volume chambers. Pressure in the crossovers helps hold the upper inlet poppets on seat. The valve will then be in the ready-to-run position. On the next attempt to actuate normally, if side B is still unable to actuate synchronously with side A, the same sequence of events described above will occur again.

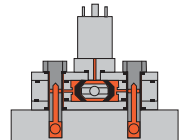


WARNING: If asynchronous operation occurs while DE-ACTUATING, the pilot supply/timing chambers on one side will still be exhausted as described above. However, this could be a temporary situation because the cause of the asynchronous operation may be able to correct itself allowing the stuck or slow acting side of the valve to eventually move back into the de-actuated position. Once the slow or stuck side has de-actuated, the pilot supply/timing chambers that were exhausted will then repressurize. If an external monitoring system is only checking the status indicator periodically this fault signal could be missed. The machine's safety system must be designed to ensure that this does not cause a hazardous situation.



Status Indicator:

The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve operation is sufficiently asynchronous or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Status indicator in normal ready-to-run position

Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 – Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.

Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations
FM CLASS 3600, 3611, 3615, 3810 – hazardous (classified) location electrical equipment

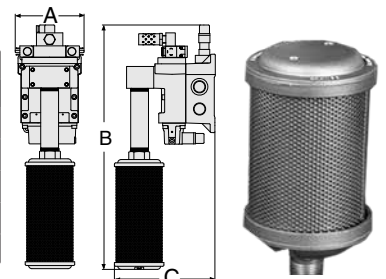
ACCESSORIES & OPTIONS

LHigh-Flow, Noise Reduction Silencer Kits

Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.

Basic Size	Kit Number*		Flow scfm	Dimensions inches (mm)			
	NPT Threads	G threads		A	B (NPT)	B (G)	C
2, 4	2324H77	2329H77	800 (378)	4.34 (110.2)	19.06 (484.1)	21.40 (543.6)	7.27 (184.7)
8	2325H77	2329H77	800 (378)	5.41 (137.4)	21.18 (538.0)	23.52 (597.4)	8.41 (213.6)
12	2326H77	2330H77	2080 (982)	6.74 (117.2)	25.85 (656.6)	28.20 (716.3)	10.66 (270.8)
30	2327H77	2331H77	7200 (3398)	9.85 (250.2)	41.55 (1055.4)	41.55 (1055.4)	13.47 (342.1)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.



Status Indicator

The Status Indicator pressure switch actuates when the valve is in a ready-to-run condition and de-actuates when the valve is in a lockout condition or when the inlet air pressure has been removed. Although, the valves can be purchased with this option already installed, the Status Indicator can be purchased separately.

Model Number	Y739B94
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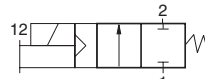


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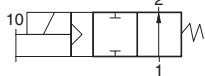
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		2-Way 2-Position Valves, Spring Return									
Port Size	Body Size	Normally Closed		Normally Open		C _v		Weight lb (kg)	Cat. 1 PL b	FM APPROVED	SP US
		Valve Model Number#		Valve Model Number#		NC	NO				
		NPT Threads	G Threads	NPT Threads	G Threads						
1/4	3/8	2771B2002W	D2771B2002W	2772B2002W	D2772B2002W	2.3	2.3	3.0 (1.4)			
3/8	3/8	2771B3002W	D2771B3002W	2772B3002W	D2772B3002W	3.8	3.3	3.0 (1.4)			
1/2	3/8	2771B4012W	D2771B4012W	2772B4012W	D2772B4012W	4	3.5	3.0 (1.4)			
1/2	3/4	2771B4002W	D2771B4002W	2772B4002W	D2772B4002W	7.7	6.5	3.6 (1.6)			
3/4	3/4	2771B5002W	D2771B5002W	2772B5002W	D2772B5002W	9	7.3	3.6 (1.6)			
1	3/4	2771B6012W	D2771B6012W	2772B6012W	D2772B6012W	9	7.9	3.6 (1.6)			
1	1¼	2771B6002W	D2771B6002W	2772B6002W	D2772B6002W	24	21	7.5 (3.4)			
1¼	1¼	2771B7002W	D2771B7002W	2772B7002W	D2772B7002W	29	20	7.5 (3.4)			
1½	1¼	2771B8012W	D2771B8012W	2772B8012W	D2772B8012W	29	21	7.5 (3.4)			
1½	2	2771B8002W	D2771B8002W	2772B8002W	D2772B8002W	49	49	16.0 (7.3)			
2	2	2771B9002W	D2771B9002W	2772B9002W	D2772B9002W	57	57	16.0 (7.3)			
2½	2	2771B9012W	D2771B9012W	2772B9012W	D2772B9012W	64	72	16.0 (7.3)			



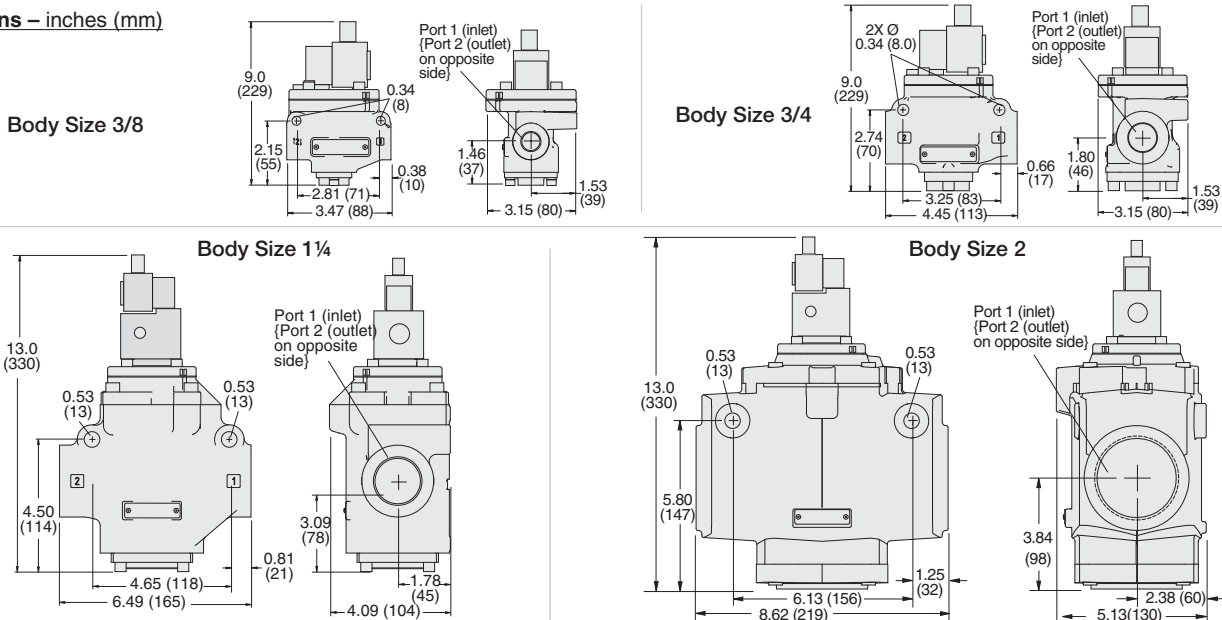
Normally Closed



Normally Open

Voltage: W=24 VDC; Z=120 VAC, 60 Hz, e.g., 2771B2002Z. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)



A6

Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –
Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.
Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C
CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	Body Size 3/8 & 1½: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar)
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 120 volts AC	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Power Consumption	4.6 watts on DC; 6.8 VA holding on 60 Hz		
Temperature	Ambient: 40° to 140°F (4° to 60°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

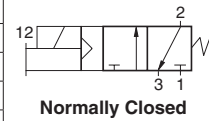
Explosion-Proof Directional Control Valves

Solenoid Pilot Controlled

Explosion-Proof 27 Series

Port Size		Body Size	3-Way 2-Position Valves, Spring Return				C _v				Weight lb (kg)	Cat. 1 PL b	FM APPROVED
			Normally Closed		Normally Open								
			Valve Model Number#		Valve Model Number#		NC		NO				
1/4	1/2	3/8	2773B2002W	D2773B2002W	2774B2002W	D2774B2002W	2.5	3.1	2.3	2.7	2.5 (1.2)	C US	
3/8	1/2	3/8	2773B3002W	D2773B3002W	2774B3002W	D2774B3002W	3.6	5.3	2.8	3.2	2.5 (1.2)		
1/2	1/2	3/8	2773B4012W	D2773B4012W	2774B4012W	D2774B4012W	3.3	5.3	2.8	3.2	2.5 (1.2)	C US	
1/2	1	3/4	2773B4002W	D2773B4002W	2774B4002W	D2774B4002W	6.3	9.2	6.3	8	3.3 (1.5)		
3/4	1	3/4	2773B5002W	D2773B5002W	2774B5002W	D2774B5002W	7.7	11	6.9	7.4	3.3 (1.5)		
1	1	3/4	2773B6012W	D2773B6012W	2774B6012W	D2774B6012W	8	12	6.8	7.5	3.3 (1.5)		
1	1 1/2	1 1/4	2773B6002W	D2773B6002W	2774B6002W	D2774B6002W	23	34	17	24	7.0 (3.2)		
1 1/4	1 1/2	1 1/4	2773B7002W	D2773B7002W	2774B7002W	D2774B7002W	30	32	19	24	7.0 (3.2)		
1 1/2	1 1/2	1 1/4	2773B8012W	D2773B8012W	2774B8012W	D2774B8012W	30	31	19	23	7.0 (3.2)		
1 1/2	2 1/2	2	2773B8002W	D2773B8002W	2774B8002W	D2774B8002W	68	70	57	59	16.5 (7.4)		
2	2 1/2	2	2773B9002W	D2773B9002W	2774B9002W	D2774B9002W	70	70	58	61	16.5 (7.4)		
2 1/2	2 1/2	2	2773B9012W	D2773B9012W	2774B9012W	D2774B9012W	70	71	54	55	16.5 (7.4)		

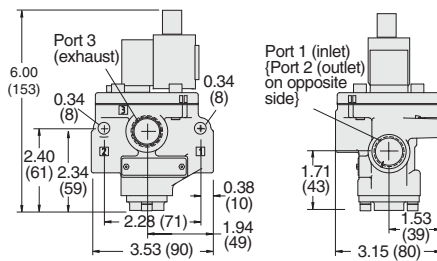
Voltage: Z=120 VAC, 60 Hz; W=24 VDC, e.g., 2773B2002W. For other voltages, consult ROSS.



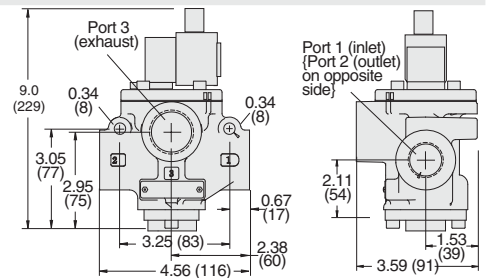
Valve Dimensions

– inches (mm)

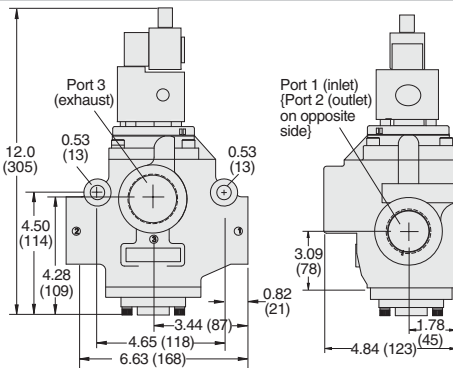
Body Size 3/8



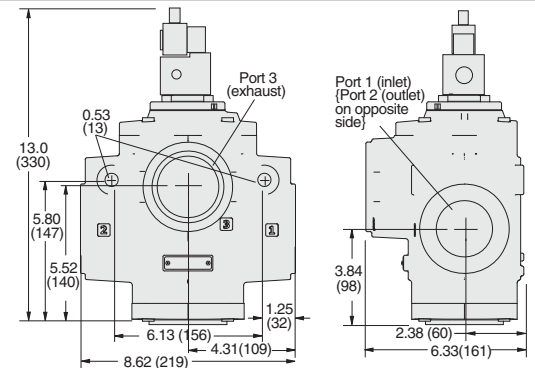
Body Size 3/4



Body Size 1 1/4



Body Size 2



Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –

Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.
Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	Body Size 3/8 & 1 1/2: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar)
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 120 volts AC	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Power Consumption	4.6 watts on DC; 6.8 VA holding on 60 Hz		
Temperature	Ambient: 40° to 140°F (4° to 60°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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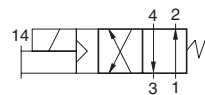


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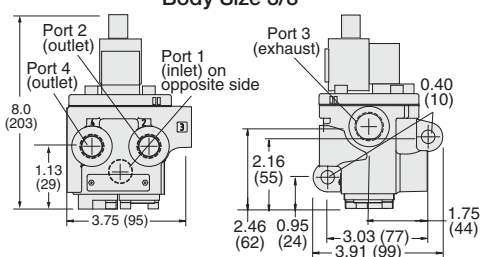
Port Size		Body Size	Valve Model Number#		C _v		Weight lb (kg)
1, 2, 4	3		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2002W	D2776B2002W	2.1	2.9	1.9 (0.9)
3/8	1/2	3/8	2776B3002W	D2776B3002W	2.9	4.2	1.9 (0.9)
1/2	1/2	3/8	2776B4012W	D2776B4012W	3.1	4.3	1.9 (0.9)
1/2	1	3/4	2776B4002W	D2776B4002W	5.6	8.1	4.2 (1.9)
3/4	1	3/4	2776B5002W	D2776B5002W	7	9.3	4.2 (1.9)
1	1	3/4	2776B6012W	D2776B6012W	7.8	10	4.2 (1.9)
1	1½	1¼	2776B6002W	D2776B6002W	19	26	11.0 (5.0)
1¼	1½	1¼	2776B7002W	D2776B7002W	21	27	11.0 (5.0)
1½	1½	1¼	2776B8012W	D2776B8012W	22	27	11.0 (5.0)



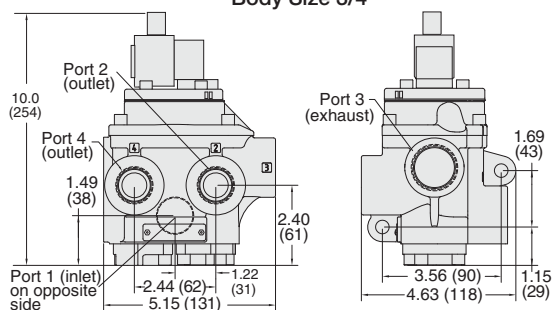
Port Sizes 1 to 1½

Voltage: W=24 VDC; Z=120 VAC, 60 Hz, e.g., 2776B2002Z. For other voltages, consult ROSS.

Body Size 3/8

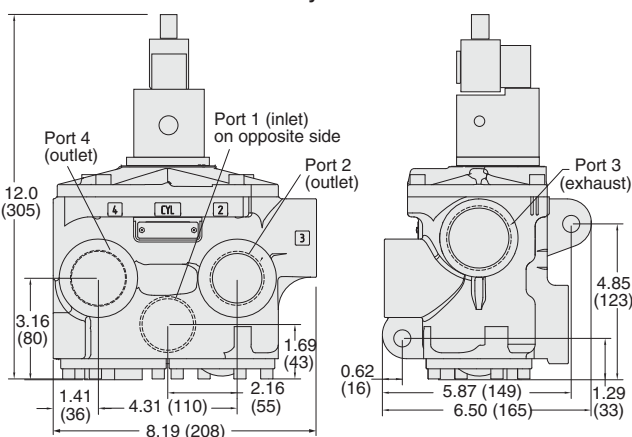


Body Size 3/4



Valve Dimensions – inches (mm)

Body Size 1¼



Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –

Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.

Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):


Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	15 to 150 psig (1 to 10 bar)
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum
Voltage	24 volts DC; 120 volts AC		Poppet: Acetal and Stainless Steel
Power Consumption	4.6 watts on DC; 6.8 VA holding on 60 Hz	Seals: Buna-N	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient: 40° to 140°F (4° to 60°C)		
	Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

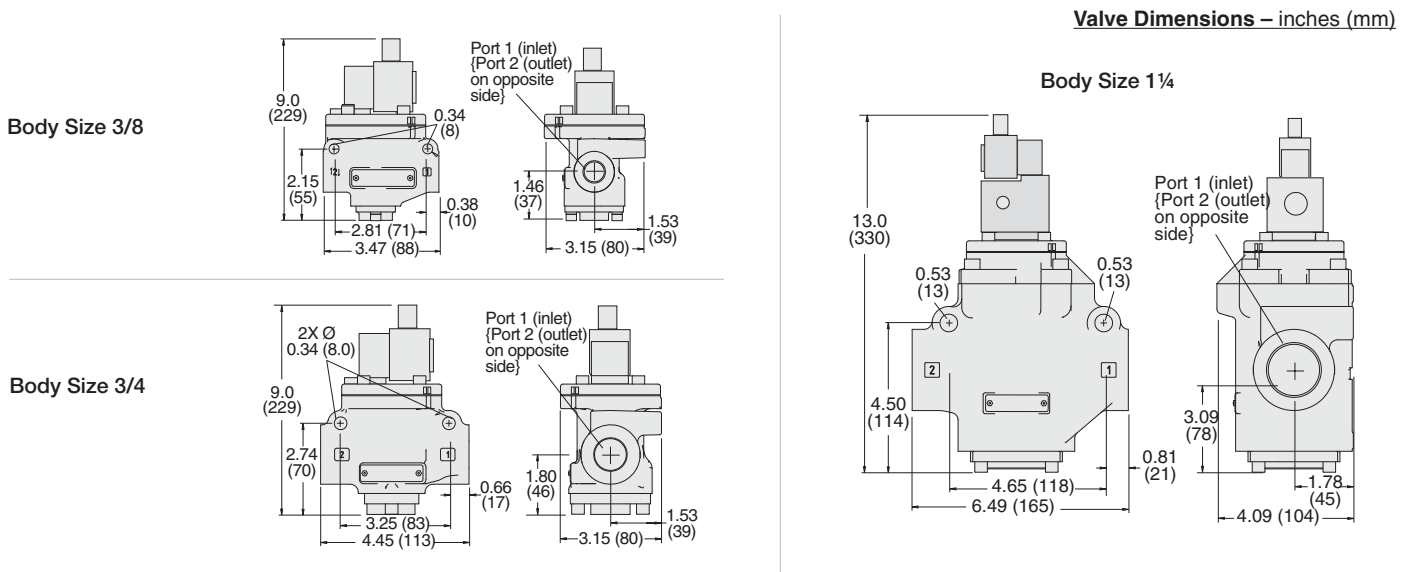
Explosion-Proof Directional Control Valves

Solenoid Pilot Controlled for Low Temperature Applications

Explosion-Proof 21 Series

2-Way 2-Position Valves, Spring Return									Cat. 1 PL b	FM APPROVED	
Port Size 1,2	Body Size	Normally Closed		Normally Open		Avg. C _v		Weight lb (kg)			
		Valve Model Number#		Valve Model Number#		NC	NO				
		NPT Threads	G Threads	NPT Threads	G Threads						
1/4	3/8	2171B2005W	D2171B2005W	2172B2005W	D2172B2005W	2.3	2.3	3.0 (1.4)			
3/8	3/8	2171B3005W	D2171B3005W	2172B3005W	D2172B3005W	3.8	3.3	3.0 (1.4)			
1/2	3/8	2171B4015W	D2171B4015W	2172B4015W	D2172B4015W	4	3.5	3.0 (1.4)			
1/2	3/4	2171B4005W	D2171B4005W	2172B4005W	D2172B4005W	7.7	6.5	3.3 (1.5)			
3/4	3/4	2171B5005W	D2171B5005W	2172B5005W	D2172B5005W	9	7.3	3.3 (1.5)			
1	3/4	2171B6015W	D2171B6015W	2172B6015W	D2172B6015W	9	7.9	3.3 (1.5)			
1	1 1/4	2171B6005W	D2171B6005W	2172B6005W	D2172B6005W	24	21	7.5 (3.4)			
1 1/4	1 1/4	2171B7005W	D2171B7005W	2172B7005W	D2172B7005W	29	20	7.5 (3.4)			
1 1/2	1 1/4	2171B8015W	D2171B8015W	2172B8015W	D2172B8015W	29	21	7.5 (3.4)			

Voltage: W=24 VDC; Z=120 VAC, 60 Hz, e.g., 2171B2004Z. For other voltages, consult ROSS.



Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –

Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.

Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar)
Voltage	24 volts DC; 120 volts AC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Fluorocarbon
Power Consumption	4.6 watts on DC; 6.8 VA holding on 60 Hz		
Temperature	Ambient: -4° to 140°F (-20° to 60°C)		
	Media: -4° to 175°F (-20° to 80°C)		
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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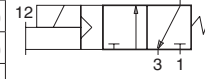
Explosion-Proof Directional Control Valves

Solenoid Pilot Controlled for Low Temperature Applications

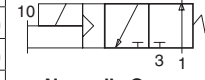
Explosion-Proof 21 Series

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3-Way 2-Position Valves, Spring Return											
Port Size		Body Size		Low Temperature				C _v		Weight lb (kg)	
				Normally Closed		Normally Open		NC	NO		
1, 2, 3	Valve Model Number#			NPT Threads		G Threads		1-2	2-3	1-2	2-3
1/4	1/2	3/8	2173B2005W	D2173B2005W	2174B2005W	D2174B2005W	2.4	3.4	2	2.1	3.0 (1.4)
3/8	1/2	3/8	2173B3005W	D2173B3005W	2174B3005W	D2174B3005W	3	5.8	2.3	2.4	3.0 (1.4)
1/2	1/2	3/8	2173B4015W	D2173B4015W	2174B4015W	D2174B4015W	3	5.2	2.9	2.8	3.0 (1.4)
1/2	1	3/4	2173B4005W	D2173B4005W	2174B4005W	D2174B4005W	6.6	12	6.5	7	3.3 (1.5)
3/4	1	3/4	2173B5005W	D2173B5005W	2174B5005W	D2174B5005W	7.8	13	7.5	7.5	3.3 (1.5)
1	1	3/4	2173B6015W	D2173B6015W	2174B6015W	D2174B6015W	7.5	12	7.7	7.6	3.3 (1.5)
1	1½	1¼	2173B6005W	D2173B6005W	2174B6005W	D2174B6005W	24	40	15	17	7.5 (3.4)
1¼	1½	1¼	2173B7005W	D2173B7005W	2174B7005W	D2174B7005W	29	39	21	23	7.5 (3.4)
1½	1½	1¼	2173B8015W	D2173B8015W	2174B8015W	D2174B8015W	30	38	22	23	7.5 (3.4)

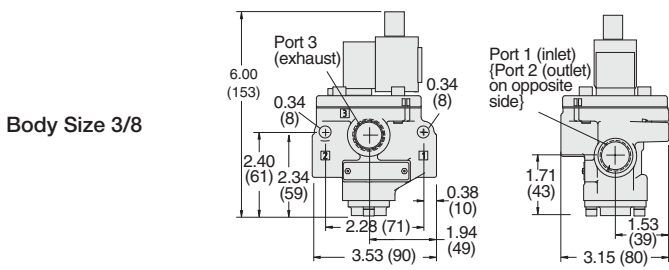


Normally Closed

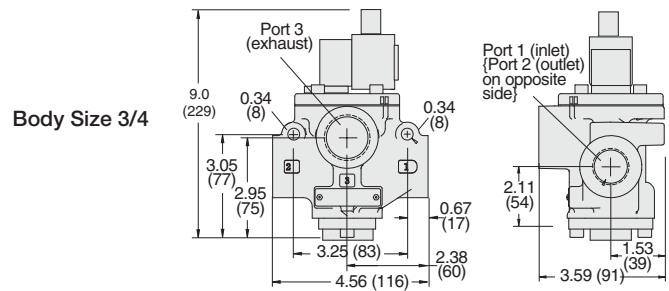


Normally Open

Voltage: W=24 VDC; Z=120 VAC, 60 Hz, e.g., 2173B2004Z. For other voltages, consult ROSS.

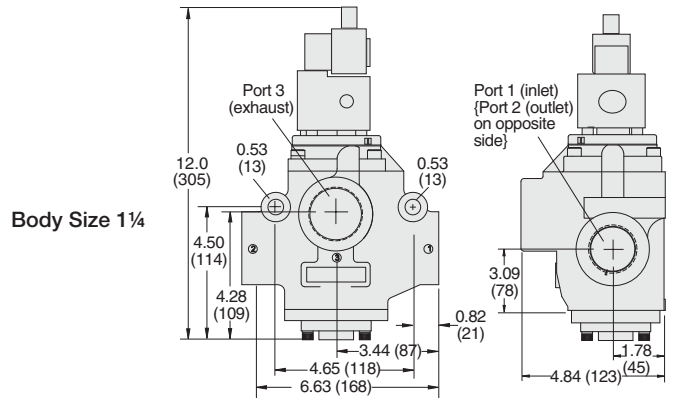


Body Size 3/8



Body Size 3/4

Valve Dimensions – inches (mm)



Body Size 1 1/4

Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –

Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.

Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar)
Voltage	24 volts DC; 120 volts AC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Fluorocarbon
Power Consumption	4.6 watts on DC; 6.8 VA holding on 60 Hz	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient: -4° to 140°F (-20° to 60°C) Media: -4° to 175°F (-20° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.		

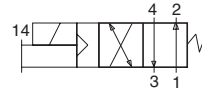
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Explosion-Proof Directional Control Valves

Solenoid Pilot Controlled for Low Temperature Applications

Explosion-Proof 21 Series

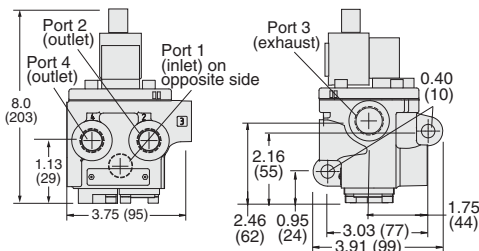
Port Size		Body Size	Low Temperature		C _v		Weight lb (kg)
1, 2, 4	3		Valve Model Number#		1-2, 1-4	4-3, 2-3	
			NPT Threads	G Threads			
1/4	1/2	3/8	2176B2005W	D2176B2005W	2.1	2.2	3.0 (1.4)
3/8	1/2	3/8	2176B3005W	D2176B3005W	2.5	3.1	3.0 (1.4)
1/2	1/2	3/8	2176B4015W	D2176B4015W	2.9	3.8	3.0 (1.4)
1/2	1	3/4	2176B4005W	D2176B4005W	5.7	6.5	5.8 (2.6)
3/4	1	3/4	2176B5005W	D2176B5005W	7.1	8.7	5.8 (2.6)
1	1	3/4	2176B6015W	D2176B6015W	7.7	10	5.8 (2.6)
1	1½	1¼	2176B6005W	D2176B6005W	18	23	12.0 (5.4)
1¼	1½	1¼	2176B7005W	D2176B7005W	20	28	12.0 (5.4)
1½	1½	1¼	2176B8015W	D2176B8015W	21	29	12.0 (5.4)



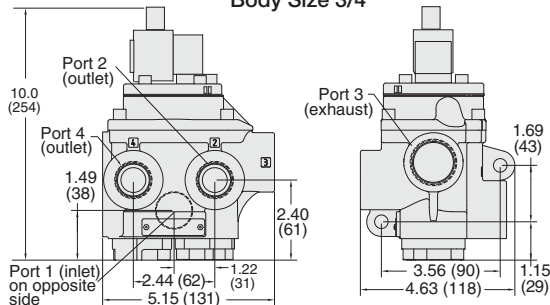
Port Sizes 1 to 1½

Voltage: W=24 VDC; Z=120 VAC, 60 Hz, e.g., 2176B2004Z. For other voltages, consult ROSS.

Body Size 3/8

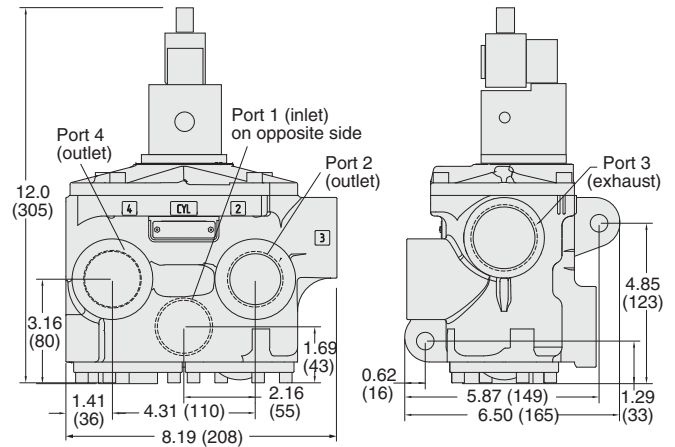


Body Size 3/4



Valve Dimensions – inches (mm)

Body Size 1¼



Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –

Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.

Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar)
Voltage	24 volts DC; 120 volts AC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Fluorocarbon
Power Consumption	4.6 watts on DC; 6.8 VA holding on 60 Hz	Safety Integrity Level (SIL)	Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient: -4° to 140°F (-20° to 60°C) Media: -4° to 175°F (-20° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Silencers

Port Size	Thread Type	Model Number*		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.



Port size 1/8 thru 2



Port size 2½



Conversion Kits

ROSS Controls standard poppet solenoid pilot controlled valves for line mounting can be easily field-converted into an explosion-proof solenoid pilot poppet valve.

Listed on the right are the conversion kit numbers to replace the obsolete ROSS explosion proof pilot, or to convert a standard in-line valve to an explosion-proof valve.

Valve Basic Size	Kit Number
1/4" - 1" (Cv up to 10)	2370K77W
1" (Cv up to 29) - 2½"	2371K77W

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IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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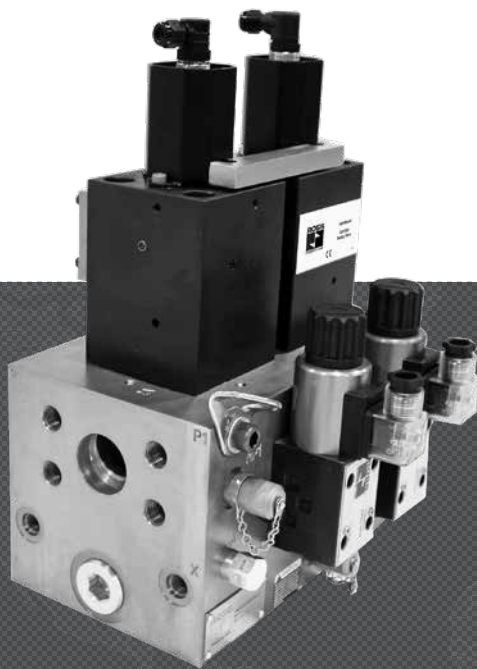
VALVE TYPE	Series	DESCRIPTION			AVAILABLE PORT SIZES							FUNCTIONS						Explosion Proof Certifications							
		ISO Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	CSA/UL	ATEX	
ISO																									
5599-1	W60 & W64	1																0.8							
		2																	1.9						
		3																	3.8						

For Explosion-Proof ISO valves order placement, consult ROSS.

A6



HYDRAULIC SAFETY VALVES



ROSS CONTROLS

BLOCK & BLEED HBB SERIES REDUNDANT VALVE SYSTEMS – KEY FEATURES

- Blocks hydraulic supply pressure and bleeds downstream pressure back to tank
- Includes relief valve on inlet
- Flow up to 50 gpm
- Body Sizes D03, D05, and D07
- Port Sizes SAE-8, SAE-12, and 1¼ Code 61 Flange
- Tamper-resistant design prevents unauthorized personnel from altering the valve

BLOCK & STOP HBH SERIES REDUNDANT VALVE SYSTEMS – KEY FEATURES

- Stops cylinder motion and holds the cylinder in position in the event of loss of supply pressure and/or electrical power
- Holds a vertical load in the event of loss of supply pressure or electrical power
- Flow up to 145 gpm
- Two Body Sizes, D25 and D32
- Port Sizes 1½ and 2, Code 62 Flange
- Tamper-resistant design prevents unauthorized personnel from altering the valve

DUAL BLOCK & STOP HDBH SERIES REDUNDANT VALVE SYSTEM – KEY FEATURES

- Stops cylinder motion in the event of loss of electrical power
- Nominal flow up to 5 gpm
- Body Sizes D03
- Sandwich style mounting between manifold and directional valve
- Tamper-evident design

Hydraulic Redundant Valve Systems Designed for External Monitoring

HBB Series Block & Bleed

The HBB Series valves are redundant 3/2 valve systems designed to meet the needs and requirements of safe hydraulic block and bleed applications. These valve systems are equipped with inductive position switches for external monitoring by an electrical safety control system.



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Choose your options (in red) to configure your valve system model number.

Series: **HBB** | Valve Type: **D** Double | Material Type: **D** Ductile Iron | Seal Type: **B** Buna-N | Monitoring: **A** External | Revision Level: **X** | Voltage: **11** 24 volts DC | Communication: **108S** None

Pressure Relief Valve Settings (psi)**	Maximum System Operating Pressure	Relief Valve Factory Preset	Option
1000	1100	1100	11
1500	1700	1700	17
2000	2200	2200	22
2500	2800	2800	28
3000	3300	3300	33
3500	3900	3900	39
4000	4400	4400	44
4500	5000	5000	50
5000	5500	5500	55
No Pressure Relief Valve			XX

For system parameters outside of this range, please contact ROSS.)

Body Size	Flow Rate	Port Size	Port Thread/Type	Option
D03	0 to 10 gpm	SAE-8	SAE	108S
D05	0 to 20 gpm	SAE-12	SAE	212S
D07	0 to 50 gpm	1 1/4	Code 61 Flange	371F

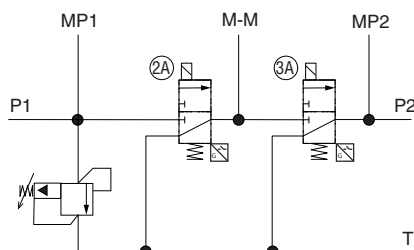
Body Size	Weight lb (kg)
D03	22.7 (10.3)
D05	53.4 (24.2)
D07	131.9 (59.8)



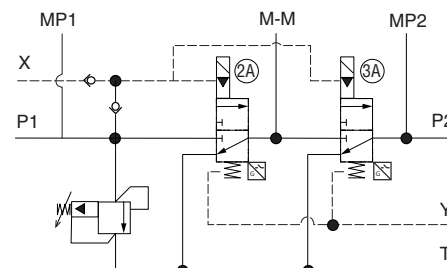
** If your system already incorporates a means of pressure relief, select No Pressure Relief Valve.

Schematics

Body Size D03, D05
Direct Solenoid
Operated
with Pressure Relief
Valve

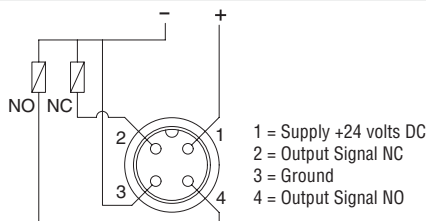


Body Size D07
Solenoid Pilot Operated
with Pressure Relief
Valve



Wiring Diagram

Inductive Position Switch Connector



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool type	Inductive Position Switch (2 per system)	PNP (M12, 5-pin, A-coded)
Actuation (Solenoid- 2 per system)	One solenoid per valve element Solenoids must be operated synchronously	Maximum Current (each switch)	400mA maximum
	Body Size D03, D05: Direct Solenoid Operated, spring return Body Size D07: Solenoid Pilot Operated, spring return	Temperature Range (recommended)	Ambient: -4° to 160°F (-20° to 71°C) Media: -4° to 140°F (-20° to 60°C)
Mounting	Type: Base Orientation: Any, preferably horizontal	Flow Media	Hydraulic Fluids: Mineral Oil HLP, HL-DIN 51524 Vegetable Oil HETG - VMDA 24568
Solenoids	Version as per VDE 0580; Rated for continuous duty Electrical connection according to EN 175301-803 Form A Enclosure rating according to DIN 400 50 IP 65	Inlet Pressure	5000 psi (344 bar) maximum
Standard Voltages	24 volts DC	Construction Material	Valve Body & Manifold: Ductile Iron Spool: Steel Seals: Buna-N
Power Consumption (each solenoid)	Body Size D03, D07: 30 watts Body Size D05: 36 watts		

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Hydraulic Redundant Valve Systems Designed for External Monitoring

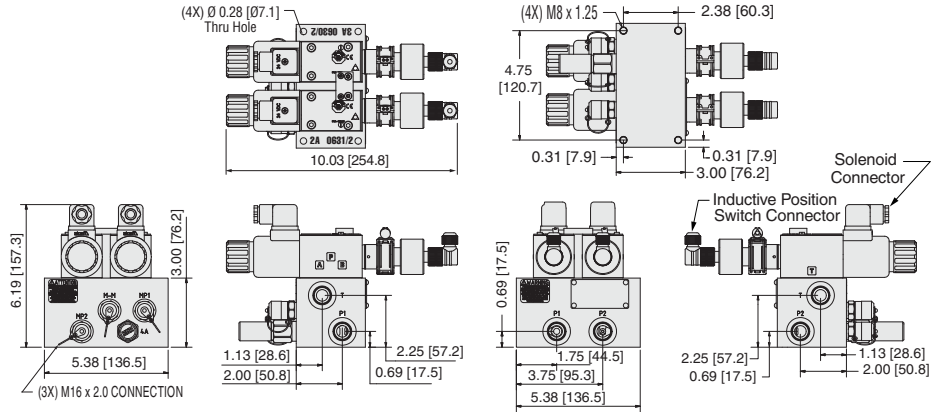
HBB Series Block & Bleed

A

Valve Dimensions – inches (mm)

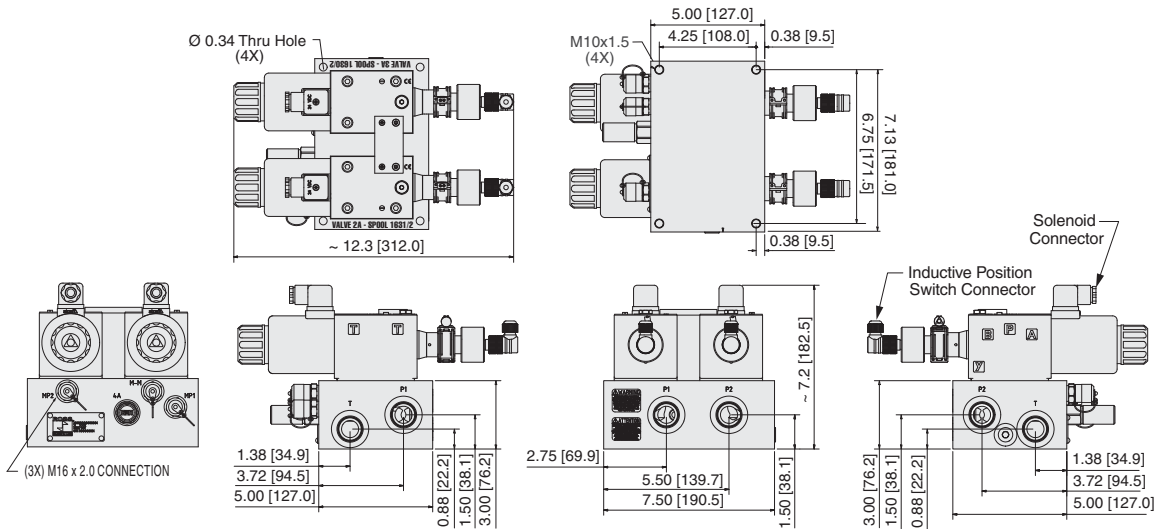
Body Size D03

Ports List	
ID	Name
P1	SAE # 8
P2	SAE # 8
T	SAE # 8
MP1	SAE # 6
M-M	SAE # 6
MP2	SAE # 6



Body Size D05

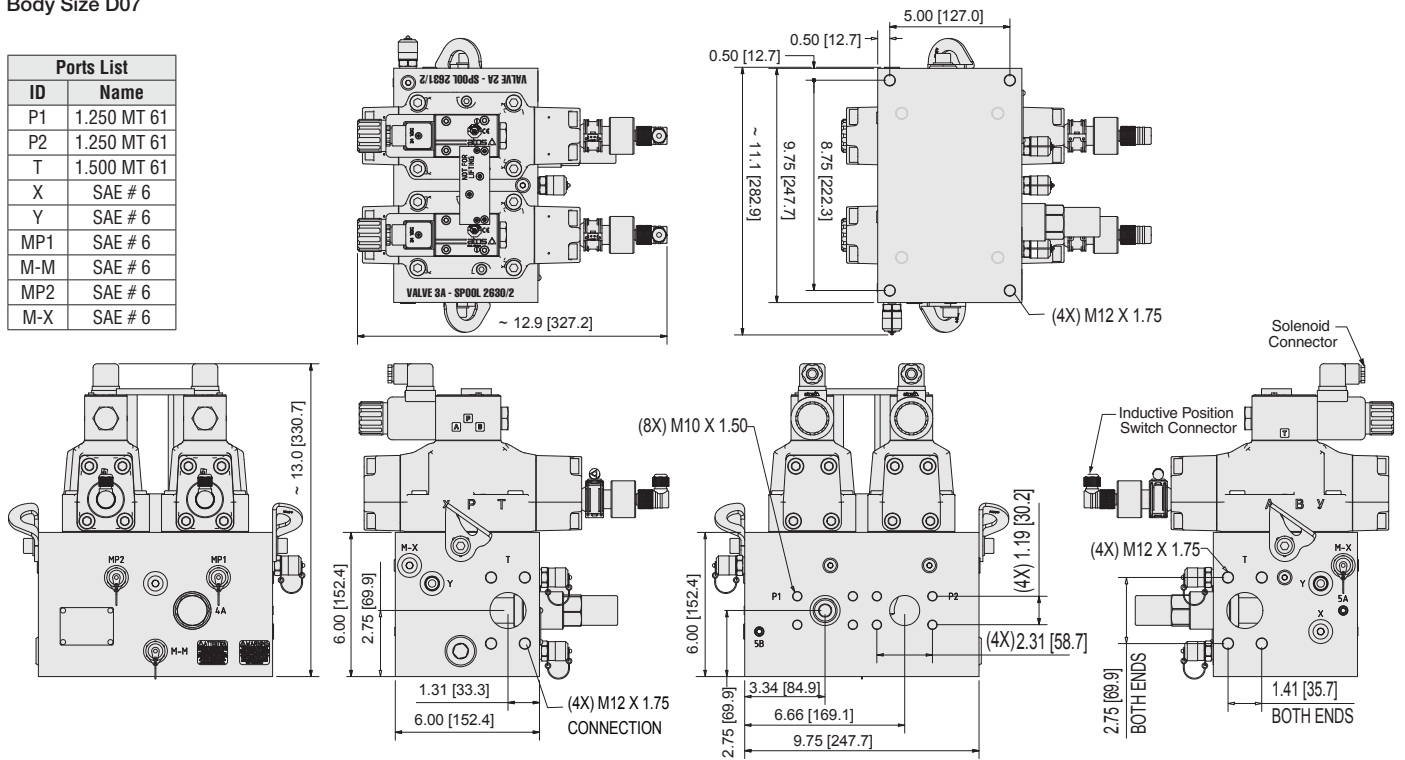
Ports List	
ID	Name
P1	SAE # 12
P2	SAE # 12
T	SAE # 12
MP1	SAE # 6
M-M	SAE # 6
MP2	SAE # 6



Body Size D07

Ports List	
ID	Name
P1	1.250 MT 61
P2	1.250 MT 61
T	1.500 MT 61
X	SAE # 6
Y	SAE # 6
MP1	SAE # 6
M-M	SAE # 6
MP2	SAE # 6
M-X	SAE # 6

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Hydraulic Redundant Valve Systems Designed for External Monitoring

HBH Series Block & Stop

The HBH Series valves are redundant blocking valve systems designed for critical applications where safe block and stop is required for hydraulically controlled cylinders. These valve systems are equipped with inductive position switches for external monitoring by an electrical safety control system.

Cat. 3
PL e

CE
(Certifications pending)

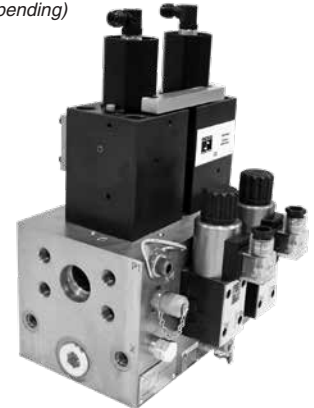
A

Choose your options (in red) to configure your valve system model number.

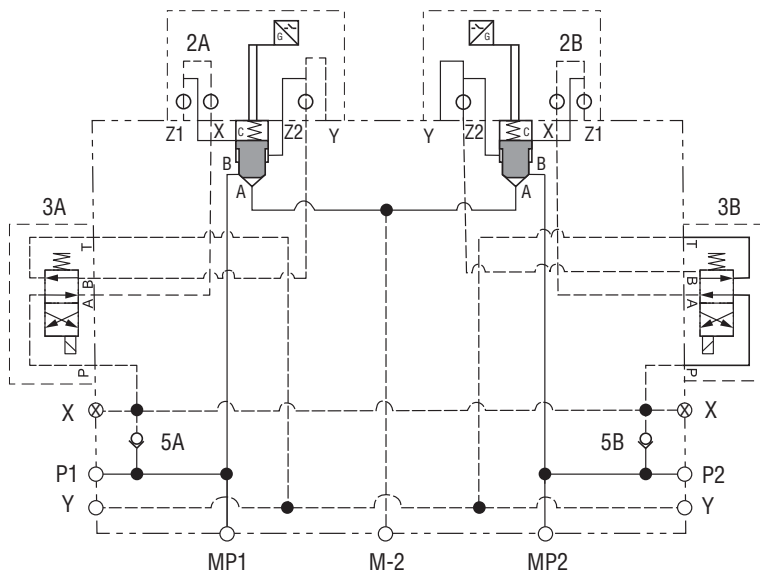
HBH	D	D	XX	682F	B	A	E	X	A
Series	Valve Type Double				Seal Type Buna-N		Monitoring External		Revision Level
		Material Ductile Iron				Voltage 24 volts DC	Communication None		
		Pressure Relief No Pressure Relief Valve							

Body Size	Flow Rate	Port Size	Port Thread/Type	
D25	0 to 90 gpm	1-1/2	Code 62 Flange	682F
		2	Code 62 Flange	692F
D32	0 to 145 gpm	2	Code 62 Flange	792F

ISO Size	Weight lb (kg)
D25	112.3 (50.9)
D32	142.8 (64.8)

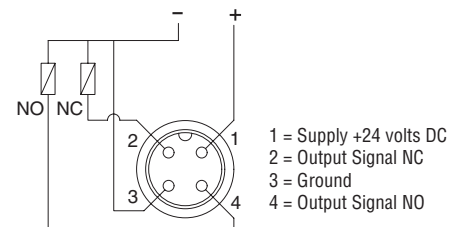


Schematic



Wiring Diagram

Inductive Position Switch Connector



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool type	Inductive Position Switch (2 per system)	PNP (M12, 5-pin, A-coded)
Actuation	One solenoid per valve element Solenoids must be operated synchronously Solenoid Pilot Operated, spring return	Maximum Current (each switch)	400mA maximum
Mounting	Type: Base Orientation: Any, preferably horizontal	Temperature Range (recommended)	Ambient: -4° to 160°F (-20° to 71°C) Media: -4° to 140°F (-20° to 60°C)
Solenoids	Version as per VDE 0580. Rated for continuous duty. Electrical connection according to EN 175301-803 Form A. Enclosure rating according to DIN 400 50 IP 65.	Flow Media	Hydraulic Fluids: Mineral Oil HLP, HL-DIN 51524 Vegetable Oil HETG - VMMA 24568
Standard Voltages	24 volts DC	Inlet Pressure	5000 psi (344 bar) maximum
Power Consumption (each solenoid)	30 watts	Construction Material	Valve Body & Manifold: Ductile Iron Spool: Steel Seals: Buna-N

These valves are not designed for controlling clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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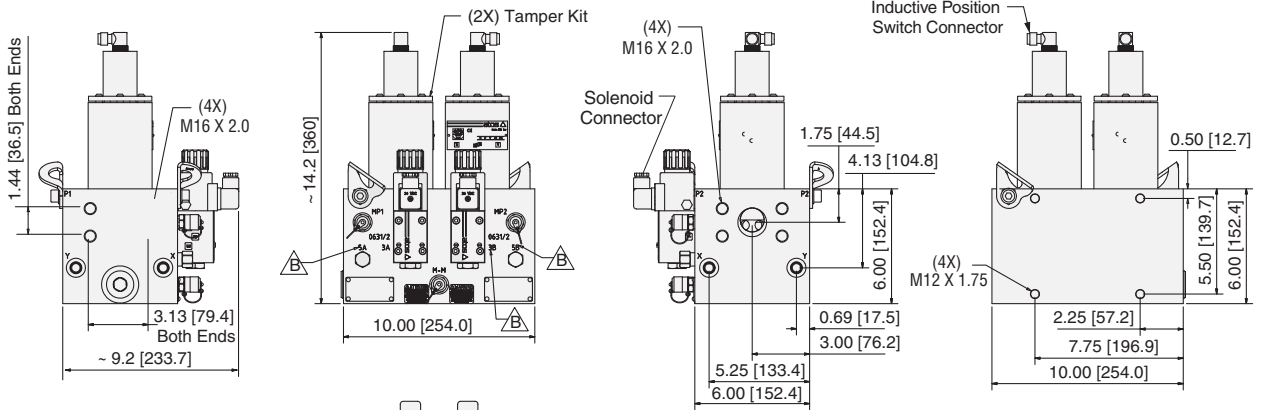
Hydraulic Redundant Valve Systems Designed for External Monitoring

HBB Series Block & Stop

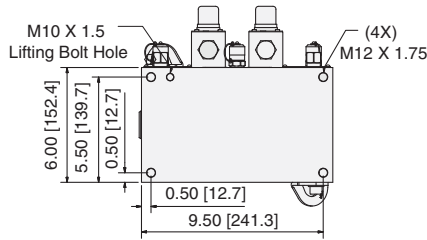
A

Body Size D25

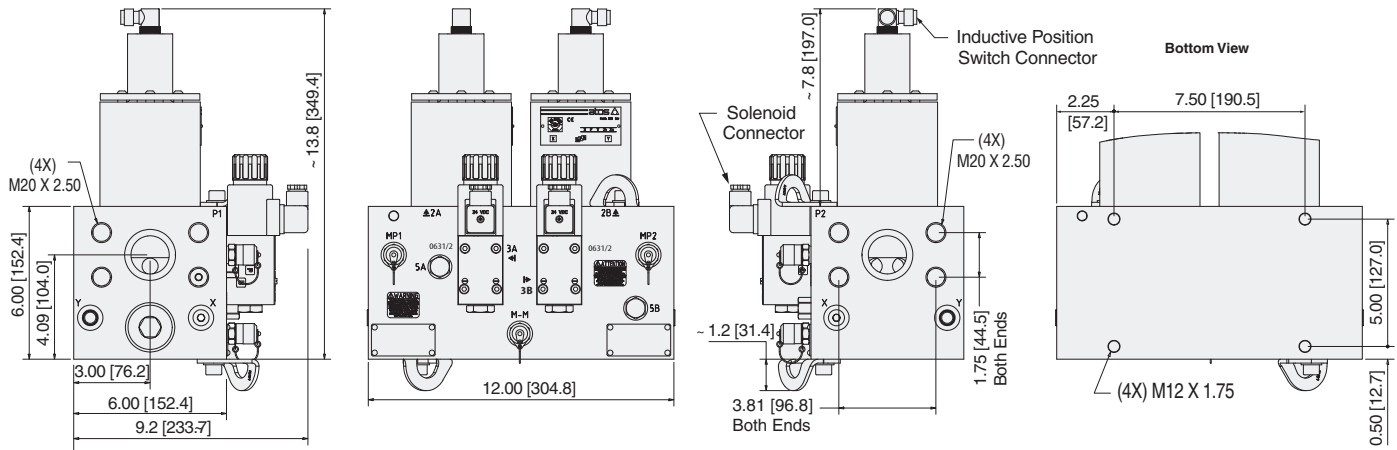
Valve Dimensions – inches (mm)



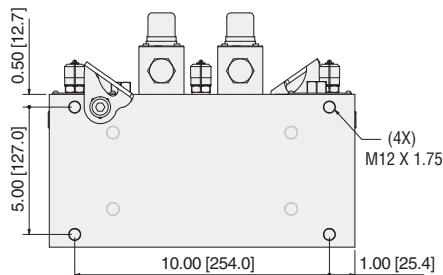
Ports List	
ID	Name
P1	1.500 MT 62
P2	1.500 MT 62
X	SAE # 6
Y	SAE # 6
MP1	SAE # 6
M-M	SAE # 6
MP2	SAE # 6
M-X	SAE # 6



Body Size D32



Ports List	
ID	Name
P1	2.000 MT 62
P2	2.000 MT 62
X	SAE # 6
Y	SAE # 6
MP1	SAE # 6
M-M	SAE # 6
MP2	SAE # 6
M-X	SAE # 6



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Hydraulic Redundant Valve Systems Designed for External Monitoring

HDBH Series Dual Block & Stop

The HDBH Series system is a redundant, dual blocking valve system designed for critical applications where safe stopping is required for hydraulically controlled actuators. This valve system is equipped with inductive position switches for external monitoring by an electrical safety control system. The HDBH is a D03 sized (ISO 4401, size 06) system designed to be sandwich-style mounted (interposed) between a D03 manifold and a directional valve. Spacer kits are available to help avoid interference with other valves on the manifold.

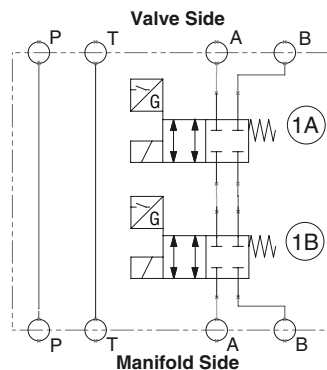


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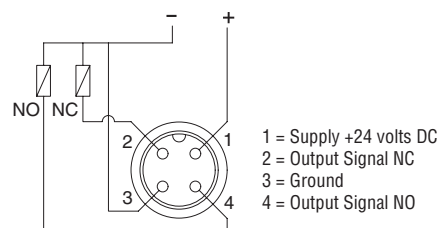
Valve Model Number	HDBHDC3BAEXA
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Schematic



Wiring Diagram
Inductive Position Switch Connector



Standard Specifications

Construction Design	Spool type	Inductive Position Switch (2 per system)	PNP (M12, 5-pin, A-coded)
Actuation	One solenoid per valve element Solenoids must be operated synchronously Direct solenoid operated, spring return	Maximum Current (each switch)	400mA maximum
Mounting	Type: Sandwich-style mounted (interposed) between base/manifold and directional valve Footprint: ISO 4401, size 06 (D03)	Temperature Range (recommended)	Ambient: -22° to 160°F (-30° to 70°C) Media: -4° to 140°F (-20° to 60°C)
Solenoids	Version as per VDE 0580. Rated for continuous duty. Electrical connection according to EN 175301-803 Form A Enclosure rating according to DIN 400 50 IP 65	Flow Media	Hydraulic Fluids: Mineral Oil HLP, HL-DIN 51524 Vegetable Oil HETG - VMDA 24568
Standard Voltages	24 volts DC	Pressure	Ports P, A, B: 5000 psi (344 bar) Port T: 3000 psi (210 bar)
Power Consumption (each solenoid)	30 watts	Construction Material	Valve Body: Cast Steel Spool: Steel Seals: Buna-N
		Functional Safety Data	MTTFd: 150 years

A7

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



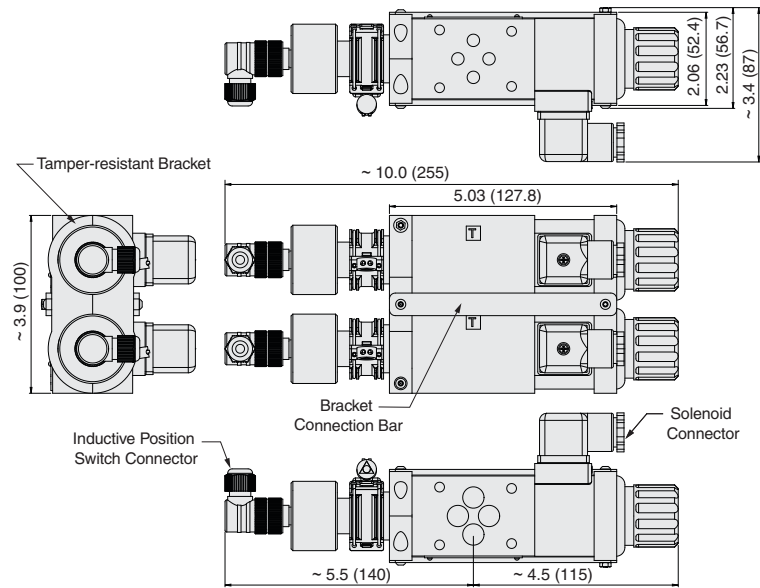
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A7.7

A Dimensions – inches (mm)



Weight lb (kg)
15.0 (6.80)

Accessories

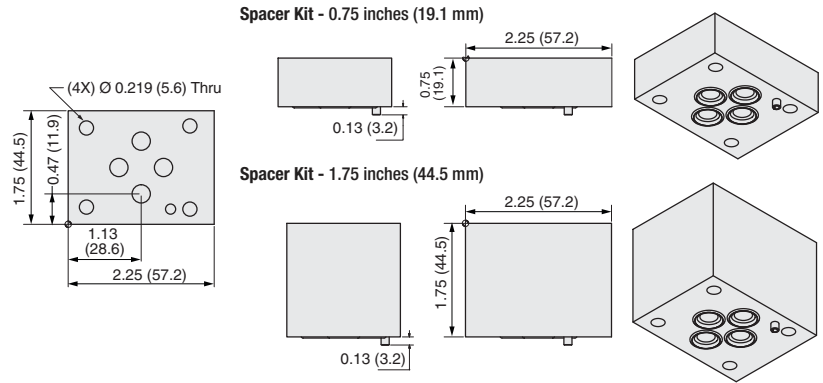
Connectors & Cord Sets	Connection Type	Connector Option	Connector Form	Fitting Connection	Cord Type/Termination		Length meters (feet)	Cord Diameter	Model Number		Cord Quantity
					End 1	End 2			Without Light	Lighted Connector 24 Volts DC	
					Solenoid	Connector Only			EN 175301-803 Form A	1/2" NPT conduit	
-	-	-	-	723K77			724K77-W	-			
Prewired Connector	EN 175301-803 Form A	-	Connector	Flying leads		2 (6.5)	6-mm	721K77	720K77-W	1	
						5 (16.4)	-	2243H77	-	2	
						10 (32.8)	-	2244H77	-	2	
						10 (32.8)	-	2244H77	-	2	
Sensor	Prewired Connector	M12 5-pin, straight A-coded	-	-	Female	Flying leads	5 (16.4)	-	2644B77	-	2
					Female	Male	5 (16.4)	-	2645B77	-	2
					Female	Flying leads	10 (32.8)	-	2370B77	-	2
					Female	Male	10 (32.8)	-	2371B77	-	2

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

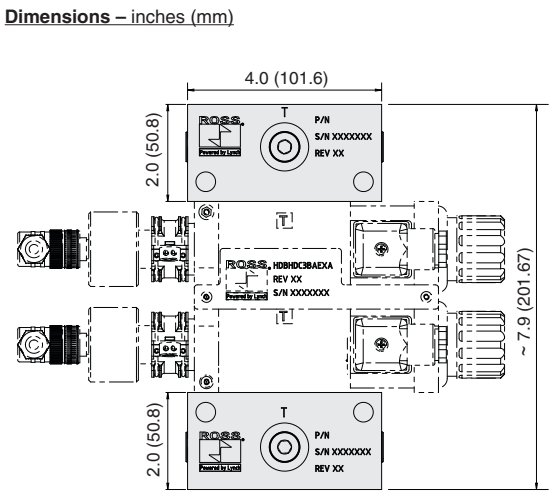
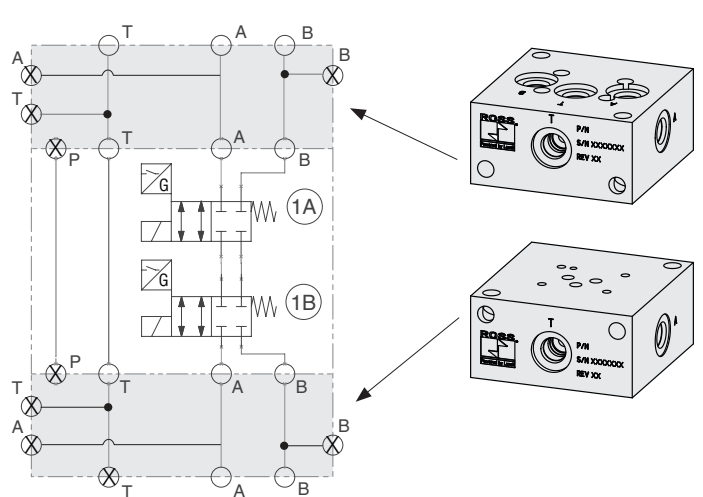


IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Spacer Kits	Height	Model Number	Weight lb (kg)	Type	Spacer kits can be used to raise the HDBH system higher above the manifold surface in order to avoid interference with other devices on the manifold. Kits are either 0.75" or 1.75" tall. Combine kits as necessary to achieve the desired spacing.
	0.75 in (19.1 mm)	2548B25	0.75 (0.34)	Ductile	
	1.75 in (44.5 mm)	2549B25	1.75 (0.79)		



In-line Mounting Kit	Model Number	Weight lb (kg)	In applications where installation on a manifold is not practical, the inline mounting kit can be used to facilitate installation inline between a directional valve and actuator (typically a cylinder). The 2790B77 kit provides 2 mounting plates with multiple SAE 06 ports for the A, B, and T ports in order to provide for flexibility in piping. At least one of the T ports must be piped back to the tank. Through holes (0.422" dia.) for mounting the assembly are included in the plates. All assembly hardware and plugs are included, but mounting hardware for the assembly must be provided by the customer.
	2790B77	17.0 (7.71)	

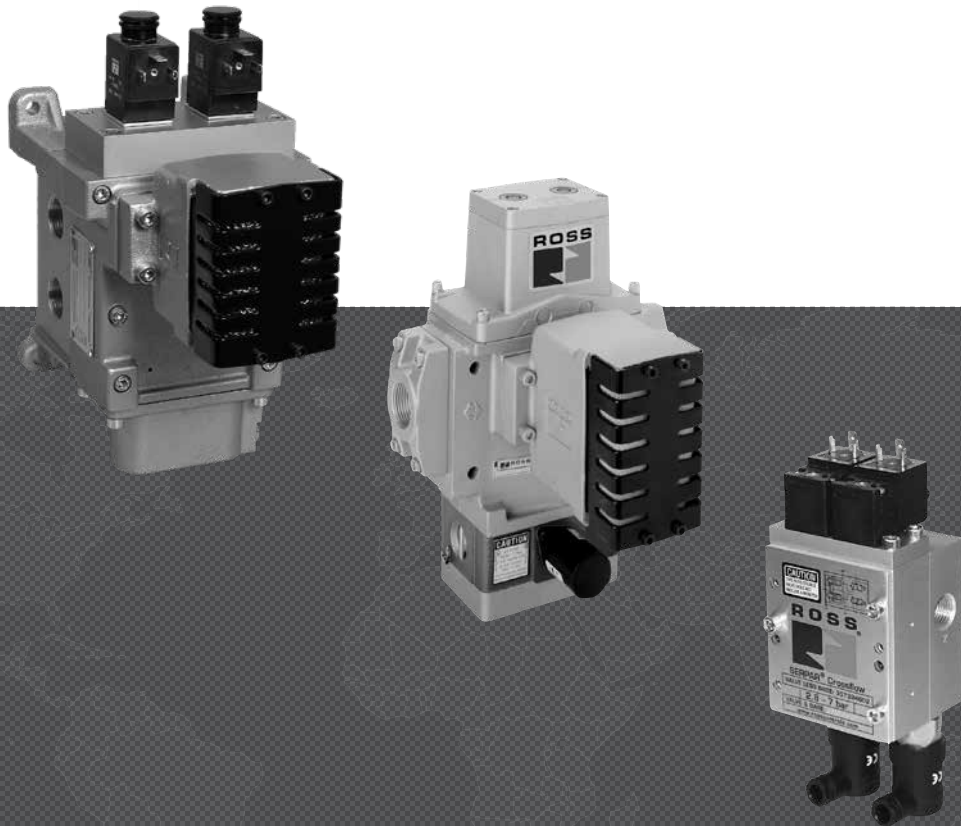


IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.





PRESS CLUTCH/BRAKE CONTROL DOUBLE VALVES



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DM²® Series D Control Reliable Double Valves

- With Internal Dynamic Monitoring & Memory

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SERPAR® Control Reliable Double Valves 35 Series

- With Internal Monitoring and Pneumatic Reset, L-G Monitor
- With Internal Monitoring and Solenoid Reset, E-P Monitor
- With Internal Dynamic Monitoring and Dry Contact Reset, D-S Monitor

B

B2.1 - B2.10

Crossflow™ Double Valves 35 Series

- Designed for External Monitoring, with Pressure Switches
- Designed for External Monitoring, without Pressure Switches

B3.1 - B3.9

Explosion Proof Valves for Clutch/Brake Control

Consult
ROSS

Automatic Systems

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Modular Air Distribution

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Automation Valves

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Cautions and Warranty

- Compatible Lubricants
- Cautions and Warnings

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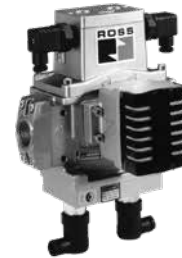
B0.3



DM² Series D Double Valves



SERPAR[®] 35 Series Double Valves

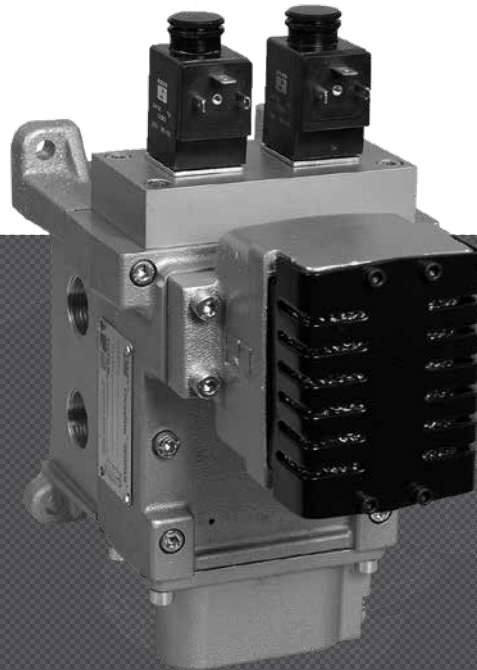


Crossflow[™] 35 Series Double Valves

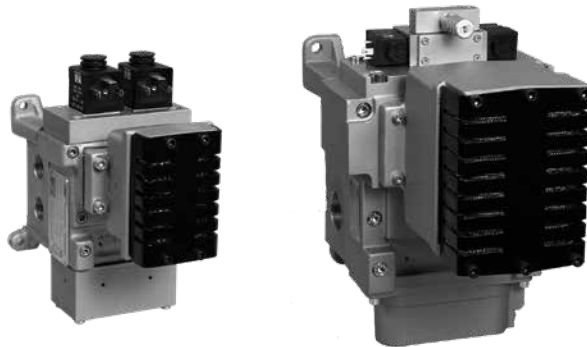
VALVE SERIES	Basic Size	AVAILABLE PORT SIZES								MAX. FLOW Cv								Reset			Page	
		1/4	3/8	1/2	3/4	1	1¼	1½	2	Port Size								Manual	Remote	Solenoid		
										1/4	3/8	1/2	3/4	1	1¼	1½	2					
DM² Series D Double Valves with Internal Dynamic Monitoring & Memory																						
DM ² D	2, 4, 8								2.17	2.17	2.8	4.63	4.63									B1.3 - B1.6
DM ² D	12, 30													8.86		20.22						B1.3 - B1.6
DM² D Series E & C Preassembled Wiring Kits																						
Accessories																						
SERPAR[®] 35 Series Monitored Double Valves																						
L-G Monitor	4								3	3	3											B2.3 - B2.4
	8									3.5	4	4										B2.5 - B2.6
	12										8	8.5	9									B2.5 - B2.6
	30												20.0	21	21							B2.5 - B2.6
E-P Monitor	8									3.5	4	4										B2.7 - B2.8
	12										8	8.5	9									B2.7 - B2.8
	30												20	21	21							B2.7 - B2.8
D-S Monitor	8									3.5	4	4										B2.9 - B2.10
	12										8	8.5	9									B2.9 - B2.10
	30												20	21	21							B2.9 - B2.10
Crossflow[™] 35 Series Double Valves for External Monitoring																						
With or Without Pressure Switches	1								0.9	1.2												B3.3 - B3.4
	2										3.7	4.2										B3.5 - B3.6
With Pressure Switches	4									3	3	3										B3.7
	8										3.5	4	4									B3.8 - B3.9
	12											8	8.5	9								B3.8 - B3.9
	30													20	21	21						B3.8 - B3.9



CLUTCH/BRAKE CONTROL DYNAMIC MONITORED DOUBLE VALVES



ROSS CONTROLS



DM²® Monitoring:

The DM²® is a patented 3/2 normally closed valve (with an intermediate, lockout position) distinguished by SERPAR® Crossflow passages with poppet and spool valving on the main valve stems. This arrangement provides the valve's outstanding flow characteristics and an integrated monitoring capability with total memory. The valve provides dynamic monitoring and dynamic memory.

Dynamic Monitoring means that all monitoring components change state on every valve cycle. Should the valve elements cycle asynchronously, the valve will exhaust downstream air and lock-out, prohibiting further operation.

Dynamic Memory within a monitoring system indicates that when a valve lock-out occurs, the valve will retain the fault information regardless of air or electrical changes. The DM²® system can only be reset by a defined operation/procedure, and will not self-reset (turning the valve off and on) or reset when inlet air supply is removed and re-applied. Such automatic resetting would conceal potential hazards from the operator.

Explosion-Proof solenoid pilot valves available, consult ROSS.

VALVE SERIES	AVAILABLE PORT SIZES						MAX. FLOW Cv						Reset			Page	
	1/4	3/8	1/2	3/4	1	1½	Port Size						Manual	Remote	Solenoid		
							1/4	3/8	1/2	3/4	1	1½					
DM ² ® D							2.17	2.17	2.8	4.63	4.63	8.86	20.22				B1.3 - B1.6
DM ² ® D Series E & C Preassembled Wiring Kits																	B1.7
Accessories																	B1.8 - B1.9

Press Control Double Valves with Internal Dynamic Monitoring & Memory

Clutch/Brake Control DM^{2®} Series D

Self Monitored

Basic Size 2, 4, 8, 12 and 30

Dynamic Monitoring with Memory: Memory, monitoring, and air flow control functions are simply integrated into two identical valve elements. Valves lock-out due to asynchronous movement of valve elements during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply. Overt action is required for reset – cannot be reset by removing and re-applying supply pressure. Reset can only be accomplished by remote air signal, optional electrical solenoid reset signal, or optional manual reset.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without in-line lubrication.

Status Indicator (Optional): Includes a pressure switch with both normally open and normally closed contacts to provide status feedback to the press control system indicating whether the valve is in the lockout or ready-to-run condition. The Status Indicator can be ordered installed or purchased separately and added to any DM^{2®} base.

Silencers: All models include high flow, clog resistant silencers.

Mounting: Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

Basic Size 12 and 30

Intermediate Pilots: Increases pilot air flow for fast valve response, making it possible to use the same size solenoids as valve sizes 2, 4 & 8, thereby reducing electrical power requirements for these larger valves.



B1

B

Choose your options (in red) to configure your Valve Model Number.

DM2D D A42 A 1 1

Series	
Thread	
G	D
NPT	N

Reset Type	
Remote	1
Solenoid	2
Manual	4

Connection Type	
EN 175301-803 Form A*	Leave Blank
M12 (connector included)	005
*See options for connectors or wiring kits.	

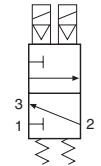
Basic Size	Port Size		Revision Level	
	Inlet	Outlet		
2	1/4	1/4	B	B20
	3/8	3/8		B21
	Valve Only (No Base)		B	B2X
4	1/2	1/2	A	A42
	1/2	3/4		A43
	Valve Only (No Base)		A	A4X
8	3/4	3/4	A	A54
	1	1		A55
	Valve Only (No Base)		A	A5X
12	1	1	A	A66
	1	1 1/2		A67
	Valve Only (No Base)		A	A6X
30	1 1/2	2	A	A88
	Valve Only (No Base)			A

Voltage*	
24 volts DC	A
110 volts AC, 50 Hz;	B
120 volts AC, 50/60 Hz	
220 volts AC, 50/60 Hz	C**
12 volts DC	D
24 volts AC	E
* For other voltages consult ROSS.	
** 220 VAC not available in the U.S. (OSHA regulations limit press control voltage to no more than 120 volts AC).	

Status Indicator*	
Mechanical Pressure Switch	1
Solid State Pressure Sensor	2
None / Valve Only (N/A)	X
* Installed in the base.	

Valve Basic Size	C _v		Weight# lb (Kg)
	1-2	2-3	
2	2.17	3.66	5 (2.3)
4	2.80	6.70	6.0 (2.8)
8	4.63	12.55	9.1 (4.2)
12	8.86	20.78	15.5 (7.1)
30	20.22	53.68	32.6 (14.8)

Valve and base assembly with status indicator and solenoid reset.



Simplified Schematic

Connectors ordered separately, refer to page B1.8.
For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual poppet	Flow Media	Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46)
Mounting	Type: Base Orientation: Preferably horizontally (valve on top of base) or vertically (with pilot solenoids on top)	Operating Pressure	Basic Size 2: 45 to 150 psig (3.1 to 10.3 bar) Basic Size 4, 8, 12, 30: 30 to 120 psig (2.1 to 8.3 bar)
Solenoids	According to VDE 0580. Two solenoids, rated for continuous duty	Reset Pressure	For remote air reset option – must be equal to inlet pressure
Voltage	Basic Size 2, 4, 12, 30: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz Basic Size 8: 24 volts DC; 110 volts AC, 50/60 Hz	Manual Pressure	Encapsulated, push button actuation
Power Consumption (each solenoid)	Basic Size 2, 4, 12, 30: Primary and reset solenoids: 5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC Basic Size 8: Primary solenoid: 15 watts on DC; 36 VA inrush and 24.6 VA holding on AC Reset solenoid: 6.0 watts on DC; 15.8 VA inrush and 10.4 VA holding on AC	Mechanical Pressure Switch (Status Indicator) Rating	Contacts - 0.1 A, 125/250 volts AC; 0.1 A, 30 volts DC; 0.3 A, 60 volts DC
Enclosure Rating	DIN 40050, IP65, IEC 60529	Solid State Pressure Switch (Status Indicator) Rating	Supply Voltage - 8-30 V DC, Current Consumption <4mA
Electrical Connection	Connector socket according to EN 175301-803 Form A	Monitoring	Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.
Temperature	Ambient: 15° to 120°F (-10° to 50°C) Media: 40° to 175°F (4° to 80°C)	Operation Frequency	Minimum once per month, to ensure proper function
		Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
		Functional Safety Data: Category 4, PL e; B _{10D} : 20,000,000; PFH _D : 7.71x10 ⁻⁹ ; MTTF _D : 301.9 (n _{0p} : 662400). Certifications: CE Marked for applicable directives, DGVU, CSA/UL, TSSA for appropriately tested valves Vibration/Impact Resistance: Tested to BS EN 60068-2-27.	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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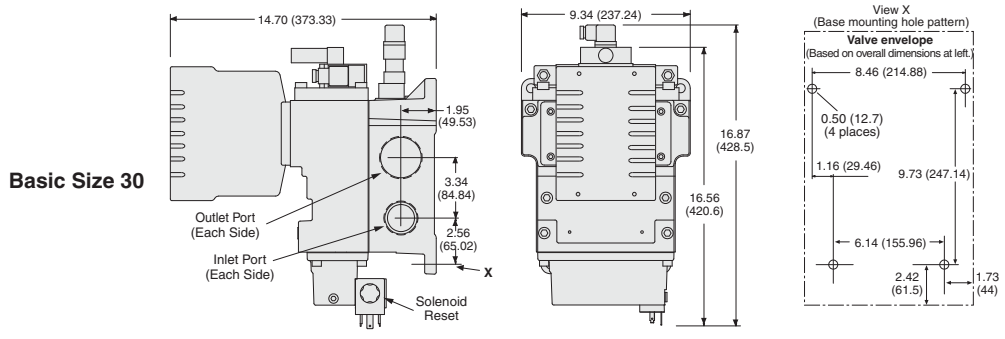
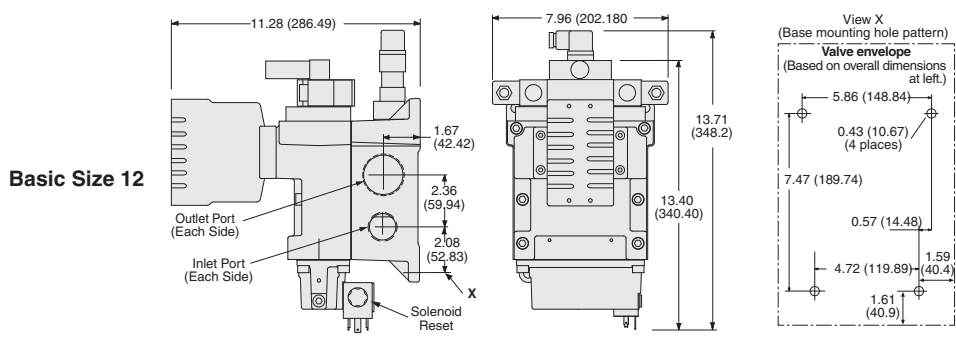
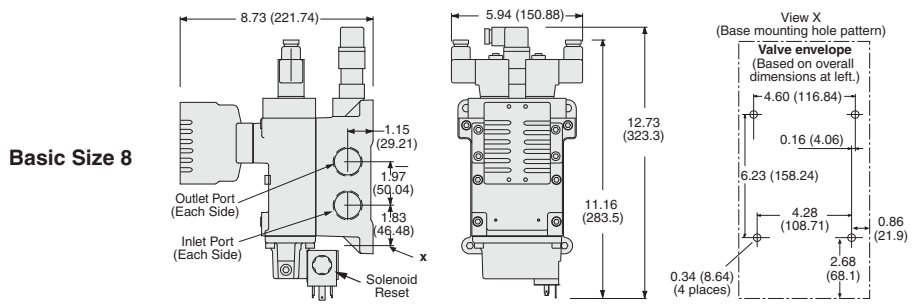
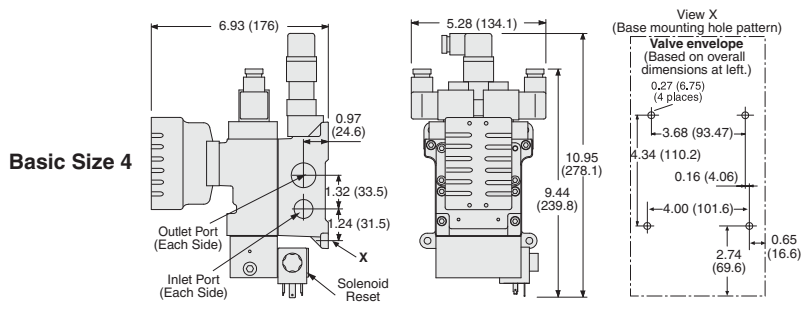
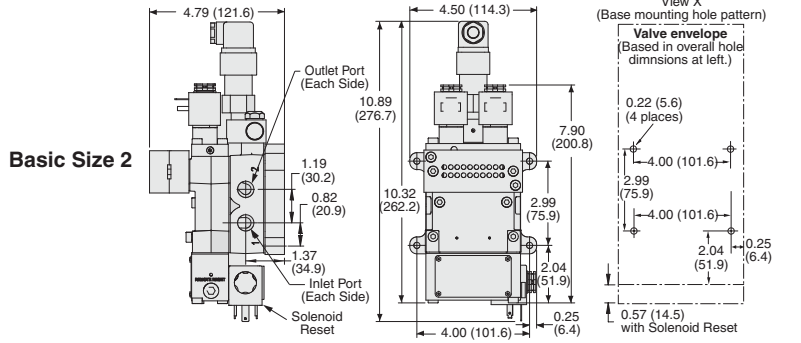


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Press Control Double Valves with Internal Dynamic Monitoring & Memory

Valve Technical Data DM²® Series D

Valve Dimensions – inches (mm)



SUB-BASE MODEL NUMBERS and SUB-BASE SPECIFIC INFORMATION						
Valve Basic Size	Port Size		Sub-Base Model Number		Status Indicator	Weight lb (kg)
	Inlet	Outlet	NPT Threads	G Threads		
2	1/4	1/4	1872C91	D1872C91	No	1.7 (0.8)
			1873C91	D1873C91	Yes	2.1 (1.0)
	3/8	3/8	1874C91	D1874C91	No	1.7 (0.8)
1875C91			D1875C91	Yes	2.1 (1.0)	
4	1/2	1/2	1697C91	D1697C91	No	1.7 (0.8)
			1698C91	D1698C91	Yes	2.3 (1.1)
	1/2	3/4	1699C91	D1699C91	No	1.7 (0.8)
8	3/4	3/4	1701C91	D1701C91	No	3.6 (1.6)
			1702C91	D1702C91	Yes	4.2 (1.9)
	1	1	1703C91	D1703C91	No	3.6 (1.6)
1704C91			D1704C91	Yes	4.2 (1.9)	
1705C91			D1705C91	No	6.2 (2.8)	
12	1	1	1706C91	D1706C91	Yes	6.8 (3.1)
			1707C91	D1707C91	No	6.2 (2.8)
	1	1 1/2	1708C91	D1708C91	Yes	6.8 (3.1)
30	1 1/2	2	1709C91	D1709C91	No	12.0 (5.4)
			1710C91	D1710C91	Yes	12.6 (5.7)

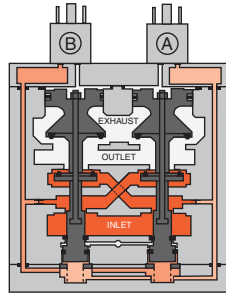
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Press Control Double Valves with Internal Dynamic Monitoring & Memory

Valve Operation DM²® Series D

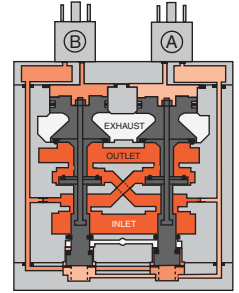
Valve De-actuated (ready-to-run):

The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply/timing chambers A and B. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position. (Air passages shown out of position and reset adapter omitted for clarity.)



Valve Actuated:

Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position, where inlet air flow to crossover passages is fully open, inlet poppets are fully open and exhaust poppets are fully closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.



B1

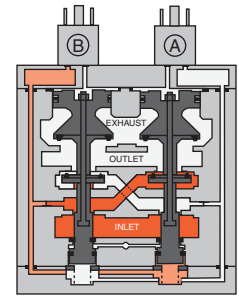
B

Valve Locked-out:

Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The timing element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element. Air pressure in the crossover acts on the differential of side B stem diameters creating a latching force. Side A is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position.

Inlet air flow on side A into its crossover is restricted, and flows through the open inlet poppet on side B, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure.

The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.



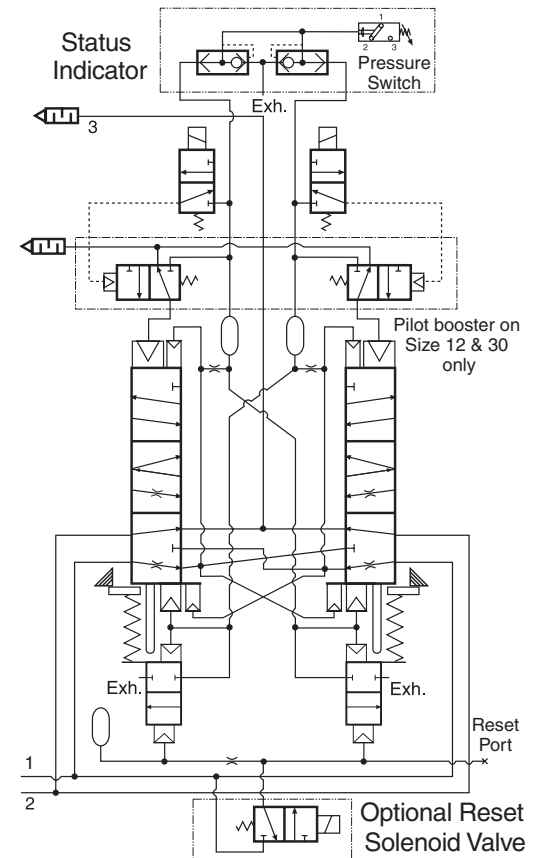
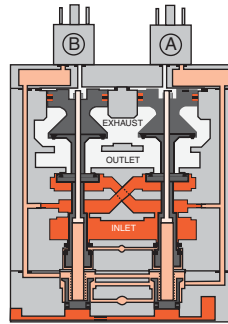
Resetting the Valve:

The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied. A remote reset signal (air or electric), or a manual push button actuation must be applied to reset the valve.

Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset. (Reset adapter added to illustration.)

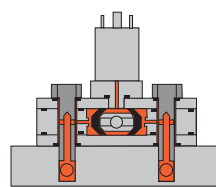
De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize.

Reset air pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid, or a manual push button mounted on the reset adapter.



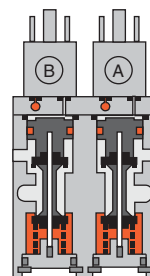
Status Indicator:

The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Status indicator (optional) in normal ready-to-run position.

Basic Size 12 and 30 valves require relatively large pilots to actuate and de-actuate the main valve elements. In order to achieve extremely quick valve response for such large pilots, a 2-stage solenoid pilot system is incorporated into the design. This keeps the required electrical current to operate the pilots to a minimum.



Basic Size 12 & 30 pilots

Schematic - Valve de-actuated

Press Control Double Valves with Internal Dynamic Monitoring & Memory

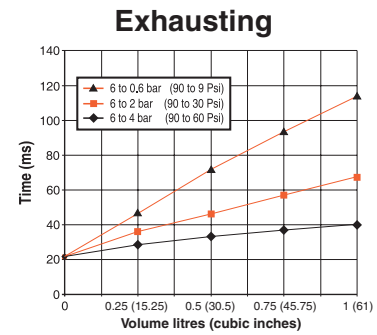
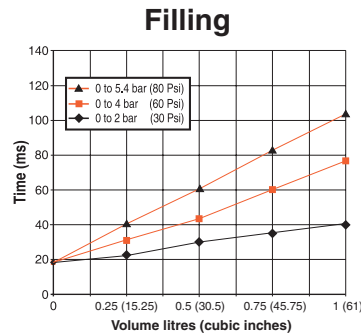
Valve Response Charts DM²® Series D

B1

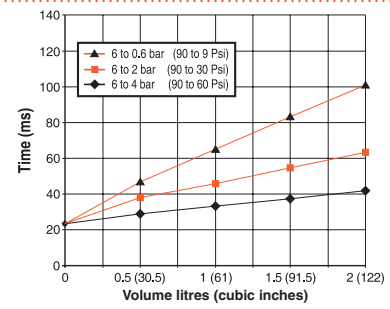
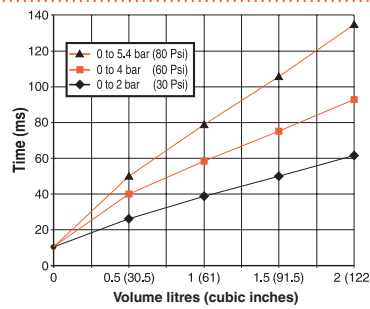
B

The charts below represent the fill and exhaust times for each of the various sizes of DM²® Series D double valves. The “fill” times were measured while raising (filling) the pressure in a volume from 0 to 30, 60, & 80 psi (0 to 2.1, 4.1, & 5.5 bar) with a 90 psi (6.2 bar) inlet pressure. Conversely, the “exhaust” times were measured while lowering the pressure (exhausting) in a volume from 90 psi (6.2 bar) down to 90 to 60, 30, & 9 psi (4.1, 2.1, & 0.6 bar). **Exhausting tests performed with silencer installed.**

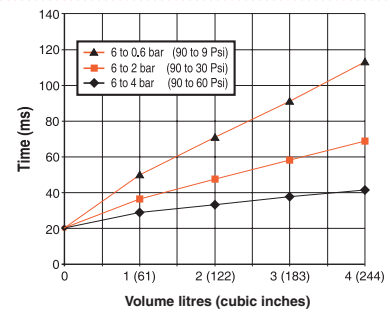
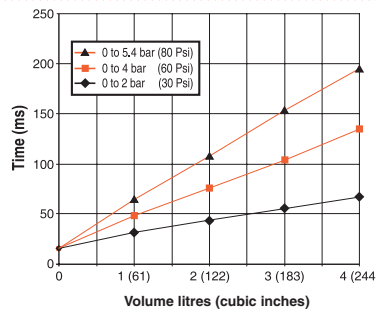
Basic Size 2



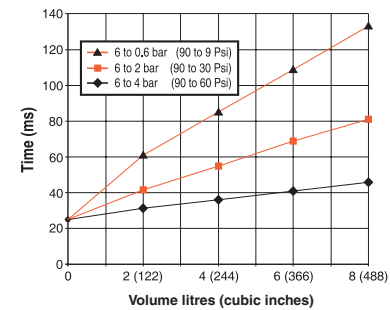
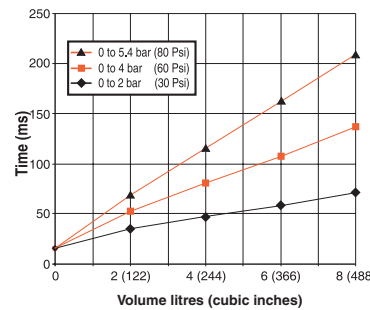
Basic Size 4



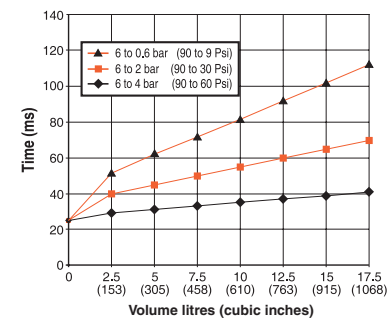
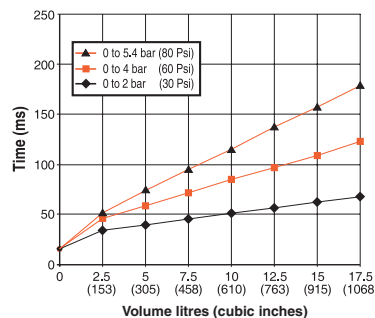
Basic Size 8



Basic Size 12



Basic Size 30



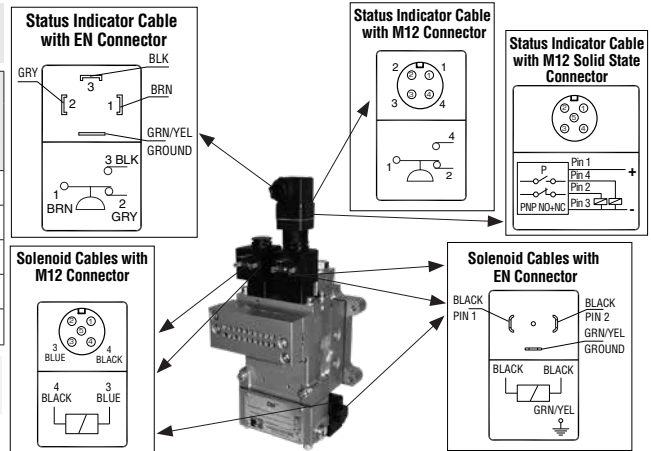
Wiring Kits

Preassembled Wiring Kits

Solenoid Connector Type	Kit Number*			Length meters (feet)
	Connector without Light	Lighted Connector		
		24 Volts DC	120 Volts AC	
EN 175301-803 Form A	2283H77	2532H77-W	2532H77-Z	5 (16.4)
	2284H77	2533H77-W	2533H77-Z	10 (32.8)
M12	2288H77	-	-	5 (16.4)
	2289H77	-	-	10 (32.8)

* Each cable has one connector.

These kits include 1 cable for the status indicator, and 3 cables with connector plus a cord grip for each.



Wiring Kits with J-Box

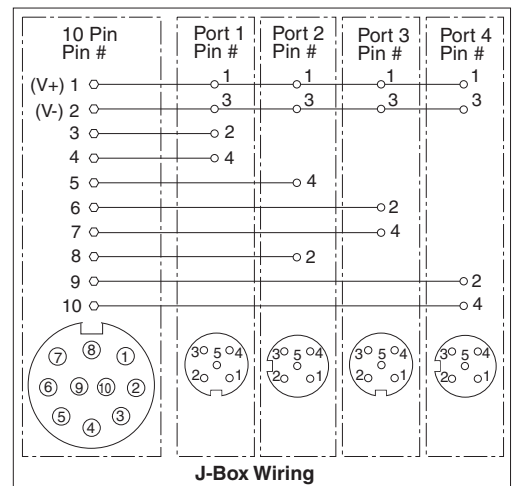
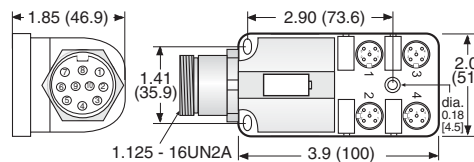
Connector Types	Kit Number*	Length meters (feet)
M12 - DIN	2249H77	1 (3.3)
M12 - M12	2250H77	1 (3.3)

*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM²® Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and a EN connector on the other end (M12-DIN).

Standard valves come with DIN type solenoid connections, but could be bought with M12 type connections as well. Therefore we also offer a kit that provides solenoid cables with an M12 connector on each end (M12-M12).



10 PIN MINI Cable

Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

PIN #	PIN #
1 +24 volts DC	6 -
2 Common volts DC	7 Remote Reset
3 -	8 -
4 Solenoid A	9 Remote Valve Fault Light
5 Solenoid B	10 Remote System OK Light

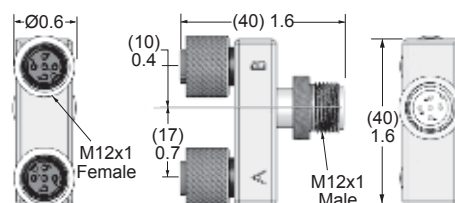
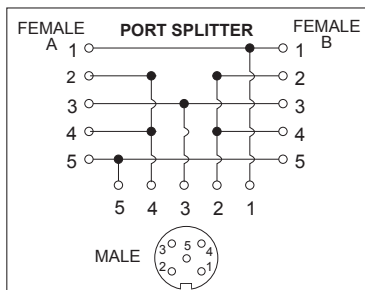
Wire Colors:	Wire Colors:
Orange	Orange w/Black
Blue	Red
White w/Black	Green/Yellow
Red w/Black	Black
Green w/Black	White



Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)

Some customers prefer to monitor downstream pressure in addition to using the DM²® or DM¹ Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).




Pressure switch available separately, see valve options.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Accessories & Options

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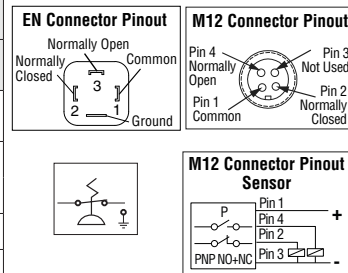
Connectors & Cord Sets	Connection Type	Connector Option	Connector Form	Fitting Connection	Cord Type/Termination		Length meters (feet)	Cord Diameter	Model Number			Cord Quantity	
					End 1	End 2			Without Light	Lighted Connector			
										24 V DC	120 V AC		
	Solenoid	Connector Only	EN 175301-803 Form A	-	-	-	-	-	937K87	936K87-W	936K87-Z	-	
									723K77	724K77-W	724K77-Z	-	
	Solenoid	Prewired Connector	EN 175301-803 Form A	-	Connector	Flying leads	2 (6.5)	6-mm	721K77	720K77-W	720K77-Z	1	
								10-mm	371K77	383K77-W	383K77-Z	1	
								5 (16.4)	-	2243H77	-	-	2
								10 (32.8)	-	2244H77	-	-	2

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Status Indicator	Model Number	The Status Indicator pressure switch actuates when the valve is in a ready-to-run condition and de-actuates when the valve is in a lockout condition or when the inlet air pressure has been removed.
	670B94	



Downstream Pressure Monitoring			
Pressure Switches/Sensor for Energy Release Verification	Connection Type/Form	Model Number	Port Thread
	Mechanical Pressure Switch EN 175301-803 Form A	586A86	1/8 NPT
	Mechanical Pressure Switch M12	1153A30	M10x1
	Solid State Pressure Sensor M12	1335B30W	
	Factory preset, 5 psi (0.3) - falling		
May be installed on all valves with pressure sensing port. Provides means to verify the release of downstream pressure to next obstruction.			



RESET VALVES for DOUBLE VALVES with REMOTE RESET

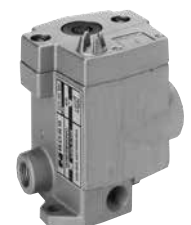
Valves with the remote reset option require a small 3/2 reset valve and the installation of a 1/8 inch air line from the reset valve to the reset port of the double valve. ROSS offers 3/2 normally closed valves with either manual or electric control that are suitable for this purpose.

Manual Pushbutton Valves								
Valve Operator Type	Port Size	Button Color	Valve Model Number		C _v	Dimensions inches (mm)		
			NPT Threads	G Threads		Height	Depth	Length
Flush Pushbutton	1/8	Green	1223B1FPG	D1223B1FPG	0.6	1.26 (32)	3.89 (99)	1.46 (37)
		Red	1223B1FPR	D1223B1FPR				
Mushroom Button	1/8	Green	1223B1MBG	D1223B1MBG				
		Red	1223B1MBR	D1223B1MBR				



Solenoid Pilot Controlled – Compact Valves for Line Mounting									
Valve Type	Port Size	Valve Model Number#		C _v	Average Response Constants**		Dimensions inches (mm)		
		1, 2, 3	NPT Threads		G Threads	M	F	Height	Depth
Normally-Closed	1/8	1613B1020Z	D1613B1020Z	0.3	5	2.90	3.73 (95)	2.88 (73)	2.58 (66)

Voltage: Z=110-120 VAC, 50/60 Hz; W=24 VDC, e.g., 1613B1020W. For other voltages, consult ROSS.



Solenoid Pilot Controlled – Miniature Valve for Base Mounting									
Valve Type	Override Type	Valve Model Number#		C _v	Dimensions inches (mm)				
		24 VDC	110-120 VAC 50/60 Hz		Height	Depth	Length		
Normally-Closed	Non-Locking	W1413A1409W	W1413A1409Z	0.1	3.5 (89)	3.1 (79)	1.3 (32)		

For other voltages, consult ROSS.

* Sub-Base for Direct Solenoid Control Valves: 516B91 (NPT Threads), D516B91 (G Threads).



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Accessories & Options



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Noise-Reduction SILENCERS for DM ² ® Series D Double Valves						
Valve Basic Size	Thread Type	Kit Number*#	Flow scfm	Dimensions inches (mm)		Description
				Height	Width	
4	NPT	2324H77	800 (378)	19.1 (484)	4.4 (110)	Reduces the Exponentially Perceived Noise (EPNdB), Impact noise reduction in the 35–40 dB range Recommended for air exhaust applications for pressures up to 125 psig (8.6 bar) Pressure Range – 125 psig (8.6 bar) maximum
	BSPT	2329H77	800 (378)	21.4 (544)	4.4 (110)	
8	NPT	2325H77	800 (378)	21.2 (538)	5.4 (138)	
	BSPT	2330H77	800 (378)	23.5 (598)	5.4 (138)	
12	NPT	2326H77	2080 (982)	25.9 (657)	6.8 (117)	
	BSPT	2331H77	2080 (982)	28.2 (716)	6.8 (117)	
30	NPT	2327H77	7200 (3398)	41.6 (1056)	9.9 (250)	
	BSPT	2332H77				

* Kits include all plumbing required for installation.
Exhaust flange kit required, see below ordering information.

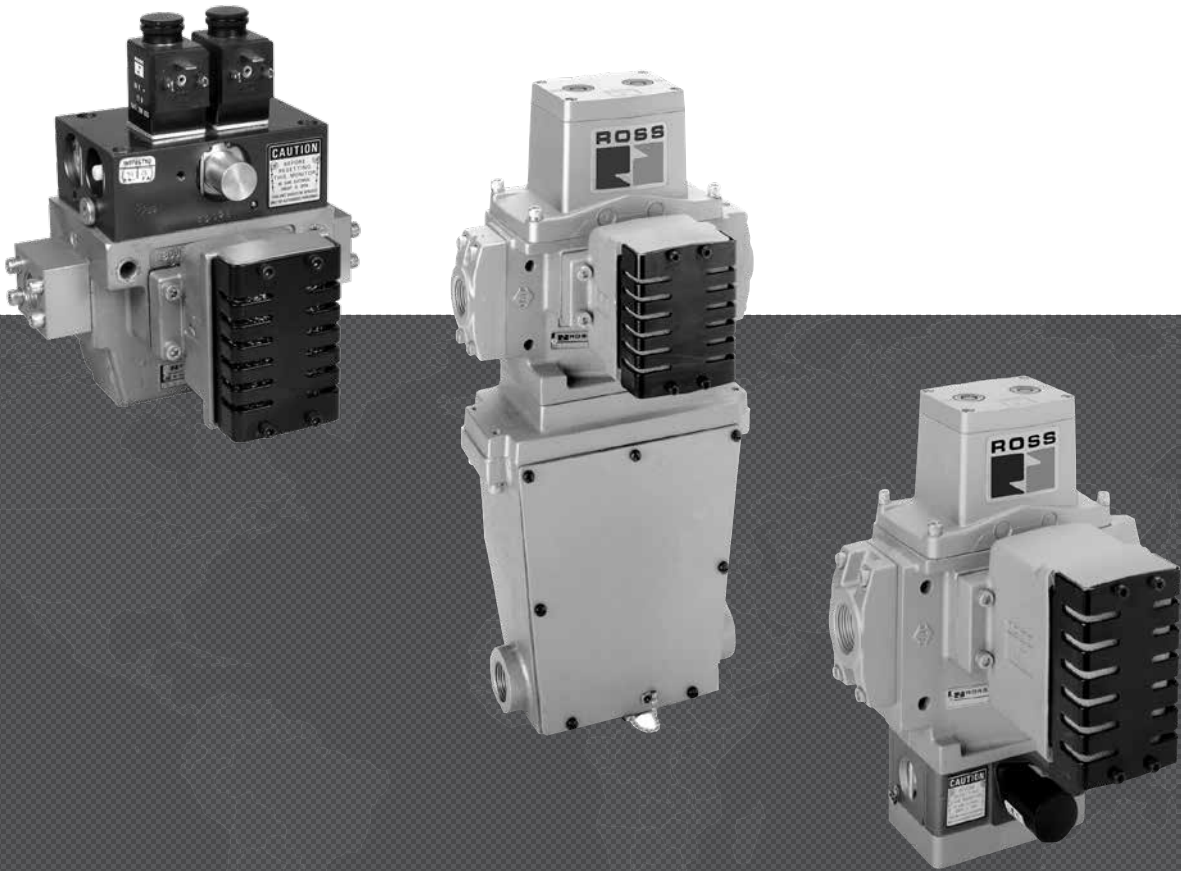
Exhaust Flange Kits for Noise Reduction Silencers	Valve Basic Size	Port Size	Kit Number		Used when installing noise reduction silencers
			NPT Threads	G Threads	
	4	1	726B25	D276B25	
8	1	617B25	D617B25		
12	1½	619B25	D619B25		
30	2½	621B25	D621B25		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.





CLUTCH/BRAKE CONTROL MONITORED DOUBLE VALVES





ROSS CONTROLS

SERPAR® 35 SERIES DOUBLE VALVES WITH INTERNAL MONITORING AND PNEUMATIC RESET – KEY FEATURES

- Internal monitoring – requires no additional monitoring circuitry
- Automatic lock-out/inhibit upon detection of a malfunction
- Default to de-energized position upon fault detection
- Dedicated reset function
- No undesired automatic reset upon removal of electrical or pneumatic energy sources
- Built-in non-clogging silencers

35 Series SERPAR® valves are internally monitored double valves and are available in Basic Size 4, 8, 12 and 30 ranging from 3/8” – 1½” port sizes. Internally monitored double valves contain a built-in monitoring device that checks for the proper operation of each valve element. If the internal monitor detects a valve fault on a particular cycle, the double valve will fail to a safe condition (all downstream air is exhausted) and the monitor will lock-out to inhibit further operation of the device. Normal operation can only be resumed by a momentary reset signal to the valve, either pneumatic or electric.

The original application for these double valves was in the control of clutch/brake mechanisms on stamping presses, but they have found their way into many other critical applications such as alternative lockout systems for energy isolation, air cylinder press load-holding systems, as well as other Category -3 and -4 safety circuits. ROSS double valves are a vital part of any control-reliable fluid power control system.

DESCRIPTION		Page
SERPAR® Double Valves with Internal Monitoring and Pneumatic Reset L-G Monitor Basic Size 4		B2.3 - B2.4
SERPAR® Double Valves with Internal Monitoring and Pneumatic Reset L-G Monitor Basic Size 8, 12, 30		B2.5 - B2.6
SERPAR® Double Valves with Internal Monitoring and Pneumatic Reset E-P Monitor Basic Size 8, 12, 30		B2.7 - B2.8
SERPAR® Double Valves with Internal Dynamic Monitoring and Dry Contact Reset D-S Monitor Basic Size 8, 12, 30		B2.9 - B2.10

SERPAR® Double Valves with Internal Monitoring and Pneumatic Reset – L-G Monitor

Clutch/Brake Control 35 Series

Basic Size 4

Port Size	Basic Size	Monitor Reset	Right Inlet		Left Inlet		C _v		Avg. Response Constants		Weight lb (kg)	
			Valve Model Number#		Valve Model Number#		1-2	2-3	M	F		
			NPT Threads	G Threads	NPT Threads	G Threads				1-2		2-3
3/8	4	Manual	3573D3191W	D3573D3191W	3573D3195W	D3573D3195W	3	6	15	0.70	0.40	8.3 (3.7)
		Remote	3573D3192W	D3573D3192W	3573D3196W	D3573D3196W						
1/2	4	Manual	3573D4211W	D3573D4211W	3573D4215W	D3573D4215W	3	8	15	0.65	0.35	8.3 (3.7)
		Remote	3573D4212W	D3573D4212W	3573D4216W	D3573D4216W						
3/4	4	Manual	3573D5211W	D3573D5211W	3573D5215W	D3573D5215W	3	9	15	0.65	0.35	8.3 (3.7)
		Remote	3573D5212W	D3573D5212W	3573D5216W	D3573D5216W						



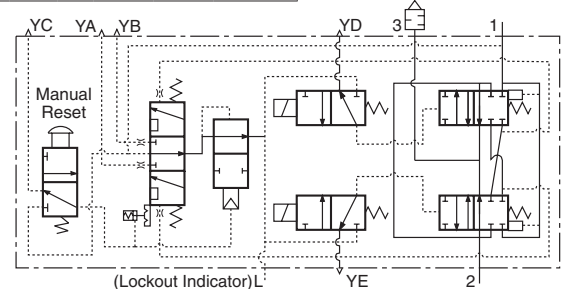
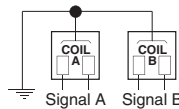
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573D3191W. For other voltages consult ROSS.

Valve Response Time

The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula on the right:

$$\text{Vlv. Resp. Time (msec)} = M + F \cdot V$$

M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches



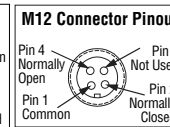
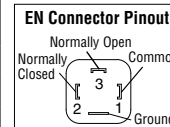
B
B2

ACCESSORIES & OPTIONS

Pressure Switches (Electrical Lockout Indicator)

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Piping Flange Kits

Port Size	Basic Size	Kit Number	Description
3/8	4	658K77	Each kit includes two threaded (NPT) flanges and the required seals and mounting bolts.
1/2	4	659K77	
3/4	4	660K77	

Valve Without Piping Flanges

Port Size	Basic Size	Monitor Reset	Right Inlet		Left Inlet	
			Valve Model Number#		Valve Model Number#	
			NPT Threads	G Threads	NPT Threads	G Threads
3/8, 1/2, 3/4	4	Manual	3573D4241W	D3573D4241W	3573D4245W	D3573D4245W
		Remote	3573D4242W	D3573D4242W	3573D4246W	D3573D4246W

RESET VALVES for L-G MONITOR

On valve models with manual reset a button on the side of the monitor is pushed to perform the reset function. Models for remote reset, however, require a small reset valve and the installation of a 1/8 line from the reset valve to the reset port on the monitor. ROSS offers 3/2 normally closed valves with either manual or electric control that are suitable for this purpose, valves size 8, 12, 30 with L-G monitor are suggested.

Reset Valves

Description	Model Numbers#	
	NPT Threads	G Threads
Flush Pushbutton: Green	1223B1FPG	D1223B1FPG
Mushroom Button: Green	1223B1MBG	D1223B1MBG
Direct Solenoid Control for Line Mounting	1613B1020W	1613B1020W
Direct Solenoid Control for Base Mounting	W1413A1409W (Sub-Base: 516B91)	-
Sub-Base for Direct Solenoid Control	516B91	D516B91

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573D4241Z.
For other voltages consult ROSS

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual Poppet	Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)
Mounting Type	In-line	Flow Media	Filtered air
Solenoids	Two solenoids; Rated for continuous duty	Operating Pressure	30 to 100 psig (2.1 to 7 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	L-G Reset Pressure	Remote pneumatic reset models require a pressure of minimum 30 psig (2 bar). Manual reset models use internal valve pressure
Power Consumption (each solenoid)	11 watts on DC; 30 VA inrush, 16 VA holding on 50 or 60 Hz	Inlet Port	Models are available with the inlet port on either the right or the left side of the valve body
Enclosure Rating	IP65, IEC 60529	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Electrical Connection	EN 175301-803 Form A, uses two cord-grip connectors at solenoids		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Online Version
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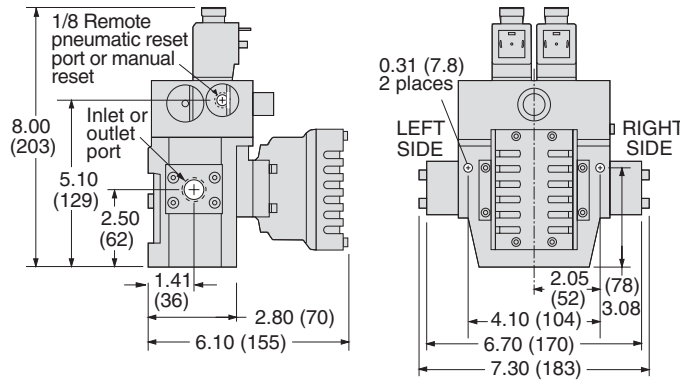


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B2.3

Basic Size 4

Valve Dimensions – inches (mm)



OPTIONS

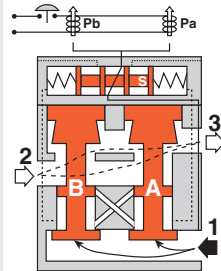
Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
		Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
		Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
		Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

VALVE OPERATION

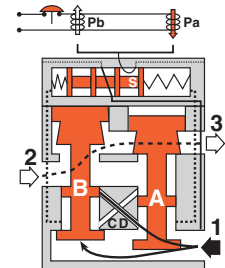
Conditions at Start:

Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pilot air is ported from inlet 1 and through the center section of spool S to the normally closed pilots Pa and Pb. Monitoring pressure signals at both ends of spool S are exhausted.



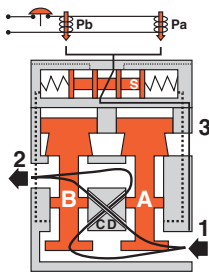
Detecting a Malfunction:

A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below two percent of inlet pressure. Full monitoring air pressure from side A goes to the right end of spool S, and a reduced pressure goes to the left end. This pressure imbalance causes the spool to shift to the left. This shuts off and exhausts pilot air to both solenoid pilots, and allows valve element A to return to the closed position.



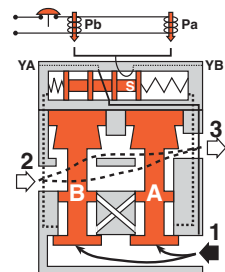
Normal Operation:

Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Monitoring pressure signals go to each end of spool S and become equal to inlet pressure.



L-G Monitor Locked-out:

When the L-G spool shifts it is held by a lockout pin (not shown). Pilot air is then exhausted to atmosphere via port YB, and pilot supply air is diverted to atmosphere via port YA. The lockout mechanism must be reset before the valve can return to normal operation. *During and following reset, the pilot solenoids must be kept de-energized to prevent inadvertent and possibly dangerous cycling of the press.* The reset function is either manual or remote-pneumatic depending on valve model.



Both solenoids must be energized simultaneously to shift the valve; maintained signal required to keep valve shifted.

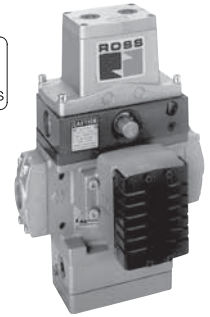
WARNING: If monitor must be reset, electrical signals to both solenoids must be removed to prevent the machine controlled by the valve from immediately recycling and producing a potentially hazardous condition.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

SERPAR® Double Valves with Internal Monitoring and Pneumatic Reset – L-G Monitor

Clutch/Brake Control 35 Series

Basic Size 8, 12, 30



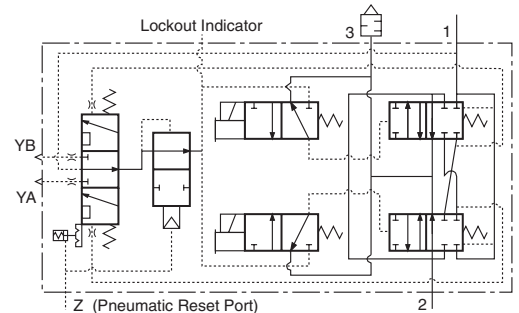
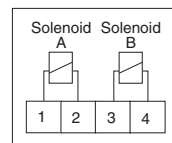
Port Size	Basic Size	With Overrides		Without Overrides		C _v		Avg. Response Constants			Weight lb (kg)
		Valve Model Number#		Valve Model Number#				M	F		
		NPT Threads	G Threads	NPT Threads	G Threads	1-2	2-3		1-2	2-3	
1/2	8	3573A4142W	D3573A4142W	3573A4162W	D3573A4162W	3.5	8.5	15	0.70	0.30	15.3 (6.9)
	8	3573A5142W	D3573A5142W	3573A5162W	D3573A5162W	4.0	12	15	0.65	0.23	15.3 (6.9)
3/4	12	3573A5152W	D3573A5152W	3573A5172W	D3573A5172W	8.0	15	15	0.65	0.23	19.0 (8.6)
	8	3573A6152W	D3573A6152W	3573A6172W	D3573A6172W	4.0	12	20	0.33	0.21	15.3 (6.9)
1	12	3573A6162W	D3573A6162W	3573A6182W	D3573A6182W	8.5	19	20	0.28	0.21	19.0 (8.6)
	12	3573A7162W	D3573A7162W	3573A7182W	D3573A7182W	9.0	21	20	0.28	0.21	19.0 (8.6)
1 1/4	30	3573A7152W	D3573A7152W	3573A7172W	D3573A7172W	20	42	25	0.19	0.07	37.5 (16.9)
	30	3573A8162W	D3573A8162W	3573A8182W	D3573A8182W	21	43	25	0.18	0.07	37.5 (16.9)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573A4142Z. For other voltages consult ROSS.

Valve Response Time The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula on the right:

$$V_{lv. \text{ Resp. Time (msec)}} = M + F \cdot V$$

M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches



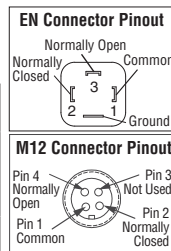
ACCESSORIES & OPTIONS

Pressure Switches

(Electrical Lockout Indicator)

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Piping Flange Kits

Port Size	Basic Size	Kit Model Number	Description
1/2	8	661K77	Each kit includes two threaded (NPT) flanges and the required seals and mounting bolts.
3/4	8	662K77	
	12	664K77	
1	8	663K77	
	12	665K77	
1 1/4	12	666K77	
	30	667K77	
1 1/2	30	668K77	

Valve Without Piping Flanges

Port Size	Basic Size	With Overrides		Without Overrides	
		Valve Model Number#		Valve Model Number#	
		NPT Threads	G Threads	NPT Threads	G Threads
1/2, 3/4, 1	8	3573A4202W	D3573A4202W	3573A4222W	D3573A4222W
3/4, 1, 1 1/4	12	3573A5202W	D3573A5202W	3573A5222W	D3573A5222W
1 1/4, 1 1/2	30	3573A7202W	D3573A7202W	3573A7222W	D3573A7222W

RESET VALVES for L-G MONITOR

Models for remote reset, however, require a small reset valve and the installation of a 1/8 line from the reset valve to the reset port on the monitor.

Description	Model Numbers#	
	NPT Threads	G Threads
Flush Pushbutton: Green	1223B1FPG	D1223B1FPG
Mushroom Button: Green	1223B1MBG	D1223B1MBG
Direct Solenoid Control for Line Mounting	1613B1020W	1613B1020W
Direct Solenoid Control for Base Mounting	W1413A1409W (Sub-Base: 516B91)	-
Sub-Base for Direct Solenoid Control Valves	516B91	D516B91

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573D4241Z. For other voltages consult ROSS

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual Poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	30 to 125 psig (2.1 to 8.5 bar)
Solenoids	Two solenoids, rated for continuous duty	L-G Reset Pressure	Remote pneumatic reset models require a pressure of minimum 60 psig (4 bar). Manual reset models use internal valve pressure.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Inlet Port	Models are available with the inlet port on either the right or the left side of the valve body
Power Consumption (each solenoid)	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Electrical Connection	Uses terminal strip connectors		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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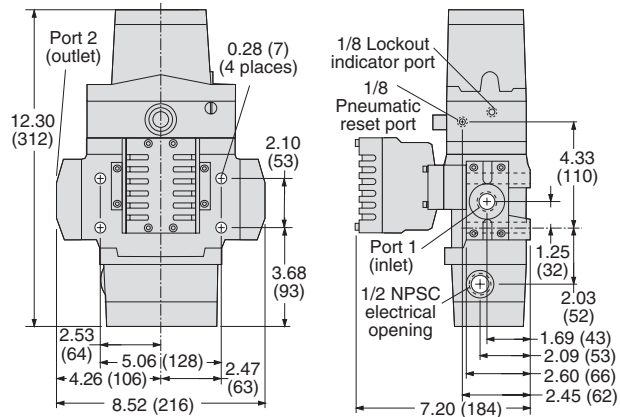
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B2.5

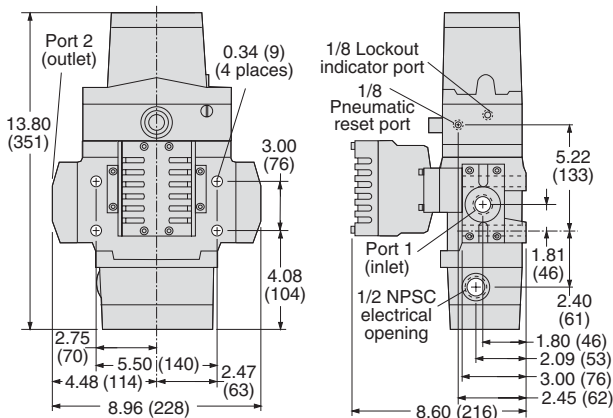
Basic Size 8, 12, 30

Valve Dimensions – inches (mm)

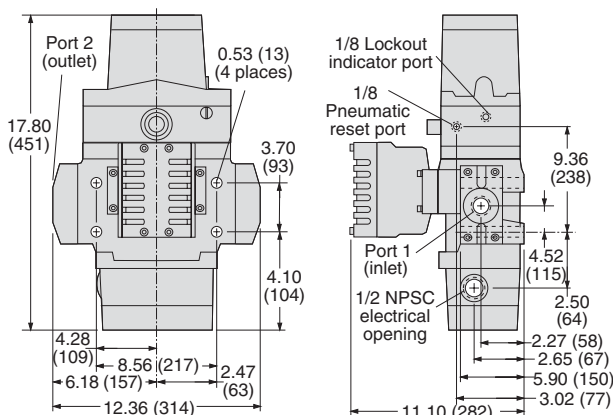
Basic Size 8



Basic Size 12



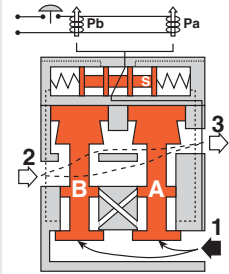
Basic Size 30



VALVE OPERATION

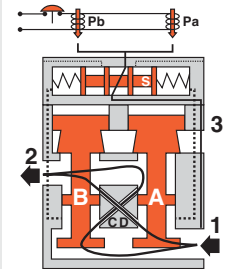
Conditions at Start:

Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pilot air is ported from inlet 1 and through the center section of spool S to the normally closed pilots Pa and Pb. Monitoring pressure signals at both ends of spool S are exhausted.



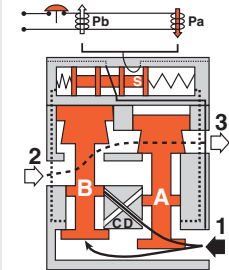
Normal Operation:

Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Monitoring pressure signals go to each end of spool S and become equal to inlet pressure.



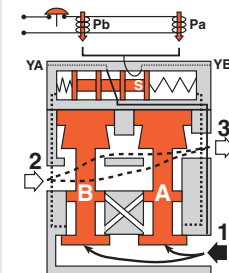
Detecting a Malfunction:

A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below two percent of inlet pressure. Full monitoring air pressure from side A goes to the right end of spool S, and a reduced pressure goes to the left end. This pressure imbalance causes the spool to shift to the left. This shuts off and exhausts pilot air to both solenoid pilots, and allows valve element A to return to the closed position.



L-G Monitor Locked-out:

When the L-G spool shifts it is held by a lockout pin (not shown). Pilot air is then exhausted to atmosphere via port YB, and pilot supply air is diverted to atmosphere via port YA. The lockout mechanism must be reset before the valve can return to normal operation. *During and following reset, the pilot solenoids must be kept de-energized to prevent inadvertent and possibly dangerous cycling of the press.* The reset function is either manual or remote-pneumatic depending on valve model.



Both solenoids must be energized simultaneously to shift the valve; maintained signal required to keep valve shifted.

WARNING: If monitor must be reset, electrical signals to both solenoids must be removed to prevent the machine controlled by the valve from immediately recycling and producing a potentially hazardous condition.

SERPAR® Double Valves with Internal Monitoring and Solenoid Reset – E-P Monitor

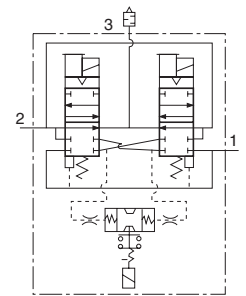
Clutch/Brake Control 35 Series

Signal Type	Port Size	Basic Size	With Overrides		Without Overrides		C _v		Avg. Response Constants		Weight lb (kg)	
			Valve Model Number#		Valve Model Number#		1-2	2-3	F			
			NPT Threads	G Threads	NPT Threads	G Threads			1-2	2-3		
Single Signal Input	1/2	8	3573A4141W	D3573A4141W	3573A4161W	D3573A4161W	3.5	8.5	15	0.70	0.30	11.8 (5.3)
			3573A5141W	D3573A5141W	3573A5161W	D3573A5161W	4	12	15	0.65	0.23	11.8 (5.3)
	3/4	12	3573A5151W	D3573A5151W	3573A5171W	D3573A5171W	8	15	15	0.65	0.23	15.5 (7.0)
			3573A6151W	D3573A6151W	3573A6171W	D3573A6171W	4	12	20	0.33	0.21	11.8 (5.3)
	1	12	3573A6161W	D3573A6161W	3573A6181W	D3573A6181W	8.5	19	20	0.28	0.21	15.5 (7.0)
			3573A7161W	D3573A7161W	3573A7181W	D3573A7181W	9	21	20	0.28	0.21	15.5 (7.0)
	1 1/4	30	3573A7151W	D3573A7151W	3573A7171W	D3573A7171W	20	42	25	0.19	0.07	35.0 (15.8)
			3573A8161W	D3573A8161W	3573A8181W	D3573A8181W	21	43	25	0.18	0.07	35.0 (15.8)
2	30	2 inch port size available on size 30 valves. Order model number 1999H77 flange kit separately.										
Dual Signal Input	1/2	8	3573A4341W	D3573A4341W	3573A4361W	D3573A4361W	3.5	8.5	15	0.70	0.30	11.8 (5.3)
			3573A5341W	D3573A5341W	3573A5361W	D3573A5361W	4	12	15	0.65	0.23	11.8 (5.3)
	3/4	12	3573A5351W	D3573A5351W	3573A5371W	D3573A5371W	8	15	15	0.65	0.23	15.5 (7.0)
			3573A6351W	D3573A6351W	3573A6371W	D3573A6371W	4	12	20	0.33	0.21	11.8 (5.3)
	1	12	3573A6361W	D3573A6361W	3573A6381W	D3573A6381W	8.5	19	20	0.28	0.21	15.5 (7.0)
			3573A7361W	D3573A7361W	3573A7381W	D3573A7381W	9	21	20	0.28	0.21	15.5 (7.0)
	1 1/4	30	3573A7351W	D3573A7351W	3573A7371W	D3573A7371W	20	42	25	0.19	0.07	35.0 (15.8)
			3573A8361W	D3573A8361W	3573A8381W	D3573A8381W	21	43	25	0.18	0.07	35.0 (15.8)
2	30	2 inch port size available on size 30 valves. Order model number 1999H77 flange kit separately.										

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573A4141Z. For other voltages consult ROSS.



B
B2



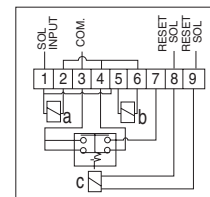
OPTIONS

Piping Flange Kits

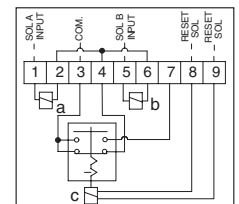
Each kit includes two threaded (NPT) flanges and the required seals and mounting bolts.

Port Size	Basic Size	Kit Number
1/2	8	661K77
	12	662K77
3/4	8	664K77
	12	664K77
1	8	663K77
	12	665K77
1 1/4	12	666K77
	30	667K77
1 1/2	30	668K77

During lock-out: Terminals 3 and 7 are connected which allows a panel light, bell, or other electrical device to be wired through terminals 7 and 3 to serve as a lockout indicator.



Single Input Wiring Diagram



Dual Input Wiring Diagram

Valve Response Time

The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula on the right:

Vlv. Resp. Time (msec) = M + F * V
M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches

Valve Without Piping Flanges

Port Size	Basic Size	Single Signal Input				Dual Signal Input			
		With Overrides		Without Overrides		With Overrides		Without Overrides	
		Valve Model Number#		Valve Model Number#		Valve Model Number#		Valve Model Number#	
		NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads
1/2, 3/4, 1	8	3573A4201W	D3573A4201W	3573A4221W	D3573A4221W	3573A4301W	D3573A4301W	3573A4321W	D3573A4321W
3/4, 1, 1 1/4	12	3573A5201W	D3573A5201W	3573A5221W	D3573A5221W	3573A5301W	D3573A5301W	3573A5321W	D3573A5321W
1 1/4, 1 1/2	30	3573A7201W	D3573A7201W	3573A7221W	D3573A7221W	3573A7301W	D3573A7301W	3573A7321W	D3573A7321W

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573A4201Z. For other voltages consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	30 to 125 psig (2.1 to 8.5 bar)
Solenoids	Two solenoids; Rated for continuous duty	E-P Reset Solenoid	Rated for intermittent duty Voltages: 24-48 or 100-120 volts AC or DC.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Inlet Port	Models are available with the inlet port on either the right or the left side of the valve body
Power Consumption (each solenoid)	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Electrical Connection	Uses terminal strip connectors		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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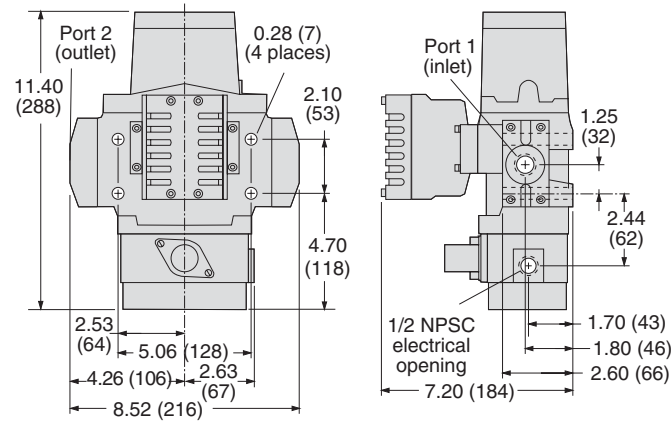


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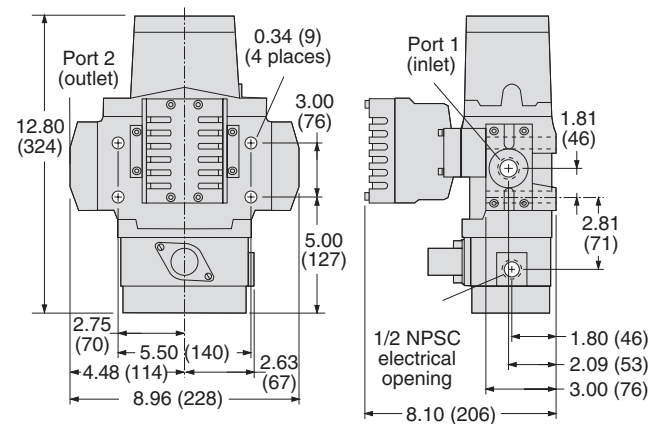
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Valve Dimensions – inches (mm)

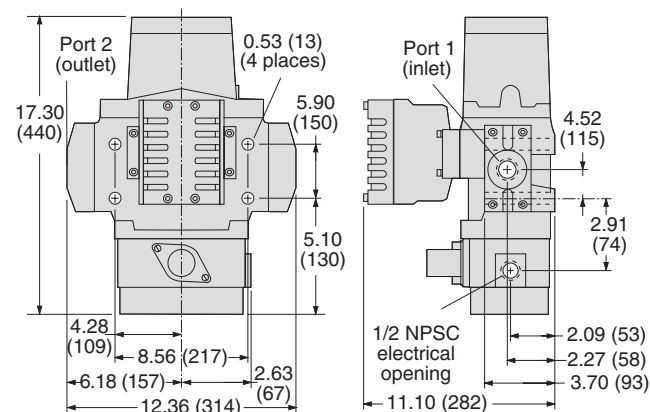
Basic Size 8



Basic Size 12



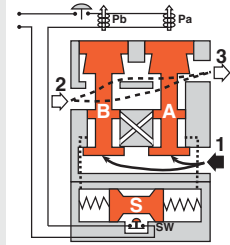
Basic Size 30



VALVE OPERATION

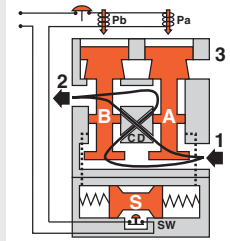
Conditions at Start:

Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Contacts of switch SW are closed. Monitoring pressure signals at both ends of spool S are exhausted.



Normal Operation:

Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Monitoring pressure signals go to each end of spool S and become equal to inlet pressure.

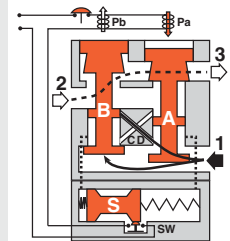


Completion of Normal Cycle:

Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described above.

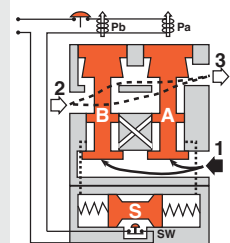
Detecting a Malfunction:

A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below two percent of inlet pressure. Full monitoring air pressure from side A goes to the right end of spool S, and a reduced pressure goes to the left end. This pressure imbalance causes the spool to shift to the left. This trips switch SW, breaks the electrical circuit to the pilot solenoids, and allows valve element A to return to the closed position.



E-P Monitor Locked-out:

With both valve elements closed, monitoring air pressure is exhausted from both ends of spool S so that it returns to its normal position. The electrical circuit to the pilot solenoids remains broken by switch SW. To restore the electrical circuit and return the valve to normal operation, the reset solenoid (not shown) must be briefly energized to reset switch SW. *During and following reset, the pilot solenoids must be kept de-energized to prevent inadvertent and possibly dangerous cycling of the press.* Prolonged energizing of the reset solenoid can cause burnout and nullify the reset function.



Port Size	Basic Size	With Overrides		Without Overrides		C _v		Avg. Response Constants			Weight lb (kg)
		Valve Model Number#		Valve Model Number#				M	F		
		NPT Threads	G Threads	NPT Threads	G Threads	1-2	2-3		1-2	2-3	
1/2	8	3573B4143W	D3573B4143W	3573B4163W	D3573B4163W	3.5	8.5	15	0.70	0.30	16.8 (7.6)
3/4	8	3573B5143W	D3573B5143W	3573B5163W	D3573B5163W	4	12	15	0.65	0.23	16.8 (7.6)
	12	3573B5153W	D3573B5153W	3573B5173W	D3573B5173W	8	15	15	0.65	0.23	20.5 (9.2)
1	8	3573B6153W	D3573B6153W	3573B6173W	D3573B6173W	4	12	20	0.33	0.21	16.8 (7.6)
	12	3573B6163W	D3573B6163W	3573B6183W	D3573B6183W	8.5	19	20	0.28	0.21	20.5 (9.2)
1¼	12	3573B7163W	D3573B7163W	3573B7183W	D3573B7183W	9	21	20	0.28	0.21	20.5 (9.2)
	30	3573B7153W	D3573B7153W	3573B7173W	D3573B7173W	20	42	25	0.19	0.07	39.3 (17.7)
1½	30	3573B8163W	D3573B8163W	3573B8183W	D3573B8183W	21	43	25	0.18	0.07	39.3 (17.7)
2	30	2 inch port size available on size 30 valves. Order model number 1999H77 flange kit separately.									



B
B2

Valve Response Time

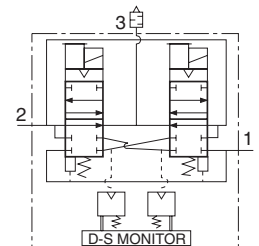
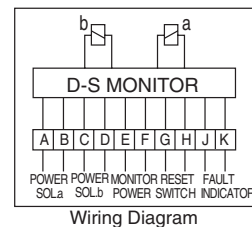
The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula below:

$$V/v. \text{ Resp. Time (msec)} = M + F \cdot V$$

M = avg. time for parts movement

F = msec. per cubic inch of volume

V = volume in cubic inches



OPTIONS

Valve Without Piping Flanges	Port Size	Basic Size	With Overrides		Without Overrides	
			Valve Model Number#		Valve Model Number#	
			NPT Threads	G Threads	NPT Threads	G Threads
	1/2, 3/4, 1	8	3573A4203W	D3573A4203W	3573A4223W	D3573A4223W
	3/4, 1, 1¼	12	3573A5203W	D3573A5203W	3573A5223W	D3573A5223W
	1¼, 1½	30	3573A7203W	D3573A7203W	3573A7223W	D3573A7223W

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573A4203Z. For other voltages consult ROSS.

Piping Flange Kits	Port Size	Basic Size	Kit Number	Description
	1/2	8	661K77	Each kit includes two threaded (NPT) flanges and the required seals and mounting bolts.
		8	662K77	
	3/4	12	664K77	
		8	663K77	
	1	12	665K77	
		12	666K77	
	1¼	30	667K77	
		1½	30	

STANDARD SPECIFICATIONS (for valves on this page):

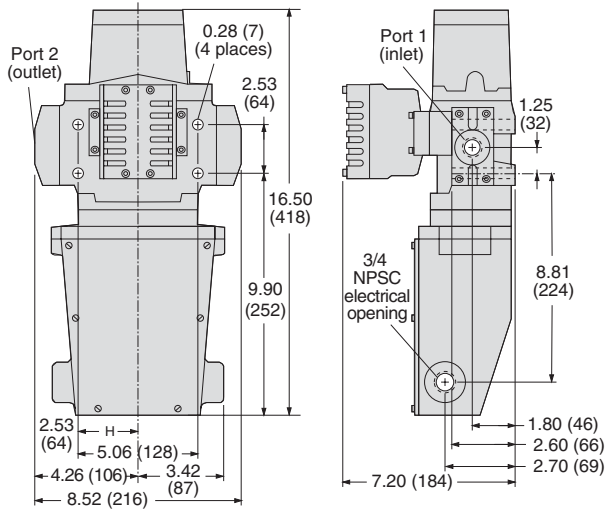
Construction Design	Dual poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	30 to 125 psig (2.1 to 8.5 bar)
Solenoids	Two solenoids; Rated for continuous duty	D-S Monitor	Rated for same voltage as pilot solenoids Power supply to monitor must be independent and continuous
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Inlet Port	Models are available with the inlet port on either the right or the left side of the valve body
Power Consumption (each solenoid)	14 watts on DC, 87 VA inrush, 30 VA holding on 50 or 60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Electrical Connection	Uses terminal strip connectors		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

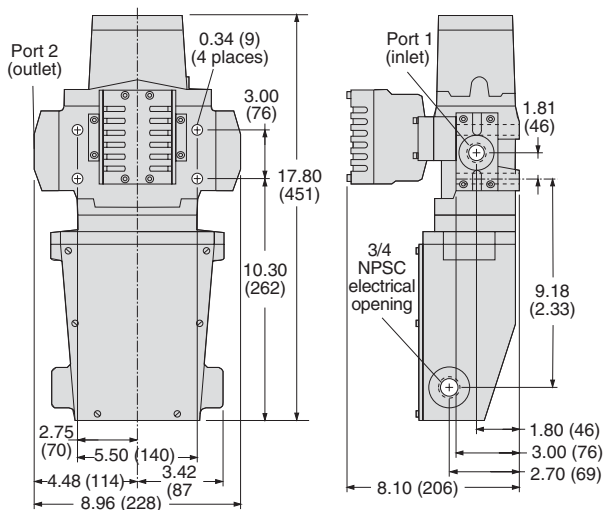


Valve Dimensions – inches (mm)

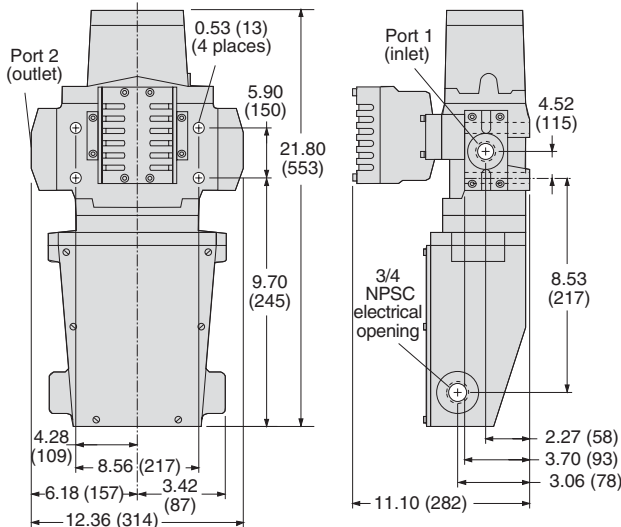
Basic Size 8



Basic Size 12



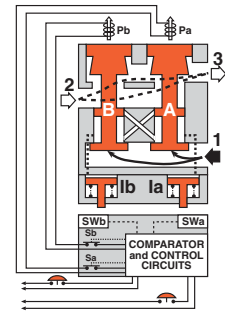
Basic Size 30



VALVE OPERATION

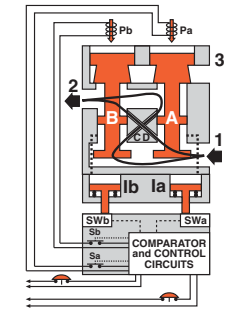
Conditions at Start:

Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Contacts of switch SW are closed. Monitoring pressure signals at both ends of spool S are exhausted.



Normal Operation:

Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Monitoring pressure signals go to pressure indicators Ia and Ib, causing the indicator pins to be extended and to actuate proximity switches SWa and SWb. In normal operation, each pair - solenoids, valve elements, indicators, and proximity switches - responds in unison so that the comparator circuits "read" the operation as normal.

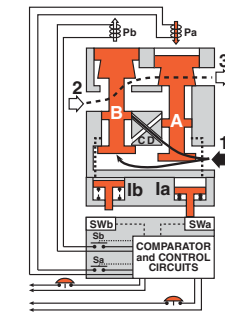


Completion of Normal Cycle:

Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described above.

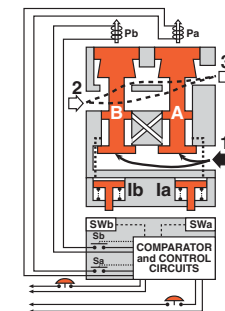
Detecting a Malfunction:

A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below two percent of inlet pressure. Full monitoring air pressure from side A goes to pressure indicator Ia so that its pin is extended and actuates proximity switch SWa. When the time interval between the signal to a solenoid and the signal from its corresponding proximity switch exceeds approximately 175 milliseconds, the D-S monitor breaks contacts Sa and Sb as soon as solenoid power is removed. This allows valve element A to return to the closed position.



D-S Monitor Locked-out:

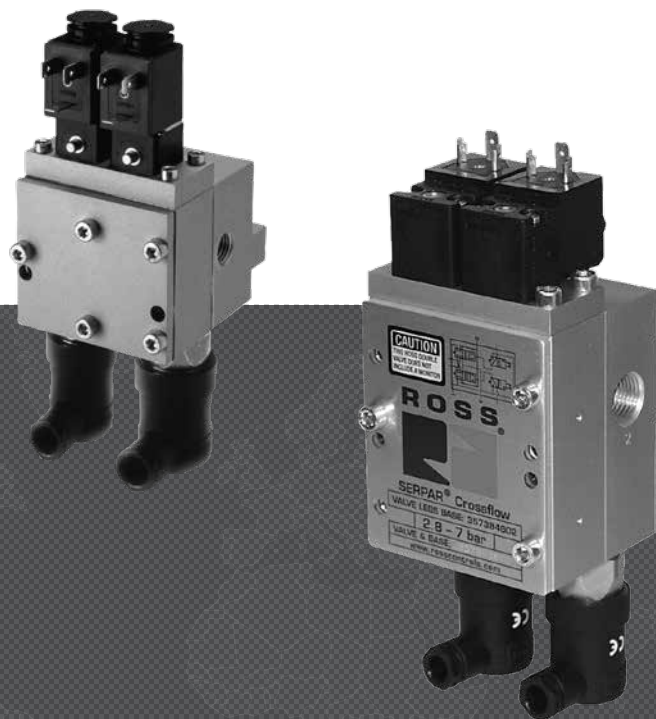
With the valve locked out by contacts Sa and Sb, solenoids Pa and Pb cannot be energized. The monitor must be reset before another valve cycle can begin. Reset can be achieved by a separately connected ancillary switch, but not if the pilot solenoids are energized. The monitor can be reset by removing and reapplying power to the monitor even when the pilot solenoids are energized. For this reason it is necessary to have the pilot solenoids de-energized during and following reset to prevent inadvertent and possibly dangerous cycling of the press.





CLUTCH/BRAKE CONTROL

DOUBLE VALVES FOR EXTERNAL MONITORING






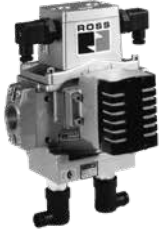
ROSS CONTROLS

CROSSFLOW™ DOUBLE VALVES 35 SERIES FOR EXTERNAL MONITORING WITH OR WITHOUT PRESSURE SWITCHES – KEY FEATURES

- Designed to enable users to comply with current safety regulations
- Can be integrated with external monitoring systems to provide for lockout and inhibiting further machine operation until the controls system is reset
- Default to de-energized position upon fault condition
- Built-in non-clogging silencers on Basic Sizes 4, 8, 12 and 30

Basic Size 1 and 2 Crossflow™ valves with pressure switches (designed for external monitoring) are available from ¼” to ¾” port sizes. Externally monitored double valves provide feedback signals (via the pressure switches), which allows the main press controls, or separate monitoring device,

The original application for these double valves was in the control of clutch/brake mechanisms on stamping presses, but they have found their way into many other critical applications such as alternative lockout systems for energy isolation, air cylinder press load-holding systems, as well as other Category-3 and -4 safety circuits. ROSS double valves are a vital part of any control-reliable fluid power control system.

DESCRIPTION		Page
Crossflow™ Double Valves for External Monitoring with or without Pressure Switches Basic Size 1		B3.3 - B3.4
Crossflow™ Double Valves with or without Pressure Switches Basic Size 2		B3.5 - B3.6
Crossflow™ Double Valves with Pressure Switches Basic Size 4		B3.7
Crossflow™ Double Valves with Pressure Switches Basic Size 8, 12, 30		B3.8 - B3.9

Crossflow™ Double Valves for External Monitoring – with or without Pressure Switches

Clutch/Brake Control 35 Series

Basic Size 1

Port Sizes	Basic Size	Pressure Switches	Pressure Switch Provision	Valve & Base Model Number#		C _v		Avg. Response Constants			Weight lb (kg)
				NPT Threads	G Threads	1-2	2-3	M	F		
1/4 1/4	1	None	Yes	3573B2632W	D3573B2632W	0.9	1.4	28	4.6	3.4	2.1 (0.95)
		Two**	Yes	3573B2642W	D3573B2642W	0.9	1.4	28	4.6	3.4	2.5 (1.14)
3/8 3/8	1	None	Yes	3573B2645W	D3573B2645W	1.2	1.7	25	3.1	2.8	2.5 (1.14)
		Two**	Yes	3573B2644W	D3573B2644W	1.2	1.7	25	3.1	2.8	2.9 (1.32)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573B2632Z. For other voltages consult ROSS.

Valve and base can be ordered separately, see next page.

**Valve includes pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.

Only valves with pressure switches should be used to control clutch/brake mechanisms on press machinery. The pressure switches must be used in conjunction with a monitoring device to assist with OSHA compliance (Ref. 1910.217).

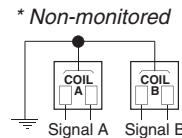
** Pressure Switches & Monitoring:

Valves without pressure switches must not be used to control clutch/brake mechanisms on press machinery. Valves with pressure switches must be used in conjunction with an external monitoring device to assist with OSHA compliance (Ref. 1910.217). The valves on this page do not have a built-in monitor, and must only be used in conjunction with an external monitoring system. Such monitoring system must be capable of inhibiting the operation of the valve in the event of a failure within the valve.

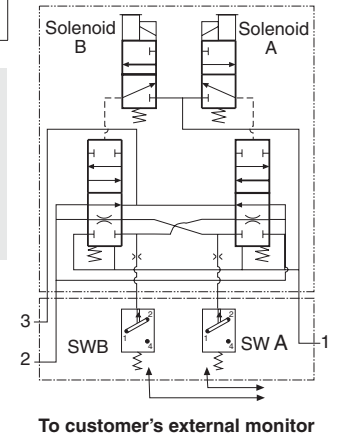
Valve Response Time

The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula on the right:

Viv. Resp. Time (msec) = M + F * V
M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches



B



B3

ACCESSORIES & OPTIONS

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form B	Prewired Connector (18 gauge)	2 (6½)	10-mm	266K77	267K77-W	267K77-Z
		Connector Only	–	–	372K77	382K77-W	382K77-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Silencers	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)	Specifications
			NPT Threads	R/Rp Threads		Length	Width		
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)	Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.
	3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)	

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual Poppet	Flow Media	Filtered air
Mounting Type	Inline	Operating Pressure	40 to 100 psig (2.8 to 7 bar)
Solenoids	Two solenoids, rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Functional Safety Data:	Category 4, PL e; B ₁₀₀ : 20,000,000; PFH ₀ : 7.71x10 ⁻⁹ ; MTTF ₀ : 301.9 (n _{0p} : 662400)
Power Consumption (each solenoid)	7.5 watts nominal on DC; 12 VA maximum inrush, 9.8 VA maximum holding on 50 or 60 Hz	Certifications:	CE Marked for applicable directives, DGVU, CSA/UL, TSSA for appropriately tested valves
Enclosure Rating	IP65, IEC 60529	Vibration/Impact Resistance:	Tested to BS EN 60068-2-27
Electrical Connection	EN 175301-803 Form B connector; Uses two cord-grip connectors at solenoids		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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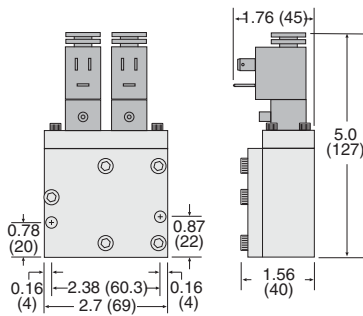
B3.3

Crossflow™ Double Valves for External Monitoring – with Pressure Switches

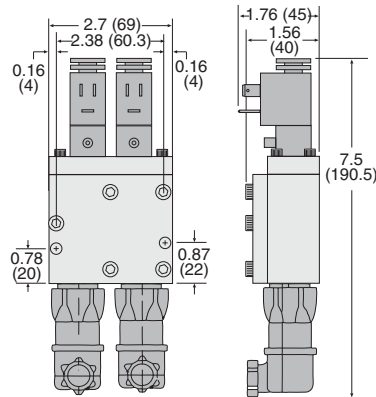
Valve Technical Data 35 Series

Basic Size 1

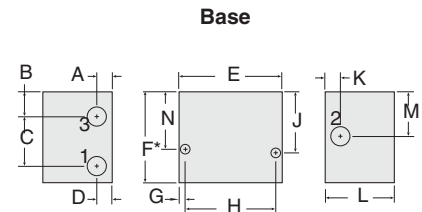
Valve without Pressure Switches



Valve with Pressure Switches



Valve Dimensions – inches (mm)



Valve & Base Model Number	Base Model Number	BASE Dimensions – inches (mm)												
		A	B	C	D	E	F	G	H	J	K	L	M	N
3573B2632	1120C91	0.4 (11)	0.7 (17)	1.29 (32.8)	0.4 (11)	2.7 (69)	2.4 (61)	0.2 (5)	2.38 (60.5)	1.6 (41)	0.4 (11)	1.8 (46)	1.2 (30)	1.5 (38)
3573B2642	888C91	0.4 (11)	0.7 (17)	1.29 (32.8)	0.4 (11)	2.7 (69)	2.4 (61)	0.2 (5)	2.38 (60.5)	1.6 (41)	0.4 (11)	1.8 (46)	1.2 (30)	1.5 (38)
3573B2644	1171C91	0.5 (13)	0.6 (15)	1.47 (37.2)	0.5 (13)	2.7 (69)	2.5 (63)	0.2 (5)	2.38 (60.5)	1.6 (41)	0.8 (19)	1.8 (46)	1.1 (27)	1.5 (38)
3573B2645	1172C91	0.5 (13)	0.6 (15)	1.47 (37.2)	0.5 (13)	2.7 (69)	2.5 (63)	0.2 (5)	2.38 (60.5)	1.6 (41)	0.8 (19)	1.8 (46)	1.1 (27)	1.5 (38)

For replacement valve only (less base), order model number 3573B2602.

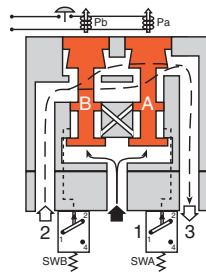
Valve Operation: Both solenoids must be energized simultaneously to shift the valve; maintained signal required to keep valve shifted.

CAUTION: If the monitor must be reset, electrical signals to both solenoids must be removed to prevent the machine controlled by the valve from immediately recycling and producing a potentially hazardous condition.

VALVE OPERATION

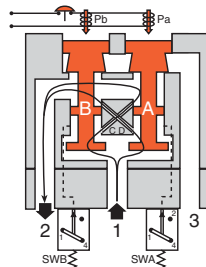
Conditions at Start:

Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pressure signals at both switches SWA and SWB are exhausted. Contacts 1 and 2 of switches SWA and SWB are connected.



Normal Operation:

Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Sensing pressure signals go to each pressure switch and become equal to inlet pressure. Both switches trip and now contacts 1 and 4 of switches SWA and SWB are connected instead of contacts 1 and 2.

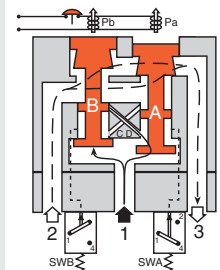


Completion of Normal Cycle:

Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described at left.

Detecting a Malfunction:

A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below 2% of inlet pressure. Full sensing air pressure from side A goes to switch SWA, and a reduced pressure goes to switch SWB. This full pressure signal causes switch SWA to trip. Switch SWB, with a reduced pressure signal, does not trip. An external monitoring system can detect the malfunction by monitoring the condition of the switches SWA and SWB. The external monitoring system may then react accordingly by shutting down the power to the valve solenoids and any other components deemed necessary to stop the machine.



Crossflow™ Double Valves for External Monitoring – with or without Pressure Switches

Clutch/Brake Control 35 Series

Basic Size 2

Port Sizes	Basic Size	Inlet Orientation	Pressure Switches	Pressure Switch Provision	Valve & Base Model Number#		C _v		Avg. Response Constants			Weight lb (kg)
					NPT Threads	G Threads	1-2	2-3	M	1-2	2-3	
1/2 3/4	2	Left Hand	None	Yes	3573C4652W	D3573C4652W	3.7	9.0	25	1.2	0.9	4.7 (2.13)
			Two**	Yes	3573C4741W	D3573C4741W	3.7	9.0	25	1.2	0.9	5.2 (2.36)
		Right Hand	None	Yes	3573C4658W	D3573C4658W	3.7	9.0	25	1.2	0.9	4.7 (2.13)
			Two**	Yes	3573B4702W	D3573B4702W	3.7	9.0	25	1.2	0.9	5.2 (2.36)
1/2 1	2	Left Hand	None	Yes	3573A4735W	D3573A4735W	3.7	9.1	25	1.2	0.9	5.2 (2.36)
			Two	Yes	3573A4736W	D3573A4736W	3.7	9.1	25	1.2	0.9	5.7 (2.58)
		Right Hand	None	Yes	3573B4717W	D3573B4717W	3.7	9.1	25	1.2	0.9	5.2 (2.36)
			Two**	Yes	3573B4706W	D3573B4706W	3.7	9.1	25	1.2	0.9	5.7 (2.58)
3/4 3/4	2	Left Hand	None	Yes	3573C4645W	D3573C4645W	4.2	9.0	25	1.1	0.9	4.7 (2.13)
			Two**	Yes	3573C4644W	D3573C4644W	4.2	9.0	25	1.1	0.9	5.2 (2.36)
3/4 1	2	Left Hand	Two**	Yes	3573A4738W	D3573A4738W	4.2	9.3	25	1.1	0.8	5.7 (2.58)
			None	Yes	3573B4718W	D3573B4718W	4.2	9.3	25	1.1	0.8	5.2 (2.36)
		Right Hand	Two**	Yes	3573B4715W	D3573B4715W	4.2	9.3	25	1.1	0.8	5.7 (2.58)
			None	Yes	3573B4715W	D3573B4715W	4.2	9.3	25	1.1	0.8	5.7 (2.58)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573C4652Z. For other voltages consult ROSS.

Valve and base can be ordered separately, see next page.

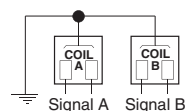
** Valve includes pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.

Only valves with pressure switches should be used to control clutch/brake mechanisms on press machinery. The pressure switches must be used in conjunction with a monitoring device to assist with OSHA compliance (Ref. 1910.217).



B

* Non-monitored



B3

** Pressure Switches & Monitoring:

Valves without pressure switches must not be used to control clutch/brake mechanisms on press machinery. Valves with pressure switches must be used in conjunction with an external monitoring device to assist with OSHA compliance (Ref. 1910.217). The valves on this page do not have a built-in monitor, and must only be used in conjunction with an external monitoring system. Such monitoring system must be capable of inhibiting the operation of the valve in the event of a failure within the valve.

Valve Response Time

The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula on the right:

$$\text{Vlv. Resp. Time (msec)} = M + F * V$$

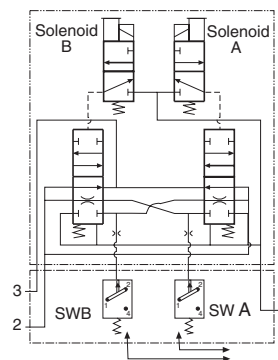
M = avg. time for parts movement

F = msec. per cubic inch of volume

V = volume in cubic inches

Valve Operation: Both solenoids must be energized simultaneously to shift the valve; maintained signal required to keep valve shifted.

CAUTION: If the monitor must be reset, electrical signals to both solenoids must be removed to prevent the machine controlled by the valve from immediately recycling and producing a potentially hazardous condition.



To customer's external monitor

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual Poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	40 to 100 psig (2.8 to 7 bar)
Solenoids	Two solenoids, rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Functional Safety Data:	Category 4, PL e; B _{10D} : 20,000,000; PFB _h : 7.71x10 ⁻⁹ ; MTTF _D : 301.9 (n _{op} : 662400)
Power Consumption (each solenoid)	6 watts nominal on DC; 8.5 VA maximum inrush, 8.5 VA maximum holding on 50 or 60 Hz	Certifications:	CE Marked for applicable directives, DGVU, CSA/UL, TSSA for appropriately tested valves
Enclosure Rating	IP65, IEC 60529	Vibration/Impact Resistance:	Tested to BS EN 60068-2-27
Electrical Connection	EN 175301-803 Form A connector; Uses two cord-grip connectors at solenoids		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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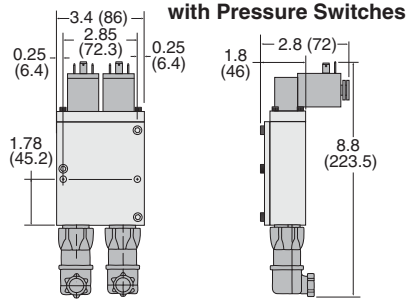
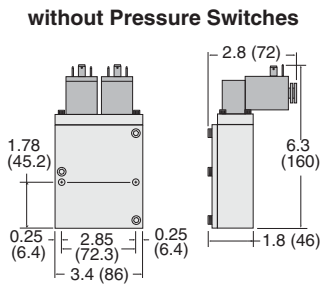
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B3.5

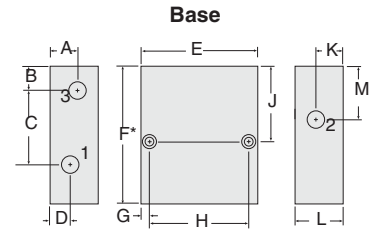
SERPAR® Crossflow Double Valves for External Monitoring – with or without Pressure Switches

Valve Technical Data 35 Series

Basic Size 2
Valves



Valve Dimensions – inches (mm)



Valve & Base Model Number	Base Model Number	Replacement Valve Model Number	BASE Dimensions – inches (mm)											
			A	B	C	D	E	F	G	H	J	K	L	M
3573A4735	1633C01	3573B4605L	Consult ROSS.											
3573A4736	1633C01	3573B4605L												
3573A4738	1163C91	3573B4605L												
3573B4702	1132C91	3573C4602R												
3573B4706	1132C91	3573B4605R												
3573B4715	1784C91	3573B4605R												
3573B4717	1805F91	3573B4605R												
3573B4718	1806F91	3573B4605R												
3573B4741	1129C91	3573C4602L												
3573C4644	1163C91	3573C4602L												1.1 (27)
3573C4645	1163C91	3573C4602L	1.1 (27)	0.8 (19)	2.86 (72.7)	0.7 (17)	3.7 (94)	4.3 (110)	0.3 (7)	2.85 (72.4)	2.6 (64)	0.7 (17)	2.0 (50)	1.8 (46)
3573C4652	1129C91	3573C4602L	1.1 (27)	1.0 (24)	2.32 (58.9)	0.6 (15)	3.4 (86)	4.3 (110)	0.3 (7)	2.85 (72.4)	2.6 (64)	0.8 (19)	1.7 (44)	1.9 (48)
3573C4658	1132C91	3573C4602R	Consult ROSS.											

ACCESSORIES

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
		Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
		Connector Only	–	–	937K87	936K87-W	936K87-Z

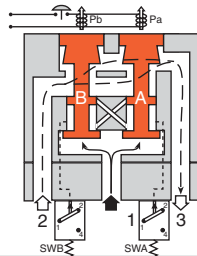
CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Silencers	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)	Specifications
			NPT Threads	R/Rp Threads		Length	Width		
	1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)	Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.
			5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)	
	3/4	Male	5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)	
			5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)	

VALVE OPERATION

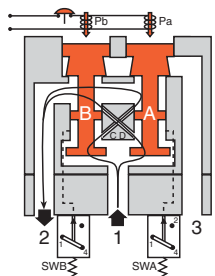
Conditions at Start:

Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pressure signals at both switches SWA and SWB are exhausted. Contacts 1 and 2 of switches SWA and SWB are connected.



Normal Operation:

Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Sensing pressure signals go to each pressure switch and become equal to inlet pressure. Both switches trip and now contacts 1 and 4 of switches SWA and SWB are connected instead of contacts 1 and 2.

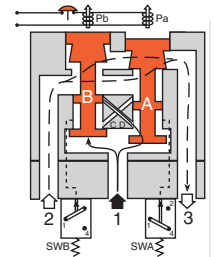


Completion of Normal Cycle:

Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described at left.

Detecting a Malfunction:

A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below 2% of inlet pressure. Full sensing air pressure from side A goes to switch SWA, and a reduced pressure goes to switch SWB. This full pressure signal causes switch SWA to trip. Switch SWB, with a reduced pressure signal, does not trip. An external monitoring system can detect the malfunction by monitoring the condition of the switches SWA and SWB. The external monitoring system may then react accordingly by shutting down the power to the valve solenoids and any other components deemed necessary to stop the machine.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Crossflow™ Double Valves for External Monitoring – with Pressure Switches

Clutch/Brake Control 35 Series

Basic Size 4

Port Size	Basic Size	Flanged Ports				C _v		Weight lb (kg)
		Inlet Right		Inlet Left				
		Valve Model Number#**		Valve Model Number#**				
		NPT Threads	G Threads	NPT Threads	G Threads			
3/8	4	3573C3270W	D3573C3270W	3573C3276W	D3573C3276W	3	7	8.4 (3.8)
1/2	4	3573C4270W	D3573C4270W	3573C4276W	D3573C4276W	3	9	8.4 (3.8)
3/4	4	3573C5230W	D3573C5230W	3573C5236W	D3573C5236W	3	11	8.4 (3.8)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573C3270Z.

For other voltages consult ROSS.

**Valve includes pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.



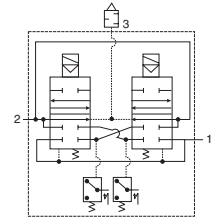
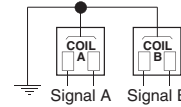
B

Pressure Switches & Monitoring:

Valves with pressure switches must be used in conjunction with an external monitoring device to assist with OSHA compliance (Ref. 1910.217).

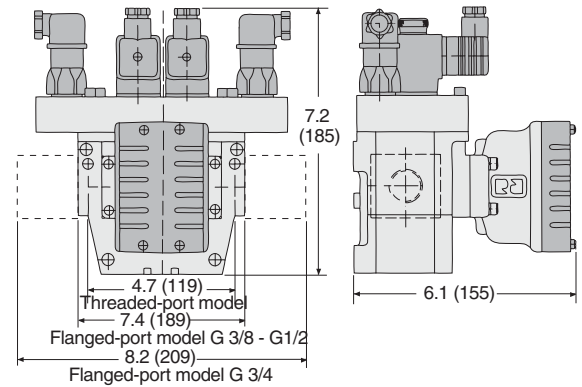
The valves on this page do not have a built-in monitor, and so must only be used in conjunction with an external monitoring system. Such monitoring system must be capable of inhibiting the operation of the valve and associated machinery in the event of a failure within the valve.

CAUTION: If the system must be reset, electrical signals to both solenoids must be removed to prevent the machine from immediately recycling and producing a potentially hazardous condition.



B3

Valve Dimensions – inches (mm)



ACCESSORIES

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
		Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
		Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

VALVE OPERATION Refer to page G3.9.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual Poppet	Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)
Mounting Type	In-line	Flow Media	Filtered air
Solenoids	Two solenoids, rated for continuous duty	Operating Pressure	40 to 150 psig (2.8 to 10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz <i>Voltages at pressure switches must not exceed 250 volts.</i>	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	14 watts nominal on DC; 35 VA maximum in-rush, 22 VA holding on 50 or 60 Hz	Functional Safety Data:	Category 4, PL e; B _{10D} : 20,000,000; PFH _D : 7.71x10 ⁻⁹ ; MTTF _D : 301.9 (n _{10D} : 662400)
Enclosure Rating	IP65, IEC 60529	Certifications:	CE Marked for applicable directives, DGVU, CSA/UL, TSSA for appropriately tested valves
Electrical Connection	EN 175301-803 Form A connector; Uses two cord-grip connectors at solenoids	Vibration/Impact Resistance:	Tested to BS EN 60068-2-27

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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B3.7

Crossflow™ Double Valves for External Monitoring – with Pressure Switches

Clutch/Brake Control 35 Series

Basic Size 8, 12, & 30

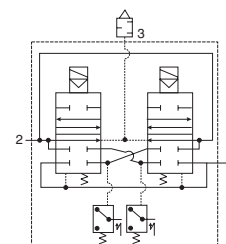
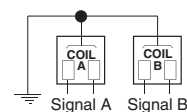
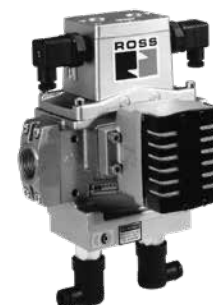
Port Size	Basic Size	Flanged Ports		C _v		Weight lb (kg)
		Valve Model Number#**		1-2	2-3	
		NPT Threads	G Threads			
1/2	8	3573B4638W	D3573B4638W	3.5	10	11.4 (5.2)
3/4	8	3573B5638W	D3573B5638W	4	14	11.4 (5.2)
	12	3573B5632W	D3573B5632W	8	15	15.4 (7.0)
1	8	3573B6638W	D3573B6638W	4	14	11.4 (5.2)
	12	3573B6632W	D3573B6632W	8.5	19	15.4 (7.0)
1¼	12	3573B7632W	D3573B7632W	9	21	15.4 (7.0)
	30	3573B7630W	D3573B7630W	20	42	33.9 (15.4)
1½	30	3573B8630W	D3573B8630W	21	43	33.9 (15.4)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3573B4638Z.

For other voltages consult ROSS.

**Valve includes pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.

Valve and base can be ordered separately, consult ROSS.



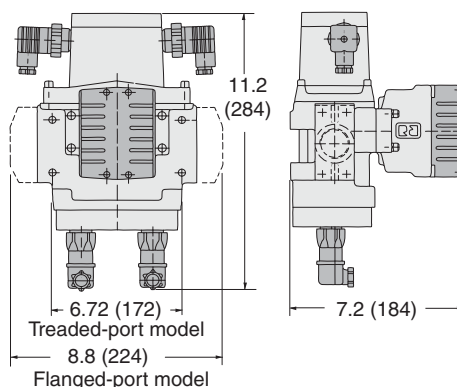
Pressure Switches & Monitoring: Valves with pressure switches must be used in conjunction with an external monitoring device to assist with OSHA compliance (Ref. 1910.217).

The valves on this page do not have a built-in monitor, and so must only be used in conjunction with an external monitoring system. Such monitoring system must be capable of inhibiting the operation of the valve and associated machinery in the event of a failure within the valve.

CAUTION: If the system must be reset, electrical signals to both solenoids must be removed to prevent the machine from immediately recycling and producing a potentially hazardous condition.

Valve Dimensions – inches (mm)

Basic Size 8



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Dual Poppet	Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)
Mounting Type	In-line	Flow Media	Filtered air
Solenoids	Two solenoids, rated for continuous duty	Operating Pressure	30 to 125 psig (2 to 8.5 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz <i>Voltages at pressure switches must not exceed 250 volts.</i>	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	14 watts nominal on DC; 35 VA maximum in-rush, 22 VA holding on 50 or 60 Hz	Functional Safety Data	Category 4, PL e; B ₁₀₀ : 20,000,000; PFH ₀ : 7.71x10 ⁻⁹ ; MTTF ₀ : 301.9 (n _{op} : 662400)
Enclosure Rating	IP 65 according to IEC-Publication 144 and DIN 40050, Sheet 1.	Certifications	CE Marked for applicable directives, DGUV, CSA/UL, TSSA for appropriately tested valves
Electrical Connection	EN 175301-803 Form A connector; Uses two cord-grip connectors at solenoids	Vibration/Impact Resistance	Tested to BS EN 60068-2-27

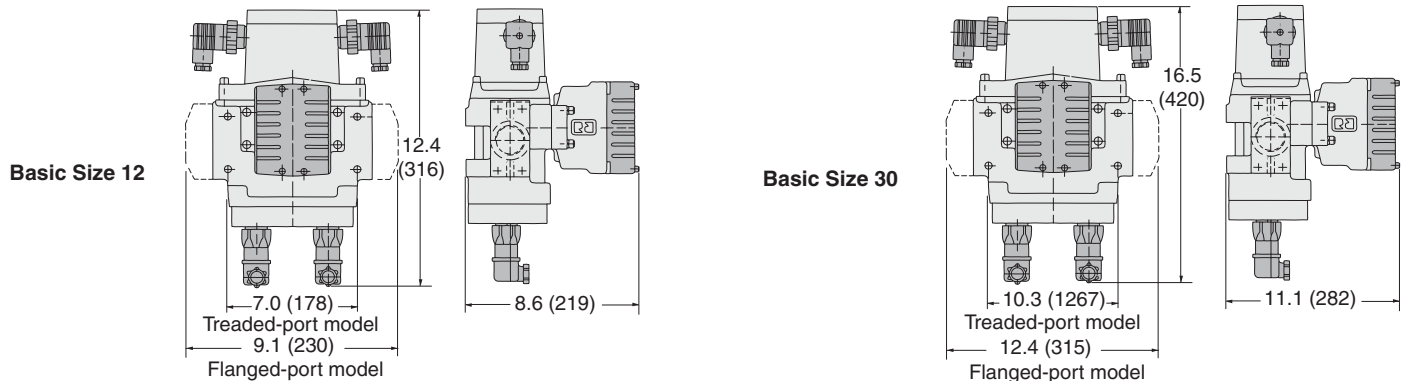
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Crossflow™ Double Valves for External Monitoring – with Pressure Switches

Valve Technical Data 35 Series

Basic Size 8, 12, & 30

Valve Dimensions – inches (mm)



B

B3

ACCESSORIES

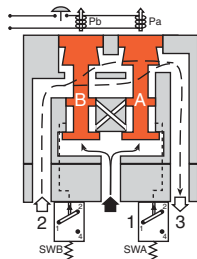
Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
		Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
		Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

VALVE OPERATION

Conditions at Start:

Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pressure signals at both switches SWA and SWB are exhausted. Contacts 1 and 2 of switches SWA and SWB are connected.

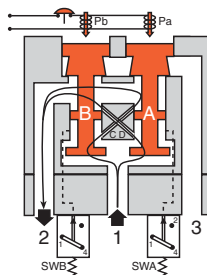


Completion of Normal Cycle:

Simultaneously de-energizing both solenoids returns the valve to the “Conditions at Start” described at left.

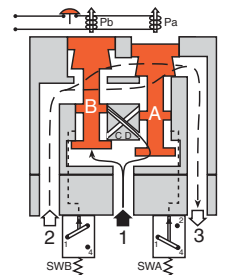
Normal Operation:

Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Sensing pressure signals go to each pressure switch and become equal to inlet pressure. Both switches trip and now contacts 1 and 4 of switches SWA and SWB are connected instead of contacts 1 and 2.



Detecting a Malfunction:

A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below 2 % of inlet pressure. Full sensing air pressure from side A goes to switch SWA, and a reduced pressure goes to switch SWB. This full pressure signal causes switch SWA to trip. Switch SWB, with a reduced pressure signal, does not trip. An external monitoring system can detect the malfunction by monitoring the condition of the switches SWA and SWB. The external monitoring system may then react accordingly by shutting down the power to the valve solenoids and any other components deemed necessary to stop the machine.

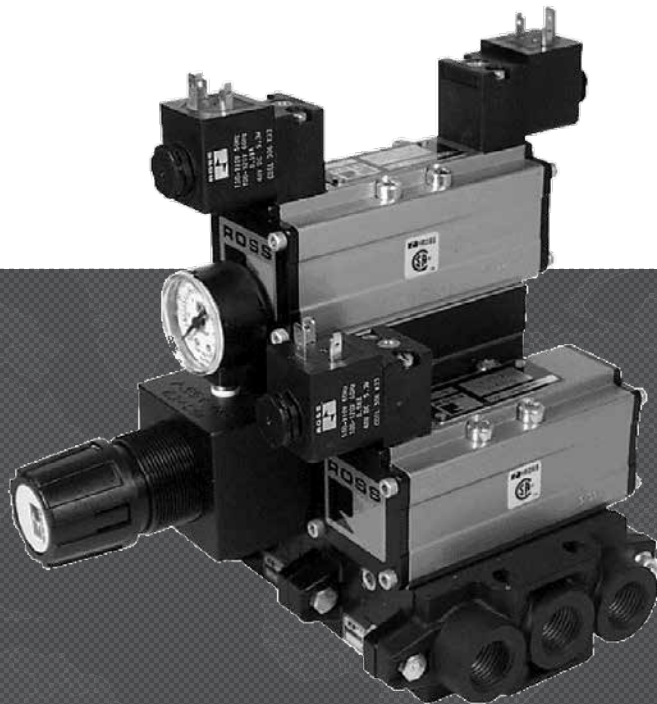


IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

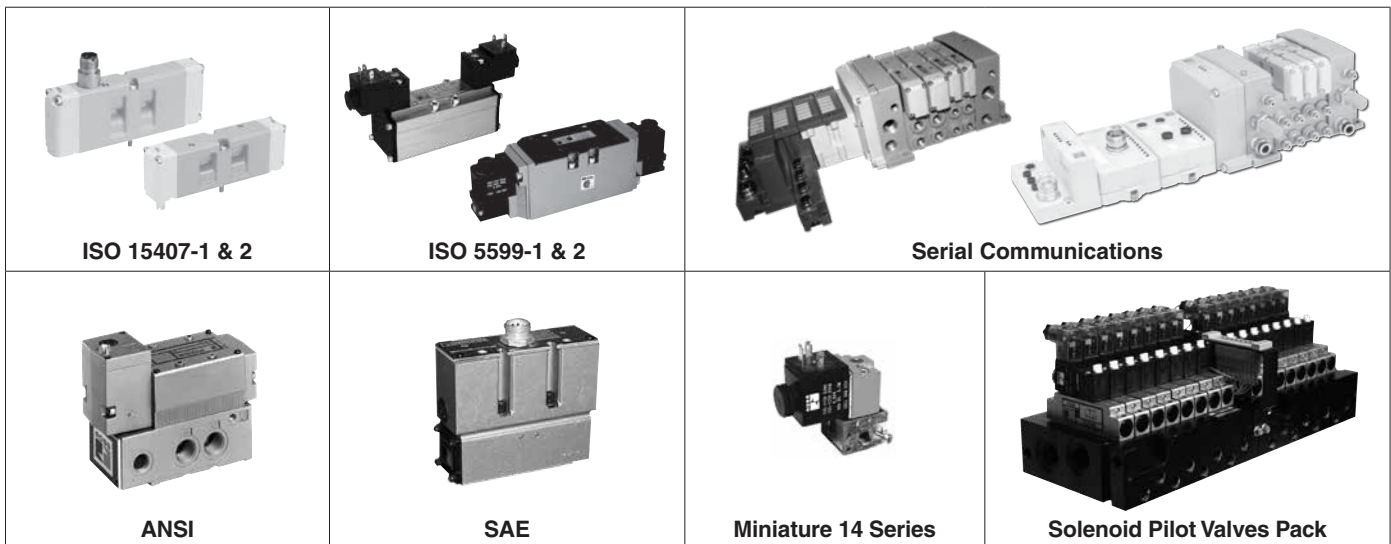




BASE MOUNTED VALVES AND SERIAL BUS COMMUNICATION



ROSS CONTROLS



VALVE TYPE	VALVE SERIES	DESCRIPTION		AVAILABLE PORT SIZES									FUNCTIONS						Page		
		ISO Size	Spool & Sleeve Poppet	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)		Solenoid Control	Direct Solenoid Control
ISO																					
ISO 15407-1	W66	02 (18mm)															0.55				C1.3 - C1.6
	W66	01 (26mm)															1.1				C1.3 - C1.6
ISO 15407-2	W66	02 (18mm)															0.55				C1.7 - C1.10
	W66	01 (26mm)															1.1				C1.7 - C1.10
ISO 5599-1	W60 & W64	1															0.8				C2.3 - C2.11
	W60 & W64	2															1.9				C2.3 - C2.11
	W60 & W64	3															3.8				C2.3 - C2.11
ISO 5599-1	W65	1															0.8				C2.11 - C2.19
	W65	2															1.9				C2.11 - C2.19
	W65	3															3.8				C2.11 - C2.19
SERIAL BUS COMMUNICATIONS																					
ROSS Serial Bus Communications																				C3.1 - C3.11	
ROSS Serial Bus System with TURCK Modular I/O																				C4.1 - C4.10	
ANSI																					
	W70 & W74	1															1.0				C5.1 - C5.15
	W70 & W74	2.5															2.5				C5.1 - C5.15
	W70 & W74	4															4.2				C5.1 - C5.15
	W70 & W74	10															10.0				C5.1 - C5.15
	W70 & W74	20															22.0				C5.1 - C5.15
SAE																					
	80 & 84	125															1.8				C6.1 - C6.10
	80 & 84	250															5.7				C6.1 - C6.10
	80 & 84	500															8.0				C6.1 - C6.10
MINIATURE																					
	W14																0.1				C7.3
PACK VALVE																					
	PACK																0.1				C7.4 - C7.5

Contents

Page

ISO 15407-1 & ISO 15407-2

- Size 02 (18mm) & 01 (26mm)
- 5/2-Way & 5/3-Way
- Drop cord & plug in versions
- Single Sub-base & Manifold bases
- Serial Communication Compatible

C1.1 – C1.10

ISO 5599-1 & ISO 5599-2

- Size 1, 2 & 3
- 5/2-Way & 5/3-Way
- Drop cord & plug in versions
- Single Sub-base & Manifold bases
- Spool & sleeve or poppet construction
- Serial Communication Compatible

C2.1 – C2.19

Serial Communications

- ISO 15407-2 & 5599-2 Compatible
- Serial bus gateway options include ControlNet, DeviceNet, EtherNet, Profibus and CANopen
- Centralized & remote configurations
- Analog & digital inputs & outputs

C3.1 – C3.11
C4.1 – C4.10

ANSI

- ANSI sizes 1, 2.5, 4, 10 & 20
- Solenoid and pressure control
- Direct and pilot solenoid
- Spool & sleeve construction
- Single sub-base & manifold bases

C5.1 – C5.19

SAE

- SAE sizes 125, 250 & 500
- Spool & sleeve or poppet construction
- Solenoid pilot control
- Single Sub-base & Manifold bases

C6.1 – C5.10

F

Miniature Valves 14 Series

- 1/8" ports
- 3-Way
- Sub-base & Manifold Base

C7.1 – C7.5

Solenoid Pilot Pack Valves

- 3-Way & 4-Way
- Low power solenoid power controlled
- 8, 16, 24 station manifolds
- Individual valve shutoff

Cautions and Warranty

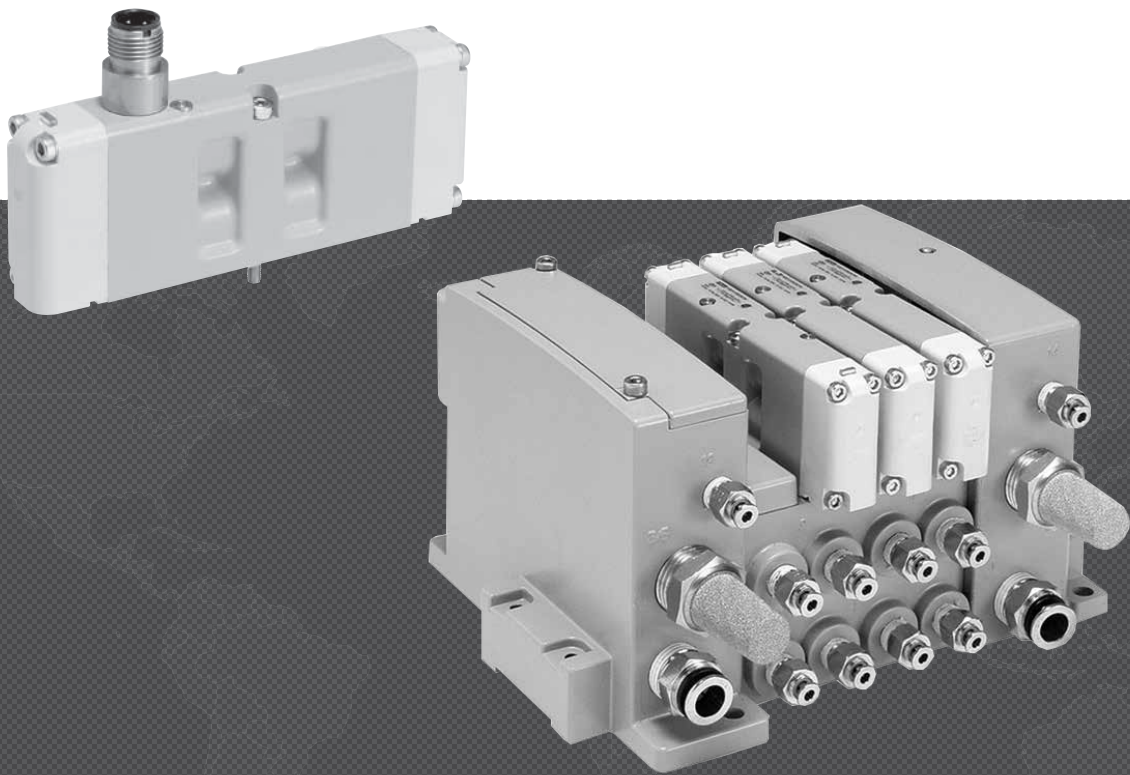
- Compatible Lubricants
- Cautions and Warnings

Turk Warranty - C4.10
ROSS Warranty - Inside Cover





ISO 15407-1 & 15407-2 VALVES W66 SERIES



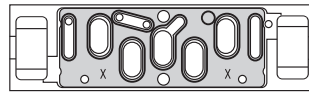
ROSS CONTROLS

ISO W66 SERIES VALVES – KEY FEATURES

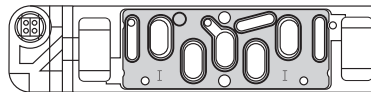
- ISO Sizes 02 (18mm) & 01 (26mm)
- Drop cord (15407-1) & Plug-In (15407-2) options
- 5/2 Single, 5/2 Double, & 5/3 Double Solenoid Pilot Controlled Valves
- Serial Bus Communication compatible
- UL, C-UL, and CE certified

Standard Definitions

15407-1: Drop-cord Standards for Size 01 (26mm) & Size 02 (18mm) Wide Valves



15407-2: Plug-in Standards for Size 01 (26mm) & Size 02 (18mm) Wide Valves



VALVE TYPE	VALVE SERIES	DESCRIPTION			AVAILABLE PORT SIZES							FUNCTIONS					Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	Page
		Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center					
ISO																					
ISO 15407-1	W66	02 (18mm)																0.55		C1.3 - C1.4	
	W66	01 (26mm)																1.1		C1.3 - C1.4	
Individual Sub-Bases, Sub-Base Manifolds & End Station Kits																			C1.5-C1.6		
Accessories																			C1.6		
ISO 15407-2																					
	W66	02 (18mm)																0.55		C1.7 - C1.8	
	W66	01 (26mm)																1.1		C1.7 - C1.8	
Manifold Bases, End Station Manifold, Kits & Accessories																			C1.9		
Accessories																			C1.10 - C1.11		

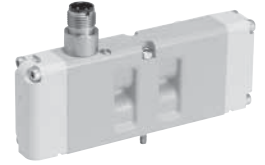
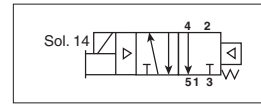
Solenoid Pilot Controlled Valves

5-Way 2-Position Valves, Single Solenoid Pilot Controlled, Spring Return

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

W66	76	A	0	4	61	W
ISO Size		Options				Voltage
02 (18mm)	0	Non-Locking Overrides	Internal Pilot - 61	External Pilot - 81	24 VDC	W
01 (26mm)	1	Locking Overrides	Internal Pilot - 71	External Pilot - 91	120 VAC	Z



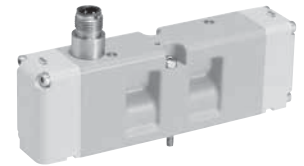
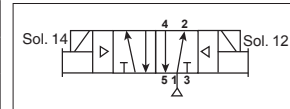
C1

5-Way 2-Position Valves, Double Solenoid Pilot

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

W66	76	A	0	4	67	W
ISO Size		Options				Voltage
02 (18mm)	0	Non-Locking Overrides	Internal Pilot - 67	External Pilot - 87	24 VDC	W
01 (26mm)	1	Locking Overrides	Internal Pilot - 77	External Pilot - 97	120 VAC	Z



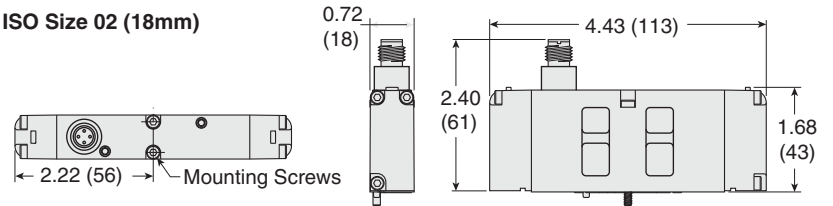
C

Technical Information

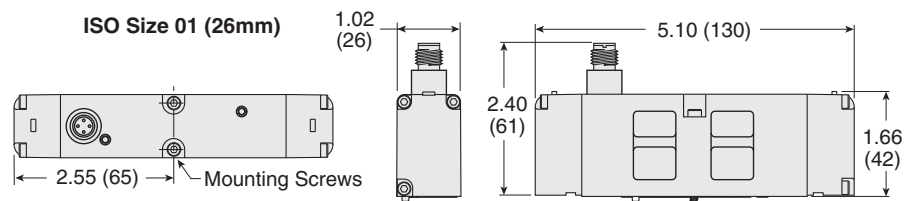
ISO Size	Valve Type	Avg. C _v	Weight lb (kg)
02 (18mm)	5/2 Single	0.55	0.3 (0.15)
	5/2 Double	0.55	0.4 (0.16)
01 (26mm)	5/2 Single	1.1	0.6 (0.25)
	5/2 Double	1.1	0.6 (0.25)

Valve Dimensions – inches (mm)

ISO Size 02 (18mm)



ISO Size 01 (26mm)



* Sub-bases and manifold bases ordered separately, refer to page C1.5-C1.6.

Accessories ordered separately, refer to page C1.6.

STANDARD SPECIFICATIONS (for valves on this page):

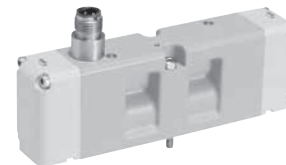
Construction Design	Spool and Sleeve	Operating Pressure	Vacuum to 145 psig (9.9 bar)
Mounting Type	Base		Pilot Supply - Internal or External: ISO Size 02 (18mm): 30 psig (2.07 bar) ISO Size 01 (26mm): 25 psig (1.73 bar)
Solenoids	Bi-polar, surge suppression (standard), indicator lights	Construction Material	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage	24 volts DC; 120 volts AC		Valve Body: Cast Aluminum
Power Consumption (each solenoid)	1.0 watts on DC; 2.0 VA holding on 60 Hz		End Caps: Polybutylene Terephthalate (PBT)
Temperature	Ambient/Media: 5° to 120°F (-15° to 50°C)	Manual Override	Fasteners: Zinc Plated Steel Coils: Thermoset Plastic Flush; Metal, non-locking
Flow Media	Filtered air		
Pilot Supply	Internal or External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

ISO 15407-1
W66 Series

5-Way 3-Position Valves, Double Solenoid Pilot Controlled



HOW TO ORDER

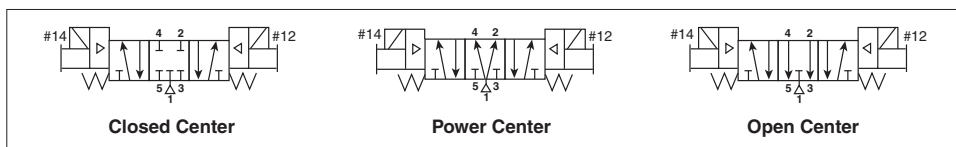
(Choose your options (in red) to configure your valve model number.)

W66 **77** **A** **0** **4** **61** **W**

ISO Size	
02 (18mm)	0
01 (26mm)	1

Options		
Closed Center	Non-Locking Overrides	Internal Pilot - 61 External Pilot - 81
	Locking Overrides	Internal Pilot - 71 External Pilot - 91
	Power Center	Non-Locking Overrides
Locking Overrides		Internal Pilot - 73 External Pilot - 93
Open Center		Non-Locking Overrides
	Locking Overrides	Internal Pilot - 77 External Pilot - 97

Voltage	
24 VDC	W
120 VAC	Z

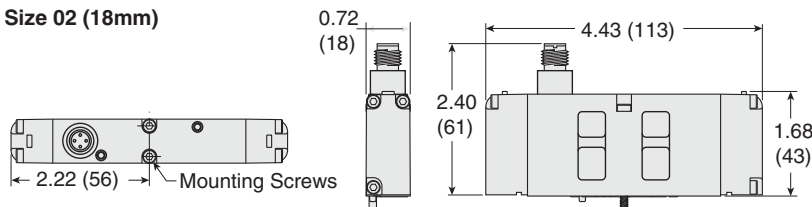


Technical Information

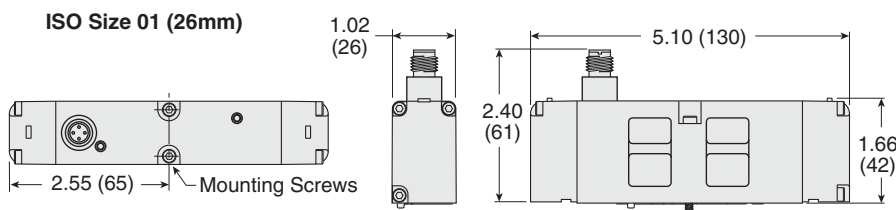
ISO Size	Avg. C _v	Weight lb (kg)
02 (18mm)	0.55	0.4 (0.16)
01 (26mm)	1.1	0.6 (0.25)

Valve Dimensions – inches (mm)

ISO Size 02 (18mm)



ISO Size 01 (26mm)



* Sub-bases and manifold bases ordered separately, refer to page C1.5-C1.6.

Accessories ordered separately, refer to page C1.6.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Operating Pressure	Vacuum to 145 psig (9.9 bar)
Mounting Type	Base		Pilot Supply - Internal or External: 35 psig (2.41 bar)
Solenoids	Bi-polar, surge suppression (standard), indicator lights	Construction Material	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage	24 volts DC; 120 volts AC		Valve Body: Cast Aluminum
Power Consumption (each solenoid)	1.0 watts on DC; 2.0 VA holding on 60 Hz		End Caps: Polybutylene Terephthalate (PBT)
Temperature	Ambient/Media: 5° to 120°F (-15° to 50°C)		Fasteners: Zinc Plated Steel
Pilot Supply	Internal or External	Coils: Thermoset Plastic	Manual Override
			Flush; Metal, non-locking

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

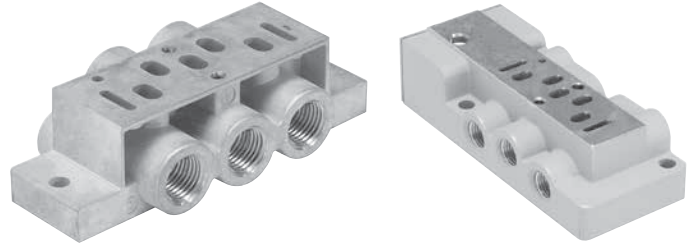
Single Sub-Bases, Manifold Bases & End Station Kits

for ISO 15407-1
W66 Series

Single Sub-Bases with Side Ports

ISO Size	Port Size	Model Number#	
		NPT Threads	G Threads*
02 (18mm)	1/8	RPL02-01-80	RPL02-01-70
01 (26mm)	1/4	RPS5511130P	RPS5511140P

Can be used for external, single, or double remote pilot.
* G conforms to ISO 1179-1 w 228-1 threads.



C1

Manifold Bases with End Ports

Choose your options (in red) to configure your model number.

RPSHU11 5 4 0 1 P

Basic Series	
ISO Size 02 (18mm)	RPSHU11
ISO Size 01 (26mm)	

Port Size	
ISO Size 02 (18mm)	
1/8 NPT	1
1/8 BSPP	2
ISO Size 01 (26mm)	
1/4 NPT	3
1/4 BSPP	4

Gasket Options	
1, 3, 5 Ports Open and Pilots Open	1
1, 3, 5 Ports Closed and Pilots Open	2
1 Port Closed, 3, 5 Ports Open and Pilots Closed	3
1 Port Open, 3, 5 Ports Closed and Pilots Open	4
1, 3, 5 Ports Open and Pilots Closed	5
1, 3, 5 Ports Closed and Pilots Closed	6
1 Port Closed, 3, 5 Ports Open and Pilots Closed	7
1 Port Open, 3, 5 Ports Closed and Pilots Open	8



C

End Station Kits

Choose your options (in red) to configure your model number.

RPSHU31 L0 1 0 P

Valve Type	
Non Plug-in (Internal Pilot)	RPSHU31
Non Plug-in (External Pilot)	RPSHU3X

Right Hand End Station Ports	
1/2 Exhaust and Inlet Ports	1
3/4 Exhaust and Inlet Ports	2

Thread Type	
NPT	0
G	1*

* G thread type conforms to ISO 1179-1 w 228-1 threads.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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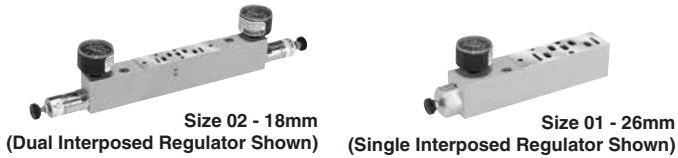
C1.5

Accessories

C1

Interposed Pressure Regulators

Remote Air Pilot Operated for hard-to-reach pressure control
Unregulated Pilot Pressure to valve for consistent valve shifting
regardless of pressure adjustment.



Gauge Adapter Kit

Included with all Size 02 Regulators. Both kits are required on all Size 01 & 02 Regulators when the Regulator is on the last Station on the Right (14) End.



Description	Model Number
Gauge Kit	RPS5651160P
1/8" Female to 1/8" Female Coupling	R207P-2*
1/8" Male to 1/8" Male Long Nipple	RVS215PNL-2-15*

* Included in Gauge Kit RPS5651160P.

Interposed Flow Controls

Both adjustment screws are located on the 12 end of the unit. Interposed Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting. Interposed Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.

ISO Size	Model Number
02 (18mm)	RPS5642P
01 (26mm)	RPS5542P



C

Choose your options (in red) to configure your valve model number.

RPS5637 1 6 6 P

Basic Series	#4 Port Regulator /Gauge*	#2 Port Regulator/Gauge*
ISO Size 02 (18mm) RPS5637	2-60 psig w/o Gauge 2	2-60 psig w/o Gauge 2
ISO Size 01 (26mm) RPS5537	5-125 psig w/o Gauge 3	5-125 psig w/o Gauge 3
	2-60 psig w/Gauge 5	2-60 psig w/Gauge 5
	5-125 psig w/Gauge 6	5-125 psig w/Gauge 6

Regulator Function

Common Pressure Regulator	1
Independent Pressure Regulator	2

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

Interposed Supply & Exhaust Modules

ISO Size		Model Number	
		NPT Threads	G Threads
02 (18mm)	Supply	RPS562600P	RPS562601P
	Exhaust	RPS562700P	RPS562701P
01 (26mm)	Supply	RPS552600P	RPS552601P
	Exhaust	RPS552700P	RPS552701P

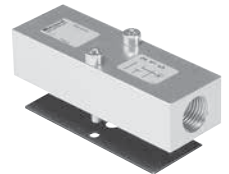
Quantity 1. Used on Size 00 & Size 0 valves to provide a pressure or exhaust path to individual valves.



Intermediate Air Supply Base Kits

ISO Size	Port Size	Kit Number
		NPT Threads
02 (18mm)	1/8"	RD02P-01-80
01 (26mm)	1/4"	RD01P-02-80

Kit includes: Gasket and Mounting Bolts.



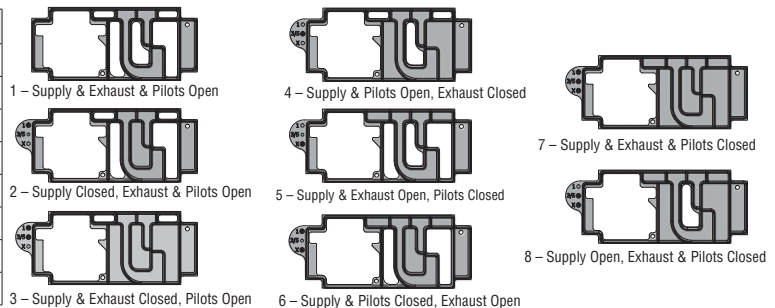
Blank Station Kits	ISO Size	Kit Number
	02 (18mm)	RDX02BLK
01 (26mm)	RDX01BLK	

Kit includes: Blank Station Plate, Gasket, and Mounting Bolts.



Gasket Kits – Manifold to Manifold

Description		Kit Number
Pilots Opened	1 - Supply & Exhaust & Pilots Open	RPSHU11P
	2 - Supply Closed, Exhaust & Pilots Open	RPSHU12P
	3 - Supply & Exhaust Closed, Pilots Open	RPSHU13P
	4 - Supply & Pilots Open, Exhaust Closed	RPSHU14P
Pilots Blocked	5 - Supply & Exhaust Open, Pilots Closed	RPSHU15P
	6 - Supply & Pilots Closed, Exhaust Open	RPSHU16P
	7 - Supply & Exhaust & Pilots Closed	RPSHU17P
	8 - Supply Open, Exhaust & Pilots Closed	RPSHU18P



Silencers	Port Size	Thread Type	Model Number		Avg. Cv	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	R/Rp Threads		Width	Length	
	1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.0 (51)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)	
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)	

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

5-Way 2-Position Valves, Single Solenoid Pilot Controlled, Spring Return

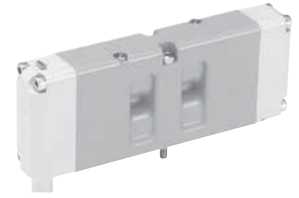
Choose your options (in red) to configure your valve model number.

W66 76 A 0 4 01 W

ISO Size	
02 (18mm)	0
01 (26mm)	1

Options	
Non-Locking Overrides	Internal Pilot - 01 External Pilot - 51
Locking Overrides	Internal Pilot - 11 External Pilot - 21

Voltage	
24 VDC	W
120 VAC	Z



C1

5-Way 2-Position Valves, Double Solenoid Pilot Controlled

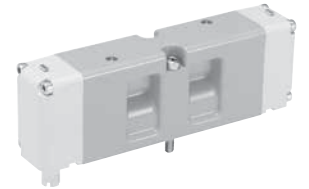
Choose your options (in red) to configure your valve model number.

W66 76 A 0 4 07 W

ISO Size	
02 (18mm)	0
01 (26mm)	1

Options	
Non-Locking Overrides	Internal Pilot - 07 External Pilot - 57
Locking Overrides	Internal Pilot - 17 External Pilot - 27

Voltage	
24 VDC	W
120 VAC	Z



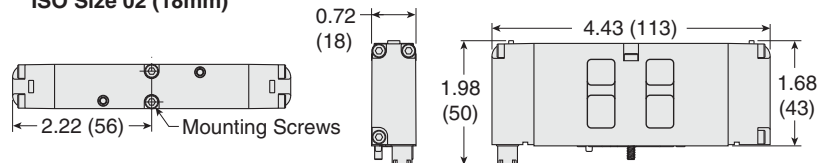
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Technical Information

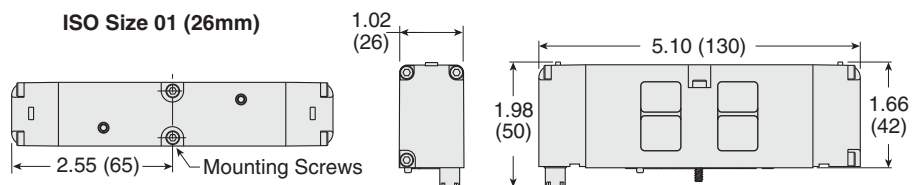
ISO Size	Valve Type	Avg. C _v	Weight lb (kg)
02 (18mm)	5/2 Single	0.55	0.3 (0.15)
	5/2 Double	0.55	0.4 (0.16)
01 (26mm)	5/2 Single	1.1	0.6 (0.25)
	5/2 Double	1.1	0.6 (0.25)

Valve Dimensions – inches (mm)

ISO Size 02 (18mm)



ISO Size 01 (26mm)



* Manifold bases ordered separately, refer to page C1.9.

Accessories ordered separately, refer to page C1.9-C1.10.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Operating Pressure	Vacuum to 145 psig (9.9 bar)
Mounting Type	Base		Pilot Supply - Internal or External: ISO Size 02 (18mm): 30 psig (2.07 bar) ISO Size 01 (26mm): 25 psig (1.73 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage	24 volts DC; 110-120 volts AC <i>For other voltages, consult ROSS.</i>	Construction Material	Valve Body: Cast Aluminum End Caps: Polybutylene Terephthalate (PBT) Fasteners: Zinc Plated Steel Coils: Thermoset Plastic
Power Consumption (each solenoid)	6.0 watts on DC; 11 VA inrush, 8.5 VA holding on 50 or 60 Hz		Manual Override
Temperature	Ambient/Media: 5° to 120°F (-15° to 50°C)		
Flow Media	Filtered air		
Pilot Supply	Internal or External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



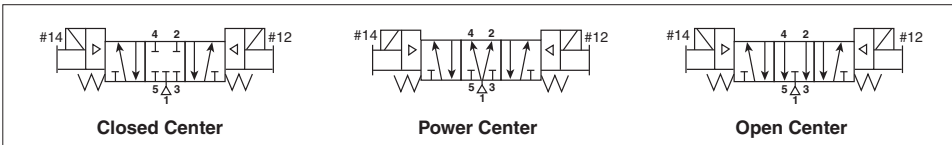
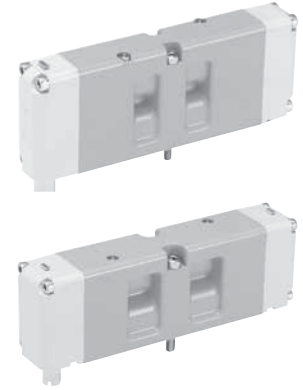
Solenoid Pilot Controlled Valves

ISO 15407-2
W66 Series

5-Way 3-Position Valves, Double Solenoid Pilot Controlled

Choose your options (in red) to configure your valve model number.

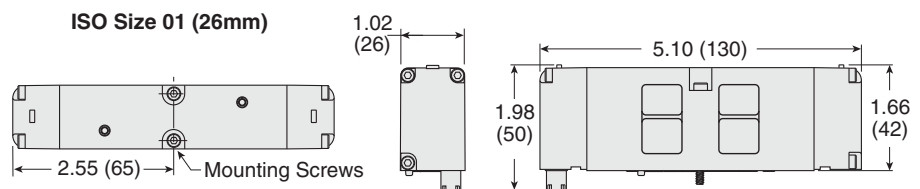
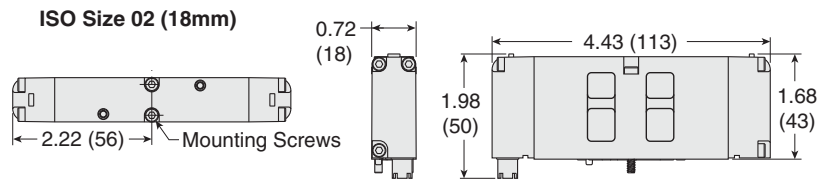
W66	77	A	0	4	01	W
ISO Size		Options				Voltage
02 (18mm)	0	Closed Center	Non-Locking Overrides	Internal Pilot - 01	24 VDC	W
01 (26mm)	1		Locking Overrides	External Pilot - 51	120 VAC	Z
		Power Center	Non-Locking Overrides	Internal Pilot - 03		
			Locking Overrides	External Pilot - 53		
		Open Center	Non-Locking Overrides	Internal Pilot - 07		
			Locking Overrides	External Pilot - 57		
				Internal Pilot - 11		
				External Pilot - 21		
				Internal Pilot - 13		
				External Pilot - 23		
				Internal Pilot - 17		
				External Pilot - 27		



Technical Information

ISO Size	Avg. C _v	Weight lb (kg)
02 (18mm)	0.55	0.4 (0.16)
01 (26mm)	1.1	0.6 (0.25)

Valve Dimensions – inches (mm)



* Manifold bases ordered separately, refer to page C1.9.

Accessories ordered separately, refer to page C1.9-C1.10.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Operating Pressure	Vacuum to 145 psig (9.9 bar)
Mounting Type	Base		Pilot Supply - Internal or External: 35 psig (2.41 bar)
Voltage	24 volts DC; 110-120 volts AC For other voltages, consult ROSS.	Construction Material	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Power Consumption (each solenoid)	6.0 watts on DC; 11 VA inrush, 8.5 VA holding on 50 or 60 Hz		Valve Body: Cast Aluminum End Caps: Polybutylene Terephthalate (PBT) Fasteners: Zinc Plated Steel Coils: Thermoset Plastic
Temperature	Ambient/Media: 5° to 120°F (-15° to 50°C)	Manual Override	Flush; Metal, non-locking
Flow Media	Filtered air		
Pilot Supply	Internal or External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manifold Bases, End Station Kits Blank Station and Gasket Kits

for ISO 15407-2 Valves
W66 Series

Manifold Bases with End Ports

Choose your options (in red) to configure your model number.

RPSHU11 **5** **4** **J** **1** **P**



C1

Basic Series	
ISO Size 02 (18mm)	RPSHU11
ISO Size 01 (26mm)	

Port Size	
ISO Size 02 (18mm)	
1/8 NPT	1
1/8 BSPP	2
ISO Size 01 (26mm)	
1/4 NPT	3
1/4 BSPP	4

Circuit Board Address Configuration	
Interconnect, Single Address	J
Interconnect, Double Address	M

Gasket Options	
1, 3, 5 Ports Open and Pilots Open	1
1, 3, 5 Ports Closed and Pilots Open	2
1 Port Closed, 3, 5 Ports Open and Pilots Closed	3
1 Port Open, 3, 5 Ports Closed and Pilots Open	4
1, 3, 5 Ports Open and Pilots Closed	5
1, 3, 5 Ports Closed and Pilots Closed	6
1 Port Closed, 3, 5 Ports Open and Pilots Closed	7
1 Port Open, 3, 5 Ports Closed and Pilots Open	8

End Station Kits

Choose your options (in red) to configure your model number.

RPSHU20 **L2** **1** **0** **P**

Valve Type	
Plug-in (internal pilot)	RPSHU20
Plug-in (external pilot)	RPSHU2X

Thread Type	
NPT	0
G	1*
*G thread type conforms to ISO 1179-1 w 228-1 threads.	

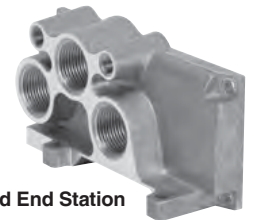


Left Hand End Station
25-pin D-Sub (top)

Left Hand End Station Type	
25-Pin-D-Sub (top)#	L2
Industrial Communication	
ROSS Serial Bus	L6^
Turck BL67 with Valve Driver Module - For 16 Outputs	T1*
Turck BL67 with Valve Driver Module - For 32 Outputs	T2*
# RPSHU11 gaskets included in each end station kit.	
^ Valve Driver Module and 24 Output Cable installed. Must order communication modules separately. Must Order Bases with Circuit Boards.	
* Turck Network and P2M Ethernet node communication module ordered separately.	

Right Hand End Station Ports	
1/2 Exhaust and Inlet Ports	1
3/4 Exhaust and Inlet Ports	2

End Plate Type	Type/Port Size	Avg. C _v
Right Hand	1/2	6.07
	3/4	8.35



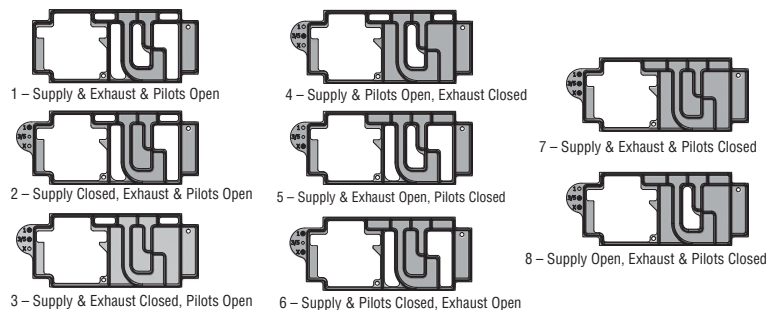
Hi-Flow - Right Hand End Station

Blank Station Kits	ISO Size	Kit Number	Description
	02 (18mm)	RPS5634P	Kit includes: Blank Station Plate, Gasket, and Mounting Bolts.
	01 (26mm)	RPS5534P	



Gasket Kits – Manifold to Manifold

Description		Kit Number
Pilots Opened	1 - Supply & Exhaust & Pilots Open	RPSHU11P
	2 - Supply Closed, Exhaust & Pilots Open	RPSHU12P
	3 - Supply & Exhaust Closed, Pilots Open	RPSHU13P
	4 - Supply & Pilots Open, Exhaust Closed	RPSHU14P
Pilots Blocked	5 - Supply & Exhaust Open, Pilots Closed	RPSHU15P
	6 - Supply & Pilots Closed, Exhaust Open	RPSHU16P
	7 - Supply & Exhaust & Pilots Closed	RPSHU17P
	8 - Supply Open, Exhaust & Pilots Closed	RPSHU18P



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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C1.9

Accessories

Interposed Pressure Regulators

Choose your options (in red) to configure your model number.

RPS5638 **1** **6** **6** **P**

Basic Series	
ISO Size 02 (18mm)	RPS5638
ISO Size 01 (26mm)	RPS5538

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2

#4 Port Regulator / Gauge*	
2-60 PSIG w/o Gauge	2
5-125 PSIG w/o Gauge	3
2-60 PSIG w/Gauge	5
5-125 PSIG w/Gauge	6

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

#2 Port Regulator / Gauge*	
2-60 PSIG w/o Gauge	2
5-125 PSIG w/o Gauge	3
2-60 PSIG w/Gauge	5
5-125 PSIG w/Gauge	6

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)



ISO Size 02 (18mm)
(Dual Interposed Regulator Shown)



ISO Size 01 (26mm)
(Single Interposed Regulator Shown)

Remote Air Pilot Operated for hard-to-reach pressure control, unregulated Pilot Pressure to valve for consistent valve shifting regardless of pressure adjustment.

Gauge Adapter Kit

Description	Model Number	Description
Gauge Kit	RPS5651160P	Included with all Size 02 Regulators. Both kits are required on all Size 01 & 02 Regulators when the Regulator is on the last Station on the Right (14) End.
1/8" Female to 1/8" Female Coupling	R207P-2*	
1/8" Male to 1/8" Male Long Nipple	RVS215PNL-2-15*	

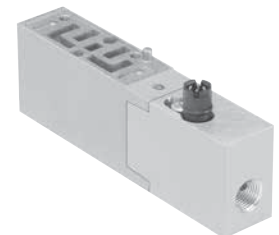
*Included in Gauge Kit RPS5651160P.



Interposed Supply & Exhaust Modules

ISO Size		Model Number	
		NPT Threads	G Threads
02 (18mm)	Supply	RPS561600P	RPS561601P
	Exhaust	RPS561700P	RPS561701P
01 (26mm)	Supply	RPS551600P	RPS551601P
	Exhaust	RPS551700P	RPS551701P

Quantity 1. Used on Size 02 & Size 01 valves to provide a pressure or exhaust path to individual valves.



Interposed Flow Controls

ISO Size	Model Number	Description
02 (18mm)	RPS5635P	Both adjustment screws are located on the 12 end of the unit. Interposed Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting. Interposed Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.
01 (26mm)	RPS5535P	



Silencers

Port Size	Thread Type	Model Number		Avg. Cv	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/4	Male	5500A2003	D5500A2003	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)

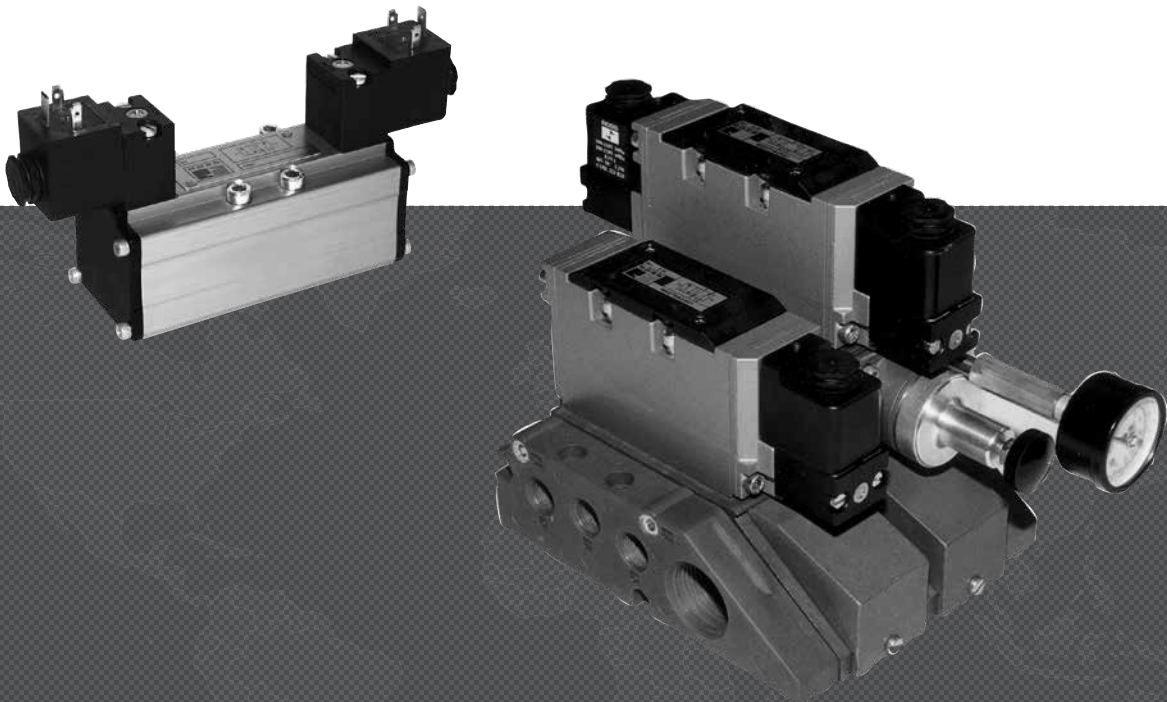
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



ISO 5599-1 & 5599-2 VALVES W60 & W64, W65 SERIES



ROSS CONTROLS

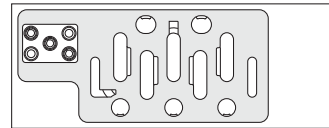
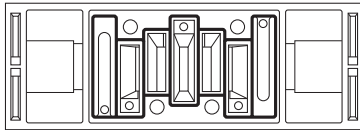
ISO W60, W64, & W65 SERIES VALVES – KEY FEATURES

- ISO Sizes 1, 2, & 3
- 5/2 Single, 5/2 Double, & 5/3 Double Solenoid Pilot & Pressure Controlled Valves
- Available with Buna-N and Fluoroelastomer seals for a wide temperature and resistance range
- W60 Series - Precision Finish Stainless Steel Spool & Sleeve internals that provide high shifting speed, long life, non-lube service, and easy maintenance
- W64 Series - Poppet construction is highly tolerant to dirty air
- W65 Series - Precision Finish Stainless Steel Spool & Sleeve internals that provide high shifting speed, long life, non-lube service, and easy maintenance
 - Serial Bus Communication compatible
 - Plug-In valve to base electrical connector eliminates need to disconnect wires to remove valve

Standard Definitions

5599-1: Drop-cord Standards for Sizes 1, 2, 3

5599-2: Plug-in Standards for Size 1, 2, 3

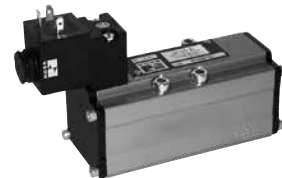
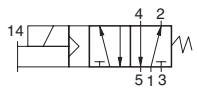


VALVE TYPE	VALVE SERIES	DESCRIPTION			AVAILABLE PORT SIZES									FUNCTIONS						Page		
		ISO Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)		Solenoid Control	Direct Solenoid Control
ISO 5599-1	W60	1																0.8				C2.3 - C2.7
	W60	2																1.9				C2.3 - C2.7
	W60	3																3.8				C2.3 - C2.7
	W64	1																1.0				C2.3 - C2.7
	W64	2																2.0				C2.3 - C2.7
	W64	3																4.0				C2.3 - C2.7
Single Sub-Bases & Manifold Bases																					C2.8 - C2.9	
Manifold Kits & Accessories																					C2.9 - C2.11	
ISO 5599-2	W65	1																0.8				C2.12 - C2.14
	W65	2																1.9				C2.12 - C2.14
	W65	3																3.8				C2.12 - C2.14
Sub-Bases & Modular Manifold Bases																					C2.15	
Accessories for Sub-Bases & Modular Manifold Bases																					C2.16	
Single Sub-Bases & Modular Manifold Bases																					C2.17	
End Station Kits & Accessories																					C2.18 - C2.19	

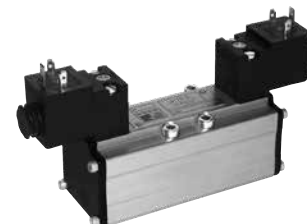
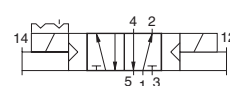
Solenoid Controlled Valves



5-Way 2-Position Valves, Single Solenoid Pilot Controlled, Spring Return							
ISO Size	Port Size	Valve Model Number#*	Avg. C _v	Average Response Constants**			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/8 - 3/8	W6076B2401W	0.8	29	3.5	4.9	1.5 (0.7)
2	3/8 - 1/2	W6076B3401W	1.9	41	1.5	2.4	2.3 (1.1)
3	1/2 - 3/4	W6076B4401W	3.8	51	0.8	1.1	3.5 (1.6)



5-Way 2-Position Valves, Double Solenoid Pilot Controlled, Detented							
ISO Size	Port Size	Valve Model Number#*	Avg. C _v	Average Response Constants**			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/8 - 3/8	W6076B2407W	0.8	17	3.5	4.9	1.8 (0.9)
2	3/8 - 1/2	W6076B3407W	1.9	20	1.5	2.5	2.7 (1.2)
3	1/2 - 3/4	W6076E4407W	3.8	20	0.8	1.1	3.9 (1.8)



C2

C

#Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., W6076B2401Z. For other voltages, consult ROSS.

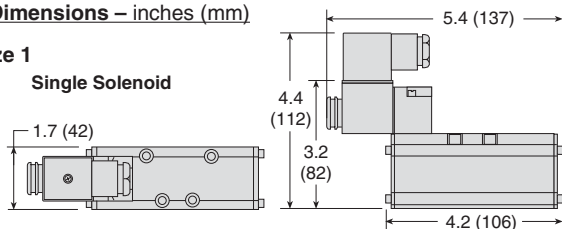
* Sub-bases and manifold bases ordered separately, refer to page C2.8-9.

** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

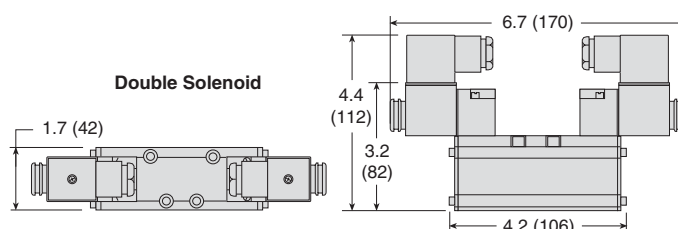
Valve Dimensions – inches (mm)

ISO Size 1

Single Solenoid

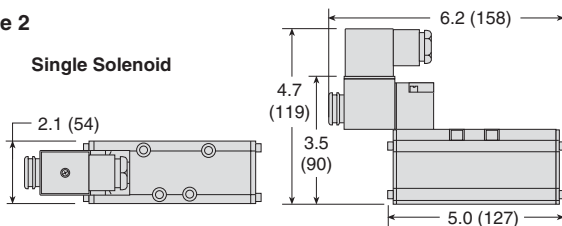


Double Solenoid

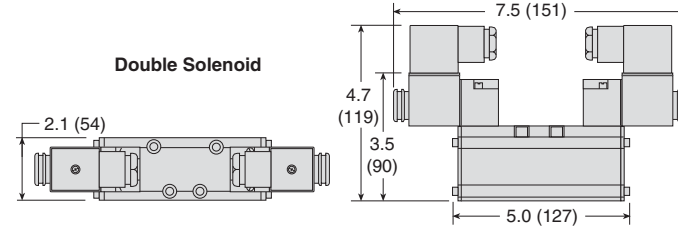


ISO Size 2

Single Solenoid

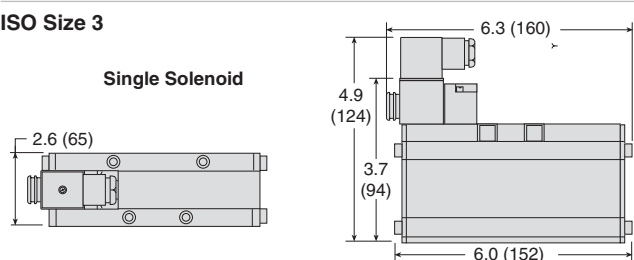


Double Solenoid

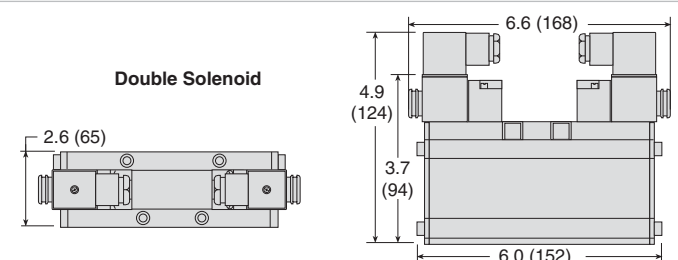


ISO Size 3

Single Solenoid



Double Solenoid



Options: Indicator Light (in electrical connectors), refer to page C2.11. Accessories ordered separately, refer to page C2.10-11.

STANDARD SPECIFICATIONS (for valves on this page):

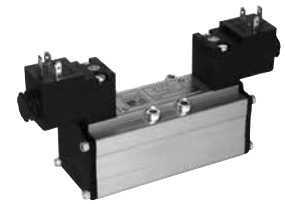
Construction Design	Spool and Sleeve	Flow Media	Filtered air
Mounting Type	Base	Pilot Supply	Internal or External; Selected automatically
Solenoids	Rated for continuous duty	Operating Pressure	Vacuum to 150 psig (10 bar)
Voltage	24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz		Pilot Supply - Internal or External: ISO Size 1: Minimum 30 psig (2 bar) ISO Size 2 & 3: Minimum 15 psig (1 bar)
Power Consumption (each solenoid)	5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC	Construction Material	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Enclosure Rating	IP65, IEC 60529		Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Electrical Connections	EN 175301-803 Form A connector	Manual Override	Flush; Metal, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C)		
	Media: 40° to 175°F (4° to 80°C)		
	For other temperature ranges, consult ROSS.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Solenoid Pilot Controlled Valves

ISO 5599-1
W60 Series



5-Way 3-Position Valves, Double Solenoid Pilot Controlled									
ISO Size	Port Size	Valve Model Number**			Avg. C _v	Average Response Constants**			Weight lb (kg)
		Power Center	Closed Center	Open Center		M	F		
						In-Out	Out-Exh.		
1	1/8 - 3/8	W6077A2951W	W6077B2401W	W6077B2407W	0.8	30	3.5	5.0	1.8 (0.9)
2	3/8 - 1/2	W6077A3945W	W6077B3401W	W6077B3407W	1.9	40	1.5	2.5	2.8 (1.3)
3	1/2 - 3/4	W6077B4934W	W6077B4401W	W6077B4407W	3.8	50	0.8	1.1	4.0 (1.8)

Power Center

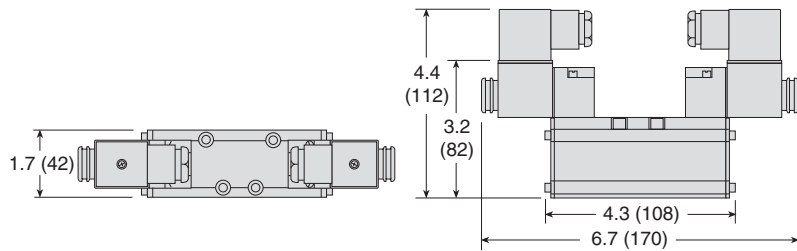
Closed Center

Open Center

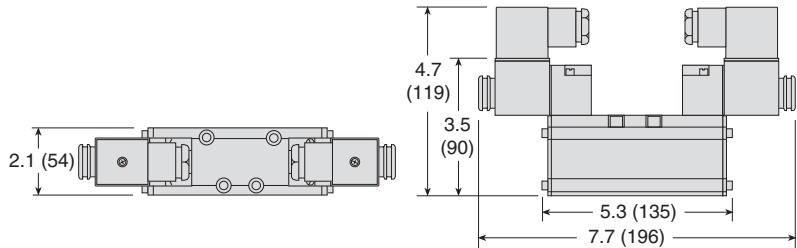
#Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., W6077A2951Z. For other voltages, consult ROSS.
 * Sub-bases and manifold bases ordered separately, refer to page C2.8-9.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

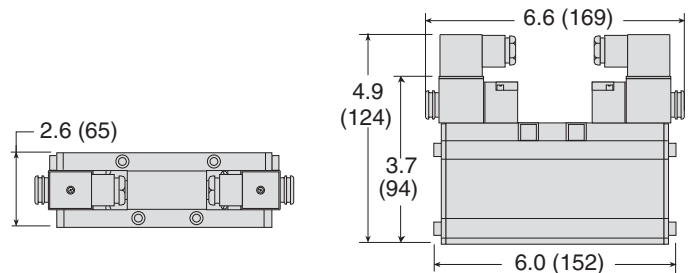
ISO Size 1



ISO Size 2



ISO Size 3



Options: Indicator Light (in electrical connectors), refer to page C2.11. Accessories ordered separately, refer to page C2.10-11.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Flow Media	Filtered air
Mounting Type	Base	Pilot Supply	Internal or External; Selected automatically
Solenoids	Rated for continuous duty	Operating Pressure	Vacuum to 150 psig (10 bar)
Voltage	24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz		Pilot Supply - Internal or External: ISO Size 1: Minimum 30 psig (2 bar) ISO Size 2 & 3: Minimum 15 psig (1 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Power Consumption (each solenoid)	5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	Manual Override	Flush; Metal, non-locking
Electrical Connections	EN 175301-803 Form A connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C) <i>For other temperature ranges, consult ROSS.</i>		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Pressure Controlled Valves

5-Way 2-Position Valves, Single Pressure Controlled, Spring Return								
ISO Size	Port Size	Valve Model Number*	Avg. C _v	Average Response Constants**			Weight lb (kg)	
				M	F			
					In-Out	Out-Exh.		
1	1/8 - 3/8	W6056B2411	0.8	29	3.5	4.9	0.8 (0.4)	
2	3/8 - 1/2	W6056B3411	1.9	41	1.5	2.4	1.5 (0.7)	
3	1/2 - 3/4	W6056B4411	3.8	51	0.8	1.1	3.0 (1.4)	



5-Way 2-Position Valves, Double Pressure Controlled, Detented								
ISO Size	Port Size	Valve Model Number*	Avg. C _v	Average Response Constants**			Weight lb (kg)	
				M	F			
					In-Out	Out-Exh.		
1	1/8 - 3/8	W6056B2417	0.8	17	3.5	5.0	0.8 (0.4)	
2	3/8 - 1/2	W6056B3417	1.9	20	1.5	2.5	1.5 (0.7)	
3	1/2 - 3/4	W6056E4417	3.8	20	0.8	1.1	3.0 (1.4)	



5-Way 3-Position Valves, Double Pressure Controlled									
ISO Size	Port Size	Valve Model Number*			Avg. C _v	Average Response Constants**			Weight lb (kg)
		Power Center	Closed Center	Open Center		M	F		
							In-Out	Out-Exh.	
1	1/8 - 3/8	W6057A2934	W6057B2411	W6057B2417	0.8	30	3.5	5.0	1.0 (0.5)
2	3/8 - 1/2	W6057A3933	W6057B3411	W6057B3417	1.9	40	1.5	2.5	1.5 (0.7)
3	1/2 - 3/4	W6057A4937	W6057B4411	W6057B4417	3.8	50	0.8	1.1	3.0 (1.4)

Power Center		Closed Center		Open Center	
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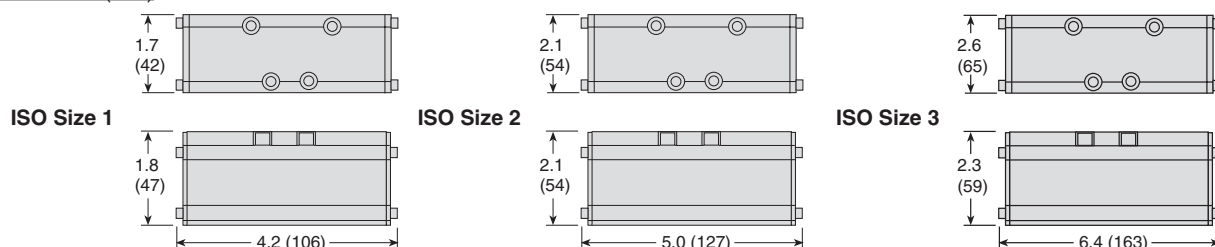


* Sub-bases and manifold bases ordered separately, refer to page C2.8-9.

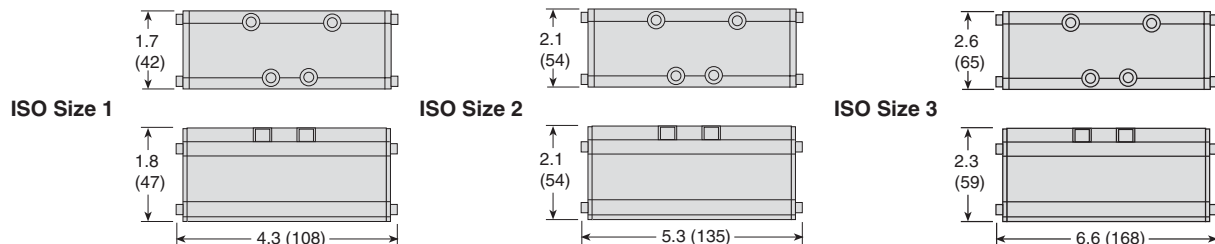
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

5/2 Valves



5/3 Valves



Accessories ordered separately, refer to page C2.10-11.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Operating Pressure	Vacuum to 150 psig (10 bar)
Mounting Type	Base		Pilot Supply:
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) For other temperature ranges, consult ROSS.	ISO Size 1: Minimum 30 psig (2 bar)	ISO Size 2 & 3: Minimum 15 psig (1 bar)
Flow Media	Filtered air	Pilot supply pressure must be equal to or greater than inlet pressure.	
Pilot Supply	External	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Solenoid Pilot Controlled Valves

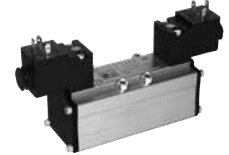
ISO 5599-1
W64 Series



5-Way 2-Position Valves, Single Solenoid Pilot Controlled, Air Return									
ISO Size	Port Size	Valve Model Number#*		Avg. C _v	Average Response Constants**			Weight lb (kg)	
		Std. Temp.	High Temp.		M	F			
						In-Out	Out-Exh.		
1	1/8 - 3/8	W6476B2401W	W6476B2402W	1.0	33	2.9	5.9	1.3 (0.6)	
2	3/8 - 1/2	W6476B3401W	W6476B3402W	2.0	33	1.2	2.3	1.8 (0.8)	
3	1/2 - 3/4	W6476B4401W	W6476B4402W	4.0	50	0.7	1.2	2.8 (1.3)	



5-Way 2-Position Valves, Double Solenoid Pilot Controlled, Detented									
ISO Size	Port Size	Valve Model Number#*		Avg. C _v	Average Response Constants**			Weight lb (kg)	
		Std. Temp.	High Temp.		M	F			
						In-Out	Out-Exh.		
1	1/8 - 3/8	W6476B2407W	W6476B2408W	1.0	16	2.9	5.6	1.8 (0.8)	
2	3/8 - 1/2	W6476B3407W	W6476B3408W	2.0	16	1.2	2.3	2.3 (1.0)	
3	1/2 - 3/4	W6476B4407W	W6476B4408W	4.0	16	0.7	1.1	3.3 (1.5)	



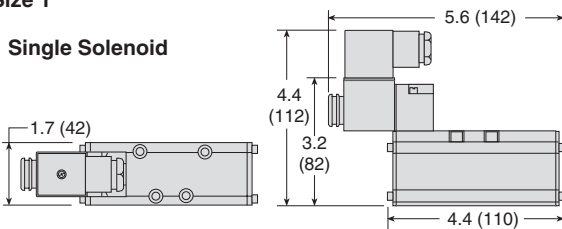
#Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., W6476B2401Z. For other voltages, consult ROSS.

* Sub-bases and manifold bases ordered separately, refer to page C2.8-9.

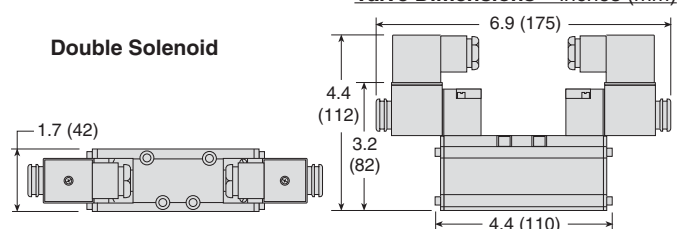
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

ISO Size 1

Single Solenoid



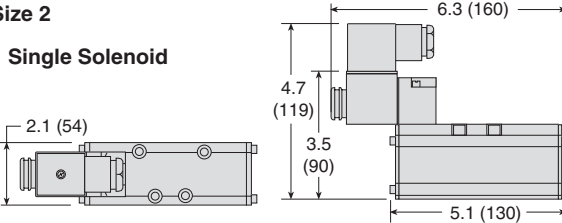
Double Solenoid



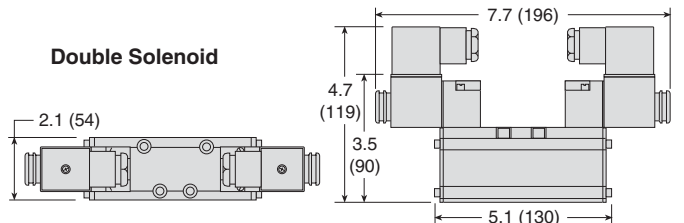
Valve Dimensions – inches (mm)

ISO Size 2

Single Solenoid

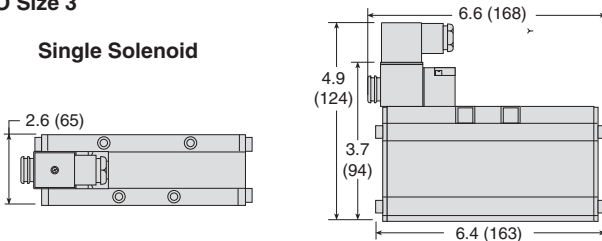


Double Solenoid

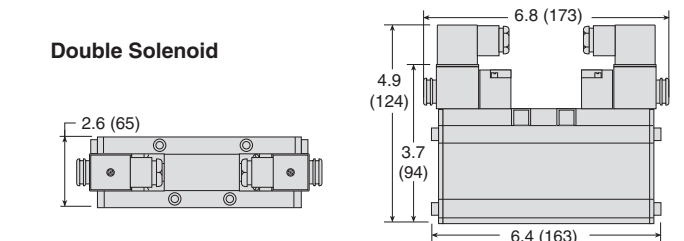


ISO Size 3

Single Solenoid



Double Solenoid



Options: Indicator Light (in electrical connectors); refer to page C2.11. Accessories ordered separately, refer to page C2.10-11.

STANDARD SPECIFICATIONS (for valves on this page):

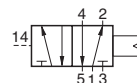
Construction Design	Poppet	Temperature - Media	Standard Temp: 40° to 175°F (4° to 80°C) High Temp: 40° to 220°F (4° to 105°C) For other temperature ranges, consult ROSS.
Mounting Type	Base	Flow Media	Filtered air
Solenoids	Rated for continuous duty	Pilot Supply	Internal or External; Selected automatically
Voltage	24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz	Operating Pressure	Pilot Supply - Internal or External: 30 to 150 psig (2 to 10 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Power Consumption (each solenoid)	5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Bar Stock Aluminum Poppet: Aluminum & Stainless Steel Seals: Buna-N or Fluorocarbon
Enclosure Rating	IP65, IEC 60529	Manual Override	Flush; Metal, non-locking
Electrical Connections	EN 175301-803 Form A		
Temperature - Ambient	Standard Temp: 40° to 120°F (4° to 50°C) High Temp: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

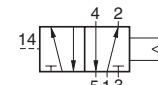


Pressure Controlled Valves

5-Way 2-Position Valves, Single Pressure Controlled, Air Return								
ISO Size	Port Size	Valve Model Number*		Avg. C _v	Average Response Constants**			Weight lb (kg)
		Std. Temp.	High Temp.		F			
					In-Out	Out-Exh.		
1	1/8 - 3/8	W6456B2411	W6456B2412	1.0	33	2.9	5.9	0.8 (0.4)
2	3/8 - 1/2	W6456B3411	W6456B3412	2.0	33	1.2	2.3	1.3 (0.6)
3	1/2 - 3/4	W6456B4411	W6456B4412	4.0	50	0.7	1.2	2.3 (1.1)



5-Way 2-Position Valves, Double Pressure Controlled, Detented								
ISO Size	Port Size	Valve Model Number*		Avg. C _v	Average Response Constants**			Weight lb (kg)
		Std. Temp.	High Temp.		F			
					In-Out	Out-Exh.		
1	1/8 - 3/8	W6456B2417	W6456B2418	1.0	16	2.9	5.6	1.8 (0.8)
2	3/8 - 1/2	W6456B3417	W6456B3418	2.0	16	1.2	2.3	2.3 (1.0)
3	1/2 - 3/4	W6456B4417	W6456B4418	4.0	18	0.7	1.1	3.3 (1.5)



C2

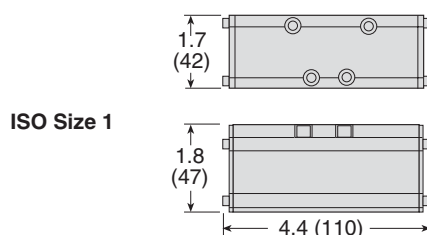
C

* Sub-bases and manifold bases ordered separately, refer to page C2.8-9.

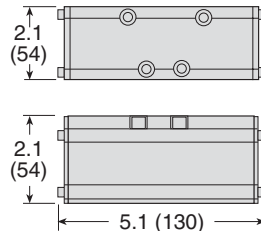
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

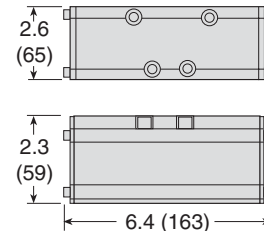
Single Pressure Controlled



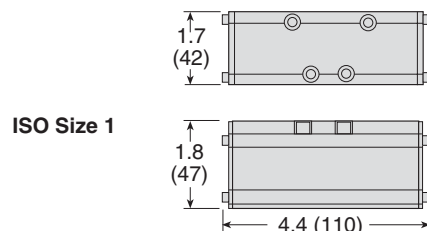
ISO Size 2



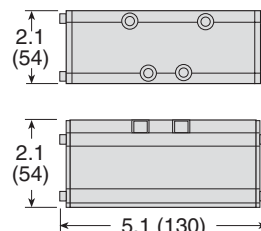
ISO Size 3



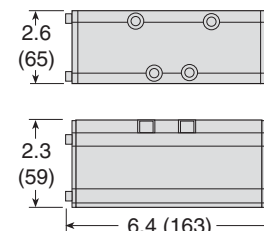
Double Pressure Controlled



ISO Size 2



ISO Size 3



Accessories ordered separately, refer to page C2.10-11.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Base	Pilot Supply	External
Temperature	Ambient/Media: Standard Temp: 40° to 175°F (4° to 80°C) High Temp: 40° to 220°F (4° to 105°C)	Operating Pressure	30 to 150 psig (2 to 10 bar)
	For other temperature ranges, consult ROSS.		Pilot supply pressure must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

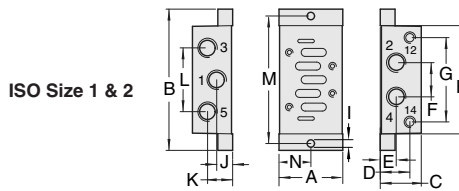


Single Bases

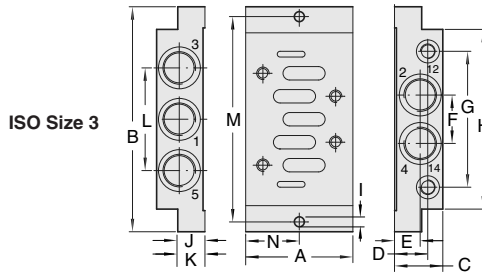
for ISO 5599-1 Valves
W60 & W64 Series

ISO 5599-1 Single Bases, Side Ports

ISO Size	Port Size			Model Number	
	2, 4	1, 3, 5	12, 14	NPT Threads	G Threads
1	1/4	1/4	1/8	2076C01	D2076C01
2	3/8	3/8	1/8	2078C01	D2078C01
3	1/2	1/2	1/8	2080C01	D2080C01

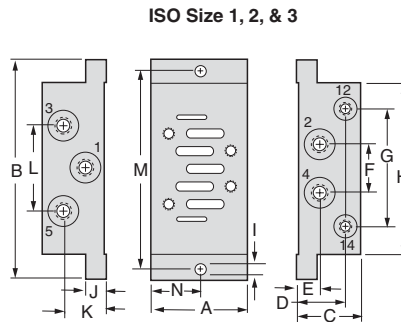


Dimensions inches (mm)			
	ISO 1	ISO 2	ISO 3
A	1.81 (46)	2.20 (56)	2.80 (71)
B	4.33 (110)	4.88 (124)	5.87 (149)
C	1.18 (30)	1.42 (36)	1.26 (32)
D	0.85 (21.5)	1.02 (26)	0.87 (22)
E	0.39 (10)	0.55 (14)	0.67 (17)
F	0.94 (24)	1.18 (30)	1.26 (32)
G	2.38 (60.5)	3.91 (74)	3.54 (90)
H	3.27 (83)	3.74 (95)	2.69 (119)
I	0.22 (5.5)	2.56 (6.5)	0.26 (6.6)
J	0.41 (10.5)	0.41 (10.5)	0.67 (17)
K	0.77 (19.5)	0.87 (22)	0.67 (17)
L	1.69 (43)	2.20 (56)	2.67 (68)
M	3.86 (98)	4.41 (112)	5.35 (136)
N	0.90 (23)	1.10 (28)	1.40 (35.5)



ISO Size	Port Size			Model Number*
	2, 4	1, 3, 5	12, 14	NPT Threads
1	1/8	1/4	1/8	654K91
	3/8	3/8	1/8	642K91
2	1/2	1/2	1/8	643K91
3	3/4	3/4	1/2	644K91

* NPT port threads only.

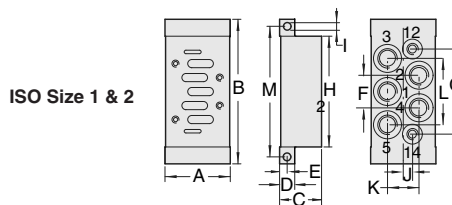


Dimensions inches (mm)			
	ISO 1	ISO 2	ISO 3
A	1.89 (48)	2.24 (57)	2.80 (71)
B	4.33 (110)	4.88 (124)	5.87 (149)
C	1.26 (32)	1.57 (40)	1.26 (32)*
D	0.93 (24)	1.18(30)	0.87 (22)
E	0.41 (38)	0.55 (14)	0.67 (17)
F	0.94 (24)	1.18 (30)	1.26 (32)
G	2.28 (58)	2.92 (74)	3.54 (90)
H	3.27 (83)	3.74 (95)	2.69 (119)
I	0.22 (6)	0.26 (7)	0.26 (7)
J	0.41 (38)	0.55 (14)	0.67 (17)
K	0.85 (22)	1.02 (26)	0.59 (15)
L	1.70 (43)	2.20 (56)	2.68 (68)
M	3.86 (22)	4.41 (112)	5.35 (136)

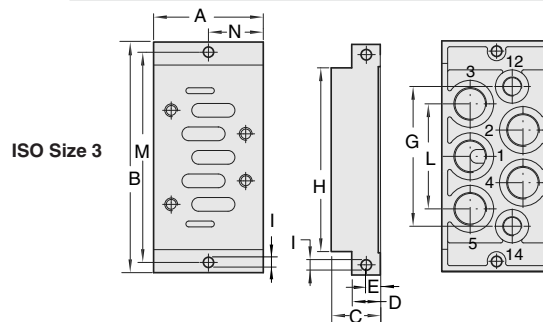
* 1.77 (45) on sub-base 644K91.

ISO 5599-1 Single Bases, Bottom Ports

ISO Size	Port Size			Model Number	
	2, 4	1, 3, 5	12, 14	NPT Threads	G Threads
1	1/4	1/4	1/8	2077C01	D2077C01
2	3/8	3/8	1/8	2079C01	D2079C01
3	1/2	1/2	1/8	2081C01	D2081C01



Dimensions inches (mm)			
	ISO 1	ISO 2	ISO 3
A	1.81 (46)	2.20 (56)	2.80 (71)
B	4.33 (110)	4.88 (124)	5.87 (149)
C	1.18 (30)	1.42 (36)	1.26 (32)
D	0.39 (10)	0.51 (13)	0.71 (18)
E	0.20 (5)	0.26 (6.5)	0.35 (9)
F	0.94 (24)	1.18 (30)	1.26 (32)
G	2.36 (60)	2.87 (73)	3.54 (90)
H	3.27 (83)	3.74 (95)	2.69 (119)
I	0.22 (5.5)	2.56 (6.5)	0.26 (6.6)
J	0.41 (10.5)	0.41 (10.5)	-
K	0.91 (23)	1.06 (27)	-
L	1.81 (46)	2.24 (57)	-
M	3.86 (98)	4.41 (112)	5.35 (136)
N	-	-	1.40 (35.5)



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

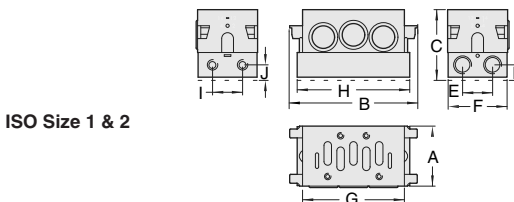
Manifold Bases & End Station Kits

for ISO 5599-1 Valves
W60 & W64 Series

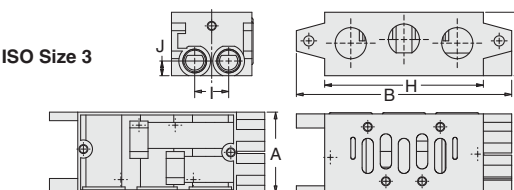
ISO 5599-1 Manifold Bases, Side Ports

ISO Size	Port Size		Model Number	
	2, 4	12, 14	NPT Threads	G Threads
1	1/4	1/8	2002K91	D2002K91
2	3/8	1/8	2003K91	D2003K91
3	1/2	1/8	2004K91	D2004K91

In addition to the manifold stations, an end station kit must be ordered for each manifold installation.



ISO Size 1 & 2



ISO Size 3

	Dimensions inches (mm)		
	ISO 1	ISO 2	ISO 3
A	1.69 (43)	2.20 (56)	2.80 (71)
B	4.33 (110)	4.72 (120)	7.48 (190)
C	2.05 (52)	2.60 (66)	2.20 (56)
D	0.39 (10)	0.57 (14.5)	–
E	0.87 (22)	1.10 (28)	–
F	1.65 (42)	2.17 (55)	–
G	2.95 (75)	3.74 (95)	–
H	3.50 (89)	4.13 (105)	5.51 (140)
I	0.87 (22)	1.10 (28)	1.18 (30)
J	0.39 (10)	0.57 (14.5)	0.51 (13)

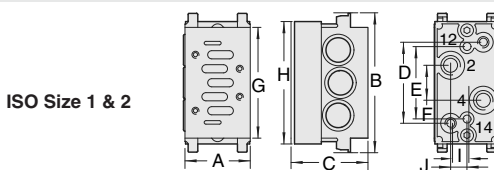


Connectors and gaskets are included with each manifold base.
The ISO Size 1 & 2 manifold bases contain 3 O-rings and 2 connector brackets.

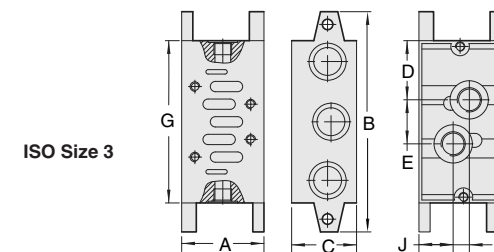
ISO 5599-1 Manifold Bases, Bottom Ports

ISO Size	Port Size		Model Number	
	2, 4	12, 14	NPT Threads	G Threads
1	1/4	1/8	1997K91	D1997K91
2	3/8	1/8	1998K91	D1998K91
3	1/2	1/8	1999K91	D1999K91

In addition to the manifold stations, an end station kit must be ordered for each manifold installation.



ISO Size 1 & 2



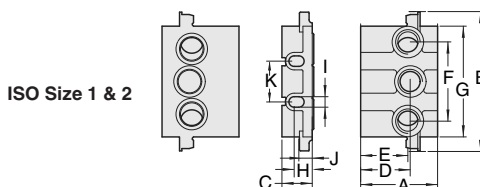
ISO Size 3

	Dimensions inches (mm)		
	ISO 1	ISO 2	ISO 3
A	1.69 (43)	2.20 (56)	2.80 (71)
B	4.33 (110)	4.72 (120)	7.48 (190)
C	2.05 (52)	2.60 (66)	2.20 (56)
D	2.28 (58)	2.73 (69.5)	2.01 (51)
E	1.57 (40)	2.44 (62)	1.50 (38)
F	0.79 (20)	1.18 (30)	–
G	2.28 (58)	2.73 (69.5)	5.51 (140)
H	3.50 (89)	4.13 (105)	–
I	0.35 (9)	0.55 (14)	0.55 (14)
J	0.43 (11)	0.55 (14)	0.16 (29.5)

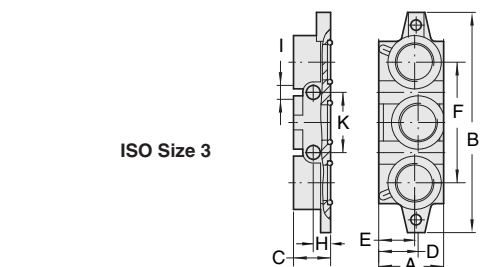


End Station Kits - ISO Size 1, 2, & 3

ISO Size	Port Size		Model Number	
	1, 3, 5		NPT Threads	G Threads
1	3/8		723K86	D723K86
2	1/2		724K86	D724K86
3	1		731K86	D731K86



ISO Size 1 & 2



ISO Size 3

	Dimensions inches (mm)		
	ISO 1	ISO 2	ISO 3
A	2.05 (52)	2.60 (66)	2.20 (56)
B	3.94 (100)	4.72 (120)	7.48 (190)
C	0.87 (22)	1.02 (26)	1.26 (32)
D	1.53 (39)	1.67 (42.5)	1.34 (34)
E	1.22 (31)	1.59 (40.5)	1.22 (31)
F	2.17 (55)	2.68 (68)	4.09 (104)
G	2.95 (75)	3.74 (95)	–
H	0.55 (14)	0.61 (15.5)	0.59 (15)
I	0.28 (7)	0.35 (9)	0.47 (12)
J	0.39 (10)	0.45 (11.5)	–
K	1.10 (28)	1.38 (35)	2.05 (52)



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



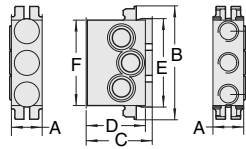
Manifold Kits & Accessories

for ISO 5599-1 Valves W60 & W64 Series

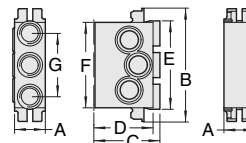
Air Supply Module Top & Bottom Ports - ISO Size 1 & 2

ISO Size	Ports Size	Model Number			
		Top Ports		Bottom Ports	
		NPT Threads	BSPP Threads	NPT Threads	G Threads
1	3/8	725K86	D725K86	727K86	D727K86
2	1/2	726K86	D726K86	728K86	D728K86

Top Ports ISO Size 1 & 2



Bottom Ports ISO Size 1 & 2



	Dimensions inches (mm)	
	ISO 1	ISO 2
A	1.06 (27)	1.06 (27)
B	3.94 (100)	4.72 (120)
C	2.28 (58)	2.71 (69)
D	2.05 (52)	2.60 (66)
E	3.07 (78)	3.74 (95)
F	2.95 (75)	3.74 (95)
G	2.20 (56)	2.20 (56)



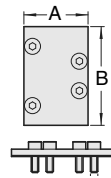
C2

C

Blanking Plate Kits - ISO Size 1, 2, & 3

ISO Size	Model Number
1	2602H77
2	2603H77
3	2604H77

A blanking plate is used to cover the top of a manifold station that is not in use. A kit consists of a metal plate, a gasket, and mounting bolts.



	Dimensions inches (mm)		
	ISO 1	ISO 2	ISO 3
A	1.57 (40)	2.04 (52)	3.03 (77)
B	2.60 (66)	3.15 (80)	4.17 (106)
Plate Thickness	0.16 (4)	0.24 (6.2)	0.41 (12)

Assembly Kits - ISO Size 1 & 2

ISO Size	Model Number
1	732K86
2	733K86



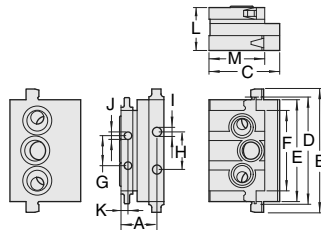
Transition Modules - ISO Size 1, 2 & 3

ISO Size	Model Number
1 to 2	729K86
2 to 3	730K86

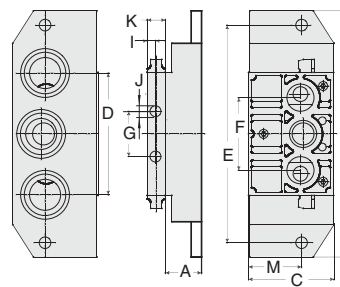
Different size ISO valves can be used in the same manifold installation by means of transition module. The inlet and exhaust ports of two different size manifold stations are connected by means of a transition module installed between the two stations.



ISO Size 1 to 2



ISO Size 2 to 3



	Dimensions inches (mm)	
	ISO 1 & 2	ISO 2 to 3
A	1.32 (33.5)	1.10 (28)
B	4.72 (120)	7.48 (190)
C	2.60 (66)	2.60 (66)
D	3.94 (100)	3.94 (100)
E	3.74 (95)	6.61 (168)
F	2.95 (75)	2.20 (56)
G	1.10 (28)	1.38 (35)
H	1.38 (35)	-
I	0.34 (8.5)	2.56 (6.5)
J	0.28 (7)	0.34 (8.5)
K	2.56 (6.5)	0.56 (14)
L	1.58 (40)	-
M	2.05 (52)	1.61 (41)

Blocking Disks - ISO Size 1 & 2

Ports between manifold stations can be closed by means of blocking disks.

ISO Size	Model Number
1	319A40
2	320A40
3	321A40



Independent Pressure Modules

When a valve in a manifold installation must work at a different pressure than that supplied to the manifold, an independent supply can be provided via an independent pressure module. The pressure module mounts between valve and base and isolates the valve from the manifold inlet pressure. The independent supply is connected to an inlet port in the end of the pressure module.

ISO Size	Inlet Port	Part Number
1	1/4	703K77
2	3/8	692K77
3	1/2	715K77

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Accessories

Interposed Pressure Regulators

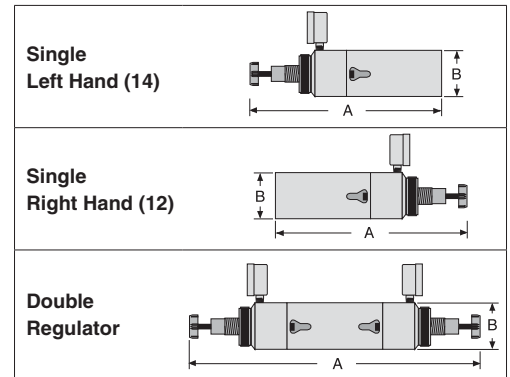
Interposed pressure regulator controls pressure through the base-mounted valve. Single pressure regulator available with left hand (14) and right hand (12) orientation. Single pressure regulators provide the same regulated pressure at both outlet ports.

Double pressure regulators allow the pressure at each outlet port to be set independently. Requires no new piping.



ISO Size	Pressure psig (bar)	Regulator Model Number		
		Single		Double
		Left Hand (14)	Right Hand (12)	
1	10 (0.68) to 130 (9)	1300K91	1301K91	1302K91
2	10 (0.68) to 130 (9)	1303K91	1304K91	1305K91
	5 (0.34) to 60 (4.13)	2044K91	–	–
3	10 (0.68) to 130 (9)	1306K91	1307K91	1308K91

ISO Size	Regulator Dimensions – inches (mm)		
	A (Single)	A (Double)	B (Single/Double)
1	7.3 (186)	13.2 (336)	1.5 (39)
2	8.3 (211)	14.8 (376)	2.0 (51)
3	10.5 (267)	18.3 (465)	2.5 (64)



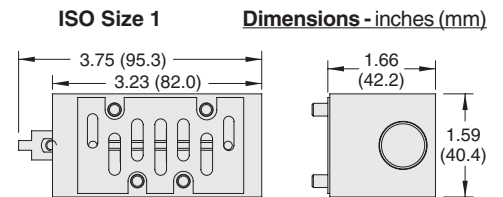
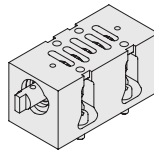
C2

C

Interposed Shut-Off

Manually actuated with a 1/4 turn, the interposed shut-off isolates all ports, including the pilot.

ISO Size	Part Number
1	1871B91
2 & 3	Please contact ROSS.



Interposed Flow Controls (for W60 Series valves only)

ISO Size	Model Number
1	701B77
2	702B77
3	722K77

An interposed flow control unit regulates the exhaust flow of air from a pneumatic cylinder, thereby controlling the extension and retraction speeds. Separate controls regulate the air flow from each end of the cylinder. Being located between the valve and base, the unit requires no additional piping.

Electrical Connectors

Electrical Connector	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
				Without Light	Lighted Connector*	
					24 Volts DC	120 Volts AC
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
	Connector Only	–	–	937K87	936K87-W	936K87-Z



*Lights in connectors with a translucent housing can be used as indicator lights to show when solenoids are energized.

Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (91)	0.2 (0.1)



Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

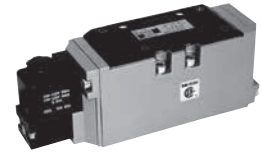
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



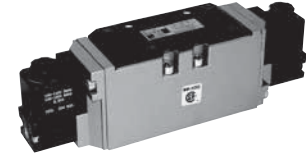
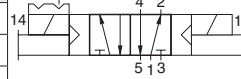
Solenoid Pilot Controlled Valves

ISO 5599-2
W65 Series

5-Way 2-Position Valves, Single Solenoid Pilot Controlled, Spring Return				
ISO Size	Port Size	Valve Model Number#*	Avg. C _v	Weight lb (kg)
1	1/4 - 3/8	W6576A2401W	1.0	1.5 (0.7)
2	3/8 - 1/2	W6576A3401W	2.3	2.0 (1.0)
3	1/2 - 3/4	W6576A4401W	3.4	3.5 (1.6)



5-Way 2-Position Valves, Double Solenoid Pilot Controlled, Detented				
ISO Size	Port Size	Valve Model Number#*	Avg. C _v	Weight lb (kg)
1	1/4 - 3/8	W6576A2407W	1.0	2.0 (1.0)
2	3/8 - 1/2	W6576A3407W	2.3	2.5 (1.2)
3	1/2 - 3/4	W6576A4407W	3.4	4.0 (1.9)



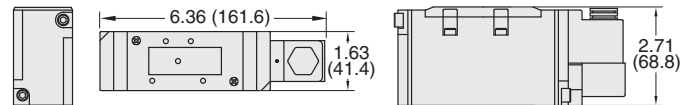
#Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., W6576A2401Z. For other voltages, consult ROSS.

* Sub-bases and manifold bases ordered separately, refer to page C2.15 or page C2.18 when used with serial bus system.

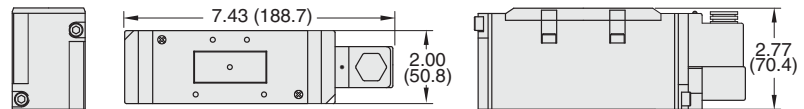
Valve Dimensions – inches (mm)

Single Solenoid

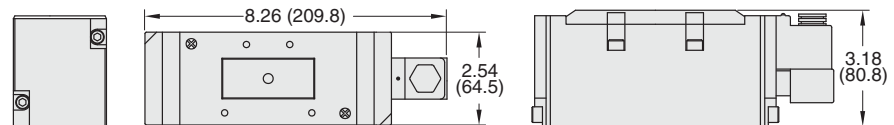
ISO Size 1



ISO Size 2

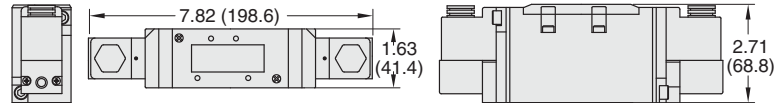


ISO Size 3

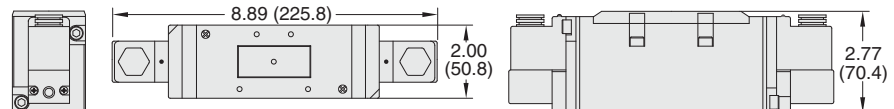


Double Solenoid

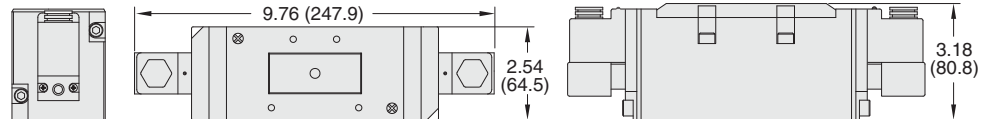
ISO Size 1



ISO Size 2



ISO Size 3



Accessories ordered separately, refer to page C2.16 thru C2.19 when used with serial bus system.

The W65 Series has a base electrical connector which eliminates the need to disconnect wires to remove the valve. This eliminates drop cords, simplifies maintenance and connection to Serial Data Communication systems.

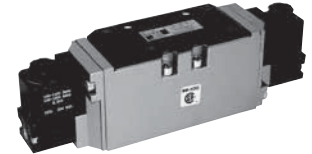
STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Operating Pressure	ISO Size 1: 30 to 150 psig (2 to 10 bar) ISO Size 2 & 3: 15 to 150 psig (1 to 10 bar) All sizes also available up to 232 psig (16 bar)
Mounting Type	Base		Pilot Supply - Internal or External: Minimum 30 psig (2 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Solenoid	Rated for continuous duty	Indicator Light	Included, one per solenoid
Voltages	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	3.5 watts on DC (at 10 bar); 6.5 VA holding on 50 or 60 Hz	Manual Override	Flush; Metal, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C) <i>For other temperature ranges, consult ROSS.</i>		
Flow Media	Filtered air		
Pilot Supply	Internal or External; Selected automatically		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

5-Way 3-Position Valves, Double Solenoid Pilot Controlled						
ISO Size	Port Size	Valve Model Number#*			Avg. C _v	Weight lb (kg)
		Power Center	Closed Center	Open Center		
1	1/4 - 3/8	W6577A2902W	W6577A2401W	W6577A2407W	1.0	2.0 (1.0)
2	3/8 - 1/2	W6577A3901W	W6577A3401W	W6577A3407W	2.3	2.5 (1.2)
3	1/2 - 3/4	W6577A4900W	W6577A4401W	W6577A4407W	3.4	4.0 (1.9)



C2

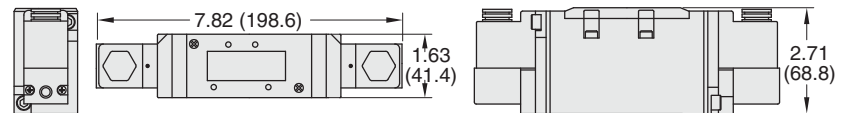
C

#Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., W6577A2902W. For other voltages, consult ROSS.

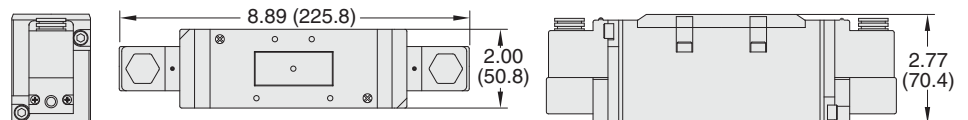
* Sub-bases and manifold bases ordered separately, refer to page C2.15 or page C2.18 when used with serial bus system.

Valve Dimensions – inches (mm)

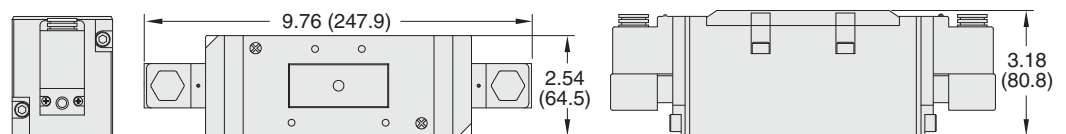
ISO Size 1



ISO Size 2



ISO Size 3



Accessories ordered separately, refer to page C2.16 thru C2.19 when used with serial bus system.

The W65 Series has a base electrical connector which eliminates the need to disconnect wires to remove the valve. This eliminates drop cords, simplifies maintenance and connection to Serial Data Communication systems.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Operating Pressure	ISO Size 1: 30 to 150 psig (2 to 10 bar) ISO Size 2 & 3: 15 to 150 psig (1 to 10 bar) All sizes also available up to 232 psig (16 bar)
Mounting Type	Base		Pilot Supply - Internal or External: Minimum 30 psig (2 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Solenoids	Rated for continuous duty	Indicator Light	Included, one per solenoid
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	3.5 watts on DC (at 10 bar); 6.5 VA holding on 50 or 60 Hz	Manual Override	Flush; Metal, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C) <i>For other temperature ranges, consult ROSS.</i>		
Flow Media	Filtered air		
Pilot Supply	Internal or External; Selected automatically		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

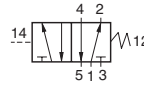


Pressure Controlled Valves

ISO 5599-2
W65 Series

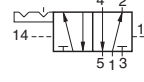
5-Way 2-Position Valves, Single Pressure Controlled, Spring Return

ISO Size	Port Size	Valve Model Number*	Avg. C _v	Weight lb (kg)
1	1/4 - 3/8	W6556A2411	1.0	0.8 (0.4)
2	3/8 - 1/2	W6556A3411	2.3	1.5 (0.7)
3	1/2 - 3/4	W6556A4411	3.4	3.0 (1.4)



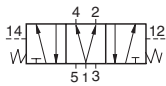
5-Way 2-Position Valves, Double Pressure Controlled, Detented

ISO Size	Port Size	Valve Model Number*	Avg. C _v	Weight lb (kg)
1	1/4 - 3/8	W6556A2417	1.0	0.8 (0.4)
2	3/8 - 1/2	W6556A3417	2.3	1.5 (0.7)
3	1/2 - 3/4	W6556A4417	3.4	3.0 (1.4)

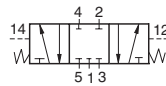


5-Way 3-Position Valves, Double Pressure Controlled

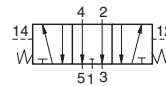
ISO Size	Port Size	Valve Model Number*			Avg C _v	Weight lb (kg)
		Power Center	Closed Center	Open Center		
1	1/4 - 3/8	—	W6557A2411	W6557A2417	1.0	0.8 (0.4)
2	3/8 - 1/2	W6557A3901	W6557A3411	W6557A3417	2.3	1.5 (0.7)
3	1/2 - 3/4	W6557A4900	W6557A4411	W6557A4417	3.4	3.0 (1.4)



Power Center



Closed Center



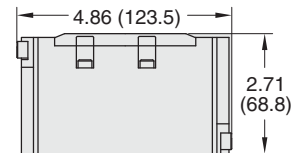
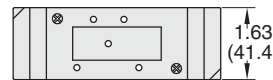
Open Center



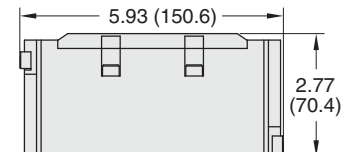
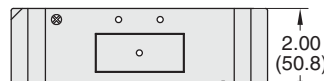
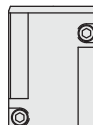
* Sub-bases and manifold bases ordered separately, refer to page C2.15 or page C2.18 when used with serial bus system.

Valve Dimensions – inches (mm)

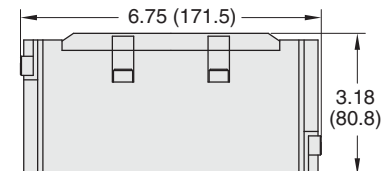
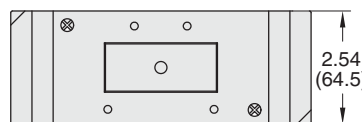
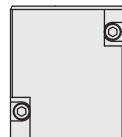
ISO Size 1



ISO Size 2



ISO Size 3



Accessories ordered separately, refer to page C2.16 thru C2.19 when used with serial bus system.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Operating Pressure	ISO Size 1: 30 to 150 psig (2 to 10 bar)
Mounting Type	Base		ISO Size 2 & 3: 15 to 150 psig (1 to 10 bar)
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	All sizes also available up to 232 psig (16 bar)
	For other temperature ranges, consult ROSS.		Pilot Supply: Minimum 30 psig (2 bar)
Flow Media	Filtered air	Pilot supply pressure must be equal to or greater than inlet pressure.	
Pilot Supply	External	Valve Body: Cast Aluminum	
		Spool: Stainless Steel	
		Seals: Buna-N	

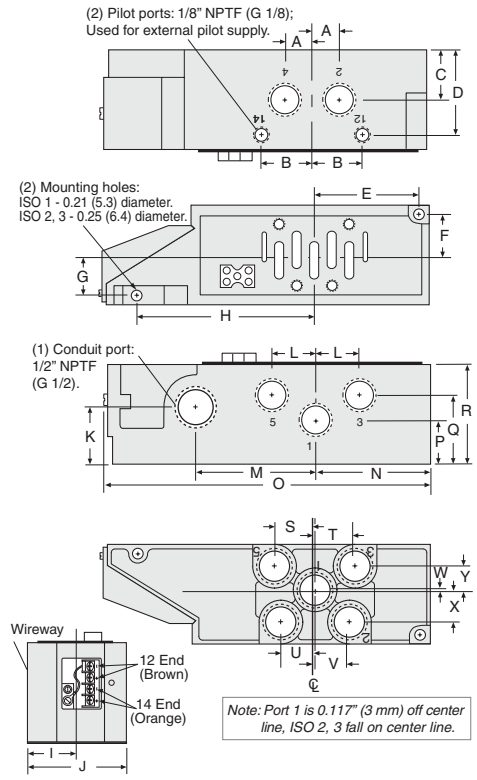
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Sub-Bases & Modular Manifold Bases

Side and Bottom-Ported Sub-Bases

ISO Size	Port Threads	Port Size	Sub-Base Model Number
1	NPT	1/4 Side	949N91
	NPT	1/4 Side/Bottom	971N91
	NPT	3/8 Side	950N91
	NPT	3/8 Side/Bottom	972N91
	G	1/4 Side	D949N91
	G	3/8 Side	D950N91
2	NPT	3/8 Side	951N91
	NPT	3/8 Side/Bottom	952N91
	NPT	1/2 Side	953N91
	NPT	1/2 Side/Bottom	954N91
	G	1/2 Side	D953N91
3	NPT	1/2" Side	955N91
	NPT	1/2" Side/Bottom	956N91
	NPT	3/4" Side	957N91
	NPT	3/4" Side/Bottom	958N91
	G	1/2 Side	D955N91
	G	1/2 Side/Bottom	D956N91
	G	3/4 Side	D957N91
G	3/4 Side/Bottom	D958N91	

Dimensions inches (mm)			
	ISO 1	ISO 2	ISO 3
A	0.5 (13)	0.6 (16)	0.8 (21)
B	1.0 (26)	1.3 (33)	1.8 (45)
C	0.8 (21)	1.2 (31)	1.3 (34)
D	1.5 (38)	1.9 (49)	2.7 (70)
E	1.6 (39)	2.3 (57)	2.5 (63)
F	0.9 (23)	1.1 (29)	1.5 (39)
G	0.9 (23)	1.1 (29)	1.4 (36)
H	3.6 (92)	4.3 (108)	5.4 (137)
I	1.1 (29)	1.4 (35)	1.8 (45)
J	2.3 (58)	2.8 (70)	3.5 (90)
K	0.9 (24)	1.5 (37)	1.8 (47)
L	0.9 (22)	1.1 (27)	1.5 (38)
M	2.4 (60)	3.0 (75)	4.1 (104)
N	1.8 (46)	2.5 (64)	2.7 (69)
O	6.5 (164)	7.8 (197)	9.3 (235)
P	0.8 (21)	1.1 (28)	1.3 (34)
Q	1.3 (34)	1.7 (44)	2.0 (51)
R	1.9 (47)	2.4 (60)	3.3 (85)
S	0.8 (21)	1.1 (27)	1.6 (42)
T	1.1 (27)	1.1 (27)	1.6 (42)
U	0.5 (13)	0.9 (22)	1.1 (27)
V	0.6 (15)	0.9 (22)	1.1 (27)
W	0.3 (8)	0.1 (3)	0.8 (20)
X	0.7 (17)	0.8 (20)	0.8 (20)
Y	0.6 (16)	0.9 (20)	0.8 (20)



C2

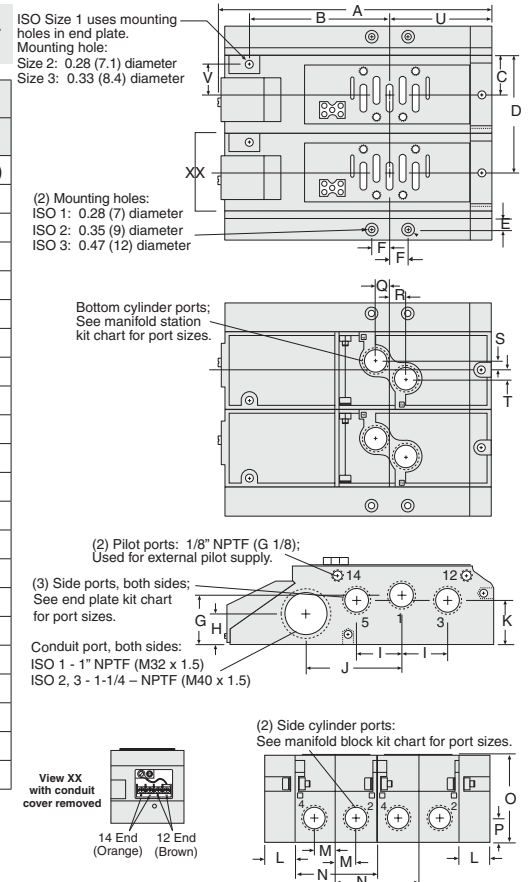
C

Bottom and End-Ported Manifold Bases

Each manifold station assembly includes a manifold assembly, socket head screws, nuts and seals. Each end station kit includes left and right end plates, socket head screws, nuts and seals.

Manifold Station Assembly			
ISO Size	Port Size	Model Number	
		NPT Threads	G Threads
1	1/4" End/Bottom	959N91	D959N91
	3/8" End/Bottom	960N91	D960N91
2	3/8" End/Bottom	961N91	D961N91
	1/2" End/Bottom	962N91	D962N91
3	1/2" End/Bottom	963N91	D963N91
	3/4" End/Bottom	964N91	D964N91

Dimensions inches (mm)			
	ISO 1	ISO 2	ISO 3
A	7.2 (183)	9.0 (229)	10.6 (270)
B	4.9 (125)	6.0 (152)	7.1 (180)
C	1.0 (26)	1.3 (33)	1.7 (43)
D	3.1 (79)	3.9 (100)	5.1 (128)
E	0.6 (14)	0.6 (16)	0.6 (15)
F	0.6 (14)	0.7 (17)	1.0 (26)
G	1.3 (34)	1.7 (42)	1.8 (46)
H	1.0 (25)	1.2 (30)	1.2 (31)
I	1.1 (28)	1.4 (35)	2.1 (52)
J	2.5 (64)	3.1 (79)	4.1 (104)
K	1.2 (31)	1.6 (40)	1.7 (42)
L	0.9 (22)	1.0 (25)	1.2 (30)
M	0.5 (13)	0.6 (16)	0.8 (21)
N	2.1 (53)	2.6 (67)	3.4 (86)
O	2.2 (55)	2.6 (66)	3.1 (78)
P	0.6 (16)	0.9 (22)	0.8 (20)
Q	0.5 (13)	0.6 (15)	0.7 (18)
R	0.5 (13)	0.6 (15)	0.8 (21)
S	0.3 (7)	0.3 (8)	0.5 (13)
T	0.3 (7)	0.3 (8)	0.5 (12)
U	2.0 (51)	2.8 (67)	3.1 (79)
V	-----	1.0 (26)	1.3 (31)



End Station Kit			
ISO Size	Port Size	Model Number	
		NPT Threads	G Threads
1	3/8"	493N86	D493N86
2	1/2"	494N86	D494N86
3	1"	495N86	D495N86

Assembled manifolds also available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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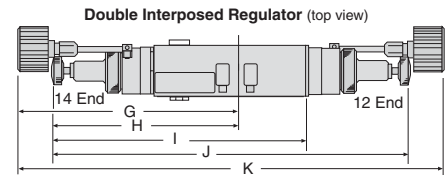
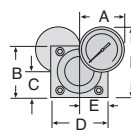
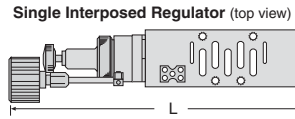
Accessories

NOTE: Accessories from this page are to be used only with sub-bases and manifolds on page A2.14-15.

Interposed Regulators

The interposed regulator controls the pressure through the base-mounted valve. These interposed devices are “sandwich” style, mounting between a valve and base or manifold. When using a dual interposed regulator for a W65 Series solenoid valve, the valve **must be externally piloted (port 14)**.

WARNING: Double interposed regulators will reverse output ports, the 12 solenoid will pressurize the 4 port, the 14 solenoid will pressurize the 2 port which may cause unexpected, potentially dangerous cylinder movement at valve pressurization.



ISO Size	Model Number	Dimensions inches (mm)											
		A	B	C	D	E	F	G	H	I	J	K	L
1 – Single	965N91	1.6 (39)	1.8 (45)	0.9 (23)	1.7 (43)	0.9 (22)	2.5 (63)	6.2 (157)	7.2 (182)	8.0 (204)	11.6 (295)	13.6 (345)	9.0 (229)
1 – Double	966N91	1.6 (39)	1.8 (45)	0.9 (23)	1.7 (43)	0.9 (22)	2.5 (63)	6.2 (157)	7.2 (182)	8.0 (204)	11.6 (295)	13.6 (345)	9.0 (229)
2 – Single	967N91	1.6 (39)	1.8 (45)	0.9 (23)	2.0 (51)	1.0 (26)	2.5 (63)	6.5 (166)	7.5 (191)	9.0 (229)	12.6 (320)	14.6 (370)	10.0 (254)
2 – Double	968N91	1.6 (39)	1.8 (45)	0.9 (23)	2.0 (51)	1.0 (26)	2.5 (63)	6.5 (166)	7.5 (191)	9.0 (229)	12.6 (320)	14.6 (370)	10.0 (254)
3 – Single	969N91	2.1 (52)	2.7 (67)	1.3 (34)	2.6 (66)	1.3 (33)	3.4 (85)	9.5 (242)	8.0 (203)	10.6 (270)	18.2 (463)	15.2 (386)	13.0 (330)
3 – Double	970N91	2.1 (52)	2.7 (67)	1.3 (34)	2.6 (66)	1.3 (33)	3.4 (85)	9.5 (242)	8.0 (203)	10.6 (270)	18.2 (463)	15.2 (386)	13.0 (330)

Flow Control Kits

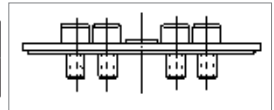
The interposed flow control independently adjusts the speed of a cylinder’s extend and retract motions. This action is achieved by throttling the flow of exhaust air through ports 3 and 5 by means of a separate needle valve across each of these ports. These interposed devices are “sandwich” style, mounting between a valve and a base or manifold.

ISO Size	Model Number	Dimensions inches (mm)		
		A	B	C
1	1371N77	0.9 (24)	3.8 (97)	1.7 (43)
2	1372N77	1.3 (33)	5.1 (130)	2.0 (51)
3	1373N77	1.6 (41)	5.6 (142)	2.6 (66)

Blank Station Kits

A blank station plate is used to cover the top of a manifold station not in use.

ISO Size	1	2	3
Kit Number	1381N77	1382N77	1383N77



Blocking Disk Kits

A blocking disk closes the ports between manifold stations.

ISO Size	1	2	3
Kit Number	1376N77	1378N77	1380N77



Pilot Port Blocking Plug

The pilot blocking plug blocks the pilot ports between manifold stations.

ISO Size	1	2	3
Kit Number	1375N77	1377N77	1379N77



Transition Plates

To bank different manifold sizes together.

Left Manifold ISO Size	Right Manifold ISO Size	Model Number
1	2	1387N77
2	1	1388N77
2	3	1389N77
3	2	1390N77

Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/4	Male	5500A2003	D5500A2003	1.2	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)



Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manifold Bases & End Station Kits for ISO Size 1 & 2

for ISO 5599-2 Valves
W65 Series

Manifold Bases for ISO Size 1 & 2

Choose your options (in red) to configure your model number.

RPSHU11 **5** **8** **M** **1** **P**

ISO Size	Model
ISO 1	RPSHU11
ISO 2	RPSHU11

ISO Size	Port Size	Option
ISO 1	3/8 NPT	5
	3/8 BSPP	6
ISO 2	1/2 NPT	7
	1/2 BSPP	8

Circuit Board Address Configuration	
Interconnect, Single Address	J
Interconnect, Double Address	M

Gasket Options	
1, 3, 5 Ports Open and Pilots Open	1
1, 3, 5 Ports Closed and Pilots Open	2
1 Port Closed, 3, 5 Ports Open and Pilots Closed	3
1 Port Open, 3, 5 Ports Closed and Pilots Open	4
1, 3, 5 Ports Open and Pilots Closed	5
1, 3, 5 Ports Closed and Pilots Closed	6
1 Port Closed, 3, 5 Ports Open and Pilots Closed	7
1 Port Open, 3, 5 Ports Closed and Pilots Open	8



C2

C

End Station Kits for ISO Size 1 & 2

Choose your options (in red) to configure your model number.

RPSHU20 **L2** **1** **0** **P**

Valve Type	
Plug-in (Internal Pilot)	RPSHU20
Plug-in (External Pilot)	RPSHU2X

Thread Type	
NPT	0
G	1*

*G thread type conforms to ISO 1179-1 w 228-1 threads.

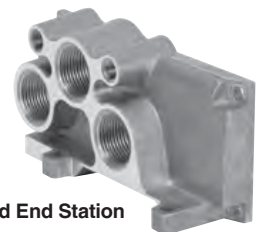
Left Hand End Plate Type	
25-Pin-D-Sub (top)#	L2
Industrial Communication	
ROSS Serial Bus	L6^
Turck BL67 with Valve Driver Module - For 16 Outputs	T1*
Turck BL67 with Valve Driver Module - For 32 Outputs	T2*

RPSHU11 gaskets included in each end station kit.
^ Valve Driver Module and 24 Output Cable installed. Must order communication modules separately. Must Order Bases with Circuit Boards.
* Turck Network and P2M Ethernet node communication module ordered separately.

Right Hand End Station Ports	
1/2 Exhaust and Inlet Ports	1
3/4 Exhaust and Inlet Ports	2



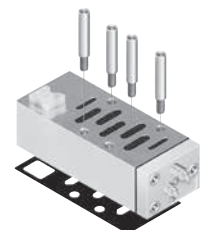
Left Hand End Station
25-pin D-Sub (top)



Hi-Flow - Right Hand End Station

Remote Pilot Access Plate Kits

ISO Size	Port Size	Kit Number		Description
		NPT Threads	G Threads	
1	1/8"	RPS401500CP	RPS401501CP	Kit includes: Pilot Port Access Plate, Gasket and Mounting Studs.
2	1/8"	RPS411500CP	RPS411501CP	
3	1/8"	RPS421500CP	RPS421501CP	



Blank Station Kits

ISO Size	Kit Number	Description
1	RPS4034CP	Kit includes: Blank Station Plate, Gasket, and Mounting Bolts.
2	RPS4134CP	
3	RPS4234CP	



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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C2.17

Manifold Bases & End Station Kits for ISO Size 3, Plate and Blank Station Kits

for ISO 5599-2 Valves
W65 Series

Manifold Bases for ISO Size 3

Choose your options (in red) to configure your model number.

RPS4211 69 M C P

Basic Series
ISO 3 RPS4211

Mounting Base Style / Port Size	
Manifold Base: 3/4 NPT Bottom / End Port	69
Manifold Base: 3/4 G Bottom / End Port	60*

* G ISO 1179 specifications.

Enclosures / Lead Length	
Circuit Board, Single Address	J†
Circuit Board, Double Address	M†
† Not Available with Sub-Base Kits.	
Note: When using the Enclosure / Lead Length "J" or "M" option: 12 volts DC - Maximum number of coils is 13 24 volts DC - Maximum number of coils is 21 120 volts AC - Coils limited by the number of pins available in the connector (25-Pin D-Sub = 24 coils, 19-Pin Brad Harrison = 16, 12-Pin M23 = 8) 240 volts AC - Must use "A" or "C" Option, Lead Wires or Terminal Blocks	

End Station Kits for ISO Size 3

Choose your options (in red) to configure your model number.

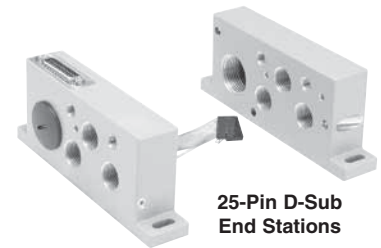
RPS42 20 L2 0 C P

Basic Series
ISO Size 3 5599 RPS42

Revision Level

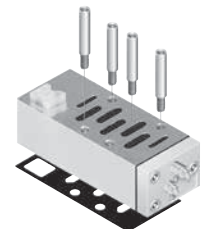
Thread Type	
NPT	0
G	1

Options	
25-Pin, D-Sub	L2††
Industrial Communication	
ROSS Serial Bus Communication	L6††
16 Outputs - Turck Serial Bus Communication Module	T1*
32 Outputs - Turck Serial Bus Communication Module	T2*
† Only Available with End Station Kit Type "20".	
‡ RPSHU11 gaskets included in each end plate kit.	
^ Valve Driver Module and 24 Output Cable Installed. Must order communication modules separately.	
+ Must Order Bases with Circuit Boards.	
* Turck Network and P2M Ethernet node communication module ordered separately.	



Remote Pilot Access Plate Kits

ISO Size	Port Size	Kit Number		Description
		NPT Threads	G Threads	
1	1/8"	RPS401500CP	RPS401501CP	Kit includes: Pilot Port Access Plate, Gasket and Mounting Studs.
2	1/8"	RPS411500CP	RPS411501CP	
3	1/8"	RPS421500CP	RPS421501CP	



Blank Station Kits

ISO Size	Kit Number	Description
1	RPS4034CP	Kit includes: Blank Station Plate, Gasket, and Mounting Bolts.
2	RPS4134CP	
3	RPS4234CP	



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Interposed Pressure Regulators

Choose your options (in red) to configure your model number.

RPS4038 **1** **6** **6** **C** **P**

Basic Series	
ISO Size 1	5599-2 RPS4038
ISO Size 2	55992 RPS4138
ISO Size 3	5599-2 RPS4238

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2
Selector Regulator	3

#4 Port Regulator / Gauge*	
0**	Line By-Pass Plate
1	1-30 psig w/o Gauge
2	2-60 psig w/o Gauge
3	5-125 psig w/o Gauge
4	1-30 psig w/Gauge
5	2-60 psig w/Gauge
6	5-125 psig w/Gauge
C	Air Pilot w/60 psig Gauge
D	Air Pilot w/160 psig Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent and Selector Regulators (Option 2 & 3 in Interposed Block Function).

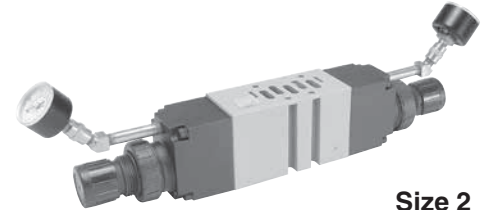
#2 Port Regulator / Gauge*	
0**	Line By-Pass Plate
1	1-30 psig w/o Gauge
2	2-60 psig w/o Gauge
3	5-125 psig w/o Gauge
4	1-30 psig w/Gauge
5	2-60 psig w/Gauge
6	5-125 psig w/Gauge
C	Air Pilot w/60 psig Gauge
D	Air Pilot w/160 psig Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent and Selector Regulators (Option 2 & 3 in Interposed Block Function).



Size 1
(Dual Interposed Regulator Shown)



Size 2
(Dual Interposed Regulator Shown)

C2

C

Ordering Components

- Manifold Base or Sub-Base Kit required
- Interposed Regulator Kit configured for Internal Pilot as standard
- Order valve as External Pilot

How to Configure Interposed Regulator / Valve Combinations

Internal Pilot Configuration - Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

External Pilot Configuration - Size 1, Size 2, Size 3

An External Pilot pressure in Port 12 or 14 of the base feeds thru the Interposed Regulator 12 or 14 galley directly to the 12/14 pilot of the valve.

This configuration takes an External Pilot from the 12 port of the base and passes it thru the regulator to feed the 12 galley of the valve.

WARNING: Double interposed regulators will reverse output ports, the 12 solenoid will pressurize the 4 port, the 14 solenoid will pressurize the 2 port which may cause unexpected, potentially dangerous cylinder movement at valve pressurization.

Gauge Adapter Kit

Description	Model Number
Gauge Kit	RPS5651160P
1/8" Female to 1/8" Female Coupling	R207P-2*
1/8" Male to 1/8" Male Long Nipple	RVS215PNL-2-15*

* Included in Gauge Kit RPS5651160P.

Included with all Size 00 Regulators. Both kits are required on all Size 0 & 00 Regulators when the Regulator is on the last Station on the Right (14) End.



Interposed Flow Controls

ISO Size	Model Number
1	RPS4035CP
2	RPS4135CP
3	RPS4235CP

Both adjustment screws are located on the 12 end of the unit.

Interposed Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting.

Interposed Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.

A Interposed Flow Control and Common Port Interposed Regulator may be sandwiched together on a Manifold or Sub-Base. The Interposed Flow Control MUST be located between the manifold/Sub-Base and the Common Port Interposed Regulator.

Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (91)	0.2 (0.1)

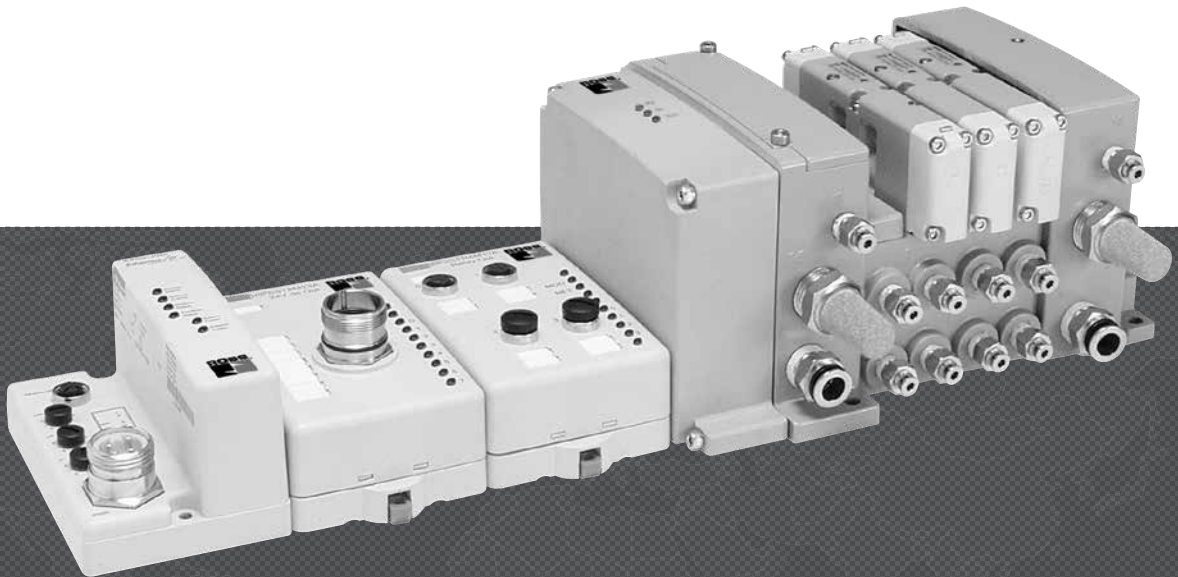


Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



ROSS SERIAL BUS COMMUNICATIONS



ROSS CONTROLS

ROSS SERIAL BUS COMMUNICATIONS – KEY FEATURES

- A complete Serial Bus communication offering for all ISO valves
- Centralized and decentralized pneumatics and I/O configurations
- Communication module supports up to 63 I/O modules, 264 Inputs, and 264 Outputs
- Input modules accept signals from sensors, photo eyes, limits and other field input devices
- Output modules provide signals to remote solenoid valves and other field output devices
- UL, C-UL, and CE certified

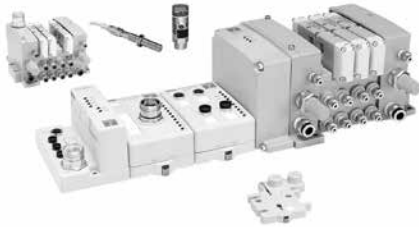


CONTENT	Page
ROSS Serial Bus Communications	C3.3 - C3.5
Select Communication Module	C3.6
Select Input/Output Module	C3.7 - C3.8
Select Valve Driver Module	C3.8
Select Power Unit	C3.9
Select Cables and Cordsets	C3.10 - C3.11

ROSS Serial Bus Communications

I/O - Centralized Configuration

A complete Serial Bus communication offering for all ISO valves.
 UL, C-UL and CE certifications (as marked)
 Centralized Serial Bus system.
 Pneumatics and I/O are in close proximity to one another.
 I/O density per module = 8.



I/O - Remote Configuration

A complete Serial Bus communication offering for all ISO valves.
 UL, C-UL and CE certifications (as marked)
 Centralized Serial Bus system.
 Pneumatics and I/O are in close proximity to one another.
 M23, 12-Pin output extension to remote valve island.
 I/O density per module = 8.



I/O - Compartmentalized Remote Configuration

A complete Serial Bus communication offering for all ISO valves.
 UL, C-UL and CE certifications (as marked).



Components Selection Steps

1. Select Communication Interface Module
2. Select I/O Modules
3. Select Valve Driver Module
4. Select Terminating Base Module
5. Select Optional Power Component
6. Select Accessories

Serial Bus Product Compatibility

	DeviceNet™ Adapter RPSSCDM	ControlNet Adapter RPSSCCNA	EtherNet Adapter RPSSCENA	PROFIBUS Adapter RPSSCPBA
PLC-5™ with Network Port	IOD	NS	NS	NA
SLC 500™ with Network Port	IOD	NS	NS	NA
PLC-5 Processor via Network Module	IOD	NS	NS	3
1756 Logix™ Communication Interface	IOD	IOD	IOD	3
PanelView™ Terminal	NA	NA	NA	NA
RSLinx™ Software	NA	NA	NA	NA
1769-L20, -L30 Controller with 1761- NET Interface	NA	NS	NS	NA
1769-L32E, -35E	NA	NA	IOD	NA
1769-L32C, -35CR	NA	IOD	NA	NA
1769 CompactLogix™ Communication Interface	IOD	NA	NA	3*
SoftLogix5800™ Communication Interface	IOD	IOD	IOD	3*
PC with RSLinx Only	NS	NS	NS	NA
FlexLogic™ Communication Interface	IOD	IOD	IOD	3

IOD = I/O Data, NS = Not Supported, NA = Not Applicable
 3 = Requires third party scanner module
 * Hilscher North America

Communication Considerations

Serial Bus features are impacted by your network choice.

Network	Impact
DeviceNet™ RPSSCDM12A and RPSSCDM18PA	The RPSSCDM12A and RPSSCDM18PA provide two means of connecting a node of I/O to DeviceNet™. A total of 63 Serial Bus modules can be assembled on a single DeviceNet™ node. Expansion power supplies may be used to provide additional PointBus backplane current.
ControlNet™ RPSSCCNA	A total of 63 Serial Bus modules can be assembled on a single ControlNet™ node. Expansion power supplies may be used to provide additional PointBus backplane current. Up to 25 direct connections and 5 rack connections are allowed.
EtherNet/IP™ RPSSCENA	A total of 63 Serial Bus modules can be assembled on a single EtherNet / IP node. Expansion power supplies may be used to provide additional PointBus backplane current. Refer to the User Manual, Bulletin 601 (form #A10311) to determine the ratings for direct and rack connections allowed.
PROFIBUS DP™ RPSSCPBA	A total of 63 Serial Bus modules can be assembled on a single PROFIBUS node. Expansion power supplies may be used to provide additional PointBus backplane current.

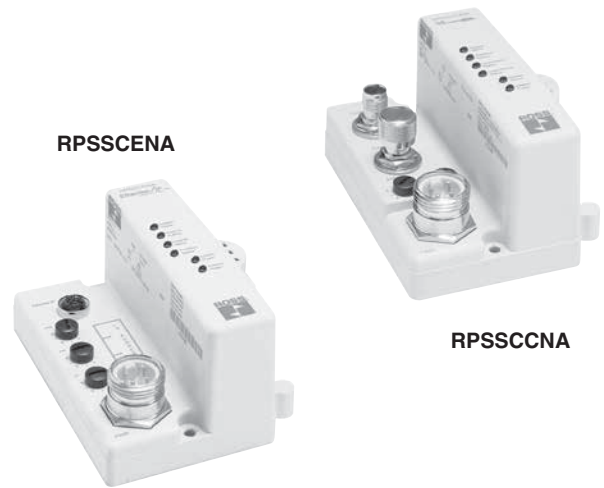
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



ROSS Serial Bus Communications

Communication Modules*

Network	Model Number	Voltage
†§ DeviceNet™ (M18 or M12)	RPSSCDM18PA (M18) or RPSSCDM12A (M12)	10 to 28.8 volts DC
†§ ControlNet™	RPSSCCNA	10 to 28.8 volts DC
†§ Ethernet I/P™	RPSSCENA	10 to 28.8 volts DC
†§ Profibus-DP®	RPSSCPBA	10 to 28.8 volts DC
* IP67 Certified. † Reference the following Documents for Installation Instructions. DeviceNet™ - A10313, A10311; ControlNet™ - A10315. Ethernet I/P - A10316; Profibus-DP - A10314. § Requires a RPSST8M23A or RPSSV32A in all manifold assemblies. RPSSV32A is included in factory assembled manifolds and Serial Bus End Station Kits. EDS and GSD files located at www.rosscontrols.com		

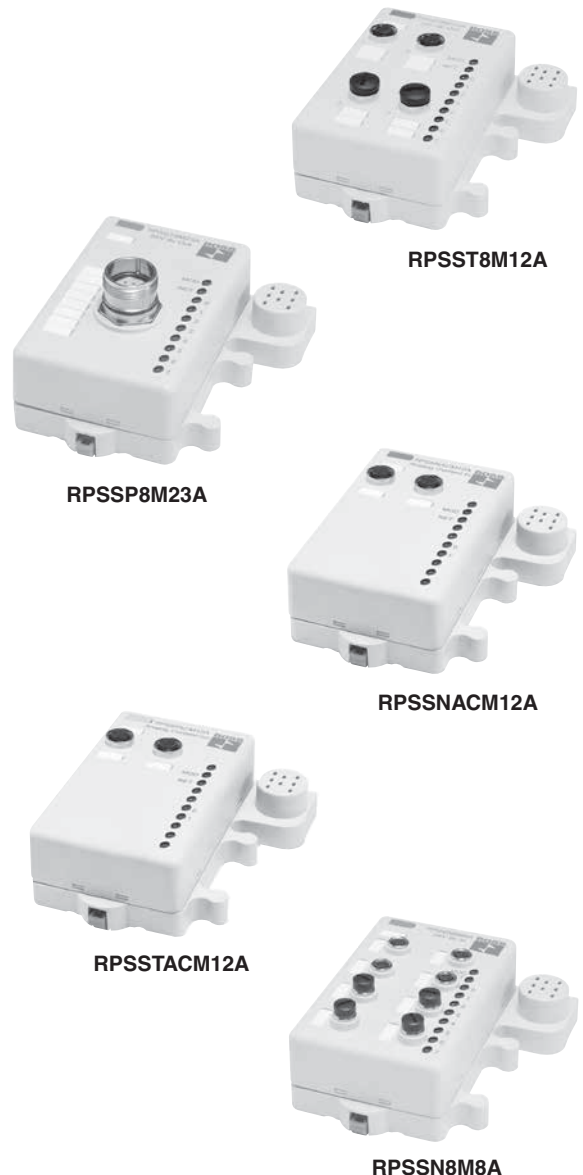


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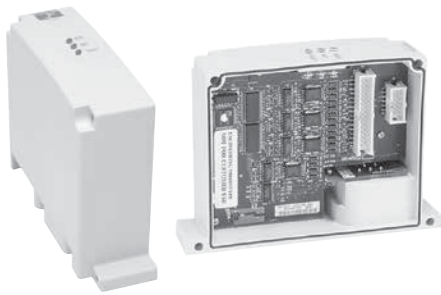
I/O Modules*

Network	Model Number	Voltage
† 8 Digital Inputs M12 (NPN Sinking - Requires PNP Sourcing Input Device)	RPSSN8M12A	10 to 28.8 volts DC
† 8 Digital Inputs M12 (PNP Sourcing - Requires NPN Sinking Input Device)	RPSSP8M12A	10 to 28.8 volts DC
† 8 Digital Inputs M8 (NPN Sinking - Requires PNP Sourcing Input Device)	RPSSN8M8A	10 to 28.8 volts DC
† 8 Digital Inputs M8 (PNP Sourcing - Requires NPN Sinking Input Device)	RPSSP8M8A	10 to 28.8 volts DC
† 8 Digital Inputs M23 12-Pin (PNP Sourcing - Requires NPN Sinking Input Device)	RPSSP8M23A	10 to 28.8 volts DC
† 8 Digital Inputs M23 12-Pin (NPN Sinking - Requires PNP Sourcing Input Device)	RPSSN8M23A	10 to 28.8 volts DC
+ 8 Digital Outputs M12 (PNP Sourcing)	RPSST8M12A	10 to 28.8 volts DC
+ 8 Digital Outputs M8 (PNP Sourcing)	RPSST8M8A	10 to 28.8 volts DC
§ 4 Digital Output, High Watt Relay M12 (PNP Sourcing) (2 Amp)	RPSTR4M12A	24 volts DC
+# 8 Digital Outputs M23 (PNP Sourcing)	RPSST8M23A	10 to 28.8 volts DC
‡ 2 Analog Inputs Voltage (M12)	RPSSNAVM12A	0 to 10V ± 10V
‡ 2 Analog Inputs Current (M12)	RPSSNACM12A	4 to 20mA or 0 to 20mA
.. 2 Analog Outputs Voltage (M12)	RPSSTAVM12A	0 to 10V ± 10V
.. 2 Analog Outputs Current (M12)	RPSSTACM12A	4 to 20mA or 0 to 20mA
* IP67 Certified. Reference the following Documents for Installation Instructions. † A10318, †A10319, §A10320, ‡A10321, ..A10322. # Can be used with RPSSTERM. See www.rosscontrols.com		



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

ROSS Serial Bus Communications



RPSSV32A



RPSSTERM



RPSSE24A



RPSSEXT1



RP8BPA00MA

Valve Driver Module

Description	ISO Size	Model Number
32 Point Module	00, 0, 1, 2, & 3	RPSSV32A*†
24 Output Cable	00 & 0	RPS5624P†
25 - 32 Output Cable	00 & 0	RPS5632P†
24 Output Cable	1, 2, & 3	RPS4024P†

* Reference Document A10312 for Installation Instructions.

See www.rosscontrols.com

† Serial Bus Manifold assemblies and end station kits include a valve driver module (RPSSV32A) and cable.

Series W66, Size 00 / Series W66, Size 0 24 output manifolds require a RPS5624P.

Series W66, Size 00 / Series W66, Size 0 32 output manifolds require a RPS5624P + RPS5632P.

Size 1, 2, & 3 manifolds require a RPS4024P, allowing 21 outputs.

Terminating Base Module

Description	Model Number
Terminating Module	RPSSTERM

Used as the last Terminating Module for a Stand Alone Serial Bus Assembly. A RPSST8M23A must be located in the Serial Bus assembly.

Power Extender Module

Description	Voltage	Model Number
Field Power Module	24 volts DC	RPSSE24A

A Power Extender Module must be used on every 12th Module in an Serial Bus assembly. See www.rosscontrols.com

Reference Document A10317 and A10311 for configuration instructions.

See www.rosscontrols.com

Bus Extender Cable

Description	Voltage	Model Number
1 Meter Cable*	24 volts DC	RPSSEXT1
3 Meter Cable*	24 volts DC	RPSSEXT2

* Requires a RPSSE24A Power Extender Module.

IP67 Certified.

See www.rosscontrols.com

Devicebus Terminating Resistor

Description	Model Number
DeviceNet™ M12 Type A	RP8BPA00MA
Profibus-DP M12 Type B	RP8BPA00MB

Communication Modules*

Network	Model Number	Voltage
†§ DeviceNet™ (M18 or M12)	RPSSCDM18PA (M18) or RPSSCDM12A (M12)	10 to 28.8 volts DC
†§ ControlNet™	RPSSCCNA	10 to 28.8 volts DC
†§ Ethernet I/P™	RPSSCENA	10 to 28.8 volts DC
†§ Profibus-DP®	RPSSCPBA	10 to 28.8 volts DC
* IP67 Certified. † Reference the following Documents for Installation Instructions. DeviceNet™ - A10313, A10311; ControlNet™ - A10315. Ethernet I/P - A10316; Profibus-DP - A10314. § Requires a RPSST8M23A or RPSSV32A in all manifold assemblies. RPSSV32A is included in factory assembled manifolds and Serial Bus End Station kits. EDS and GSD files located at www.rosscontrols.com		



RPSSCCNA



RPSSCENA

General Environmental	
Operating Temperature	-4° to 140° F
Storage Temperature	-40° to 185° F
Relative Humidity	5 to 95% non-condensing
Vibration	5g @ 10 to 500Hz
Protection Class	Operating 30g; Non-operating 50g
Shock	IP 65/66/67
Approvals	UL, C-UL, CE

Maximum Size Layout

Model Number	PointBus Current (mA)	Maximum I/O Modules with 24VDC Backplane Current at 75 mA each	Maximum I/O Modules with Expansion Power Supplies	Maximum Number of I/O Module Connections
RPSSCDM12A on DeviceNet™	1000	Up to 13	63	5 rack and 20 direct 20 total connections including rack and direct
RPSSCDM18PA on DeviceNet™				
RPSSCCNA on ControlNet™				
RPSSCENA on EtherNet/IP™				
RPSSCPBA on PROFIBUS				Horizontal mounting: 1A@5V DC for 10...19.2V input; 1.3A @ 5V DC for 19.2...28.8V input Vertical mounting: 1A @ 5V DC for 10...28.8V input
RPSSSE24A Expansion Power				

Power Supply Distance Rating

Modules are placed to the right of the power supply. Each Serial Bus module can be placed in any of the slots to the right of the power supply until the usable backplane current of that supply has been exhausted. An adapter provides 1 A current to the PointBus. The RPSSSE24A provides up to 1.3 A and I/O modules require from 75 mA (typical for the digital and analog I/O modules) up to 90 mA or more.

PointBus Current Requirements

Model Number	PointBus Current Requirements
RPSSN8xxx	75 mA
RPSSP8xxx	
RPSST8xxx	
RPSSTR4MRA	90 mA
RPSSNACM12A	75 mA
RPSSTACM12A	
RPSSNAVM12A	
RPSSTAVM12A	
RPSSV32A	

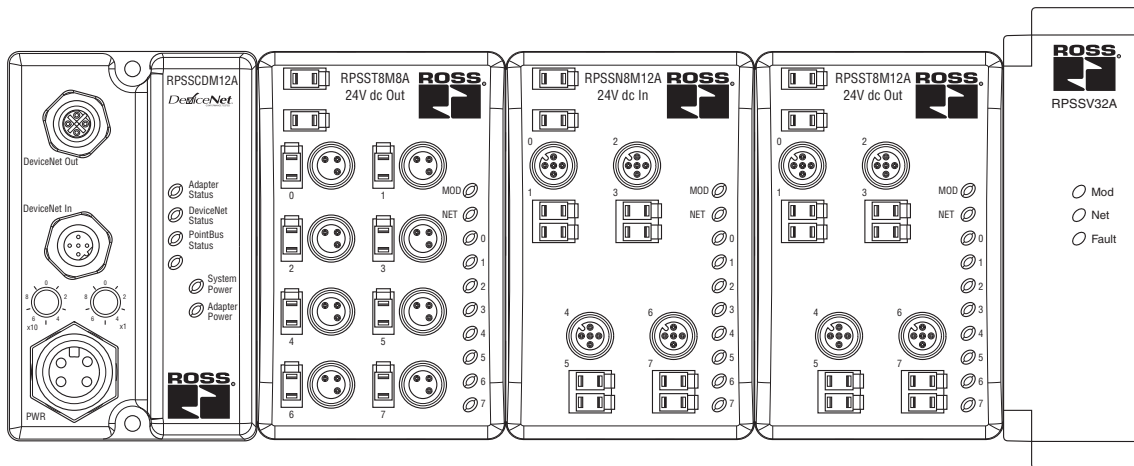
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Step 2 Select I/O Modules

ROSS Serial Bus System

The Serial Bus family of I/O modules includes:

- Digital I/O Modules
- Analog I/O Modules
- Valve Driver Module



Digital DC Input Modules

	RPSSN8M8A RPSSN8M12A RPSSN8M23A	RPSSP8M8A RPSSP8M12A RPSSP8M23A
Number of Inputs	8 Sinking	8 Sourcing
Keyswitch Position	1	1
Voltage, On-State Input, Nom.	24 volts DC	24 volts DC
Voltage, On-State Input, Min.	10 volts DC	10 volts DC
Voltage, On-State Input, Max.	28.8 volts DC	28.8 volts DC
Input Delay Time, ON to OFF	0.5 ms Hardware + (0...65 ms selectable)*	0.5 ms Hardware + (0...65 ms selectable)*
Current, On-State Input, Min.	2 mA	2 mA
Current, On-State Input, Max.	5 mA	5 mA
Current, Off-State Input, Max.	1.5 mA	1.5 mA
PointBus Current (mA)	75	75
Power Dissipation, Max.	1.0 W @ 28.8 volts DC	1.0 W @ 28.8 volts DC

* Input ON-to-OFF delay time is the time from a valid input signal to recognition by the module.

Digital DC Output Modules

	RPSST8M8A RPSST8M12A RPSST8M23A
Number of Outputs	8 sourcing
Keyswitch Position	1
Voltage, On-State Output, Nom.	24 volts DC
Voltage, On-State Output, Min.	10 volts DC
Voltage, On-State Output, Max.	28.8 volts DC
Output Current Rating, Max.	3.0 A per module, 1.0 A per channel
PointBus Current (mA)	75
Power Dissipation, Max.	1.2 W @ 28.8 volts DC

Relay Output Module

	RPSSTR4M12A
Number of Outputs	4 Form A (N.O.) relays, isolated
Keyswitch Position	7
Output Delay Time, ON to OFF, Max.	26 ms*
Contact Resistance, Initial	30 mΩ
Current Leakage, Off-State Output, Max.	1.2 mA and bleed resistor thru snubber circuit @ 240 volts AC
PointBus Current (mA)	90
Power Dissipation, Max.	0.5 W

*Time from valid output off signal to relay de-energization by module.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Step 2 & 3

Select I/O & Valve Driver Modules

ROSS Serial Bus System

Analog Input Modules

Model Number	RPSSNACM12A	RPSSNAVM12A
Number of Inputs	2	2
Keyswitch Position	3	3
Input Signal Range	4...20 mA 0...20 mA	0...10V ±10V
Input Resolution, Bits	16 bits - over 21 mA 0.32 µA/cnt	15 bits plus sign 320 µV/cnt in unipolar or bipolar mode
Absolute Accuracy, Current Input	0.1% Full Scale @ 25°C [†]	—
Absolute Accuracy, Voltage Input	—	0.1% Full Scale @ 25°C [†]
Input Step Response, per Channel	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz
Input Conversion Type	Delta Sigma	Delta Sigma
PointBus Current (mA)	75	75
Power Dissipation, Max.	0.6 W @ 28.8 volts DC	0.6 W @ 28.8 volts DC

* Includes offset, gain, non-linearity and repeatability error terms.

[†] Analog input modules support these configurable parameters and diagnostics: open-wire with LED and electronic reporting; four-alarm and annunciation set-points; calibration mode and electronic reporting; under- and over-range and electronic reporting; channel signal range and update rate and on-board scaling; filter-type; channel update rate.

Analog Output Modules

Model Number	RPSSTACM12A	RPSSTAVM12A
Number of Outputs	2	2
Keyswitch Position	4	4
Output Signal Range	4...20 mA 0...20 mA	0...10V ±10V
Output Resolution, Bits	13 bits - over 21 mA 2.5 µA/cnt	14 bits (13 plus sign) 1.28 mV/cnt in unipolar or bipolar mode
Absolute Accuracy, Current Output	0.1% Full Scale @ 25°C [†]	—
Absolute Accuracy, Voltage Output	—	0.1% Full Scale @ 25°C [†]
Step Response to 63% of FS, Current Output	24 µs	—
Step Response to 63% of FS, Voltage Output	—	20 µs
Output Conversion Rate	16 µs	20 µs
PointBus Current (mA)	75	75
Power Dissipation, Max.	1.0 W @ 28.8 volts DC	1.0 W @ 28.8 volts DC

* Includes offset, gain, non-linearity and repeatability error terms.

[†] Analog output modules support these configurable parameters and diagnostics: open-wire with LED and electronic reporting (RPSSTACM12A only); fault mode; idle mode; alarms; channel signal range and on-board scaling.

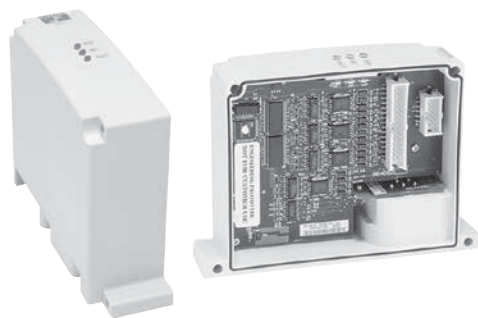
Step 3

Select Valve Driver Module for ROSS Bus System

Valve Driver Module Specifications

Model Number	RPSSV32A
Outputs per Module	32, sourcing
Voltage Drop, On-State Output, Maximum	0.2 volts DC
Voltage, Off-State Output, Maximum	28.8 volts DC
Voltage, On-State Output, Maximum	28.8 volts DC
Minimum	10 volts DC
Nominal	24 volts DC
Output Current Rating	200 mA per channel, not to exceed 6.0 A per module
Output Surge Current, Maximum	0.5 A for 10 ms, repeatable every 3 seconds
Current Leakage, Off-State Output, Maximum	0.1 mA
Current, On-State Output Minimum	200 mA per channel
Output Delay Time OFF to ON, Maximum ¹	0.1 ms
Output Delay Time, ON to OFF, Maximum ¹	0.1 ms
External DC Power Supply Voltage Range	10 to 28.8 volts DC
External DC Power Supply Voltage Nominal	24 volts DC

¹. OFF to ON or ON to OFF delay is time from a valid output "on" or "off" signal to output energization or de-energization.



The RPSSV32A valve driver module provides an interface between the Serial Bus system and the valve assembly. This module will always be the last module on the Serial Bus. It controls 32 digital outputs at 24 volts DC. Depending on the valve selection, it can control up to 32 single solenoid valves or 16 double solenoid valves.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Select the Appropriate Power Supply Unit

Serial Bus adapters have built-in PointBus power supplies. All Serial Bus modules are powered from the PointBus by either an adapter or expansion power supply.

Power Specifications

Model Number	Power Supply Input Voltage, Nom.	Operating Voltage Range	Field Side Power Requirements, Max.	Power Supply Inrush Current, Max.	Input Overvoltage Protection	Power Supply Interruption Protection
RPSSCDM12A	24 volts DC	10...28.8 volts DC	24 volts DC (+20% = 28.8VDC) @ 400 mA	6 A for 10 ms	Reverse polarity protected	Output voltage will stay within specifications when input drops out for max. load.
RPSSCDM18PA						
RPSSCCNA						
RPSSCENA						
RPSSCPBA						
RPSSSE24A						

Power units are divided into two categories:

- Communication adapters with built-in power supply (DC-DC)
- Expansion power supply

Expansion Power Unit

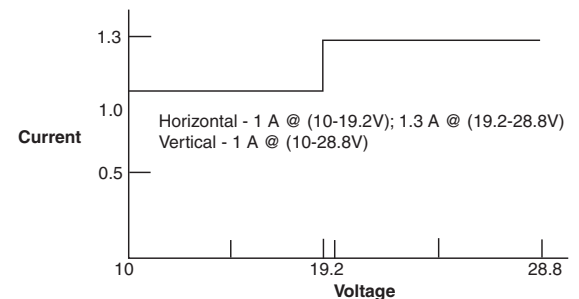
The RPSSSE24A expansion power unit passes 24 volts DC field power to the I/O modules to the right of it. This unit extends the backplane bus power and creates a new field voltage partition segment for driving field devices for up to 13 I/O modules. The expansion power unit separates field power from I/O modules to the left of the unit, effectively providing functional and logical partitioning for:

- Separating field power between input and output modules
- Separating field power to the analog and digital modules
- Grouping modules to perform a specific task or function

You can use multiple expansion power units with any of the communication adapters to assemble a full system. If you are using the RPSSCDM12A adapter, you may use a RPSSSE24A expansion power unit to add additional modules. For example, if you had a 36 module system with a RPSSCDM12A adapter, you would have at least two or more RPSSSE24A expansion power units to provide more PointBus current for modules to the right of the supply.

- 24 volts DC to 5 volts DC converter
- 1.3A, 5 volts DC output (extend backplane power)
- Starts new voltage distribution
- Partitioning

RPSSSE24A Current Derating for Mounting



Power Distribution General Specifications

Model Number	RPSSSE24A
Power Supply Requirements	Note: In order to comply with CE Low Voltage Directives (LVD), you must use a Safety Extra Low Voltage (SELV) or a Protected Extra Low Voltage (PELV) power supply to power this adapter
Field Side Power Requirements	24 volts DC (+20% = 28.8 volts DC max.) @ 400 mA
Inrush Current, Max.	6 A for 10 ms
Input Overvoltage Protection	Reverse polarity protected
Power Supply Interruption Protection	Output voltage will stay within specifications when input drops out for 10 ms at 10V with max. load
Power Supply Input Voltage, Nom.	24 volts DC
Operating Voltage Range	10...28.8 volts DC
Power Consumption, Max.	9.8 W @ 28.8 volts DC
Power Dissipation, Max.	3.0 W @ 28.8 volts DC
Thermal Dissipation, Max.	10.0 BTU/hr @ 28.8 volts DC
Isolation Voltage	1250 V rms
Field Power Bus Supply Voltage, Nom.	12 volts DC or 24 volts DC
Field Power Bus Supply Current, Max.	10 A

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Serial Bus Digital Input Module Cables

Model Number	For Using:	Recommended Rockwell Automation Patchcord (double-ended)	Recommended Rockwell Automation Male Cordset (single-ended)
RPSSN8M12A	2 inputs per connector	879D-F4ACDM-x	879-C3AEDM4-5
RPSSP8M12A	1 input per connector	889D-F4ACDM-x	889D-M4AC-y
RPSSN8M8A	3-Pin Pico connectors	889P-F3ABPM-x	889P-M3AB-y
RPSSP8M8A	4-Pin Pico connectors	889P-F4ABPM3-x	
RPSSN8M23A	M23, 12-Pin	889M-F12AHMU-z	—
RPSSP8M23A			
RPSST8M23A			
x = length in meters (1, 2, 3, 5, and 10 standard) y = length in meters (2, 5, and 10 standard) z = length in meters (1, 2, and 3 standard)			
For more cables and cordsets, please refer to www.connector.com			

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C3

Serial Bus Analog Inputs and Outputs

Model Number	For Using:	Recommended Cable
RPSSNAV12A	1 input per connector	804507P20M020 (Shielded)*
RPSSNAC12A		
RPSSTAV12A	1 output per connector	
RPSSTAC12A		
* Refer to www.connector.com		

Serial Bus Digital Output Module Cables

Model Number	For Using:	Recommended Rockwell Automation Patchcord (double-ended)	Recommended Rockwell Automation Male Cordset (single-ended)
RPSST8M12A	2 inputs per connector	879D-F4ACDM-x	879-C3AEDM4-5
	1 input per connector	889D-F4ACDM-x	889D-M4AC-y
RPSST8M8A	3-Pin Pico connectors	889P-F3ABPM-x	889P-M3AB-y
	4-Pin Pico connectors	889P-F4ABPM3-x	
x = length in meters (1, 2, 3, 5, and 10 standard) y = length in meters (2, 5, and 10 standard)			
For more cables and cordsets, please refer to www.connector.com			


Serial Bus Relay Output Module Cables

Model Number	Recommended Rockwell Automation Patchcord (double-ended)	Recommended Rockwell Automation Male Cordset (single-ended)
RPSSTR4M12A	889D-F4ACDM-x	889D-M4AC-y
x = length in meters (1, 2, 3, 5, and 10 standard) y = length in meters (2, 5, and 10 standard)		
For more cables and cordsets, please refer to www.connector.com		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Serial Bus DeviceNet™ and Auxiliary Power Cables

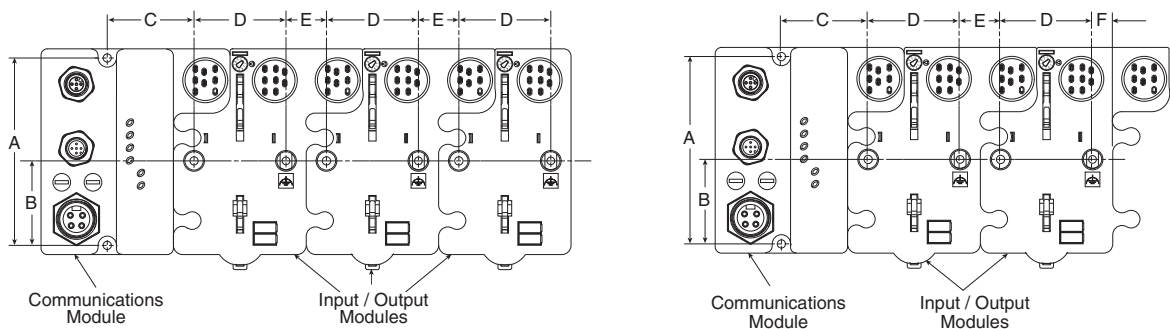
Model Number	Network	Recommended Rockwell Automation Network Cable	Recommended Rockwell Automation Auxiliary Power Cables
RPSSCDM12A RPSSCDM18PA	DeviceNet™	KwikLink Flat Media system standard drop cable: 1485K-PzF5-R5 Thin Round system standard drop cable: 1485R-PzN5-M5 Thick Round system standard drop cable: 1485C-PzN5-M5	Standard Cordset (single-ended): 889N-F5AFC-y Standard Patchcord (double-ended): 889N-F4AFNC-x
RPSSCCNA	ControlNet™	BNC to TNC Connector is required when using BNC Cordsets. See www.amphenolrf.com 	
RPSSCENA	EtherNet/IP™	—	Standard Cordset (single-ended): 889N-F5AFC-y
RPSSCPBA	PROFIBUS DP	—	

x = length in meters (1, 2, 3, and 6 standard)
y = length in feet (6, 12, and 20 standard)
z = length in feet (1, 2, 3, 4, 5, and 6 standard)
For more cables and cordsets, please refer to www.connector.com

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Serial Bus Valve Driver Module Harness Assemblies

ISO Size	Model Number	
	1 to 24 Outputs	25 to 32 Outputs
0 and Size 00	RPS5624P	RPS5632P
1, 2, & 3	RPS4024P	RPS4032P



Dimensions - inches (mm)					
A	B	C	D	E	F
4.0 (102)	1.8 (46)	1.9 (48)	2.0 (50)	0.87 (22)	0.43 (11)

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.





ROSS SERIAL BUS SYSTEM WITH TURCK MODULAR I/O



ROSS CONTROLS

ROSS Serial Bus System with TURCK Modular I/O – KEY FEATURES

- A complete Centralized Serial Bus communication offering for ISO valves W65 and W66 Series
- I/O system based on the TURCK Modular Industrial I/O System BL 67
- Communication module supports up to 32 station modules each supporting up to 8 I/O modules
- Input modules accept signals from sensors, photo eyes, limits and other field input devices
- Output modules provide signals to remote solenoid valves and other field output devices
- UL, C-UL, and CE certified

CONTENT	Page
I/O System BL 67	C4.3 - C4.4
Select Communication Module	C4.5
Select Input/Output Module	C4.6
Select Optionals	C4.7
Select Base Modules for BL67 I/O	C4.8
Base Module Dimensions and Pinouts	C4.9
Turck Warranty	C4.10

The BL67 Solution

BL67 combines all the flexibility of an in-the-cabinet PLC I/O system with modularity, ruggedness and connectorization.

BL67 complements the AIM™, BL20 and piconet® product families to meet the needs of unique applications, such as small machine or conveyor systems requiring IP 67 protection.

The BL67 Concept

The BL67 modular concept is a very flexible approach to connectorized I/O. The gateway, base and electronic modules provide many benefits to the user.

- The gateway provides communication between the fieldbus and I/O modules; modules are not dependent on the fieldbus protocol.
- DIN-rail or frame mountable base modules are available with eurofast® (M12), minifast® (7/8-16UN), M23 and picofast® (M8) connectors.
- Electronic modules are hot swappable.
- Power distribution module (24 volts DC) supplies the connected I/O signals.

BL67's openness, flexibility, connectorization, compact housing and ruggedness provide a viable alternative to in-the-cabinet I/O.

Environmental Conditions

Intended Application Environments

- BL67 does not need an enclosure
- Mount directly on machine or conveyor
- Rugged design provides protection against dirt, dust and liquids

Not intended for These Environments

- Continuous submersion
- 100 percent humidity
- High pressure washdown

Note: For higher levels of protection consider fully potted AIM stations.

General Environmental	
Potential isolation	Via optocoupler
Operating temperature	32° to +131°F (0° to +55°C)
Storage temperature	-13° to +185°F (-25° to +85°C)
Relative humidity	5 to 95% (indoor), noncondensing
Vibration	1.0 g 5-10 Hz
Shock	15 g
Protection class	IP 67, NEMA 1, 3, 4, 12, 13
Electromagnetic compatibility (EMC)	According to EN 61131-2
Housing material	PC-V0 (Lexan), Nickel plated brass
Approvals	CE
	UL
	CSA

Maximum Size of a BL67 Station

BL67 stations consist of a gateway and a maximum of 32 modules (equivalent to 1 m station length). Some high-tech and analog I/O modules may consume or produce large amounts of data, and therefore may limit the number of modules that may be used per system. It is highly recommended that the I/O assistant software is used when planning and commissioning BL67 systems. This program allows you to build the BL67 node on your computer and verify that all restrictions with regard to power and size are met. The free I/O assistant software is available for download from www.turck.com.

Addressing

As a node on a network, BL67 stations are addressed dependent on the network system being used. Each network gateway has a set of rotary switches used to set the address for the node. DeviceNet™ and CANopen gateways may be addressed between 0 and 63 via two switches (one for the 10's digit and one for the 1's digit). For example, to set the address to 37 you would set the 10's switch to 3 and the 1's switch to 7. The third switch on the gateway may be used to set the communication rate of the network interface. PROFIBUS®-DP gateways may be set from 1 to 125 by using three switches (one for the 100's, one for the 10's and one for the 1's).

Ethernet gateways allow different addressing schemes depending on the Ethernet addressing method being used in the overall system. Dynamic addressing schemes include BootP and DHCP, while hard-coding a static address is also allowed.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



BL67 Power Distribution

Power Overview

The power supply for a BL67 station is fed via the power connector on the PROFIBUS® gateway or directly from the network on the DeviceNet™ gateway. Power feeder modules can be added to the system at any point to provide a fresh isolated supply of power to all I/O connected to its right.

Internal Power Consumption via Module Bus

The amount of BL67 modules that may be supplied via the internal module bus depends on the respective nominal current I_{MB} of the individual modules on the module bus. The sum of the nominal current inputs of the connected BL67 module must not exceed 1.5 A. If the I/O assistant software is used, an error message is generated automatically via the <Station - Verify> as soon as the system supply via the module bus is no longer sufficiently guaranteed.

To calculate current draw on DeviceNet: Add $I_{MB(24)}$ for all modules. Then add V_I and V_O for electronic modules to the left of the first power feed module. Next, add the current draw of the I/O devices.

To calculate current draw on PROFIBUS gateway power connector for V_I : Add I_{MB} for all modules. Then add V_I current for all modules to the left of the first power feed module. Next, add the current draw of the input devices.

For V_O , add the V_O current for all modules to the left of the first power feed module. Next, add the current draw of the output devices.

V_{MB} = Module bus power

V_I = Input power

V_O = Output power

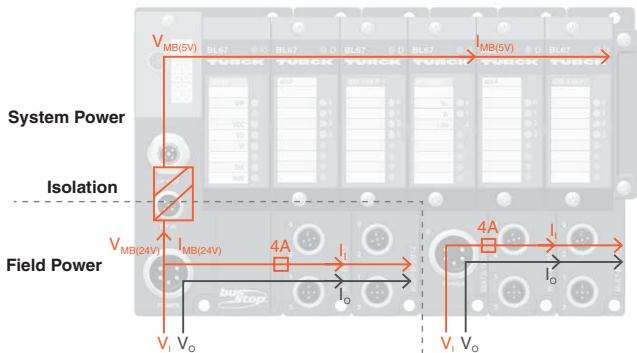
I_{MB} = Module bus current

$I_{MB(24)}$ = Effective current draw from gateway at 24 volts DC supply.

Module	Nominal 1 Current at 5 V I_{MB}	Effective Draw 2 from Gateway at 24 VDC $I_{MB(24)}$	Nominal 3 Current from V_I	Nominal 4 Current from V_O
BL67-GW-DPV1	–	≤150 mA		
BL67-GW-DN	–	≤100 mA		
BL67-PF-24VDC	≤30 mA	≤9 mA		
BL67-4DI-P	≤30 mA	≤9 mA	≤40 mA	
BL67-8DI-P	≤30 mA	≤9 mA	≤40 mA	
BL67-4DO-0.5A-P	≤30 mA	≤9 mA		≤100 mA
BL67-4DO-2A-P	≤30 mA	≤9 mA		≤100 mA
BL67-8DO-0.5A-P	≤30 mA	≤9 mA		≤100 mA
BL67-2AI-V	≤35 mA	≤10 mA	≤12 mA	
BL67-2AI-I	≤35 mA	≤10 mA	≤12 mA	
BL67-2AI-TC	≤35 mA	≤10 mA	≤30 mA	
BL67-2AI-PT	≤45 mA	≤13 mA	≤45 mA	
BL67-2AO-I	≤40 mA	≤12 mA		≤50 mA
BL67-2AO-V	≤60 mA	≤17 mA		≤50 mA
BL67-1RS232	≤100 mA	≤28 mA	≤50 mA	
BL67-8XSG-PD	≤30 mA	≤9 mA		≤100 mA
BL67-1SSI	≤50 mA	≤15 mA	≤50 mA	
BL67-4DI-PD	≤30 mA	≤9 mA		≤100 mA
BL67-8DI-PD	≤30 mA	≤9 mA		≤100 mA

Applying Power to BL67

PROFIBUS®, Ethernet and CANopen System DeviceNet™ System



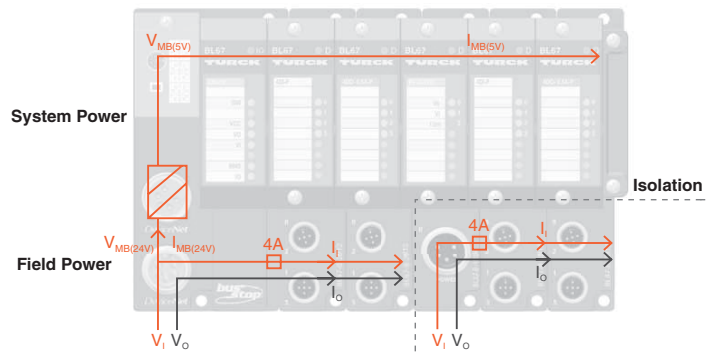
V_I, V_O, V_{MB} from Power on Gateway

Isolation of Field Power V_I, V_O

$I_{MB(5V)} < 1.5A$
 $I_I < 4A$ (protected)
 $I_O < 8A$

V_{MB} = Module Bus Power
 V_I = Input Power
 V_O = Output Power

A power feeder module provides a new isolated segment for all modules to its right.



V_I, V_O, V_{MB} from DeviceNet™

Isolation of Field Power V_I, V_O

$I_{MB(5V)} < 1.5A$
 $I_I < 4A$ (protected)
 $I_O < 8A$

V_{MB} = Module Bus Power
 V_I = Input Power
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A power feeder module provides a new isolated segment for all modules to its right.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Step 1

Select Communication Module

TURCK Serial Bus System

General Environmental	
DeviceNet Gateway	BL67-GW-DN
ModBus TCP/IP, Ethernet Gateways	BL67-GW-EN BL67-PG-EN (programmable)
Ethernet IP, Ethernet Gateways	BL67-GW-EN-IP BL67-PG-EN-IP (programmable)
Profinet, Ethernet Gateways	BL67-GW-EN-PN
PROFIBUS-DP Gateway	BL67-GW-DPV1 BL67-PG-DP (programmable)
CANopen Gateway	BL67-GW-CO
IP67 Certified. Reference the following Document for installation instructions: AXXXXX. See www.rosscontrols.com	



- Electrical:**
- Operating Current: <600 mA from V_{MB}
 - Input Supply Current: <4 A (from V_i)
 - Output Supply Current: <8 A (from V_o)
 - Backplane Current: <1.5 A (from V_{MB})

- Mechanical:**
- Operating Temperature: -12 to +55°C (-13 to +131°F)
 - Protection: IP 67
 - Vibration: 5 g @ 10-500 Hz

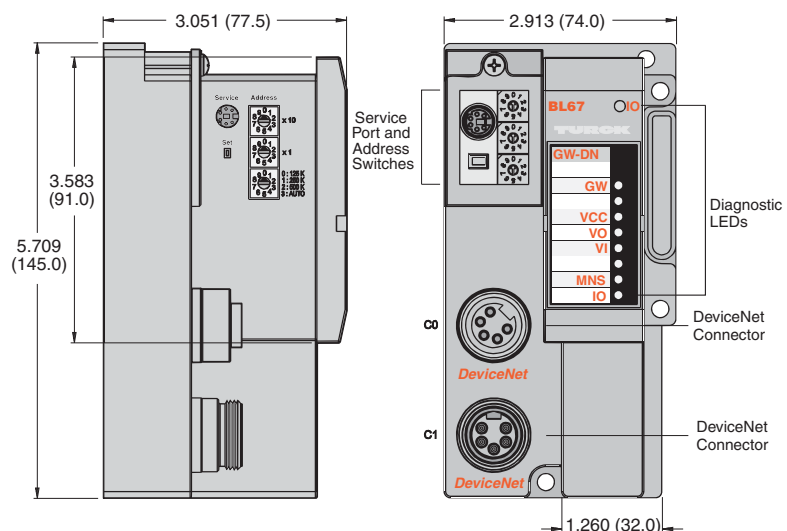
- Material:**
- Housing: PC-V0 (Lexan)

- Diagnostics (Logical)**
- Diagnostic information available through the DeviceNet I/O map

- Diagnostics (Physical)**
- LEDs to indicate status of DeviceNet and Module Bus communication

- Programmability**
- PG in model number designates a programmable gateway
 - Programmable according to IEC 61131.3 using CodeSys (includes ladder logic)
 - Use CodeSys to create logic programs to control local I/O

Dimensions – inches (mm)



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Online Version
06/25/20

www.rosscontrols.com

Step 2

Select Input/Output Module

TURCK Serial Bus System

Power Distribution

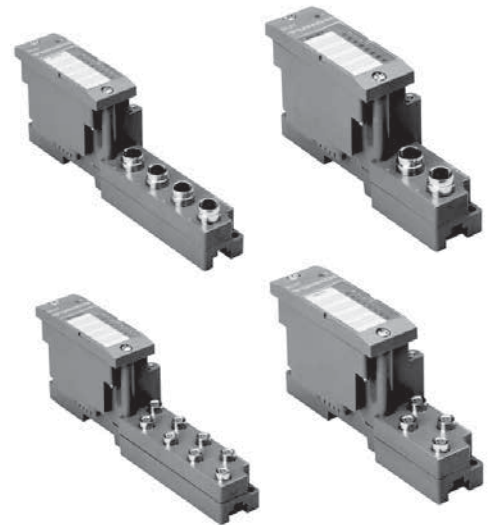
Inputs: V_1
 Outputs: V_o
 Logic: V_{MB}

Mechanical:

Operating Temperature: +32 to +131°F (0 to +55°C)
 Protection: NEMA 1,3,4,12,13 / IEC IP 67
 Vibration: 5 g @ 10 – 500 Hz

Material:

Connectors: Nickel-plated brass
 Housing PC-VO (Lexan)



Diagnostics (Logical)

Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

LEDs to indicate status of DeviceNet and Module Bus communication
 LEDs for each I/O point to indicate on/off status

Model Description	Inputs	Outputs	Model Number	Operating Current			Output Current from V_o	Type
				from V_{MB}	from V_1	from V_o		
Inputs								
Discrete Inputs	4		BL67-4DI-P	<30 mA	<40 mA			PNP
Discrete Inputs	4		BL67-4DI-N	<30 mA	<1 mA			NPN
Discrete Inputs	8		BL67-8DI-P	<30 mA	<40 mA			PNP
Discrete Inputs	8		BL67-8DI-N	<30 mA	<1 mA			NPN
Discrete Inputs	4		BL67-4DI-PD	<30 mA	<100 mA			PNP
Discrete Inputs	8		BL67-8DI-PD	<30 mA	<100 mA			PNP
Analog Inputs	2		BL67-2AI-V	<35 mA	<12 mA			-10/0 to 10V
Analog Inputs	2		BL67-4DI-I	<35 mA	<12 mA			0/4 to 20mA
Analog Inputs	2		BL67-4DI-V/I	<35 mA	<12 mA			-10/0 to 10V, 0/4 to 20mA
Temperature Inputs	2		BL67-2AI-TC	<35 mA	<30 mA			Thermocouple
Temperature Inputs	2		BL67-2AI-PT	<45 mA	<30 mA			RTD
Outputs								
Discrete Outputs		4	BL67-4DO-0.5A-P	<30 mA		<100 mA	<0.5 A	PNP
Discrete Outputs		4	BL67-4DO-2A-P	<30 mA		<100 mA	<2 A	PNP
Discrete Outputs		4	BL67-4DO-2A-N	<30 mA		<100 mA	<2 A	NPN
Discrete Outputs		8	BL67-8DO-0.5A-P	<30 mA		<100 mA	<0.5 A	PNP
Discrete Outputs		16	BL67-16DO-0.5A-P	<30 mA		<100 mA	<0.5 A	PNP
Analog Outputs		2	BL67-2AO-V	<60 mA	<50 mA			-10/0 to 10V
Analog Outputs		2	BL67-2AO-I	<40 mA	<50 mA			0/4 to 20mA
Inputs / Outputs								
Discrete Inputs /Outputs	8	8	BL67-8XSG-P	<30 mA		<100 mA	<0.5 A	PNP
Discrete Inputs /Outputs	8	8	BL67-8XSG-PD	<30 mA		<100 mA	<0.5 A	PNP
Discrete Inputs /Outputs	4	4	BL67-4DI4DO-PD	<30 mA		<100 mA	<0.5 A	PNP

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Select Optional CANopen Interface / Serial Communication Modules

Power Distribution

Inputs: V_1
 Outputs: V_0
 Logic: V_{MB}

Mechanical:

Operating Temperature: +32 to +131°F (0 to +55°C)
 Protection: NEMA 1,3,4,12,13 / IEC IP 67
 Vibration: 5 g @ 10 – 500 Hz

Material:

- Connectors: Nickel-plated brass
- Housing: PC-VO (Lexan)

Diagnostics (Logical):

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical):

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

Functional Description:

- Connect up to 8 CANopen slaves to this module
- Map the slaves into any available fieldbus



Shown with BL67-B-4M12 base

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Model Description	Model Number	Operating Current		
		from V_{MB}	from V	from V Supply
Inputs				
Discrete Inputs	BL67-4DI-P	<30 mA	<50 mA	<100 mA
Outputs				
Discrete Outputs	BL67-1RS485/422	<140 mA	<50 mA	
Discrete Outputs	BL67-1RS232	<60 mA	<50 mA	
Discrete Outputs	BL67-1SSI	<50 mA	<50 mA	

Select Optional CANopen Interface / Serial Communication Modules

Electrical:

Operating Current Inputs: V_1
 Outputs: V_0
 Logic: V_{MB}

Power Distribution:

Accepts 24 volts DC supply to provide V_1 and V_0 for downstream modules

Material:

Connectors: Nickel-plated brass
 Housing PC-VO (Lexan)

Diagnostics (Logical)

Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

LEDs to indicate status of DeviceNet and Module Bus communication
 LEDs for each I/O point to indicate on/off status



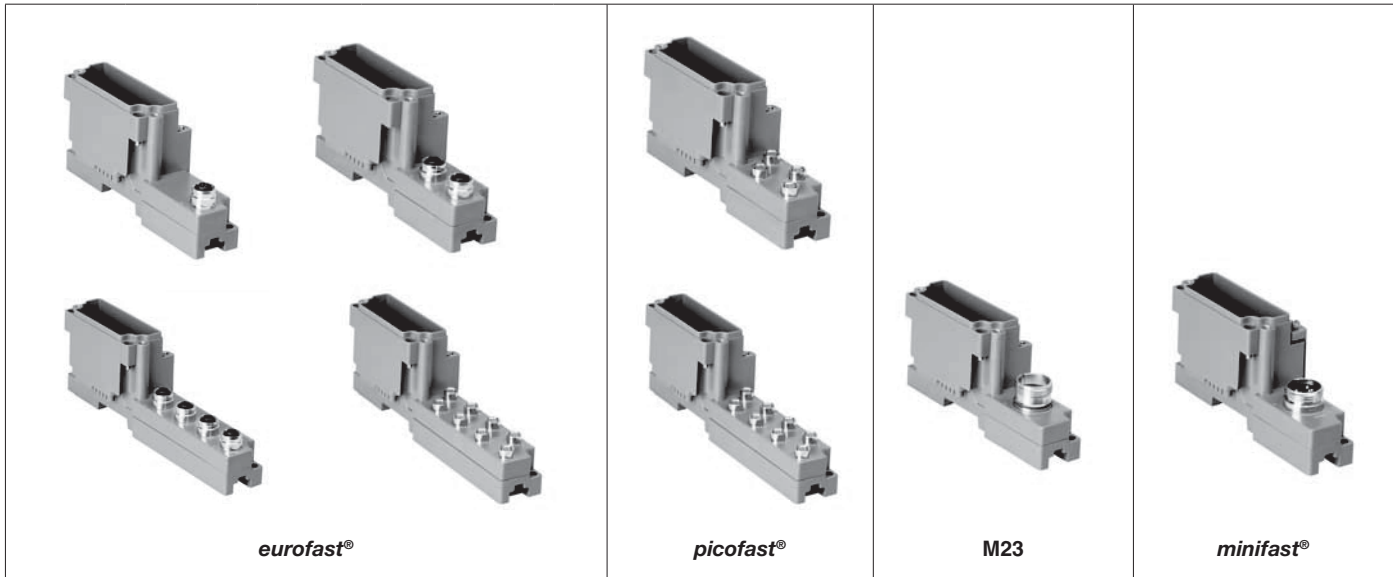
Model Description	Model Number	Operating Current	
		from V_{MB}	for downstream I/O
Power Feeding Module	BL67-PF-24 volts DC	<30 mA	<10 mA

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Step 6

Select Base Modules for BL67 I/O

TURCK Serial Bus System



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Connector Type	Number of Connectors	Number of Pins	Model Number	Description
eurofast®	2	2 (ea)	BL67-B-2M12	When used with 4 input or 4 output modules, each connector has 2 I/O points.
eurofast®	2	2 (ea)	BL67-B-2M12-P	Each connector has 2 I/O points, paired so consecutive points are on the same connector.
eurofast®	4	2 (ea)	BL67-B-2M12	When used with 8 input or 8 output modules, each connector has 2 I/O points.
eurofast®	4	2 (ea)	BL67-B-2M12-P	Each connector has 2 I/O points, paired so consecutive points are on the same connector.
eurofast®	1	5	BL67-B-1M12	Typically used with serial I/O modules.
eurofast®	1	8	BL67-B-1M12-8	Typically used with serial I/O modules.
picofast®	4		BL67-B-4M8	Typically used with 4-input or 4-output modules.
picofast®	8		BL67-B-8M8	Typically used 8-input or 8-output modules with.
M23	1	12	BL67-B-1M23	Typically used with 8-output or SSI Modules.
M23	1	12	BL67-B-1M23-VI	Base module that allows full 4 A available from V+ pins.
M23	1	19	BL67-B-1M23-19	For use with 16-output module.
minifast®	1	5	BL67-B-1RSM	For use with the power feeding module, five wire power scheme.
minifast®	1	4	BL67-B-1RSM-4	For use with the power feeding module, four wire power scheme.

Labels for labeling electronic modules

BL67-Label/DIN-A4-50-PCS

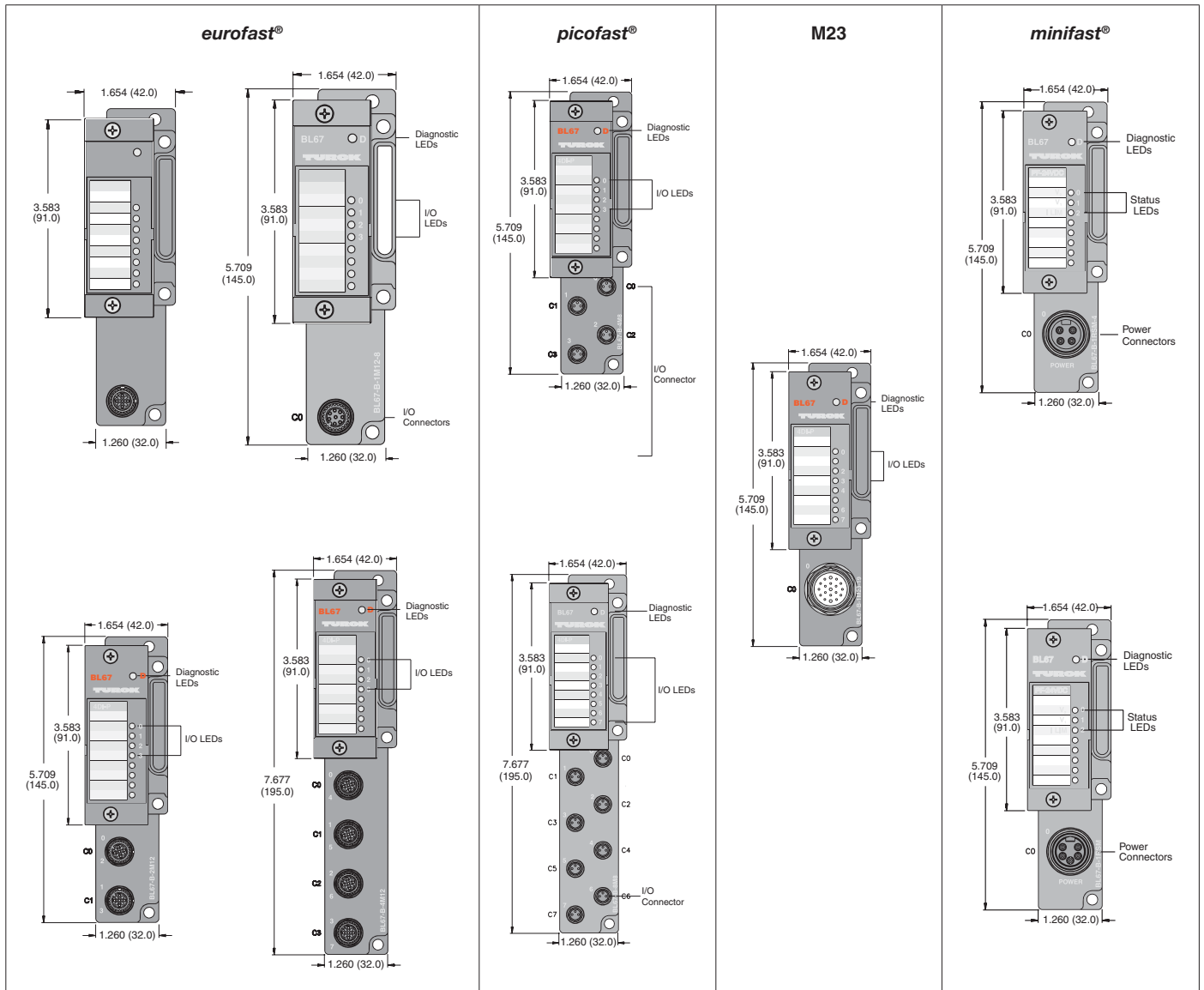
Programming Cable -
For connecting the BL20/BL67 system to
the I/O Assistant software
XN-PS2-CABLE

DIN A4 sheet size



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Dimensions – inches (mm)



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TURCK Products Warranty Terms and Conditions

RISK OF LOSS

Delivery of the equipment to a common carrier shall constitute delivery to the Purchaser and the risk of loss shall transfer at that time to Purchaser. Should delivery be delayed due to an act or omission on the part of the Purchaser, risk of loss shall transfer to the Purchaser upon notification by TURCK Inc. that the order is complete and ready for shipment.

WARRANTIES

TURCK INC. (herein after "TURCK") offers five (5) WARRANTIES to cover all products sold. They are as follows:

1) The **12-MONTH WARRANTY** is available for the products listed - generally those not covered by LIFETIME, 5-YEAR, 24-MONTH or 18-MONTH warranty. No registration required.

2) The **18-MONTH WARRANTY** is available for the products listed - generally those not covered by LIFETIME or 5-YEAR WARRANTY. No registration is required.

3) The **24-MONTH WARRANTY** is available for the products listed - generally those not covered by LIFETIME, 5-YEAR or 18-MONTH. No registration is required.

4) The **5-YEAR WARRANTY** is available generally for the products listed. No registration is required.

5) A **LIFETIME WARRANTY** is available for the products listed. It becomes effective when the accompanying TURCK LIFETIME WARRANTY REGISTRATION is completed and returned to TURCK.

GENERAL TERMS AND CONDITIONS FOR ALL WARRANTIES

- 12-MONTH STANDARD WARRANTY
- 18-MONTH STANDARD WARRANTY
- 24-MONTH STANDARD WARRANTY
- 5-YEAR WARRANTY
- LIFETIME WARRANTY

TURCK warrants the Products covered by the respective WARRANTY AGREEMENTS to be free from defects in material and workmanship under normal and proper usage for the respective time periods listed above from the date of shipment from TURCK. In addition, certain specific terms apply to the various WARRANTIES.

THESE EXPRESS WARRANTIES ARE IN LIEU OF AND EXCLUDE ALL OTHER REPRESENTATIONS MADE - BOTH EXPRESSED AND IMPLIED.

THERE ARE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE FOR PRODUCTS COVERED BY THESE TERMS AND CONDITIONS.

TURCK warrants that the goods sold are as described, but no promise, description, affirmation of fact, sample model or representation, oral or written shall be part of an order, unless set forth in these terms and conditions, or are in writing and signed by an authorized representative of TURCK. These WARRANTIES do not apply to any Product which has been subject to misuse, negligence, or accident -or to any Product which has been modified or repaired, improperly installed, altered, or disassembled -except according to TURCK's written instructions.

These WARRANTIES are subject to the following conditions:

1) These WARRANTIES are limited to the electronic and mechanical performance only, as expressly detailed in the Product specifications and NOT to cosmetic performance.

2) These WARRANTIES shall not apply to any cables attached to, or integrated with the Product. However, the 18-MONTH WARRANTY shall apply to cables sold separately by TURCK.

3) These WARRANTIES shall not apply to any Products which are stored, or utilized, in harsh environmental or electrical conditions outside TURCK's written specifications.

4) The WARRANTIES are applicable only to Products shipped from TURCK subsequent to January 1, 1988.

ADDITIONAL SPECIFIC TERMS FOR - (12-MONTH STANDARD WARRANTY) for Linear Displacement Transducers and RFID products.

(18-MONTH STANDARD WARRANTY) FOR ULTRASONIC SENSORS, CABLES AND ALL NON-SENSING PRODUCTS SOLD BY TURCK INC. INCLUDING MULTI-SAFE, MULTI-MODUL, MULTI-CART AND RELATED AMPLIFIER PRODUCTS, RELAYS AND TIMERS.

(24-MONTH STANDARD WARRANTY) FOR ENCODERS.

5-YEAR WARRANTY FOR INDUCTIVE AND CAPACITIVE PROXIMITY

SENSORS: The periods covered for the above WARRANTIES and Products shall be 12 MONTHS, 18-MONTHS, 24-MONTHS and 5-YEARS, respectively, from the date of shipment from TURCK.

LIFETIME WARRANTY (OPTIONAL - REGISTRATION REQUIRED) FOR INDUCTIVE, INDUCTIVE MAGNET OPERATED AND CAPACITIVE PROXIMITY SENSORS SOLD TO THE ORIGINAL PURCHASER FOR THE LIFETIME OF THE ORIGINAL APPLICATION.

The following terms apply to the LIFETIME WARRANTY in addition to the General Terms:

1) This WARRANTY shall be effective only when the LIFETIME WARRANTY REGISTRATION has been completed, signed by the End User and an authorized TURCK Representative or Distributor and has been received by TURCK no later than six (6) months after installation in the End User's Plant, or two (2) years from the date product was shipped from TURCK, whichever is sooner.

2) This warranty is available only to TURCK's authorized Representatives, Distributors and to the Original User. (The term "Original User" means that person, firm, or corporation which first uses the Product on a continuous basis in connection with the operation of a production line, piece of machinery, equipment, or similar device.) In the event the ownership of the product is transferred to a person, firm or corporation other than the Original User, this WARRANTY shall terminate.

3) This WARRANTY is applicable only to the Original Application. In the event the machinery, equipment, or production line to which the Product is connected, or on which it is installed, is substituted, changed, moved or replaced, the WARRANTY shall terminate.

4) This WARRANTY shall be valid only if the Product was purchased by the Original User from TURCK, or from an authorized TURCK Distributor, or was an integral part of a piece of machinery and equipment obtained by the Original user from an Original Equipment Manufacturer, which itself, was purchased directly from TURCK or from an authorized Distributor.

PURCHASER'S REMEDIES

This Remedy shall apply to all WARRANTIES. If a TURCK Distributor desires to make a WARRANTY Claim, the Distributor shall, if requested by TURCK, ship the Product to TURCK's factory in Minneapolis, Minnesota, postage or freight prepaid. If the User desires to make a WARRANTY Claim, they shall notify the authorized TURCK Distributor from whom it was purchased or, if such Distributor is unknown, shall notify TURCK. TURCK shall, at its option, take any of the following two courses of action for any products which TURCK determines are defective in materials or workmanship.

1) Repair or replace the Product and ship the Product to the Original Purchaser or to the authorized TURCK Distributor, postage or freight prepaid; or

2) Repay to the Original Purchaser that price paid by the Original Purchaser; provided that if the claim is made under the LIFETIME WARRANTY, and such Product is not then being manufactured by TURCK, then the amount to be repaid by TURCK to the Original Purchaser shall be reduced according to the following schedule:

Number of Years Since Date of Purchase by Original Purchaser	Percent of Original Purchase Price To Be Paid by TURCK
10	50%
15	25%
20	10%
More than 20	5%

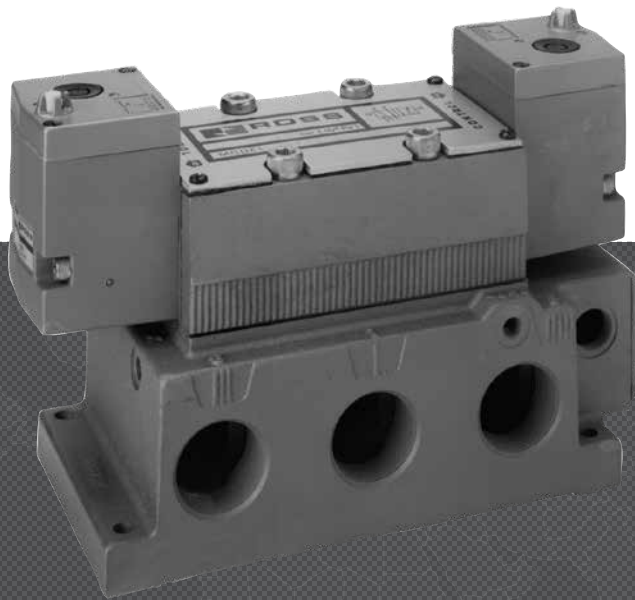
PURCHASER'S REMEDIES SHALL BE LIMITED EXCLUSIVELY TO THE RIGHT OF REPLACEMENT, REPAIR OR REPAYMENT AS PROVIDED AND DOES NOT INCLUDE ANY LABOR COST OR REPLACEMENT AT ORIGINAL PURCHASER'S SITE. TURCK SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF ANY WARRANTY, EXPRESSED OR IMPLIED, APPLICABLE TO THE PRODUCT, INCLUDING WITHOUT LIMITATION, ANY DAMAGES RESULTING FROM PROPERTY DAMAGE, PERSONAL INJURY OR BUSINESS INTERRUPTION.

CONSIDER SAFETY AND PROTECTION PRECAUTIONS

TURCK takes great care to design and build reliable and dependable products, however, some products can fail eventually. You must take precautions to design your equipment to prevent property damage and personal injury in the unlikely event of failure. As a matter of policy, TURCK does NOT recommend the installation of electronic controls as the sole device FOR THE PROTECTION OF PERSONNEL in connection with power driven presses, brakes, shears and similar equipment and, therefore, the customer should build in redundancy or dual control using approved safety devices for these applications.



ANSI VALVES W70 & W74 SERIES



ROSS CONTROLS

ANSI SERIES VALVES – KEY FEATURES

- ANSI Sizes 1, 2.5, 4, 10 and 20
- 5/2- and 5/3 way direct and pilot solenoid options
- Spool & Sleeve or Poppet construction
- 24 volts DC or 110 volts AC solenoid control
- Available with 1/4 – 1½ ports
- Lube or non-lube service
- Manual overrides
- Interpose pressure regulators
- Single sub-base mounting
- Micro-thin air bearing between spool and sleeve assures quick valve response
- W70 Series - Suitable for vacuum service with or without external pilot supply
- W74 Series - Suitable for vacuum service (with external pilot supply)

C

C5

VALVE TYPE	VALVE SERIES	DESCRIPTION			AVAILABLE PORT SIZES							FUNCTIONS					Page					
		ANSI Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center		5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control
ANSI	W70	1	■			■	■						■	■	■	■	■	1.0	■	■	■	C5.3 - C5.9
ANSI	W70	2.5	■			■	■	■					■	■	■	■	■	2.5	■	■	■	C5.3 - C5.9
ANSI	W70	4	■			■	■	■	■				■	■	■	■	■	4.2	■	■	■	C5.3 - C5.9
ANSI	W70	10	■			■	■	■	■	■			■	■	■	■	■	10.0	■	■	■	C5.3 - C5.9
ANSI	W70	20	■			■	■	■	■	■	■		■	■	■	■	■	22.0	■	■	■	C5.3 - C5.9
ANSI	W74	1		■		■	■						■	■	■	■	■	1.0	■	■	■	C5.11 - C5.13
ANSI	W74	2.5		■		■	■	■					■	■	■	■	■	2.5	■	■	■	C5.11 - C5.13
ANSI	W74	4		■		■	■	■	■				■	■	■	■	■	4.2	■	■	■	C5.11 - C5.13
ANSI	W74	10		■		■	■	■	■	■			■	■	■	■	■	10.0	■	■	■	C5.11 - C5.13
ANSI	W74	20		■		■	■	■	■	■	■		■	■	■	■	■	22.0	■	■	■	C5.11 - C5.13
Sub-Bases & Manifold Bases																					C5.14 - C5.18	
Accessories																					C5.19	

Direct Solenoid Controlled Valves

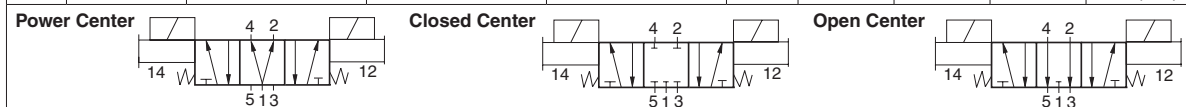
**ANSI
W70 Series**

5-Way 2-Position Valves, Single Direct Solenoid, Spring Return							
ANSI Size	Port Size	Valve Model Number*	Avg. C _v	Average Response Constants**			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7016B2331W#	1.0	20	3.5	4.9	3.5 (1.6)
2.5	3/8 - 1/2	W7016A3331Z##	2.5	17	1.6	2.7	3.3 (1.5)
4	3/8 - 3/4	W7016C4331Z##	4.2	-	-	-	4.3 (1.9)



5-Way 2-Position Valves, Double Direct Solenoid, Detented							
ANSI Size	Port Size	Valve Model Number*	Avg. C _v	Average Response Constants**			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7016B2332W#	1.0	20	3.5	4.9	3.5 (1.6)
2.5	3/8 - 1/2	W7016A3332Z##	2.5	10	1.3	1.8	3.3 (1.5)
4	3/8 - 3/4	W7016C4332Z##	4.2	-	-	-	4.3 (1.9)

5-Way 3-Position Valves, Double Direct Solenoid									
ANSI Size	Port Size	Valve Model Number#*			Avg. C _v	Average Response Constants**			Weight lb (kg)
		Power Center	Closed Center	Open Center		M	F		
							In-Out	Out-Exh.	
1	1/8 - 3/8	W7017B2905W	W7017B2331W	W7017B2332W	1.0	20	3.5	4.9	4.5 (2.0)
2.5	3/8 - 1/2	-	W7017A3331W	W7017A3332W	1.9	10	1.3	1.8	5.0 (2.3)
4	1/2 - 3/4	-	W7017C4331W	W7017C4332W	3.8	-	-	-	5.8 (2.6)

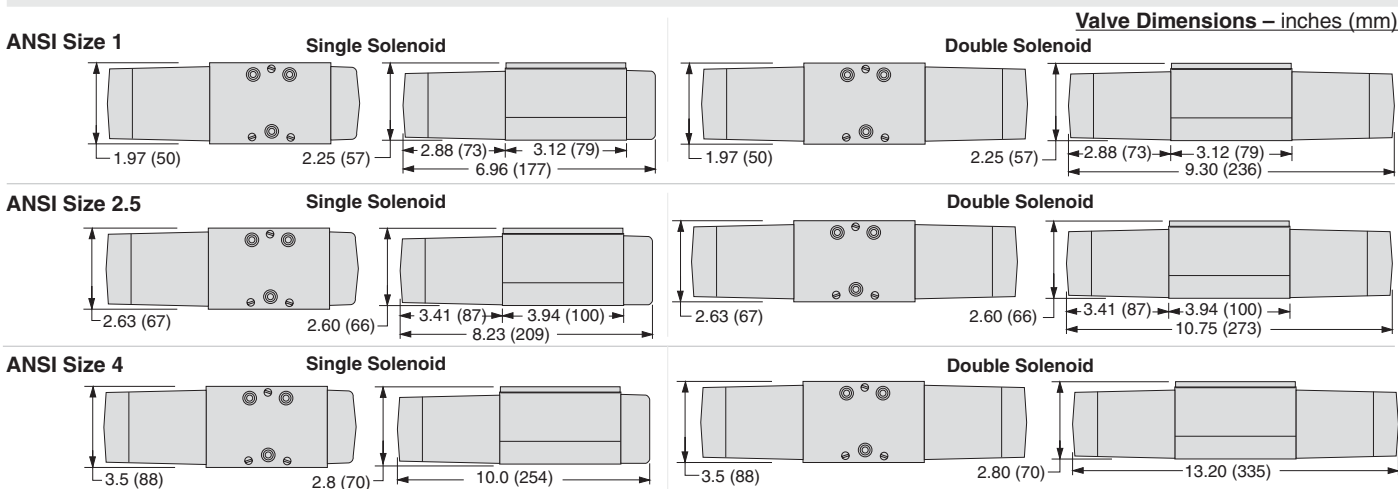


Voltage: W=24 VDC; Z=100-110/50, 100-130/60 VAC/Hz, e.g., W6577A2902Z. For other voltages, consult ROSS.

Voltage: Z=100-110/50, 100-130/60 VAC/Hz.

* Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.

** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.



Options: Indicator Light (in Base/Manifold), refer to page C5.17-C5.18. Accessories ordered separately, refer to page C5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Temperature	Media: 40° to 175°F (4° to 80°C) For other temperature ranges, consult ROSS.
Mounting Type	Base	Flow Media	Filtered air
Solenoids	Rated for continuous duty. AC power; DC for ANSI size 1 models only.	Operating Pressure	Vacuum to 150 psig (10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	20 watts on DC; ANSI Size 1: 140 VA inrush, 30 VA holding on 50 or 60 Hz ANSI Size 2.5 & 4: 380 VA inrush, 79 VA holding on 50 or 60 Hz	Manual Override	Flush; Rubber, non-locking
Temperature	Ambient: 40° to 120°F (4 to 50°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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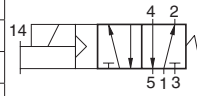
C5.3

Single Solenoid Pilot Controlled Valves

ANSI
W70 Series

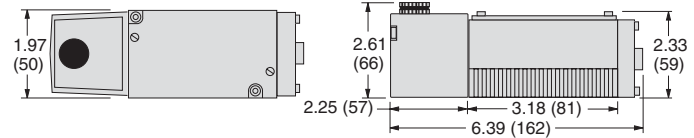
5-Way 2-Position Valves, Spring Return							
ANSI Size	Port Size	Valve Model Number#*	Avg. C _v	Average Response Constants**			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7076B2331W	1.0	20	3.6	4.9	3.0 (1.4)
2.5	3/8 - 1/2	W7076A3331W	2.5	17	1.6	2.7	3.0 (1.4)
4	3/8 - 3/4	W7076D4331W	4.2	20	0.6	0.6	5.3 (2.4)
10	3/4 - 1 1/4	W7076C6331W	10	30	0.3	0.3	7.3 (3.3)
20	1 1/4 - 1 1/2	W7076C8331W	22	50	0.1	0.2	14.5 (6.5)

#Voltage: W=24 VDC; Z=100-110/50, 100-130/60 VAC/Hz, e.g., W7076B2331Z. For other voltages, consult ROSS.
 * Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

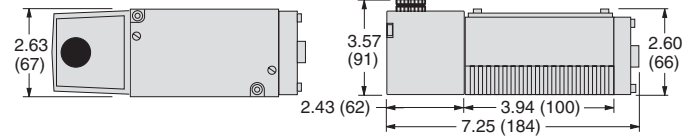


Valve Dimensions – inches (mm)

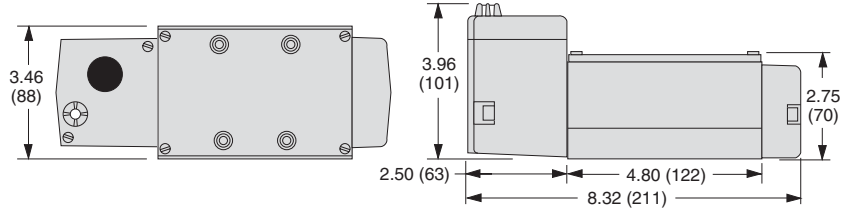
ANSI Size 1



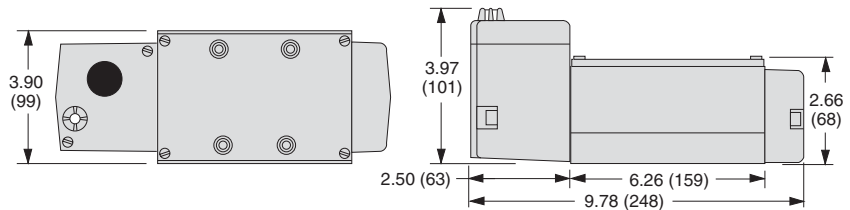
ANSI Size 2.5



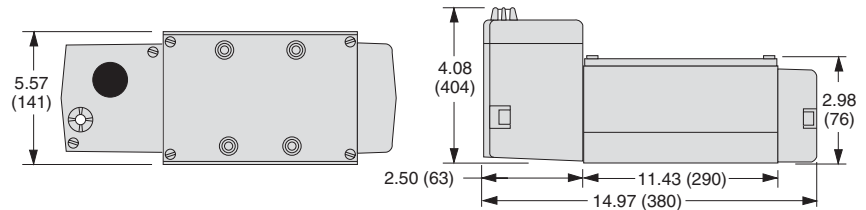
ANSI Size 4



ANSI Size 10



ANSI Size 20



Options: Indicator Light (in Base/Manifold), refer to page C5.17-C5.18. Accessories ordered separately, refer to page C5.19.

STANDARD SPECIFICATIONS (for valves on this page):

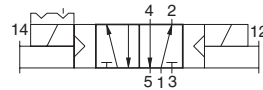
Construction Design	Spool and Sleeve	Pilot Supply	Internal or External
Mounting Type	Base		Vacuum to 150 psig (10 bar)
Solenoids	Rated for continuous duty	Operating Pressure	Pilot Supply - Internal or External: ANSI Size 1 & 20: Minimum 30 psig (2 bar) ANSI Size 2.5, 4 & 10: Minimum 15 psig (1 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage	24 volts DC; 100-110/50, 100-130/60 volts AC/Hz	Indicator Light	Included for ANSI Size 4, 10 & 20 only
Power Consumption (each solenoid)	ANSI Size 1: 5 watts on DC; 10 VA inrush, 24 VA holding on 50 or 60 Hz ANSI Size 2.5, 4, 10 & 20: 14 watts on DC; 87 VA inrush, 55 VA holding on 50 or 60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C) For other temperature ranges, consult ROSS.	Manual Override	Flush; Rubber, non-locking
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Solenoid Pilot Controlled Valves

ANSI
W70 Series

5-Way 2-Position Valves, Detented							
ANSI Size	Port Size	Valve Model Number#*	Avg. C _v	Average Response Constants**			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7076B2332W	1.0	20	3.5	4.9	4.0 (1.8)
2.5	3/8 - 1/2	W7076A3332W	2.5	10	1.3	1.8	4.0 (1.8)
4	3/8 - 3/4	W7076D4332W	4.2	12	0.6	0.7	6.5 (2.9)
10	3/4 - 1 1/4	W7076C6332W	10	20	0.3	0.3	9.0 (4.1)
20	1 1/4 - 1 1/2	W7076C8332W	22	30	0.1	0.2	15.8 (6.8)



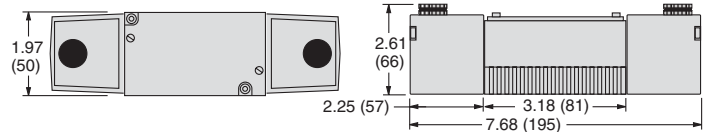
Voltage: W=24 VDC; Z=100-110/50, 100-130/60 VAC/Hz, e.g., W7076B2332Z. For other voltages, consult ROSS.

* Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.

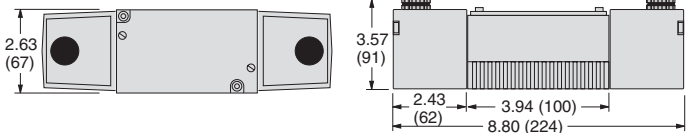
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

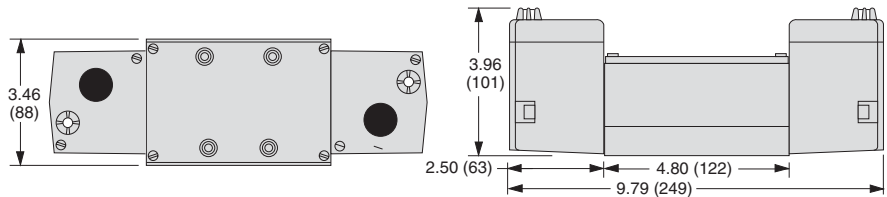
ANSI Size 1



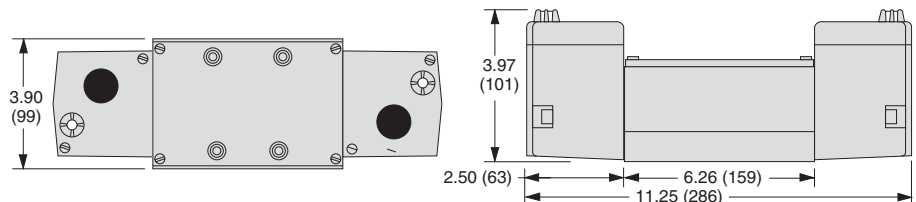
ANSI Size 2.5



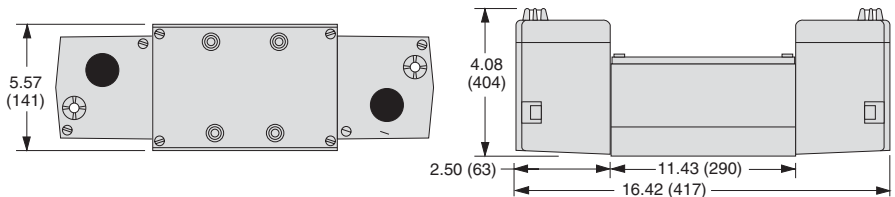
ANSI Size 4



ANSI Size 10



ANSI Size 20



Options: Indicator Light (in Base/Manifold), refer to page C5.17-C5.18. Accessories ordered separately, refer to page C5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Pilot Supply	Internal or External
Mounting Type	Base		Vacuum to 150 psig (10 bar)
Solenoids	Rated for continuous duty	Operating Pressure	Pilot Supply - Internal or External: ANSI Size 1 & 20: Minimum 30 psig (2 bar) ANSI Size 2.5, 4 & 10: Minimum 15 psig (1 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage	24 volts DC; 100-110/50, 100-130/60 volts AC/Hz	Indicator Light	Included for ANSI Size 4, 10 & 20 only
Power Consumption (each solenoid)	ANSI Size 1: 5 watts on DC; 10 VA inrush, 24 VA holding on 50 or 60 Hz ANSI Size 2.5, 4, 10 & 20: 14 watts on DC; 87 VA inrush, 55 VA holding on 50 or 60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C) <i>For other temperature ranges, consult ROSS.</i>	Manual Override	Flush; Rubber, non-locking
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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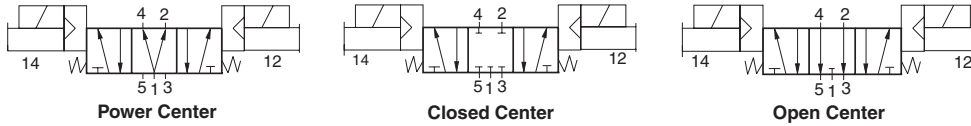
C5.5

Double Solenoid Pilot Controlled Valves

ANSI
W70 Series



5-Way 3-Position Valves									
ANSI Size	Port Size	Valve Model Number#*			Avg. C _v	Average Response Constants**			Weight lb (kg)
		Power Center	Closed Center	Open Center		M	F		
						In-Out	Out-Exh.		
1	1/8 - 3/8	W7077B2906W	W7077B2331W	W7077B2332W	1.0	20	3.5	4.9	4.0 (1.8)
2.5	3/8 - 1/2	W7077A3904W	W7077A3331W	W7077A3332W	2.5	10	1.6	2.6	4.0 (1.8)
4	1/2 - 3/4	W7077C4939W	W7077D4331W	W7077D4332W	4.2	12	0.6	0.7	6.5 (2.9)
10	3/4 - 1 1/4	W7077A6920W	W7077C6331W	W7077C6332W	10	20	0.3	0.3	8.5 (3.8)
20	1 1/4 - 1 1/2	W7077A8901W	W7077C8331W	W7077C8332W	22	30	0.1	0.2	15.3 (6.9)

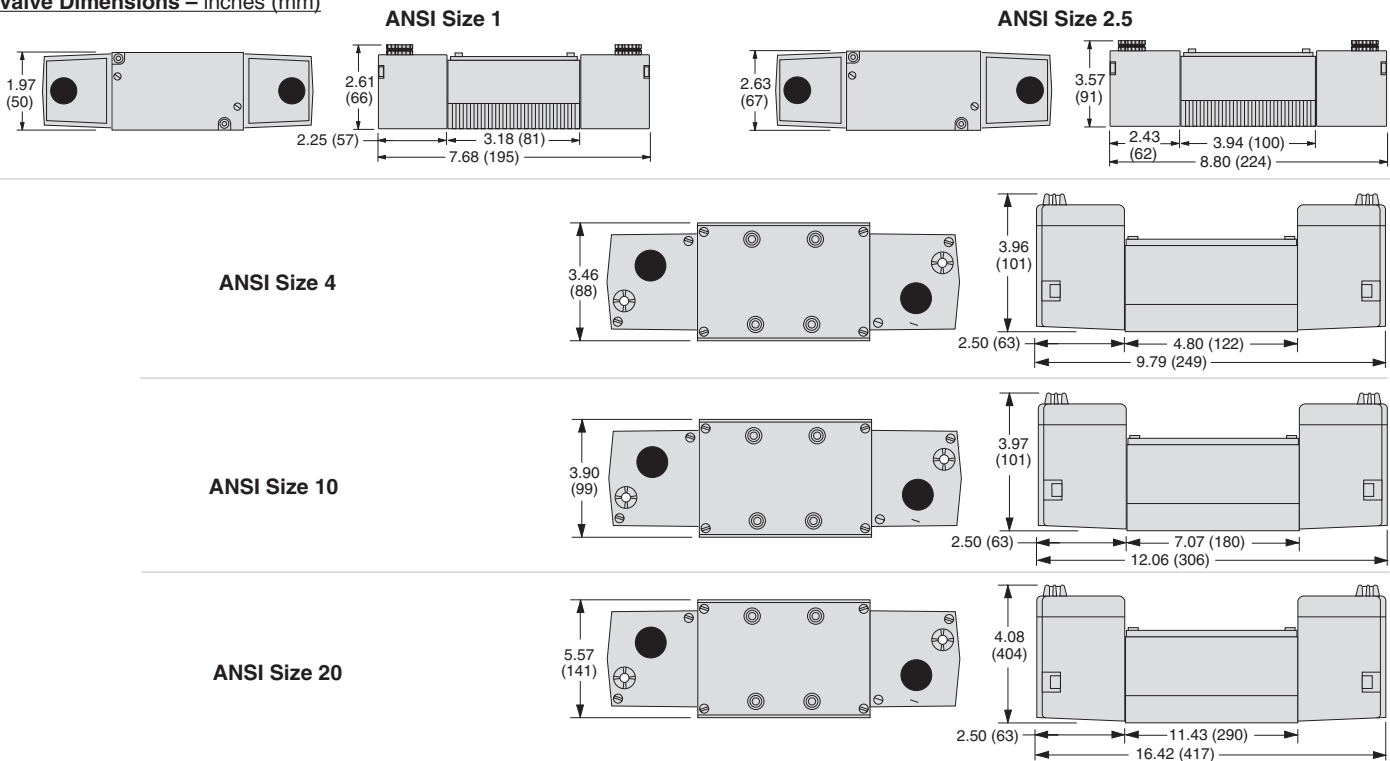


#Voltage: W=24 VDC; Z=100-110/50, 100-130/60 VAC/Hz, e.g., W7077B2906Z. For other voltages, consult ROSS.

* Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.

** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)



Options: Indicator Light (in Base/Manifold), refer to page C5.17-C5.18. Accessories ordered separately, refer to page C5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Pilot Supply	Internal or External
Mounting Type	Base		Vacuum to 150 psig (10 bar)
Solenoids	Rated for continuous duty	Operating Pressure	Pilot Supply - Internal or External: ANSI Size 1 & 20: Minimum 30 psig (2 bar) ANSI Size 2.5, 4 & 10: Minimum 15 psig (1 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage	24 volts DC; 100-110/50, 100-130/60 volts AC/Hz	Indicator Light	Included for ANSI Size 4, 10 & 20 only
Power Consumption (each solenoid)	ANSI Size 1: 5 watts on DC; 10 VA inrush, 24 VA holding on 50 or 60 Hz ANSI Size 2.5, 4, 10 & 20: 14 watts on DC; 87 VA inrush, 55 VA holding on 50 or 60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C) <i>For other temperature ranges, consult ROSS.</i>	Manual Override	Flush; Rubber, non-locking
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Single Pressure Controlled Valves

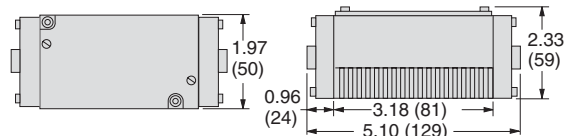
ANSI
W70 Series

5-Way 2-Position Valves, Spring Return							
ANSI Size	Port Size	Valve Model Number*	Avg. C _v	Average Response Constants**			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7056B2331	1.0	20	3.6	4.9	2.5 (1.1)
2.5	3/8 - 1/2	W7056A3331	2.5	17	1.5	2.6	2.0 (0.9)
4	3/8 - 3/4	W7056B4331	4.2	12	0.6	0.7	4.3 (1.9)
10	3/4 - 1 1/4	W7056A6331	10	20	0.3	0.3	6.3 (2.8)
20	1 1/4 - 1 1/2	W7056A8331	22	30	0.1	0.2	13.0 (5.9)

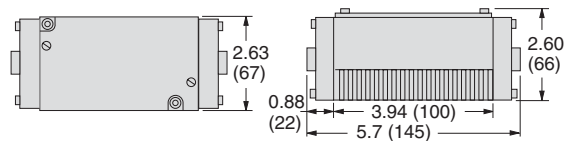
* Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

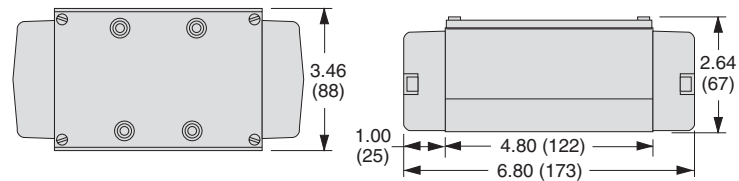
ANSI Size 1



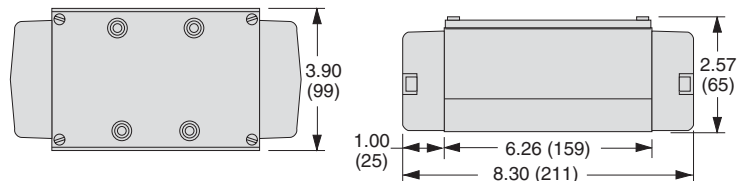
ANSI Size 2.5



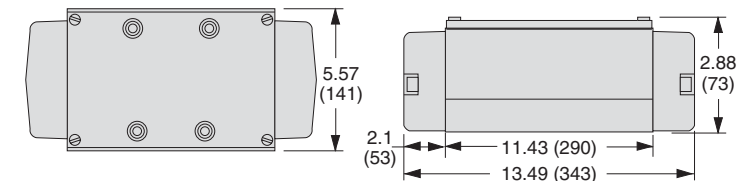
ANSI Size 4



ANSI Size 10



ANSI Size 20



Accessories ordered separately, refer to page C5.19.

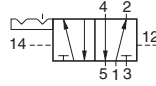
STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Operating Pressure	Vacuum to 150 psig (10 bar)
Mounting Type	Base		Pilot Supply: ANSI Size 1 & 20: Minimum 30 psig (2 bar) ANSI Size 2.5, 4 & 10: Minimum 15 psig (1 bar)
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) For other temperature ranges, consult ROSS.	Construction Material	Pilot supply pressure must be equal to or greater than inlet pressure.
Flow Media	Filtered air		Valve Body: Cast Aluminum
Pilot Supply	External		Spool: Stainless Steel Seals: Buna-N

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



5-Way 2-Position Valves, Detented							
ANSI Size	Port Size	Valve Model Number*	Avg. C _v	Average Response Constants**			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7056B2332	1.0	20	3.5	4.9	2.5 (1.1)
2.5	3/8 - 1/2	W7056A3332	2.5	17	1.5	2.6	2.0 (0.9)
4	3/8 - 3/4	W7056B4332	4.2	12	0.6	0.7	4.3 (1.9)
10	3/4 - 1 1/4	W705A6332	10	20	0.3	0.3	6.3 (2.8)
20	1 1/4 - 1 1/2	W7056A8332	22	30	0.1	0.2	13.8 (6.2)

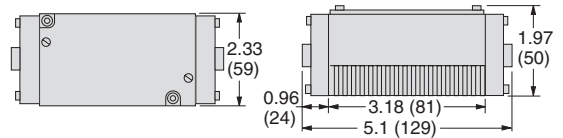


* Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

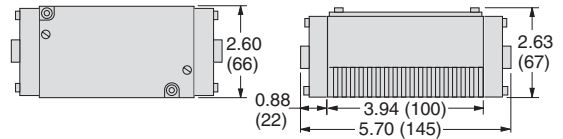
C

Valve Dimensions – inches (mm)

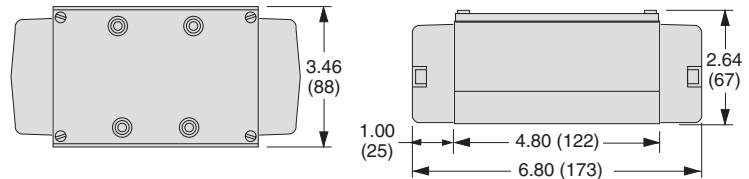
ANSI Size 1



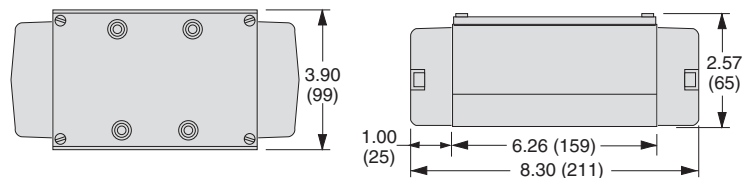
ANSI Size 2.5



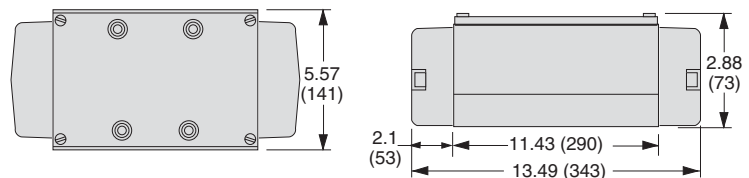
ANSI Size 4



ANSI Size 10



ANSI Size 20



Accessories ordered separately, refer to page C5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Operating Pressure	Vacuum to 150 psig (10 bar)
Mounting Type	Base		Pilot Supply: ANSI Size 1 & 20: Minimum 30 psig (2 bar) ANSI Size 2.5, 4 & 10: Minimum 15 psig (1 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) <i>For other temperature ranges, consult ROSS.</i>	Construction Material	Valve Body: Cast Aluminum
Flow Media	Filtered air		Spool: Stainless Steel
Pilot Supply	External		Seals: Buna-N

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Pressure Controlled Valves

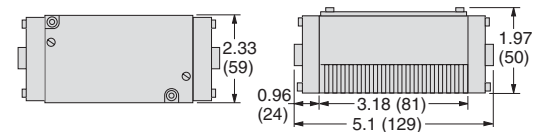
5-Way 3-Position Valves									
ANSI Size	Port Size	Valve Model Number*			Avg. C _v	Average Response Constants**			Weight lb (kg)
		Power Center	Closed Center	Open Center		M	F		
							In-Out	Out-Exh.	
1	1/8 - 3/8	—	W7057B2331	W7057B2332	1.0	20	3.5	4.9	2.5 (1.1)
2.5	3/8 - 1/2	—	W7057A3331	W7057A3332	2.5	17	1.5	2.6	2.0 (0.9)
4	1/2 - 3/4	—	W7057B4331	W7057B4332	4.2	12	0.6	0.7	4.3 (1.9)
10	3/4 - 1¼	W7057A6902	W7057A6331	W7057A6332	10	20	0.3	0.3	6.3 (2.8)
20	1¼ - 1½	—	W7057A8331	W7057A8332	22	30	0.1	0.2	13.8 (6.2)

Power Center		Closed Center		Open Center	
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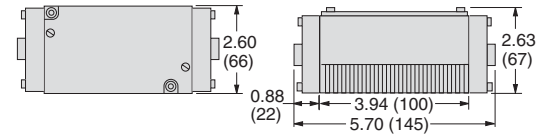
* Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

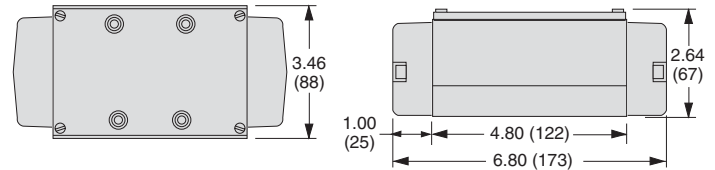
ANSI Size 1



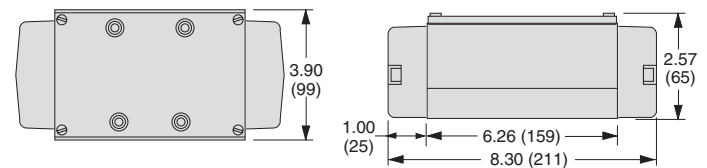
ANSI Size 2.5



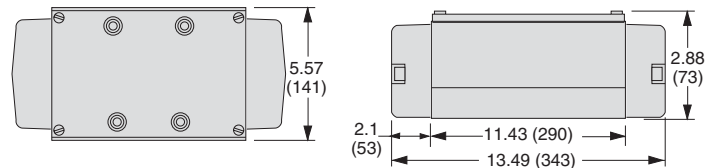
ANSI Size 4



ANSI Size 10



ANSI Size 20



Accessories ordered separately, refer to page C5.19.

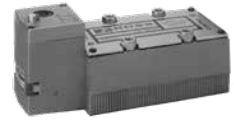
STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Operating Pressure	Vacuum to 150 psig (10 bar)
Mounting Type	Base		Pilot Supply: ANSI Size 1 & 20: Minimum 30 psig (2 bar) ANSI Size 2.5, 4 & 10: Minimum 15 psig (1 bar) Pilot supply pressure must be equal to or greater than inlet pressure.
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) For other temperature ranges, consult ROSS.	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

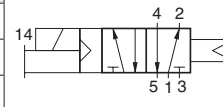
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Single Solenoid Pilot Controlled Valves

ANSI
W74 Series



5-Way 2-Position Valves, Air Return								
ANSI Size	Port Size	Valve Model Number**		Avg. C _v	Average Response Constants**			Weight lb (kg)
		Standard Temp.	High Temp.		F			
					In-Out	Out-Exh.		
1	1/4 - 3/8	W7476B2331W	W7476B2336W	0.9	30	2.7	5.6	3.0 (1.4)
2.5	3/8 - 1/2	W7476A3331W	W7476A3336W	2.0	25	1.5	2.9	3.0 (1.4)
4	1/2 - 3/4	W7476C4331W	W7476C4336W	4.2	27	0.6	1.0	5.0 (2.3)
10	3/4 - 1 1/4	W7476A6331W	W7476A6336W	11	30	0.3	0.5	6.1 (2.8)
20	1 1/4 - 1 1/2	W7476A8331W	W7476A8336W	22	50	0.1	0.2	18.5 (8.3)



#Voltage: W=24 VDC; Z=100-110/50, 100-130/60 VAC/Hz, e.g., W7476B2331Z. For other voltages, consult ROSS.

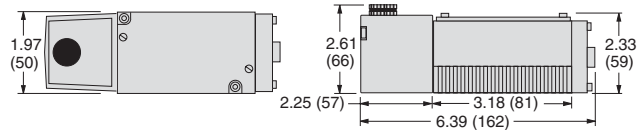
* Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.

** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

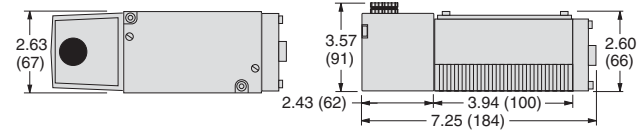
C

Valve Dimensions – inches (mm)

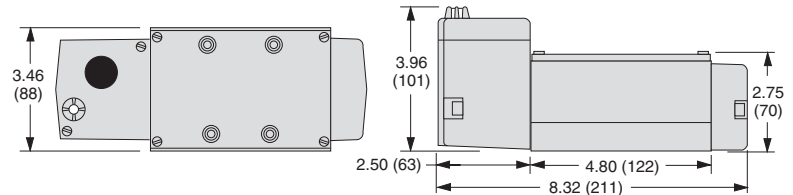
ANSI Size 1



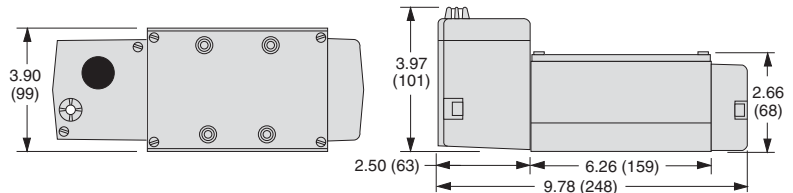
ANSI Size 2.5



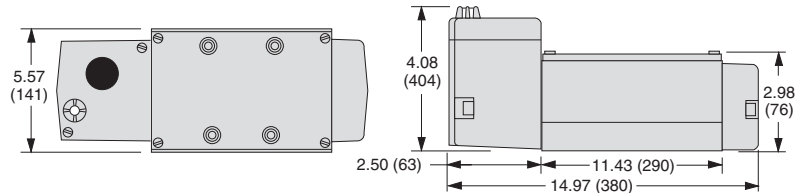
ANSI Size 4



ANSI Size 10



ANSI Size 20



Options: Indicator Light (in Base/Manifold), refer to page C5.17-C5.18. Accessories ordered separately, refer to page C5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Base	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	Vacuum to 150 psig (10 bar)
Voltage	24 volts DC; 110/50, 110-120/60 volts AC/Hz		Pilot Supply - Internal or External: Minimum 30 psig (2 bar)
Power Consumption (each solenoid)	ANSI Size 1: 5 watts on DC; 10 VA inrush, 24 VA holding on 50 or 60 Hz ANSI Size 2.5, 4, 10 & 20: 14 watts on DC; 87 VA inrush, 55 VA holding on 50 or 60 Hz	When external pilot supply, pressure must be equal to or greater than inlet pressure.	
Temperature	Ambient: 40° to 120°F (4° to 50°C); extended to 175°F (80°C) for High Temperature models.	Indicator Light	Included for ANSI Size 4, 10 & 20 only; one per solenoid
	Media: 40° to 175°F (4° to 80°C); extended to 220°F (105°C) for High Temperature models For other temperature ranges, consult ROSS.	Construction Material	Valve Body: Cast Aluminum Poppet: Rubber Coated Aluminum & Stainless Steel Seals: Buna-N
		Manual Override	Flush; Rubber, non-locking

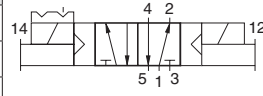
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Solenoid Pilot Controlled Valves

ANSI
W74 Series



5-Way 2-Position Valves, Double Solenoid Pilot Controlled, Detented								
ANSI Size	Port Size	Valve Model Number#*		Avg. C _v	Average Response Constants**			Weight lb (kg)
		Standard Temp.	High Temp.		F			
					In-Out	Out-Exh.		
1	1/4 - 3/8	W7476B2332W	W7476B2337W	0.9	30	2.7	5.6	3.0 (1.4)
2.5	3/8 - 1/2	W7476A3332W	W7476A3337W	2.0	25	1.5	2.9	3.0 (1.4)
4	1/2 - 3/4	W7476C4332W	W7476C4337W	4.2	27	0.6	1.0	5.0 (2.3)
10	3/4 - 1 1/4	W7476A6332W	W7476A6337W	11	30	0.3	0.5	6.1 (2.8)
20	1 1/4 - 1 1/2	W7476A8332W	W7476A8337W	22	50	0.1	0.2	18.5 (8.3)



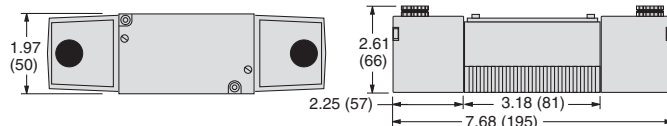
#Voltage: W=24 VDC; Z=100-110/50, 100-130/60 VAC/Hz, e.g., W7476B2332Z. For other voltages, consult ROSS.

* Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.

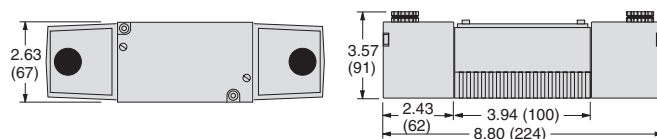
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

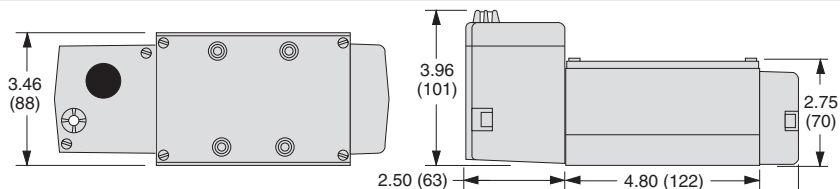
ANSI Size 1



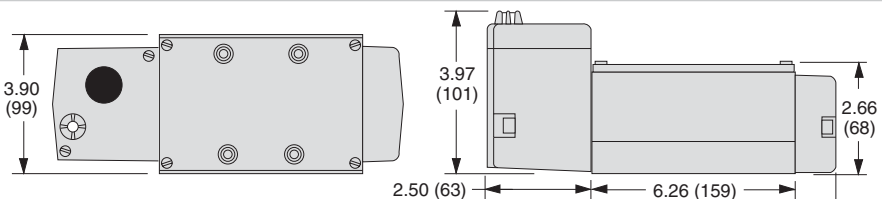
ANSI Size 2.5



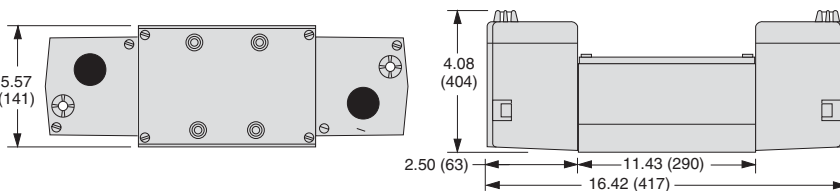
ANSI Size 4



ANSI Size 10



ANSI Size 20



Options: Indicator Light (in Base/Manifold), refer to page C5.17-C5.18. Accessories ordered separately, refer to page C5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Base	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	Vacuum to 150 psig (10 bar)
Voltage	24 volts DC; 110/50, 110-120/60 volts AC/Hz		Pilot Supply - Internal or External: Minimum 30 psig (2 bar)
Power Consumption (each solenoid)	ANSI Size 1: 5 watts on DC; 10 VA inrush, 24 VA holding on 50 or 60 Hz ANSI Size 2.5, 4, 10 & 20: 14 watts on DC; 87 VA inrush, 55 VA holding on 50 or 60 Hz	When external pilot supply, pressure must be equal to or greater than inlet pressure.	
Temperature	Ambient: 40° to 120°F (4° to 50°C); extended to 175°F (80°C) for High Temperature models.	Indicator Light	Included for ANSI Size 4, 10 & 20 only; one per solenoid
	Media: 40° to 175°F (4° to 80°C); extended to 220°F (105°C) for High Temperature models	Construction Material	Valve Body: Cast Aluminum Poppet: Rubber Coated Aluminum & Stainless Steel Seals: Buna-N
	For other temperature ranges, consult ROSS.	Manual Override	Flush; Rubber, non-locking

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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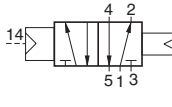
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C5.11

Single Pressure Controlled Valves

ANSI W74 Series

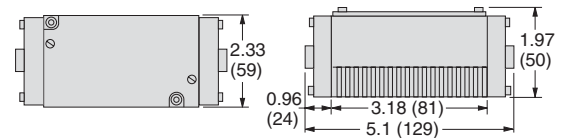
5-Way 2-Position Valves, Air Return								
ANSI Size	Port Size	Valve Model Number*		Avg. C _v	Average Response Constants**			Weight lb (kg)
		Standard Temp.	High Temp.		M	F		
						In-Out	Out-Exh.	
1	1/4 - 3/8	W7456B2331	W7456B2336	0.9	30	2.7	5.6	2.5 (1.1)
2.5	3/8 - 1/2	W7456A3331	W7456A3336	2.0	25	1.4	2.9	2.0 (0.9)
4	1/2 - 3/4	W7456C4331	W7456C4336	4.2	16	0.5	1.1	3.3 (1.5)
10	3/4 - 1¼	W7456A6331	W7456A6336	11	14	0.3	0.5	7.3 (3.3)
20	1¼ - 1½	W7456A8331	W7456A8336	22	32	0.1	0.2	17.5 (7.9)



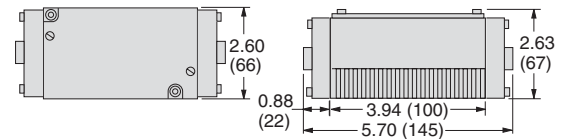
* Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

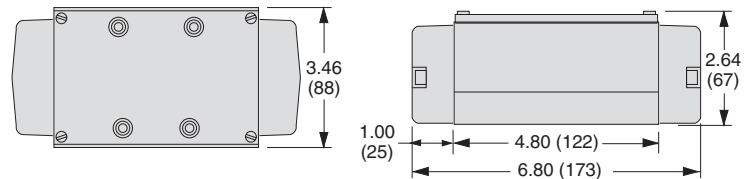
ANSI Size 1



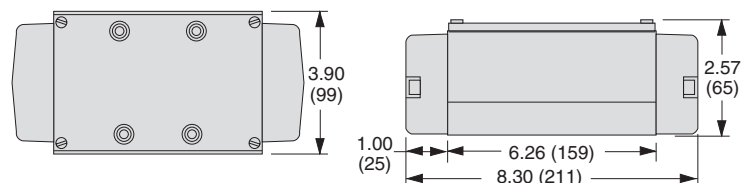
ANSI Size 2.5



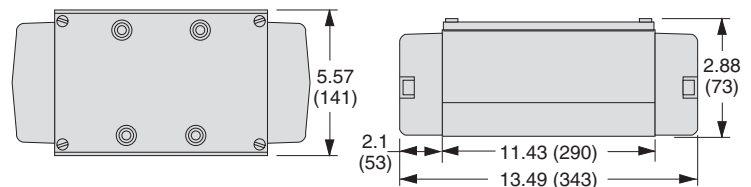
ANSI Size 4



ANSI Size 10



ANSI Size 20



Accessories ordered separately, refer to page C5.19.

STANDARD SPECIFICATIONS (for valves on this page):

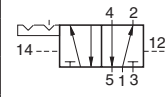
Construction Design	Poppet	Pilot Supply	External
Mounting Type	Base	Operating Pressure	30 to 150 psig (2 to 10 bar)
Temperature	Ambient: 40° to 175°F (4° to 80°C) Media: 40° to 175°F (4° to 80°C); extended to 220°F (105°C) for High Temperature models	Construction Material	Pilot Supply: Minimum 30 psig (2 bar) Valve Body: Cast Aluminum Poppet: Rubber Coated Aluminum & Stainless Steel Seals: Buna-N
Flow Media	Filtered air		Pilot supply pressure must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Pressure Controlled Valves

**ANSI
W74 Series**

5-Way 2-Position Valves, Detented								
ANSI Size	Port Size	Valve Model Number*		Avg. C _v	Average Response Constants**			Weight lb (kg)
		Standard Temp.	High Temp.		M	F		
						In-Out	Out-Exh.	
1	1/4 - 3/8	W7456B2332	W7456B2337	0.9	30	2.7	5.6	2.5 (1.1)
2.5	3/8 - 1/2	W7456A3332	W7456A3337	2.0	25	1.4	2.9	2.0 (0.9)
4	1/2 - 3/4	W7456C4332	W7456C4337	4.2	16	0.5	1.1	3.3 (1.5)
10	3/4 - 1 1/4	W7456A6332	W7456A6337	11	14	0.3	0.5	7.3 (3.3)
20	1 1/4 - 1 1/2	W7456A8332	W7456A8337	22	32	0.1	0.2	17.5 (7.9)

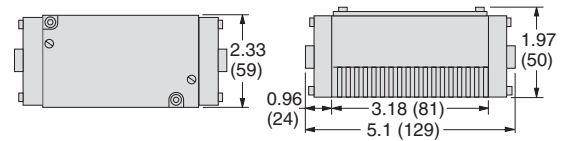


* Sub-bases and manifold bases ordered separately, refer to page C5.14-C5.18.

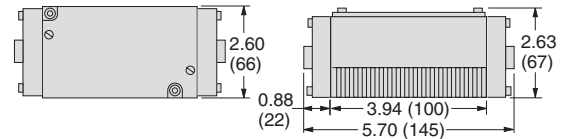
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

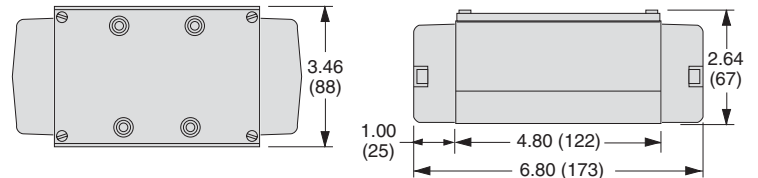
ANSI Size 1



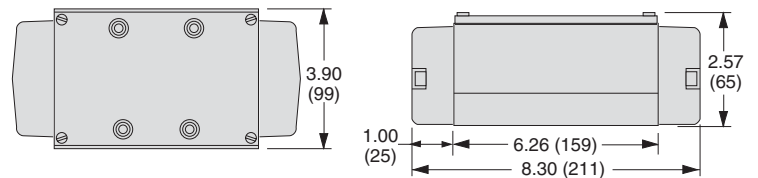
ANSI Size 2.5



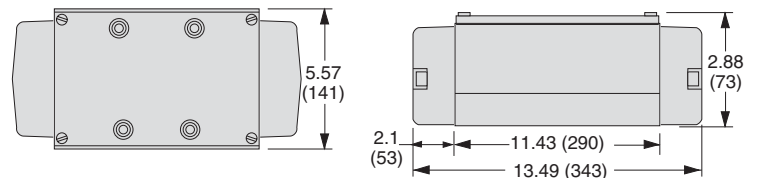
ANSI Size 4



ANSI Size 10



ANSI Size 20



Accessories ordered separately, refer to page C5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction	Poppet	Pilot Supply	External
Mounting Type	Base	Operating Pressure	30 to 150 psig (2 to 10 bar)
Temperature	Ambient: 40° to 175°F (4° to 80°C) Media: 40° to 175°F (4° to 80°C); extended to 220°F (105°C) for High Temperature models	Construction Material	Pilot Supply: Minimum 30 psig (2 bar) Pilot supply pressure must be equal to or greater than inlet pressure.
Flow Media	Filtered air		Valve Body: Cast Aluminum Poppet: Rubber Coated Aluminum & Stainless Steel Seals: Buna-N

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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C5.13

Sub-Bases – Side Ported for Solenoid Pilot Controlled Valves

for ANSI Valves W70 & W74 Series



Sub-base for ANSI Size 4 valve illustrated

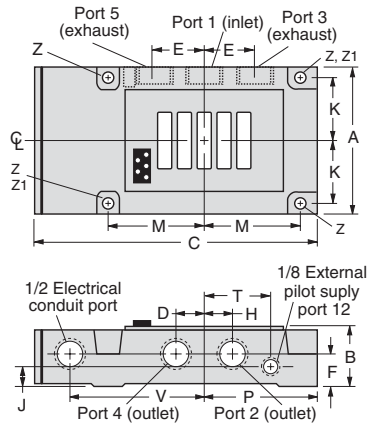
ANSI Size	Outlet Port	Indicator Lights in Base						Avg. C _v
		None		One		Two		
		Model Number		Model Number#		Model Number#		
		NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	
1	1/4	500B91	D500B91	525K91-W	D525K91-W	526K91-W	D526K91-W	0.9 to 1.0
	3/8	501B91	D501B91	527K91-W	D527K91-W	528K91-W	D528K91-W	0.9 to 1.0
2.5	3/8	474K91	D474K91	482K91-W	D482K91-W	484K91-W	D484K91-W	2.0 to 2.5
	1/2	475K91	D475K91	483K91-W	D483K91-W	485K91-W	D485K91-W	2.0 to 2.5
4	3/8	361B91	D361B91	—	—	—	—	4.2
	1/2	362B91	D362B91	—	—	—	—	4.2
	3/4	363B91	D363B91	—	—	—	—	4.2
10	3/4	364B91	D364B91	—	—	—	—	10 to 11
	1	365B91	D365B91	—	—	—	—	10 to 11
	1 1/4	366B91	D366B91	—	—	—	—	10 to 11
20	1 1/4	367B91	D367B91	—	—	—	—	22
	1 1/2	368B91	D368B91	—	—	—	—	22

#Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 525K91-Z. For other voltages, consult ROSS.

C

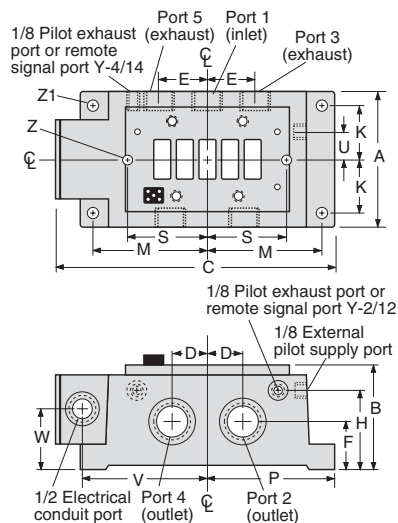
C5

ANSI Size 1 & 2.5



Sub-Base Dimensions inches (mm)					
	ANSI 1	ANSI 2.5	ANSI 4	ANSI 10	ANSI 20
A	2.80 (71)	3.56 (90)	3.36 (85)	5.08 (129)	6.64 (169)
B	1.44 (37)	1.61 (41)	2.64 (67)	3.78 (96)	3.70 (94)
C	6.15 (156)	7.09 (180)	7.21 (183)	10.45 (266)	12.34 (313)
D	0.51 (13)	0.63 (16)	0.75 (19)	1.38 (35)	1.38 (35)
E	0.88 (22)	1.25 (32)	1.50 (38)	2.76 (70)	2.76 (70)
F	0.78 (20)	0.93 (23)	1.23 (31)	1.75 (44)	1.59 (40)
H	0.58 (15)	0.63 (16)	2.21 (56)	3.01 (76)	2.85 (72)
J	0.38 (10)	0.50 (13)	—	—	—
K	1.13 (29)	1.50 (38)	—	2.05 (52)	2.38 (60)
M	1.88 (48)	2.31 (59)	—	4.33 (110)	5.35 (136)
P	2.43 (62)	2.97 (75)	2.86 (73)	4.76 (121)	5.86 (149)
S	—	—	2.36 (60)	—	—
T	1.35 (34)	1.78 (45)	—	—	—
U	—	—	0.83 (21)	1.97 (50)	1.54 (39)
V	2.75 (70)	3.29 (83)	3.07 (78)	4.65 (118)	5.60 (142)
W	—	—	1.23 (31)	2.50 (64)	2.15 (55)
Z	0.27 (7)	—	0.30 (7)	—	—
Z1	—	0.28 (7)	—	0.34 (9)	0.37 (9)

ANSI Size 4, 10 & 20



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Sub-Bases – Side Ported for Pressure Controlled Valves

for ANSI Valves W70 & W74 Series

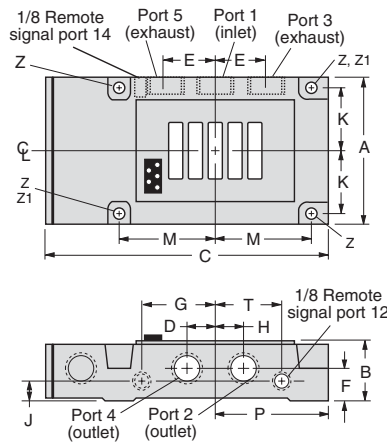


Sub-base for ANSI Size 4
valve illustrated

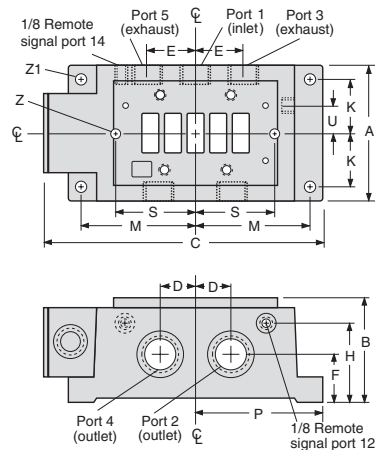
ANSI Size	Outlet Port	Model Number		Avg. C _v
		NPT Threads	G Threads	
1	1/4	500B91	D500B91	0.9 to 1.0
	3/8	501B91	D501B91	0.9 to 1.0
2.5	3/8	474K91	D474K91	2.0 to 2.5
	1/2	475K91	D475K91	2.0 to 2.5
4	3/8	361B91	D361B91	4.2
	1/2	362B91	D362B91	4.2
	3/4	363B91	D363B91	4.2
10	3/4	364B91	D364B91	10 to 11
	1	365B91	D365B91	10 to 11
	1 1/4	366B91	D366B91	10 to 11
20	1 1/4	367B91	D367B91	22
	1 1/2	368B91	D368B91	22

C

ANSI Size 1 & 2.5



ANSI Size 4, 10 & 20



C5

Sub-Base Dimensions inches (mm)					
	ANSI 1	ANSI 2.5	ANSI 4	ANSI 10	ANSI 20
A	2.80 (71)	3.56 (90)	3.36 (85)	5.08 (129)	6.64 (169)
B	1.44 (37)	1.61 (41)	2.64 (67)	3.78 (96)	3.70 (94)
C	6.15 (156)	7.09 (180)	7.21 (183)	10.45 (266)	12.34 (313)
D	0.51 (13)	0.63 (16)	0.75 (19)	1.38 (35)	1.38 (35)
E	0.88 (22)	1.25 (32)	1.50 (38)	2.76 (70)	2.76 (70)
F	0.78 (20)	0.93 (23)	1.23 (31)	1.75 (44)	1.59 (40)
H	0.58 (15)	0.63 (16)	2.21 (56)	3.01 (76)	2.85 (72)
J	0.38 (10)	0.50 (13)	-	-	-
K	1.13 (29)	1.50 (38)	-	2.05 (52)	2.38 (60)
M	1.88 (48)	2.31 (59)	-	4.33 (110)	5.35 (136)
P	2.43 (62)	2.97 (75)	2.86 (73)	4.76 (121)	5.86 (149)
S	-	-	2.36 (60)	-	-
T	1.35 (34)	1.78 (45)	-	-	-
U	-	-	0.83 (21)	1.97 (50)	1.54 (39)
V	-	-	-	-	-
Z	0.27 (7)	-	0.30 (7)	-	-
Z1	-	0.28 (7)	-	0.34 (9)	0.37 (9)

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Online Version
06/25/20



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C5.15

Sub-Bases – Side & Bottom Ported for Solenoid Pilot or Pressure Controlled Valves

for ANSI Valves
W70 & W74 Series

Side & Bottom Ported Sub-Bases

ANSI Size	Outlet Port	Indicator Lights in Base						Avg. C _v
		None		One		Two		
		Model Number		Model Number#		Model Number#		
		NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	
1	1/4	499B91	D499B91	529K91-W	D529K91-W	530K91-W	D530K91-W	0.9 to 1.0
2.5	3/8	476K91	D476K91	477K91-W	D477K91-W	486K91-W	D486K91-W	2.0 to 2.5
4	3/8	369B91	D369B91	—	—	—	—	4.2
	1/2	370B91	D370B91	—	—	—	—	4.2
	3/4	371B91	D371B91	—	—	—	—	4.2

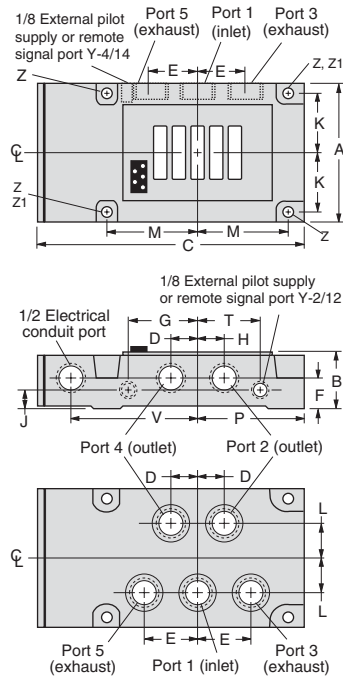
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 529K91-Z. For other voltages, consult ROSS.

C

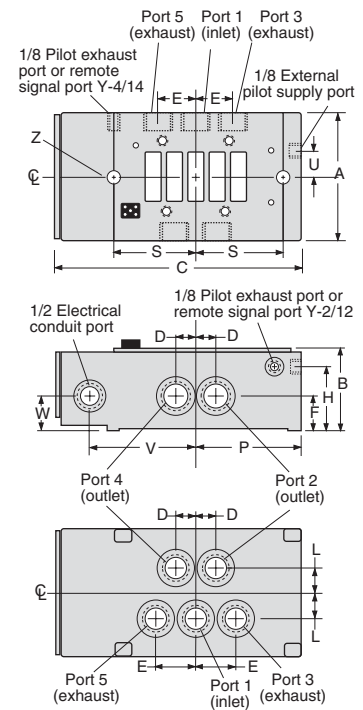
Dimensions inches (mm)			
	ANSI 1	ANSI 2.5	ANSI 4
A	2.80 (71)	3.56 (90)	3.36 (85)
B	1.44 (37)	1.61 (41)	2.64 (67)
C	6.15 (156)	7.09 (180)	7.21 (183)
D	0.51 (13)	0.63 (16)	0.75 (19)
E	0.88 (22)	1.25 (32)	1.50 (38)
F	0.78 (20)	0.93 (23)	1.23 (31)
G	1.46 (37)	2.41 (61)	—
H	0.58 (15)	0.63 (16)	2.21 (56)
J	0.38 (10)	0.50 (13)	—
K	1.13 (29)	1.50 (38)	—
L	0.63 (16)	0.81 (21)	—
M	1.88 (48)	2.31 (59)	—
P	2.43 (62)	2.97 (75)	2.86 (73)
S	—	—	2.36 (60)
T	1.35 (34)	1.78 (45)	—
U	—	—	0.83 (21)
V	2.75 (70)	3.29 (83)	—
Z	0.27 (7)	—	0.30 (7)
Z1	—	0.28 (7)	—

C5

ANSI Size 1 & 2.5



ANSI Size 4

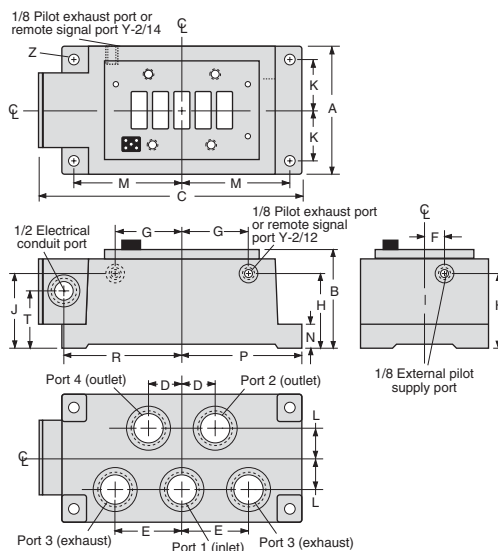


Bottom Ported Sub-Bases

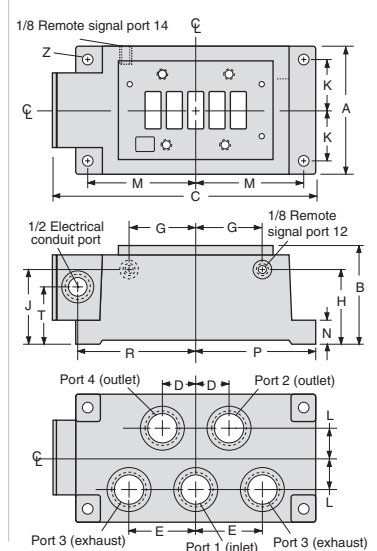
ANSI Size	Outlet Port	Model Number		Avg. C _v
		NPT Threads	G Threads	
10	3/4	372B91	D372B91	10 to 11
	1	373B91	D373B91	10 to 11
	1 1/4	374B91	D374B91	10 to 11
20	1 1/4	375B91	D375B91	22
	1 1/2	376B91	D376B91	22

Dimensions inches (mm)				
	ANSI 10	ANSI 20	ANSI 10	ANSI 20
A	5.8 (129)	6.64 (169)	K	2.05 (52)
B	3.78 (96)	3.70 (94)	L	1.22 (31)
C	10.45 (266)	12.34 (313)	M	4.33 (110)
D	1.38 (35)	1.38 (35)	N	0.88 (22)
E	2.76 (70)	2.76 (76)	P	4.76 (121)
F	1.03 (26)	1.54 (39)	R	4.65 (118)
G	2.60 (66)	3.90 (99)	T	2.50 (64)
H	3.01 (76)	2.85 (72)	Z	0.34 (8)
J	3.25 (83)	2.85 (72)		

for Solenoid Pilot Controlled Valves



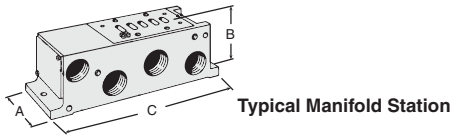
for Pressure Controlled Valves



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manifold Bases for Solenoid Pilot Controlled Valves

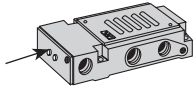
for ANSI Valves W70 & W74 Series



The numbers of the manifold stations shown in the chart on the right specify pressure ports with NPT threads and electrical openings with 1 1/4 NPT threads. All necessary hardware and seals for manifold assembly are included with each manifold station.

Indicator Lights: As shown in the chart the smaller sizes of manifolds are available with indicator lights. These lights are located in the end plate covering the electrical cavity.

Lights are mounted in bases, on the valves, or on solenoids, depending on the particular type of valve.



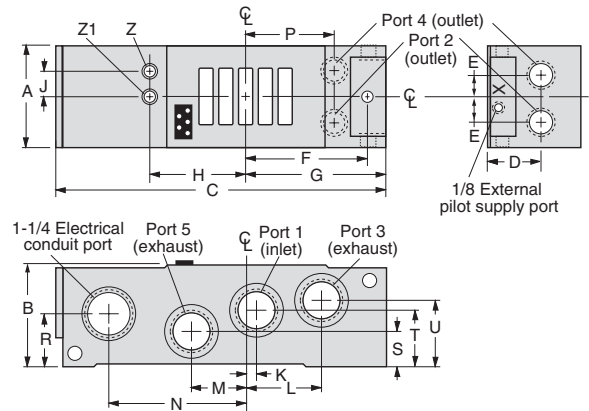
ANSI Size	Outlet Port	Indicator Lights in Manifold						Avg. C _v
		None		One		Two		
		Model Number		Model Number#		Model Number#		
		NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	
1	1/4	502B91	D502B91	531K91-W	D531K91-W	532K91-W	D532K91-W	0.9 to 1.0
	3/8	503B91	D503B91	533K91-W	D533K91-W	534K91-W	D534K91-W	0.9 to 1.0
2.5	3/8	472K91	D472K91	478K91-W	D478K91-W	480K91-W	D480K91-W	2.0 to 2.5
	1/2	473K91	D473K91	479K91-W	D479K91-W	481K91-W	D481K91-W	2.0 to 2.5
4	3/8	377B91	D377B91	—	—	—	—	4.2
	1/2	378B91	D378B91	—	—	—	—	4.2
	3/4	379B91	D379B91	—	—	—	—	4.2
10	3/4	380B91	D380B91	—	—	—	—	10 to 11
	1	381B91	D381B91	—	—	—	—	10 to 11
	1 1/4	382B91	D382B91	—	—	—	—	10 to 11

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 531K91-Z. For other voltages, consult ROSS.

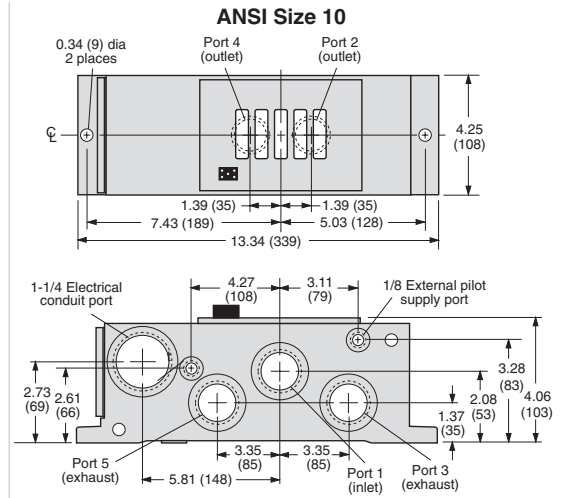
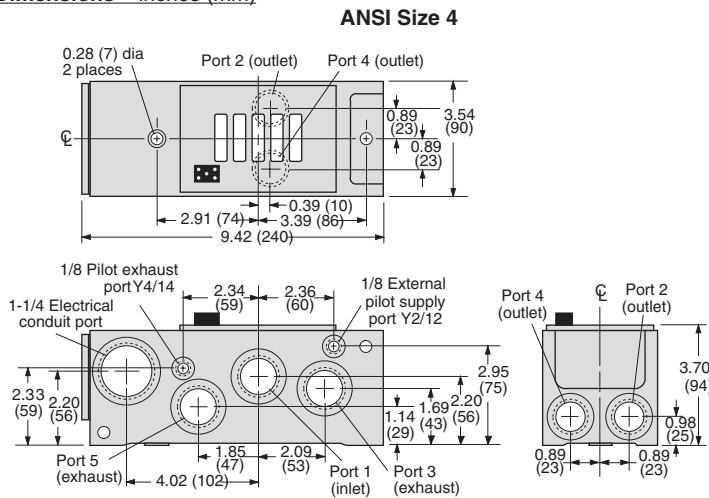
Manifold Note: The port positions of the solenoid controlled and the pressure controlled manifolds are not the same. For this reason these stations cannot be mixed in the same installation. If both types of valves *must* be used in the same installation, use only manifold stations for solenoid controlled valves.

ANSI Size 1 & 2.5

Dimensions inches (mm)					
	ANSI 1	ANSI 2.5		ANSI 1	ANSI 2.5
A	2.26 (57)	2.80 (71)	L	1.62 (41)	1.81 (46)
B	2.26 (57)	2.66 (68)	M	1.00 (25)	1.46 (37)
C	7.89 (201)	8.50 (216)	N	2.88 (73)	3.46 (88)
D	1.38 (35)	1.48 (38)	P	2.16 (55)	2.21 (56)
E	0.56 (14)	0.70 (18)	R	1.17 (30)	1.36 (35)
F	2.76 (70)	2.99 (76)	S	0.64 (16)	0.78 (20)
G	3.14 (80)	3.43 (87)	T	1.07 (27)	1.40 (36)
H	1.80 (46)	2.24 (87)	U	1.57 (40)	1.76 (45)
J	0.50 (13)	—	Z	0.28 (7)	—
K	0.31 (8)	0.18 (6)	Z1	—	0.28 (7)



Manifold Dimensions – inches (mm)



ASSEMBLED MANIFOLDS

Valves and manifold stations can be assembled by ROSS to precise specifications. The assembly is then ready for integration into your system.

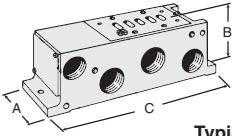
For detailed information about such assemblies, consult your ROSS Distributor or call ROSS in the U.S.A. at 1-888-TEK-ROSS (835-7677) or 1-248-764-1800.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Manifold Bases for Pressure Controlled Valves

for ANSI Valves W70 & W74 Series



Typical Manifold Station

The numbers of the manifold stations shown in the chart on the right specify pressure ports with NPT threads. All necessary hardware and seals for manifold assembly are included with each manifold station.

Manifold Note: The port positions of the solenoid controlled and the pressure controlled manifolds are not the same. For this reason these stations cannot be mixed in the same installation. If both types of valves *must* be used in the same installation, use only manifold stations for solenoid controlled valves.

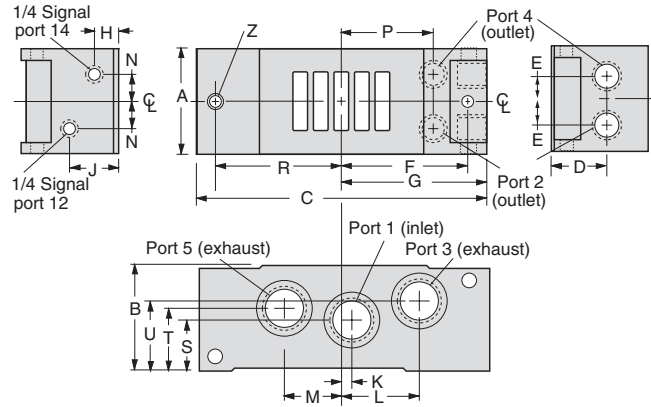
ANSI Size	Outlet Port	Model Number		Avg. C _v
		NPT Threads	G Threads	
1	1/4	359B91	D359B91	0.9 to 1.0
	3/8	360B91	D360B91	0.9 to 1.0
2.5	3/8	468B91	D468B91	2.0 to 2.5
	1/2	469B91	D469B91	2.0 to 2.5
4	3/8	383B91	D383B91	4.2
	1/2	384B91	D384B91	4.2
	3/4	385B91	D385B91	4.2
10	3/4	386B91	D386B91	10 to 11
	1	387B91	D387B91	10 to 11
	1 1/4	388B91	D388B91	10 to 11

C

Manifold Dimensions – inches (mm)

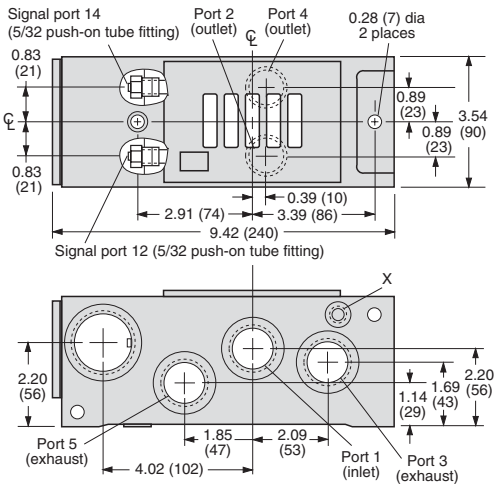
Dimensions inches (mm)				
	ANSI 1	ANSI 2.5	ANSI 4	ANSI 10
A	2.26 (57)	2.80 (71)	L	1.47 (37)
B	2.26 (57)	2.66 (68)	M	1.36 (35)
C	6.25 (159)	6.86 (174)	N	0.56 (14)
D	1.32 (34)	1.48 (38)	P	2.37 (60)
E	0.56 (14)	0.70 (18)	R	2.50 (64)
F	2.88 (73)	2.99 (76)	S	1.14 (29)
G	3.31 (84)	3.40 (86)	T	1.14 (29)
H	0.56 (14)	0.74 (19)	U	1.26 (32)
J	0.88 (22)	1.26 (32)	Z	0.28 (7)
K	0.00 (00)	0.18 (6)		

ANSI Size 1 & 2.5

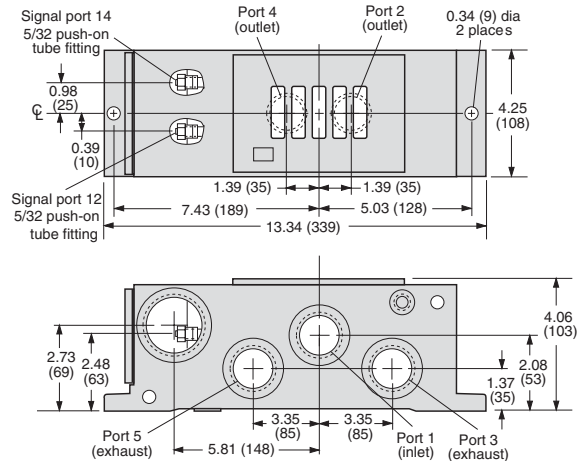


C5

ANSI Size 4



ANSI Size 10



Valves and manifold stations can be assembled by ROSS to precise specifications. The assembly is then ready for integration into your system.

ASSEMBLED MANIFOLDS

For detailed information about such assemblies, consult your ROSS Distributor or call ROSS in the U.S.A. at 1-888-TEK-ROSS (835-7677) or 1-248-764-1800.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Accessories

Interposed Pressure Regulators

Both single and double interposed regulators are available for valves with C_v ratings up to 4.2. A regulator is bolted to the valve's sub-base or manifold station, and the valve is then bolted to the regulator. This mounting method allows the valve to be removed and replaced without disturbing the regulator.

Single pressure regulators provide the same regulated pressure at both outlet ports. Double pressure regulators allow the pressure at each outlet port to be set independently.

A locking type knob is used to set the regulated pressure at any point in the range of:

- 5 to 100 psig (0.3 to 7 bar) for size 1 and 2 models;
- 5 to 125 psig (0.3 to 8.5 bar) for size = 4.2 models.

Maximum inlet pressure is 150 psig (10 bar).

Pressure gauge(s) included.

ANSI Size	Interposed Regulator – Model Number		
	Single	Double*	
		Solenoid	Remote Air
1	840C91	841C91	713C91
2.5	626C91	627C91	714C91
4	632C91	633C91	715C91

* Double regulator only for W70 spool valves.

WARNING:

Double interposed regulators will reverse output ports - the 12 solenoid will pressurize the 4 port, the 14 solenoid will pressurize the 2 port - which may cause unexpected, potentially dangerous cylinder movement at valve pressurization.


C


C5


Manual Override Kits

Flush flexible manual overrides are standard on solenoid pilot controlled valves with C_v ratings of 2.0 or larger. Both locking and non-locking metal override buttons are also available for these models.

Each of the override buttons in the kits at the right is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

Flush Button		
Locking Type	Kit Number	
Non-Locking	790K87	
Locking	792K87	

Extended Button		
Locking Type	Kit Number	
Non-Locking	791K87	

Extended Button with Palm		
Locking Type	Kit Number	
Non-Locking	984H87	

Silencers

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	G Threads		Width	Length	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
		5500A3013	D5500A3013				
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
		5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1/2	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
		5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)
3/4	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1	Male	5500A7013	D5500A7013	16.4	2.0 (51)	5.5 (140)	0.6 (0.3)



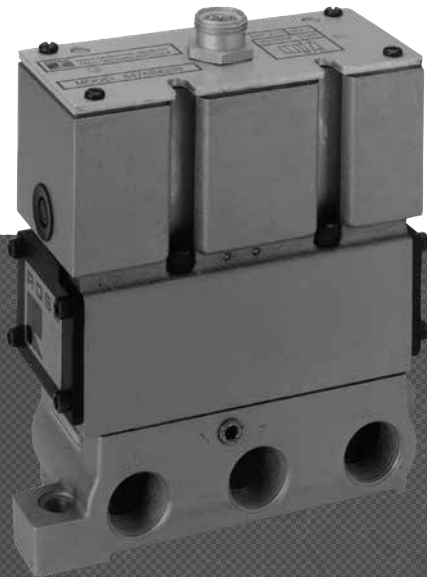
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.





SAE VALVES 80 & 84 SERIES



ROSS CONTROLS

SAE 80 & 84 SERIES VALVES – KEY FEATURES

- Spool & Sleeve or Poppet construction
- Micro-thin air bearing between spool and sleeve assures quick valve response
- Designed for high cycle rates and long life
- No seals to wear out
- Easily field-convertible for use with an external pilot supply
- Suitable for vacuum service (with external pilot supply)


VALVE TYPE	VALVE SERIES	DESCRIPTION			AVAILABLE PORT SIZES								FUNCTIONS					Page				
		SAE Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center		5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control
SAE	80 & 84	125																1.8				C6.3 - C6.7
SAE	80 & 84	250																5.7				C6.3 - C6.7
SAE	80 & 84	500																8.0				C6.3 - C6.7
Sub-Bases																					C6.8	
Manifolds Bases																					C6.9	
Accessories																					C6.10	

Single Solenoid Pilot Controlled Valves

SAE
80 Series

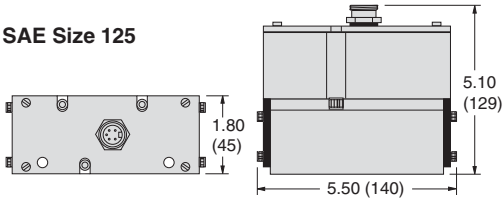
5-Way 2-Position Valves, Spring Return											
SAE Size	Valve Model Number*						Avg. C _v	Average Response Constants**			Weight lb (kg)
	Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)	Chrysler Wired 5-pin micro-connector (24 volts DC)	Ford Wired 5-pin mini-connector #	Chrysler Wired 5-pin mini-connector #	Hardwire #	Ford Wired 4-pin micro-connector (24 volts DC)		M	F		
									In-Out	Out-Exh.	
125	8076C3311	8076C3321	8076C3331W	8076C3341W	8076C3351W	8076C3361	1.4	20	3.5	4.9	3.5 (1.6)
250	8076C4311	8076C4321	8076C4331W	8076C4341W	8076C4351W	8076C4361	4.0	10	1.4	2.6	6.5 (2.9)
500	8076B6311	8076B6321	8076B6331W	8076B6341W	8076B6351W	8076B6361	8.2	22	0.5	0.8	8.3 (3.7)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 8076C3331Z. For other voltages, consult ROSS.
 * Sub-bases and manifold bases ordered separately, refer to page C6.8-9.
 **Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

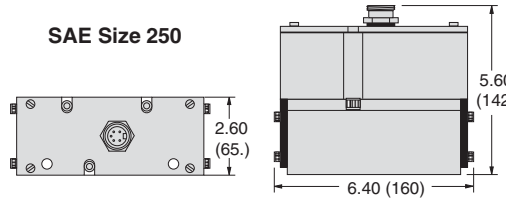


Valve Dimensions – inches (mm)

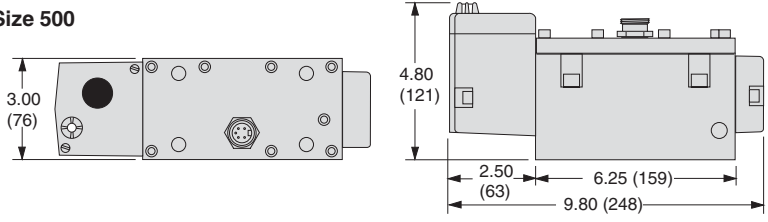
SAE Size 125




SAE Size 250

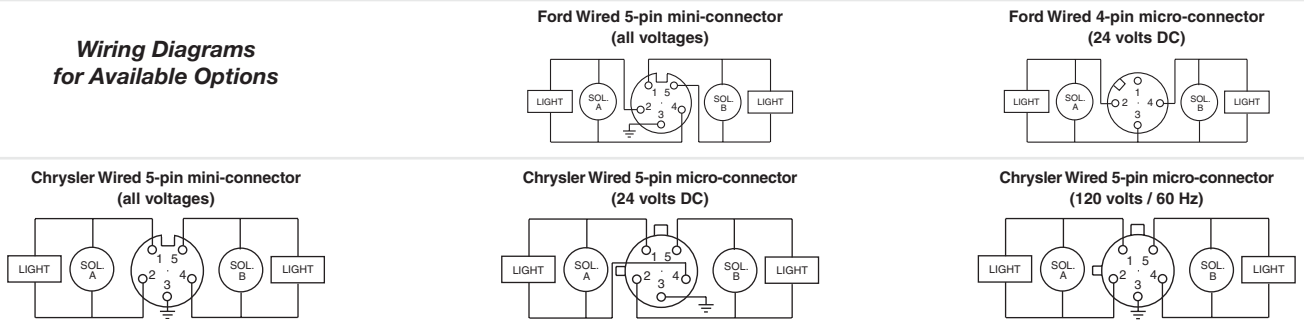


SAE Size 500





Wiring Diagrams for Available Options



Options: Manual Override (for SAE 500 size only), refer to page C6.10. Accessories ordered separately, refer to page C6.10.

Pressure Controlled Spool & Sleeve Valves for SAE available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Pilot Supply	Internal or External
Mounting Type	Base	Operating Pressure	Vacuum to 150 psig (10 bar)
Solenoids	Rated for continuous duty	Indicator Light	One per solenoid
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	SAE Size 125 & 250: 8 watts on DC; 8 VA inrush, 6 VA holding on 50/60 Hz SAE Size 500: 14 watts on DC; 87 VA inrush, 30 VA holding on 50/60 Hz	Manual Override	Flush; Rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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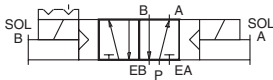
C6.3

Double Solenoid Pilot Controlled Valves

SAE
80 Series

5-Way 2-Position Valves, Detented											
SAE Size	Valve Model Number*						Avg. C _v	Average Response Constants**			Weight lb (kg)
	Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)	Chrysler Wired 5-pin micro-connector (24 volts DC)	Ford Wired 5-pin mini-connector #	Chrysler Wired 5-pin mini-connector #	Hardwire #	Ford Wired 4-pin micro-connector (24 volts DC)		M	F		
									In-Out	Out-Exh.	
125	8076C3312	8076C3322	8076C3332W	8076C3342W	8076C3352W	8076C3362	1.4	15	3.5	4.9	3.5 (1.6)
250	8076C4312	8076C4322	8076C4332W	8076C4342W	8076C4352W	8076C4362	4.0	17	1.5	2.6	7.0 (3.2)
500	8076B6312	8076B6322	8076B6332W	8076B6342W	8076B6352W	8076B6362	8.0	30	0.4	0.5	9.5 (4.3)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 8076C3332Z. For other voltages, consult ROSS.
 * Sub-bases and manifold bases ordered separately, refer to page C6.8-9.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

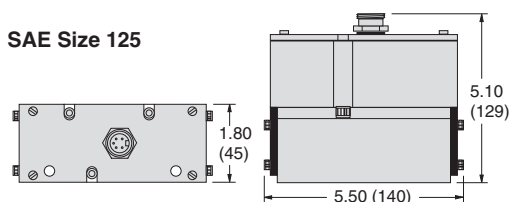


C

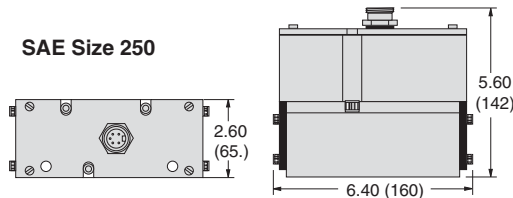
Valve Dimensions – inches (mm)



SAE Size 125



SAE Size 250



SAE 125

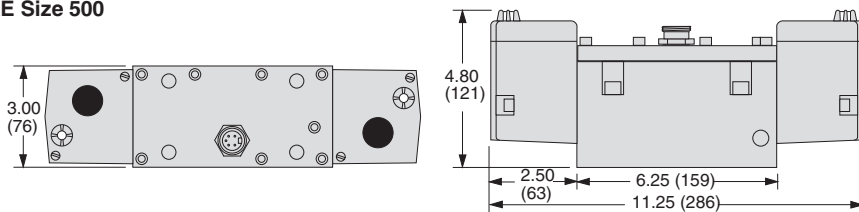


SAE 250

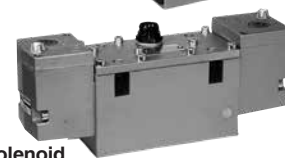


C5

SAE Size 500

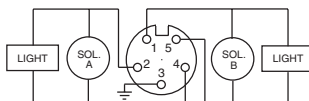


SAE 500 Double Solenoid

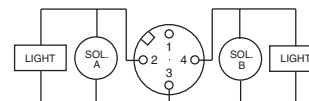


Wiring Diagrams for Available Options

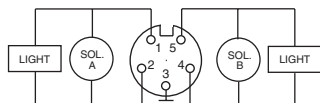
Ford Wired 5-pin mini-connector (all voltages)



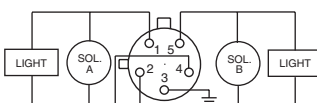
Ford Wired 4-pin micro-connector (24 volts DC)



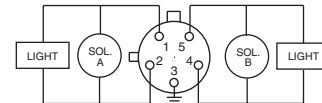
Chrysler Wired 5-pin mini-connector (all voltages)



Chrysler Wired 5-pin micro-connector (24 volts DC)



Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)



Options: Manual Override (for SAE 500 size only), refer to page C6.10. Accessories ordered separately, refer to page C6.10.

Pressure Controlled Spool & Sleeve Valves for SAE available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

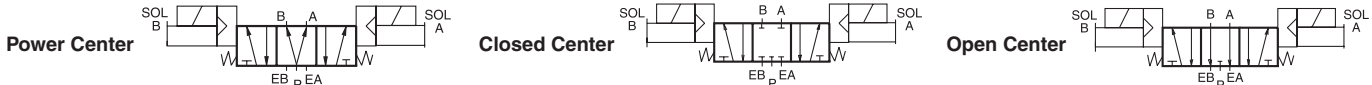
Construction Design	Spool and Sleeve	Pilot Supply	Internal or External
Mounting Type	Base	Operating Pressure	Vacuum to 150 psig (10 bar) Pilot Supply - Internal or External: Minimum 15 psig (1 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Indicator Light	One per solenoid
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	SAE Size 125 & 250: 8 watts on DC; 8 VA inrush, 6 VA holding on 50/60 Hz SAE Size 500: 14 watts on DC; 87 VA inrush, 30 VA holding on 50/60 Hz	Manual Override	Flush; Rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Solenoid Pilot Controlled Valves

SAE
80 Series

5-Way 3-Position Valves												
	SAE Size	Valve Model Number*						Avg. C _v	Average Response Constant**			Weight lb (kg)
		Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)	Chrysler Wired 5-pin micro-connector (24 volts DC)	Ford Wired 5-pin mini-connector #	Chrysler Wired 5-pin mini-connector #	Hardwire #	Ford Wired 4-pin micro-connector (24 volts DC)		M	In-Out	Out-Exh.	
		Power Center	125	—	—	8077B3910W	8077B3904W		—	—	1.4	
	250	—	—	8077A4907W	8077A4904W	—	—	4.0	10	1.4	2.6	7.0 (3.2)
Closed Center	125	8077C3311	8077C3321	8077C3331W	8077C3341W	8077C3351W	8077C3361	1.4	20	3.5	5.2	3.5 (1.6)
	250	8077C4311	8077C4321	8077C4331W	8077C4341W	8077C4351W	8077C4361	4.0	10	1.4	2.6	7.0 (3.2)
	500	8077B6311	8077B6321	8077B6331W	8077B6341W	8077B6351W	8077B6361	8.0	12	0.5	0.8	9.5 (4.3)
Open Center	125	8077C3312	8077C3322	8077C3332W	8077C3342W	8077C3352W	8077C3362	1.4	20	3.5	5.2	3.5 (1.6)
	250	8077C4312	8077C4322	8077C4332W	8077C4342W	8077C4352W	8077C4362	4.0	10	1.4	2.6	7.0 (3.2)
	500	8077B6312	8077B6322	8077B633W	8077B6342W	8077B6352W	8077B6362	8.0	12	0.5	0.8	9.5 (4.3)



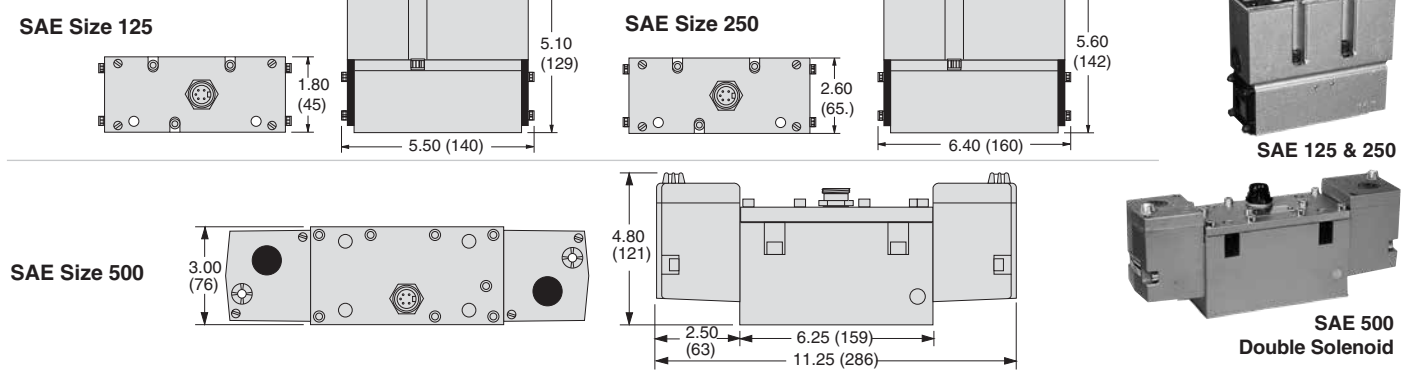
C

C5

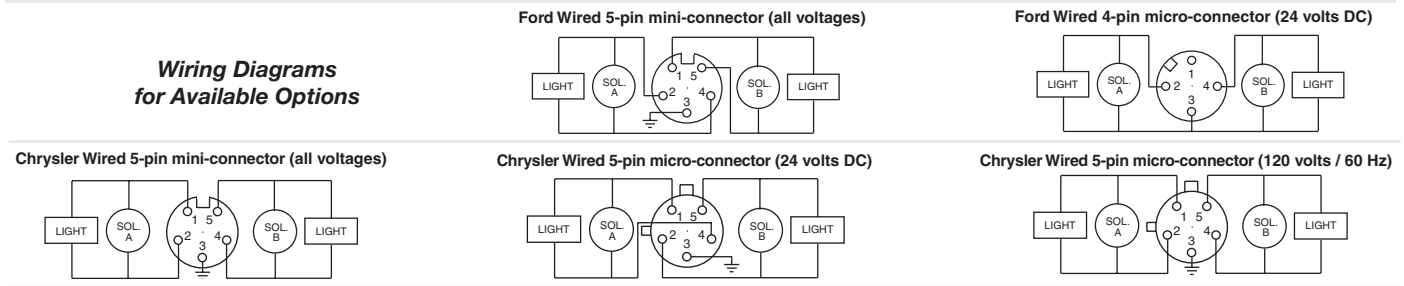
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 8077B3910Z. For other voltages, consult ROSS.
 * Sub-bases and manifold bases ordered separately, refer to page C6.8-9.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.



Valve Dimensions – inches (mm)



Wiring Diagrams for Available Options



Options: Manual Override (for SAE 500 size only), refer to page C6.10. Accessories ordered separately, refer to page C6.10.

Pressure Controlled Spool & Sleeve Valves for SAE available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool and Sleeve	Pilot Supply	Internal or External
Mounting Type	Base	Operating Pressure	Vacuum to 150 psig (10 bar)
Solenoids	Rated for continuous duty	Indicator Light	Pilot Supply - Internal or External: Minimum 15 psig (1 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Spool: Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	SAE Size 125 & 250: 8 watts on DC; 8 VA inrush, 6 VA holding on 50/60 Hz SAE Size 500: 14 watts on DC; 87 VA inrush, 30 VA holding on 50/60 Hz	Manual Override	Flush; Rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



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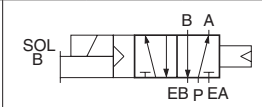
C6.5

Single Solenoid Pilot Controlled Valves

SAE
84 Series

5-Way 2-Position Valves, Air Return											
SAE Size	Valve Model Number*						Avg. C _v	Average Response Constants**			Weight lb (kg)
	Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)	Chrysler Wired 5-pin micro-connector (24 volts DC)	Ford Wired 5-pin mini-connector #	Chrysler Wired 5-pin mini-connector #	Hardwire #	Ford Wired 4-pin micro-connector (24 volts DC)		M	F		
	In-Out	Out-Exh.									
125	8476C3311	8476C3321	8476C3331W	8476C3341W	8476C3351W	8476C3361	1.8	47	1.6	3.0	2.8 (1.3)
250	8476C4311	8476C4321	8476C4331W	8476C4341W	8476C4351W	8476C4361	5.5	60	0.6	0.8	5.2 (2.4)
500	8476B6311	8476B6321	8476B6331W	8476B6341W	8476B6351W	8476B6361	7.9	30	0.4	0.5	7.7 (3.5)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 8476C3331Z. For other voltages, consult ROSS.
 * Sub-bases and manifold bases ordered separately, refer to page C6.8-9.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

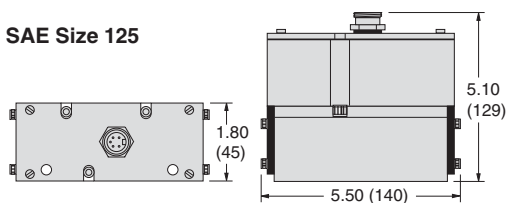


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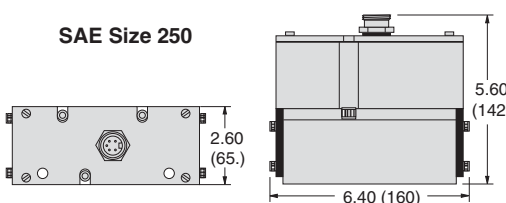
Valve Dimensions – inches (mm)



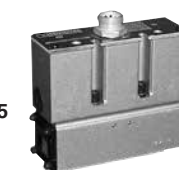
SAE Size 125



SAE Size 250



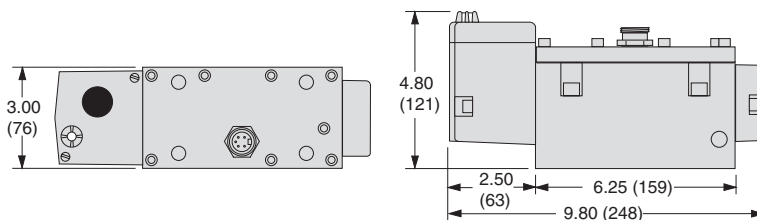
SAE 125



SAE 250



SAE Size 500

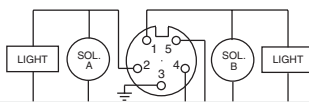


SAE 500 Single Solenoid

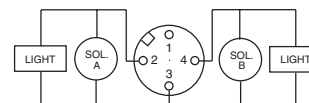


Wiring Diagrams for Available Options

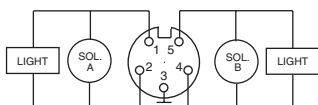
Ford Wired 5-pin mini-connector (all voltages)



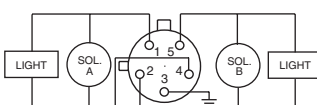
Ford Wired 4-pin micro-connector (24 volts DC)



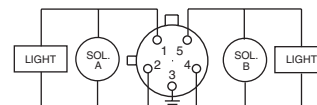
Chrysler Wired 5-pin mini-connector (all voltages)



Chrysler Wired 5-pin micro-connector (24 volts DC)



Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)



Options: Manual Override (for SAE 500 size only), refer to page C6.10. Accessories ordered separately, refer to page C6.10.

Pressure Controlled Poppet Valves for SAE available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	Base	Operating Pressure	30 to 150 psig (2 to 10 bar) Pilot Supply - Internal or External: Minimum 30 psig (2 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Indicator Light	One per solenoid
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Rubber Coated Aluminum & Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	SAE Size 125 & 250: 8 watts on DC; 8 VA inrush, 6VA holding on 50/60 Hz SAE Size 500: 14 watts on DC; 87 VA inrush, 30 VA holding on 50/60 Hz	Manual Override	Flush; Rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.

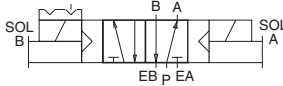


Double Solenoid Pilot Controlled Valves

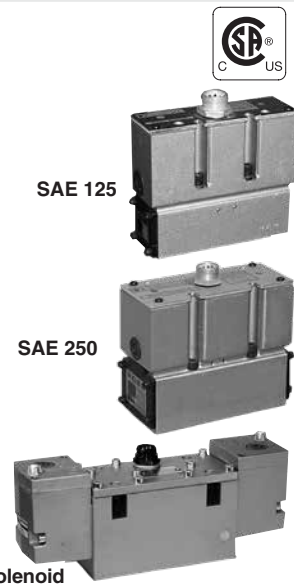
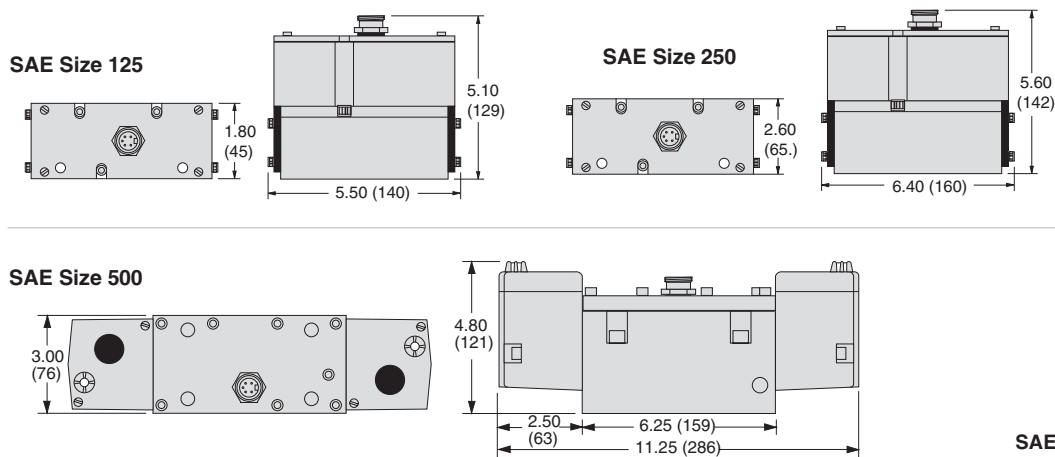
SAE
84 Series

5-Way 2-Position Valves, Detented											
SAE Size	Valve Model Number*						Avg. C _v	Average Response Constants**			Weight lb (kg)
	Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)	Chrysler Wired 5-pin micro-connector (24 volts DC)	Ford Wired 5-pin mini-connector #	Chrysler Wired 5-pin mini-connector #	Hardwire #	Ford Wired 4-pin micro-connector (24 volts DC)		M	F		
									In-Out	Out-Exh.	
125	8476C3312	8476C3322	8476C3332W	8476C3342W	8476C3352W	8476C3362	1.8	16	1.7	2.4	3.3 (1.5)
250	8476C4312	8476C4322	8476C4332W	8476C4342W	8476C4352W	8476C4362	5.7	20	0.6	0.8	5.7 (2.6)
500	8476B6312	8476B6322	8476B6332W	8476B6342W	8476B6352W	8476B6362	7.6	16	0.2	0.5	8.9 (4.1)

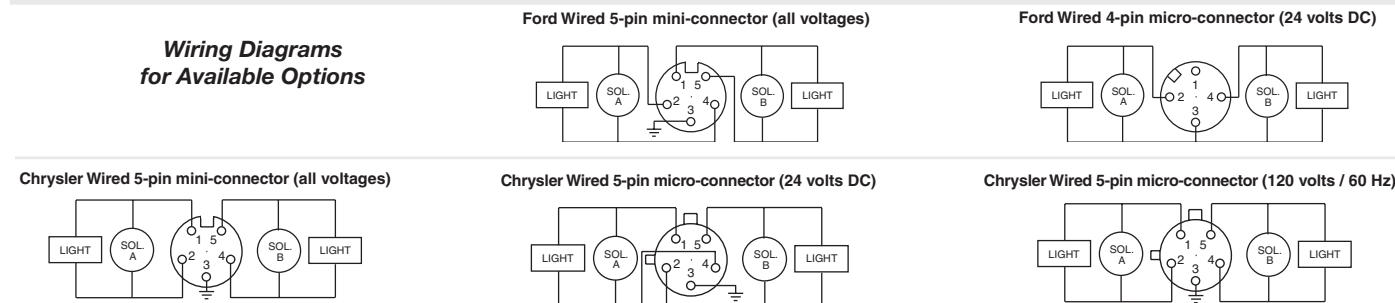
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 8476C3332W. For other voltages, consult ROSS.
 * Sub-bases and manifold bases ordered separately, refer to page C6.8-9.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.



Valve Dimensions – inches (mm)



Wiring Diagrams for Available Options



Options: Manual Override (for SAE 500 size only), refer to page C6.10. Accessories ordered separately, refer to page C6.10.

Pressure Controlled Poppet Valves for SAE available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	Base	Operating Pressure	30 to 150 psig (2 to 10 bar) Pilot Supply - Internal or External: Minimum 30 psig (2 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Indicator Light	One per solenoid
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Rubber Coated Aluminum & Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	SAE Size 125 & 250: 8 watts on DC; 8 VA inrush, 6 VA holding on 50/60 Hz SAE Size 500: 14 watts on DC; 87 VA inrush, 30 VA holding on 50/60 Hz	Manual Override	Flush; Rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



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C6.7

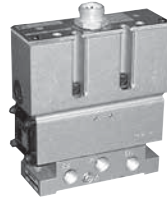
Sub-Bases – Side Ported

for SAE Valves
80 & 84 Series

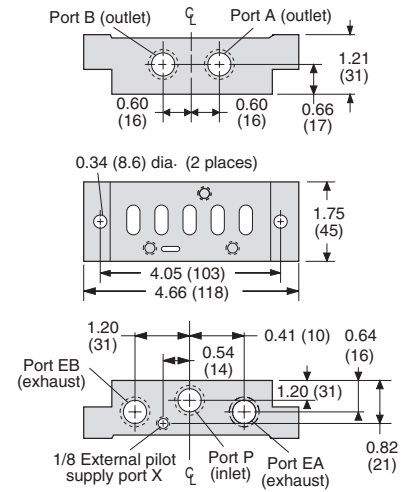
SAE 125

SAE 125 Sub-Base			
Model Number	Port Size		
NPT Threads*	Inlet (P)	Outlet (A, B)	Exhaust (EA, EB)
577K91	1/4	1/8	1/4
578K91	3/8	1/4	3/8
579K91	3/8	3/8	3/8

*For SAE threads, consult ROSS.



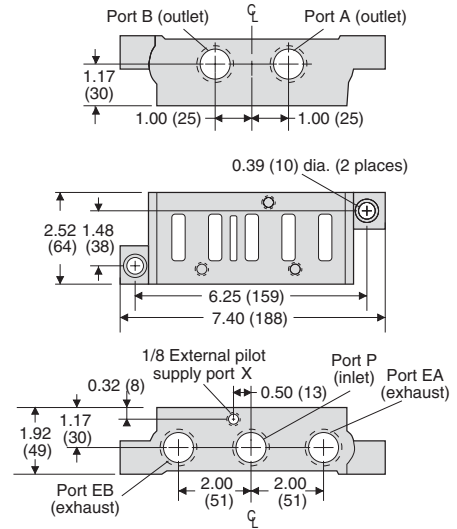
Dimensions – inches (mm)



SAE 250

SAE 250 Sub-Base			
Model Number	Port Size		
NPT Threads*	Inlet (P)	Outlet (A, B)	Exhaust (EA, EB)
539K91	3/8	1/4	3/8
540K91	1/2	3/8	1/2
541K91	1/2	1/2	1/2
542K91	3/4	3/4	3/4

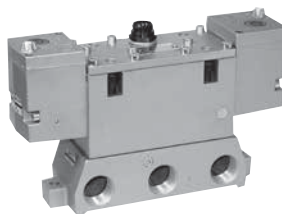
*For SAE threads, consult ROSS.



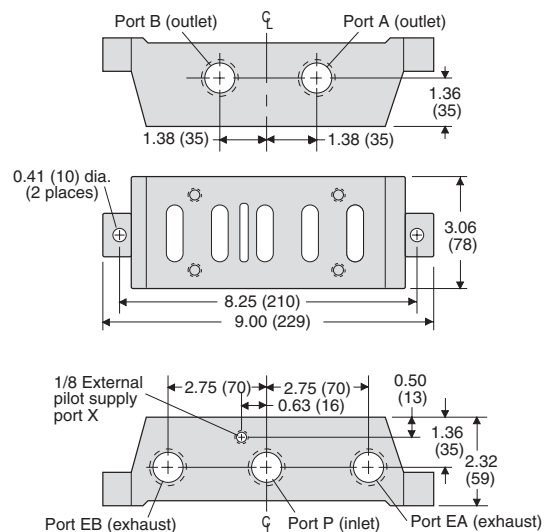
SAE 500

SAE 500 Sub-Base			
Model Number	Port Size		
NPT Threads*	Inlet (P)	Outlet (A, B)	Exhaust (EA, EB)
582K91	3/4	1/2	3/4
728K91	3/4	3/4	3/4
583K91	1	3/4	1
584K91	1	1	1

*For SAE threads, consult ROSS.



**SAE 500
Double Solenoid**



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manifold Stations

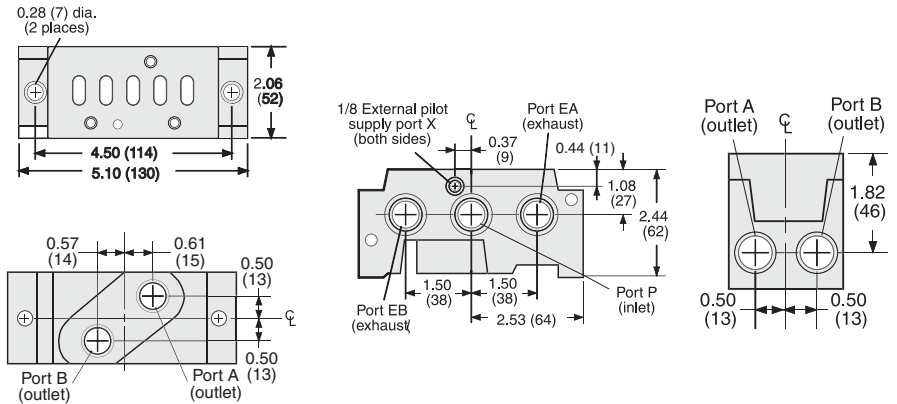
Each manifold station is supplied with all necessary seals and hardware for assembly.
End plates are *not* required with these manifolds.
Each station has all ports threaded to accept piping.

SAE 125

Dimensions – inches (mm)

SAE 125 Manifold Bases			
Model Number	Port Size		
NPT Threads*	Inlet (P)	Outlet (A, B)	Exhaust (EA, EB)
580K91	3/8	1/4	3/8
581K91	3/8	3/8	3/8

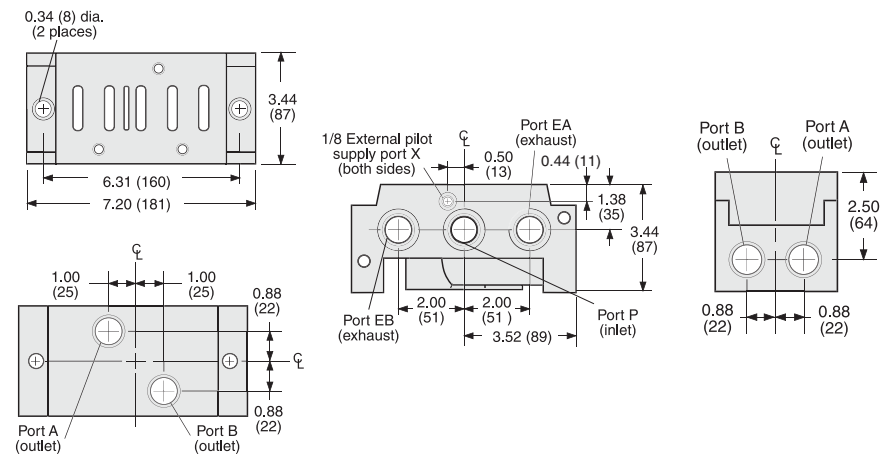
*For SAE threads, consult ROSS.



SAE 250

SAE 250 Manifold Bases			
Model Number	Port Size		
NPT Threads*	Inlet (P)	Outlet (A, B)	Exhaust (EA, EB)
553K91	1/2	1/2	1/2
554K91	3/4	3/4	3/4
555K91	3/4	3/4	3/4

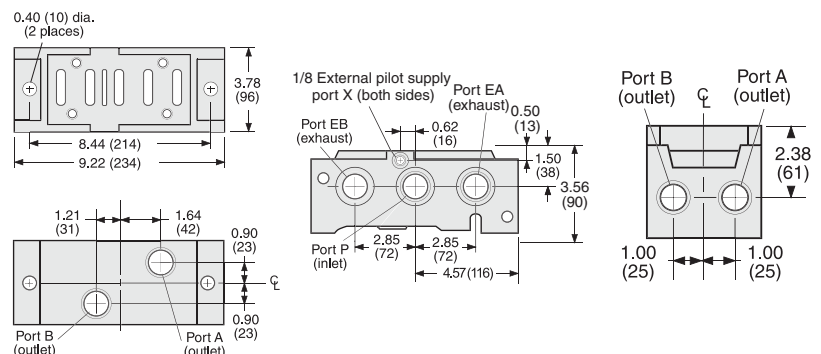
*For SAE threads, consult ROSS.



SAE 500




SAE 500 Manifold Bases			
Model Number	Port Size		
NPT Threads*	Inlet (P)	Outlet (A, B)	Exhaust (EA, EB)
585K91	3/4	1/2	3/4
586K91	1	3/4	1
587K91	1	1	1

*For SAE threads, consult ROSS.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manual Override Kits for SAE Size 500 Valves

Manual Override Kits	Flush Button			Extended Button			Extended Button with Palm		
	Locking Type	Kit Number		Locking Type	Kit Number		Locking Type	Kit Number	
	Non-Locking	790K87		Non-Locking	791K87		Non-Locking	984H87	
Locking	792K87	Locking	–	Locking	–				

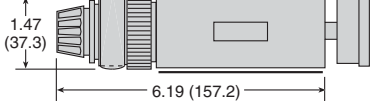
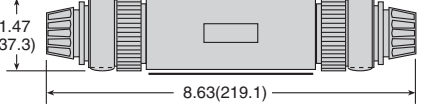

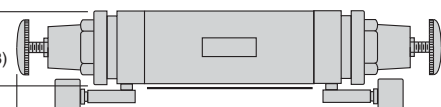
Flush flexible manual override buttons are standard on all SAE 500 solenoid pilot valves. Metal buttons as shown below can be installed in place of the standard flexible buttons. Both locking and non-locking metal buttons are available. Each button has spring-return action. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

Blanking Plates

For manifold stations not occupied by a valve, blanking plates are available. These plates block the unused air passages.

SAE Size	Model Number
125	820K77
250	821K77
500	822K77

Interposed Regulators

SAE Size & Type	Model Number	Dimensions – inches (mm)
125 Single	593K91	 1.47 (37.3) 6.19 (157.2)
125 Dual	873H91	 1.47 (37.3) 8.63 (219.1)
250 Single	595K91	 2.5 (63.5) 11.0 (279.4)
250 Dual	816H91	 1.47 (37.3) 16.5 (419.1)

Single and dual interposed regulators are available for SAE sizes 125 and 250.

A regulator is sandwiched between the valve and sub-base or manifold station and the valve is then bolted through the regulator to the sub-base or manifold station with the longer bolts provided. Single pressure regulators supply the same regulated pressure at both outlet ports.

Dual pressure regulators allow the pressure at each outlet port to be set independently.

Use dual pressure regulators with 80 Series valves only. When using dual pressure regulators, the valve must be externally piloted. For external pilot supply conversion, see below.

Regulated pressure range:

10 to 130 psig (1 to 9 bar); regulator-to-base gasket included.

EXTERNAL PILOT SUPPLY CONVERSION

ROSS SAE Solenoid pilot valves are designed to use an internal pilot supply. However, they are easily converted for use with an external pilot supply. To make this conversion, remove the pipe plug on the bottom of the valve. The plug is located between the center port and an adjacent port. Install this plug in the threaded port at the end of the center port. This blocks the internal pilot supply. Connect the external pilot supply line to port X in the base. Pressure in the external supply line must not be less than that specified in the valve's Standard Specifications.

Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
		5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
		5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)

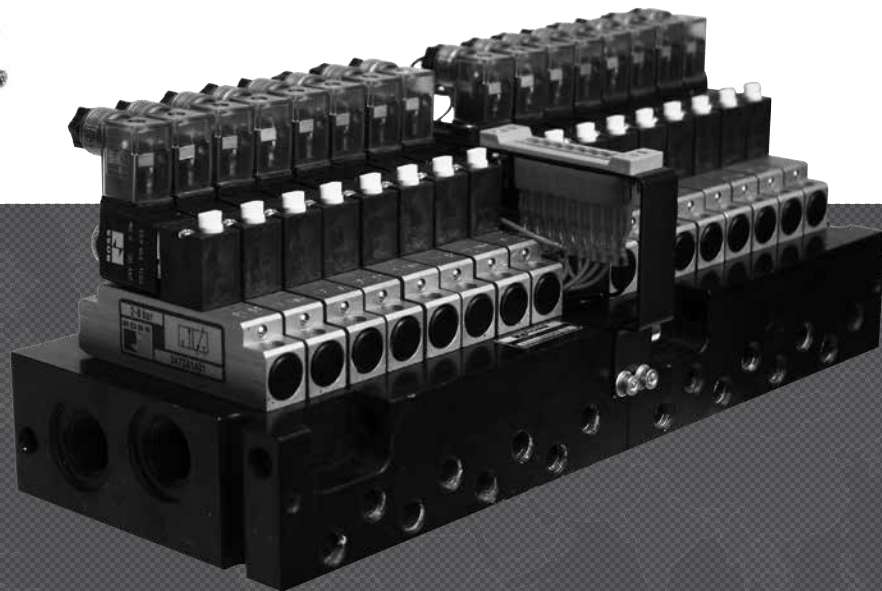
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



MINIATURE W14 SERIES & SOLENOID PILOT PACK SERIES VALVES



ROSS CONTROLS

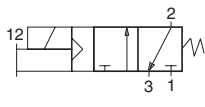
SOLENOID PILOT CONTROLLED PACK VALVES – KEY FEATURES

- Individual Valve Shut-off (automatic): increases uptime for continuous processing
- Sure-Shifting and Self-Cleaning: reliable performance in extreme conditions (dirt tolerant, high humidity, cold, heat, dust, debris returned from the field actuator, etc...)
- Easily Accessible Manual Override (Yellow): turn to actuate, no tools needed
- Positive Sealing and Self-Compensating for Wear: perpendicular poppet face seals
- Quick Electrical Disconnect w/Indicator Light: allows immediate troubleshooting of component/system issues in the field.
- Consistent Actuation over the Life of the Valve: strong shifting forces
- Explosion Proof & Intrinsically Safe - options available, consult ROSS
- 8 & 16 Station Valve/Manifold: flying wire leads or central wiring option

CONTENT	Page
Solenoid Pilot Controlled Miniature Valves	C7.3
4-Way Solenoid Pilot Controlled Pack Valves	C7.4
3-Way Solenoid Pilot Controlled Pack Valves	C7.5

Solenoid Pilot Controlled Miniature Valves

W14 Series

3-Way 2-Position Valves, Single Direct Solenoid, Spring Return			
Override Type	Valve Model Number**	C _v	
	Normally Closed		
Locking	W1413A1408W	0.1	
Non-Locking	W1413A1409W	0.1	

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., W1413A1408Z. For other voltages, consult ROSS.
* Sub-bases and manifold base ordered separately.

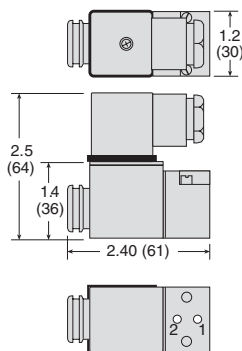


Sub-Base	Port Threads	Model Number
	1/8 NPT	516B91
	1/8 BSPP	D516B91

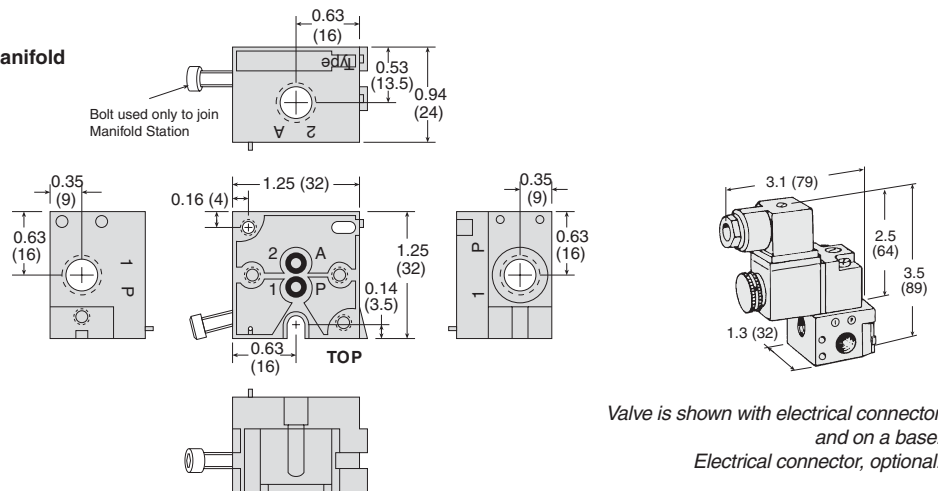
Manifold Base	Model Number
	535K91

Dimensions – inches (mm)

Valve



Manifold



Valve is shown with electrical connector and on a base. Electrical connector, optional.

C

C6

ACCESSORIES

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector*	
						24 Volts DC	120 Volts AC
EN 175301-803 Form A	Prewired Connector (18 gauge)	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
					371K77	383K77-W	383K77-Z
EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	–	723K77	724K77-W	724K77-Z
EN 175301-803 Form A	Connector Only	–	–	–	937K87	936K87-W	936K87-Z

* Lights in connectors with a translucent housing can be used as indicator lights to show when solenoids are energized.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Temperature	Ambient: 5° to 120°F (-15° to 50°C) Media: 5° to 175°F (-15° to 80°C) <i>For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.</i>
Mounting Type	Base	Flow Media	Filtered air
Solenoids	Rated for continuous duty	Operating Pressure	Vacuum to 150 psig (10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Seals: Buna-N
Power Consumption	6 watts on DC; 8 VA inrush, 6 VA holding on 50 or 60 Hz	Manual Override	Flush; metal, locking and non-locking
Enclosure Rating	IP65, IEC 60529		
Electrical Connections	EN 175301-803 Form A connector		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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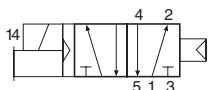
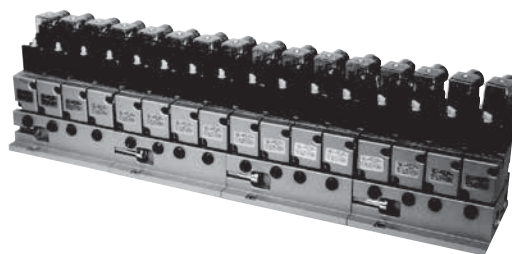
C7.3

4-Way Solenoid Pilot Controlled Pack Valves

Pack Series

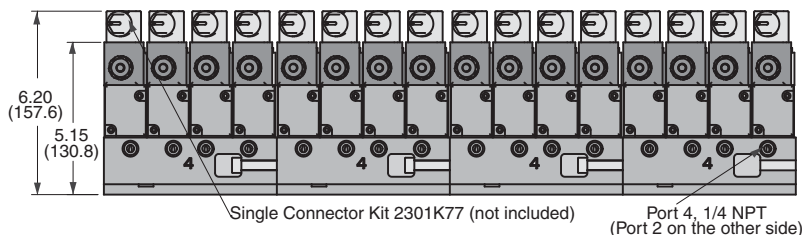
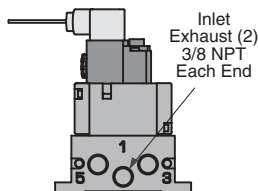
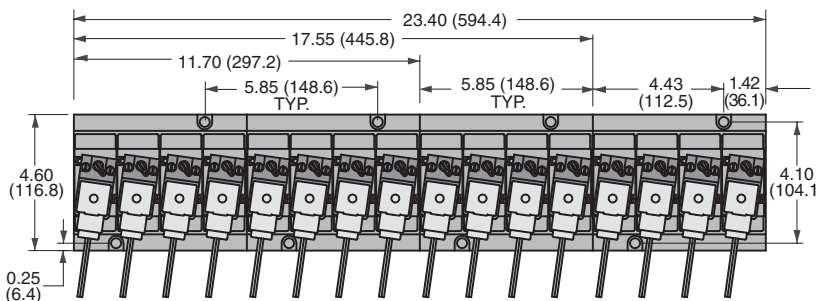
5-Way 2-Position Valves, Single Solenoid Pilot Controlled		
Valve/Manifold Assembly	Model Number#	C _v
4 Station	3900A1052-1W	0.5
8 Station	3900A1052-2W	0.5
12 Station	3900A1052-3W	0.5
16 Station	3900A1052-4W	0.5
20 Station and over	consult ROSS	0.5

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3900A1052-1Z.
For other voltages, consult ROSS.



Dimensions – inches (mm)

C



C6

ACCESSORIES & OPTIONS

Silencers

Port Size	Thread Type	Model Number	
		NPT Threads	G Threads
3/8	Male	5500A3013	D5500A3013
1/2	Male	5500A4003	D5500A3003

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



Fitting	Fitting Type	Port Threads	Model Number*
	Brass Swivel	1/4	270A27

*1/4 tube.

Electrical Connector	Connector Type	Model Number*
	EN 175301-803 Form A	2301K77

* Electrical Connector w/10' leads.

For dual or spring return actuators. Field convertible to a 3/2 Valve.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Temperature	Ambient: 39° to 122°F (4° to 50°F) Media: 39° to 175°F (4° to 80°C)
Mounting Type	Base	Flow Media	Filtered air
Solenoids	Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Indicator Light	In connector
Power Consumption	2.1 watts on DC; 3.9 VA holding on 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Seals: Buna-N
Enclosure Rating	IP65, IEC 60529		
Electrical Connections	EN 175301-803 Form A connector		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

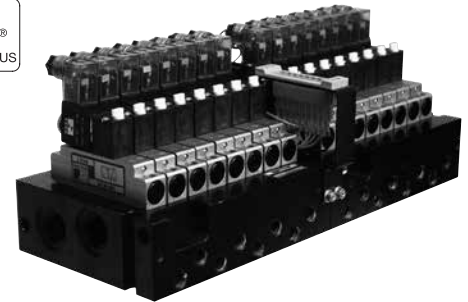


3-Way Solenoid Pilot Controlled Pack Valves

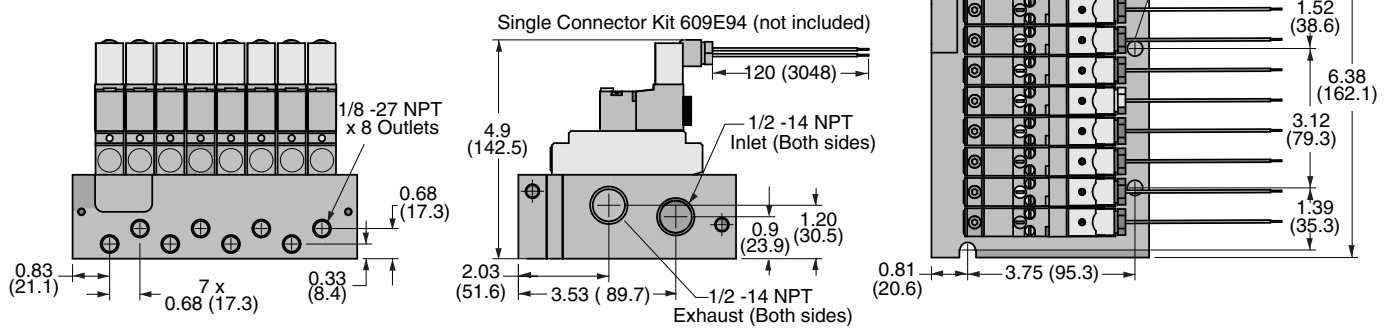
Pack Series

3-Way 2-Position Valves - Extended-Duty, Single Solenoid Pilot Controlled			
Valve/Manifold Assembly	Model Number#		C _v
	Normally Closed		
	Flying Leads	Central Wiring	
8 Station	3900A0713-1W	3900A1055-1W	0.5
16 Station	3900A0713-2W	3900A1055-2W	0.5
24 Station and over	consult ROSS	consult ROSS	0.5

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, 3900A1052-1Z.
For other voltages, consult ROSS.



Dimensions – inches (mm)



C

ACCESSORIES & OPTIONS

Silencers

Port Size	Thread Type	Model Number	
		NPT Threads	G Threads
3/8	Male	5500A3013	D5500A3013
1/2	Male	5500A4003	D5500A3003

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



Fitting	Fitting Type	Port Threads	Model Number*	
			Flying Leads	Central Wiring
	Metal Swivel	1/8	322E27	322E27

*1/4 tube.

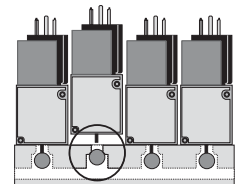
C6

Electrical Connector	Connector Type	Model Number	
		Flying Leads	Central Wiring
	EN 175301-803 Form C	609E94	consult ROSS

* Electrical Connector w/10' leads.

Individual Valve Shut-off (automatic): Individual valves can be removed without shutting off main air supply to the whole manifold or entire solenoid cabinet.

- Simply remove the valve and an internal check-ball automatically blocks inlet air to that station
- Inlet air is automatically restored to the station when the valve is returned



4/2 Low-Power Solenoid Pilot Controlled Valves available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Temperature	Ambient: 39° to 122°F (4° to 50°F) Media: 39° to 175°F (4° to 80°C)
Mounting Type	Base	Flow Media	Filtered air
Solenoids	Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Indicator Light	In connector
Power Consumption	0.8 watts on DC; 0.03 VA holding on 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Seals: Buna-N
Enclosure Rating	IP65, IEC 60529		
Electrical Connections	EN 175301-803 Form C connector		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



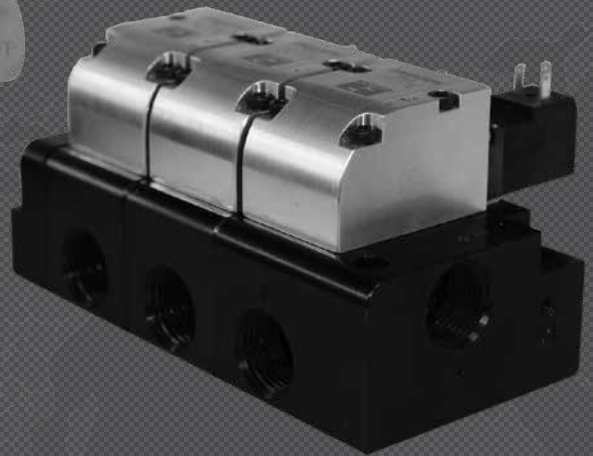
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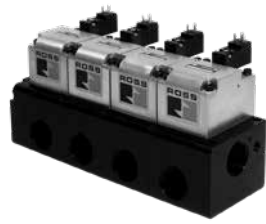
C7.5



IN-LINE MOUNTED VALVES AND MANIFOLDS



ROSS CONTROLS



DALE Series



Poppet Valves
27 Series



Poppet Valves
21 Series



Directional Control
95 Series



NAMUR Interface 95 & 34 Series



Compact Valves
16 Series

VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES											FUNCTIONS					Page					
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	2 2/2	3/2	3/4	4/2	5/2	5/3		Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	Manifold
DALE SERIES																								
CP																			100					D1.3 - D1.8
LF																			64.7					D1.11 - D1.12
CX																			100					D1.13 - D1.24
LX																			64.7					D1.25 - D1.27
LT																			2.2					D1.28 - D1.29
27 SERIES																								
27																			72					D2.3 - D2.9
27																			34					D2.10 - D2.11
27																			72					D2.3 - D2.5
Options & Accessories																								D2.12 - D2.22
21 SERIES																								
21																			40					D3.3 - D3.5
21																			40					D3.6 - D3.8
21 Vacuum																			71					D3.9 - D3.10 D3.12 - D3.13
21 Full Vacuum																			71					D3.11
Options & Accessories																								D3.14
IN-LINE DIRECTIONAL CONTROL 95 SERIES																								
95																			2.6					D4.3, D4.7
95																			4.5					D4.4 - D4.5 D4.8 - D4.9
95																			3.4					D4.6, D4.10
Manifold Base, Options & Accessories																								D4.11 - D4.12
NAMUR INTERFACE 95 & 34 Series																								
95																								D5.3
34																								D5.4
COMPACT 16 SERIES																								
16																								D6.3 - D6.4

Contents

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Dale Series Valves and Manifolds

- Solenoid pilot controlled CP Series
- Solenoid pilot controlled LF Series
- CX Series for Leak Tight Applications Solenoid pilot and pressure controlled
- LX Series for Leak Tight Applications Solenoid pilot and pressure controlled
- LT Series for Leak Tight Applications Solenoid pilot controlled

D1.1 – D1.29

Poppet Valves 27 Series

- Solenoid pilot control
- Direct solenoid pilot control
- Pressure control

D2.1 – D2.23

Poppet Valves 21 Series

- Solenoid pilot control
- Pressure control
- Low Temperature
- High Temperature
- Vacuum
- Full Vacuum

D

D3.1 – D3.14

Directional Spool Valves 95 Series

- Solenoid Control
- Pressure Control
- Manifolds

D4.1 – D4.12

NAMUR Interface 95 & 34 Series

- Solenoid pilot controlled

D5.1 – D5.4

Compact Valves 16 Series

- Solenoid pilot controlled

D6.1 – D6.4

Cautions and Warranty

- Compatible Lubricants
- Cautions and Warnings

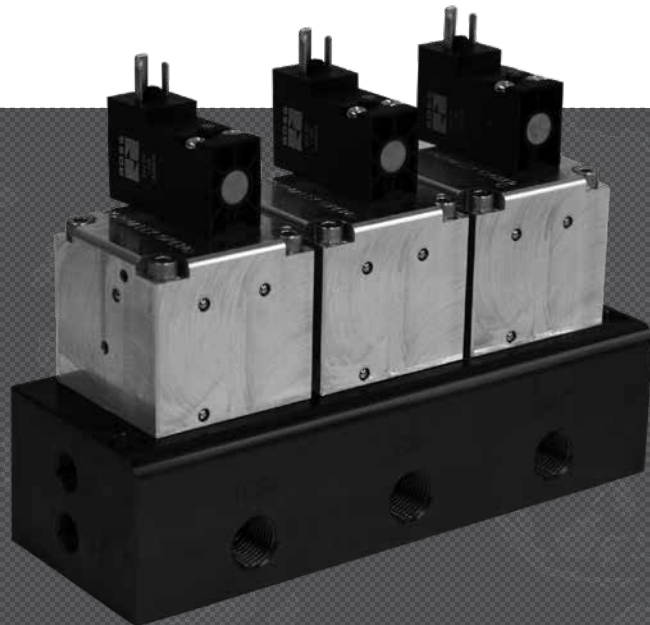
Inside Cover





POPPET VALVES DALE SERIES

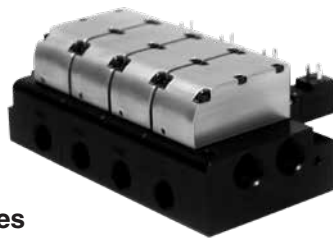
POPPET VALVES & MANIFOLDS
LEAK TIGHT VALVES & MANIFOLDS



ROSS CONTROLS



CP Series

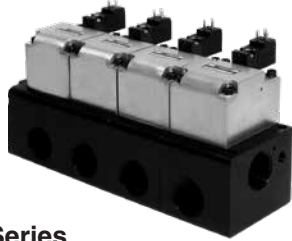


LF Series

Internally or externally piloted series for use in standard pressure applications with 30 psi (2 bar) minimum operating pressure.



CX Series



LX Series



LT Series

Externally piloted only series for use in leak tight, low pressure, vacuum, and process applications.

For use in leak test applications.

D

Accessories



VALVE TYPE/FUNCTION	SOLENOID	PRESSURE	AVAILABLE INLET PORT SIZES									MAXIMUM FLOW Cv	MOUNTING		Page
			1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2		IN-LINE	MANIFOLD	
CP SERIES Valves & Manifolds															
2/2												108			D1.3 - D1.8
3/2												12.3			D1.5 - D1.10
LF SERIES															
2/2												62.7			D1.11 - D1.12
CX SERIES for Leak Test Applications															
2/2												108			D1.13 - D1.14
3/2												12.3			D1.15 - D1.16
2/2												108			D1.17 - D1.18
3/2												12.3			D1.19 - D1.20
CX SERIES MANIFOLDS for Leak Test Applications															
2/2												108			D1.21 - D1.22
3/2												12.3			D1.23 - D1.24
2/2												108			D1.25 - D1.26
3/2												12.3			D1.23 - D1.24
LX SERIES for Leak Test Applications															
2/2												62.7			D1.25 - D1.26
2/2												62.7			D1.27
LT SERIES															
3/4												2.2			D1.28
Valve Manifold Configurator															
D1.29															

2-Way 2-Position Valves, Spring Assisted Air Return									
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#		Model Number#					
1	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G		
1/2	3/8	CP14NB37101W	CP14DB37101W	CP24NB37101W	CP24DB37101W	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CP14NB47101W	CP14DB47101W	CP24NB47101W	CP24DB47101W	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CP16NB57101W	CP16DB57101W	CP26NB57101W	CP26DB57101W	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CP16NB67101W	CP16DB67101W	CP26NB67101W	CP26DB67101W	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CP18NB77101W	CP18DB77101W	CP28NB77101W	CP28DB77101W	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CP18NB87101W	CP18DB87101W	CP28NB87101W	CP28DB87101W	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CP10NB97101W	CP10DB97101W	CP20NB97101W	CP20DB97101W	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CP10NB07101W	CP10DB07101W	CP20NB07101W	CP20DB07101W	1/8-27 NPT	G1/8	108	19.5 (8.9)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CP14NB37101Z.

1/2 thru 2½
Normally Closed

1/2 & 1
Normally Open

1½ & 2½
Normally Open



Port Sizes
3/8 & 1/2



Port Sizes
3/4 thru 2½

D1

D

EXTERNAL PILOT SUPPLY CONVERSION:

The CP Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

ACCESSORIES

Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	1/4 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1½-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage/Power Consumption (each solenoid)	Port Size 1/2 & 1: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA 120 volts AC, 60 Hz: 5.0 VA Port Size 1½ & 2½: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	Manual Override	Normally Closed Valves: All Sizes: Non-locking Normally Open Valves: Port Size 1/2 & 1: Non-locking Port Size 1½ & 2½: Locking, turn-to-lock
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

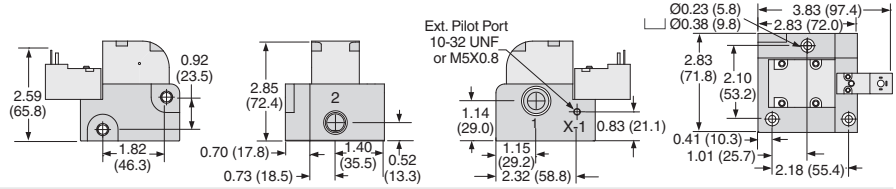


Solenoid Pilot Controlled Valves

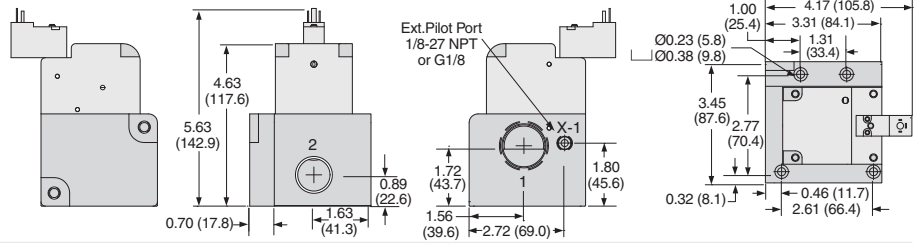
Dale CP Series

Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

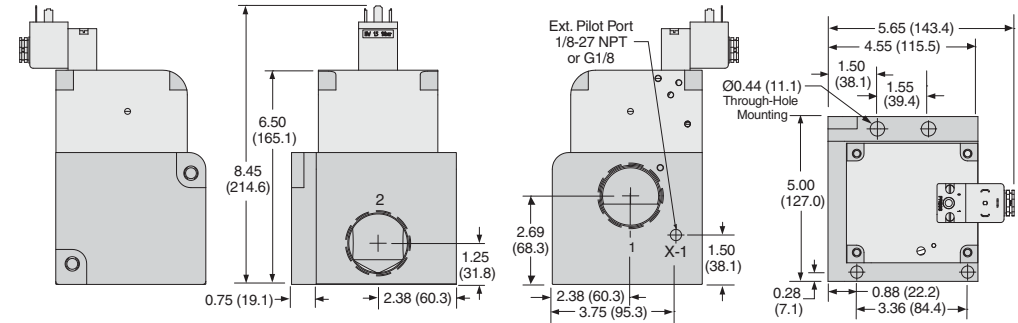


Port Size 3/4 & 1

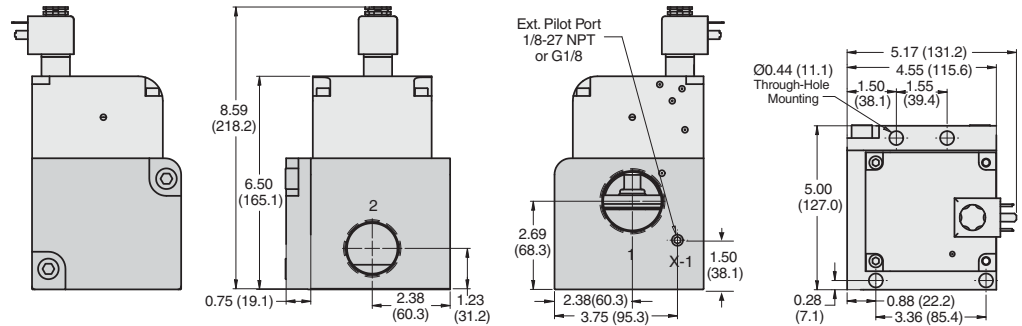


Port Size 1 1/4 & 1 1/2

Normally Closed

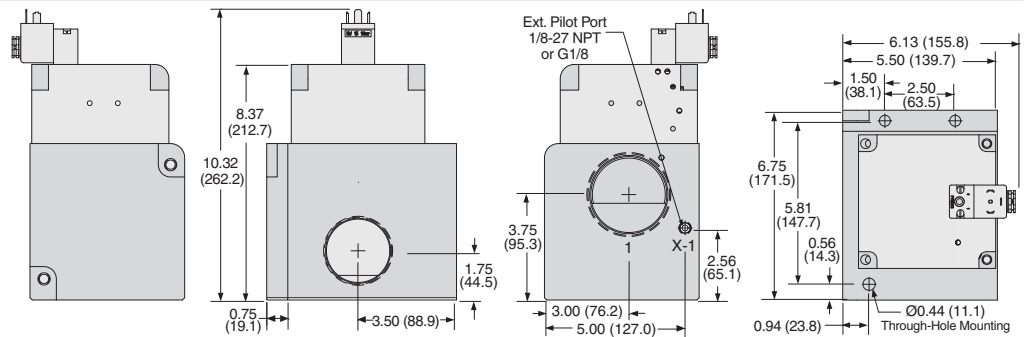


Normally Open

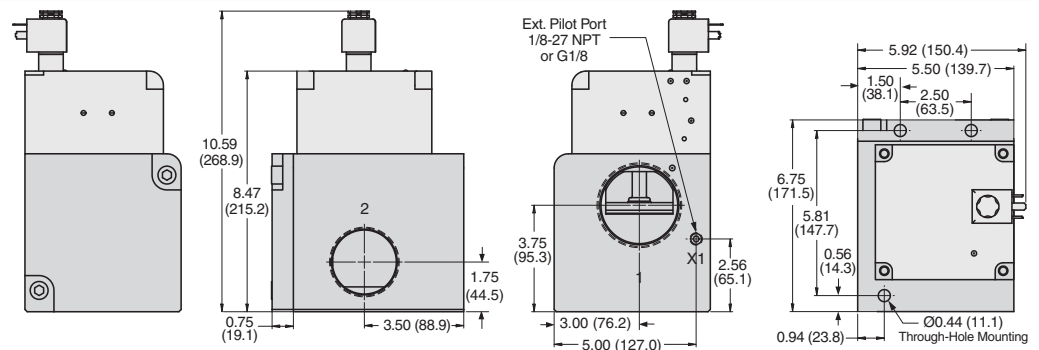


Port Size 2 & 2 1/2

Normally Closed



Normally Open



3-Way 2-Position Valves, Spring Assisted Air Return										
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)	
		Normally Closed		Normally Open						
		Model Number#		Model Number#						
1, 3	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	BSPF			
1/2	3/8	CP34NB37101W	CP34DB37101*W	CP44NB37101W	CP44DB37101W	10-32 UNF	M5	3.5	1.8 (0.8)	
1/2	1/2	CP34NB47101W	CP34DB47101W	CP44NB47101W	CP44DB47101W	10-32 UNF	M5	3.5	1.8 (0.8)	
1	3/4	CP36NB57101W	CP36DB57101W	CP46NB57101W	CP46DB57101W	1/8-27 NPT	G1/8	12.3	5.3 (2.4)	
1	1	CP36NB67101W	CP36DB67101W	CP46NB67101W	CP46DB67101W	1/8-27 NPT	G1/8	12.3	5.3 (2.4)	

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CP34NB37101Z.

1/2" & 1"
Normally Closed

1/2"
Normally Open

1"
Normally Open



D1

Port Sizes
3/8 & 1/2



Port Sizes
3/4 & 1

EXTERNAL PILOT SUPPLY CONVERSION:

The CP Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

D

ACCESSORIES

Electrical Connectors							
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number				
			Lighted Connector Only		Lighted Connector Pre-wired*		
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC	
3/2	1/2	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z	
	1	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z	

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

Silencers							
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage/Power Consumption (each solenoid)	Port Size 1/2: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA; 120 volts AC, 60 Hz: 5.0 VA Port Size 1: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	Manual Override	Normally Closed Valves: All Sizes; Non-locking Normally Open Valves: Port Size 1/2: Non-locking Port Size 1: Locking, turn-to-lock
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

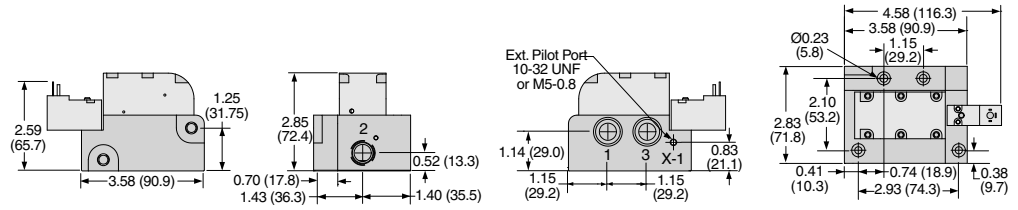
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Valve Dimensions – inches (mm)

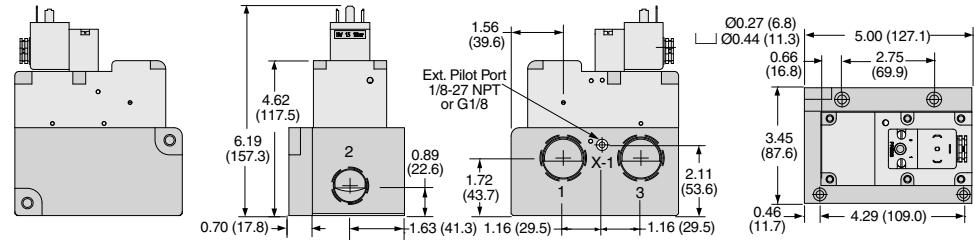
Port Size 3/8 & 1/2

D1

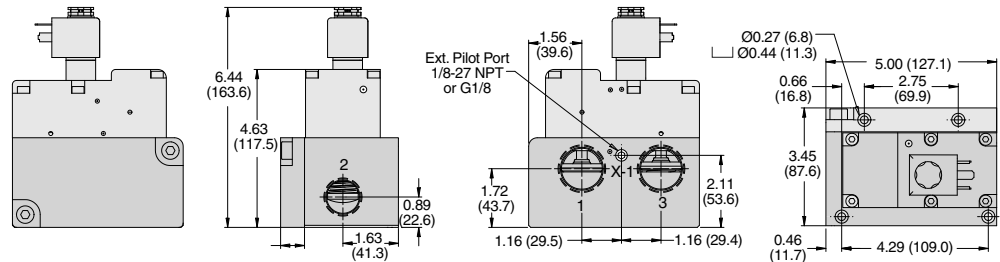


Port Size 3/4 & 1

Normally Closed



Normally Open



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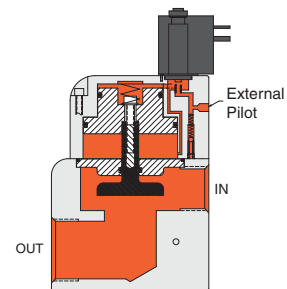
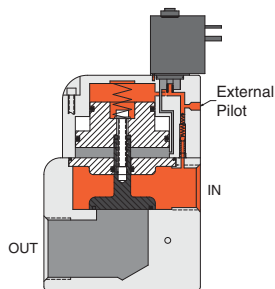
ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

Valve Operation Overview

1 - Valve Not Actuated

2 - Valve Actuated

2/2 Normally Closed



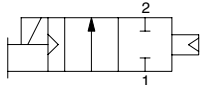
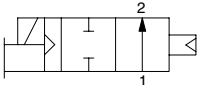
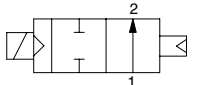
Solenoid Pilot Controlled Valve Manifolds

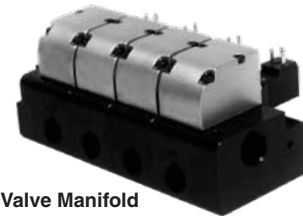
Dale CP Series

Manifolds can be ordered from two to ten stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements. For preassembled manifold valves with the same model number, select the model number from the table below. For ordering the Dale CP Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

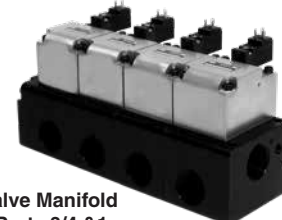
D1

2-Way 2-Position Valves, Spring Assisted Air Return								
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v
		Normally Closed		Normally Open				
		Model Number#*		Model Number#*				
1	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G	
1/2	3/8	CP14NB3711XW	CP14DB3711XW	CP24NB3711XW	CP24DB3711XW	10-32 UNF	M5	3.7
1/2	1/2	CP14NB4711XW	CP14DB4711XW	CP24NB4711XW	CP24DB4711XW	10-32 UNF	M5	3.7
1	3/4	CP16NB5711XW	CP16DB5711XW	CP26NB5711XW	CP26DB5711XW	1/8-27 NPT	G1/8	13.7
1	1	CP16NB6711XW	CP16DB6711XW	CP26NB6711XW	CP26DB6711XW	1/8-27 NPT	G1/8	13.7
1 1/2	1 1/4	CP18NB7711XW	CP18DB7711XW	CP28NB7711XW	CP28DB7711XW	1/8-27 NPT	G1/8	44.9
1 1/2	1 1/2	CP18NB8711XW	CP18DB8711XW	CP28NB8711XW	CP28DB8711XW	1/8-27 NPT	G1/8	44.9
2 1/2	2	CP10NB9711XW	CP10DB9711XW	CP20NB9711XW	CP20DB9711XW	1/8-27 NPT	G1/8	108
2 1/2	2 1/2	CP10NB0711XW	CP10DB0711XW	CP20NB0711XW	CP20DB0711XW	1/8-27 NPT	G1/8	108

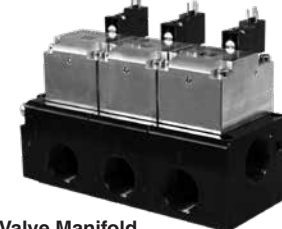
 <p>1/2" thru 2 1/2" Normally Closed</p>	 <p>1/2" & 1" Normally Open</p>	 <p>1 1/2" & 2 1/2" Normally Open</p>
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Valve Manifold Ports 3/8 & 1/2



Valve Manifold Ports 3/4 & 1



Valve Manifold Ports 1/4 thru 2 1/2

D

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CP14NB3711XZ.

*X Number of Stations – To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CP14NB37114W (4 = 4 Stations), CP14NB37110W, (0 = 10 Stations).

Contact ROSS for 1 station valve manifolds or refer to single CX Valve product page.

EXTERNAL PILOT SUPPLY CONVERSION:

The CP Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

ACCESSORIES - Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	1/4 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1 1/2-2 1/2	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6 1/2 ft.) cord.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage/Power Consumption (each solenoid)	Port Size 1/2 & 1: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA 120 volts AC, 60 Hz: 5.0 VA Port Size 1 1/2 & 2 1/2: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	Manual Override	Normally Closed Valves: All Sizes; Non-locking Normally Open Valves: Port Size 1/2 & 1: Non-locking Port Size 1 1/2 & 2 1/2: Locking, turn-to-lock
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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D1.7

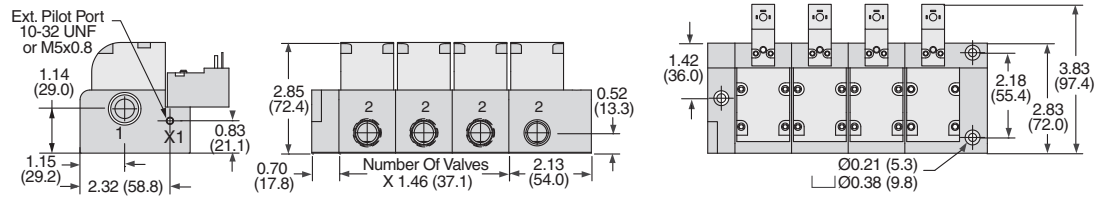
Solenoid Pilot Controlled Valve Manifolds

Dale CP Series

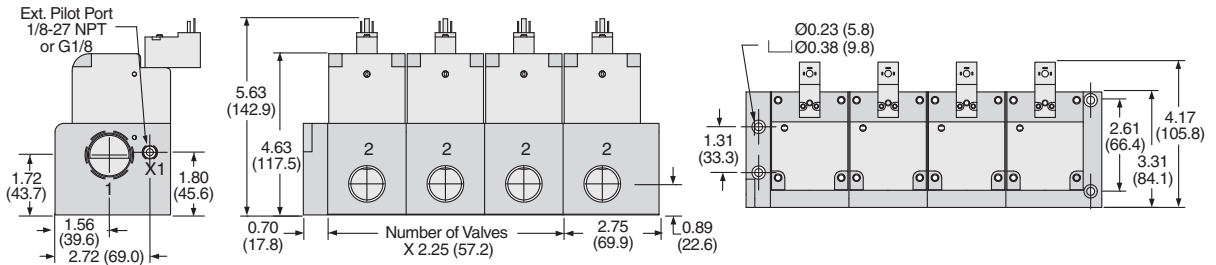
Dimensions – inches (mm)

D1

Port Size 3/8 & 1/2

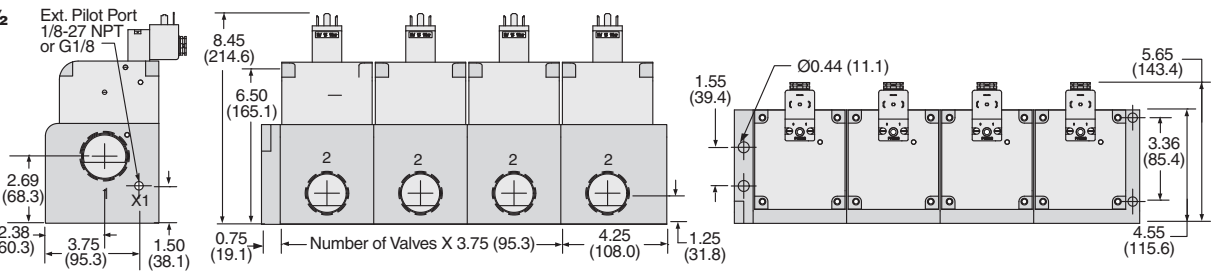


Port Size 3/4 & 1

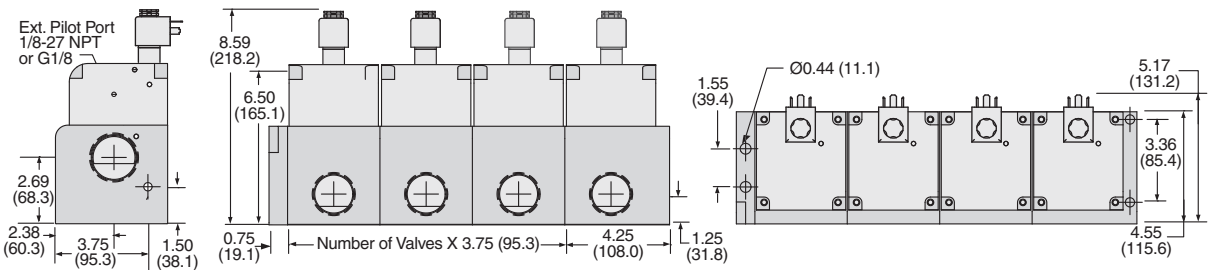


Port Size 1 1/4 & 1 1/2

Normally Closed

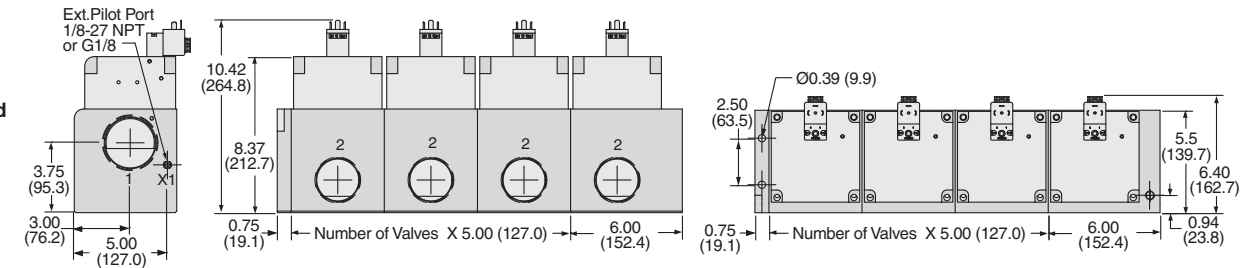


Normally Open

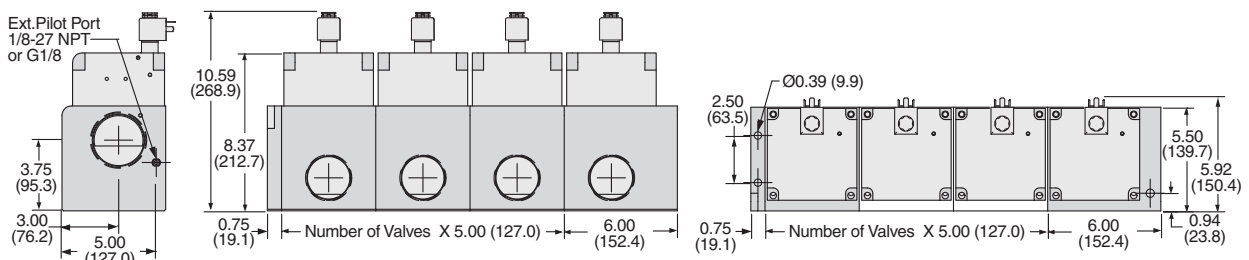


Port Size 2 & 2 1/2

Normally Closed



Normally Open



Solenoid Pilot Controlled Valve Manifolds

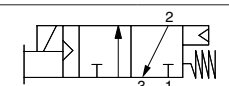
Dale CP Series

D1

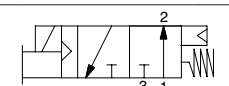
Manifolds can be ordered from two to ten stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements. For preassembled manifold valves with the same model number, select the model number from the table below. For ordering the Dale CP Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

3-Way 2-Position Valves, Spring Assisted Air Return									
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v	
		Normally Closed		Normally Open					
		Model Number#*		Model Number#*					
1, 3	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G		
1/2	3/8	CP34NB3711XW	CP34DB3711XW	CP44NB3711XW	CP44DB3711XW	10-32 UNF	M5	3.6	
1/2	1/2	CP34NB4711XW	CP34DB4711XW	CP44NB4711XW	CP44DB4711XW	10-32 UNF	M5	3.6	
1	3/4	CP36NB5711XW	CP36DB5711XW	CP46NB5711XW	CP46DB5711XW	1/8-27 NPT	G1/8	12.3	
1	1	CP36NB6711XW	CP36DB6711XW	CP46NB6711XW	CP46DB6711XW	1/8-27 NPT	G1/8	12.3	

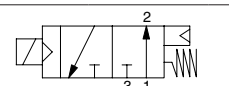
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CP14NB3711XZ.
 *X Number of Stations – To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CP14NB37114W (4 = 4 Stations), CP14NB37110W, (0 = 10 Stations).
 Contact ROSS for 1 station valve manifolds or refer to single CX Valve product page.



1/2" & 1" Normally Closed



1/2" Normally Open



1" Normally Open



Valve Manifold Ports 3/8 & 1/2



Valve Manifold Ports 3/4 & 1

D

EXTERNAL PILOT SUPPLY CONVERSION:

The CP Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

ACCESSORIES

Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
3/2	1/2	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

Silencers							
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	G Threads		Width	Length	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage/Power Consumption (each solenoid)	Port Size 1/2: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA; 120 volts AC, 60 Hz: 5.0 VA Port Size 1: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	Manual Override	Normally Closed Valves: All Sizes; Non-locking Normally Open Valves: Port Size 1/2: Non-locking Port Size 1: Locking, turn-to-lock
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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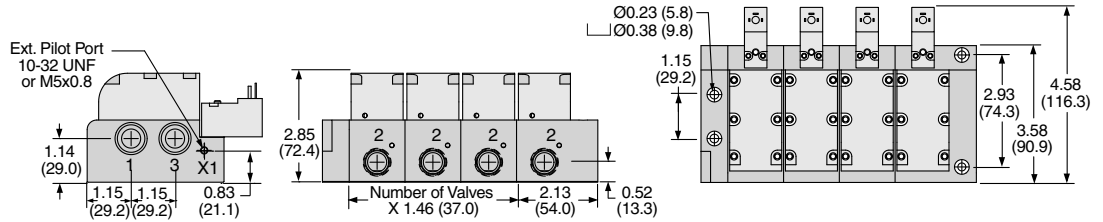
D1.9

Solenoid Pilot Controlled Valve Manifolds

Dale CP Series

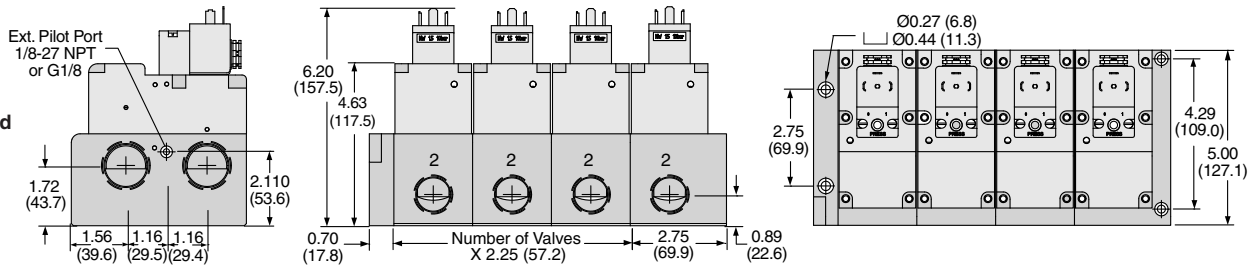
Dimensions – inches (mm)

Port Size 3/8 & 1/2

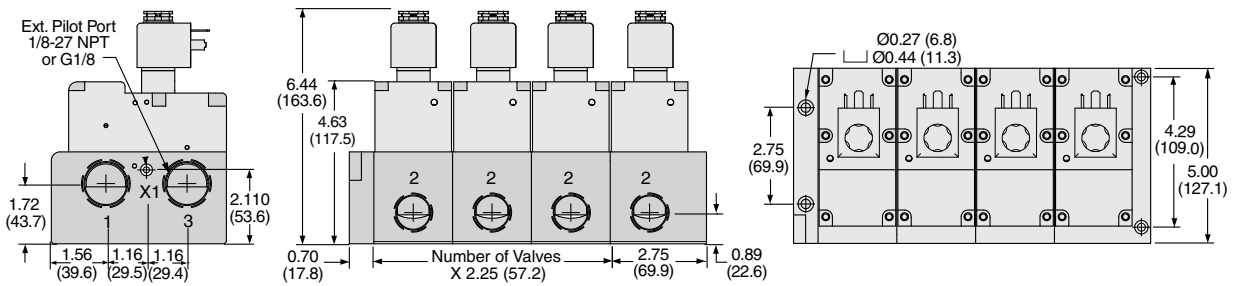


Port Size 3/4 & 1

Normally Closed



Normally Open

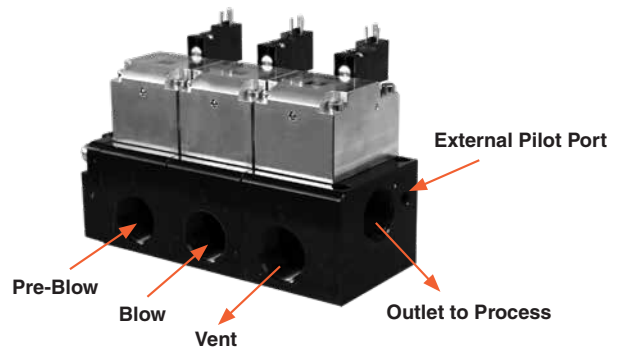


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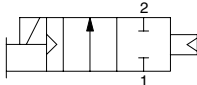
Blow Molding Application Example

The CP & CX compact flexible manifold design eliminates piping, reduces system volume, provides fast consistent actuation and delivers an amazing flow rate up to 100 Cv.

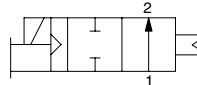


2-Way 2-Position Valves, Spring Assisted Air Return									
Port Size		Internal Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#		Model Number#					
1	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G		
3/8	3/8	LF13NB37101W	LF13DB37101W	LF23NB37101W	LF23DB37101W	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
1/2	1/2	LF14NB47101W	LF14DB47101W	LF24NB47101W	LF24DB47101W	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
3/4	3/4	LF15NB57101W	LF15DB57101W	LF25NB57101W	LF25DB57101W	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LF16NB67101W	LF16DB67101W	LF26NB67101W	LF26DB67101W	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LF17NB77101W	LF17DB77101W	LF27NB77101W	LF27DB77101W	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LF18NB87101W	LF18DB87101W	LF28NB87101W	LF28DB87101W	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LF19NB97101W	LF19DB97101W	LF29NB97101W	LF29DB97101W	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LF10NB07101W	LF10DB07101W	LF20NB07101W	LF20DB07101W	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

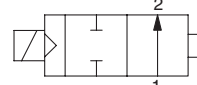
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., LF13NB37101Z.



Normally Closed



3/8" thru 1" Normally Open



1¼" thru 2½" Normally Open



Ports 3/8 thru 1



Ports 1¼ thru 2½

D1

D

The LF Series provides superior performance over a diaphragm valve with a rugged poppet design, bi-directional flow and high cycle life.



The LF & LX Series provides superior performance over a ball valve with solenoid actuation, shifting speed, cycle life, and most important, a cost effective alternative.



EXTERNAL PILOT SUPPLY CONVERSION: The LF Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

ACCESSORIES – Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	3/8 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1¼-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 145 psig (2 to 10 bar) Pilot Supply - Internal or External: 30 to 145 psig (2 to 10 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage/Power Consumption (each solenoid)	Port Size 3/8 thru 1: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA 120 volts AC, 60 Hz: 5.0 VA Port Size 1½ thru 2½: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	Manual Override	Normally Closed Valves: All Sizes; Non-locking Normally Open Valves: Port Size 1/2 & 1: Non-locking Port Size 1½ & 2½: Locking, turn-to-lock
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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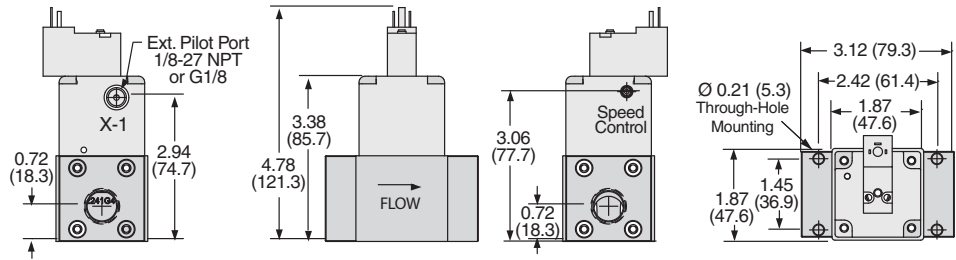
Solenoid Pilot Controlled Valves

Dale LF Series

Valve Dimensions – inches (mm)

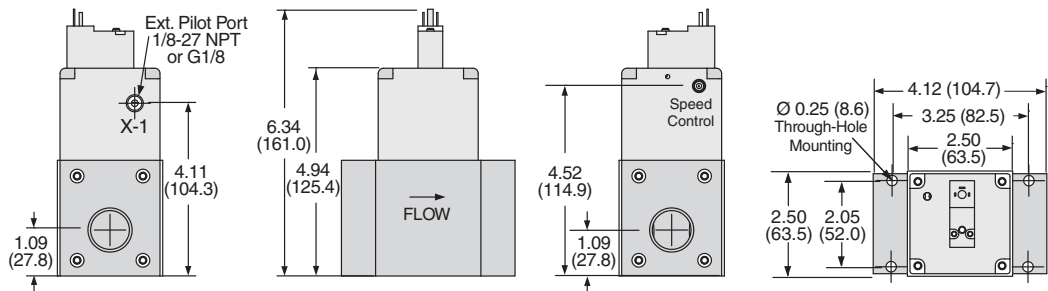
D1

Port Size 3/8 & 1/2

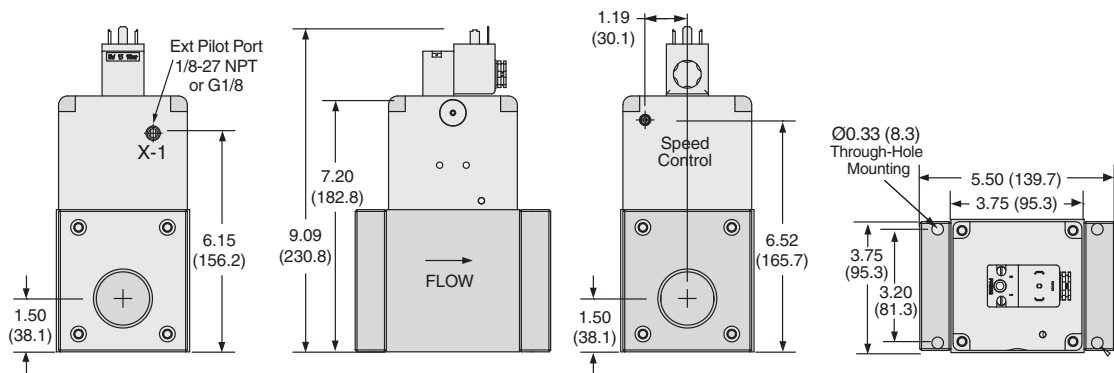


Port Size 3/4 & 1

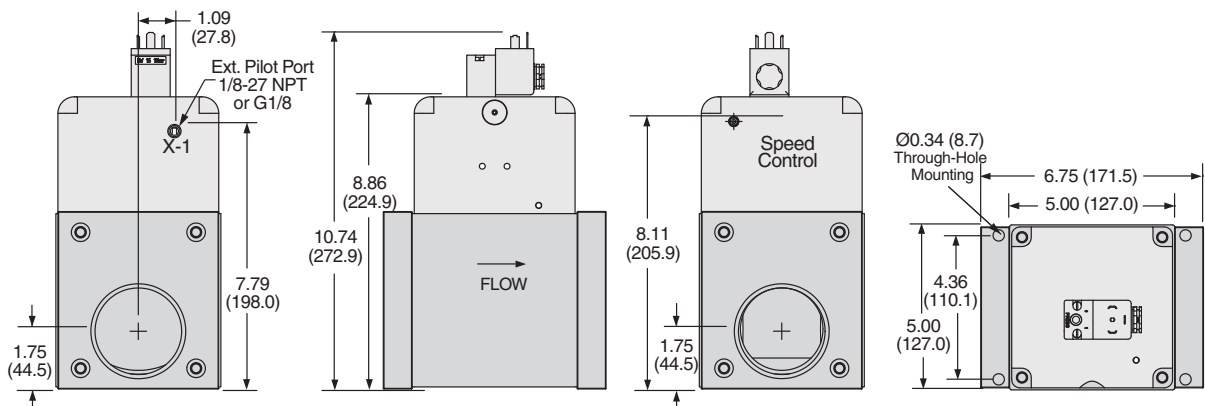
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Port Size 1 1/4 & 1 1/2



Port Size 2 & 2 1/2

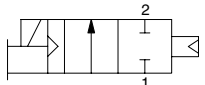


Solenoid Pilot Controlled Valves

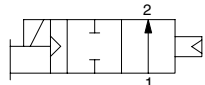
Leak Tight Dale CX Series

2-Way 2-Position Valves, Air Return									
Port Size		External Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#		Model Number#					
1	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G		
1/4	1/4	CX12NB27501W	CX12DB27501W	CX22NB27501W	CX22DB27501W	10-32 UNF	M5	0.9	1.3 (0.6)
1/2	3/8	CX14NB37501W	CX14DB37501W	CX24NB37501W	CX24DB37501W	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX14NB47501W	CX14DB47501W	CX24NB47501W	CX24DB47501W	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX16NB57501W	CX16DB57501W	CX26NB57501W	CX26DB57501W	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX16NB67501W	CX16DB67501W	CX26NB67501W	CX26DB67501W	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CX18NB77501W	CX18DB77501W	CX28NB77501W	CX28DB77501W	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CX18NB87501W	CX18DB87501W	CX28NB87501W	CX28DB87501W	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CX10NB97501W	CX10DB97501W	CX20NB97501W	CX20DB97501W	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CX10NB07501W	CX10DB07501W	CX20NB07501W	CX20DB07501W	1/8-27 NPT	G1/8	108	19.5 (8.9)

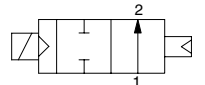
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CX12NB27501Z.



1/4" thru 2½" Normally Closed



1/4" thru 1" Normally Open



1½" & 2½" Normally Open

Note: The CX Series valves on this page require an external pilot supply.



Port Sizes
3/8 & 1/2



Port Sizes
1/4, 3/4 thru 2½

D1

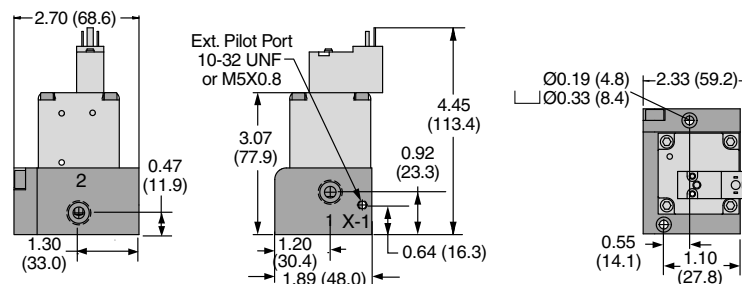
D

ACCESSORIES – Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	1/4 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1½-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

Valve Dimensions – inches (mm)

Port Size 1/4



See page D1.14 for all size valves dimensions on this page.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	External
Mounting Type	In-line	Operating Pressure	Port Size 1/4: Vacuum to 250 psig (vacuum to 17.2 bar) Port Size 1½ thru 2½: Vacuum to 145 psig (vacuum to 10 bar) Pilot Supply - External: Port Size 1/4: 70 to 145 psig (5 to 10 bar) Port Size 1½ thru 2½: 30 to 145 psig (2 to 10 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Voltage/Power Consumption (each solenoid)	Port Size 1/4 thru 1: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA 120 volts AC, 60 Hz: 5.0 VA Port Size 1½ thru 2½: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC	Manual Override	Normally Closed Valves: All Sizes: Non-locking Normally Open Valves: Port Size 1/2 & 1: Non-locking Port Size 1½ & 2½: Locking, turn-to-lock
Enclosure Rating	IP65, IEC 60529		
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>		

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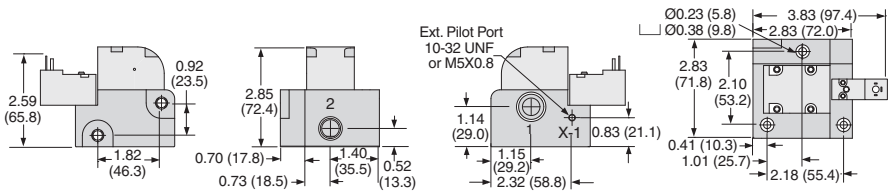
D1.13

Solenoid Pilot Controlled Valves

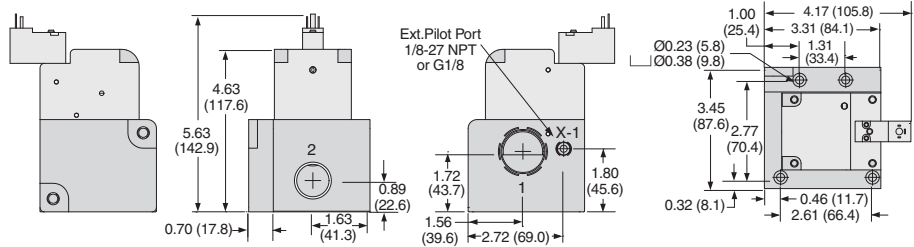
Leak Tight Dale CX Series

Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

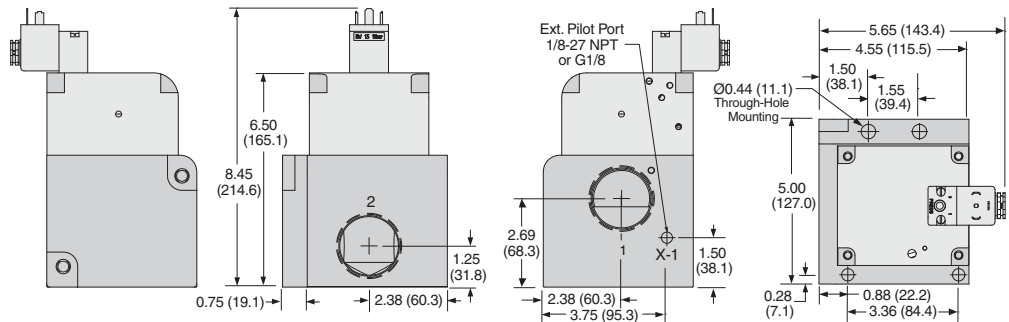


Port Size 3/4 & 1

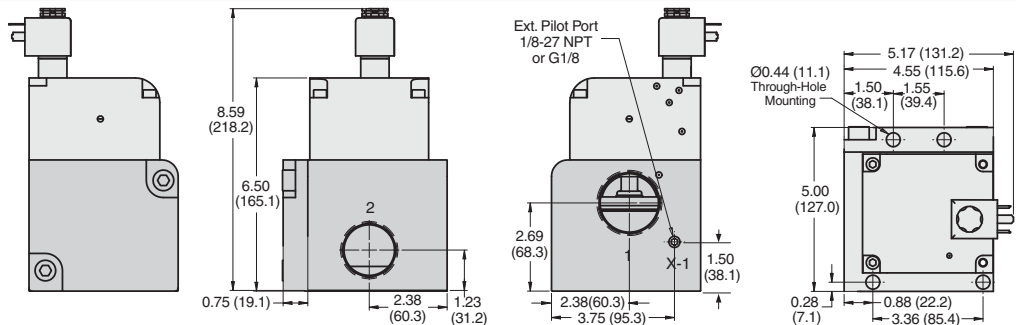


Port Size 1 1/4 & 1 1/2

Normally Closed

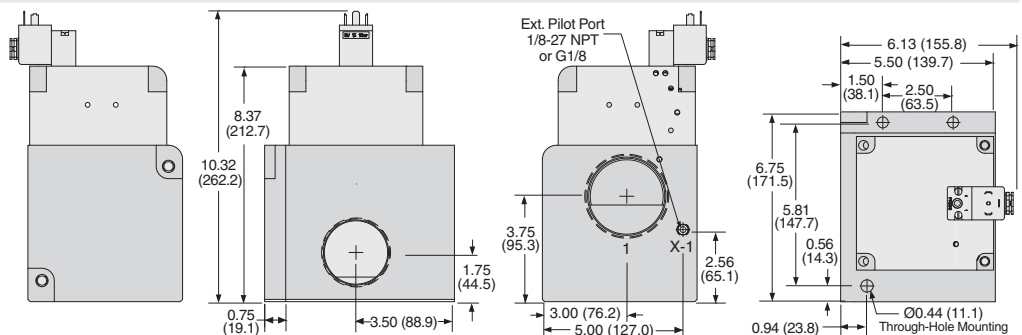


Normally Open

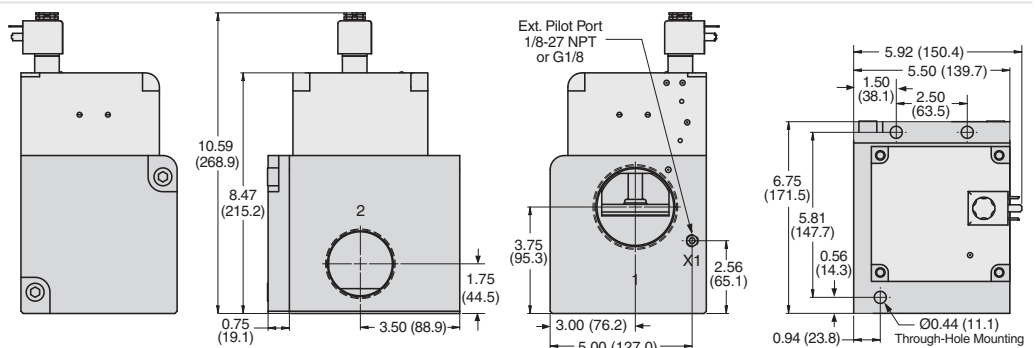


Port Size 2 & 2 1/2

Normally Closed



Normally Open

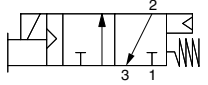


Solenoid Pilot Controlled Valves

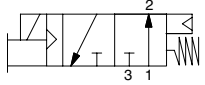
Leak Tight Dale CX Series

3-Way 2-Position Valves, Spring Assisted Air Return									
Port Size		External Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#*		Model Number#*					
1, 3	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G		
1/2	3/8	CX34NB37501W	CX34DB37501W	CX44NB37501W	CX44DB37501W	10-32 UNF	M5	3.5	1.8 (0.8)
1/2	1/2	CX34NB47501W	CX34DB47501W	CX44NB47501W	CX44DB47501W	10-32 UNF	M5	3.5	1.8 (0.8)
1	3/4	CX36NC57501W	CX36DC57501W	CX46NC57501W	CX46DC57501W	1/8-27 NPT	G1/8	12.3	5.3 (2.4)
1	1	CX36NC67501W	CX36DC67501W	CX46NC67501W	CX46DC67501W	1/8-27 NPT	G1/8	12.3	5.3 (2.4)

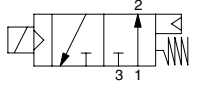
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CX34NB37501Z.



1/2" & 1" Normally Closed



1/2" Normally Open



1" Normally Open

Note: The CX Series valves on this page require an external pilot supply.



Port Sizes 3/8 & 1/2



Port Sizes 3/4 & 1

D1

D

ACCESSORIES

Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
3/2	1/2	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

Silencers							
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line		For liquid applications, consult ROSS.
Solenoids	Rated for continuous duty	Pilot Supply	External
Voltage/Power Consumption (each solenoid)	Port Size 1/2: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA 120 volts AC, 60 Hz: 5.0 VA	Operating Pressure	Vacuum to 145 psig (vacuum to 10 bar)
	Port Size 1: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC		Pilot Supply - External: 50 to 145 psig (3.4 to 10 bar) Pilot supply pressure must be equal to or greater than inlet pressure.
Enclosure Rating	IP65, IEC 60529	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Electrical Connection	EN 175301-803 Form A or Form C connector	Manual Override	Normally Closed Valves: All Sizes; Non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		Normally Open Valves: Port Size 1/2: Non-locking Port Size 1: Locking, turn-to-lock

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D1.15

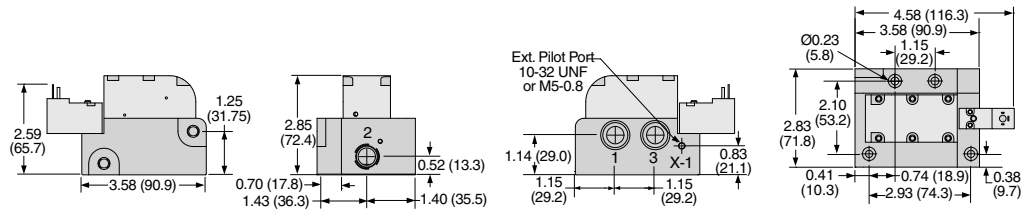
Solenoid Pilot Controlled Valves

Leak Tight Dale CX Series

Valve Dimensions – inches (mm)

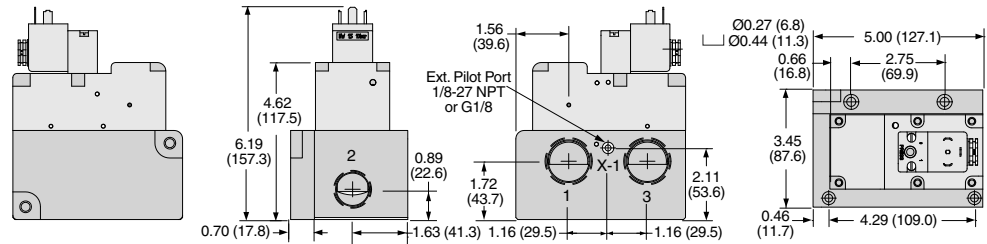
Port Size 3/8 & 1/2

D1

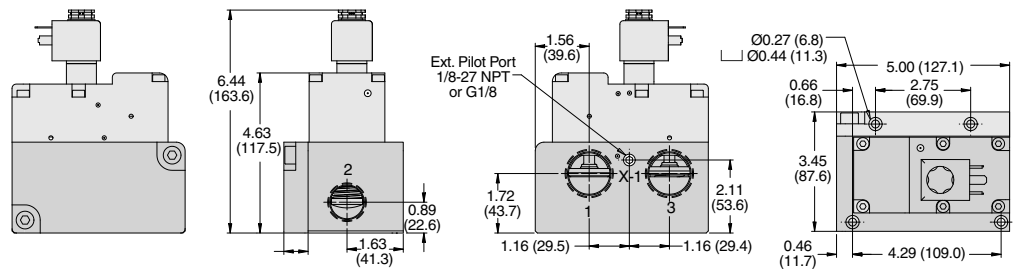


Port Size 3/4 & 1

Normally Closed



Normally Open

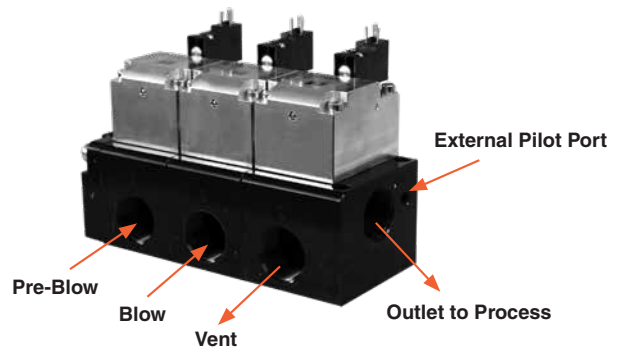


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ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

Blow Molding Application Example

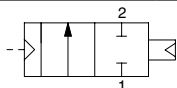
The CP & CX compact flexible manifold design eliminates piping, reduces system volume, provides fast consistent actuation and delivers an amazing flow rate up to 100 Cv.



Pressure Controlled Valves

Leak Tight Dale CX Series

2-Way 2-Position Valves, Air Return							
Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed					
		Model Number*					
1	2	NPT Threads	G Threads	NPT	G		
1/2	3/8	CX14NB35501	CX14DB35501	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX14NB45501	CX14DB45501	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX16NB55501	CX16DB55501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX16NB65501	CX16DB65501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CX18NB75501	CX18DB75501	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CX18NB85501	CX18DB85501	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CX10NB95501	CX10DB95501	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CX10NB05501	CX10DB05501	1/8-27 NPT	G1/8	108	19.5 (8.9)

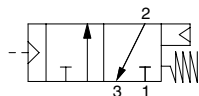


D1



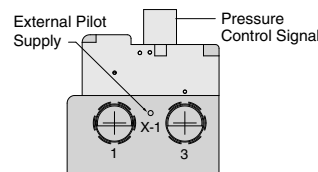
Port Sizes 3/4 thru 2½

3-Way 2-Position Valves, Spring Assisted Air Return							
Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed					
		Model Number*					
1, 3	2	NPT Threads	G Threads	NPT	G		
1/2	3/8	CX34NB35501	CX34DB35501	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX34NB45501	CX34DB45501	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX36NC55501	CX36DC55501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX36NC65501	CX36DC65501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)



D

Note: The Dale Series pressure controlled valves require both an external pilot supply and a control signal to operate the valve. When a pressure control signal is applied the valve shifts to the open position.



ACCESSORIES FOR 3/2 VALVES

Silencers							
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Vacuum to 250 psig (vacuum to 17.2 bar)
Mounting Type	In-line		Pilot Supply: 2/2 Valves: 30 to 250 psig (2 to 17.2 bar) 3/2 Valves: 50 to 250 psig (3.4 to 17.2 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>		
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Pressure Controlled Valves

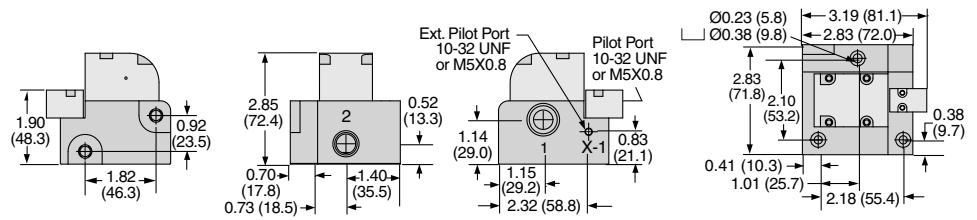
Leak Tight Dale CX Series

Valve Dimensions – inches (mm)

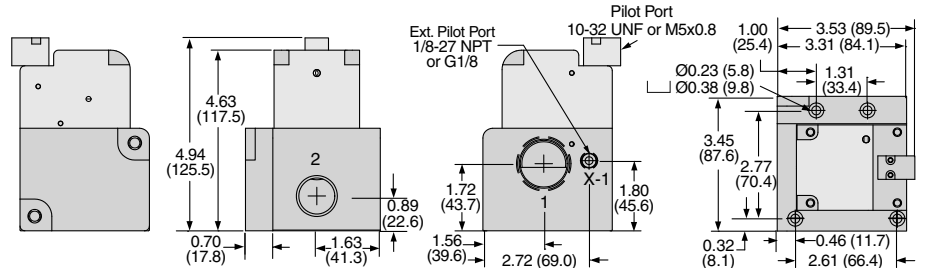
2/2 Valves

D1

Port Size 3/8 & 1/2

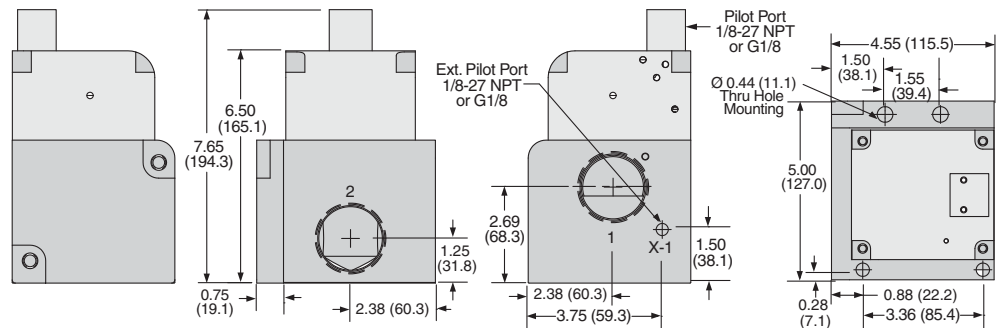


Port Size 3/4 & 1

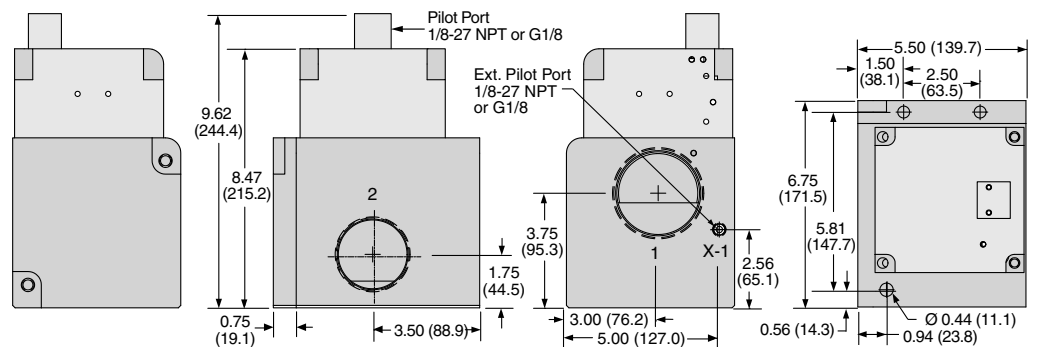


D

Port Size 1 1/4 & 1 1/2

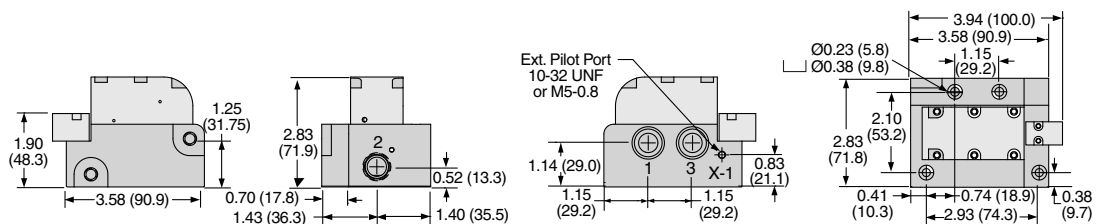


Port Size 2 & 2 1/2

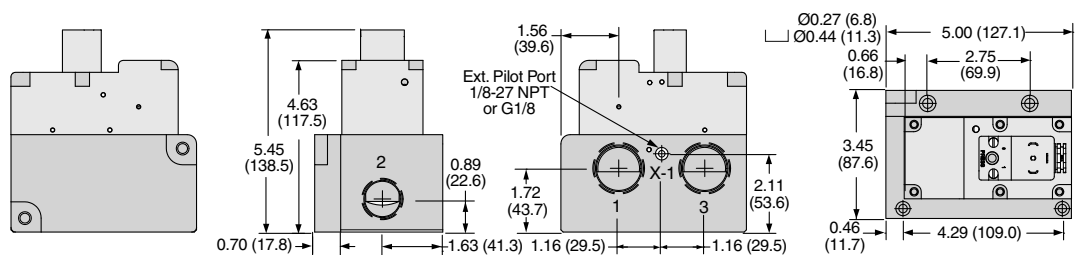


3/2 Valves

Port Size 3/8 & 1/2



Port Size 3/4 & 1



Solenoid Pilot Controlled Valve Manifolds

Leak Tight Dale CX Series

Manifolds can be ordered from two (2) to ten (10) stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements. For preassembled manifold valves with the same model number, select the model number from the table below. For ordering the Dale CX Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

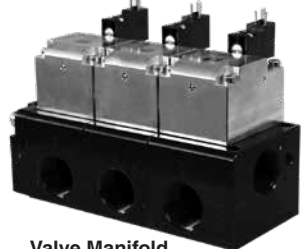


D1

Valve Manifold Ports 3/8 & 1/2



Valve Manifold Ports 3/4 & 1



Valve Manifold Ports 1/4, 1/4 thru 2 1/2

D

2-Way 2-Position Valves, Air Return									
Port Size		External Pilot Supply				Pilot Port Thread		Avg. C _v	
		Normally Closed		Normally Open					
		Model Number#*		Model Number#*					
1	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G		
1/4	1/4	CX12NB2751XW	CX12DB2751XW	CX22NB2751XW	CX22DB2751XW	10-32 UNF	M5	0.9	
1/2	3/8	CX14NB3751XW	CX14DB3751XW	CX24NB3751XW	CX24DB3751XW	10-32 UNF	M5	3.5	
1/2	1/2	CX14NB4751XW	CX14DB4751XW	CX24NB4751XW	CX24DB4751XW	10-32 UNF	M5	3.5	
1	3/4	CX16NB5751XW	CX16DB5751XW	CX26NB5751XW	CX26DB5751XW	1/8-27 NPT	G1/8	12.3	
1	1	CX16NB6751XW	CX16DB6751XW	CX26NB6751XW	CX26DB6751XW	1/8-27 NPT	G1/8	12.3	
1 1/2	1 1/4	CX18NB7751XW	CX18DB7751XW	CX28NB7751XW	CX28DB7751XW	1/8-27 NPT	G1/8	44.9	
1 1/2	1 1/2	CX18NB8751XW	CX18DB8751XW	CX28NB8751XW	CX28DB8751XW	1/8-27 NPT	G1/8	44.9	
2 1/2	2	CX10NB9751XW	CX10DB9751XW	CX20NB9751XW	CX20DB9751XW	1/8-27 NPT	G1/8	108	
2 1/2	2 1/2	CX10NB0751XW	CX10DB0751XW	CX20NB0751XW	CX20DB0751XW	1/8-27 NPT	G1/8	108	

1/4" thru 2 1/2" Normally Closed	1/4" thru 1" Normally Open	1 1/2" & 2 1/2" Normally Open

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., e.g., CX12NB2751XZ.

*X Number of Stations – To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CX12NB27514W (4 = 4 Stations), CX12NB27510W, (0 = 10 Stations).

The CX Series valves on this page require an external pilot supply.

ACCESSORIES – Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	1/4 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1 1/2-2 1/2	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6 1/2 ft.) cord.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	Pilot Supply	External
Solenoids	Rated for continuous duty	Operating Pressure	Port Size 1/4: Vacuum to 145 psig (vacuum to 10 bar) Port Size 1/2 thru 2 1/2: Vacuum to 145 psig (vacuum to 10 bar) Pilot Supply - External: Port Size 1/4: 70 to 145 psig (5 to 10 bar) Port Size 1/2 thru 2 1/2: 30 to 145 psig (2 to 10 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Voltage/Power Consumption (each solenoid)	Port Size 1/4 thru 1: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA 120 volts AC, 60 Hz: 5.0 VA Port Size 1 1/2 & 2 1/2: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	Manual Override	Normally Closed Valves: All Sizes: Non-locking Normally Open Valves: Port Size 1/2 & 1: Non-locking Port Size 1 1/2 & 2 1/2: Locking, turn-to-lock
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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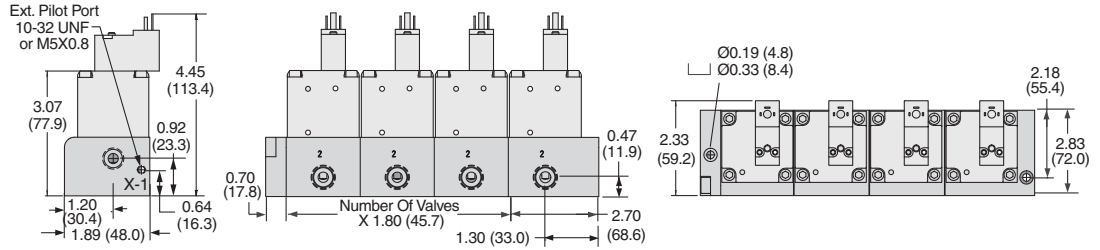
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Solenoid Pilot Controlled Valve Manifolds

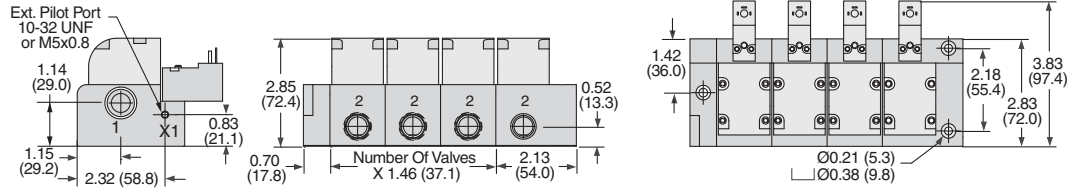
**Leak Tight
Dale CX Series**

Dimensions – inches (mm)

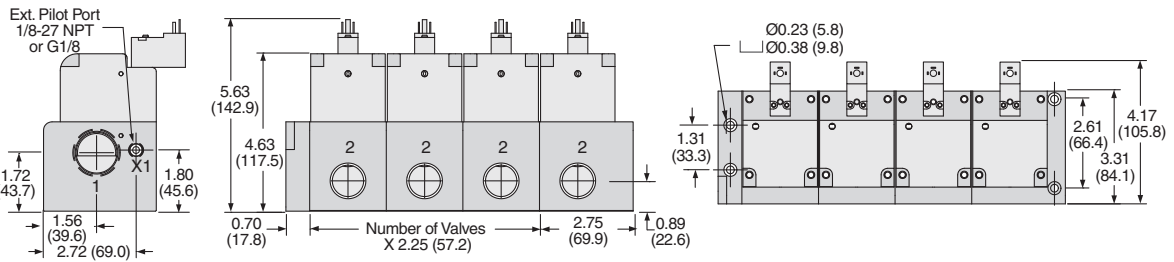
Port Size 1/4



Port Size 3/8 & 1/2

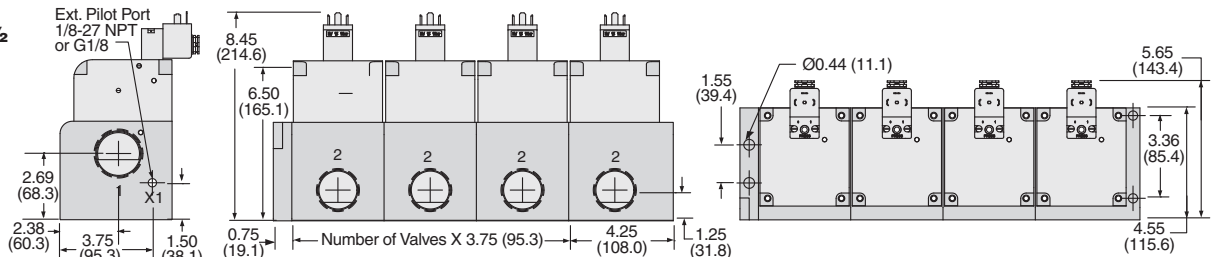


Port Size 3/4 & 1

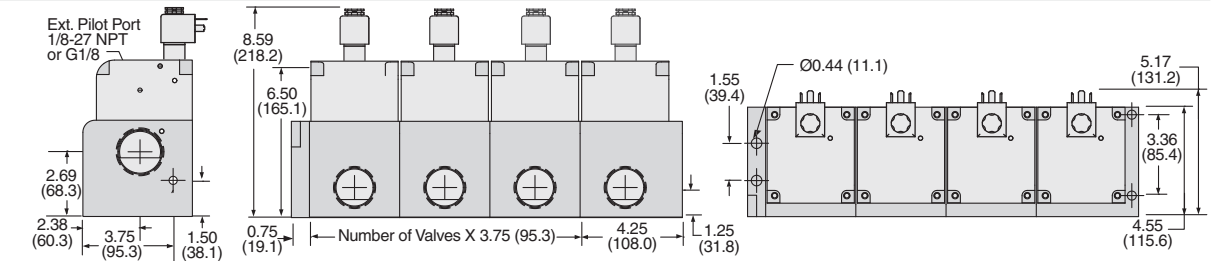


Port Size 1 1/4 & 1 1/2

Normally Closed

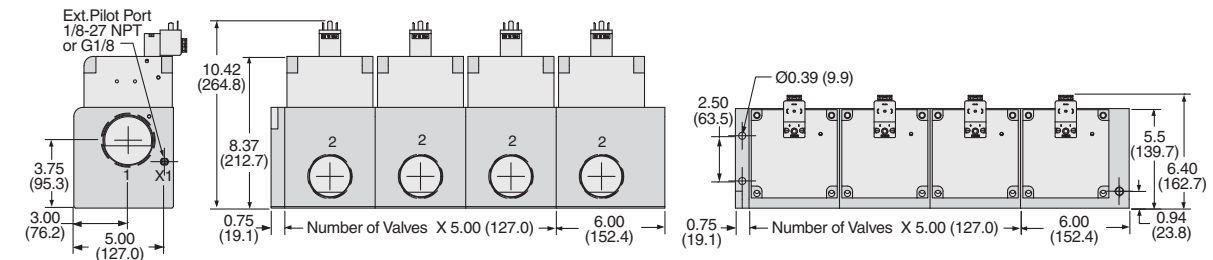


Normally Open

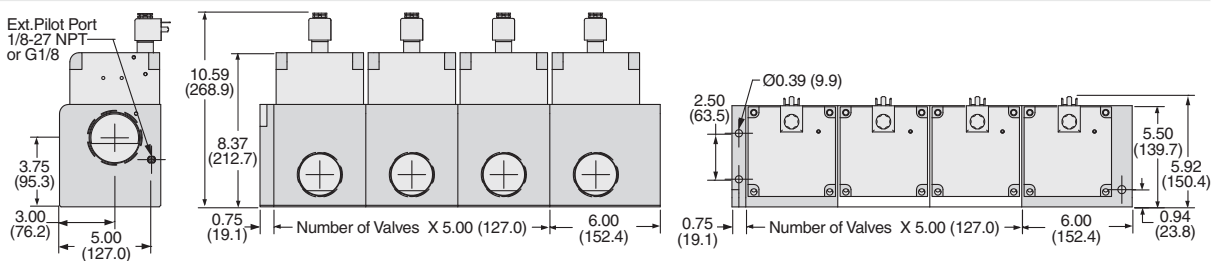


Port Size 2 & 2 1/2

Normally Closed



Normally Open



Solenoid Pilot Controlled Valve Manifolds

Leak Tight
Dale CX Series

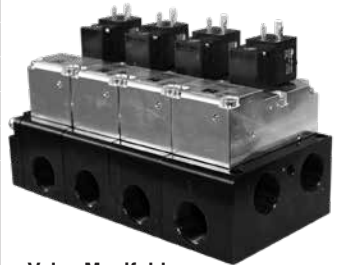
Manifolds can be ordered from two (2) to ten (10) stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.

For preassembled manifold valves with the same model number, select the model number from the table below.

For ordering the Dale CX Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.



Valve Manifold
Ports 3/8 & 1/2



Valve Manifold
Ports 3/4 & 1

3-Way 2-Position Valves, Spring Assisted Air Return								
Port Size	External Pilot Supply				Pilot Port Thread		Avg. C _v	
	Normally Closed		Normally Open					
	Model Number#*		Model Number#*					
1, 3	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G	
1/2	3/8	CX34NB3751XW	CX34DB3751XW	CX44NB3751XW	CX44DB3751XW	10-32 UNF	M5	3.6
1/2	1/2	CX34NB4751XW	CX34DB4751XW	CX44NB4751XW	CX44DB4751XW	10-32 UNF	M5	3.6
1	3/4	CX36NC5751XW	CX36DC5751XW	CX46NC5751XW	CX46DC5751XW	1/8-27 NPT	G1/8	12.3
1	1	CX36NC6751XW	CX36DC6751XW	CX46NC6751XW	CX46DC6751XW	1/8-27 NPT	G1/8	12.3

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., CX34NB3751XZ.
 *X Number of Stations – To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CX34NB37514W (4 = 4 Stations), CX34NB37510W, (0 = 10 Stations).

1/2" & 1" Normally Closed

1/2" Normally Open

1" Normally Open

Note: The CX Series valves on this page require an external pilot supply.

ACCESSORIES

Electrical Connectors

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
3/2	1/2	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	G Threads		Width	Length	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air For liquid applications, consult ROSS.
Mounting Type	In-line	Pilot Supply	External
Solenoids	Rated for continuous duty	Operating Pressure	Vacuum to 145 psig (vacuum to 10 bar) Pilot Supply - External: 50 to 145 psig (3.4 to 10 bar) Pilot supply pressure must be equal to or greater than inlet pressure.
Voltage/Power Consumption (each solenoid)	Port Size 1/2: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA 120 volts AC, 60 Hz: 5.0 VA Port Size 1: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	Manual Override	Normally Closed Valves: All Sizes; Non-locking Normally Open Valves: Port Size 1/2 & 1: Non-locking Port Size 1½ & 2½: Locking, turn-to-lock
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



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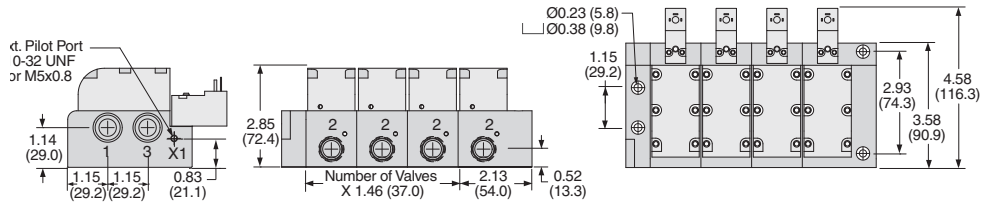
Solenoid Pilot Controlled Valve Manifolds

Leak Tight Dale CX Series

Dimensions – inches (mm)

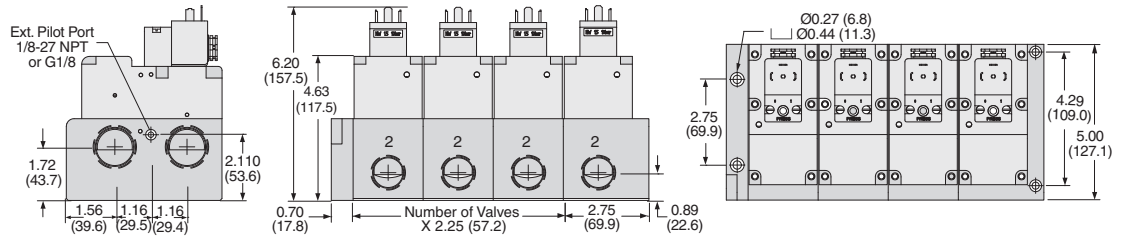
D1

Port Size 3/8 & 1/2



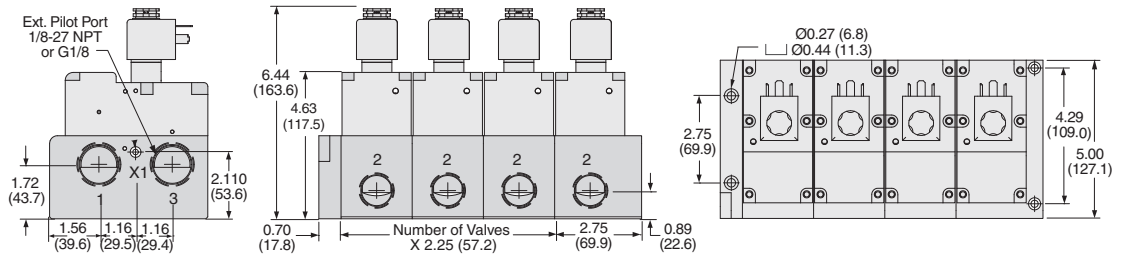
Port Size 3/4 & 1

Normally Closed



D

Normally Open

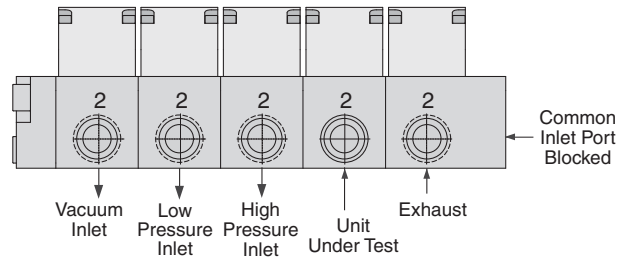


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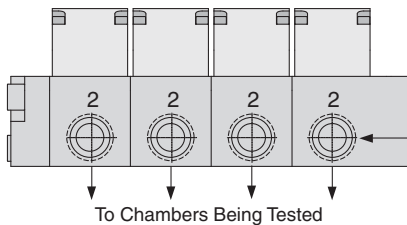
ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.

Leak Test Systems using Dale CX & LT Series Valves

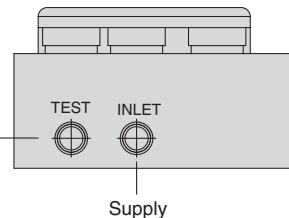
Shown below are typical manifold layouts. Many flexible, compact, manifold designs and configurations can be achieved using the Dale Series valves.



CX Series Manifold shown below:
2/2 Valve, 4-Station, Normally Closed
Port 1/2", 24 Volts DC
CX14NB47514W



LT Series Manifold shown below:
3/4, Leak Test Manifold,
24 Volts DC
LT32NB27500W



Pressure Controlled Valve Manifolds

Leak Tight
Dale CX Series

Manifolds can be ordered from two (2) to ten (10) stations.

Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.

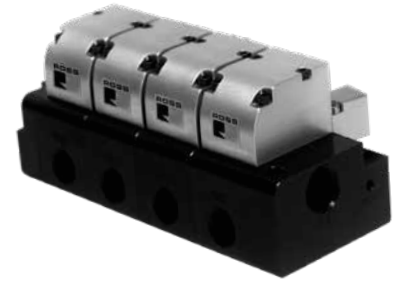
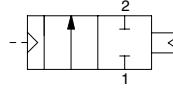
For preassembled manifold valves with the same model number, select the model number from the table below.

For ordering the Dale CX Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

D1

2-Way 2-Position Valves, Air Return

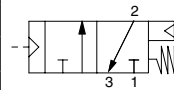
Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v
		Normally Closed				
		Model Number*				
1	2	NPT Threads	G Threads	NPT	G	
1/2	3/8	CX14NB3551X	CX14DB3551X	10-32 UNF	M5	3.7
1/2	1/2	CX14NB4551X	CX14DB4551X	10-32 UNF	M5	3.7
1	3/4	CX16NB5551X	CX16DB5551X	1/8-27 NPT	G1/8	13.7
1	1	CX16NB6551X	CX16DB6551X	1/8-27 NPT	G1/8	13.7
1½	1¼	CX18NB7551X	CX18DB7551X	1/8-27 NPT	G1/8	44.9
1½	1½	CX18NB8551X	CX18DB8551X	1/8-27 NPT	G1/8	44.9
2½	2	CX10NB9551X	CX10DB9551X	1/8-27 NPT	G1/8	108
2½	2½	CX10NB0551X	CX10DB0551X	1/8-27 NPT	G1/8	108



Valve Manifold
Ports 3/8 & 1/2

3-Way 2-Position Valves, Spring Assisted Air Return

Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v
		Normally Closed				
		Model Number*				
1, 3	2	NPT Threads	G Threads	NPT	BSPP	
1/2	3/8	CX34NB3551X	CX34DB3551X	10-32 UNF	M5	3.6
1/2	1/2	CX34NB4551X	CX34DB4551X	10-32 UNF	M5	3.6
1	3/4	CX36NC5551X	CX36DC5551X	1/8-27 NPT	G1/8	12.3
1	1	CX36NC6551X	CX36DC6551X	1/8-27 NPT	G1/8	12.3

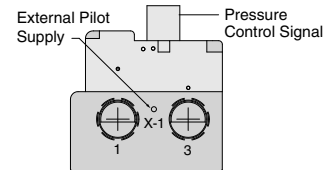


Valve Manifold
Ports 3/8 & 1/2

D

***X Number of Stations** – To indicate the number of stations desired, for 2 to 9 stations, replace X in the model number with the specific number of stations, for 10 stations replace X with 0, e.g., CX14NB35516 (4 = 4 Stations), CX14NB35510, (0 = 10 Stations).

Note: The Dale Series pressure controlled valves require both an external pilot supply and a control signal to operate the valve. When a pressure control signal is applied the valve shifts to the open position.



ACCESSORIES FOR 3/2 VALVES

Silencers							
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

Note: For manifolds requiring different valves types, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Vacuum to 250 psig (vacuum to 17.2 bar)
Mounting Type	In-line		Pilot Supply: 2/2 Valves: 30 to 250 psig (2 to 17.2 bar) 3/2 Valves: 50 to 250 psig (3.4 to 17.2 bar)
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Construction Material	Pilot supply pressure must be equal to or greater than inlet pressure.
Flow Media	Filtered air For liquid applications, consult ROSS.		Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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D1.23

Pressure Controlled Valve Manifolds

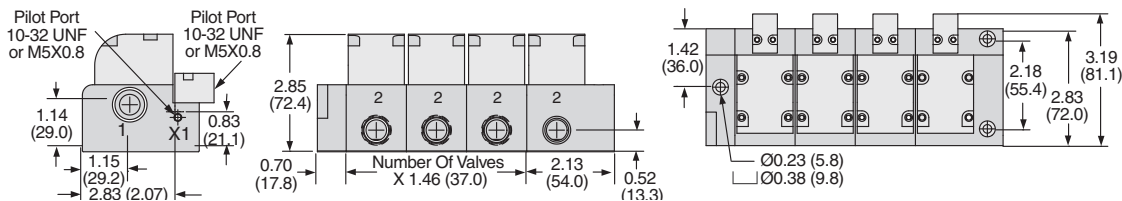
Leak Tight Dale CX Series

Dimensions – inches (mm)

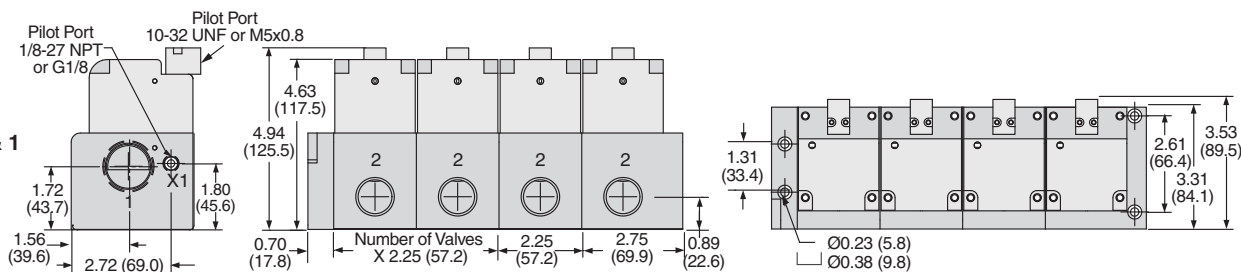
2/2 Valves

D1

Port Size 3/8 & 1/2

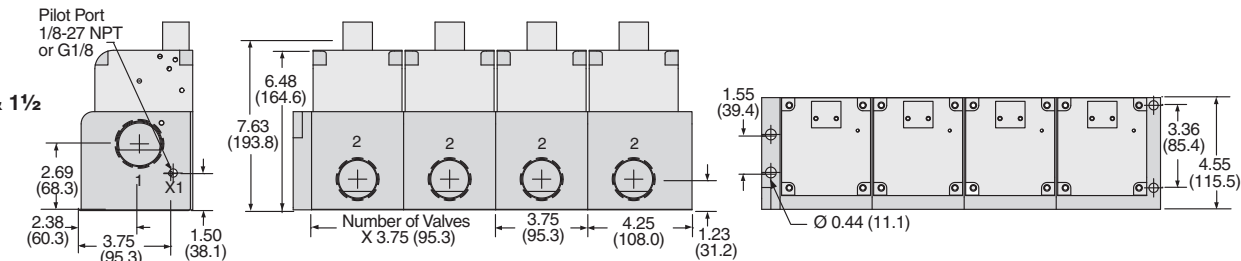


Port Size 3/4 & 1

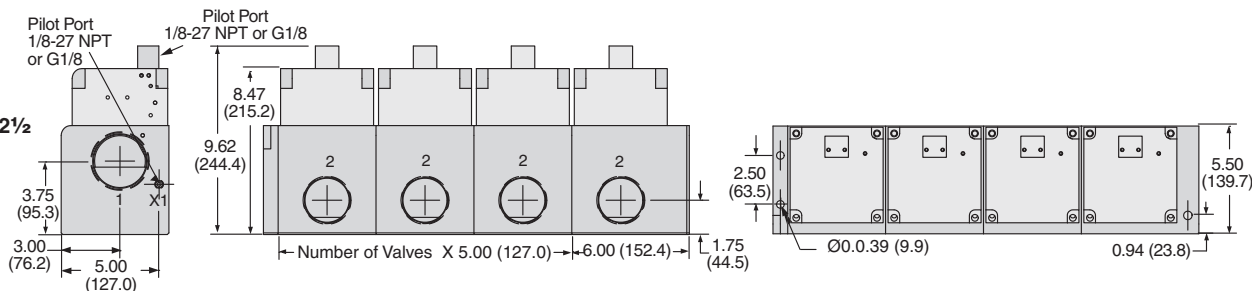


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Port Size 1 1/4 & 1 1/2

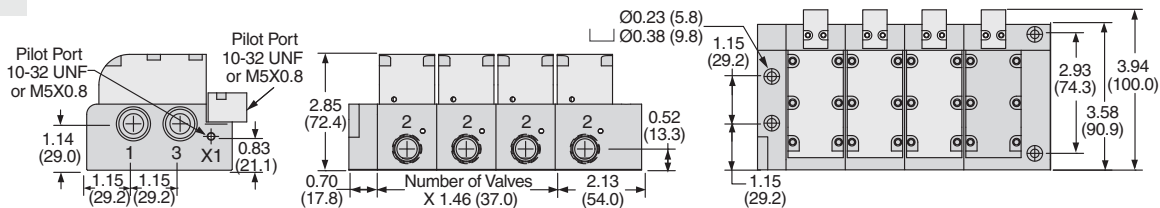


Port Size 2 & 2 1/2

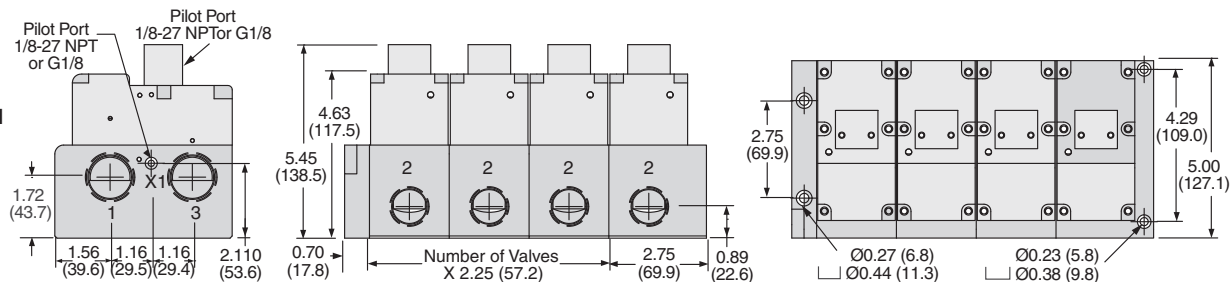


3/2 Valves

Port Size 3/8 & 1/2



Port Size 3/4 & 1

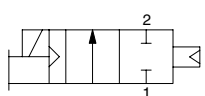


Solenoid Pilot Controlled Valves

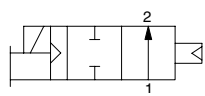
Leak Tight Dale LX Series

2-Way 2-Position Valves, Air Return									
Port Size		External Pilot Supply				Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed		Normally Open					
		Model Number#		Model Number#					
1	2	NPT Threads	G Threads	NPT Threads	G Threads	NPT	G		
3/8	3/8	LX13NB37501W	LX13DB37501W	LX23NB37501W	LX23DB37501W	10-32 UNF	M5	3.6	1.5 (0.7)
1/2	1/2	LX14NB47501W	LX14DB47501W	LX24NB47501W	LX24DB47501W	10-32 UNF	M5	3.6	1.5 (0.7)
3/4	3/4	LX15NB57501W	LX15DB57501W	LX25NB57501W	LX25DB57501W	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LX16NB67501W	LX16DB67501W	LX26NB67501W	LX26DB67501W	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LX17NB77501W	LX17DB77501W	LX27NB77501W	LX27DB77501W	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LX18NB87501W	LX18DB87501W	LX28NB87501W	LX28DB87501W	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LX19NB97501W	LX19DB97501W	LX29NB97501W	LX29DB97501W	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LX10NB07501W	LX10DB07501W	LX20NB07501W	LX20DB07501W	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

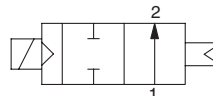
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., LX13NB37501Z.



Normally Closed



3/8" thru 1" Normally Open



1¼" & 2½" Normally Open



Ports 3/8 thru 1



Ports 1¼ thru 2½

The LF & LX Series provides superior performance over a diaphragm valve with a rugged poppet design, bi-directional flow and high cycle life.



The LF & LX Series provides superior performance over a ball valve with solenoid actuation, shifting speed, cycle life, and most important, a cost effective alternative.



Note: The LX Series valves on this page require an external pilot supply.

ACCESSORIES – Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	3/8 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
	1¼-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	Pilot Supply	External
Solenoids	Rated for continuous duty	Operating Pressure	Vacuum to 145 psig (vacuum to 10 bar) Pilot Supply - External: 30 to 145 psig (2 to 10 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Voltage/Power Consumption (each solenoid)	Port Size 3/8 thru 1: 24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA 120 volts AC, 60 Hz: 5.0 VA Port Size 1¼ thru 2½: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529	Manual Override	Normally Closed Valves: All Sizes; Non-locking Normally Open Valves: Port Size 1/2 & 1: Non-locking Port Size 1½ & 2½: Locking, turn-to-lock
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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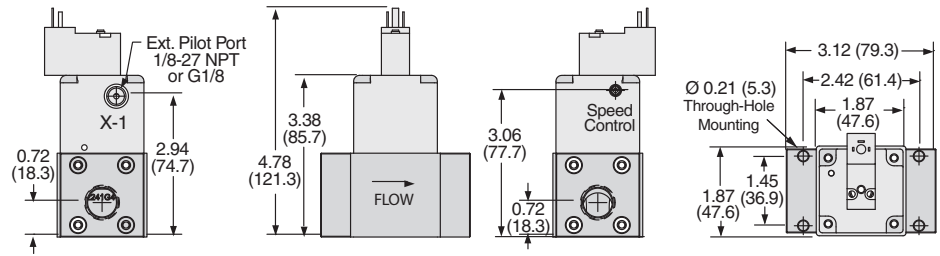
Solenoid Pilot Controlled Valves

Leak Tight Dale LX Series

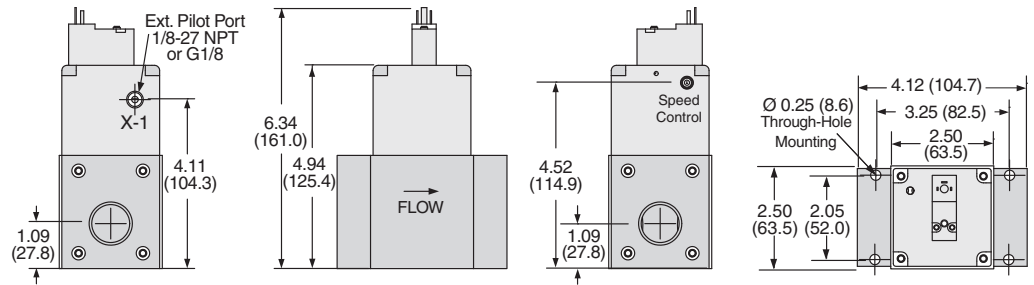
Valve Dimensions – inches (mm)

D1

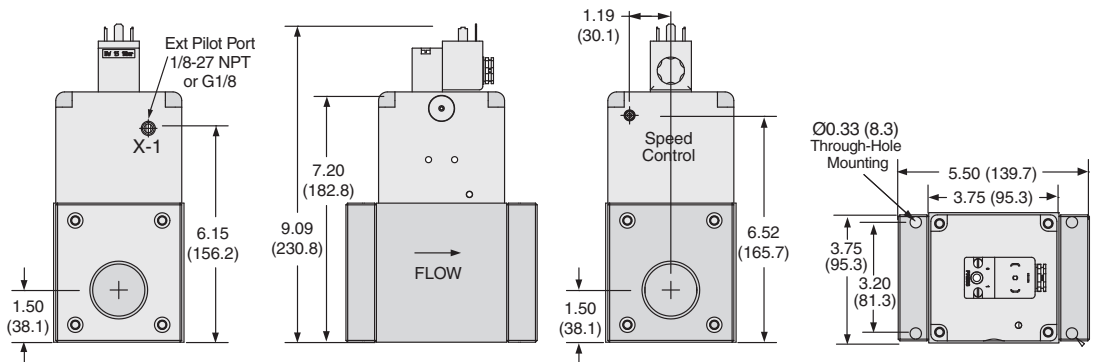
Port Size 3/8 & 1/2



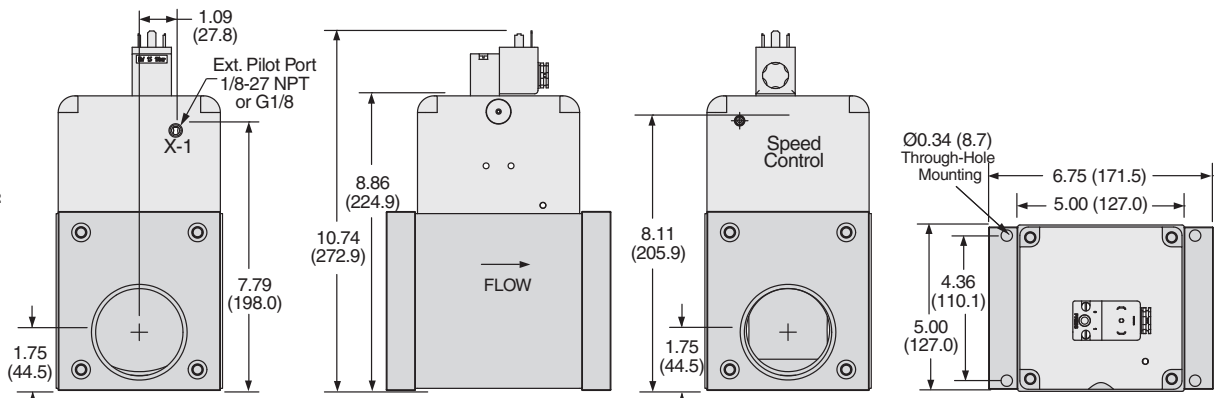
Port Size 3/4 & 1



Port Size 1 1/4 & 1 1/2



Port Size 2 & 2 1/2



Pressure Controlled Valves

Leak Tight Dale LX Series

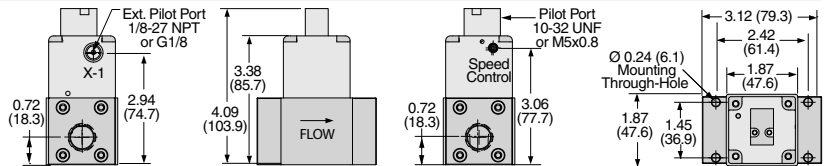
2-Way 2-Position Valves, Air Return							
Port Size		External Pilot Supply		Pilot Port Thread		Avg. C _v	Weight lb (kg)
		Normally Closed					
1	2	Model Number		NPT	G		
3/8	3/8	LX13NB35501	LX13DB35501	10-32 UNF	M5	3.6	1.5 (0.7)
1/2	1/2	LX14NB45501	LX14DB45501	10-32 UNF	M5	3.6	1.5 (0.7)
3/4	3/4	LX15NB55501	LX15DB55501	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LX16NB65501	LX16DB65501	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LX17NB75501	LX17DB75501	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LX18NB85501	LX18DB85501	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LX19NB95501	LX19DB95501	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LX10NB05501	LX10DB05501	1/8-27 NPT	G1/8	62.7	19.3 (8.8)



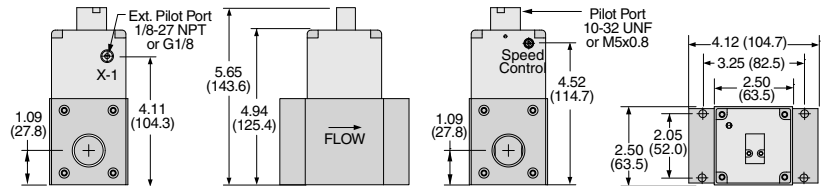
D1

Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2

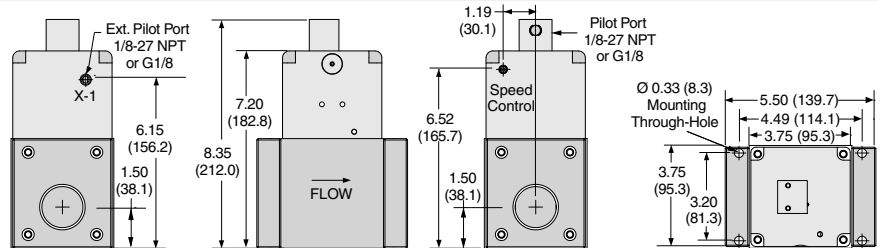


Port Size 3/4 & 1

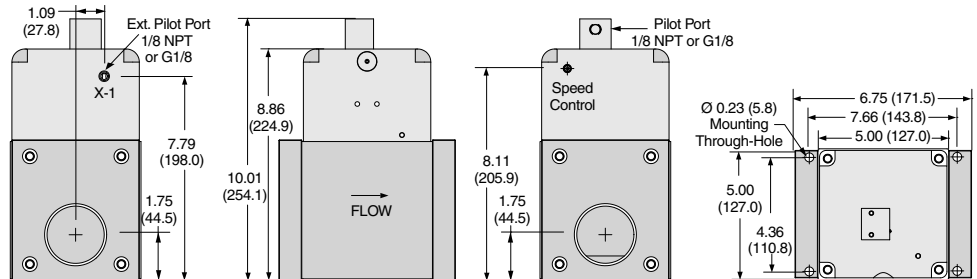


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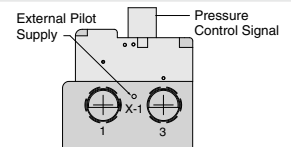
Port Size 1¼ & 1½



Port Size 2 & 2½



Note: The Dale Series pressure controlled valves require both an external pilot supply and a control signal to operate the valve. When a pressure control signal is applied the valve shifts to the open position.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Vacuum to 250 psig (vacuum to 17.2 bar)
Mounting Type	In-line	Operating Pressure	Pilot Supply: 30 to 250 psig (2 to 17.2 bar)
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Operating Pressure	Pilot supply pressure must be equal to or greater than inlet pressure.
Flow Media	Filtered air For liquid applications, consult ROSS.	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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D1.27

Solenoid Pilot Controlled Valve Manifold

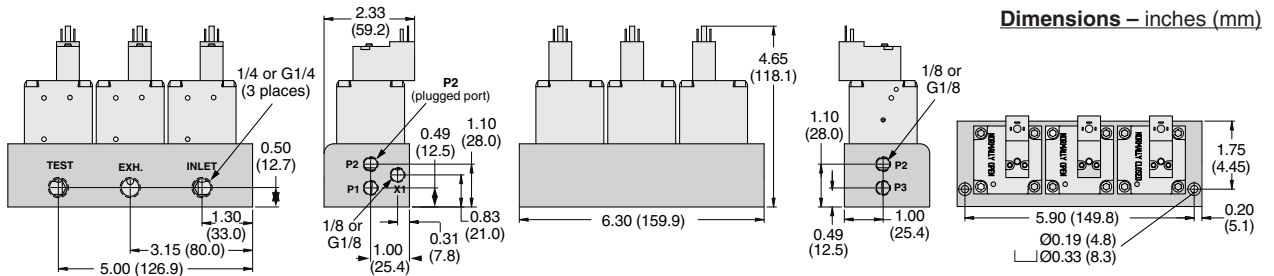
The LT Series valves can be field configured for flow, pressure decay, or differential pressure testing by selecting different combinations of the three sensor ports.



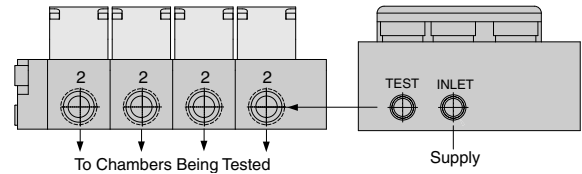
3-Way 4-Position Valve, Multi Solenoid Actuated

Port Size			Normally Closed		Sensor Ports			Pilot Port Thread		Avg. C _v	Weight lb (kg)
In	Exh.	Test	Model Number#		P1	P2	P3	NPT	G		
1/4	1/4	1/4	LT32NB27500W01	LT32DB27500W01	1/8	1/8	1/8	1/8 NPT	G 1/8	0.9	3.6 (1.7)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., LT32NB27500Z01.



The CX and LT Series can be combined to simplify the most complex test circuits. The LT manifold with integrated sensor ports is the primary valve used for the fill, isolate and test functions. In this example the test port of the LT is connected to the CX manifold allowing four chambers to be tested one at a time. The flexibility of combining the LT and CX manifolds creates a compact package, reduces leak paths, and provides an all in one test solution.



ACCESSORIES

Electrical Connectors						
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Model Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
1/4	3/8 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

Silencers							
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air <i>For liquid applications, consult ROSS.</i>
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	DC power; Rated for continuous duty	Operating Pressure	2 to 145 psig (0.13 to 10 bar) Pilot Supply - Internal or External: 50 to 145 psig (3.4 to 10 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Voltage/Power Consumption (each solenoid)	24 volts DC; 1.5 watts on DC 110 volts AC, 50 Hz: 5.4 VA 120 volts AC, 60 Hz: 5.0 VA	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal & Stainless Steel Seals: Buna-N
Enclosure Rating	IP65, IEC 60529		
Electrical Connection	EN 175301-803 Form A or Form C connector		
Temperature	Ambient/Media: 40° to 120°F (4° to 50°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

CP & CX Series Assembled Valve Manifold Configurator

D1

This form can be used when your application requires either a CP or CX Series valve manifold with different valve functions to provide you with complete valve manifold assemblies to fit your precise requirements.

Manifolds can be ordered from two to ten stations. For other combinations, contact ROSS for more information.

of Stations 2 3 4 5 6 7 8 9 10

Port Thread: NPT G

Valve Series: CP CX

Valve Type: 2/2 3/2

Compatible Combinations

- Air Pilot & Solenoid Pilot Valves
- 24 volts DC & 110 or 120 volts AC Solenoid Pilot Valves
- Different port 2 sizes with same port 1 size
 (i.e., valve 1 = 1/2" port 1 & 3/8" port 2;
 valve 2 = 1/2" port 1 & 1/2" port 2.

Example:

Valve Position Number	Valve Model Number*
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

*Refer to CP or CX Valve product pages for Valve Model Numbers. Enter "Blank" to indicate base with blocking plate.

Valve Position Number	Valve Model Number**
1	CX14NB37511W
2	CX14NB37511W
3	CX24NB37511W
4	CX24NB37511W
5	Blank
6	CX14NB47511W
7	CX24NB47511W
8	CX14NB35511
9	
10	

**Example given for an eight station manifold.

D

Name: _____ Date: _____

Company Name: _____

Address: _____

City, State, Zip Code: _____

Tel: _____ e-mail: _____

Fax completed form to 1-706-356-3600 or e-mail to custsvc@rosscontrols.com
 to obtain pre-assemble model number, price, and delivery.



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D1.29



DIRECTIONAL CONTROL POPPET VALVES

27 SERIES



ROSS CONTROLS

DIRECTIONAL CONTROL POPPET 27 SERIES VALVES – KEY FEATURES

- Low weight; compact size
- Valves available with special control functions:
 - Timed sequence actuation and/or deactuation
 - Momentary control of actuation/deactuation from one pressure source
 - Actuating force multiplier, for use with low signal pressures
- Available with choices of internal components for three different temperature ranges
- Can be mounted close to actuator, reducing length of pipe to be pressurized/exhausted on each cycle
- Easily field-convertible for use with an external pilot supply
- Long life expectancy
- Consistent response times over the life of the valve

Valve models for external pilot supply available, consult ROSS.

Explosion-Proof solenoid pilot valves available, see explosion proof valves section F.



For ATEX certified valves order placement, consult ROSS.



VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES														FUNCTIONS					Page						
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	2 1/2	3/2	3/4	4/2	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center		Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control		
27																						72				D2.3 - D2.5		
27																						34				D2.10 - D2.11		
27																						72				D2.12 - D2.14		
27 Series with Pressure Booster Adaptor																												
																						32				D2.6		
																						34				D2.15		
27 Series with Air Index Adaptor																												
																						27				D2.7		
																						32				D2.16		
27 Series with Timed Sequence Adaptor																												
																						34				D2.8, D2.17		
27 Series with Timed Sequence & Timed Sequence Extension Adaptors																												
																						34				D2.9		
																						32				D2.18		
27 Series with Timed In/Out Sequence Adaptor																												
																						32				D2.19		
27 Series with Timed-In/Out Sequence & Timed Sequence Extension Adaptors																												
																						34				D2.20		
27 Series Pressure Controlled with Inlet Port Controlled Timed-In Sequence Adaptor																												
																						34				D2.21		
27 Series Pressure Controlled with Inlet Port Controlled Timed-In Sequence & Timed Sequence Extension Adaptors																												
																						32				D2.22		
Options & Accessories																												D2.23

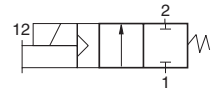
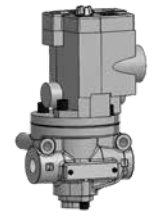
Directional Control Valves

Solenoid Pilot Controlled

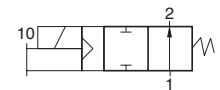
27 Series

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Normally Closed		Normally Open		C _v		Average Response Constants**		Weight lb (kg)	
		Valve Model Number#		Valve Model Number#		NC	NO	M	F		
		NPT Threads	G Threads	NPT Threads	G Threads				NC		NO
1/4	3/8	2771B2001W	D2771B2001W	2772B2001W	D2772B2001W	2.3	2.3	10	0.91	0.91	2.5 (1.2)
3/8	3/8	2771B3001W	D2771B3001W	2772B3001W	D2772B3001W	3.8	3.3	10	0.70	0.76	2.5 (1.2)
1/2	3/8	2771B4011W	D2771B4011W	2772B4011W	D2772B4011W	4.0	3.5	10	0.64	0.72	2.5 (1.2)
1/2	3/4	2771B4001W	D2771B4001W	2772B4001W	D2772B4001W	7.7	6.5	14	0.37	0.43	3.3 (1.5)
3/4	3/4	2771B5001W	D2771B5001W	2772B5001W	D2772B5001W	9.0	7.3	14	0.34	0.39	3.3 (1.5)
1	3/4	2771B6011W	D2771B6011W	2772B6011W	D2772B6011W	9.0	7.9	14	0.34	0.37	3.3 (1.5)
1	1¼	2771B6001W	D2771B6001W	2772B6001W	D2772B6001W	24	21	26	0.17	0.17	7.0 (3.2)
1¼	1¼	2771B7001W	D2771B7001W	2772B7001W	D2772B7001W	29	20	26	0.15	0.19	7.0 (3.2)
1½	1¼	2771B8011W	D2771B8011W	2772B8011W	D2772B8011W	29	21	26	0.15	0.18	7.0 (3.2)
1½	2	2771B8001W	D2771B8001W	2772B8001W	D2772B8001W	49	49	41	0.09	0.09	15.5 (6.9)
2	2	2771B9001W	D2771B9001W	2772B9001W	D2772B9001W	57	57	41	0.07	0.07	15.5 (6.9)
2½	2	2771B9011W	D2771B9011W	2772B9011W	D2772B9011W	64	72	41	0.07	0.06	15.5 (6.9)



Normally Closed

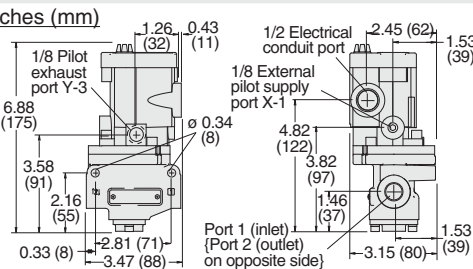


Normally Open

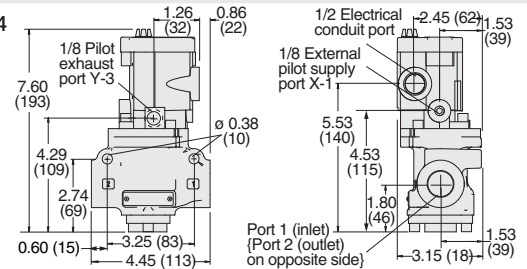
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2771B2001Z. For other voltages, consult ROSS.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

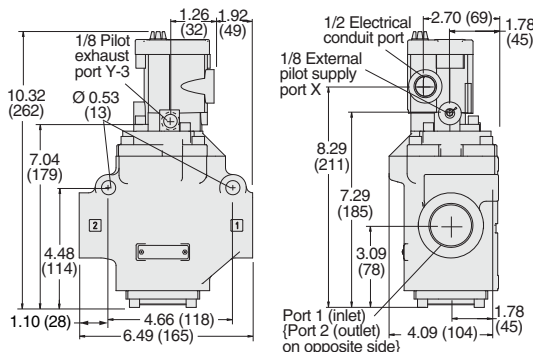
Body Size 3/8



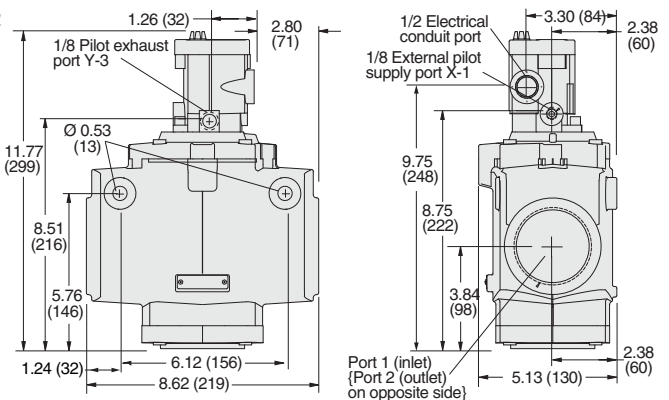
Body Size 3/4



Body Size 1¼



Body Size 2



Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Body Size 3/8 & 1¼: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar)
Mounting Type	In-line	Pilot Supply	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Safety Integrity Level (SIL)	Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.
 For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section A.



IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



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D2.3

Directional Control Valves

Solenoid Pilot Controlled

27 Series

3-Way 2-Position Valves, Spring Return

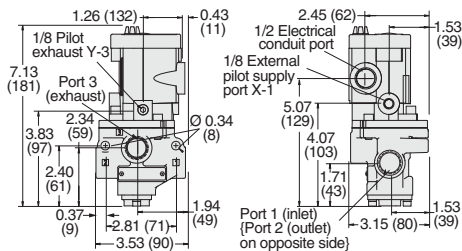
Port Size			Body Size	Normally Closed		Normally Open		C _v				Average Response Constants**				Weight lb (kg)
1, 2	3	Valve Model Number*		Valve Model Number*		NC		NO		M	F					
		NPT Threads		G Threads		1-2	2-3	1-2	2-3		1-2	2-3	1-2	2-3		
1/4	1/2	3/8	2773B2001W	D2773B2001W	2774B2001W	D2774B2001W	2.5	3.1	2.3	2.7	10	0.90	0.80	0.99	0.88	2.5 (1.2)
3/8	1/2	3/8	2773B3001W	D2773B3001W	2774B3001W	D2774B3001W	3.6	5.3	2.8	3.2	10	0.70	0.50	0.90	0.77	2.5 (1.2)
1/2	1/2	3/8	2773B4011W	D2773B4011W	2774B4011W	D2774B4011W	3.3	5.3	2.8	3.2	10	0.75	0.50	0.90	0.76	2.5 (1.2)
1/2	1	3/4	2773B4001W	D2773B4001W	2774B4001W	D2774B4001W	6.3	9.2	6.3	8.0	11	0.43	0.27	0.46	0.60	3.3 (1.5)
3/4	1	3/4	2773B5001W	D2773B5001W	2774B5001W	D2774B5001W	7.7	11	6.9	7.4	11	0.36	0.26	0.45	0.60	3.3 (1.5)
1	1	3/4	2773B6011W	D2773B6011W	2774B6011W	D2774B6011W	8	12	6.8	7.5	11	0.34	0.25	0.40	0.59	3.3 (1.5)
1	1½	1¼	2773B6001W	D2773B6001W	2774B6001W	D2774B6001W	23	34	17	24	28	0.17	0.14	0.20	0.17	7.0 (3.2)
1¼	1½	1¼	2773B7001W	D2773B7001W	2774B7001W	D2774B7001W	30	32	19	24	28	0.15	0.15	0.19	0.17	7.0 (3.2)
1½	1½	1¼	2773B8011W	D2773B8011W	2774B8011W	D2774B8011W	30	31	19	23	28	0.15	0.15	0.19	0.16	7.0 (3.2)
1½	2½	2	2773B8001W	D2773B8001W	2774B8001W	D2774B8001W	68	70	57	59	76	0.05	0.04	0.07	0.04	16.5 (7.4)
2	2½	2	2773B9001W	D2773B9001W	2774B9001W	D2774B9001W	70	70	58	61	76	0.05	0.04	0.05	0.04	16.5 (7.4)
2½	2½	2	2773B9011W	D2773B9011W	2774B9011W	D2774B9011W	70	71	54	55	76	0.05	0.04	0.50	0.04	16.5 (7.4)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2773B2001Z. For other voltages, consult ROSS.

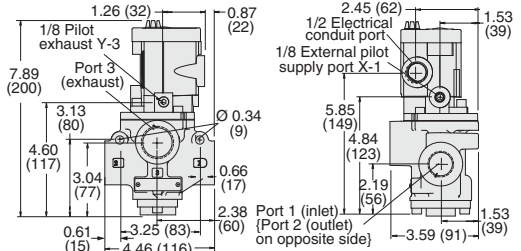
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.



Body Size 3/8

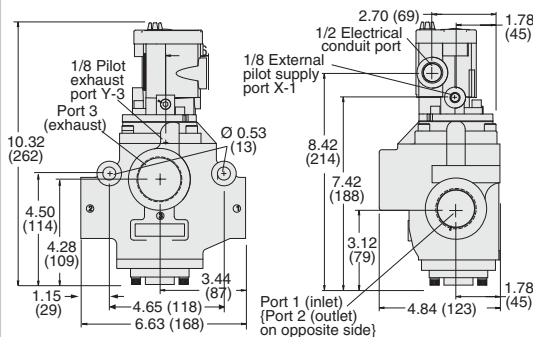


Body Size 3/4

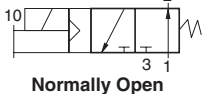
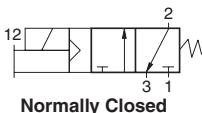
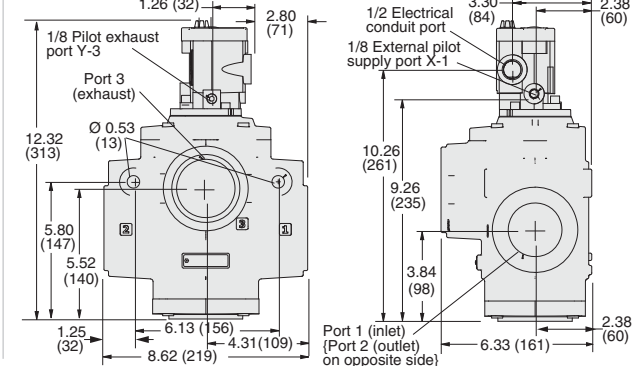


Valve Dimensions – inches (mm)

Body Size 1¼



Body Size 2



Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Body Size 3/8 & 1½: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar)
Mounting Type	In-line	Pilot Supply	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Safety Integrity Level (SIL)	Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section A.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

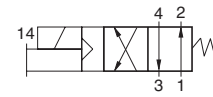


Directional Control Valves

Solenoid Pilot Controlled

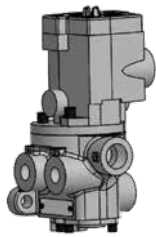
27 Series

4-Way 2-Position Valves, Spring Return											
Port Size		Body Size	Valve Model Number#		C _v		Average Response Constants**			Weight lb (kg)	
1, 2, 4	3		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3	M	F			
								1-2, 1-4	4-3, 2-3		
1/4	1/2	3/8	2776B2001W	D2776B2001W	2.1	2.9	10	0.92	0.92	3.0 (1.4)	
3/8	1/2	3/8	2776B3001W	D2776B3001W	2.9	4.2	10	0.90	0.90	3.0 (1.4)	
1/2	1/2	3/8	2776B4011W	D2776B4011W	3.1	7.3	10	0.89	0.73	3.0 (1.4)	
1/2	1	3/4	2776B4001W	D2776B4001W	5.6	8.1	26	0.50	0.66	5.3 (2.4)	
3/4	1	3/4	2776B5001W	D2776B5001W	7.0	9.3	26	0.36	0.55	5.3 (2.4)	
1	1	3/4	2776B6011W	D2776B6011W	7.8	10	26	0.35	0.50	5.3 (2.4)	
1	1½	1¼	2776B6001W	D2776B6001W	19	26	79	0.17	0.22	11.3 (5.1)	
1¼	1½	1¼	2776B7001W	D2776B7001W	21	27	79	0.16	0.18	11.3 (5.1)	
1½	1½	1¼	2776B8011W	D2776B8011W	22	27	79	0.15	0.15	11.3 (5.1)	



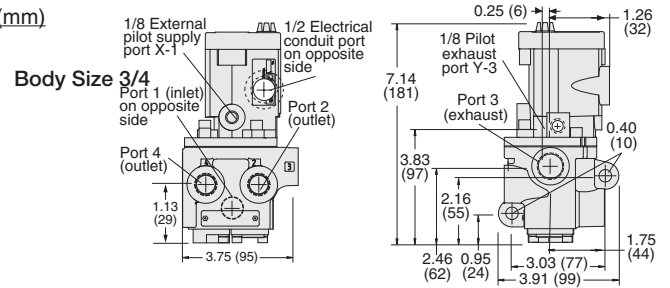
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2776B2001Z. For other voltages, consult ROSS.

** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

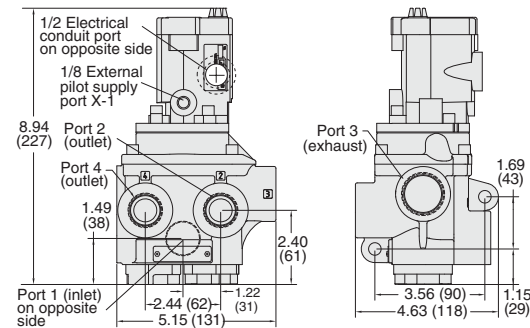


Valve Dimensions – inches (mm)

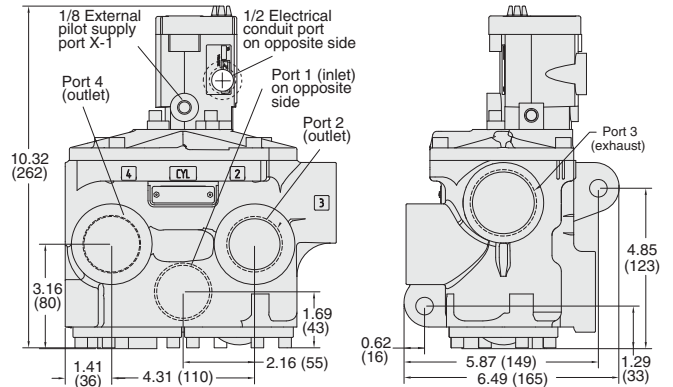
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10 bar)
Mounting Type	In-line	Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.	
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section A.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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D2.5

Directional Control Valves – Solenoid Pilot Controlled with Pressure Booster Adaptor

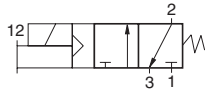
27 Series

Pressure Booster Adaptor: Increases the actuating force on the valve piston. It should be used when the inlet and pilot pressures are below the minimums specified for the valve. It should also be used when an external pilot supply with a lower pressure than the inlet pressure is used. The valve's pilot pressure is applied to a piston in the pilot booster adaptor that has a larger area than the piston in the valve. The force on the piston in the adaptor is thereby larger than that which could be produced by the piston in the valve. This larger force is applied to the valve's piston directly so that there is then sufficient force to shift the valve properly.



3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Normally Closed		C _v		Dimension A inches (mm)	Weight lb (kg)
1, 2	3		Valve Model Number#		1-2	2-3		
			NPT Threads	G Threads				
1/4	1/2	3/8	2773B2009W	D2773B2009W	2.5	3.1	0.75 (19)	2.5 (1.2)
3/8	1/2	3/8	2773B3009W	D2773B3009W	3.6	5.3	0.75 (19)	2.5 (1.2)
1/2	1/2	3/8	2773B4019W	D2773B4019W	3.3	5.3	0.75 (19)	2.5 (1.2)
1/2	1	3/4	2773B4009W	D2773B4009W	6.3	9.2	0.75 (19)	3.3 (1.5)
3/4	1	3/4	2773B5009W	D2773B5009W	7.7	11	0.75 (19)	3.3 (1.5)
1	1	3/4	2773B6019W	D2773B6019W	8	12	0.75 (19)	3.3 (1.5)
1	1½	1¼	2773B6009W	D2773B6009W	23	34	1.25 (32)	7.0 (3.2)
1¼	1½	1¼	2773B7009W	D2773B7009W	30	32	1.25 (32)	7.0 (3.2)
1½	1½	1¼	2773B8019W	D2773B8019W	30	31	1.25 (32)	7.0 (3.2)

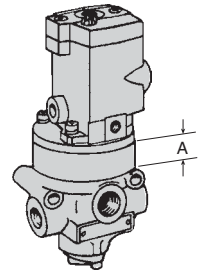


Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2773B2009Z. For other voltages, consult ROSS.

D2

D

Detailed dimensions, see corresponding valves models pages.



Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10 bar)
Mounting Type	In-line	Pilot Supply	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Safety Integrity Level (SIL)	Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section A.



IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.

Directional Control Valves – Solenoid Pilot Controlled with Air Index Adaptor

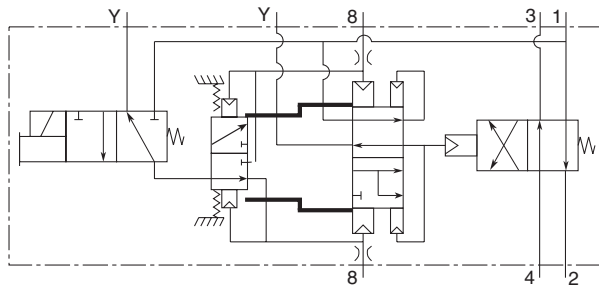
27 Series

Air Index Adaptor: Allows a valve controlled by a single solenoid pilot to function as an impulse controlled, mechanically detented valve. A momentary electrical signal to the solenoid actuates the valve and holds it in the actuated position. A second momentary signal from the same source returns the valve to its deactuated position.



4-Way 2-Position Valves, Spring Return

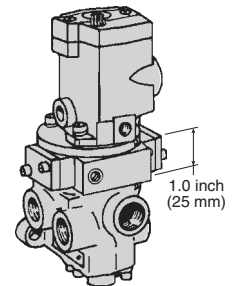
Port Size		Body Size	Valve Model Number#		C _v		Weight lb (kg)
1, 2, 4	3		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2008W	D2776B2008W	2.1	2.9	3.0 (1.4)
3/8	1/2	3/8	2776B3008W	D2776B3008W	2.9	4.2	3.0 (1.4)
1/2	1/2	3/8	2776B4018W	D2776B4018W	3.1	7.3	3.0 (1.4)
1/2	1	3/4	2776B4008W	D2776B4008W	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2776B5008W	D2776B5008W	7.0	9.3	5.3 (2.4)
1	1	3/4	2776B6018W	D2776B6018W	7.8	10	5.3 (2.4)
1	1½	1¼	2776B6008W	D2776B6008W	19	26	11.3 (5.1)
1¼	1½	1¼	2776B7008W	D2776B7008W	21	27	11.3 (5.1)
1½	1½	1¼	2776B8018W	D2776B8018W	22	27	11.3 (5.1)



Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2776B2008X. For other voltages, consult ROSS.

Body Size 3/4

Detailed dimensions, see corresponding valves models pages.



Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	40 to 150 psig (2.8 to 10 bar)
Mounting Type	In-line	Pilot Supply	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Safety Integrity Level (SIL)	Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section A.



IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



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D2.7

Directional Control Valves – Solenoid Pilot Controlled with Timed Sequence Adaptor

27 Series



2-Way 2-Position Valves, Spring Return								
Port Size	Body Size	Normally Closed		Normally Open		C _v		Weight lb (kg)
		Valve Model Number*#		Valve Model Number*#		NC	NO	
		Timed In	Timed Out	Timed In	Timed Out			
1/4	3/8	2771B2004W	2771B2005W	2772B2004W	2772B2005W	2.3	2.3	3.5 (1.6)
3/8	3/8	2771B3004W	2771B3005W	2772B3004W	2772B3005W	3.8	3.3	3.5 (1.6)
1/2	3/8	2771B4014W	2771B4015W	2772B4014W	2772B4015W	4.0	3.5	3.5 (1.6)
1/2	3/4	2771B4004W	2771B4005W	2772B4004W	2772B4005W	7.7	6.5	4.3 (2.0)
3/4	3/4	2771B5004W	2771B5005W	2772B5004W	2772B5005W	9.0	7.3	4.3 (2.0)
1	3/4	2771B6014W	2771B6015W	2772B6014W	2772B6015W	9.0	7.9	4.3 (2.0)
1	1¼	2771B6004W	2771B6005W	2772B6004W	2772B6005W	24	21	9.0 (4.1)
1¼	1¼	2771B7004W	2771B7005W	2772B7004W	2772B7005W	29	20	9.0 (4.1)
1½	1¼	2771B8014W	2771B8015W	2772B8014W	2772B8015W	29	21	9.0 (4.1)

Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle. Longer time delays can be obtained by using this adaptor in conjunction with the timed sequence extension adaptor, see next page.

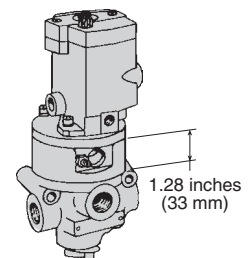
OPERATION

Timed In Adaptor: Solenoid energized; after preset delay valve is actuated. Solenoid de-energized; valve immediately deactivated.

Timed Out Adaptor: Solenoid energized; valve immediately actuated. Solenoid de-energized; after preset delay valve is deactivated.

3-Way 2-Position Valves, Spring Return												
Port Size	Body Size	Normally Closed		Normally Open		C _v				Weight lb (kg)		
		Valve Model Number*#		Valve Model Number*#		NC		NO				
		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3			
1/4	1/2	3/8	2773B2004W	2773B2005W	2774B2004W	2774B2005W	2.5	3.1	2.3	2.7	3.5 (1.6)	
3/8	1/2	3/8	2773B3004W	2773B3005W	2774B3004W	2774B3005W	3.6	5.3	2.8	3.2	3.5 (1.6)	
1/2	1/2	3/8	2773B4014W	2773B4015W	2774B4014W	2774B4015W	3.3	5.3	2.8	3.2	3.5 (1.6)	
1/2	1	3/4	2773B4004W	2773B4005W	2774B4004W	2774B4005W	6.3	9.2	6.3	8.0	4.3 (2.0)	
3/4	1	3/4	2773B5004W	2773B5005W	2774B5004W	2774B5005W	7.7	11	6.9	7.4	4.3 (2.0)	
1	1	3/4	2773B6014W	2773B6015W	2774B6014W	2774B6015W	8	12	6.8	7.5	4.3 (2.0)	
1	1½	1¼	2773B6004W	2773B6005W	2774B6004W	2774B6005W	23	34	17	24	9.0 (4.1)	
1¼	1½	1¼	2773B7004W	2773B7005W	2774B7004W	2774B7005W	30	32	19	24	9.0 (4.1)	
1½	1½	1¼	2773B8014W	2773B8015W	2774B8014W	2774B8015W	30	31	19	23	9.0 (4.1)	

Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2771B2004Z.

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2771B2004Z. For other voltages, consult ROSS.

Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10 bar)
Mounting Type	In-line	Pilot Supply	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Time Delay Interval	2/2 Valves: Up to 30 seconds. 3/2 Valves: Up to 3 seconds.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL)	Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Flow Media	Filtered air		
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section A.



IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.

Directional Control Valves – Solenoid Pilot Controlled with Timed Sequence & Timed Sequence Extension Adaptors

27 Series

Timed Sequence & Timed Sequence Extension Adaptors: Used in conjunction can increase the time delay interval up to 60 seconds. It also helps to obtain “snap” action of the valve. By keeping pilot air off the main valve piston until the pressure has built high enough to ensure prompt valve response, the timed sequence extension adaptor prevents the piston from creeping.



Port Size		Body Size	Normally Closed		Normally Open		C _v				Weight lb (kg)
Valve Model Number*#			Valve Model Number*#		NC		NO				
1, 2	3		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2773B2006W	2773B2007W	2774B2006W	2774B2007W	2.5	3.1	2.3	2.7	3.5 (1.6)
3/8	1/2	3/8	2773B3006W	2773B3007W	2774B3006W	2774B3007W	3.6	5.3	2.8	3.2	3.5 (1.6)
1/2	1/2	3/8	2773B4016W	2773B4017W	2774B4016W	2774B4017W	3.3	5.3	2.8	3.2	3.5 (1.6)
1/2	1	3/4	2773B4006W	2773B4007W	2774B4006W	2774B4007W	6.3	9.2	6.3	8.0	4.3 (2.0)
3/4	1	3/4	2773B5006W	2773B5007W	2774B5006W	2774B5007W	7.7	11	6.9	7.4	4.3 (2.0)
1	1	3/4	2773B6016W	2773B6017W	2774B6016W	2774B6017W	8	12	6.8	7.5	4.3 (2.0)
1	1½	1¼	2773B6006W	2773B6007W	2774B6006W	2774B6007W	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2773B7006W	2773B7007W	2774B7006W	2774B7007W	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2773B8016W	2773B8017W	2774B8016W	2774B8017W	30	31	19	23	9.0 (4.1)

Timed In
Normally Closed
Timed Out

Timed In
Normally Open
Timed Out

D2

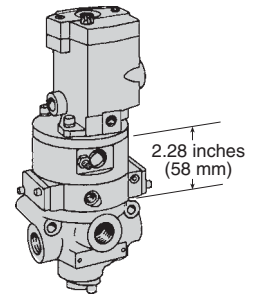
D

Port Size		Body Size	Valve Model Number*#		C _v		Weight lb (kg)
1, 2, 4	3		Timed In	Timed Out	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2006W	2776B2007W	2.1	2.9	3.0 (1.4)
3/8	1/2	3/8	2776B3006W	2776B3007W	2.9	4.2	3.0 (1.4)
1/2	1/2	3/8	2776B4016W	2776B4017W	3.1	7.3	3.0 (1.4)
1/2	1	3/4	2776B4006W	2776B4007W	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2776B5006W	2776B5007W	7.0	9.3	5.3 (2.4)
1	1	3/4	2776B6016W	2776B6017W	7.8	10	5.3 (2.4)
1	1½	1¼	2776B6006W	2776B6007W	19	26	11.3 (5.1)
1¼	1½	1¼	2776B7006W	2776B7007W	21	27	11.3 (5.1)
1½	1½	1¼	2776B8016Z	2776B8017Z	22	27	11.3 (5.1)

Timed In

Timed Out

Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a “D” prefix to the model number e.g., D2773B2006Z.

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2773B2006Z. For other voltages, consult ROSS.

Options: Indicator Light Kits, Manual Override Kits; refer to page D2.23. Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10 bar)
Mounting Type	In-line	Pilot Supply	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Adjustable Time Delay	Up to 30 seconds.
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL)	Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Flow Media	Filtered air		
Pilot Supply	Internal or External		



Valves with EN (DIN) connector available, consult ROSS.
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section A.



IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



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D2.9

Directional Control Valves

Direct Double Solenoid Controlled

27 Series

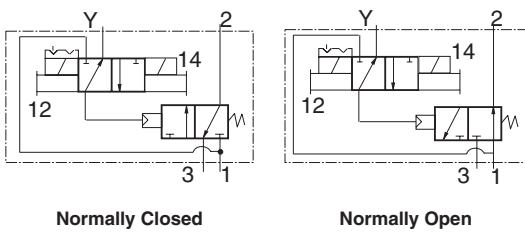
3-Way 2-Position Valves, Detented

Port Size			Body Size	Normally Closed		Normally Open		C _v				Average Response Constants**				Weight lb (kg)
1, 2	3	Valve Model Number#		Valve Model Number#		NC		NO		M	F		NO			
		NPT Threads		G Threads	NPT Threads	G Threads	1-2	2-3	1-2		2-3	1-2		2-3		
1/4	1/2	3/8	2773B2003W	D2773B2003W	2774B2003W	D2774B2003W	2.5	3.1	2.3	2.7	30	0.90	0.80	0.99	0.88	3.5 (1.6)
3/8	1/2	3/8	2773B3003W	D2773B3003W	2774B3003W	D2774B3003W	3.6	5.3	2.8	3.2	30	0.70	0.50	0.90	0.77	3.5 (1.6)
1/2	1/2	3/8	2773B4013W	D2773B4013W	2774B4013W	D2774B4013W	3.3	5.3	2.8	3.2	30	0.75	0.50	0.90	0.76	3.5 (1.6)
1/2	1	3/4	2773B4003W	D2773B4003W	2774B4003W	D2774B4003W	6.3	9.2	6.3	8.0	32	0.43	0.17	0.46	0.60	4.3 (1.9)
3/4	1	3/4	2773B5003W	D2773B5003W	2774B5003W	D2774B5003W	7.7	11	6.9	7.4	32	0.36	0.26	0.45	0.60	4.3 (1.9)
1	1	3/4	2773B6013W	D2773B6013W	2774B6013W	D2774B6013W	8	12	6.8	7.5	32	0.34	0.25	0.40	0.59	4.3 (1.9)
1	1 1/2	1 1/4	2773B6003W	D2773B6003W	2774B6003W	D2774B6003W	23	34	17	24	52	0.17	0.14	0.20	0.17	8.0 (3.6)
1 1/4	1 1/2	1 1/4	2773B7003W	D2773B7003W	2774B7003W	D2774B7003W	30	32	19	24	52	0.15	0.15	0.19	0.17	8.0 (3.6)
1 1/2	1 1/2	1 1/4	2773B8013W	D2773B8013W	2774B8013W	D2774B8013W	30	31	19	23	52	0.15	0.15	0.19	0.16	8.0 (3.6)

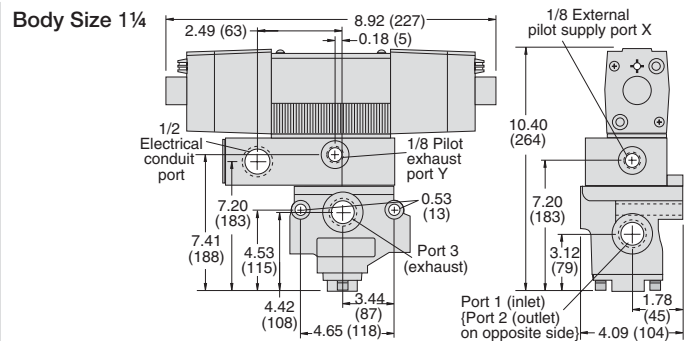
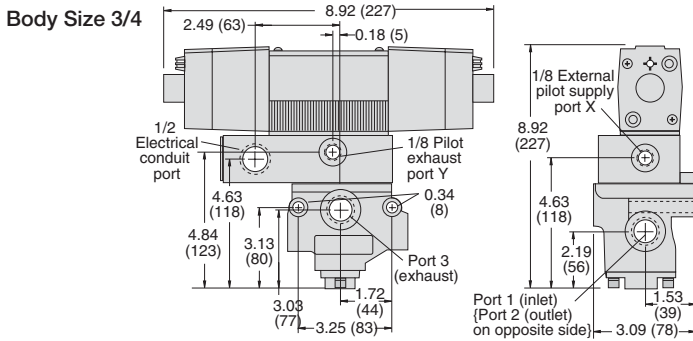
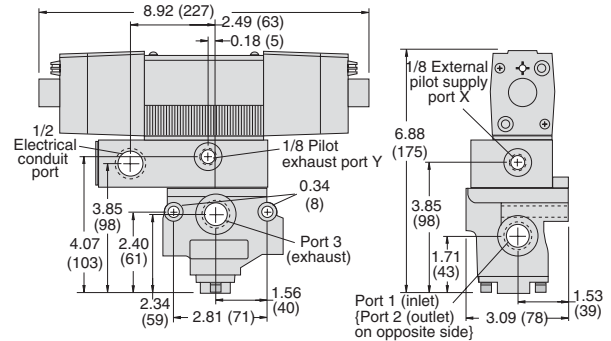
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2773B2003Z. For other voltages, consult ROSS.

** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)



Body Size 3/8



Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	15 to 150 psig (1 to 10 bar)
Solenoids	Rated for continuous duty		Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	20 watts on DC; 190 VA inrush, 40 VA holding on 50 or 60 Hz	Manual Override	Flush; rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		



Valves with EN (DIN) connector available, consult ROSS.
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section A.



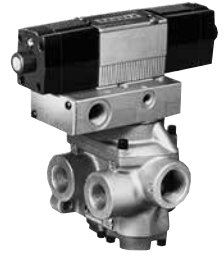
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Directional Control Valves

Direct Double Solenoid Controlled

27 Series

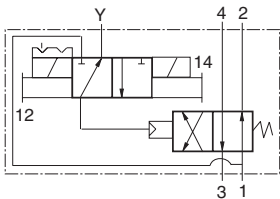


4-Way 2-Position Valves, Detented										
Port Size		Body Size	Valve Model Number#		C _v		Average Response Constants**			Weight lb (kg)
					1-2, 1-4	4-3, 2-3	M	F		
1, 2, 4	3	NPT Threads	G Threads	1-2, 1-4	4-3, 2-3	M	1-2, 1-4	4-3, 2-3		
1/4	1/2	3/8	2776B2003W	D2776B2003W	2.1	2.9	30	0.92	0.92	4.0 (1.8)
3/8	1/2	3/8	2776B3003W	D2776B3003W	2.9	4.2	30	0.90	0.90	4.0 (1.8)
1/2	1/2	3/8	2776B4013W	D2776B4013W	3.1	4.3	30	0.89	0.73	4.0 (1.8)
1/2	1	3/4	2776B4003W	D2776B4003W	5.6	8.1	46	0.50	0.66	6.3 (2.8)
3/4	1	3/4	2776B5003W	D2776B5003W	7.0	9.3	46	0.36	0.55	6.3 (2.8)
1	1	3/4	2776B6013W	D2776B6013W	7.8	10	46	0.35	0.50	6.3 (2.8)
1	1½	1¼	2776B6003W	D2776B6003W	19	26	99	0.17	0.22	12.3 (5.5)
1¼	1½	1¼	2776B7003W	D2776B7003W	21	27	99	0.16	0.18	12.3 (5.5)
1½	1½	1¼	2776B8013W	D2776B8013W	22	27	99	0.15	0.15	12.3 (5.5)

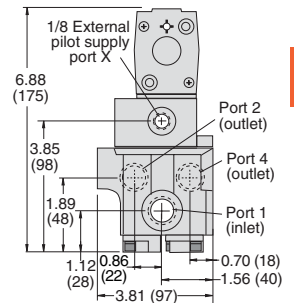
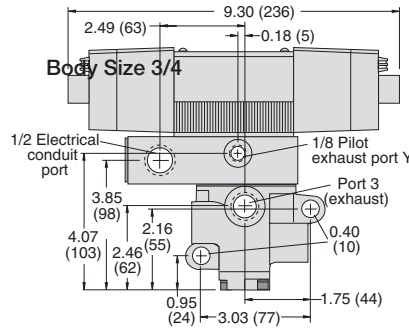
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2776B2003Z. For other voltages, consult ROSS.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

D2

Valve Dimensions – inches (mm)

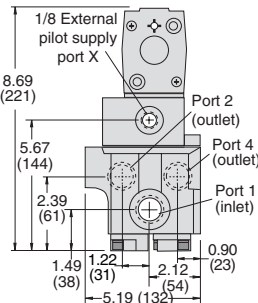
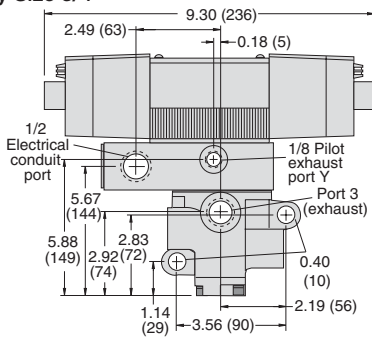


Body Size 3/8

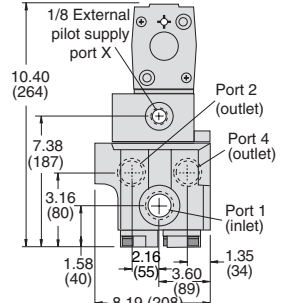
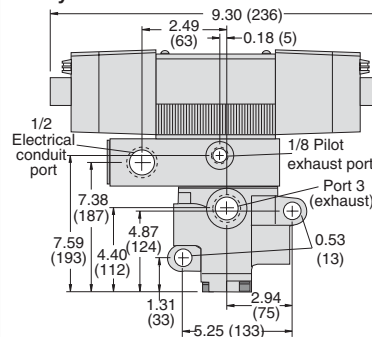


D

Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	15 to 150 psig (1 to 10 bar)
Solenoids	Rated for continuous duty		Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	20 watts on DC; 190 VA inrush, 40 VA holding on 50 or 60 Hz	Manual Override	Flush; rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		



Valves with EN (DIN) connector available, consult ROSS.
 For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section A.



IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



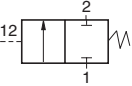
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D2.11

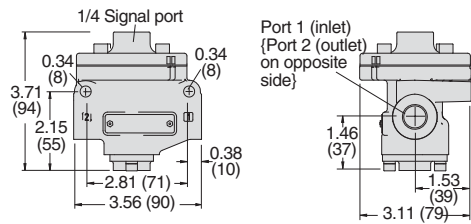
2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Normally Closed		Normally Open		C _v		Average Response Constants**		Weight lb (kg)	 Normally Closed	
		Valve Model Number		Valve Model Number		NC	NO	M	F			
		NPT Threads	G Threads	NPT Threads	G Threads				NC			NO
1/4	3/8	2751A2001	D2751A2001	2752A2001	D2752A2001	2.3	2.3	10	0.91	0.91	1.3 (0.6)	
3/8	3/8	2751A3001	D2751A3001	2752A3001	D2752A3001	3.8	3.3	10	0.70	0.76	1.3 (0.6)	
1/2	3/8	2751A4011	D2751A4011	2752A4011	D2752A4011	4.0	3.5	10	0.64	0.72	1.3 (0.6)	
1/2	3/4	2751A4001	D2751A4001	2752A4001	D2752A4001	7.7	6.5	14	0.37	0.43	2.0 (0.9)	
3/4	3/4	2751A5001	D2751A5001	2752A5001	D2752A5001	9.0	7.3	14	0.34	0.39	2.0 (0.9)	
1	3/4	2751A6011	D2751A6011	2752A6011	D2752A6011	9.0	7.9	14	0.34	0.37	2.0 (0.9)	
1	1 1/4	2751A6001	D2751A6001	2752A6001	D2752A6001	24	21	26	0.17	0.17	8.0 (3.6)	
1 1/4	1 1/4	2751A7001	D2751A7001	2752A7001	D2752A7001	29	20	26	0.15	0.19	8.0 (3.6)	
1 1/2	1 1/4	2751A8011	D2751A8011	2752A8011	D2752A8011	29	21	26	0.15	0.18	8.0 (3.6)	
1 1/2	2	2751A8001	D2751A8001	2752A8001	D2752A8001	49	49	41	0.09	0.09	14.3 (6.4)	
2	2	2751A9001	D2751A9001	2752A9001	D2752A9001	57	57	41	0.07	0.07	14.3 (6.4)	
2 1/2	2	2751A9011	D2751A9011	2752A9011	D2752A9011	64	72	41	0.07	0.06	14.3 (6.4)	

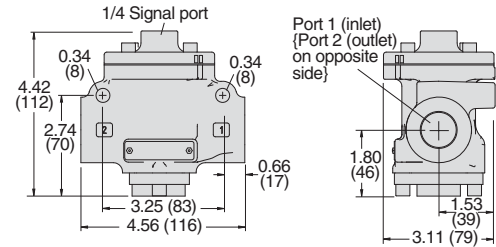
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

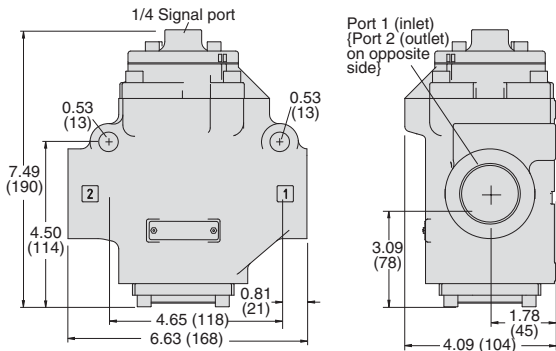
Body Size 3/8



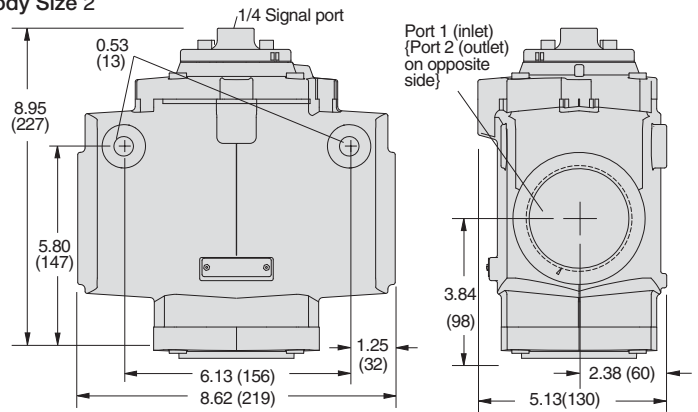
Body Size 3/4



Body Size 1 1/4



Body Size 2



Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	Body Size 3/8 & 1 1/2: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

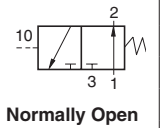
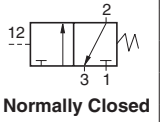


Directional Control Valves

Pressure Controlled

27 Series

3-Way 2-Position Valves, Spring Return																				
Port Size			Body Size	Normally Closed				Normally Open				C _v				Average Response Constants**				Weight lb (kg)
				Valve Model Number				Valve Model Number				NC		NO		F				
				NPT Threads		G Threads		NPT Threads		G Threads		1-2	2-3	1-2	2-3	M	NC		NO	
1/4	1/2	3/8	2753A2001	D2753A2001	2754A2001	D2754A2001	2.5	3.1	2.3	2.7	10	0.90	0.80	0.99	0.88	1.3 (0.6)				
3/8	1/2	3/8	2753A3001	D2753A3001	2754A3001	D2754A3001	3.6	5.3	2.8	3.2	10	0.70	0.50	0.90	0.77	1.3 (0.6)				
1/2	1/2	3/8	2753A4011	D2753A4011	2754A4011	D2754A4011	3.3	5.3	2.8	3.2	10	0.75	0.50	0.90	0.76	1.3 (0.6)				
1/2	1	3/4	2753A4001	D2753A4001	2754A4001	D2754A4001	6.3	9.2	6.3	8.0	12	0.43	0.17	0.46	0.60	2.0 (0.9)				
3/4	1	3/4	2753A5001	D2753A5001	2754A5001	D2754A5001	7.7	11	6.9	7.4	12	0.36	0.26	0.45	0.60	2.0 (0.9)				
1	1	3/4	2753A6011	D2753A6011	2754A6011	D2754A6011	8	12	6.8	7.5	12	0.34	0.25	0.40	0.59	2.0 (0.9)				
1	1 1/2	1 1/4	2753A6001	D2753A6001	2754A6001	D2754A6001	23	34	17	24	32	0.17	0.14	0.20	0.17	6.0 (2.7)				
1 1/4	1 1/2	1 1/4	2753A7001	D2753A7001	2754A7001	D2754A7001	30	32	19	24	32	0.15	0.15	0.19	0.17	6.0 (2.7)				
1 1/2	1 1/2	1 1/4	2753A8011	D2753A8011	2754A8011	D2754A8011	30	31	19	23	32	0.15	0.15	0.19	0.16	6.0 (2.7)				
1 1/2	2 1/2	2	2753A8001	D2753A8001	2754A8001	D2754A8001	68	70	57	59	76	0.05	0.04	0.07	0.04	15.3 (6.9)				
2	2 1/2	2	2753A9001	D2753A9001	2754A9001	D2754A9001	70	70	58	61	76	0.05	0.04	0.05	0.04	15.3 (6.9)				
2 1/2	2 1/2	2	2753A9011	D2753A9011	2754A9011	D2754A9011	70	71	54	55	76	0.05	0.04	0.05	0.04	15.3 (6.9)				

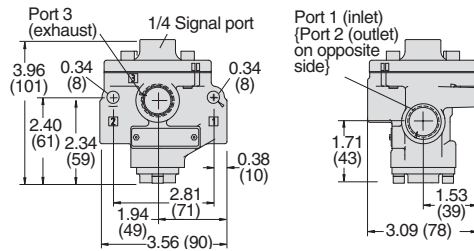


D2

** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

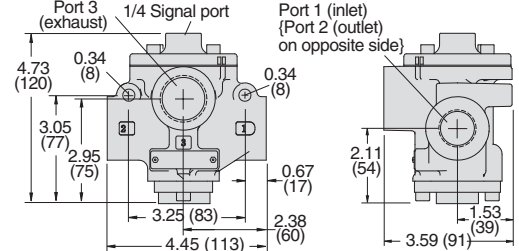
Valve Dimensions – inches (mm)

Body Size 3/8

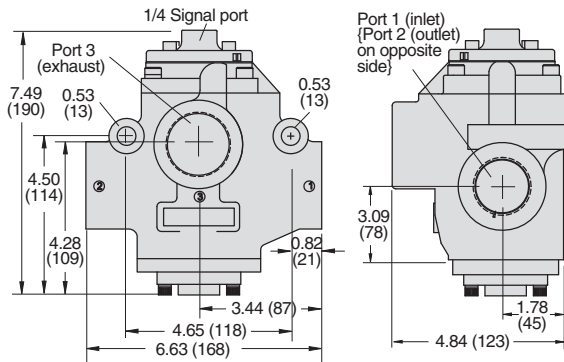


Body Size 3/4

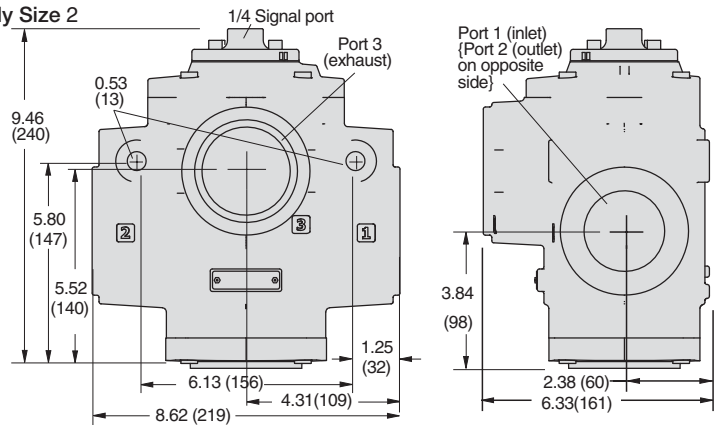
Body Size 3/4



Body Size 1 1/4



Body Size 2



Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	Body Size 3/8 & 1 1/2: 15 to 150 psig (1 to 10 bar) Body Size 2: 30 to 150 psig (2 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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D2.13

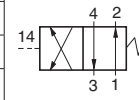
Directional Control Valves

Pressure Controlled

27 Series

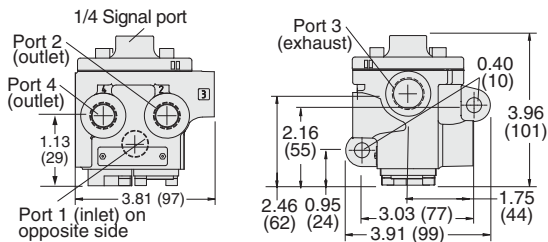
4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number		C _v		Average Response Constants**			Weight lb (kg)
1, 2, 4	3		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3	M	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2756A2001	D2756A2001	2.1	2.9	10	0.92	0.92	1.8 (0.8)
3/8	1/2	3/8	2756A3001	D2756A3001	2.9	4.2	10	0.90	0.90	1.8 (0.8)
1/2	1/2	3/8	2756A4011	D2756A4011	3.1	4.3	10	0.89	0.73	1.8 (0.8)
1/2	1	3/4	2756A4001	D2756A4001	5.6	8.1	26	0.50	0.66	4.3 (1.9)
3/4	1	3/4	2756A5001	D2756A5001	7.0	9.3	26	0.36	0.55	4.3 (1.9)
1	1	3/4	2756A6011	D2756A6011	7.8	10	26	0.35	0.50	4.3 (1.9)
1	1½	1¼	2756A6001	D2756A6001	19	26	79	0.22	0.22	10.3 (4.6)
1¼	1½	1¼	2756A7001	D2756A7001	21	27	79	0.18	0.18	10.3 (4.6)
1½	1½	1¼	2756A8011	D2756A8011	22	27	79	0.15	0.15	10.3 (4.6)

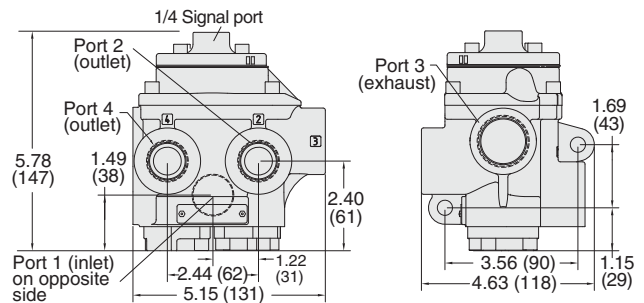


Valve Dimensions – inches (mm)

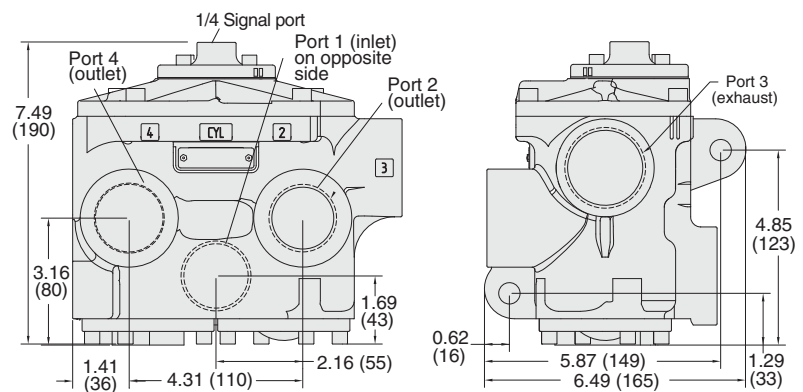
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

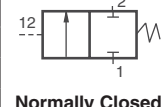
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Directional Control Valves – Pressure Controlled with Pressure Booster Adaptor

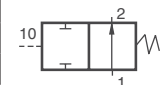
27 Series

Pressure Booster Adaptor: Increases the actuating force on the valve piston. It should be used when the inlet pressure exceeds the available signal pressure, or when the signal pressure is less than 15 psig (1 bar). The valve's signal pressure is applied to a piston in the pressure booster adaptor that has a larger area than the piston in the valve. The force on the piston in the adaptor is thereby larger than that which could be produced by the piston in the valve. This larger force is applied to the valve's piston directly so that there is then sufficient force to shift the valve properly.

2-Way 2-Position Valves, Spring Return									
Port Size	Body Size	Normally Closed		Normally Open		C _v		Dimension A inches (mm)	Weight lb (kg)
		Valve Model Number		Valve Model Number		NC	NO		
		NPT Threads	G Threads	NPT Threads	G Threads				
1, 2									
1/4	3/8	2751A2007	D2751A2007	2752A2007	D2752A2007	2.3	2.3	0.75 (19)	2.3 (1.1)
3/8	3/8	2751A3007	D2751A3007	2752A3007	D2752A3007	3.8	3.3	0.75 (19)	2.3 (1.1)
1/2	3/8	2751A4017	D2751A4017	2752A4017	D2752A4017	4.0	3.5	0.75 (19)	2.3 (1.1)
1/2	3/4	2751A4007	D2751A4007	2752A4007	D2752A4007	7.7	6.5	0.75 (19)	3.0 (1.4)
3/4	3/4	2751A5007	D2751A5007	2752A5007	D2752A5007	9.0	7.3	0.75 (19)	3.0 (1.4)
1	3/4	2751A6017	D2751A6017	2752A6017	D2752A6017	9.0	7.9	0.75 (19)	3.0 (1.4)
1	1 1/4	2751A6007	D2751A6007	2752A6007	D2752A6007	24	21	1.25 (32)	9.0 (4.1)
1 1/4	1 1/4	2751A7007	D2751A7007	2752A7007	D2752A7007	29	20	1.25 (32)	9.0 (4.1)
1 1/2	1 1/4	2751A8017	D2751A8017	2752A8017	D2752A8017	29	21	1.25 (32)	9.0 (4.1)



Normally Closed



Normally Open



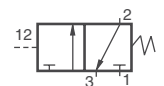
3-way PB Adaptor



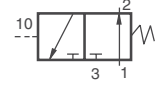
4-way PB Adaptor

D2

3-Way 2-Position Valves, Spring Return												
Port Size	Body Size	Normally Closed		Normally Open		Body Size 3/4"				Dimension A inches (mm)	Weight lb (kg)	
		Valve Model Number		Valve Model Number		NC		NO				
		NPT Threads	G Threads	NPT Threads	G Threads	1-2	2-3	1-2	2-3			
1, 2	3											
1/4	1/2	3/8	2753A2007	D2753A2007	2754A2007	D2754A2007	2.5	3.1	2.3	2.7	0.75 (19)	2.3 (1.1)
3/8	1/2	3/8	2753A3007	D2753A3007	2754A3007	D2754A3007	3.6	5.3	2.8	3.2	0.75 (19)	2.3 (1.1)
1/2	1/2	3/8	2753A4017	D2753A4017	2754A4017	D2754A4017	3.3	5.3	2.8	3.2	0.75 (19)	2.3 (1.1)
1/2	1	3/4	2753A4007	D2753A4007	2754A4007	D2754A4007	6.3	9.2	6.3	8.0	0.75 (19)	3.0 (1.4)
3/4	1	3/4	2753A5007	D2753A5007	2754A5007	D2754A5007	7.7	11	6.9	7.4	0.75 (19)	3.0 (1.4)
1	1	3/4	2753A6017	D2753A6017	2754A6017	D2754A6017	8	12	6.8	7.5	0.75 (19)	3.0 (1.4)
1	1 1/2	1 1/4	2753A6007	D2753A6007	2754A6007	D2754A6007	23	34	17	24	1.25 (32)	9.0 (4.1)
1 1/4	1 1/2	1 1/4	2753A7007	D2753A7007	2754A7007	D2754A7007	30	32	19	24	1.25 (32)	9.0 (4.1)
1 1/2	1 1/2	1 1/4	2753A8017	D2753A8017	2754A8017	D2754A8017	30	31	19	23	1.25 (32)	9.0 (4.1)



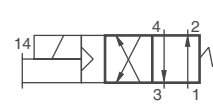
Normally Closed



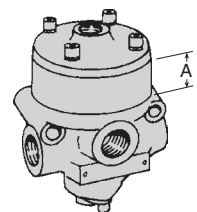
Normally Open

D

4-Way 2-Position Valves, Spring Return								
Port Size	Body Size	Valve Model Number		C _v		Dimension A inches (mm)	Weight lb (kg)	
		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3			
1, 2, 4	3							
1/4	1/2	3/8	2756A2007	D2756A2007	2.1	2.9	0.75 (19)	2.8 (1.3)
3/8	1/2	3/8	2756A3007	D2756A3007	2.9	4.2	0.75 (19)	2.8 (1.3)
1/2	1/2	3/8	2756A4017	D2756A4017	3.1	4.3	0.75 (19)	2.8 (1.3)
1/2	1	3/4	2756A4007	D2756A4007	5.6	8.1	0.75 (19)	5.3 (2.4)
3/4	1	3/4	2756A5007	D2756A5007	7.0	9.3	0.75 (19)	5.3 (2.4)
1	1	3/4	2756A6017	D2756A6017	7.8	10	0.75 (19)	5.3 (2.4)
1	1 1/2	1 1/4	2756A6007	D2756A6007	19	26	1.25 (32)	11.3 (5.2)
1 1/4	1 1/2	1 1/4	2756A7007	D2756A7007	21	27	1.25 (32)	11.3 (5.2)
1 1/2	1 1/2	1 1/4	2756A8017	D2756A8017	22	27	1.25 (32)	11.3 (5.2)



Detailed dimensions, see corresponding valves models pages.



Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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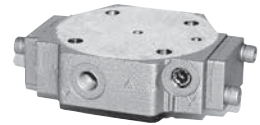
D2.15

Directional Control Valves – Pressure Controlled with Air Index Adaptor

27 Series

Air Index Adaptor: Allows a valve with a single signal source to function as an impulse controlled, mechanically detented valve.

A momentary pressure signal shifts and holds the valve. A second momentary pressure signal from the same source returns the valve to its original position.



3-Way 2-Position Valves, Spring Return

Port Size			Body Size	Valve Model Number		C _v		Weight lb (kg)	Diagram
1, 2	3	NPT Threads		G Threads	1-2	2-3			
1/4	1/2	3/8	2783A2001	D2783A2001	2.5	3.1	2.3 (1.1)		
3/8	1/2	3/8	2783A3001	D2783A3001	3.6	5.3	2.3 (1.1)		
1/2	1/2	3/8	2783A4011	D2783A4011	3.3	5.3	2.3 (1.1)		
1/2	1	3/4	2783A4001	D2783A4001	6.3	9.2	3.0 (1.4)		
3/4	1	3/4	2783A5001	D2783A5001	7.7	11	3.0 (1.4)		
1	1	3/4	2783A6011	D2783A6011	8	12	3.0 (1.4)		
1	1½	1¼	2783A6001	D2783A6001	23	34	9.0 (4.1)		
1¼	1½	1¼	2783A7001	D2783A7001	30	32	9.0 (4.1)		
1½	1½	1¼	2783A8011	D2783A8011	30	31	9.0 (4.1)		

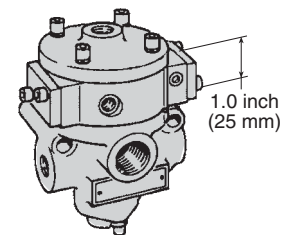
D2

4-Way 2-Position Valves, Spring Return

Port Size				Body Size	Valve Model Number		C _v		Weight lb (kg)	Diagram
1, 2, 4	3	NPT Threads	G Threads		1-2, 1-4	4-3, 2-3				
1/4	1/2	3/8	2786A2001	D2786A2001	2.1	2.9	2.8 (1.3)			
3/8	1/2	3/8	2786A3001	D2786A3001	2.9	4.2	2.8 (1.3)			
1/2	1/2	3/8	2786A4011	D2786A4011	3.1	4.3	2.8 (1.3)			
1/2	1	3/4	2786A4001	D2786A4001	5.6	8.1	5.3 (2.4)			
3/4	1	3/4	2786A5001	D2786A5001	7.0	9.3	5.3 (2.4)			
1	1	3/4	2786A6011	D2786A6011	7.8	10	5.3 (2.4)			
1	1½	1¼	2786A6001	D2786A6001	19	26	11.3 (5.2)			
1¼	1½	1¼	2786A7001	D2786A7001	21	27	11.3 (5.2)			
1½	1½	1¼	2786A8011	D2786A8011	22	27	11.3 (5.2)			

D

Detailed dimensions, see corresponding valves models pages.



Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	40 to 150 psig (2.8 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Directional Control Valves – Pressure Controlled with Timed Sequence Adaptors

27 Series

Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle.

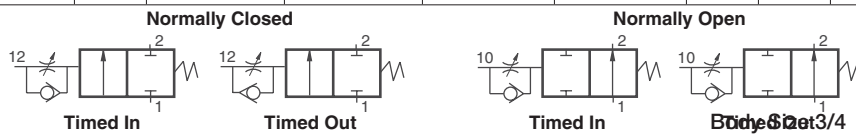


Timed-Out Adaptor



Dual Timed Adaptor

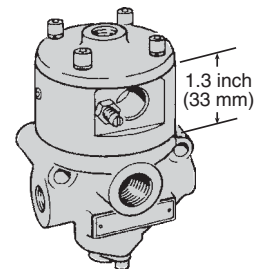
2-Way 2-Position Valves, Spring Return								
Port Size	Body Size	Normally Closed		Normally Open		C _v		Weight lb (kg)
		Valve Model Number*		Valve Model Number*		NC	NO	
		Timed In	Timed Out	Timed In	Timed Out			
1/4	3/8	2751A2002	2751A2003	2752A2002	2752A2003	2.3	2.3	2.3 (1.1)
3/8	3/8	2751A3002	2751A3003	2752A3002	2752A3003	3.8	3.3	2.3 (1.1)
1/2	3/8	2751A4012	2751A4013	2752A4012	2752A4013	4.0	3.5	2.3 (1.1)
1/2	3/4	2751A4002	2751A4003	2752A4002	2752A4003	7.7	6.5	3.0 (1.4)
3/4	3/4	2751A5002	2751A5003	2752A5002	2752A5003	9.0	7.3	3.0 (1.4)
1	3/4	2751A6012	2751A6013	2752A6012	2752A6013	9.0	7.9	3.0 (1.4)
1	1 1/4	2751A6002	2751A6003	2752A6002	2752A6003	24	21	9.0 (4.1)
1 1/4	1 1/4	2751A7002	2751A7003	2752A7002	2752A7003	29	20	9.0 (4.1)
1 1/2	1 1/4	2751A8012	2751A8013	2752A8012	2752A8013	29	21	9.0 (4.1)



3-Way 2-Position Valves, Spring Return												
Port Size	Body Size	Normally Closed		Normally Open		C _v				Weight lb (kg)		
		Valve Model Number*		Valve Model Number*		NC		NO				
		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3			
1/4	1/2	3/8	2753A2002	2753A2003	2754A2002	2754A2003	2.5	3.1	2.3	2.7	2.3 (1.1)	
3/8	1/2	3/8	2753A3002	2753A3003	2754A3002	2754A3003	3.6	5.3	2.8	3.2	2.3 (1.1)	
1/2	1/2	3/8	2753A4012	2753A4013	2754A4012	2754A4013	3.3	5.3	2.8	3.2	2.3 (1.1)	
1/2	1	3/4	2753A4002	2753A4003	2754A4002	2754A4003	6.3	9.2	6.3	8.0	3.0 (1.4)	
3/4	1	3/4	2753A5002	2753A5003	2754A5002	2754A5003	7.7	11	6.9	7.4	3.0 (1.4)	
1	1	3/4	2753A6012	2753A6013	2754A6012	2754A6013	8	12	6.8	7.5	3.0 (1.4)	
1	1 1/2	1 1/4	2753A6002	2753A6003	2754A6002	2754A6003	23	34	17	24	9.0 (4.1)	
1 1/4	1 1/2	1 1/4	2753A7002	2753A7003	2754A7002	2754A7003	30	32	19	24	9.0 (4.1)	
1 1/2	1 1/2	1 1/4	2753A8012	2753A8013	2754A8012	2754A8013	30	31	19	23	9.0 (4.1)	



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For G threads add a "D" prefix to the model number e.g., D2751A2002.

OPERATION : **Timed In Adaptor:** Air signal applied; after preset time delay valve is actuated. Air signal removed; valve immediately deactivated.
Timed Out Adaptor: Air signal applied; valve immediately actuated. Air signal removed; after preset delay valve is deactivated.

Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Adjustable Time Delay	Up to 30 seconds
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



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Directional Control Valves – Pressure Controlled with Timed Sequence & Timed Sequence Extension Adaptors

27 Series

D2

D

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Normally Closed		Normally Open		C _v		Weight lb (kg)
		Valve Model Number*		Valve Model Number*		NC	NO	
		Timed In	Timed Out	Timed In	Timed Out			
1/4	3/8	2781A2002	2781A2003	2782A2002	2782A2003	2.3	2.3	2.3 (1.1)
3/8	3/8	2781A3002	2781A3003	2782A3002	2782A3003	3.8	3.3	2.3 (1.1)
1/2	3/8	2781A4012	2781A4013	2782A4012	2782A4013	4.0	3.5	2.3 (1.1)
1/2	3/4	2781A4002	2781A4003	2782A4002	2782A4003	7.7	6.5	3.0 (1.4)
3/4	3/4	2781A5002	2781A5003	2782A5002	2782A5003	9.0	7.3	3.0 (1.4)
1	3/4	2781A6012	2781A6013	2782A6012	2782A6013	9.0	7.9	3.0 (1.4)
1	1 1/4	2781A6002	2781A6003	2782A6002	2782A6003	24	21	9.0 (4.1)
1 1/4	1 1/4	2781A7002	2781A7003	2782A7002	2782A7003	29	20	9.0 (4.1)
1 1/2	1 1/4	2781A8012	2781A8013	2782A8012	2782A8013	29	21	9.0 (4.1)

Timed-Out Adaptor

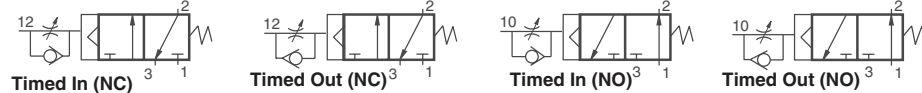


3-Way 2-Position Valves, Spring Return

Port Size	Body Size	Normally Closed		Normally Open		C _v				Weight lb (kg)	
		Valve Model Number*		Valve Model Number*		NC		NO			
		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3		
1/4	1/2	3/8	2783A2002	2783A2003	2784A2002	2784A2003	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2783A3002	2783A3003	2784A3002	2784A3003	3.6	5.3	2.8	3.2	2.3 (1.1)
1/2	1/2	3/8	2783A4012	2783A4013	2784A4012	2784A4013	3.3	5.3	2.8	3.2	2.3 (1.1)
1/2	1	3/4	2783A4002	2783A4003	2784A4002	2784A4003	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2783A5002	2783A5003	2784A5002	2784A5003	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2783A6012	2783A6013	2784A6012	2784A6013	8	12	6.8	7.5	3.0 (1.4)
1	1 1/2	1 1/4	2783A6002	2783A6003	2784A6002	2784A6003	23	34	17	24	9.0 (4.1)
1 1/4	1 1/2	1 1/4	2783A7002	2783A7003	2784A7002	2784A7003	30	32	19	24	9.0 (4.1)
1 1/2	1 1/2	1 1/4	2783A8012	2783A8013	2784A8012	2784A8013	30	31	19	23	9.0 (4.1)

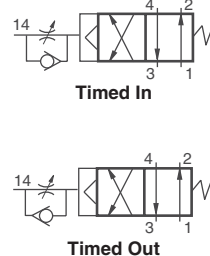
Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle. Longer time delays can be obtained by using this adaptor in conjunction with the timed sequence extension adaptor.

Timed Sequence Extension Adaptor: Used in conjunction with the timed sequence adaptor to extend the delay interval up to 60 seconds. It also helps to obtain "snap" action of the valve by keeping pilot or signal air off the main valve piston until the pressure has built high enough to cause prompt valve response. Air line lubrication is required with this adaptor.

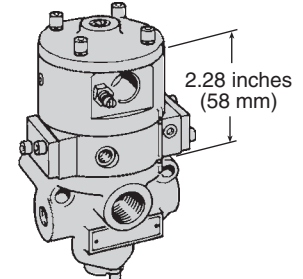


4-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*		C _v		Weight lb (kg)	
		Timed In	Timed Out	1-2, 1-4	4-3, 2-3		
1/4	1/2	3/8	2786A2002	2786A2003	2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2786A3002	2786A3003	2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2786A4012	2786A4013	3.1	4.3	2.8 (1.3)
1/2	1	3/4	2786A4002	2786A4003	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2786A5002	2786A5003	7.0	9.3	5.3 (2.4)
1	1	3/4	2786A6012	2786A6013	7.8	10	5.3 (2.4)
1	1 1/2	1 1/4	2786A6002	2786A6003	19	26	11.3 (5.2)
1 1/4	1 1/2	1 1/4	2786A7002	2786A7003	21	27	11.3 (5.2)
1 1/2	1 1/2	1 1/4	2786A8012	2786A8013	22	27	11.3 (5.2)



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For G threads add a "D" prefix to the model number e.g., D2781B2002.

Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Adjustable Time Delay	Up to 60 seconds
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Directional Control Valves – Pressure Controlled with Timed In/Out Sequence Adaptor

27 Series

Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle.



2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Normally Closed		Normally Open		C _v		Weight lb (kg)
		Valve Model Number		Valve Model Number		NC	NO	
		NPT Threads	G Threads	NPT Threads	G Threads			
1/4	3/8	2751B2008	D2751B2008	2752B2008	D2752B2008	2.3	2.3	2.3 (1.1)
3/8	3/8	2751B3008	D2751B3008	2752B3008	D2752B3008	3.8	3.3	2.3 (1.1)
1/2	3/8	2751B4018	D2751B4018	2752B4018	D2752B4018	4.0	3.5	2.3 (1.1)
1/2	3/4	2751B4008	D2751B4008	2752B4008	D2752B4008	7.7	6.5	3.0 (1.4)
3/4	3/4	2751B5008	D2751B5008	2752B5008	D2752B5008	9.0	7.3	3.0 (1.4)
1	3/4	2751B6018	D2751B6018	2752B6018	D2752B6018	9.0	7.9	3.0 (1.4)
1	1¼	2751B6008	D2751B6008	2752B6008	D2752B6008	24	21	9.0 (4.1)
1¼	1¼	2751B7008	D2751B7008	2752B7008	D2752B7008	29	20	9.0 (4.1)
1½	1¼	2751B8018	D2751B8018	2752B8018	D2752B8018	29	21	9.0 (4.1)

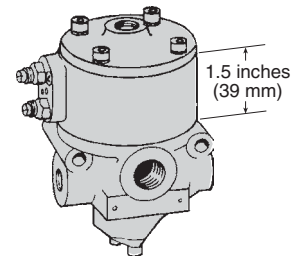


3-Way 2-Position Valves, Spring Return

Port Size	Body Size	Normally Closed		Normally Open		C _v				Weight lb (kg)	
		Valve Model Number		Valve Model Number		NC		NO			
		NPT Threads	G Threads	NPT Threads	G Threads	1-2	2-3	1-2	2-3		
1/4	1/2	3/8	2753B2008	D2753B2008	2754B2008	D2754B2008	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2753B3008	D2753B3008	2754B3008	D2754B3008	3.6	5.3	28	3.2	2.3 (1.1)
1/2	1/2	3/8	2753B4018	D2753B4018	2754B4018	D2754B4018	3.3	5.3	28	3.2	2.3 (1.1)
1/2	1	3/4	2753B4008	D2753B4008	2754B4008	D2754B4008	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2753B5008	D2753B5008	2754B5008	D2754B5008	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2753B6018	D2753B6018	2754A6018	D2754A6018	8	12	6.8	7.5	3.0 (1.4)
1	1½	1¼	2753B6008	D2753B6008	2754B6008	D2754B6008	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2753B7008	D2753B7008	2754B7008	D2754B7008	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2753B8018	D2753B8018	2754B8018	D2754B8018	30	31	19	23	9.0 (4.1)



Detailed dimensions, see corresponding valves models pages.



OPERATION :

Timed In Adaptor: Air signal applied; after preset time delay valve is actuated. Air signal removed; valve immediately deactivated.

Timed Out Adaptor: Air signal applied; valve immediately actuated. Air signal removed; after preset delay valve is deactivated.

Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10 bar)
Mounting Type	In-line	Pilot Supply	Pilot supply pressure must be equal to or greater than inlet pressure.
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Adjustable Time Delay	Up to 30 seconds
Flow Media	Filtered air	Safety Integrity Level (SIL)	Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Pressure - Inlet	15 to 150 psig (1 to 10 bar)		
Pilot Supply	External		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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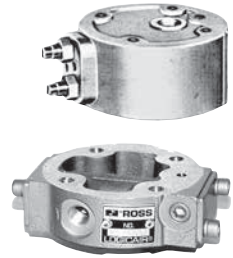
D2.19

Directional Control Valves – Pressure Controlled

with Timed-In/Out Sequence & Timed Sequence Extension Adaptors

27 Series

Timed-In/Out Sequence & Timed Sequence Extension Adaptors: Used in conjunction can increase the time delay interval up to 60 seconds. It also helps to obtain “snap” action of the valve. By keeping pilot air off the main valve piston until the pressure has built high enough to ensure prompt valve response, the timed sequence extension adaptor prevents the piston from creeping.



D2

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Normally Closed		Normally Open		C _v		Weight lb (kg)	 Normally Closed
		Valve Model Number		Valve Model Number		NC	NO		
		NPT Threads	G Threads	NPT Threads	G Threads				
1/4	3/8	2781B2005	D2781B2005	2782B2005	D2782B2005	2.3	2.3	2.3 (1.1)	 Normally Open
3/8	3/8	2781B3005	D2781B3005	2782B3005	D2782B3005	3.8	3.3	2.3 (1.1)	
1/2	3/8	2781B4015	D2781B4015	2782B4015	D2782B4015	4.0	3.5	2.3 (1.1)	 Normally Open
1/2	3/4	2781B4005	D2781B4005	2782B4005	D2782B4005	7.7	6.5	3.0 (1.4)	
3/4	3/4	2781B5005	D2781B5005	2782B5005	D2782B5005	9.0	7.3	3.0 (1.4)	 Normally Open
1	3/4	2781B6015	D2781B6015	2782B6015	D2782B6015	9.0	7.9	3.0 (1.4)	
1	1 1/4	2781B6005	D2781B6005	2782B6005	D2782B6005	24	21	9.0 (4.1)	 Normally Open
1 1/4	1 1/4	2781B7005	D2781B7005	2782B7005	D2782B7005	29	20	9.0 (4.1)	
1 1/2	1 1/4	2781B8015	D2781B8015	2782B8015	D2782B8015	29	21	9.0 (4.1)	 Normally Open

3-Way 2-Position Valves, Spring Return

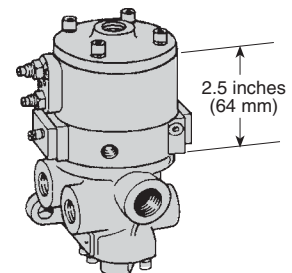
Port Size	Body Size	Normally Closed		Normally Open		C _v				Weight lb (kg)	 Normally Closed	
		Valve Model Number		Valve Model Number		NC		NO				
		NPT Threads	G Threads	NPT Threads	G Threads	1-2	2-3	1-2	2-3			
1/4	1/2	3/8	2783B2005	D2783B2005	2784B2005	D2784B2005	2.5	3.1	2.3	2.7	2.3 (1.1)	 Normally Open
3/8	1/2	3/8	2783B3005	D2783B3005	2784B3005	D2784B3005	3.6	5.3	2.8	3.2	2.3 (1.1)	
1/2	1/2	3/8	2783B4015	D2783B4015	2784B4015	D2784B4015	3.3	5.3	2.8	3.2	2.3 (1.1)	 Normally Open
1/2	1	3/4	2783B4005	D2783B4005	2784B4005	D2784B4005	6.3	9.2	6.3	8.0	3.0 (1.4)	
3/4	1	3/4	2783B5005	D2783B5005	2784B5005	D2784B5005	7.7	11	6.9	7.4	3.0 (1.4)	 Normally Open
1	1	3/4	2783B6015	D2783B6015	2784B6015	D2784B6015	8	12	6.8	7.5	3.0 (1.4)	
1	1 1/2	1 1/4	2783B6005	D2783B6005	2784B6005	D2784B6005	23	34	17	24	9.0 (4.1)	 Normally Open
1 1/4	1 1/2	1 1/4	2783B7005	D2783B7005	2784B7005	D2784B7005	30	32	19	24	9.0 (4.1)	
1 1/2	1 1/2	1 1/4	2783B8015	D2783B8015	2784B8015	D2784B8015	30	31	19	23	9.0 (4.1)	 Normally Open

D

4-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number		C _v		Weight lb (kg)	
		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3		
1/4	1/2	3/8	2786B2005	D2786B2005	2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2786B3005	D2786B3005	2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2786B4015	D2786B4015	3.1	4.3	2.8 (1.3)
1/2	1	3/4	2786B4005	D2786B4005	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2786B5005	D2786B5005	7.0	9.3	5.3 (2.4)
1	1	3/4	2786B6015	D2786B6015	7.8	10	5.3 (2.4)
1	1 1/2	1 1/4	2786B6005	D2786B6005	19	26	11.3 (5.2)
1 1/4	1 1/2	1 1/4	2786B7005	D2786B7005	21	27	11.3 (5.2)
1 1/2	1 1/2	1 1/4	2786B8015	D2786B8015	22	27	11.3 (5.2)

Detailed dimensions, see corresponding valves models pages.



Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Adjustable Time Delay	Up to 60 seconds
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	Internal or External		
Operating Pressure	15 to 150 psig (1 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Directional Control Valves – Pressure Controlled with Inlet Port Controlled Timed-In Sequence Adaptor

27 Series

Inlet Port Controlled Timed-In Sequence Adaptor: Permits valve actuation and deactuation to be controlled by the pressure at the inlet port. When pressure is applied an internal passage conducts the pressure to the sequence adaptor. After the preset time delay, the valve is actuated. When pressure is removed from the inlet port the valve is deactivated.

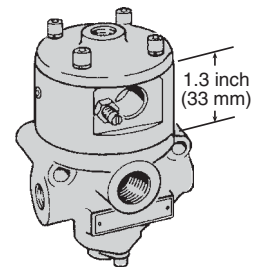


2-Way 2-Position Valves, Spring Return									
Port Size	Body Size	Normally Closed		Normally Open		C _v		Weight lb (kg)	Diagram
		Valve Model Number		Valve Model Number		NC	NO		
1, 2		NPT Threads	G Threads	NPT Threads	G Threads				
1/4	3/8	2751A2004	D2751A2004	2752A2004	D2752A2004	2.3	2.3	2.3 (1.1)	Normally Closed
3/8	3/8	2751A3004	D2751A3004	2752A3004	D2752A3004	3.8	3.3	2.3 (1.1)	
1/2	3/8	2751A4014	D2751A4014	2752A4014	D2752A4014	4.0	3.5	2.3 (1.1)	Normally Open
1/2	3/4	2751A4004	D2751A4004	2752A4004	D2752A4004	7.7	6.5	3.0 (1.4)	
3/4	3/4	2751A5004	D2751A5004	2752A5004	D2752A5004	9.0	7.3	3.0 (1.4)	Normally Open
1	3/4	2751A6014	D2751A6014	2752A6014	D2752A6014	9.0	7.9	3.0 (1.4)	
1	1 1/4	2751A6004	D2751A6004	2752A6004	D2752A6004	24	21	9.0 (4.1)	Normally Open
1 1/4	1 1/4	2751A7004	D2751A7004	2752A7004	D2752A7004	29	20	9.0 (4.1)	
1 1/2	1 1/4	2751A8014	D2751A8014	2752A8014	2752A8014	29	21	9.0 (4.1)	

3-Way 2-Position Valves, Spring Return												
Port Size	Body Size	Normally Closed		Normally Open		C _v				Weight lb (kg)	Diagram	
		Valve Model Number		Valve Model Number		Body Size 3/4		NO				
1, 2	3	NPT Threads	G Threads	NPT Threads	G Threads	1-2	2-3	1-2	2-3			
1/4	1/2	3/8	2753A2004	D2753A2004	2754A2004	D2753A2004	2.5	3.1	2.3	2.7	2.3 (1.1)	Normally Closed
3/8	1/2	3/8	2753A3004	D2753A3004	2754A3004	D2753A3004	3.6	5.3	2.8	3.2	2.3 (1.1)	
1/2	1/2	3/8	2753A4014	D2753A4014	2754A4014	D2753A4014	3.3	5.3	2.8	3.2	2.3 (1.1)	Normally Open
1/2	1	3/4	2753A4004	D2753A4004	2754A4004	D2753A4004	6.3	9.2	6.3	8.0	3.0 (1.4)	
3/4	1	3/4	2753A5004	D2753A5004	2754A5004	D2753A5004	7.7	11	6.9	7.4	3.0 (1.4)	Normally Open
1	1	3/4	2753A6014	D2753A6014	2754A6014	D2753A6014	8	12	6.8	7.5	3.0 (1.4)	
1	1 1/2	1 1/4	2753A6004	D2753A6004	2754A6004	D2753A6004	23	34	17	24	9.0 (4.1)	Normally Open
1 1/4	1 1/2	1 1/4	2753A7004	D2753A7004	2754A7004	D2753A7004	30	32	19	24	9.0 (4.1)	
1 1/2	1 1/2	1 1/4	2753A8014	D2753A8014	2754A8014	D2753A8014	30	31	19	23	9.0 (4.1)	

4-Way 2-Position Valves, Spring Return								
Port Size	Body Size	Valve Model Number		C _v		Weight lb (kg)	Diagram	
		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3			
1, 2, 4	3							
1/4	1/2	3/8	2756A2004	D2756A2004	2.1	2.9	2.8 (1.3)	
3/8	1/2	3/8	2756A3004	D2756A3004	2.9	4.2	2.8 (1.3)	
1/2	1/2	3/8	2756A4014	D2756A4014	3.1	4.3	2.8 (1.3)	
1/2	1	3/4	2756A4004	D2756A4004	5.6	8.1	5.3 (2.4)	
3/4	1	3/4	2756A5004	D2756A5004	7.0	9.3	5.3 (2.4)	
1	1	3/4	2756A6014	D2756A6014	7.8	10	5.3 (2.4)	
1	1 1/2	1 1/4	2756A6004	D2756A6004	19	26	11.3 (5.2)	
1 1/4	1 1/2	1 1/4	2756A7004	D2756A7004	21	27	11.3 (5.2)	
1 1/2	1 1/2	1 1/4	2756A8014	D2756A8014	22	27	11.3 (5.2)	

Detailed dimensions, see corresponding valves models pages.



Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Adjustable Time Delay	2/2 Valves: Up to 30 seconds 3/2, 4/2 Valves: Up to 3 seconds
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



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D2.21

Directional Control Valves – Pressure Controlled

with Inlet Port Controlled Timed-In Sequence & Timed Sequence Extension Adaptors **27 Series**

Inlet Port Controlled Timed-In Sequence Adaptor: Permits valve actuation and deactuation to be controlled by the pressure at the inlet port. When pressure is applied an internal passage conducts the pressure to the sequence adaptor. After the preset time delay, the valve is actuated. When pressure is removed from the inlet port the valve is deactivated.

Timed Sequence Extension Adaptor: Increases the maximum time delay interval to 60 seconds. It also helps to obtain “snap” action of the valve. By keeping pressure off the main valve piston until it is high enough to ensure prompt valve response, the timed sequence extension adaptor prevents the piston from creeping.



D2

2-Way 2-Position Valves, Spring Return

Port Size 1, 2	Body Size	Normally Closed		Normally Open		C _v		Weight lb (kg)	 Normally Closed
		Valve Model Number		Valve Model Number		NC	NO		
		NPT Threads	G Threads	NPT Threads	G Threads				
1/4	3/8	2781A2004	D2781A2004	2782A2004	D2782A2004	2.3	2.3	2.3 (1.1)	 Normally Open
3/8	3/8	2781A3004	D2781A3004	2782A3004	D2782A3004	3.8	3.3	2.3 (1.1)	
1/2	3/8	2781A4014	D2781A4014	2782A4014	D2782A4014	4.0	3.5	2.3 (1.1)	
1/2	3/4	2781A4004	D2781A4004	2782A4004	D2782A4004	7.7	6.5	3.0 (1.4)	
3/4	3/4	2781A5004	D2781A5004	2782A5004	D2782A5004	9.0	7.3	3.0 (1.4)	
1	3/4	2781A6014	D2781A6014	2782A6014	D2782A6014	9.0	7.9	3.0 (1.4)	
1	1 1/4	2781A6004	D2781A6004	2782A6004	D2782A6004	24	21	9.0 (4.1)	
1 1/4	1 1/4	2781A7004	D2781A7004	2782A7004	D2782A7004	29	20	9.0 (4.1)	
1 1/2	1 1/4	2781A8014	D2781A8014	2782A8014	D2782A8014	29	21	9.0 (4.1)	

D

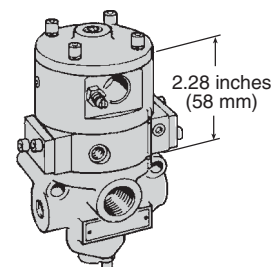
3-Way 2-Position Valves, Spring Return

Port Size 1, 2, 3	Body Size	Normally Closed		Normally Open		C _v				Weight lb (kg)	 Normally Closed	
		Valve Model Number		Valve Model Number		NC		NO				
		NPT Threads	G Threads	NPT Threads	G Threads	1-2	2-3	1-2	2-3			
1/4	1/2	3/8	2783A2004	D2783A2004	2784A2004	D2784A2004	2.5	3.1	2.3	2.7	2.3 (1.1)	 Normally Open
3/8	1/2	3/8	2783A3004	D2783A3004	2784A3004	D2784A3004	3.6	5.3	2.8	3.2	2.3 (1.1)	
1/2	1/2	3/8	2783A4014	D2783A4014	2784A4014	D2784A4014	3.3	5.3	2.8	3.2	2.3 (1.1)	
1/2	1	3/4	2783A4004	D2783A4004	2784A4004	D2784A4004	6.3	9.2	6.3	8.0	3.0 (1.4)	
3/4	1	3/4	2783A5004	D2783A5004	2784A5004	D2784A5004	7.7	11	6.9	7.4	3.0 (1.4)	
1	1	3/4	2783A6014	D2783A6014	2784A6014	D2784A6014	8	12	6.8	7.5	3.0 (1.4)	
1	1 1/2	1 1/4	2783A6004	D2783A6004	2784A6004	D2784A6004	23	34	17	24	9.0 (4.1)	
1 1/4	1 1/2	1 1/4	2783A7004	D2783A7004	2784A7004	D2784A7004	30	32	19	24	9.0 (4.1)	
1 1/2	1 1/2	1 1/4	2783A8014	D2783A8014	2784A8014	D2784A8014	30	31	19	23	9.0 (4.1)	

4-Way 2-Position Valves, Spring Return

Port Size 1, 2, 4, 3	Body Size	Valve Model Number		C _v		Weight lb (kg)	
		NPT Threads	G Threads	1-2, 1-4	4-3, 2-3		
1/4	1/2	3/8	2786A2004	D2786A2004	2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2786A3004	D2786A3004	2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2786A4014	D2786A4014	3.1	4.3	2.8 (1.3)
1/2	1	3/4	2786A4004	D2786A4004	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2786A5004	D2786A5004	7.0	9.3	5.3 (2.4)
1	1	3/4	2786A6014	D2786A6014	7.8	10	5.3 (2.4)
1	1 1/2	1 1/4	2786A6004	D2786A6004	19	26	11.3 (5.2)
1 1/4	1 1/2	1 1/4	2786A7004	D2786A7004	21	27	11.3 (5.2)
1 1/2	1 1/2	1 1/4	2786A8014	D2786A8014	22	27	11.3 (5.2)

Detailed dimensions, see corresponding valves models pages.



Silencers ordered separately, refer to page D2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Adjustable Time Delay	Up to 60 seconds
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10 bar) Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

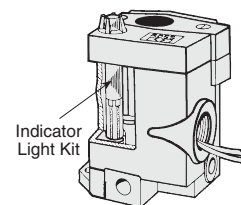
Indicator Light Kits

To visually verify valve operation indicator lights are available in kit form. The indicator light extends through the solenoid or pilot cover and is illuminated when the solenoid is energized. Such lights are standard on double solenoid valves.

Indicator light kits are available for single solenoid models.

Kit Number		
24 volts DC	110-120 volts AC 50-60 Hz	220 volts 50-60 Hz
862K87-W	862K87-Z	862K87-Y

Indicator Light




Indicator Light Kit


D2


Manual Override Kits

Flush flexible manual overrides are standard on single solenoid models. Double solenoid models have flush metal-button overrides. Both types are non-locking.

Each of the buttons in the override kits below is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

Flush Button		
Locking Type	Kit Number	
Non-Locking	790K87	
Locking	792K87	

Extended Button		
Locking Type	Kit Number	
Non-Locking	791K87	

Extended Button with Palm		
Locking Type	Kit Number	
Non-Locking	984H87	

D

Electrical Connector

Valves available with installed prewired connectors, consult ROSS.

System 8 Solenoid Pilot

Models available with preinstalled System 8 solenoid pilot, consult ROSS.

Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.

Port size 1/4 thru 2



Port size 2½





DIRECTIONAL CONTROL POPPET VALVES

21 SERIES

**HIGH TEMPERATURE AND
LOW TEMPERATURE APPLICATIONS**



ROSS CONTROLS

POPPET 21 SERIES VALVES – KEY FEATURES

- Low weight; compact size
- Available with choices of internal components for three different temperature ranges
- Can be mounted close to actuator, reducing length of pipe to be pressurized/exhausted on each cycle
- Long life expectancy
- Consistent response times over the life of the valve
- Construction makes them readily adaptable to vacuum service
- Easily field-convertible for use with an external pilot supply
- Models with external pilot supply available, consult ROSS

High Temperature Service:

Fluorocarbon seals are used to ensure high temperature stability.

Ambient Temperature: Up to 250°F (122°C) for solenoid models;

Up to 300°F (150°C) for pressure controlled models.

Media Temperature: 0° to 300°F (-17° to 150°C).

Low Temperature Service:

Buna-N seals are used to ensure good performance at low temperatures.

Ambient Temperature: Down to -40°F (-40°C).

Media Temperature: -40° to 175°F (-40° to 80°C).

D

D3

Vacuum Service Valves

Vacuum service valves are ideal for lifting, holding, vacuum packaging and moving anything from large objects to tiny particles. They also provide an effective means for leak testing.

Explosion-Proof solenoid pilot valves available, see explosion proof valves section F.



For ATEX certified valves order placement, consult ROSS.



VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES											FUNCTIONS					Page							
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double		5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control
21																						40				D3.3 - D3.5
21																						40				D3.6 - D3.8
21 Vacuum																						71				D3.9 - D3.10 D3.12 - D3.13
21 Full Vacuum																						71				D3.11
Options & Accessories																								D3.14		

Directional Control Valves Solenoid Pilot Controlled

High and Low Temperature 21 Series

2-Way 2-Position Valves, Spring Return

Port Size 1,2	Body Size	High Temperature				Low Temperature				Avg. C _v	Average Response Constants**		Weight lb (kg)	
		Valve Model Number**		Valve Model Number**		M	F							
		Normally Closed	Normally Open	Normally Closed	Normally Open		NC	NO						
1/4	3/8	2171B2001W	2172B2001W	2171B2002W	2172B2002W	2.3	2.3	10	0.96	0.96	3.0 (1.4)	Normally Closed		
3/8	3/8	2171B3001W	2172B3001W	2171B3002W	2172B3002W	3.8	3.3	10	0.90	0.93	3.0 (1.4)			
1/2	3/8	2171B4011W	2172B4011W	2171B4012W	2172B4012W	4.0	3.5	10	0.82	0.88	3.0 (1.4)	Normally Open		
1/2	3/4	2171B4001W	2172B4001W	2171B4002W	2172B4002W	7.7	6.5	14	0.39	0.50	3.3 (1.5)			
3/4	3/4	2171B5001W	2172B5001W	2171B5002W	2172B5002W	9.0	7.3	14	0.32	0.37	3.3 (1.5)	Normally Open		
1	3/4	2171B6011W	2172B6011W	2171B6012W	2172B6012W	9.0	7.9	14	0.31	0.36	3.3 (1.5)			
1	1 1/4	2171B6001W	2172B6001W	2171B6002W	2172B6002W	24	21	26	0.19	0.20	7.5 (3.4)	Normally Open		
1 1/4	1 1/4	2171B7001W	2172B7001W	2171B7002W	2172B7002W	29	20	26	0.14	.18	7.5 (3.4)			
1 1/2	1 1/4	2171B8011W	2172B8011W	2171B8012W	2172B8012W	29	21	26	0.13	0.17	7.5 (3.4)	Normally Open		

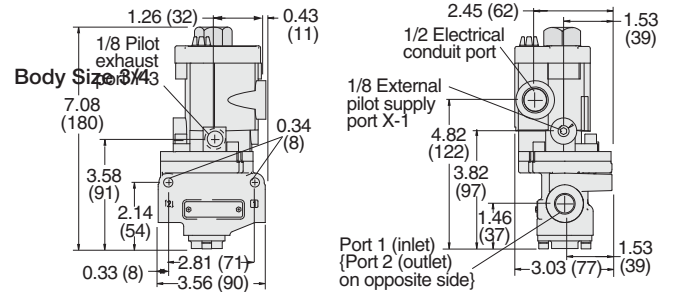
* **NPT port threads.** For G threads add a "D" prefix to the model number e.g., D2171B2001Z.

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2171B2001Z. For other voltages, consult ROSS.

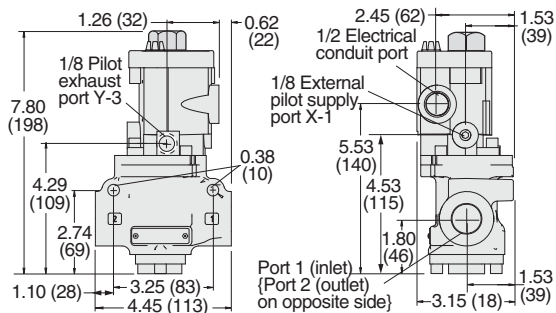
** **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

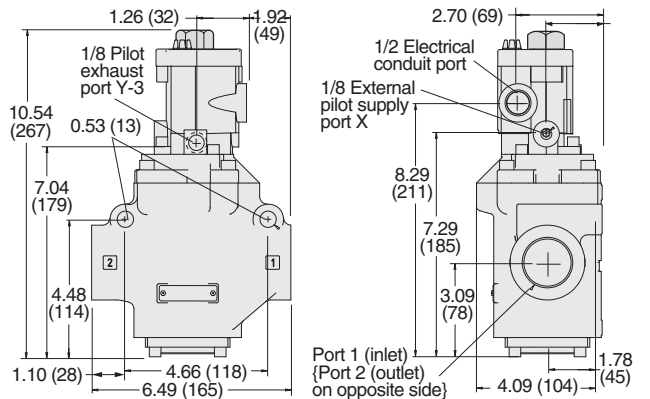
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



Options: Indicator Light Kits, Manual Override Kits; refer to page D3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	30 to 150 psig (2 to 10 bar)
Solenoids	Rated for continuous duty	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon	Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz		
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz		
Temperature - Ambient	High Temp: 0° to 250°F (-17° to 122°C) Low Temp: -40° to 120°F (-40° to 50°C)		
Temperature - Media	High Temp: 0° to 300°F (-17° to 150°C) Low Temp: -40° to 175°F (-40° to 80°C)		
Temperature	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.		
Flow Media	Filtered air		



Valves with EN (DIN) connector available, consult ROSS.
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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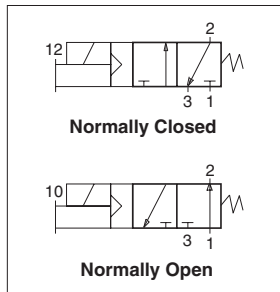
D3.3

3-Way 2-Position Valves, Spring Return																
Port Size	Body Size		High Temperature		Low Temperature		C _v				Average Response Constants**				Weight lb (kg)	
			Valve Model Number**		Valve Model Number**		NC		NO		F					
			Normally Closed	Normally Open	Normally Closed	Normally Open	1-2	2-3	1-2	2-3	M	NC		NO		
1, 2	3										1-2	2-3	1-2	2-3		
1/4	1/2	3/8	2173B2001W	2174B2001W	2173B2002W	2174B2002W	2.4	3.4	2.0	2.1	10	1.76	2.08	1.60	2.30	3.0 (1.4)
3/8	1/2	3/8	2173B3001W	2174B3001W	2173B3002W	2174B3002W	3.0	5.8	2.3	2.4	10	0.95	1.07	1.03	1.60	3.0 (1.4)
1/2	1/2	3/8	2173B4011W	2174B4011W	2173B4012W	2174B4012W	3.0	5.2	2.9	2.8	10	0.94	0.98	11.00	2.00	3.0 (1.4)
1/2	1	3/4	2173B4001W	2174B4001W	2173B4002W	2174B4002W	6.6	12	6.5	7.0	11	0.58	0.64	0.50	0.70	3.3 (1.5)
3/4	1	3/4	2173B5001W	2174B5001W	2173B5002W	2174B5002W	7.8	13	7.5	7.5	11	0.38	0.41	0.43	0.67	3.3 (1.5)
1	1	3/4	2173B6011W	2174B6011W	2173B6012W	2174B6012W	7.5	12	7.7	7.6	11	0.24	0.36	0.42	0.60	3.3 (1.5)
1	1 1/2	1 1/4	2173B6001W	2174B6001W	2173B6002W	2174B6002W	24	40	15	17	28	0.16	0.18	0.17	0.20	7.5 (3.4)
1 1/4	1 1/2	1 1/4	2173B7001W	2174B7001W	2173B7002W	2174B7002W	29	39	21	23	28	0.12	0.17	0.15	0.19	7.5 (3.4)
1 1/2	1 1/2	1 1/4	2173B8011W	2174B8011W	2173B8012W	2174B8012W	30	38	22	23	28	0.12	0.16	0.13	0.18	7.5 (3.4)

* **NPT port threads.** For G threads add a "D" prefix to the model number e.g., D2173B2001W.

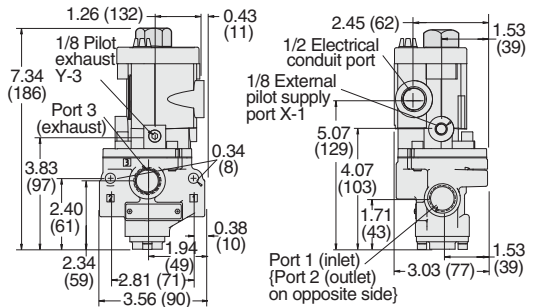
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2173B2001Z. For other voltages, consult ROSS.

** **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

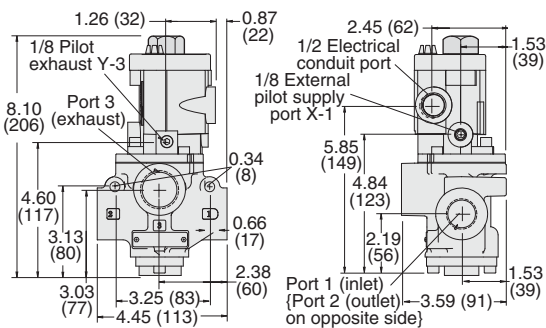


Valve Dimensions – inches (mm)

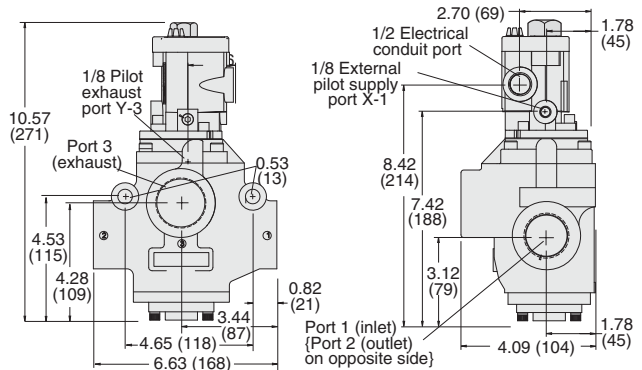
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



Options: Indicator Light Kits, Manual Override Kits; refer to page D3.14. Silencers ordered separately, refer to page D3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Manual Override	Non-locking metal button, standard
Temperature - Ambient	High Temp: 0° to 250°F (-17° to 122°C) Low Temp: -40° to 120°F (-40° to 50°C)	Safety Integrity Level (SIL)	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature - Media	High Temp: 0° to 300°F (-17° to 150°C) Low Temp: -40° to 175°F (-40° to 80°C)		
Temperature	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.		



Valves with EN (DIN) connector available, consult ROSS.
For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

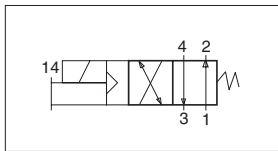
Directional Control Valves Solenoid Pilot Controlled

High and Low Temperature 21 Series

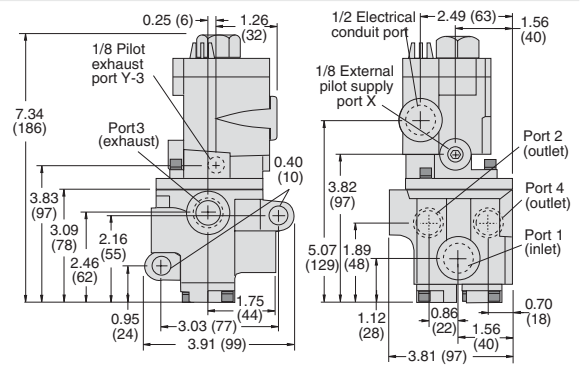
Port Size		Body Size	4-Way 2-Position Valves, Spring Return				C _v		Average Response Constants**		Weight lb (kg)	
1, 2, 4	3		High Temperature		Low Temperature		1-2, 1-4	4-3, 2-3	M	F		
			Valve Model Number#		Valve Model Number#					1-2, 1-4		4-3, 2-3
		NPT Threads		BSPG Threads		NPT Threads		BSPG Threads				
1/4	1/2	3/8	2176B2001W	D2176B2001W	2176B2002W	D2176B2002W	2.1	2.2	30	1.70	2.28	3.0 (1.4)
3/8	1/2	3/8	2176B3001W	D2176B3001W	2176B3002W	D2176B3002W	2.5	3.1	30	1.13	1.33	3.0 (1.4)
1/2	1/2	3/8	2176B4011W	D2176B4011W	2176B4012W	D2176B4012W	2.9	3.8	30	1.00	1.22	3.0 (1.4)
1/2	1	3/4	2176B4001W	D2176B4001W	2176B4002W	D2176B4002W	5.7	6.5	46	0.50	0.76	5.8 (2.6)
3/4	1	3/4	2176B5001W	D2176B5001W	2176B5002W	D2176B5002W	7.1	8.7	46	0.36	0.55	5.8 (2.6)
1	1	3/4	2176B6011W	D2176B6011W	2176B6012W	D2176B6012W	7.7	10	46	0.36	0.50	5.8 (2.6)
1	1½	1¼	2176B6001W	D2176B6001W	2176B6002W	D2176B6002W	18	23	99	0.19	0.22	12.0 (5.4)
1¼	1½	1¼	2176B7001W	D2176B7001W	2176B7002W	D2176B7002W	20	28	99	0.19	0.22	12.0 (5.4)
1½	1½	1¼	2176B8011W	D2176B8011W	2176B8012W	D2176B8012W	21	29	99	0.16	0.22	12.0 (5.4)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2176B2001Z. For other voltages, consult ROSS.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

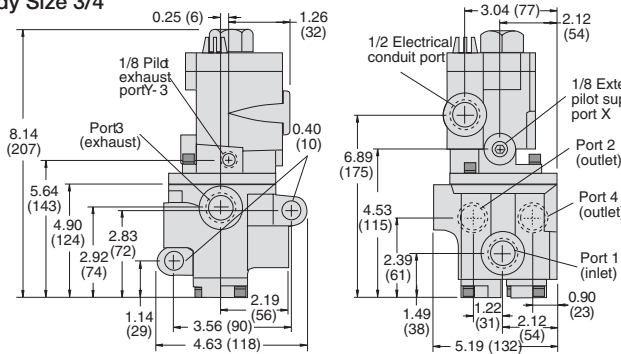
Valve Dimensions – inches (mm)



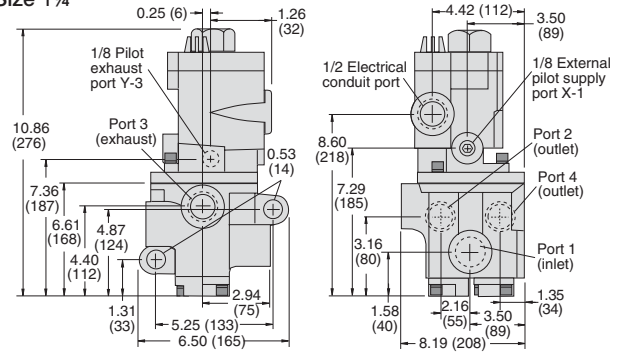
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kits, Manual Override Kits; refer to page D3.14. Silencers ordered separately, refer to page D3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10 bar) Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Manual Override	Non-locking metal button, standard
Temperature - Ambient	High Temp: 0° to 250°F (-17° to 122°C) Low Temp: -40° to 120°F (-40° to 50°C)	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Temperature - Media	High Temp: 0° to 300°F (-17° to 150°C) Low Temp: -40° to 175°F (-40° to 80°C)		
Temperature	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.		



Valves with EN (DIN) connector available, consult ROSS.
 For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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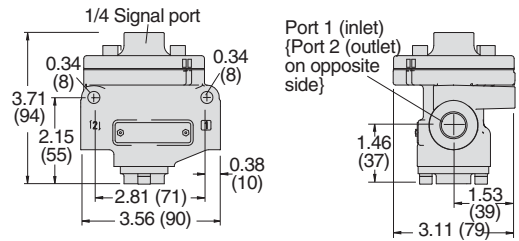
2-Way 2-Position Valves, Spring Return											
Port Size	Body Size	High Temperature		Low Temperature		Avg. C _v		Average Response Constants**			Weight lb (kg)
		Valve Model Number*		Valve Model Number*		NC	NO	M	F		
		Normally Closed	Normally Open	Normally Closed	Normally Open				NC	NO	
1/4	3/8	2151B2001	2152B2001	2151B2002	2152B2002	2.3	2.3	10	0.91	0.91	1.8 (0.8)
3/8	3/8	2151B3001	2152B3001	2151B3002	2152B3002	3.8	3.3	10	0.70	0.76	1.8 (0.8)
1/2	3/8	2151B4011	2152B4011	2151B4012	2152B4012	4.0	3.5	10	0.64	0.72	1.8 (0.8)
1/2	3/4	2151B4001	2152B4001	2151B4002	2152B4002	7.7	6.5	16	0.37	0.43	4.2 (2.0)
3/4	3/4	2151B5001	2152B5001	2151B5002	2152B5002	9.0	7.3	16	0.34	0.39	4.2 (2.0)
1	3/4	2151B6011	2152B6011	2151B6012	2152B6012	9.0	7.9	16	0.34	0.37	4.2 (2.0)
1	1¼	2151B6001	2152B6001	2151B6002	2152B6002	24	21	27	0.17	0.17	11.0 (5.0)
1¼	1¼	2151B7001	2152B7001	2151B7002	2152B7002	29	20	27	0.19	0.19	11.0 (5.0)
1½	1¼	2151B8011	2152B8011	2151B8012	2152B8012	29	21	27	0.18	0.18	11.0 (5.0)



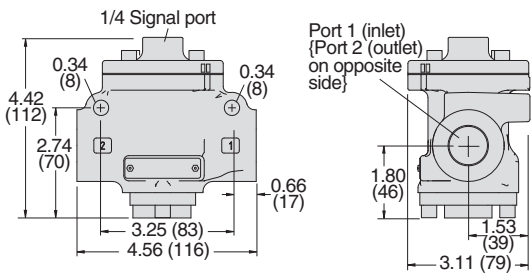
* NPT port threads. For G threads add a "D" prefix to the model number e.g., D2151B2001.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

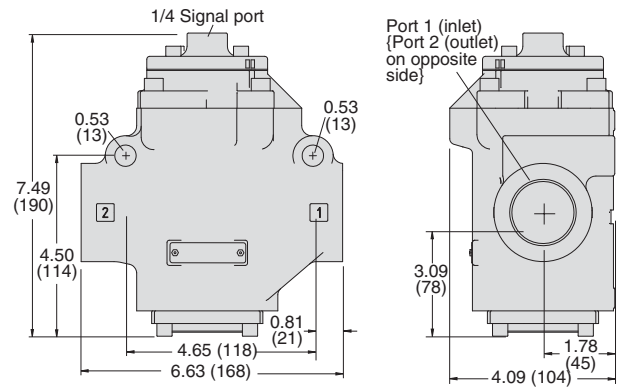
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page D3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	30 to 150 psig (2 to 10 bar)
Mounting Type	In-line	Pilot Supply	Pilot supply pressure must be equal to or greater than inlet pressure.
Temperature Ambient/Media:	High Temp: 0° to 300°F (-17° to 150°C) Low Temp: -40° to 175°F (-40° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Flow Media	Filtered air	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Pilot Supply	External		



For ATEX certified valves, consult ROSS.

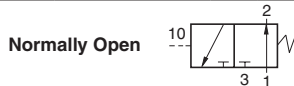
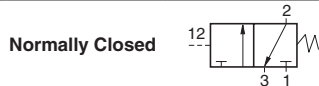
IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.



Directional Control Valves Pressure Controlled

High and Low Temperature 21 Series

Port Size		Body Size		3-Way 2-Position Valves, Spring Return				C _v				Average Response Constants**				Weight lb (kg)
				High Temperature		Low Temperature		NC		NO		F				
				Valve Model Number*		Valve Model Number*		1-2	2-3	1-2	2-3	M	NC		NO	
1, 2	3	Normally Closed	Normally Open	Normally Closed	Normally Open	1-2	2-3	1-2	2-3	M	1-2	2-3	1-2	2-3		
1/4	1/2	3/8	2153B2001	2154B2001	2153B2002	2154B2002	2.4	3.4	2.0	2.1	10	1.76	2.08	1.60	2.30	1.8 (0.8)
3/8	1/2	3/8	2153B3001	2154B3001	2153B3002	2154B3002	3.0	5.8	2.3	2.4	10	0.95	1.07	1.03	1.60	1.8 (0.8)
1/2	1/2	3/8	2153B4011	2154B4011	2153B4012	2154B4012	3.0	5.2	2.9	2.8	10	0.94	0.98	11.00	2.00	1.8 (0.8)
1/2	1	3/4	2153B4001	2154B4001	2153B4002	2154B4002	6.6	12	6.5	7.0	11	0.58	0.64	0.50	0.70	4.5 (2.1)
3/4	1	3/4	2153B5001	2154B5001	2153B5002	2154B5002	7.8	13	7.5	7.5	11	0.38	0.41	0.43	0.67	4.5(2.1)
1	1	3/4	2153B6011	2154B6011	2153B6012	2154B6012	7.5	12	7.7	7.6	11	0.24	0.36	0.42	0.60	4.5 (2.1)
1	1½	1¼	2153B6001	2154B6001	2153B6002	2154B6002	24	40	15	17	28	0.16	0.18	0.17	0.20	11.0 (5.0)
1¼	1½	1¼	2153B7001	2154B7001	2153B7002	2154B7002	29	39	21	23	28	0.12	0.17	0.15	0.19	11.0 (5.0)
1½	1½	1¼	2153B8011	2154B8011	2153B8012	2154B8012	30	38	22	23	28	0.12	0.16	0.13	0.18	11.0 (5.0)

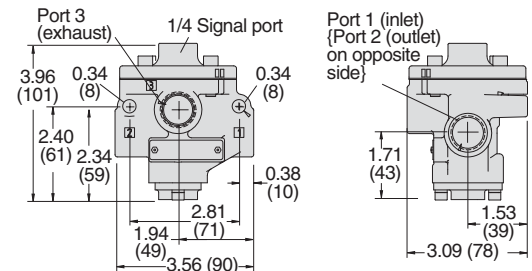


* **NPT port threads.** For G threads add a "D" prefix to the model number e.g., D2153B2001.

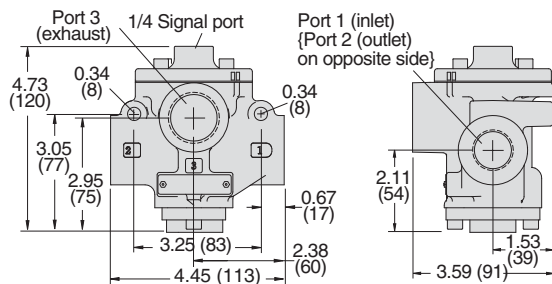
** **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

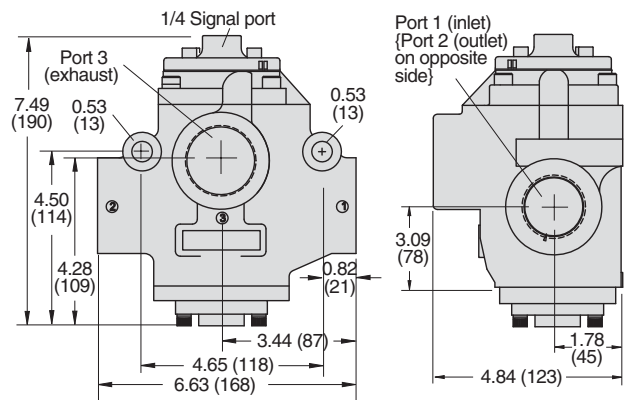
Body Size 3/8



Body Size 1/4



Body Size 1¼



Silencers ordered separately, refer to page D3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	30 to 150 psig (2 to 10 bar)
Mounting Type	In-line	Pilot Supply	Pilot supply pressure must be equal to or greater than inlet pressure.
Temperature Ambient/Media:	High Temp: 0° to 300°F (-17° to 150°C) Low Temp: -40° to 175°F (-40° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Flow Media	Filtered air	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Pilot Supply	External		



For ATEX certified valves, consult ROSS.

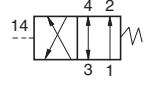
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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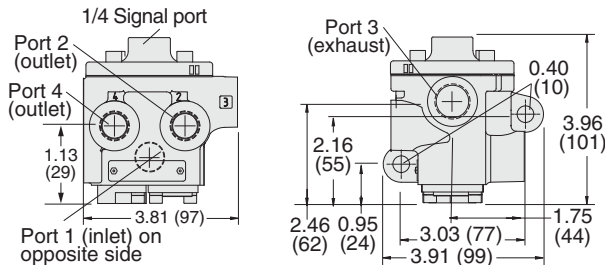
4-Way 2-Position Valves, Spring Return													
Port Size		Body Size	High Temperature		Low Temperature		C _v			Average Response Constants**		Weight lb (kg)	
1, 2, 4	3		Valve Model Number		Valve Model Number		1-2, 1-4	4-3, 2-3	M	F			
			NPT Threads	G Threads	NPT Threads	G Threads				1-2, 1-4	4-3, 2-3		
1/4	1/2	3/8	2156B2001	D2156B2001	2156B2002	D2156B2002	2.1	2.9	30	1.70	2.28	3.0 (1.4)	
3/8	1/2	3/8	2156B3001	D2156B3001	2156B3002	D2156B3002	2.9	4.2	30	1.13	1.33	3.0 (1.4)	
1/2	1/2	3/8	2156B4011	D2156B4011	2156B4012	D2156B4012	3.1	4.3	30	1.00	1.22	3.0 (1.4)	
1/2	1	3/4	2156B4001	D2156B4001	2156B4002	D2156B4002	5.6	8.1	46	0.50	0.76	5.8 (2.6)	
3/4	1	3/4	2156B5001	D2156B5001	2156B5002	D2156B5002	7.0	9.3	46	0.36	0.55	5.8 (2.6)	
1	1	3/4	2156B6011	D2156B6011	2156B6012	D2156B6012	7.8	10	46	0.36	0.50	5.8 (2.6)	
1	1½	1¼	2156B6001	D2156B6001	2156B6002	D2156B6002	19	26	99	0.19	0.22	12.0 (5.4)	
1¼	1½	1¼	2156B7001	D2156B7001	2156B7002	D2156B7002	21	27	99	0.19	0.18	12.0 (5.4)	
1½	1½	1¼	2156B8011	D2156B8011	2156B8012	D2156B8012	22	27	99	0.16	0.15	12.0 (5.4)	



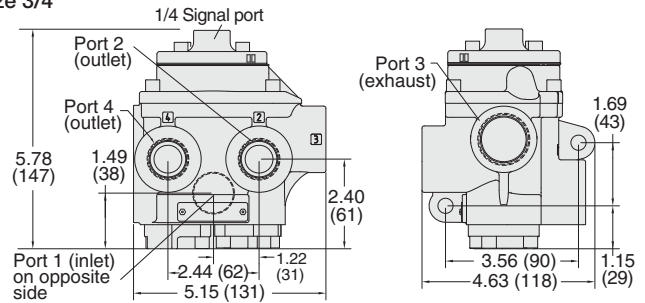
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

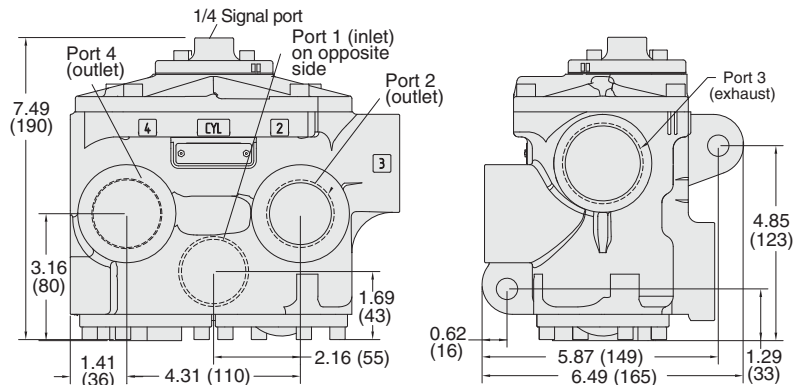
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page D3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	30 to 150 psig (2 to 10 bar)
Mounting Type	In-line	Pilot Supply - Pilot supply pressure must be equal to or greater than inlet pressure.	
Temperature Ambient/Media:	High Temp: 0° to 300°F (-17° to 150°C) Low Temp: -40° to 175°F (-40° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Flow Media	Filtered air	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Pilot Supply	External		



For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



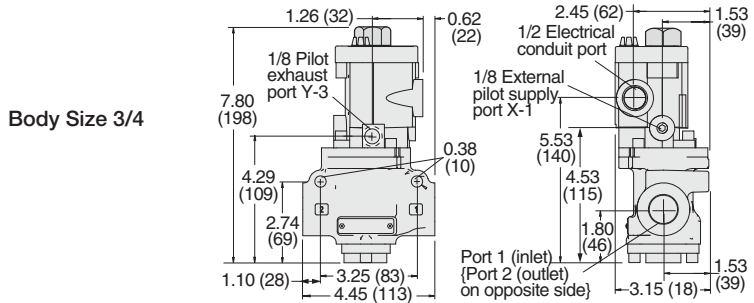
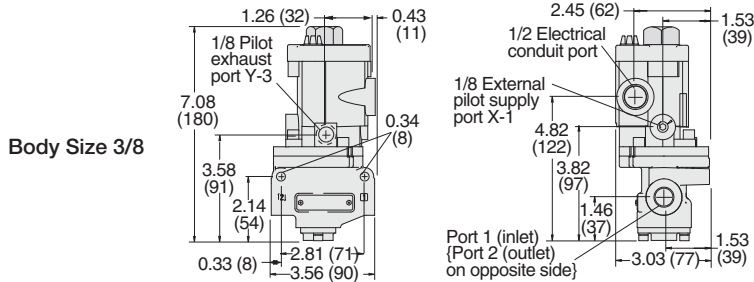
Directional Control Valves Solenoid Pilot Controlled

Vacuum 21 Series

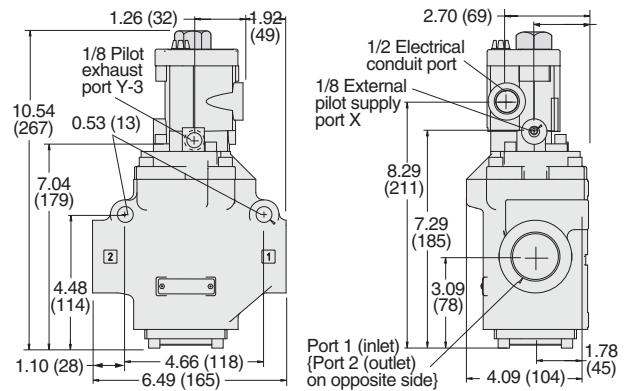
2-Way 2-Position Valves, Spring Return									
Port Size	Body Size	Valve Model Number#		Function	C _v	Average Response Constants**		Weight lb (kg)	
		NPT Threads	G Threads			M	F		
1/4	3/8	2171B2901W	D2171B2901W	NC	2.1	10	0.96	3.0 (1.4)	
3/8	3/8	2171B3906W	D2171B3906W	NC	2.6	10	0.90	3.0 (1.4)	
1/2	3/8	2171A4917W	D2171A4917W	NC	2.6	10	0.82	3.0 (1.4)	
3/4	3/4	2171B5905W	D2171B5905W	NC	7.8	14	0.39	3.3 (1.5)	
1	3/4	2171B6904W	D2171B6904W	NC	8.3	14	0.32	3.3 (1.5)	
1	1 1/4	2171B6916W	D2171B6916W	NC	20	14	0.31	3.3 (1.5)	
1 1/4	1 1/4	2171B7901W	D2171B7901W	NC	30	26	0.19	7.5 (3.4)	
1 1/4	1 1/4	2171B8906W	D2171B8906W	NC	31	26	0.14	7.5 (3.4)	
1 1/2	1 1/4	2172B8900W	D2172B8900W	NO	21	26	0.17	7.5 (3.4)	
1 1/2	2	2171B8900W	D2171B8900W	NC	57	##	##	15.5 (6.9)	
2 1/2	2	2171B9901W	D2171B9901W	NC	64	##	##	15.5 (6.9)	

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2171B2901Z. For other voltages, consult ROSS.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.
 ## Consult ROSS.

Piping 2/2 Normally Closed (NC) or Normally Open (NO) Valves
 Pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2).
Note: 2/2 vacuum valves provide only on/off control and do not have an exhaust function.



Body Size 1 1/4



Valve Dimensions – inches (mm)

Options: Indicator Light Kits, Manual Override Kits; refer to page D3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	Vacuum to 150 psig (vacuum to 10 bar)
Solenoids	Rated for continuous duty		Pilot Supply - External Pilot: Minimum 30 psig (2 bar)
Standard Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz		When external pilot supply, pressure must be equal to or greater than inlet pressure.
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Temperature	Ambient: -40° to 120°F (-40° to 50°C), for low temperature valves. High temperature valves also available. Media: -40° to 175°F (-40° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Manual Override	Non-locking metal button, standard
Flow Media	Vacuum and/or filtered-compressed air	Safety Integrity Level (SIL)	- Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.



For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



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Directional Control Valves

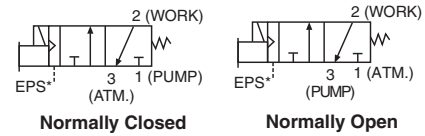
Solenoid Pilot Controlled

Vacuum

21 Series

3-Way 2-Position Valves, Spring Return													
Port Size			Body Size			Valve Model Number#		C _v		Function	Average Response Constants**		Weight lb (kg)
						NPT Threads	G Threads	1-2	2-3		M	F	
1, 2	3									In-Out	Out-Exh.		
1/4	1/2	3/8	2173B2900W	D2173B2900W	2.4	3.4	NC	10	1.76	2.08	3.0 (1.4)		
3/8	1/2	3/8	2173A3908W	D2173A3908W	3.0	5.8	NC	10	0.95	1.07	3.0 (1.4)		
1/2	1/2	3/8	2173B4901W	D2173B4901W	3.0	5.2	NC	10	0.94	0.98	3.0 (1.4)		
1/2	1	3/4	2173B4902W	D2173B4902W	6.6	12	NC	11	0.58	0.64	3.3 (1.5)		
1/2	1	3/4	2174A4912W	D2174A4912W	6.5	7.0	NO	11	0.58	0.64	3.3 (1.5)		
3/4	1	3/4	2173B5900W	D2173B5900W	7.8	13	NC	11	0.38	0.41	3.3 (1.5)		
1	1	3/4	2173B6901W	D2173B6901W	7.5	12	NC	11	0.24	0.36	3.3 (1.5)		
1	1 1/2	1 1/4	2173B6902W	D2173B6902W	24	40	NC	28	0.16	0.18	7.5 (3.4)		
1	1 1/2	1 1/4	2174A6914W	D2174A6914W	15	17	NO	28	0.16	0.18	7.5 (3.4)		
1 1/4	1 1/2	1 1/4	2173B7901W	D2173B7901W	29	39	NC	28	0.12	0.17	7.5 (3.4)		
1 1/4	1 1/2	1 1/4	2173B7917W	D2173B7917W	29	39	NO	28	0.12	0.17	7.5 (3.4)		
1 1/2	1 1/2	1 1/4	2173B8900W	D2173B8900W	30	38	NC	28	0.12	0.16	7.5 (3.4)		
2	2 1/2	2	2173A9905W	D2173A9905W	70	70	NC	##	##	##	16.5 (7.4)		
2 1/2	2 1/2	2	2173A9906W	D2173A9906W	70	71	NC	##	##	##	16.5 (7.4)		

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2173B2900Z. For other voltages, consult ROSS.
 ** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above. ## Consult ROSS.



Piping 3/2 Normally Closed (NC) Valves

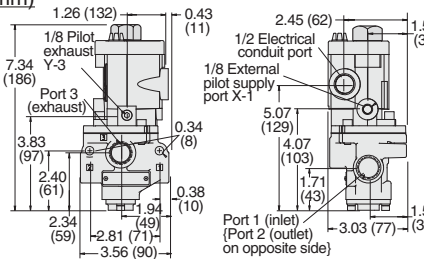
In this valve configuration, pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2), and the normal air pressure exhaust port becomes the atmosphere port (port 3).

Piping 3/2 Normally Open (NO) Valves

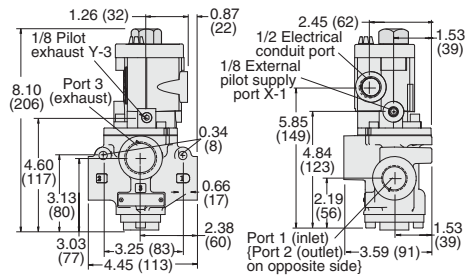
To obtain a 3/2 normally open ROSS vacuum valve, simply pipe the 3/2 normally closed body slightly differently. Connect the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

Valve Dimensions – inches (mm)

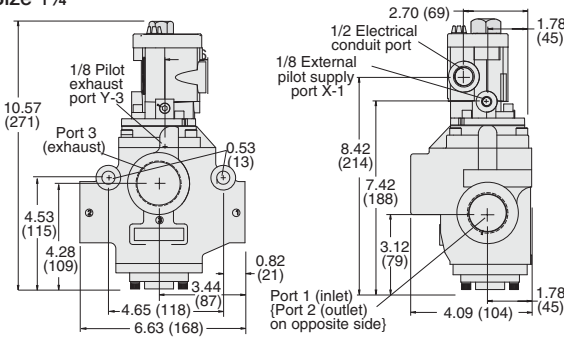
Body Size 3/8



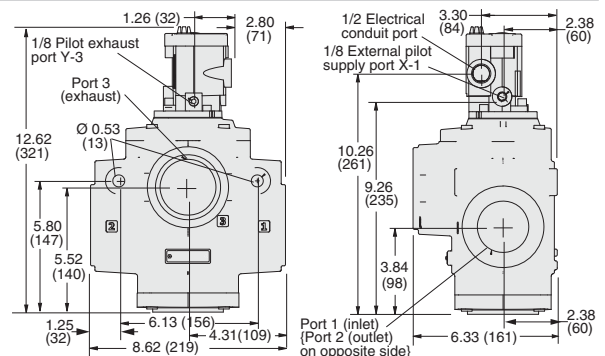
Body Size 3/4



Body Size 1 1/4



Body Size 2



Options: Indicator Light Kits, Manual Override Kits; refer to page D3.14. Silencers ordered separately, refer to page D3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Pilot Supply	Internal or External
Mounting Type	In-line	Operating Pressure	Vacuum to 150 psig (vacuum to 10 bar)
Solenoids	Rated for continuous duty		Pilot Supply - External Pilot: Minimum 30 psig (2 bar) When external pilot supply, pressure must be equal to or greater than inlet pressure.
Standard Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Manual Override	Non-locking metal button, standard
Temperature	Ambient: -40° to 120°F (-40° to 50°C), for low temperature valves. High temperature valves also available. Media: -40° to 175°F (-40° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Safety Integrity Level (SIL)	Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Flow Media	Vacuum and/or filtered-compressed air		




For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.




IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.

3-Way 2-Position Valves, Spring Return											
Port Size		Body Size	Valve Model Number#		C _v		Function	Average Response Constants**			Weight lb (kg)
1, 2	3		NPT Threads	G Threads	1-2	2-3		M	F		
								In-Out	Out-Exh.		
1/2	1/2	3/8	2173B4914W	D2173B4914W	3.0	5.2	NC	11	0.50	0.70	3.0 (1.4)
1/2	1/2	3/8	2174B4900W	D2174B4900W	2.8	2.8	NO	11	0.58	0.64	3.0 (1.4)
1 1/4	1 1/2	1 1/4	2173B7904W	D2173B7904W	39	39	NC	28	0.15	0.19	7.5 (3.4)
1 1/4	1 1/2	1 1/4	2174B7903W	D2174B7903W	23	23	NO	28	0.12	0.17	7.5 (3.4)



Normally Closed



Normally Open

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 2173B4914Z. For other voltages, consult ROSS.

** **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Full Vacuum – 3-Way Normally Closed (NC) Valves

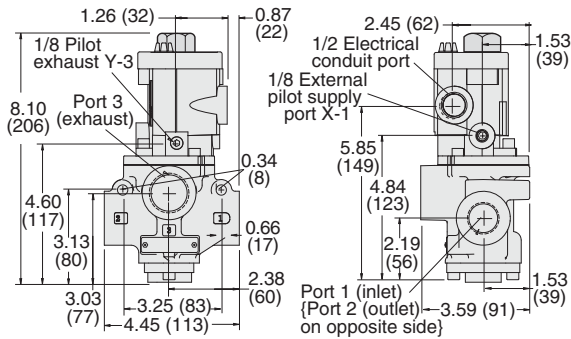
This valve functions as a **normally open** valve. Pipe the unit into the system by connecting the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

Full Vacuum – 3-Way Normally Open (NO) Valves

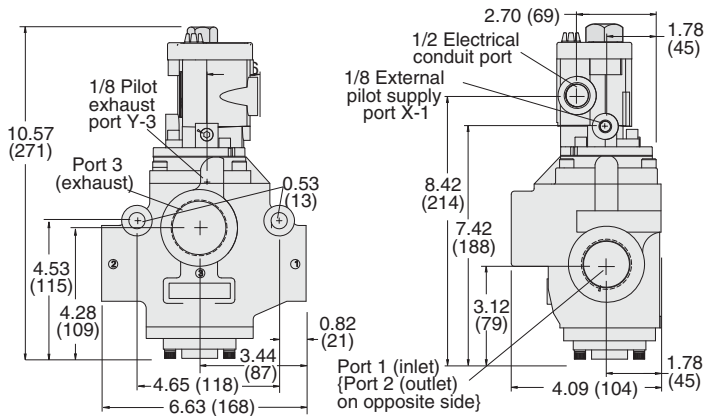
This valve functions as a normally closed valve. Pipe the unit into the system by connecting the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

Valve Dimensions – inches (mm)

Body Size 3/8



Body Size 1 1/4



Options: Indicator Light Kits, Manual Override Kits; refer to page D3.14. Silencers ordered separately, refer to page D3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Vacuum to 150 psig (vacuum to 10 bar)
Mounting Type	In-line	Pilot Supply - External Pilot:	Minimum 30 psig (2 bar)
Solenoids	Rated for continuous duty	<i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>	
Standard Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Manual Override	Non-locking metal button, standard
Temperature	Ambient: -40° to 120°F (-40° to 50°C), for low temperature valves. High temperature valves also available. Media: -40° to 175°F (-40° to 80°C) <i>For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.</i>	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Pilot Supply	Internal or External		



For ATEX certified valves, consult ROSS. For FM, CSA approved Explosion-Proof valves, see section F.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

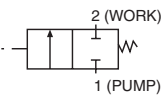


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2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number		Function	C _v	Average Response Constants**		Weight lb (kg)	
		NPT Threads	G Threads			M	F		
1/4	3/8	2151A2901	D2151A2901	NC	2.1	10	0.96	1.8 (0.8)	Normally Closed
1/2	3/8	2151A4910	D2151A4910	NC	3.0	10	0.90	1.8 (0.8)	
1/2	3/4	2151B4904	D2151B4904	NC	6.9	10	0.82	4.5 (2.0)	Normally Open
3/4	3/4	2151A5913	D2151A5913	NC	7.8	14	0.39	4.5 (2.0)	
3/4	3/4	2152A5901	D2152A5901	NO	7.0	14	0.37	4.5 (2.0)	Normally Open
1	3/4	2151B6900	D2151B6900	NC	8.3	14	0.19	4.5 (2.0)	
1 1/4	1 1/4	2151A7909	D2151A7909	NC	30	26	0.14	11.0 (5.0)	Normally Open
1 1/2	1 1/4	2151B8900	D2151B8900	NC	31	26	0.13	11.0 (5.0)	
1 1/2	1 1/4	2152B7900	D2152B7900	NO	23	26	0.17	11.0 (5.0)	

** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Piping 2/2 Normally Closed (NC) or Normally Open (NO) Valves

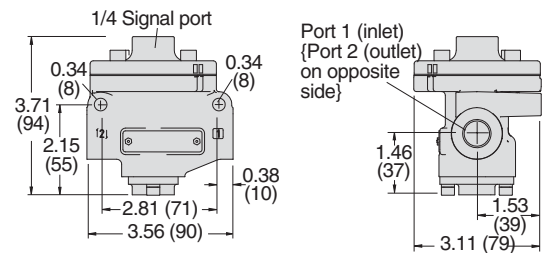
Pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2).

Note: 2/2 vacuum valves provide only on/off control and do not have an exhaust function.

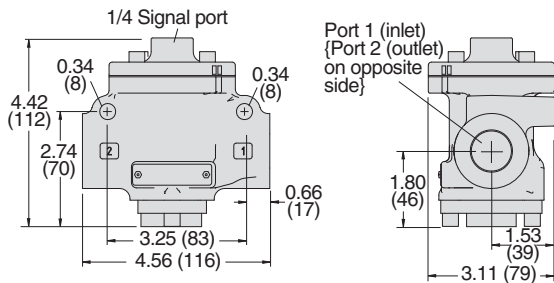
D
D3

Valve Dimensions – inches (mm)

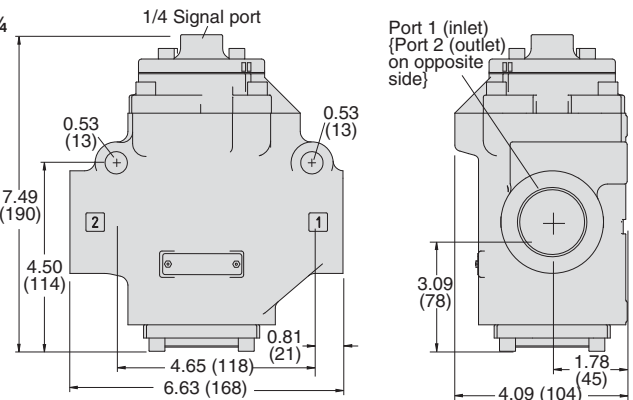
Body Size 3/8



Body Size 3/4



Body Size 1 1/4



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Vacuum to 150 psig (vacuum to 10 bar)
Mounting Type	In-line	Pilot Supply	Pilot Supply - Minimum 30 psig (2 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Temperature	Ambient/Media: -40° to 175°F (-40° to 80°C) <i>For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.</i>	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Flow Media	Vacuum and/or filtered-compressed air	Safety Integrity Level (SIL)	SIL - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.
Pilot Supply	External		



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Spring Return												
Port Size		Body Size	Valve Model Number		Function	C _v		Average Response Constants**			Weight lb (kg)	
1, 2	3		NPT Threads	G Threads		1-2	2-3	M	F			
								In-Out	Out-Exh.			
1/4	1/2	3/8	2153B2900	D2153B2900	NC	2.4	3.4	10	1.60	2.30	1.8 (0.8)	
3/8	1/2	3/8	2153A3913	D2153A3913	NC	2.4	3.4	10	0.95	1.07	1.8 (0.8)	
1/2	1/2	3/8	2153B4903	D2153B4903	NC	3.0	5.2	10	0.94	0.98	1.8 (0.8)	
3/4	1	3/4	2153B5903	D2153B5903	NC	7.8	13	11	0.38	0.41	4.5 (2.0)	
1	1	3/4	2153A6906	D2153A6906	NC	7.4	12	11	0.24	0.36	4.5 (2.0)	
1	1½	1½	2153C6905	D2153C6905	NC	24	40	28	0.17	0.20	11.0 (5.0)	
1¼	1½	1½	2153A7906	D2153A7906	NC	29	39	28	0.15	0.19	11.0 (5.0)	
1½	1½	1½	2153B8900	D2153B8900	NC	30	38	28	0.12	0.16	11.0 (5.0)	
2	2½	2	2153A9903	D2153A9903	NC	70	71	***	***	***	15.3 (6.9)	
2½	2½	2	2153A9902	D2153A9902	NC	70	71	***	***	***	15.3 (6.9)	

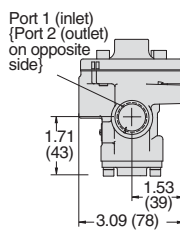
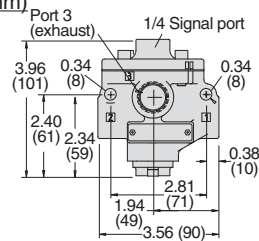
****Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above. *** Consult ROSS.

Piping 3/2 Normally Closed (NC) Valves

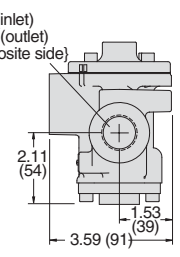
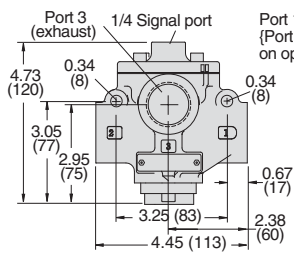
In this valve configuration, pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2), and the normal air pressure exhaust port becomes the atmosphere port (port 3).

Valve Dimensions – inches (mm)

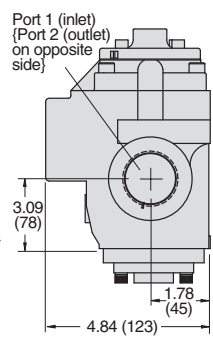
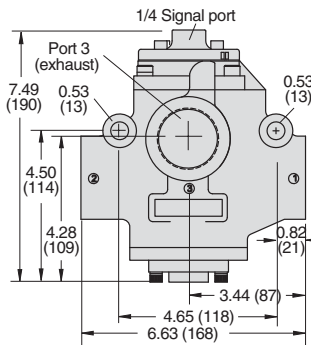
Body Size 3/8



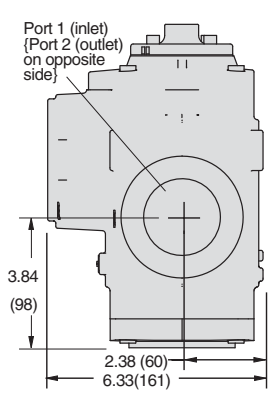
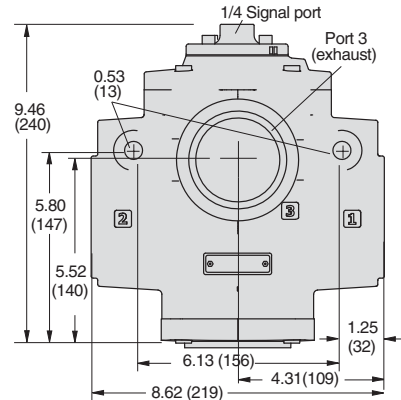
Body Size 3/4



Body Size 1¼



Body Size 2



Silencers ordered separately, refer to page D3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Vacuum to 150 psig (vacuum to 10 bar)
Mounting Type	In-line	Pilot Supply	Minimum 30 psig (2 bar)
Temperature	Ambient/Media: -40° to 175°F (-40° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.	Pilot supply pressure must be equal to or greater than inlet pressure.	
Flow Media	Vacuum and/or filtered-compressed air	Construction Material	Valve Body: Cast Aluminum Poppet: Aluminum and Stainless Steel Seals: Fluorocarbon
Pilot Supply	External	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	



For ATEX certified valves, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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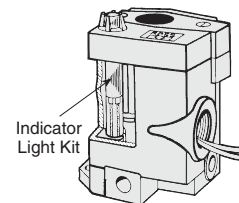
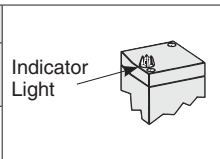


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Indicator Light Kits


To visually verify valve operation indicator lights are available in kit form. The indicator light extends through the solenoid or pilot cover and is illuminated when the solenoid is energized. Such lights are standard on double solenoid valves. Indicator light kits are available for single solenoid models (low temperature valves only).


Kit Number		
24 volts DC	110-120 volts AC 50-60 Hz	220 volts 50-60 Hz
862K87-W	862K87-Z	862K87-Y




Manual Override Kits

Flush flexible manual overrides are standard on single solenoid models. Double solenoid models have flush metal-button overrides. Both types are non-locking. Each of the buttons in the override kits below is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

Flush Button		
Locking Type	Kit Number	
Non-Locking	790K87	
Locking	792K87	

Extended Button		
Locking Type	Kit Number	
Non-Locking	791K87	

Extended Button with Palm		
Locking Type	Kit Number	
Non-Locking	984H87	

Electrical Connector

Valves available with installed prewired connectors, please consult ROSS.

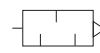
System 8 Pilot

Models available with preinstalled System 8 solenoid pilot, consult ROSS.

Silencers

Port Size	Thread Type	Model Number		Avg. Cv	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.
Flow Media: Filtered air.



Port size 1/4 thru 2



Port size 2½

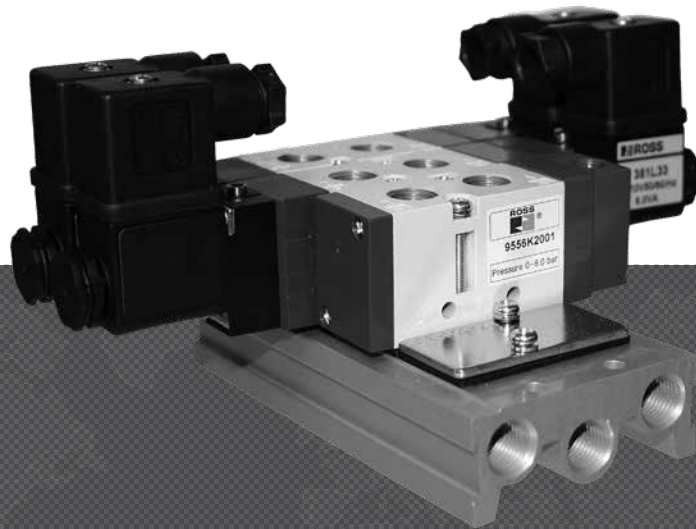


IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



DIRECTIONAL CONTROL VALVES

SLIM-LINE 95 SERIES



ROSS CONTROLS

IN-LINE DIRECTIONAL VALVES AND MANIFOLDS– KEY FEATURES

- 24 volts DC and 110 volts AC options for solenoid control
- Available with 1/8, 1/4, 3/8, and 1/2 port options
- Flexible mounting - in-line or manifold
- Resilient seal spool construction
- Compact size
- High flow capacity
- Lube or non-lube service
- Manual overrides
- Pressure ports located in valve body

D



Solenoid Controlled



Pressure Controlled



Manifold Options

D4

VALVE TYPE	AVAILABLE PORT SIZES				MAX. FLOW Cv	MOUNTING		Page
	1/8	1/4	3/8	1/2		IN-LINE	MANIFOLD	
SOLENOID PILOT CONTROLLED								
3/2 NC/NO Spring return					2.6			D4.3
5/2 Spring Return					4.5			D4.4
5/2 Detented					4.5			D4.5
5/3 Spring Center					2.2			D4.6
PRESSURE CONTROLLED								
3/2 NC/NO Spring return					2.6			D4.7
5/2 Spring Return					4.5			D4.8
5/2 Detented					4.5			D4.9
5/3 Spring Center					3.4			D4.10
MANIFOLD BLOCKS, OPTIONS, & ACCESSORIES								
Manifold Blocks (3/2 Valves)								D4.11
Manifold Blocks (5/2 & 5/3 Valves)								D4.12
Manifold Blanking Plates								D4.11 - D4.12
Pilot Coils & Connectors								D4.11 - D4.12
Silencers								D4.11 - D4.12

Single Solenoid Pilot Controlled Valves

95 Series

3-Way 2-Position Valves, Single Solenoid, Spring Return							
Port Size	Normally Closed		Normally Open		Avg. C _v	Weight lb (kg)	
	Valve Model Number#		Valve Model Number#				
1, 2	3	NPT Threads	G Threads	NPT Threads	G Threads		
1/8	1/8	9573K1001W	D9573K1001W	9574K1001W	D9573K1001W	0.9	0.38 (0.17)
1/4	1/4	9573K2001W	D9573K2001W	9574K2001W	D9573K2001W	1.3	0.70 (0.32)
3/8	3/8	9573K3001W	D9573K3001W	9574K3001W	D9573K3001W	2.6	1.15 (0.52)

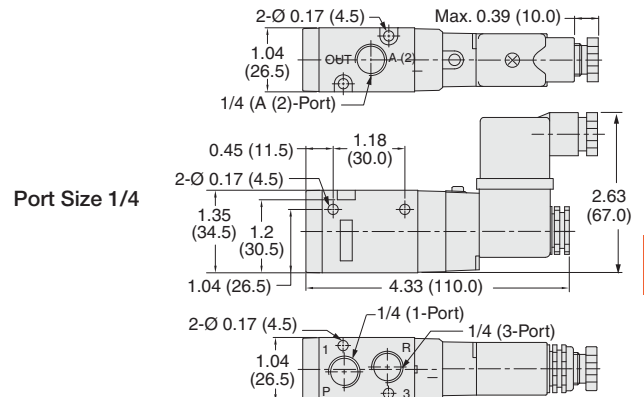
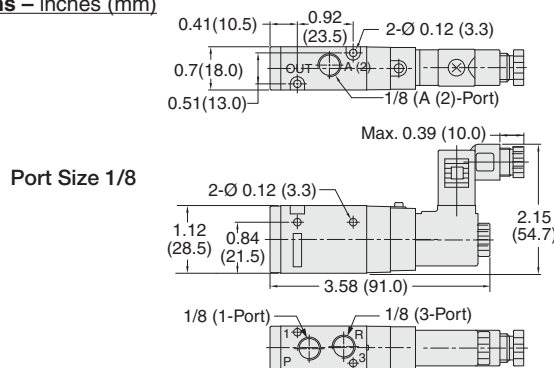
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 9573K1001Z.

Normally Closed

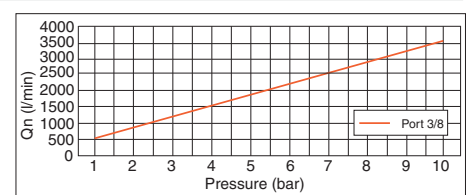
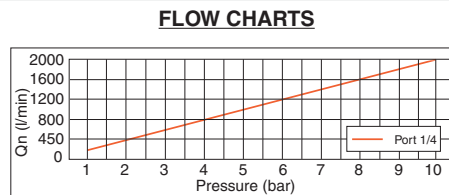
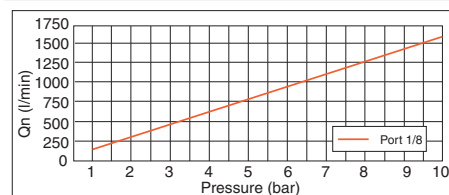
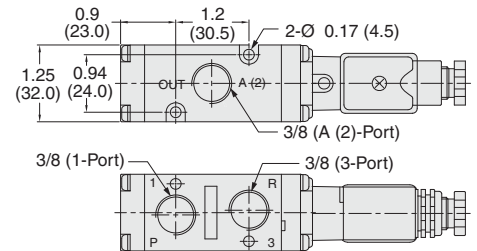
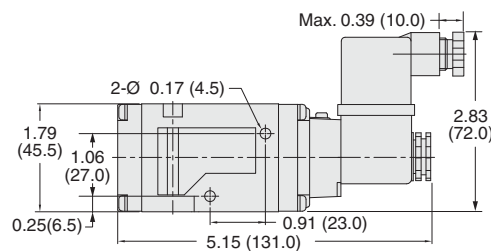
Normally Open



Valve Dimensions – inches (mm)



Port Size 3/8



FLOW CHARTS

Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page D4.11. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Temperature	Ambient/Media: 41° to 140°F (5° to 60°C)
Mounting Type	In-line or manifold mounted	Flow Media	Filtered air
Solenoids	AC or DC power; Rated for continuous duty	Pilot Supply	Internal
Voltage	24 volts DC; 110 volts AC, 50/60 Hz	Operating Pressure	22.5 to 150 psig (1.5 to 10 bar)
Power Consumption (each solenoid)	2.5 watts on DC; 3.6 VA holding on 50/60 Hz	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Enclosure Rating	IP 65, IEC 60529	Manual Override	Pushbutton, non-locking
Electrical Connection	Port Size 1/8: MICRO-MINI EN 175301-803 connector Port Size 1/4 & 3/8: EN 175301-803 Industrial Form B connector		

Valves available with installed prewired connectors, please consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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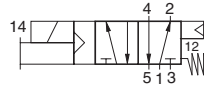
D4.3

Single Solenoid Pilot Controlled Valves

95 Series

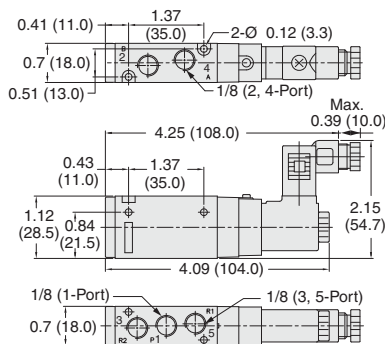
5-Way 2-Position Valves, Single Solenoid, Spring Return					
Port Size		Valve Model Number#		Avg. C_v	Weight lb (kg)
1, 2, 4	3, 5	NPT Threads	G Threads		
1/8	1/8	9576K1001W	D9576K1001W	0.9	0.43 (0.20)
1/4	1/8	9576K2001W	D9576K2001W	1.3	0.80 (0.36)
3/8	3/8	9576K3001W	D9576K3001W	2.6	1.29 (0.59)
1/2	1/2	9576K4001W	D9576K4001W	4.5	1.66 (0.75)

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 9576K1001Z.

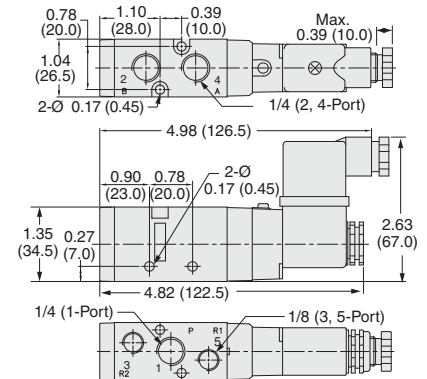


Valve Dimensions – inches (mm)

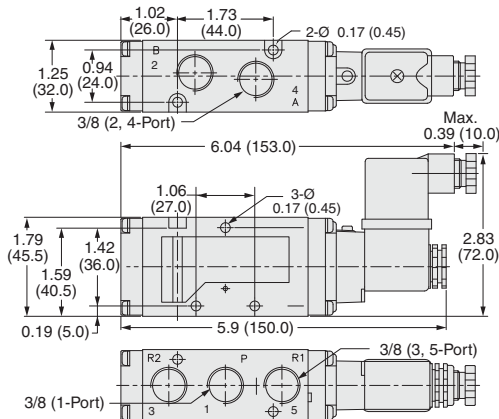
Port Size 1/8



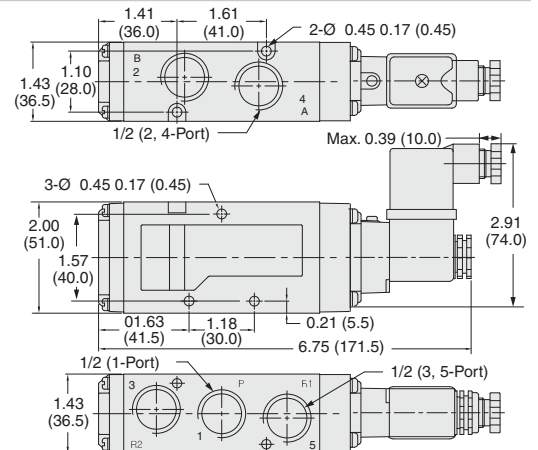
Port Size 1/4



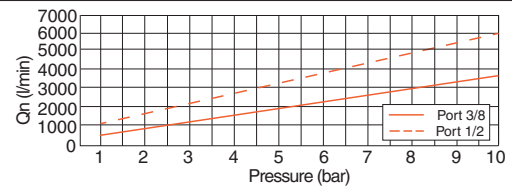
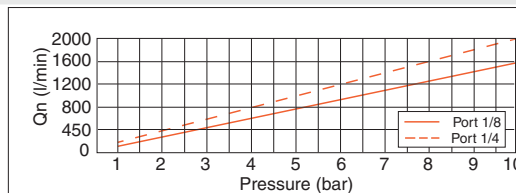
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page D4.12. For other options, consult ROSS.

Valves available with installed prewired connectors, please consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Temperature	Ambient/Media: 41° to 140°F (5° to 60°C)
Mounting Type	In-line or manifold mounted	Flow Media	Filtered air
Solenoids	AC or DC power; Rated for continuous duty	Pilot Supply	Internal
Voltage	24 volts DC; 110 volts AC, 50/60 Hz	Operating Pressure	22.5 to 150 psig (1.5 to 10 bar)
Power Consumption (each solenoid)	2.5 watts on DC; 3.6 VA holding on 50/60 Hz	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Enclosure Rating	IP 65, IEC 60529	Manual Override	Pushbutton, non-locking
Electrical Connection	Port Size 1/8: MICRO-MINI EN 175301-803 connector Port Size 1/4 & 3/8: EN 175301-803 Industrial Form B connector		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Solenoid Pilot Controlled Valves

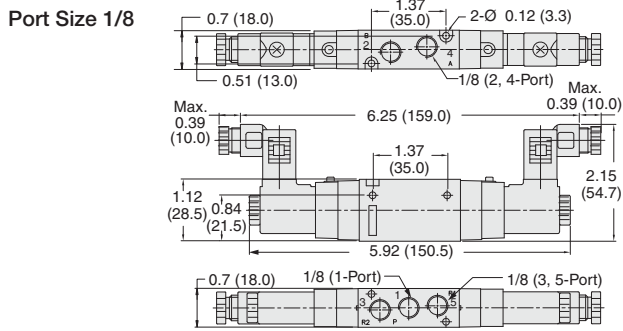
95 Series

5-Way 2-Position Valves, Double Solenoid, Detented					
Port Size		Valve Model Number#		Avg. C _v	Weight lb (kg)
1, 2, 4	3, 5	NPT Threads	G Threads		
1/8	1/8	9576K1002W	D9576K1002W	0.9	0.62 (0.28)
1/4	1/8	9576K2002W	D9576K2002W	1.3	1.04 (0.47)
3/8	3/8	9576K3002W	D9576K3002W	2.6	1.58 (0.72)
1/2	1/2	9576K4002W	D9576K4002W	4.5	2.04 (0.93)

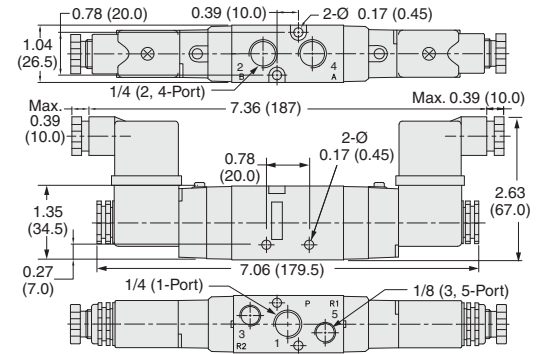
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 9576K1002W.



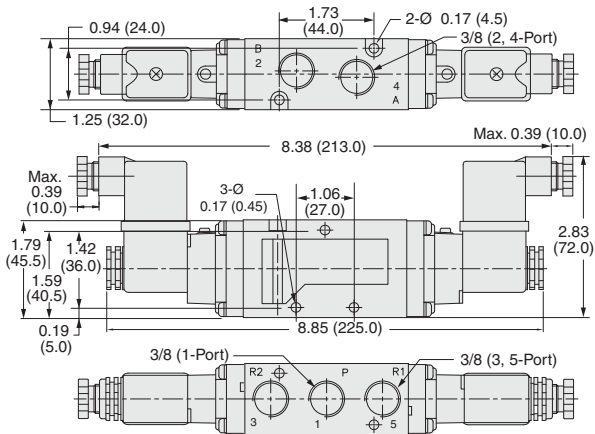
Valve Dimensions – inches (mm)



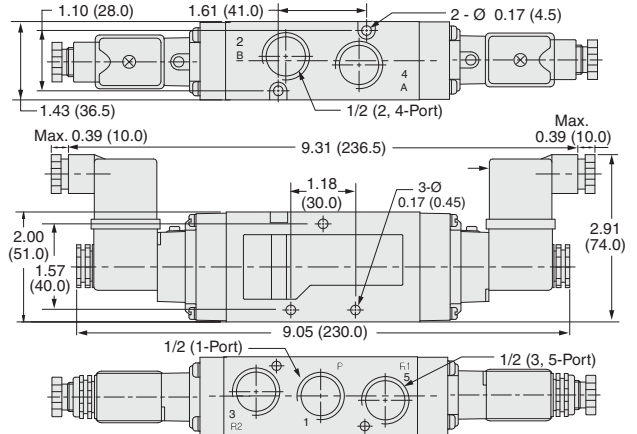
Port Size 1/4



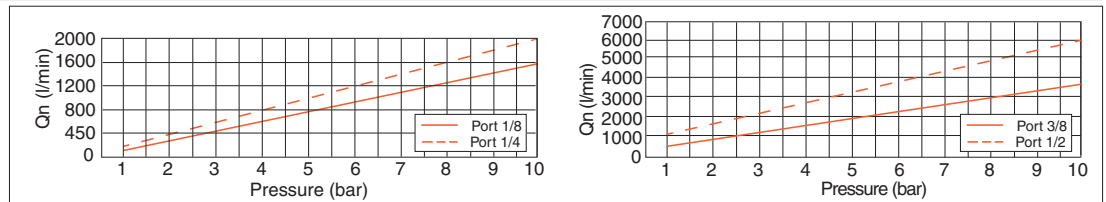
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page D4.12. For other options, consult ROSS.

Valves available with installed prewired connectors, please consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Temperature	Ambient/Media: 41° to 140°F (5° to 60°C)
Mounting Type	In-line or manifold mounted	Flow Media	Filtered air
Solenoids	AC or DC power; Rated for continuous duty	Pilot Supply	Internal
Voltage	24 volts DC; 110 volts AC, 50/60 Hz	Operating Pressure	22.5 to 150 psig (1.5 to 10 bar)
Power Consumption (each solenoid)	2.5 watts on DC; 3.6 VA holding on 50/60 Hz	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Enclosure Rating	IP 65, IEC 60529	Manual Override	Pushbutton, non-locking
Electrical Connection	Port Size 1/8: MICRO-MINI EN 175301-803 connector Port Size 1/4 & 3/8: EN 175301-803 Industrial Form B connector		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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D4.5

Double Solenoid Pilot Controlled Valves

95 Series



5-Way 3-Position Valves, Double Solenoid, Spring Center										
Port Size			Power Center		Closed Center		Open Center		Avg. C _v	Weight lb (kg)
			Valve Model Number#		Valve Model Number#		Valve Model Number#			
1, 2, 4	3, 5	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads			
1/8	1/8	9577K1019W	D9577K1019W	9577K1010W	D9577K1010W	9577K1007W	D9577K1007W	0.7	0.70 (0.32)	
1/4	1/8	9577K2019W	D9577K2019W	9577K2010W	D9577K2010W	9577K2007W	D9577K2007W	1.1	1.26 (0.57)	
3/8	3/8	9577K3019W	D9577K3019W	9577K3010W	D9577K3010W	9577K3007W	D9577K3007W	2.2	1.71 (0.78)	
1/2	1/2	9577K4019W	D9577K4019W	9577K4010W	D9577K4010W	9577K4007W	D9577K4007W	4.5	2.41 (1.09)	

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 9577K1019Z.

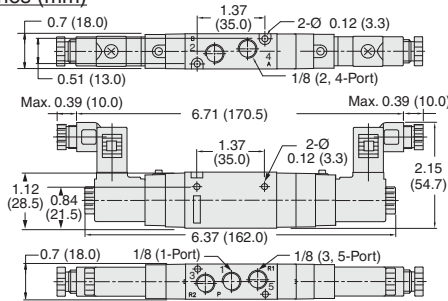
Power Center

Closed Center

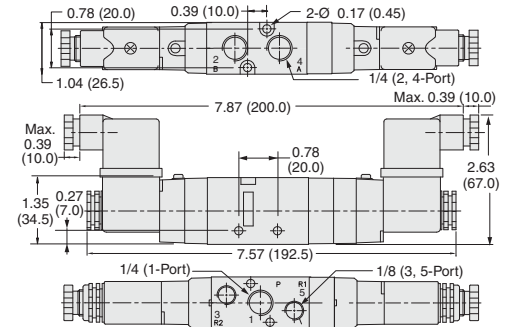
Open Center

Valve Dimensions – inches (mm)

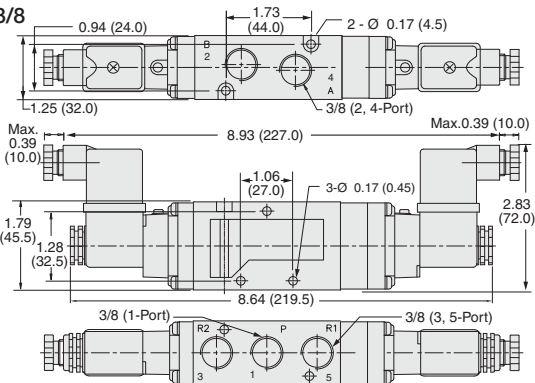
Port Size 1/8



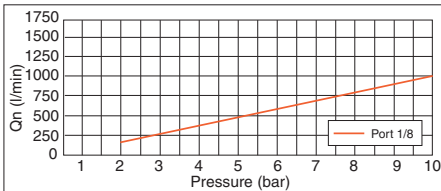
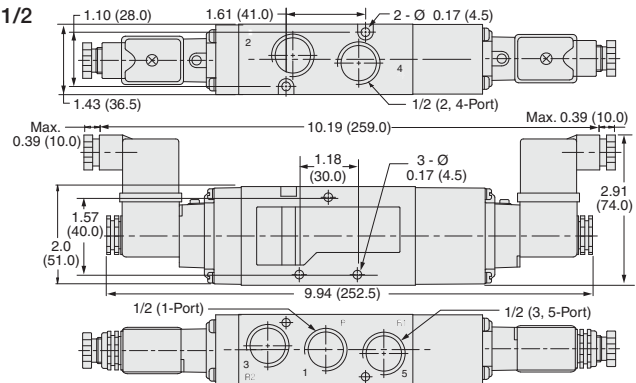
Port Size 1/4



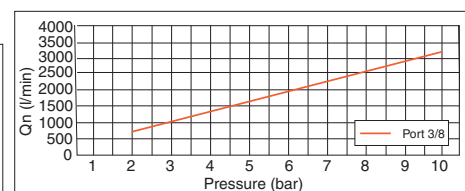
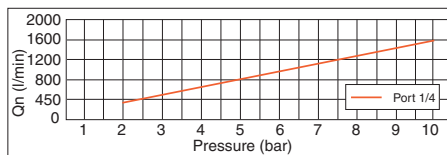
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page D4.12. For other options, consult ROSS.

Valves available with installed prewired connectors, please consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Temperature	Ambient/Media: 41° to 140°F (5° to 60°C)
Mounting Type	In-line or manifold mounted	Flow Media	Filtered air
Solenoids	AC or DC power; Rated for continuous duty	Pilot Supply	Internal
Voltage	24 volts DC; 110 volts AC, 50/60 Hz	Operating Pressure	22.5 to 150 psig (1.5 to 10 bar)
Power Consumption (each solenoid)	2.5 watts on DC; 3.6 VA holding on 50/60 Hz	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel
Enclosure Rating	IP 65, IEC 60529	Seals	Buna-N
Electrical Connection	Port Size 1/8: MICRO-MINI EN 175301-803 connector Port Size 1/4 & 3/8: EN 175301-803 Industrial Form B connector	Manual Override	Pushbutton, non-locking

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

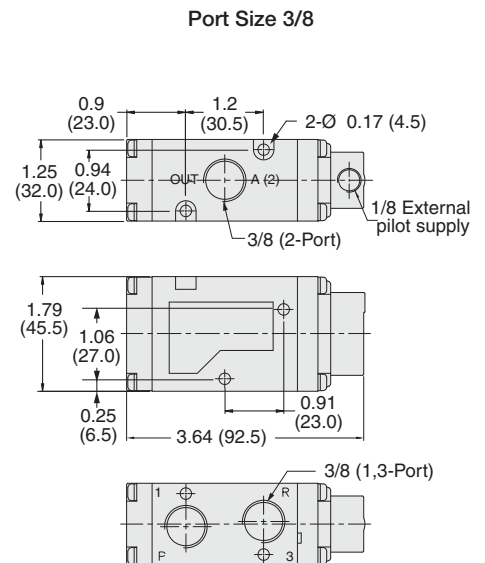
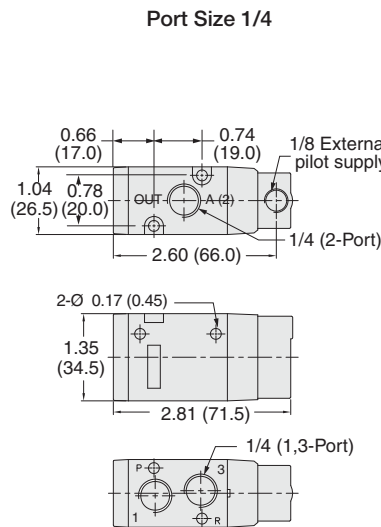
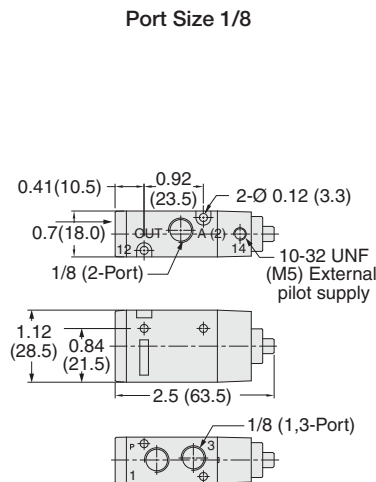
3-Way 2-Position Valves, Single Pilot, Spring Return								
Port Size		Signal Port Thread	Normally Closed		Normally Open		Avg. C _v	Weight lb (kg)
			Valve Model Number		Valve Model Number			
1, 2	3		NPT Threads	G Threads	NPT Threads	G Threads		
1/8	1/8	10-32 UNF	9553K1000	D9553K1000	9554K1000	D9553K1000	0.9	0.26 (0.12)
1/4	1/4	1/8	9553K2000	D9553K2000	9554K2000	D9553K2000	1.3	0.51 (0.23)
3/8	3/8	1/8	9553K3000	D9553K3000	9554K3000	D9553K3000	2.6	0.86 (0.39)

Normally Closed

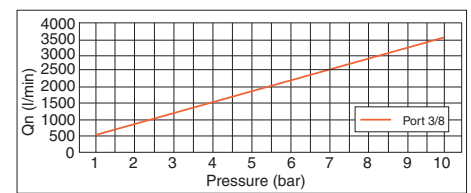
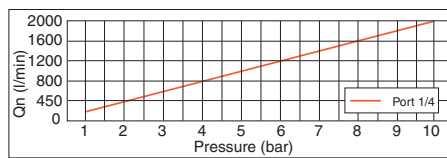
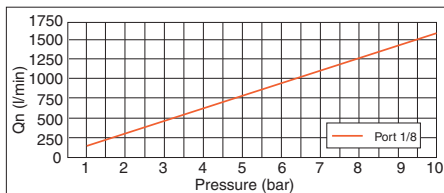
Normally Open



Valve Dimensions – inches (mm)



FLOW CHARTS



Manifolds and Accessories ordered separately, refer to page D4.11. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Operating Pressure	22.5 to 150 psig (1.5 to 10 bar)
Mounting Type	In-line or manifold mounted	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Temperature	Ambient/Media: 41° to 140°F (5° to 60°C)	Manual Override	Pushbutton, non-locking
Flow Media	Filtered air		
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Single Pilot Pressure Controlled Valves

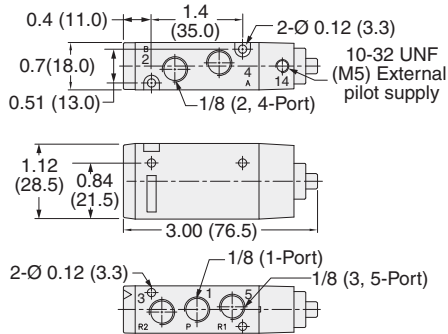
95 Series

5-Way 2-Position Valves, Single Pilot, Spring Return						
Port Size		Signal Port Thread	Valve Model Number		Avg. C_v	Weight lb (kg)
1, 2, 4	3, 5		NPT Threads	G Threads		
1/8	1/8	1/8	9556K1001	D9556K1001	0.9	0.26 (0.12)
1/4	1/8	1/8	9556K2001	D9556K2001	1.3	0.48 (0.22)
3/8	3/8	1/8	9556K3001	D9556K3001	2.6	1.02 (0.46)
1/2	1/2	1/8	9556K4001	D9556K4001	4.5	1.39 (0.63)

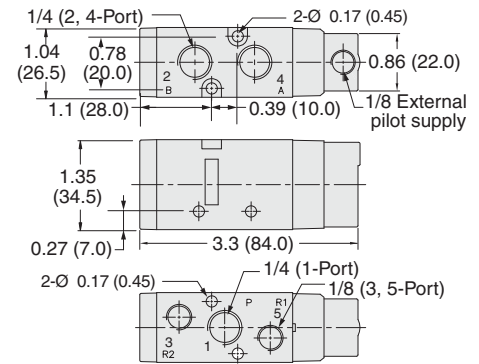


Valve Dimensions – inches (mm)

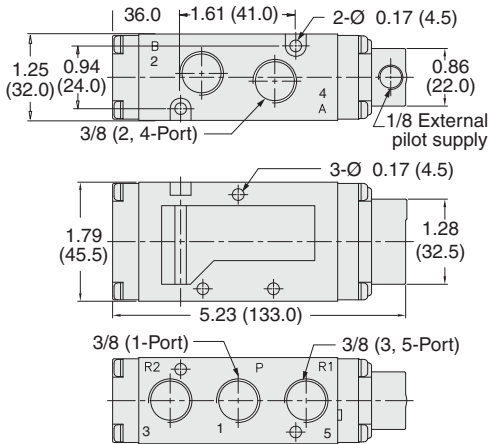
Port Size 1/8



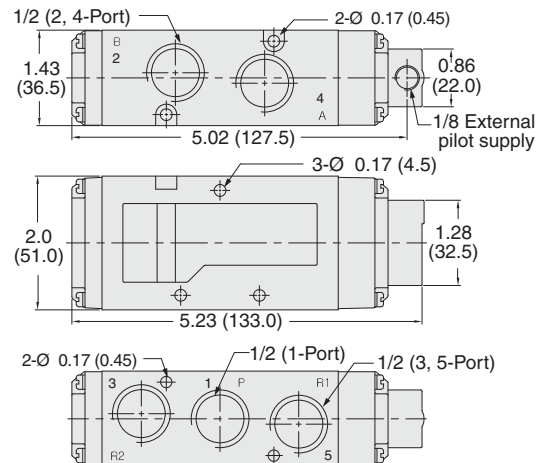
Port Size 1/4



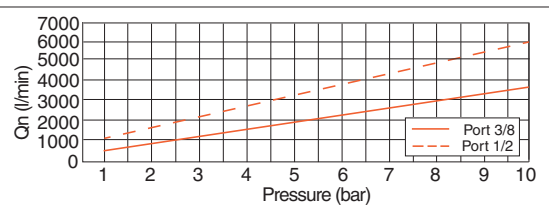
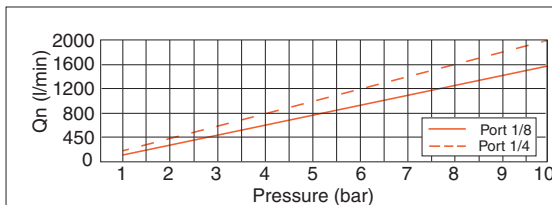
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Manifolds and Accessories ordered separately, refer to page D4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

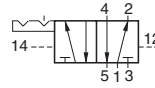
Construction Design	Spool	Operating Pressure	22.5 to 150 psig (1.5 to 10 bar) Pilot supply pressure must be equal to or greater than inlet pressure.
Mounting Type	In-line or manifold mounted	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Temperature	Ambient/Media: 41° to 140°F (5° to 60°C)	Manual Override	Pushbutton, non-locking
Flow Media	Filtered air		
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Pressure Controlled Valves

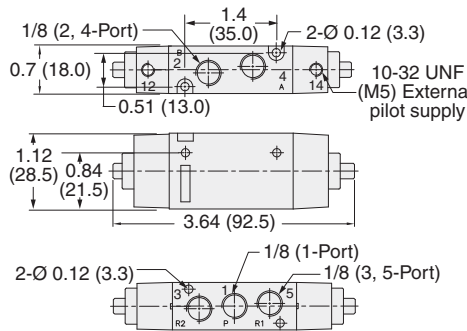
95 Series

5-Way 2-Position Valves, Double Pilot, Detented						
Port Size		Signal Port Thread	Valve Model Number		Avg. C _v	Weight lb (kg)
1, 2, 4	3, 5		NPT Threads	G Threads		
1/8	1/8	1/8	9556K1002	D9556K1002	0.9	0.32 (0.15)
1/4	1/8	1/8	9556K2002	D9556K2002	1.3	0.59 (0.27)
3/8	3/8	1/8	9556K3002	D9556K3002	2.6	1.07 (0.49)
1/2	1/2	1/8	9556K4002	D9556K4002	4.5	1.55 (0.70)

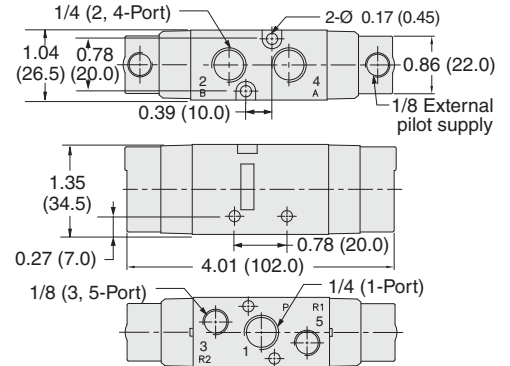


Valve Dimensions – inches (mm)

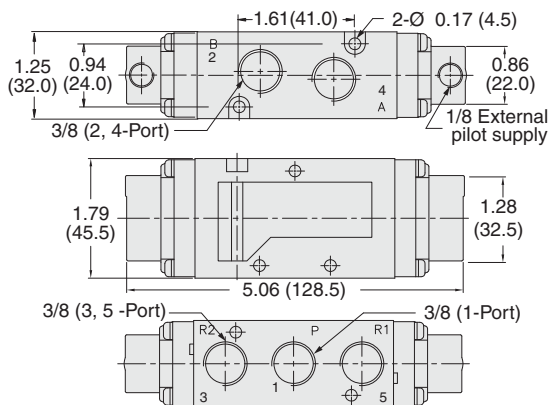
Port Size 1/8



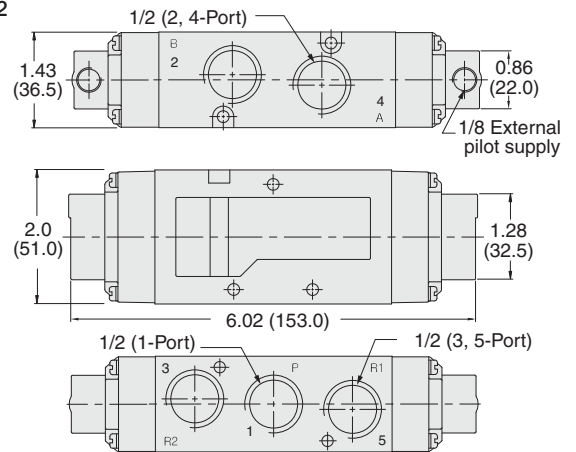
Port Size 1/4



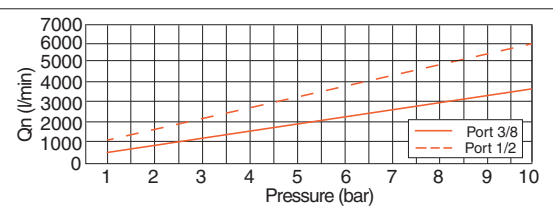
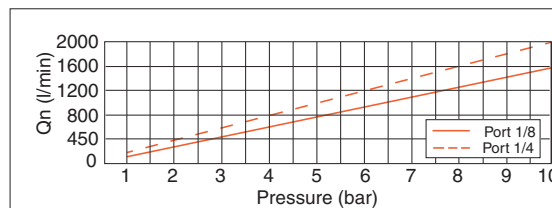
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Operating Pressure	22.5 to 150 psig (1.5 to 10 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Mounting Type	In-line or manifold mounted	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Temperature	Ambient/Media: 41° to 140°F (5° to 60°C)	Manual Override	Pushbutton, non-locking
Flow Media	Filtered air		
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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D4.9

Double Pressure Controlled Valves

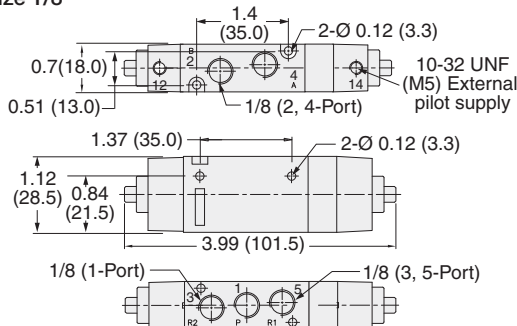
95 Series

5-Way 3-Position Valves, Double Pilot, Spring Center											
Port Size			Signal Port Thread	Power Center		Closed Center		Open Center		Avg. C _v	Weight lb (kg)
				Valve Model Number		Valve Model Number		Valve Model Number			
1, 2, 4	3, 5		NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads			
1/8	1/8	10-32 UNF	9557K1019	D9557K1019	9557K1010	D9557K1010	9557K1007	D9557K1007	0.7	0.38 (0.17)	
1/4	1/8	1/8	9557K2019	D9557K2019	9577K2010	D9577K2010	9557K2007	D9557K2007	1.1	0.51 (0.23)	
3/8	3/8	1/8	9557K3019	D9557K3019	9557K3010	D9557K3010	9557K3007	D9557K3007	2.2	1.39 (0.63)	
1/2	1/2	1/8	9557K4019	D9557K4019	9557K4010	D9557K4010	9557K4007	D9557K4007	3.4	1.98 (0.90)	

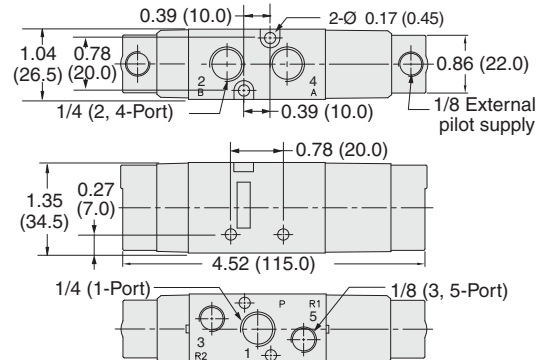


Valve Dimensions – inches (mm)

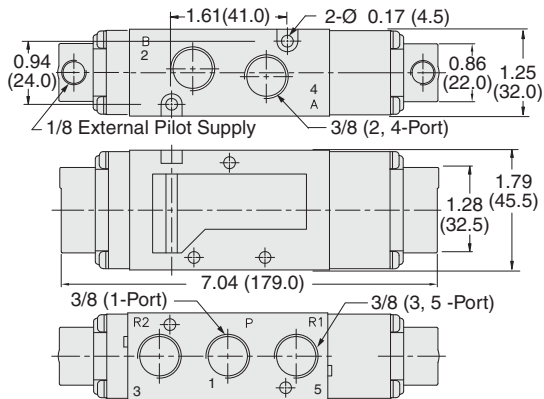
Port Size 1/8



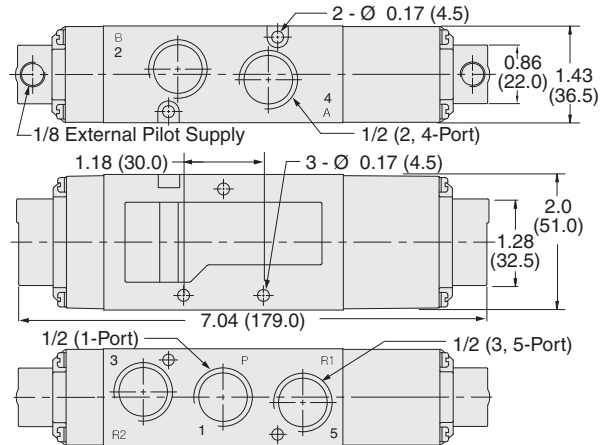
Port Size 1/4



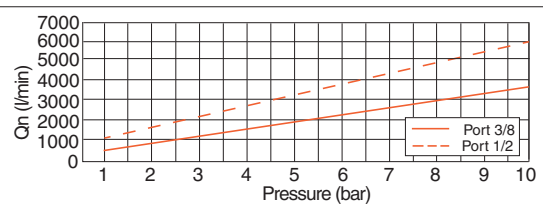
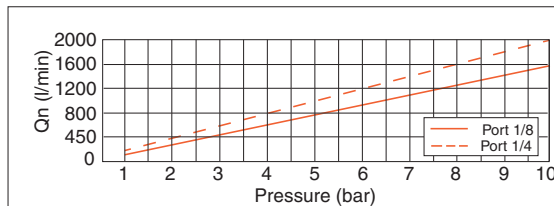
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Manifolds and Accessories ordered separately, refer to page D4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Operating Pressure	30 to 150 psig (2 to 10 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>
Mounting Type	In-line or manifold mounted	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Temperature	Ambient/Media: 41° to 140°F (5° to 60°C)	Manual Override	Pushbutton, non-locking
Flow Media	Filtered air		
Pilot Supply	External		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Slim-Line Manifold Base

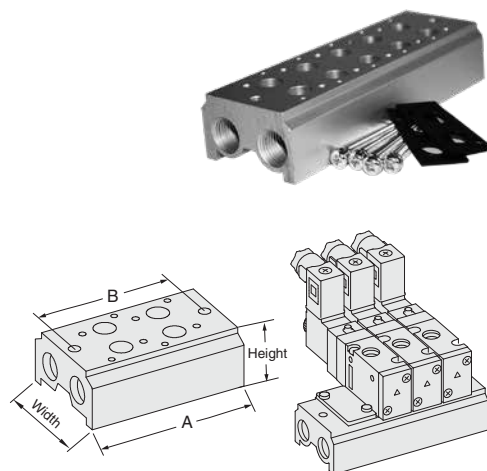
for 3/2- Spring Return or Detented Valves

for 95 Series

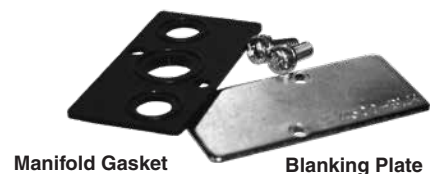
Manifold Bases for 3/2 Valves

Valve Port Size	Base Port Size	2 Valves Unit		4 Valves Unit		6 Valves Unit		8 Valves Unit		10 Valves Unit	
		Model Number		Model Number		Model Number		Model Number		Model Number	
1, 2, 3	1, 3	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads
1/8	1/4	1472H91	D1472H91	1474H91	D1474H91	1476H91	D1476H91	1478H91	D1478H91	1480H91	D1480H91
1/4	1/4	1492H91	D1492H91	1494H91	D1494H91	1496H91	D1496H91	1498H91	D1498H91	1500H91	D1500H91

Valve Port Size	Base Port Size	Base Dimensions	Numbers of Valves Unit				
			2	4	6	8	10
1, 2, 3	1, 3		Dimensions – inches (mm)				
1/8	1/4	Height	0.98 (25)	0.98 (25)	0.98 (25)	0.98 (25)	0.98 (25)
		Length (A)	2.32 (59)	3.82 (97)	5.31 (135)	6.81 (173)	8.31 (211)
		Length (B)	1.85 (47)	3.35 (85)	4.84 (123)	6.34 (161)	7.83 (199)
		Width	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)
1/4	1/4	Height	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)
		Length (A)	3.03 (77)	5.16 (131)	7.28 (185)	9.41 (239)	11.53 (293)
		Length (B)	2.60 (66)	4.72 (120)	6.85 (174)	8.98 (228)	11.10 (282)
		Width	1.97 (50)	1.97 (50)	1.97 (50)	1.97 (50)	1.97 (50)



MANIFOLD BLANKING KITS	Valve Port Size	Kit Number	Description
	1/8	1813H77	Manifold blanking kits include blanking plate, manifold gasket and mounting bolts.
	1/4	1814H77	



D

D4

ACCESSORIES & OPTIONS

Electrical Connectors	Connector Form	Valve Port Size	Model Number*	
			24 Volts DC	110 Volts AC
	EN 175301-803 MICRO-MINI	1/8	1766L77	1780L77
EN 175301-803 Industrial Form B connector	1/4, 3/8	1767L77	1781L77	

*3-Pin Electrical Connectors with LED & Surge Suppressor



Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.2 (55)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)



Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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D4.11

Slim-Line Manifold Base

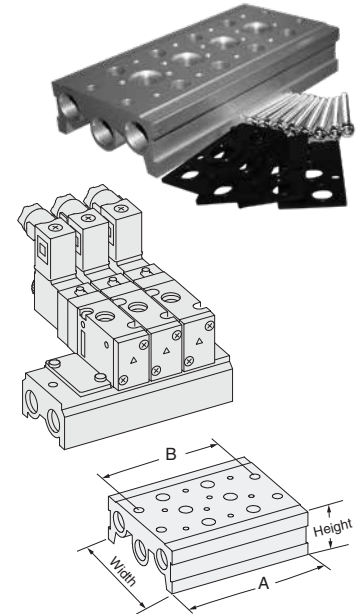
for 5/2 & 5/3- Spring Return or Detented Valves

for 95 Series

Manifold Bases for 5/2 & 5/3 Valves

Valve Port Size		Base Port Size	2 Valves Unit		4 Valves Unit		6 Valves Unit		8 Valves Unit		10 Valves Unit	
			Model Number		Model Number		Model Number		Model Number		Model Number	
1, 2, 4	3, 5	1, 3, 5	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads
1/8	1/8	1/4	1392H91	D1392H91	1394H91	D1394H91	1396H91	D1396H91	1398H91	D1398H91	1390H91	D1390H91
1/4	1/8	1/4	1412H91	D1412H91	1414H91	D1414H91	1416H91	D1416H91	1418H91	D1418H91	1420H91	D1420H91
3/8	3/8	3/8	1432H91	D1432H91	1434H91	D1434H91	1436H91	D1436H91	1438H91	D1438H91	1440H91	D1440H91
1/2	1/2	1/2	1652H91	D1652H91	1654H91	D1654H91	1656H91	D1656H91	1658H91	D1658H91	1650H91	D1650H91

Valve Port Size		Base Port Size	Base Dimensions	Numbers of Valves Unit				
1, 2, 4	3, 5	1, 3, 5		2	4	6	8	10
				Dimensions – inches (mm)				
1/8	1/8	1/4	Height	1.02 (26)	1.02 (26)	1.02 (26)	1.02 (26)	1.02 (26)
			Length (A)	2.32 (59)	3.81 (97)	5.31 (135)	6.81 (173)	8.31 (211)
			Length (B)	1.85 (47)	3.35 (85)	4.84 (123)	6.34 (161)	7.83 (199)
			Width	4.33 (110)	4.33 (110)	4.33 (110)	4.33 (110)	4.33 (110)
1/4	1/8	1/4	Height	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)
			Length (A)	3.29 (83.5)	5.45 (138.5)	7.62 (193.5)	9.78 (248.5)	11.95 (303.5)
			Length (B)	2.81 (71.5)	4.98 (126.5)	7.15 (181.5)	9.31 (236.5)	7.94 (201.5)
			Width	2.68 (68)	2.68 (68)	2.68 (68)	2.68 (68)	2.68 (68)
3/8	3/8	3/8	Height	1.18 (30)	1.18 (30)	1.18 (30)	1.18 (30)	1.18 (30)
			Length (A)	3.66 (93)	6.26 (159)	8.86 (225)	11.46 (291)	14.05 (357)
			Length (B)	3.15 (80)	5.75 (146)	8.35 (212)	10.94 (278)	13.54 (344)
			Width	3.43 (87)	3.43 (87)	3.43 (87)	3.43 (87)	3.43 (87)
1/2	1/2	1/2	Height	1.32 (33.5)	1.32 (33.5)	1.32 (33.5)	1.32 (33.5)	1.32 (33.5)
			Length (A)	4.05 (103)	7.01 (178)	9.96 (253)	12.91 (328)	15.87 (403)
			Length (B)	3.46 (88)	6.42 (163)	9.37 (238)	12.32 (313)	15.27 (388)
			Width	3.86 (98)	3.86 (98)	3.86 (98)	3.86 (98)	3.86 (98)

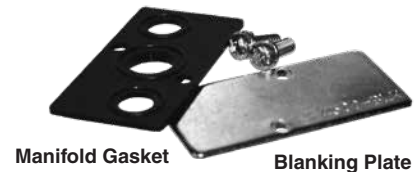


D

D4

MANIFOLD BLANKING KITS	Valve Port Size	Model Number
	1/8	1806H77
	1/4	1807H77
	3/8	1808H77
	1/2	1809H77

Manifold blanking kits include blanking plate, manifold gasket and mounting bolts.



ACCESSORIES & OPTIONS

Electrical Connectors	Connector Form	Valve Port Size	Model Number*	
			24 Volts DC	110 Volts AC
	EN 175301-803 Form A MICRO-MINI	1/8	1766L77	1780L77
	EN 175301-803 Industrial Form B connector	1/4, 3/8, 1/2	1767L77	1781L77

*3-Pin Electrical Connectors with LED & Surge Suppressor



Silencers

Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.2 (55)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	2.7	1.3 (32)	3.6 (92)	0.2 (0.1)



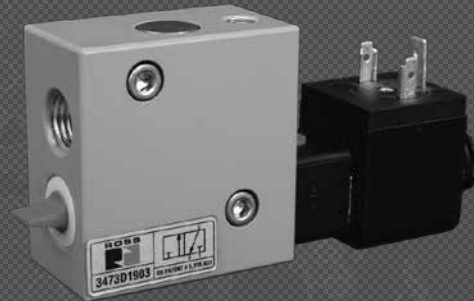
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



NAMUR INTERFACE VALVES

95 & 34 SERIES



ROSS CONTROLS

NAMUR INTERFACE 95 SERIES VALVES – KEY FEATURES

- Compact in-line ported valve consisting 5/2-way with either solenoid pilot control
- 24 volts DC and 110 volts AC options for solenoid control
- Available port sizes - 1/4"
- Resilient spool & sleeve construction
- High flow capacity
- Pressure ports located in valve body
- Manual override included
- Lube or non-lube service
- Fast response times

NAMUR INTERFACE 34 SERIES VALVES – KEY FEATURES

- “Duck-bill” protected exhaust port(s):
 - Limits wash down fluids from entering the valve
 - Minimizes the collection point for contamination
- Corrosion resistant epoxy powder coat
- Solenoid Pilot – Low wattage, fast shifting, repeatable, long life
- Patented Ball-poppet internals - Near zero internal leakage for the life of the valve, self cleaning valve seats, sure shifting
- Faster and more precise operation than a spool valve
- 3/2 Normally Closed

VALVE TYPE/SERIES	PORT SIZES		MAX. FLOW Cv	Page
	CONNECTION	1/4		
95 SERIES				
SOLENOID PILOT CONTROLLED with NAMUR INTERFACE				
5/2			1.3	D5.3
34 SERIES				
SOLENOID PILOT CONTROLLED with NAMUR INTERFACE				
3/2, 52	M12, or EN 175301-803 Form A		0.25	D5.4

Solenoid Pilot Controlled Valves

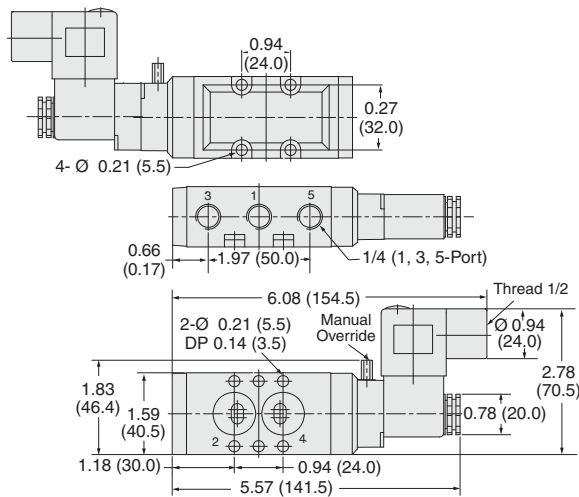
5-Way 2-Position Valves, Single Solenoid, Spring Return				
Port Size	Valve Model Number#		Avg. C _v	Weight lb (kg)
	NPT Threads	G Threads		
1, 3, 5	9576K2901W	D9576K2901W	1.3	0.80 (0.36)
1/4	9576K2901W	D9576K2901W	1.3	0.80 (0.36)

5-Way 2-Position Valves, Double Solenoid, Detented				
Port Size	Valve Model Number#		Avg. C _v	Weight lb (kg)
	NPT Threads	G Threads		
1, 3, 5	9576K2902W	D9576K2902W	1.3	1.04 (0.47)
1/4	9576K2902W	D9576K2902W	1.3	1.04 (0.47)

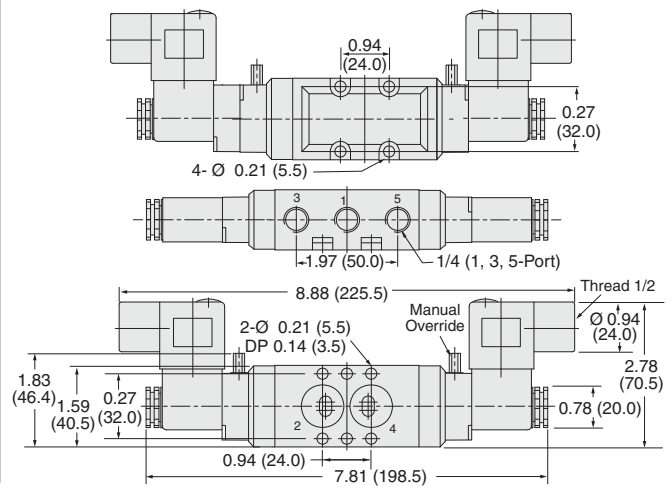
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 9576K2901Z.



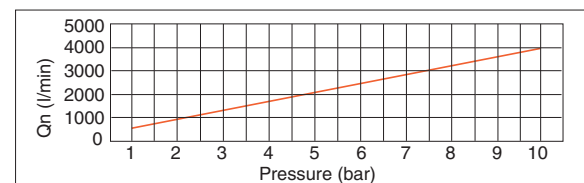
Valve Dimensions – inches (mm) Single Solenoid Valve



Double Solenoid Valve



FLOW CHART



D

ACCESSORIES & OPTIONS

Electrical Connectors			
Connector Form	Port Size	Model Number*	
		24 Volts DC	110 Volts AC
EN 175301-803 Form B	1/4	1767L77	1781L77

*3-Pin Electrical Connectors with LED & Surge Suppressor



Silencers		
Port Size	Threads	Model Number
1/4	Male - NPT	5500A2003
	Male - G	D5500A2003



D5

For other options, consult ROSS.

Valves available with installed prewired connectors, please consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Temperature	Ambient/Media: 41° to 140°F (5° to 60°C)
Mounting Type	In-line	Flow Media	Filtered air
Solenoids	AC or DC power; Rated for continuous duty	Pilot Supply	Internal
Voltage	24 volts DC; 110 volts AC, 50/60 Hz	Operating Pressure	22.5 to 150 psig (1.5 to 10 bar)
Power Consumption (each solenoid)	2.5 watts on DC; 5.5 VA holding on 50/60 Hz	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Enclosure Rating	IP 65, IEC 60529	Manual Override	Pushbutton, non-locking
Electrical Connection	EN 175301-803 Industrial Form B connector		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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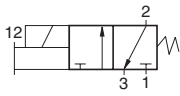


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Solenoid Pilot Controlled Valves

NAMUR Interface Washdown 34 Series

3-Way 2-Position Valves, Spring Return

Electrical Connection	Valve Model Number#*	Avg. C _v	Mounting Bolts	Weight lb (kg)	
	NPT Threads				
M12	3473D1904W	0.25	10-32	0.8 (0.3)	
EN 175301-803 Form A	3473D1900W	0.25	10-32	0.8 (0.3)	



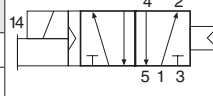
Model shown with M12 electrical connector



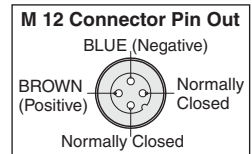
Model shown with EN electrical connector

Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3473D190Z. For other voltages, consult ROSS.
*Note: 10-24 and M5 mounting fasteners available upon request.

5-Way 2-Position Valves, Spring Return

Electrical Connection	Valve Model Number#*	Avg. C _v	Mounting Bolts	Weight lb (kg)	
	NPT Threads				
M12	3476C1904W	0.25	10-32	0.9 (0.4)	
EN 175301-803 Form A	3476C1900W	0.25	10-32	0.9 (0.4)	

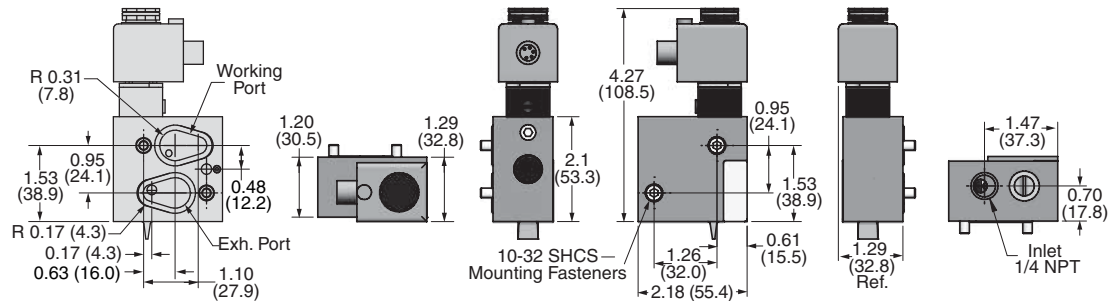
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 3476C1904Z. For other voltages, consult ROSS.
*Note: 10-24 and M5 mounting fasteners available upon request.



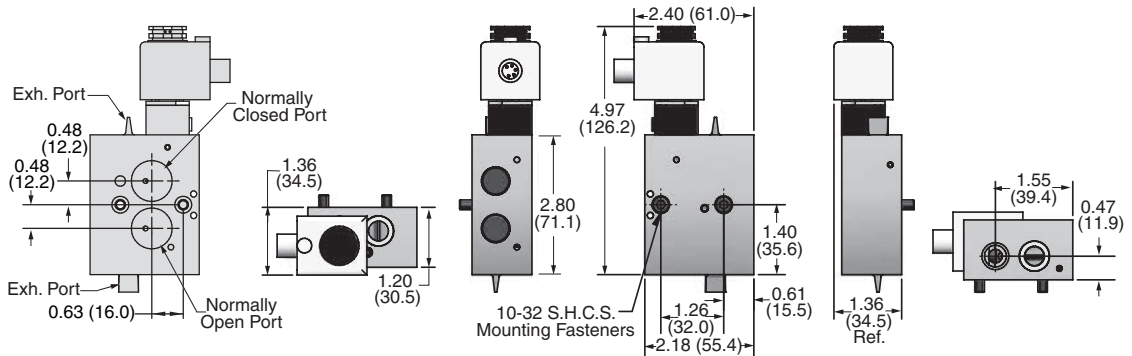
Valve Dimensions – inches (mm)

D

3/2 Valves



5/2 Valves



D5

STANDARD SPECIFICATIONS (for valves on this page):

Construction	Spool	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal
Solenoids	AC or DC power; Rated for continuous duty	Operating Pressure	29 to 116 psig (2 to 8 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N
Power Consumption (each solenoid)	0.7 watts on DC;	Standard	NEMA 4X (enclosure constructed for indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; and also provides protection in highly corrosive environments.
Enclosure Rating	IP 65, IEC 60529		
Electrical Connection	EN 175301-803 Form A connector, or M12		
Temperature	Ambient/Media: 4° to 122°F (-10° to 50°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



COMPACT VALVES 16 SERIES



ROSS CONTROLS

Compact Valves Solenoid Pilot Controlled

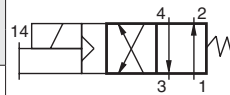
16 Series



3-Way 2-Position Valves, Spring Return									
Port Size	Normally Closed		Normally Open		C _v		Average Response Constants**		Weight lb (kg)
	Valve Model Number#		Valve Model Number#						
1, 2, 3	NPT Threads	G Threads	NPT Threads	G Threads	NC	NO	M	F	
1/8	1613B1020W	D1613B1020W	1614B1020W	D1614B1020W	0.3	0.3	5	2.90	1.4 (0.6)
1/4	1613B2020W	D1613B2020W	1614B2020W	D1614B2020W	0.3	0.3	5	2.90	1.4 (0.6)



4-Way 2-Position Valves, Spring Return							
Port Size	Valve Model Number#		C _v		Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads	1-2	2-4	M	F	
1/4	1616C2020W	D1616C2020W	0.3	0.3	5	2.90	2.4 (1.1)

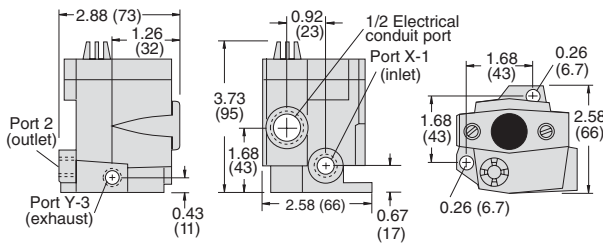


Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 1613B1020Z. For other voltages, consult ROSS.

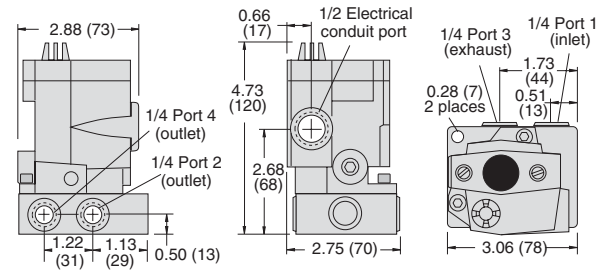
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

3/2 Valves



4/2 Valves



D

ACCESSORIES & OPTIONS

Silencers



Port Size	Thread Type	Model Number		Avg. C _v
		NPT Threads	R/Rp Threads	
1/8	Male	5500A1003	D5500A1003	1.2
1/4	Male	5500A2003	D5500A2003	2.1

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.

Indicator Light Kits

The indicator light gives the option to visually verify valve operation, it extends through the solenoid or pilot cover and is illuminated when the solenoid is energized.

Kit Number		Indicator Light
24 volts DC	110-120 volts AC 50-60 Hz	
862K87-W	862K87-Z	

Manual Override Kits

FLUSH BUTTON		EXTENDED BUTTON	EXTENDED BUTTON with PALM	
Locking Type	Kit Number		Locking Type	Kit Number
Non-Locking	790K87		Non-Locking	984H87
Locking	792K87		Non-Locking	984H87

Buttons in the override kits are made of metal and are spring-returned. The locking type button, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	3/2 Valves: 5 to 150 psig (0.3 to 10 bar) 4/2 Valves: 30 to 150 psig (2 to 10 bar)
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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D6.3

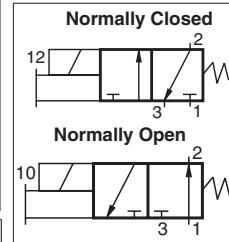
Compact Valves and Manifolds

Solenoid Pilot Controlled

16 Series

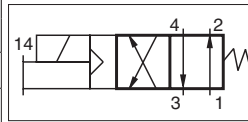
3-Way 2-Position Valves, Spring Return									
Port Size	Normally Closed		Normally Open		C _v		Average Response Constants**		Weight lb (kg)
	Valve Model Number#		Valve Model Number#						
1, 2, 3	NPT Threads	G Threads	NPT Threads	G Threads	NC	NO	M	F	
1/4	1613C2322W	D1613C2322W	1614B2322W	D1614B2322W	0.3	0.3	5	2.90	2.4 (1.1)

Manifold not included with the valve. Order manifold station model number **256B91**.



4-Way 2-Position Valves, Spring Return							
Port Size	Valve Model Number#		C _v		Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads	1-2	2-4	M	F	
1, 2, 3, 4							
1/4	1616C2322W	D1616C2322W	0.3	0.3	5	2.90	2.4 (1.1)

Manifold not included with the valve. Order manifold station model number **257B91**.

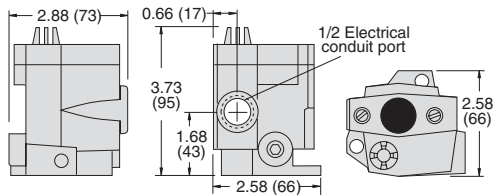


Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., 1613C2322Z. For other voltages, consult ROSS.

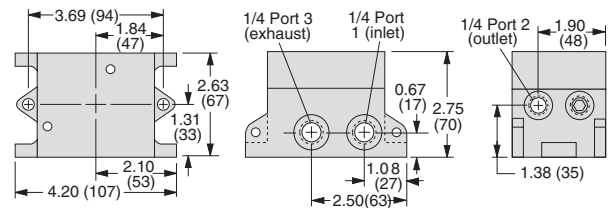
** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Dimensions – inches (mm)

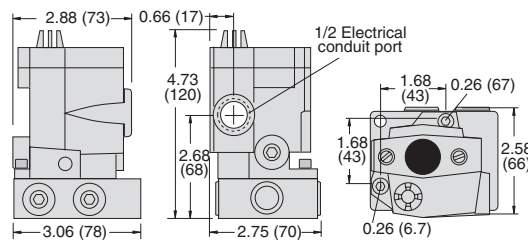
3/2 Valves



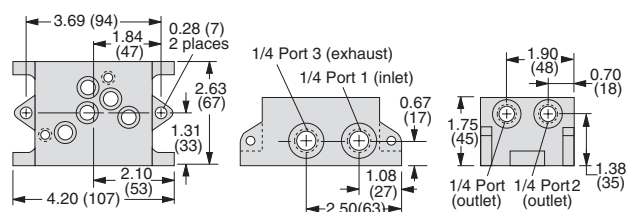
3/2 Manifold Station



4/2 Valves



4/2 Manifold Station



ACCESSORIES & OPTIONS

Silencers



Port Size	Thread Type	Model Number		Avg. C _v
		NPT Threads	R/Rp Threads	
1/8	Male	5500A1003	D5500A1003	1.2
1/4	Male	5500A2003	D5500A2003	2.1

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.

Indicator Light Kits

The indicator light gives the option to visually verify valve operation, it extends through the solenoid or pilot cover and is illuminated when the solenoid is energized.

Kit Number		Indicator Light
24 volts DC	110-120 volts AC 50-60 Hz	
862K87-W	862K87-Z	

Manual Override Kits

FLUSH BUTTON		
Locking Type	Kit Number	
Non-Locking	790K87	
Locking	792K87	

EXTENDED BUTTON		
Locking Type	Kit Number	
Non-Locking	791K87	

EXTENDED BUTTON with PALM		
Locking Type	Kit Number	
Non-Locking	984H87	

Buttons in the override kits are made of metal and are spring-returned. The locking type button, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

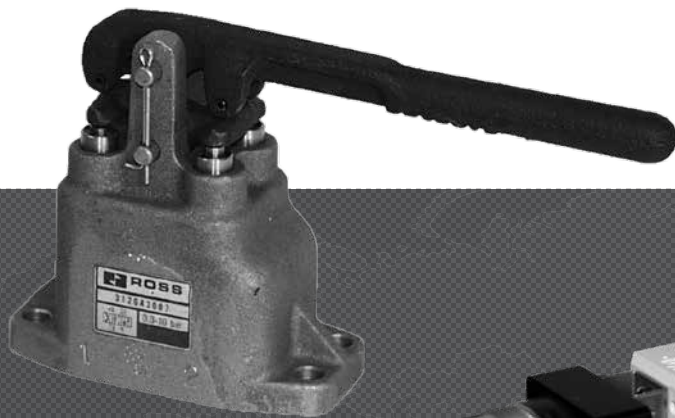
STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	3/2 Valves: 5 to 150 psig (0.3 to 10 bar) 4/2 Valves: 30 to 150 psig (2 to 10 bar)
Solenoids	Rated for continuous duty	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal Seals: Buna-N
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Manual Override	Flush; rubber, non-locking
Power Consumption	14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz		
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.












MANUAL AND MECHANICAL VALVES



ROSS CONTROLS

E1

															
Pushbutton	Palm Button	Toggle Lever	Cam Roller	Plunger											
															
Heavy-Duty Hand Lever	Foot Pedal with Guard	Pendant	Accessories												
VALVE TYPE	VALVE SERIES	AVAILABLE PORT SIZES							MAX. FLOW Cv	FUNCTIONS					Page
		1/8	1/4	3/8	1/2	3/4	1	1 1/4		2/2	3/2	4/2	4/3	5/2	
Flush & Mushroom Pushbutton															
	12								0.9					E1.3	
Palm Button & Heavy Duty Palm Button															
	11 & 12								0.5					E1.4	
Selector Switch															
	12								0.9					E1.5	
Toggle Lever															
	11								0.5					E1.6	
Lever															
	36								1.2					E1.7	
Heavy-Duty Hand Lever															
	31								14					E1.8 - E1.9	
Pedal & Treadle															
	36								1.2					E1.10	
Foot Pedal with Guard															
	RM								0.5					E1.11	
Mechanical Cam Roller & Plunger Valves															
	11								0.5					E1.12	
Pendant Control															
	20 & 39								0.5					E1.13	

Manual Valves

Flush & Mushroom Pushbutton

12 Series

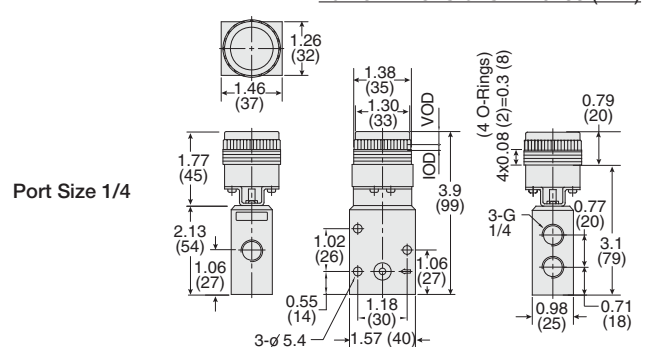
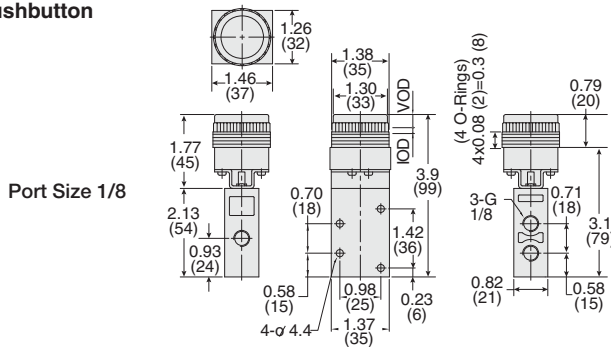
3-Way 2-Position Valves, Flush Pushbutton, Spring Return						
Port Size	Green Button		Red Button		C _v	Weight lb (kg)
	Valve Model Number		Valve Model Number			
	NPT Threads	G Threads	NPT Threads	G Threads		
1/8	1223B1FPG	D1223B1FPG	1223B1FPR	D1223B1FPR	0.6	0.28 (0.13)
1/4	1223B2FPG	D1223B2FPG	1223B2FPR	D1223B2FPR	0.9	0.34 (0.15)



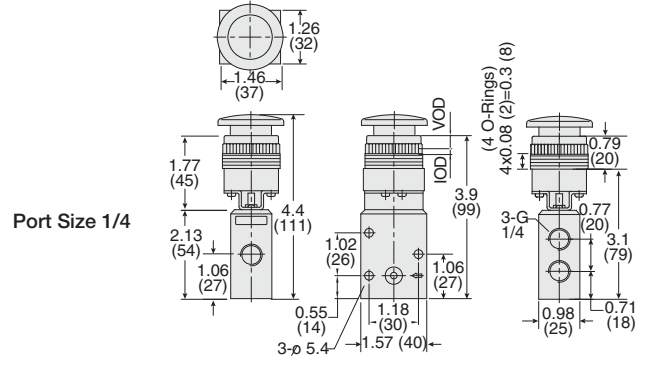
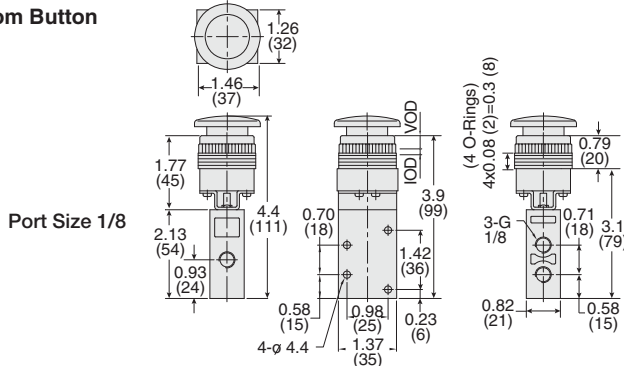
3-Way 2-Position Valves, Mushroom Button Spring Return						
Port Size	Green Button		Red Button		C _v	Weight lb (kg)
	Valve Model Number		Valve Model Number			
	NPT Threads	G Threads	NPT Threads	G Threads		
1/8	1223B1MBG	D1223B1MBG	1223B1MBR	D1223B1MBR	0.6	0.29 (0.13)
1/4	1223B2MBG	D1223B2MBG	1223B2MBR	D1223B2MBR	0.9	0.35 (0.16)



Flush Pushbutton



Mushroom Button



Valve Dimensions – inches (mm)

E1

E

ACCESSORIES

Silencers	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	R/Rp Threads		Width	Length	
			1/8	Male		5500A1003	D5500A1003	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)	

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

Normally Closed or Normally Open simply by piping the inlet supply accordingly.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool & Sleeve	Construction Material Valve Body: Cast Aluminum Button: Stainless steel, Polyoxymethylene Spool: Aluminum Spring: Stainless Steel Switch Parts: Glass filled Nylon
Mounting Type	In-line	
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	
Flow Media	Filtered air	
Operating Pressure	5 to 150 psig (0.3 to 10 bar)	
Valid Operation Distance: 0.22 inches (5.5 mm). Invalid Operation Distance: 0.04 inches (1.0 mm). Pressure for Valid/Invalid Operation: 7.7 lb (3.5 Kg).		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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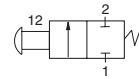
E1.3

Manual Valves

Palm Button & Heavy-Duty Palm Button

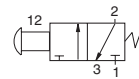
Heavy-Duty 11 & 12 Series

2-Way 2-Position Valves, Palm Button, Spring Return						
Port Size	Normally Closed		C _v	Average Response Constants**		Weight lb (kg)
	Valve Model Number			F		
1-2	NPT Threads	G Threads		1-2		
1/4	1121A2001	D1121A2001	0.5	2.5		1.0 (0.5)

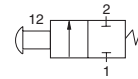


Palm Button

3-Way 2-Position Valves, Palm Button, Spring Return						
Port Size	Normally Closed		C _v	Average Response Constants**		Weight lb (kg)
	Valve Model Number			F		
1, 2, 3	NPT Threads	G Threads		1-2	2-3	
1/4	1123A2001	D1123A2001	0.5	2.5	3.2	1.0 (0.5)

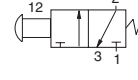


2-Way 2-Position Valves, Heavy-Duty Palm Button Spring Return							
Port Size	Normally Closed				C _v	Average Response Constants**	Weight lb (kg)
	Green Button		Red Button				
1-2	Valve Model Number		Valve Model Number			F	
1/4	NPT Threads	G Threads	NPT Threads	G Threads		1-2	
1/4	1221B2001	D1221B2001	1221B2003	D1221B2003	0.8	2.0	1.8 (0.8)



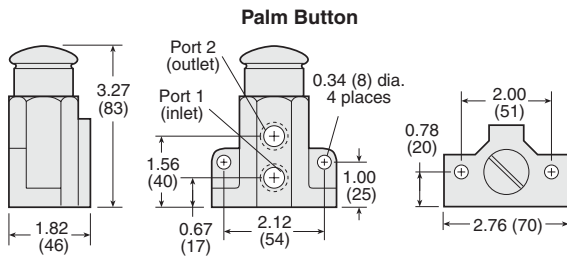
Heavy-Duty Palm Button

3-Way 2-Position Valves, Heavy-Duty Palm Button Spring Return								
Port Size	Normally Closed				C _v	Average Response Constants**		Weight lb (kg)
	Green Button		Red Button					
1, 2, 3	Valve Model Number		Valve Model Number			F		
1/4	NPT Threads	G Threads	NPT Threads	G Threads		1-2	2-3	
1/4	1223B2001	D1223B2001	1223B2003	D1223B2003	0.8	2.0	2.3	1.8 (0.8)

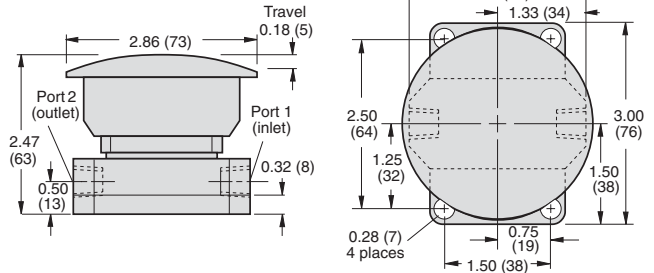


** Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)



Heavy-Duty Palm Button

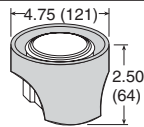


ACCESSORIES & OPTIONS

Silencers for 3-way Valves	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	R/Rp Threads		Width	Length	
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.

RING GUARD for Heavy-Duty Palm Button	Model Number
	278B30



Helps to protect against accidental valve actuation.

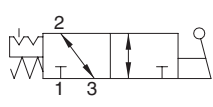
STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Side and bottom mounting flanges	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -10° to 175°F (-23° to 80°C) For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -10°F (-23°C), consult ROSS.	Construction Material	Valve Body: Cast Aluminum Button: Aluminum Heavy-Duty Palm Button: High-strength polymer

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manual Valves Selector Switch

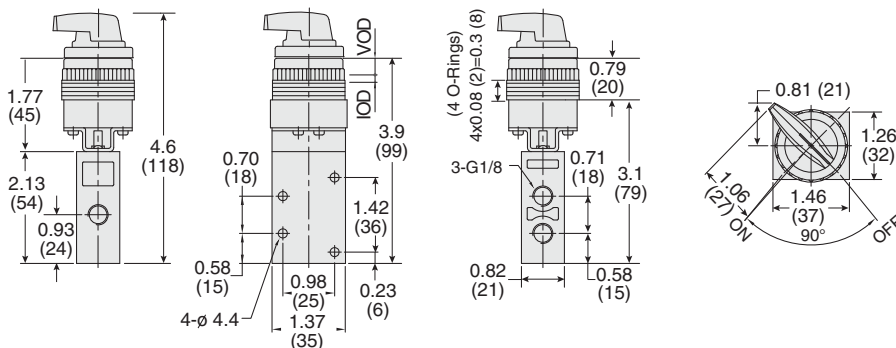
12 Series

3-Way 2-Position Valves, Detented					
Port Size	Black Switch Knob		C _v	Weight lb (kg)	
	Valve Model Number				
1-2	NPT Threads	G Threads	1-2		
1/8	1223B1SLB	D1223B1SLB	0.6	0.31 (0.14)	
1/4	1223B2SLB	D1223B2SLB	0.9	0.37 (0.17)	

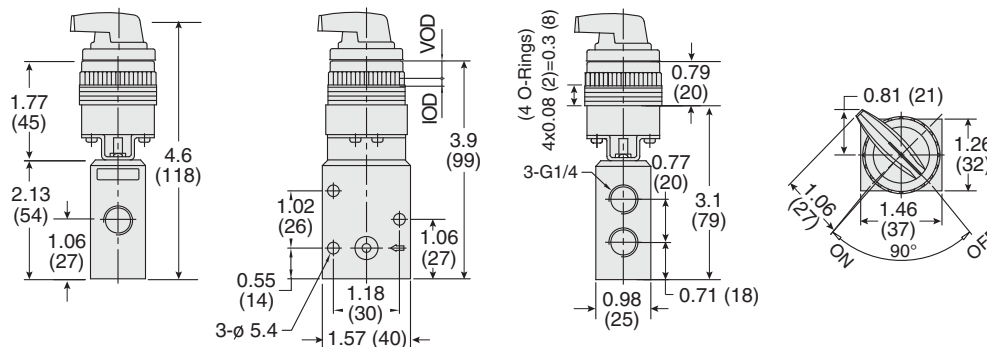


Valve Dimensions – inches (mm)

Port Size 1/8



Port Size 1/4



Normally Closed or Normally Open simply by piping the inlet supply accordingly.

E1

E

ACCESSORIES

Silencers	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	R/Rp Threads		Width	Length	
	1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.0 (51)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)	

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool & Sleeve	Construction Material Valve Body: Cast Aluminum Button: Stainless steel, Polyoxymethylene Spool: Aluminum Seals: Nitrile Rubber Spring: Stainless Steel Switch Parts: Glass filled Nylon
Mounting Type	In-line	
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	
Flow Media	Filtered air	
Operating Pressure	5 to 150 psig (0.3 to 10 bar)	
		Valid Operation Distance: 0.22 inches (5.5 mm). Invalid Operation Distance: 0.04 inches (1.0 mm). Pressure for Valid/Invalid Operation: 7.7 lb (3.5 Kg).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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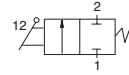


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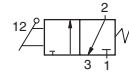
E1.5



2-Way 2-Position Valves, Spring Return						
Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F 1-2		
1/4	1121A2002	D1121A2002	0.5	2.5		1.0 (0.5)



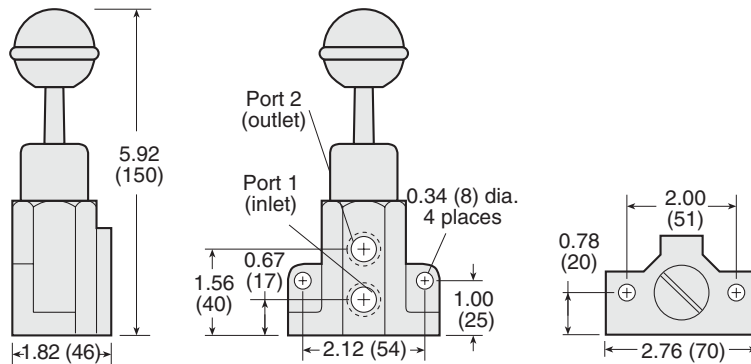
3-Way 2-Position Valves, Spring Return						
Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F		
				1-2	2-3	
1/4	1123A2002	D1123A2002	0.5	2.5	3.2	1.0 (0.5)



** **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

E1

Valve Dimensions – inches (mm)



E

ACCESSORIES

Silencers for 3-way Valves	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	R/Rp Threads		Width	Length	
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

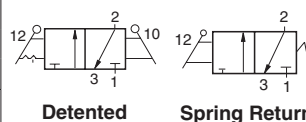
STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Side and bottom mounting flanges	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -10° to 175°F (-23° to 80°C)	Construction Material	Valve Body: Cast Aluminum Lever Knob Material: Glass filled Nylon
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -10°F (-23°C), consult ROSS.		

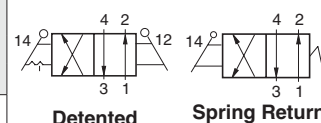
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



3-Way 2-Position Valves, Detented or Spring Return							
Port Size	Operators	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
		NPT Threads	G Threads		F		
					1-2	2-3	
1/4	Detented	3623A2003	D3623A2003	1.2	1.66	1.43	1.3 (0.6)
1/4	Spring Return	3623A2004	D3623A2004	1.2	1.66	1.43	1.3 (0.6)



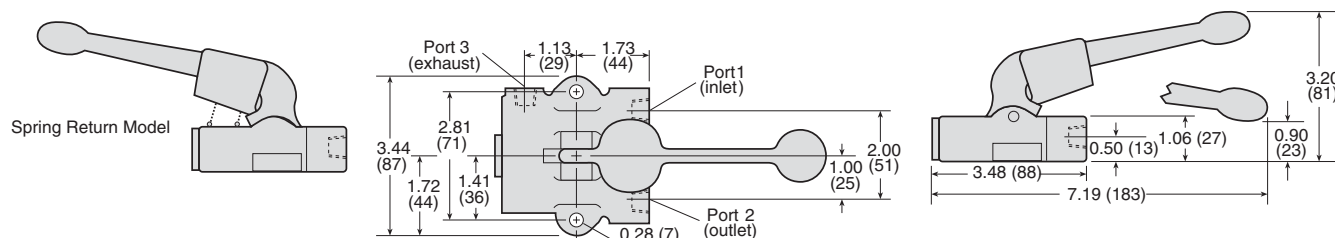
4-Way 2-Position Valves, Detented or Spring Return							
Port Size	Operators	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
		NPT Threads	G Threads		F		
					1-2, 1-4	4-3, 2-3	
1/4	Detented	3626A2003	D3626A2003	1.2	1.66	1.43	2.5 (1.1)
1/4	Spring Return	3626A2004	D3626A2004	1.2	1.66	1.43	2.5 (1.1)



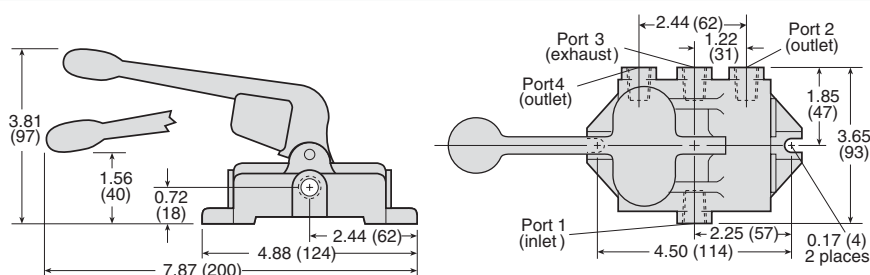
** **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)

3/2 Valve



4/2 Valve



ACCESSORIES

Silencers for 3-way Valves	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	R/Rp Threads		Width	Length	
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

For models with vertical handle, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Side and bottom mounting flanges	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -30° to 175°F (-34° to 80°C)	Construction Material	Valve Body: Cast Aluminum
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -30°F (-34°C), consult ROSS.		

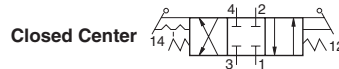
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.





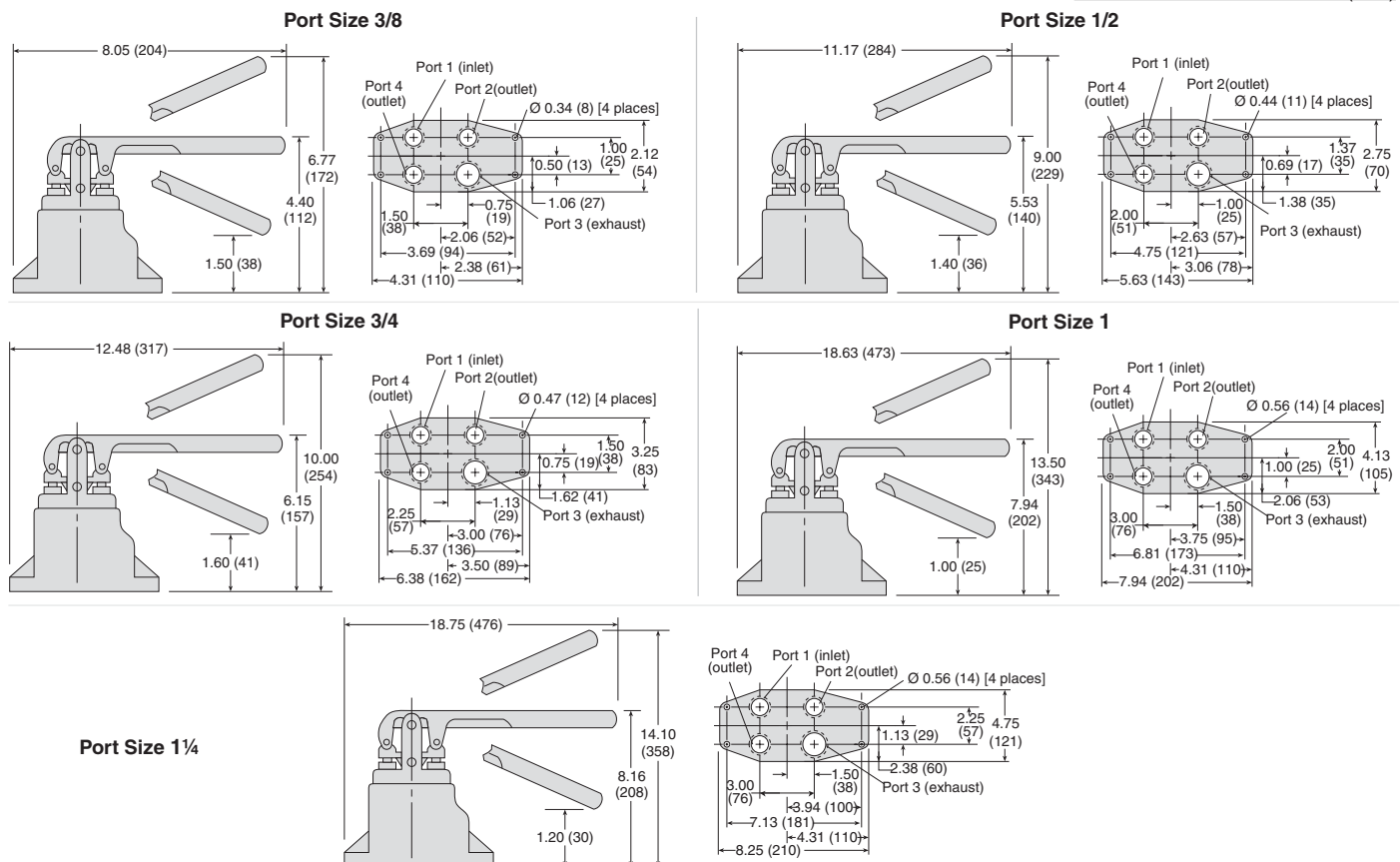
4-Way 3-Position Valves, Detented

Port Size		Closed/Open Center	Valve Model Number		C _v		Average Response Constants**		Weight lb (kg)
1, 2, 4	3		NPT Threads	G Threads	In-Out	Out-Exh.	F		
			In-Out	Out-Exh.					
3/8	1/2	Open	3126A3007	D3126A3007	1.7	1.4	1.26	1.43	2.0 (0.9)
3/8	1/2	Closed	3126A3010	D3126A3010	1.7	1.4	1.26	1.43	2.0 (0.9)
1/2	3/4	Open	3126A4007	D3126A4007	2.8	2.3	0.87	1.01	3.8 (1.7)
1/2	3/4	Closed	3126A4010	D3126A4010	2.8	2.3	0.87	1.01	3.8 (1.7)
3/4	1	Open	3126A5007	D3126A5007	5.0	4.2	0.55	0.63	5.0 (2.3)
3/4	1	Closed	3126A5010	D3126A5010	5.0	4.2	0.55	0.63	5.0 (2.3)
1	1¼	Open	3126A6007	D3126A6007	10	7.5	0.30	0.39	10.0 (4.5)
1	1¼	Closed	3126A6010	D3126A6010	10	7.5	0.30	0.39	10.0 (4.5)
1¼	1½	Open	3126A7007	D3126A7007	14	9.6	0.23	0.32	11.0 (5.0)
1¼	1½	Closed	3126A7010	D3126A7010	14	9.6	0.23	0.32	11.0 (5.0)



Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Bottom mounting flanges	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -40° to 175°F (-40° to 80°C)	Construction Material	Valve Body: Cast Aluminum
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -40°F (-40°C), consult ROSS.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



4-Way 3-Position Valves, Detented or Non-Detented									
Port Size		Closed/Open Center	Valve Model Number		C _v		Average Response Constants**		Weight lb (kg)
1, 2, 4	3		NPT Threads	G Threads	In-Out	Out-Exh.	F		
						In-Out	Out-Exh.		
3/8	1/2	Open	3126A3009	D3126A3009	1.7	1.4	1.26	1.43	2.4 (1.1)
3/8	1/2	Open	3126A3012#	D3126A3012#	1.7	1.4	1.26	1.43	2.4 (1.1)
3/8	1/2	Closed	3126A3013	D3126A3013	1.7	1.4	1.26	1.43	2.4 (1.1)
3/8	1/2	Closed	3126A3014#	D3126A3014#	1.7	1.4	1.26	1.43	2.4 (1.1)
1/2	3/4	Open	3126A4009	D3126A4009	2.8	2.3	0.87	1.01	4.8 (2.2)
1/2	3/4	Open	3126A4012#	D3126A4012#	2.8	2.3	0.87	1.01	4.8 (2.2)
1/2	3/4	Closed	3126A4013	D3126A4013	2.8	2.3	0.87	1.01	4.8 (2.2)
1/2	3/4	Closed	3126A4014#	D3126A4014#	2.8	2.3	0.87	1.01	4.8 (2.2)

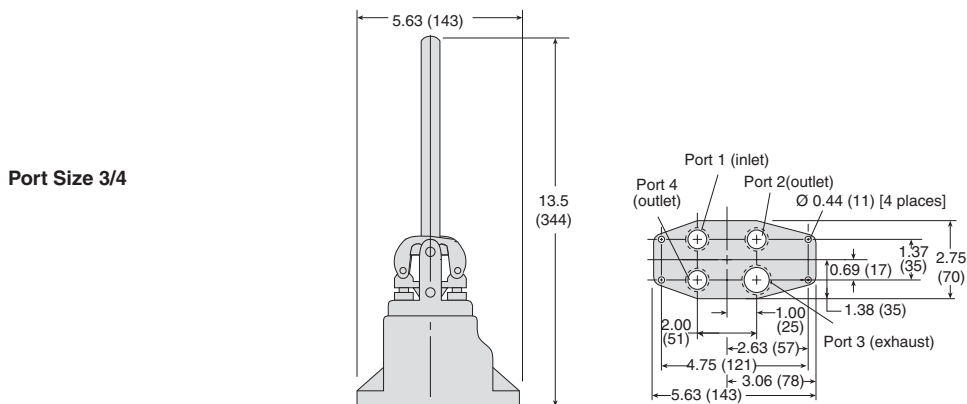
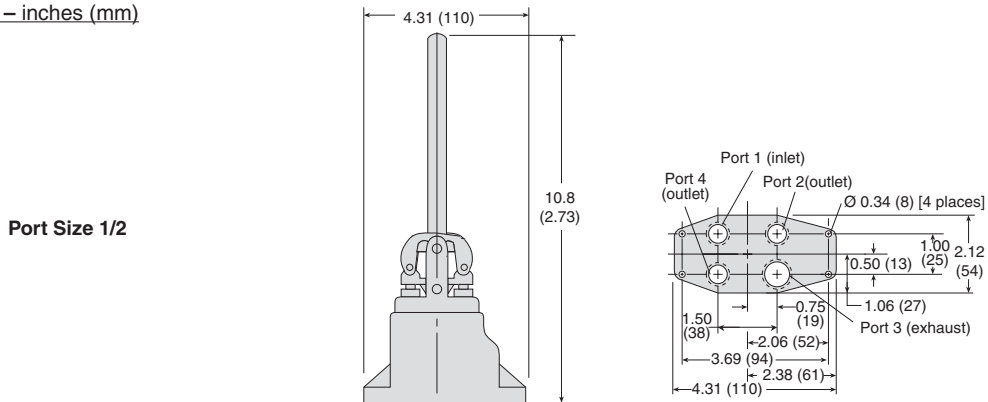
Non-detented models.

Open Center

Closed Center

** **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Bottom mounting flanges	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -40° to 175°F (-40° to 80°C)	Construction Material	Valve Body: Cast Aluminum
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -40°F (-40°C), consult ROSS.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Pedal, Spring Return						
Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F		
1/4	3643A2002	D3643A2002	1.2	1-2 1.66	2-3 1.43	1.3 (0.6)



4-Way 2-Position Valves, Pedal, Spring Return						
Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F		
1/4	3646A2002	D3646A2002	1.2	1-2, 1-4 1.66	4-3, 2-3 1.43	2.8 (1.3)

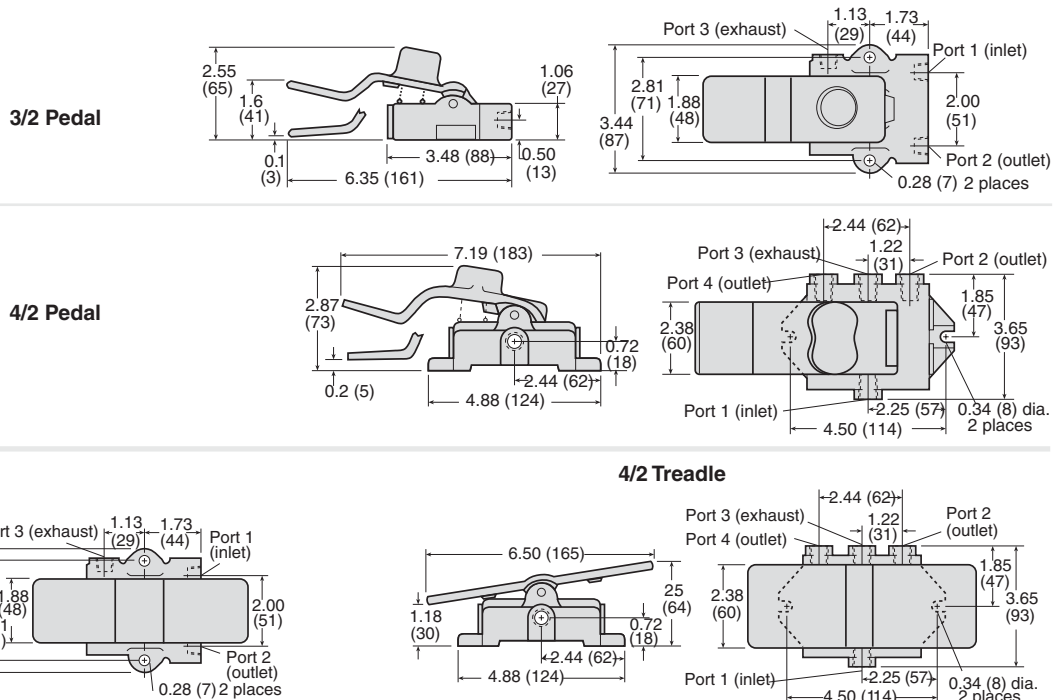
3-Way 2-Position Valves, Treadle, Detented						
Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F		
1/4	3643A2001	D3643A2001	1.2	1-2 1.66	2-3 1.43	1.3 (0.6)



4-Way 2-Position Valves, Treadle, Detented						
Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F		
1/4	3646A2001	D3646A2001	1.2	1-2, 1-4 1.66	4-3, 2-3 1.43	2.8 (1.3)

** **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)



STANDARD SPECIFICATIONS (for valves on this page):

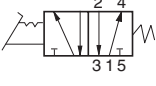
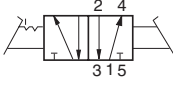
Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Line	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -30° to 175°F (-34° to 80°C)	Construction Material	Valve Body: Cast Aluminum
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -30°F (-34°C), consult ROSS.		

Note: The 3/2 and 4/2 treadle valves are not designed to be used to actuate clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

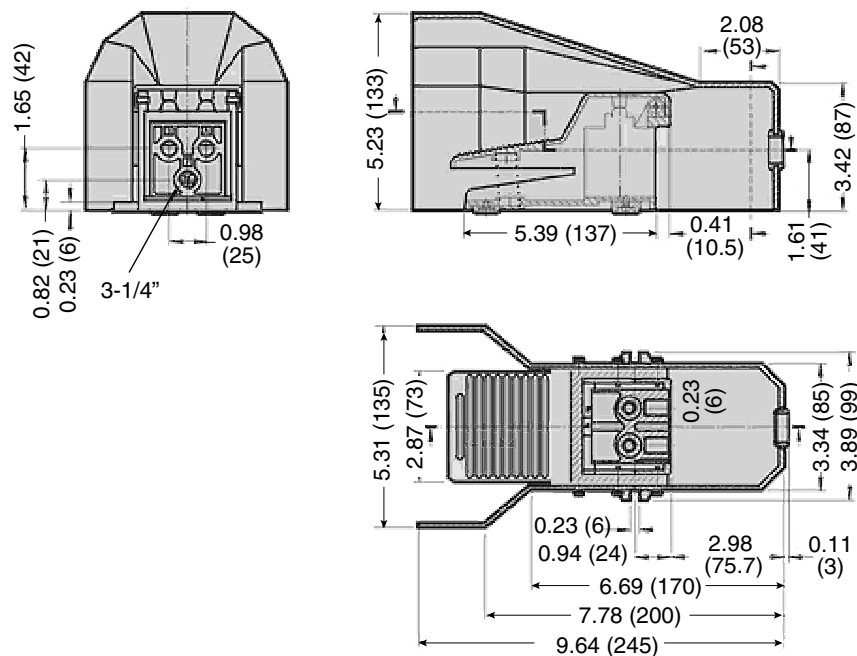
Manual Valves Foot Pedal with Guard

Safeguarding RM Series

5-Way 2-Position Valves, Pedal				
Port Size	Operators	Valve Model Number	C _v	Weight lb (kg)
		NPT Threads		
1/4	Non-locking foot pedal	RM4F210-08G	0.5	2.1 (0.9)
	Locking foot pedal	RM4F210-08LG	0.5	2.1 (0.9)
 5/2 Spring Return without Lock		 5/2 Detented with Lock		



Valve Dimensions – inches (mm)



E1

E

Convertible to a 3-Way function.

Note: Designed to meet OSHA 1910.217 Mechanical power presses, with protective guard to prevent accidental actuation.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	0 to 120 psig (0 to 8.2 bar)
Mounting Type	Line	Construction Material	Valve Body: Aluminum Guard: Plastic
Temperature	Ambient/Media: 23° to 140°F (-5° to 60°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Online Version
06/25/20

 www.rosscontrols.com

E1.11

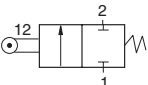
Mechanical Cam Valves

Cam Roller & Plunger

Heavy-Duty 11 Series

2-Way 2-Position Valves, 2-Direction Cam Roller

Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F	In-Out	
1/4	1131A2001	D1131A2001	0.5	2.5		1.0 (0.5)

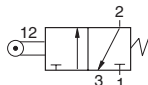


2-Direction
Roller



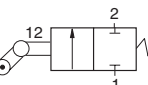
3-Way 2-Position Valves, 2-Direction Cam Roller

Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F		
				In-Out	Out-Exh.	
1/4	1133A2001	D1133A2001	0.5	2.5	3.2	1.0 (0.5)



2-Way 2-Position Valves, 1-Direction Cam Roller

Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F	In-Out	
1/4	1131A2002	D1131A2002	0.5	2.5		1.0 (0.5)

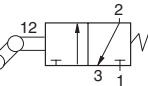


1-Direction
Roller



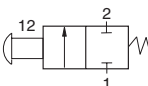
3-Way 2-Position Valves, 1-Direction Cam Roller

Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F		
				In-Out	Out-Exh.	
1/4	1133A2002	D1133A2002	0.5	2.5	3.2	1.0 (0.5)



2-Way 2-Position Valves, Plunger

Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F	In-Out	
1/4	1131A2003	D1131A2003	0.5	2.5		1.0 (0.5)

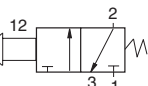


Plunger



3-Way 2-Position Valves, Plunger

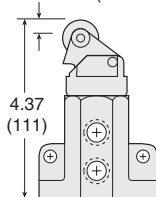
Port Size	Valve Model Number		C _v	Average Response Constants**		Weight lb (kg)
	NPT Threads	G Threads		F		
				In-Out	Out-Exh.	
1/4	1133A2003	D1133A2003	0.5	2.5	3.2	1.0 (0.5)



** **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

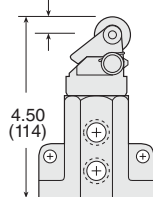
2-Direction Roller

Travel 0.10 to 0.29 (2.5 to 7.4)



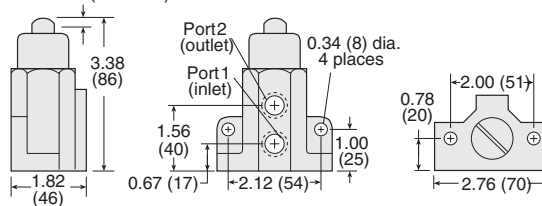
1-Direction Roller

Travel 0.05 to 0.10 (1.3 to 2.5)



Plunger

Travel 0.07 to 0.25 (1.8 to 6.4)



Valve Dimensions – inches (mm)

ACCESSORIES

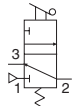
Silencers for 3-way Valves	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	BSPT Threads		Width	Length	
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.

STANDARD SPECIFICATIONS (for valves on this page):

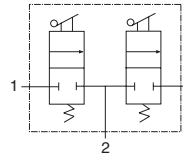
Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Side and bottom mounting flanges	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -10° to 175°F (-23° to 80°C)	Construction Material	Valve Body: Cast Aluminum
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -10°F (-23°C), consult ROSS.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Single 3-Way

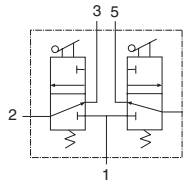
ROSS pendant control valves are a durable pneumatic solution that can be used anywhere manual control of devices is needed, such as an air hoist, air motor, or counterbalance cylinder. Ideal for use on or with material handling devices such as overhead cranes or air hoists, ROSS pendant control valves can withstand even the toughest environments.



Dual 2-Way

Single 3/2

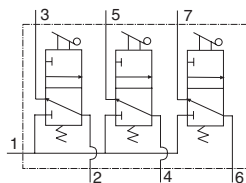
The Single 3/2 pendant control valve may be used anywhere that requires manual 3/2 control, such as operating small single acting cylinders or pressurizing vacuum cups for quick release. Ideal for use on or with material handling devices. Spring-return rubber poppet internals provide dependable shifting, long life, and low cost.



Dual 3-Way

Dual 2/2

Ideal for use on or with material handling devices. Spring-return rubber poppet internals provide dependable shifting, long life, and low cost.



Triple 3-Way

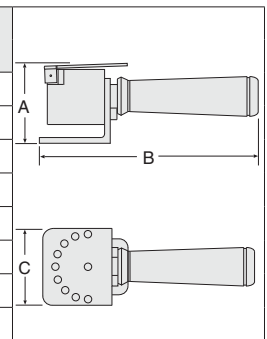
Dual 3/2

Ideal for use on or with material handling devices. Twin Pacer® inserts ensure reliability, dirt tolerance, and easy maintenance. May be used as a pilot valve convertible to a dual 2/2 function.

Triple 3/2

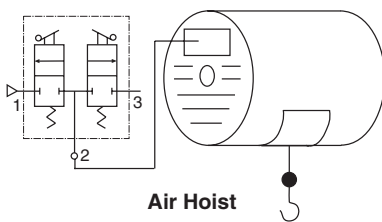
The Triple 3/2 pendant control valve may be used anywhere that three independent manual outputs are needed. Provides remote pilot signals to pressure controlled valves. Three Pacer® inserts ensure reliability and dirt tolerance.

Valve Type	Port Size	Threads	# of Levers	# of Handles	Valve Model Number	C _v		Dimensions inches (mm)			Weight lb (kg)	
						1-2	2-3	A	B	C		
2/2	Dual High-Flow	1/4	NPT	Two	None	2025A2901	0.73	0.55	3.1 (78)	2.8 (71)	2.8 (70)	1.0 (0.5)
					One	3900A0378	0.73	0.55	3.1 (78)	7.2 (182)	2.8 (70)	1.7 (0.8)
3/2	Single	1/4	NPT	One	None	2025A2904	0.24	0.42	4.7 (120)	6.0 (170)	1.8 (46)	1.0 (0.5)
					One	3900A1111	0.24	0.42	4.7 (120)	7.2 (182)	1.8 (46)	1.7 (0.8)
	Dual	1/8	NPT	Two	None	2025A1900	0.24	0.42	2.1 (54)	2.8 (71)	2.5 (64)	0.9 (0.4)
					One	3900A0379	0.24	0.42	2.9 (73)	7.2 (182)	2.8 (70)	1.6 (0.7)
	Triple	1/4	NPT	Three	None	2025A2902	0.24	0.42	2.8 (71)	2.8 (71)	3.8 (97)	1.6 (0.7)
					One	3900A0407	0.24	0.42	2.8 (71)	7.2 (182)	3.8 (97)	2.3 (1.0)

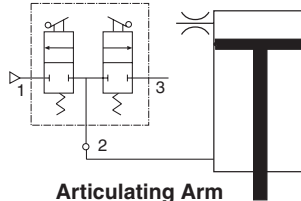


Application Data

Dual 2/2 - High-Flow

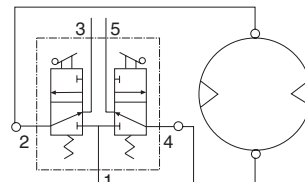


Air Hoist

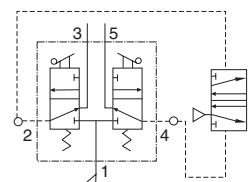


Articulating Arm

Dual 3/2



Bi-directional Air Motor



Pilot for Larger Double Pressure Controlled Valve

To convert a Dual 3/2 into a Dual 2/2:

Plug ports 3 and 5. Connect supply line to port 2. Port 1 becomes the outlet and port 4 becomes the exhaust port.

STANDARD SPECIFICATIONS (for valves on this page):

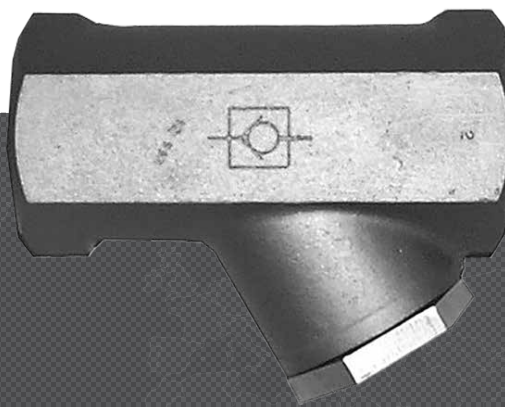
Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Line	Operating Pressure	0 to 150 psig (0 to 10 bar)
Temperature	Ambient/Media: -40° to 175°F (-40° to 80°C)	Construction Material	Valve Body: Aluminum
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -40°F (-40°C), consult ROSS.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.





VALVES FOR AIR FLOW CONTROL



ROSS CONTROLS



Flow Control Valves



Check Valves



Shuttle Valves




Quick Exhaust Valves

VALVE TYPE	VALVE SERIES	AVAILABLE PORT SIZES										MAX. FLOW Cv	Page	
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2			
Flow Control														
Low-Profile	19	■	■	■	■								2.3	F1.3
High-Capacity	19		■	■	■	■	■	■	■	■	■	■	50	F1.4
Low-Profile High-Capacity	19			■	■	■	■	■	■				22	F1.4
Right-Angle	11	■	■	■	■								2.8	F1.5
Check														
Low-Profile	19	■	■										0.5	F1.6
Mid-Range	19		■	■	■								3.9	F1.6
High-Capacity	19			■	■	■	■	■	■	■	■	■	50	F1.6
Shuttle														
Standard	19	■	■										0.8	F1.7
High-Flow	19		■	■									3.0	F1.7
Quick Exhaust														
	18			■	■	■	■						7.2	F1.7

F1

F

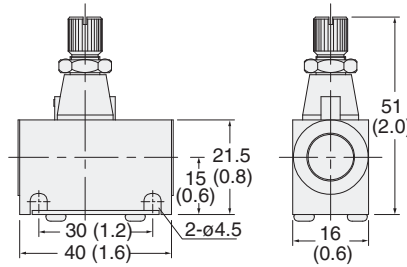
Low-Profile Flow Control Valves with Slot Adjustment

Port Size	Valve Model Number		Avg. C _v (Fully Open)	Weight lb (kg)	
	NPT Threads	G Threads			
1/8	1968F1004	D1968F1004	0.5	0.1 (0.1)	
1/4 OT	1968F2004	D1968F2004	0.5	0.1 (0.1)	

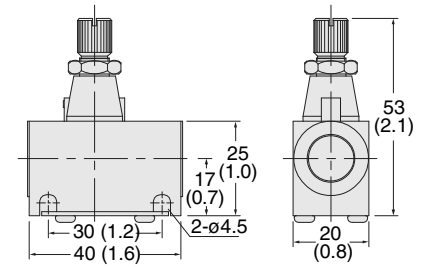


Valve Dimensions – inches (mm)


Port Size 1/8



Port Size 1/4 OT (Over Tap)



Low-Profile Flow Control Valves with Knob Adjustment

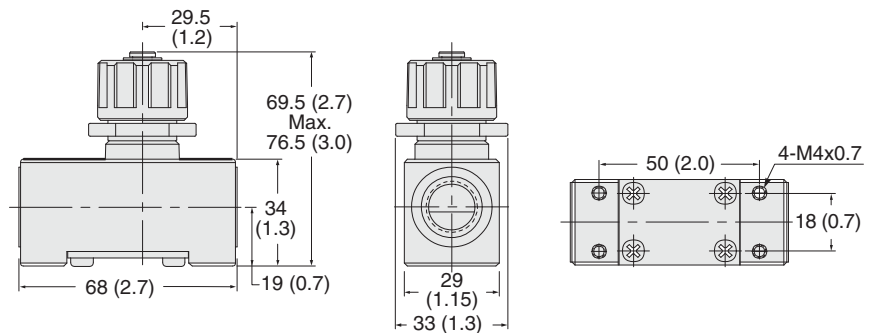
Port Size	Valve Model Number		Avg. C _v (Fully Open)	Weight lb (kg)	
	NPT Threads	G Threads			
1/4	1968F2007	D1968F2007	2.3	0.4 (0.2)	
3/8	1968F3007	D1968F3007	2.3	0.4 (0.2)	
1/2	1968F4007	D1968F4007	2.3	0.4 (0.2)	



F1

Valve Dimensions – inches (mm)

Port Sizes 1/4 thru 1/2



F

Operation:

To increase flow: Turn adjustment screw out.

To decrease flow: Turn adjustment screw in.

Flow Adjustment: From 0 to Maximum Flow.

Numbers of Slot/Knob Turns:

Port sizes 1/8 and 1/4 OT (Over Tap): 8.

Port sizes 1/4, 3/8 and 1/2: 10.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	Supply Pressure: 217 psi (14.9 bar) Maximum Pressure: 150 psi (10.3 bar)
Mounting Type	Line	Construction Material	Valve Body: Cast Aluminum
Temperature	Ambient/Media: 41° to 140°F (5° to 60°C)		
Flow Media	Filtered air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

High-Capacity Control Valves

Port Size	Body Size	Valve Model Number		Avg. C _v (Fully Open)	Weight lb (kg)
		NPT Threads	G Threads		
1/4	3/8	1968B2007	D1968B2007	2.3	0.5 (0.2)
3/8	3/8	1968B3007	D1968B3007	2.6	0.5 (0.2)
1/2	3/8	1968B4017	D1968B4017	2.6	0.5 (0.2)
1/2	3/4	1968B4007	D1968B4007	7.5	0.8 (0.4)
3/4	3/4	1968B5007	D1968B5007	8.3	0.8 (0.4)
1	3/4	1968B6017	D1968B6017	8.3	0.8 (0.4)
1	1¼	1968B6007	D1968B6007	17	2.2 (1.0)
1¼	1¼	1968B7007	D1968B7007	22	2.2 (1.0)
1½	1¼	1968B8017	D1968B8017	22	2.2 (1.0)
1½	2	1968B8007	D1968B8007	50	4.3 (1.9)
2	2	1968B9007	D1968B9007	50	4.3 (1.9)
2½	2	1968B9017	D1968B9017	50	4.3 (1.9)



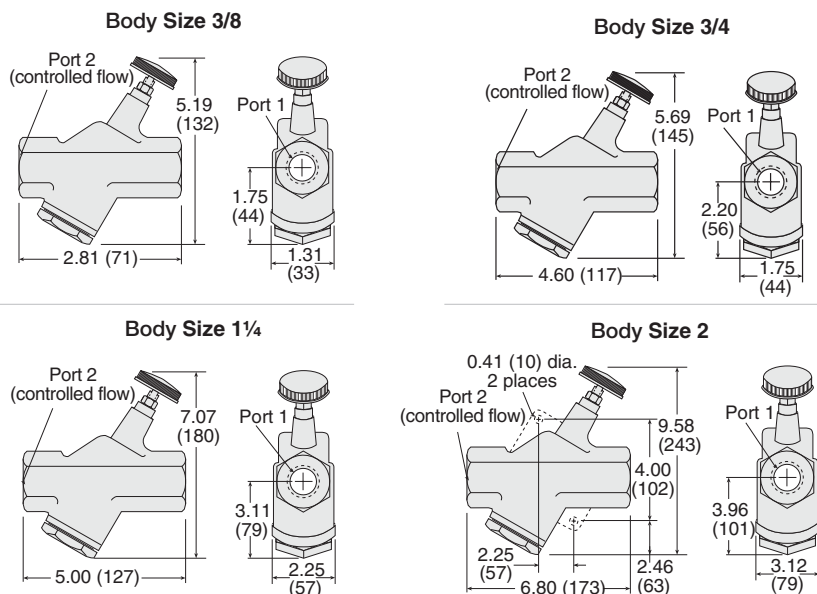
Low-Profile High-Capacity Control Valves

Port Size	Body Size	Valve Model Number		Avg. C _v (Fully Open)	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	1968E4007	D1968E4007	7.5	0.8 (0.4)
3/4	3/4	1968E5007	D1968E5007	8.3	0.8 (0.4)
1	1¼	1968E6007	D1968E6007	17	2.1 (1.0)
1¼	1¼	1968E7007	D1968E7007	22	2.1 (1.0)

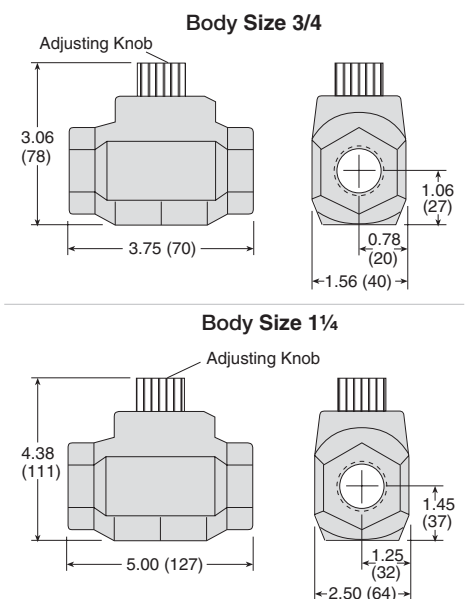


Valve Dimensions – inches (mm)

High-Capacity Control Valves



Low-Profile High-Capacity Control Valves



Operation: To increase flow: Turn adjustment screw out.
To decrease flow: Turn adjustment screw in.
Flow Adjustment: From 0 to Maximum Flow.


Numbers of Slot/Knob Turns: Port sizes 1/4 and 3/8: 14.
Port sizes 1/2, 3/4: 12.
Port sizes 1, 1¼: 24.
Port sizes 1½, 2½: 24.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Line	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -40° to 175°F (-40° to 80°C)	Construction Material	Valve Body: Cast Aluminum
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -40°F (-40°C), consult ROSS.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.


Right-Angle Flow Control Valves with Slot Adjustment

Port Size	Threaded Inlet		Tube Fitting		Avg. C _v (Fully Open)	Weight lb (kg)	
	Valve Model Number		Valve Model Number				
	NPT Threads	G Threads	NPT Threads	G Threads			
1/8	1968A1008	D1968A1008	1968A1108#	---	0.3	0.06 (0.03)	
1/4	1968A2008	D1968A2008	1968A2108	---	0.6	0.12 (0.05)	
3/8	1968A3008	D1968A3008	1968A3108	D1968A3108	1.9	0.20 (0.09)	
1/2	1968A4008	D1968A4008	---	---	2.8	0.34 (0.15)	

These models have 1/8 threaded outlet, but with 1/4 inlet tube fittings.



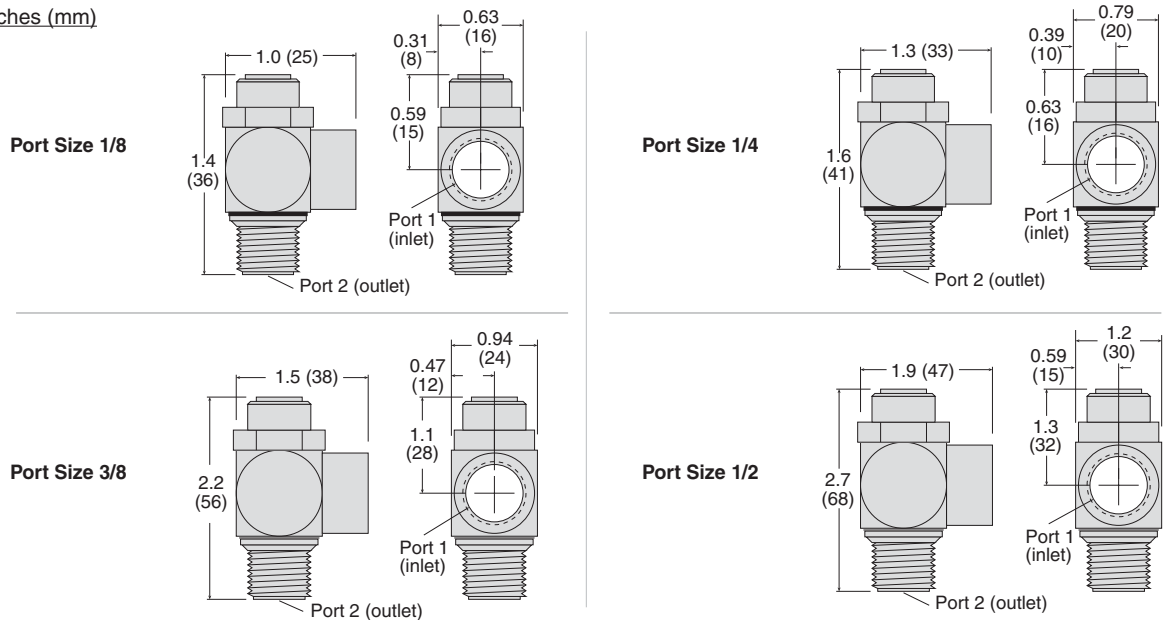
Right-Angle Flow Control Valves with Knob Adjustment

Port Size	Threaded Inlet		Tube Fitting		Avg. C _v (Fully Open)	Weight lb (kg)	
	Valve Model Number		Valve Model Number				
	NPT Threads	G Threads	NPT Threads	G Threads			
1/8	1968A1018	----	1968A1118#	D1968A1118#	0.3	0.08 (0.04)	
1/4	1968A2018	D1968A2018	1968A2118	D1968A2118	0.6	0.14 (0.06)	
3/8	1968A3018	D1968A3018	1968A3118	D1968A3118	1.9	0.20 (0.09)	
1/2	1968A4018	D1968A4018	---	---	2.8	0.34 (0.15)	

These models have 1/8 threaded outlet, but with 1/4 inlet tube fittings.



Valve Dimensions – inches (mm)



F1

F

Operation:

To increase flow: Turn adjustment screw out.
To decrease flow: Turn adjustment screw in.

Flow Adjustment: From 0 to Maximum Flow.

Numbers of Slot/Knob Turns: Port sizes 1/4 and 3/8: 14.
Port sizes 1/2, 3/4: 12.
Port sizes 1, 1 1/4: 24.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	Line	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Check Valves

Heavy-Duty 19 Series

Low-Profile Check Valves

Port Size	Valve Model Number		C _v	Weight lb (kg)	
	NPT Threads	G Threads			
1/8	1968D1005	D1968D1005	0.5	0.5 (0.2)	
1/4	1968D2005	D1968D2005	0.5	0.5 (0.2)	



Mid-Range Check Valves

Port Size	Valve Model Number		C _v	Weight lb (kg)	
	NPT Threads	G Threads			
1/4	1968D2001	D1968D2001	2.9	0.5 (0.2)	
3/8	1968D3001	D1968D3001	3.7	0.5 (0.2)	
1/2	1968D4001	D1968D4001	3.9	0.5 (0.2)	



High-Capacity Check Valves

Port Size	Body Size	Valve Model Number		C _v	Weight lb (kg)	
		NPT Threads	G Threads			
1/2	3/4	1968A4107	D1968A4107	5.2	0.9 (0.4)	
3/4	3/4	1968A5107	D1968A5107	8.6	0.9 (0.4)	
1	3/4	1968A6117	D1968A6117	8.3	0.9 (0.4)	
1	1 1/4	1968A6107	D1968A6107	17	2.0 (0.9)	
1 1/4	1 1/4	1968A7107	D1968A7107	22	2.0 (0.9)	
1 1/2	1 1/4	1968A8117	D1968A8117	22	2.0 (0.9)	
1 1/2	2	1968A8107	D1968A8107	50	4.7 (2.1)	
2	2	1968A9107	D1968A9107	50	4.7 (2.1)	
2 1/2	2	1968A9117	D1968A9117	50	4.7 (2.1)	



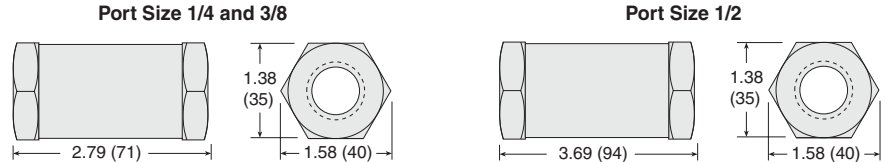
Valve Dimensions – inches (mm)

Low-Profile Check Valves



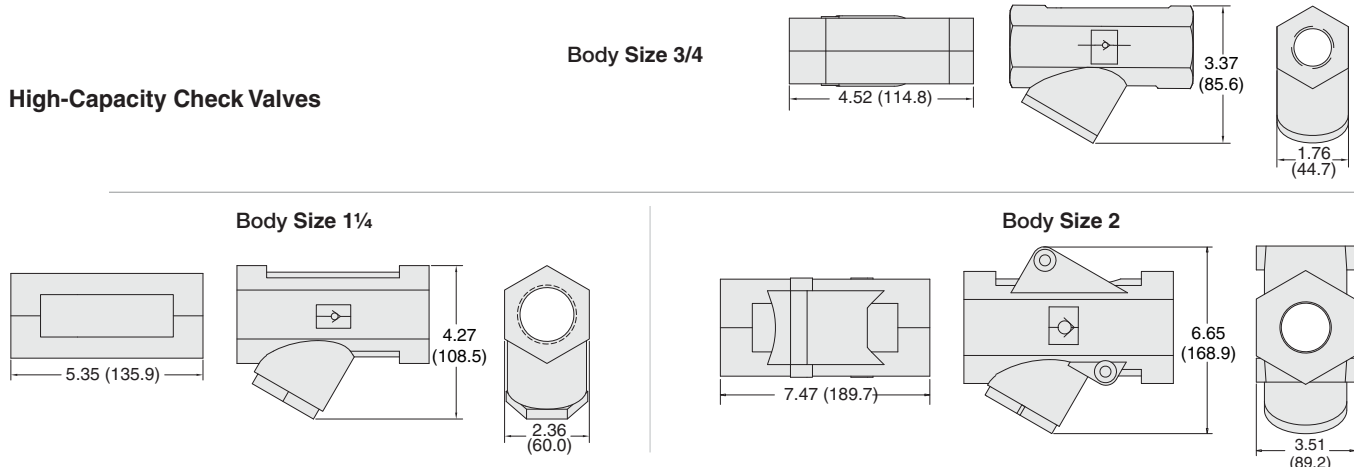
F1

Mid-Range Check Valves



F

High-Capacity Check Valves



STANDARD SPECIFICATIONS (for valves on this page):

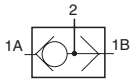
Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -40° to 175°F (-40° to 80°C)	Signal Pressure	Must be equal to or greater than inlet
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -40°F (-40°C), consult ROSS.	Construction Material	Valve Body: Cast Aluminum

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Shuttle & Quick Exhaust Valves

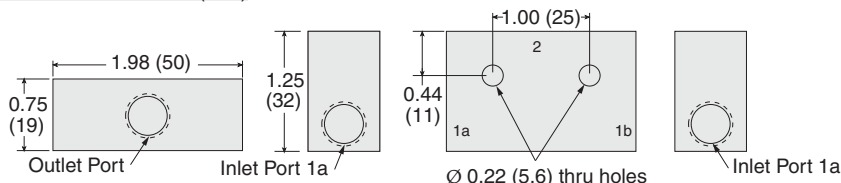
Heavy-Duty 19 & 18 Series

Standard Shuttle Valves

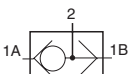
Port Size	Valve Model Number		Avg. C _v		Weight lb (kg)	
	NPT Threads	G Threads	1-2			
1/8	1968E1006	D1968E1006	0.8		0.15 (0.07)	
1/4	1968E2006	D1968E2006	0.8		0.15 (0.07)	



Valve Dimensions – inches (mm)

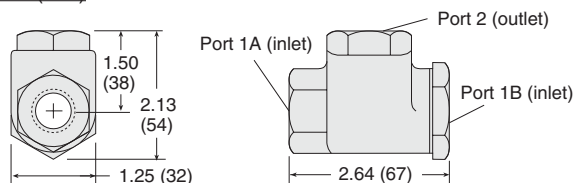


High-Flow Shuttle Valves

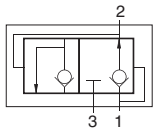
Port Size	Valve Model Number		Avg. C _v		Weight lb (kg)	
	NPT Threads	G Threads	1-2			
1/4	1968D2003	D1968D2003	2.0		0.8 (0.4)	
3/8	1968D3003	D1968D3003	3.0		0.8 (0.4)	



Valve Dimensions – inches (mm)

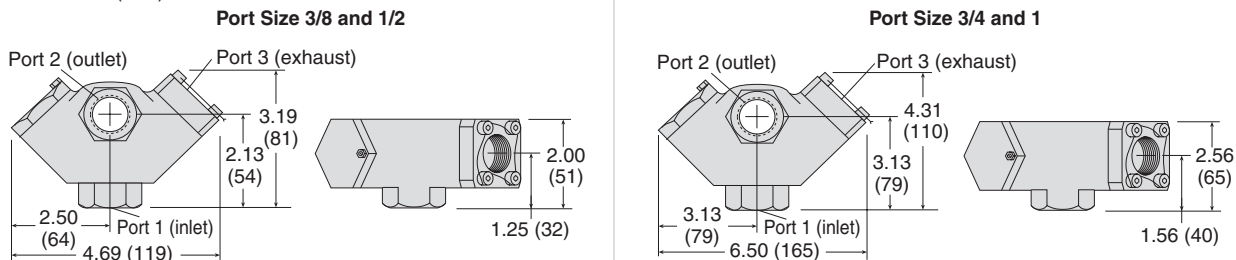


Quick Exhaust Valves

Port Size	Valve Model Number		Avg. C _v		Weight lb (kg)		
	1-2	3	NPT Threads	G Threads			1-2
3/8	1/2	1868A3005	D1868A3005	2.9	3.4	1.0 (0.5)	
1/2	1/2	1868A4005	D1868A4005	2.9	3.4	1.0 (0.5)	
3/4	1	1868A5005	D1868A5005	7.2	10	2.5 (1.1)	
1	1	1868A6005	D1868A6005	7.2	10	2.5 (1.1)	



Valve Dimensions – inches (mm)



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: -40° to 175°F (-40° to 80°C)	Construction Material	Valve Body: Cast Aluminum
	For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice. For temperatures below -40°F (-40°C), consult ROSS.		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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F1.7



AIR PREPARATION FRL's



ROSS CONTROLS



Filters



Pressure Regulators



Integrated Filter/Regulators



Lubricators



Combinations Units

Contents

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Filters

- Particulate
- Coalescing
- Adsorbing
- Clean Air Package
- Silencers/Reclassifier
- Drip Leg Drain

G1.1 - G1.30

Pressure Regulators

- Piston and Diaphragm
- Precision
- Remote
- High Relief
- High Pressure
- Relief Valves

G2.1 - G2.27

Integrated Filter/Regulators

- Modular or In-line mounting
- 5-micron filter element
- Piston or Diaphragm type
- Self-relieving or Non-relieving
- Includes pressure gauge

G3.1 - G3.9

Lubricators

- Modular or in-line mounting
- Sight-feed or wick-feed design
- Extended bowl options
- Polycarbonate bowl with steel shatterguard or aluminum bowl with sight glass

G4.1 - G4.9

Combination Units

- Filters and Regulators
- Filters and Lubricators
- Integrated Filter/Regulator and Lubricators
- Filter, Regulator and Lubricators

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Accessories

- Mounting Accessories
- Silencers
- Pressure Gauges
- Differential Gauges
- External Drains

G6.1 - G6.7

Cautions and Warranty

- Compatible Lubricants
- Cautions and Warnings

G6.8
&
Inside Cover





AIR PREPARATION FILTERS



ROSS CONTROLS

FILTERS – KEY FEATURES

- Filters – 5- and 40-micron filtration levels
- Coalescing Filters – 0.3- and 0.01-micron filtration levels
- Oil Vapor Removal (Adsorbing) Filters – removes oil and hydrocarbon vapors
- Filter Drains – manual, automatic, internal float, and automatic external drains
- Modular and in-line mounting options
- Metal and High Strength polycarbonate bowl options
- Several Differential Gauge options available

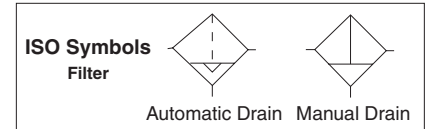
FILTER TYPE/SERIES	AVAILABLE PORT SIZES									MOUNTING		FLOW MAX FLOW (scfm)	OPTIONS				FILTRATION					Page	
	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	IN-LINE	MODULAR		POLYCARBONATE BOWL	METAL BOWL	AUTOMATIC DRAIN	MANUAL DRAIN	0.01 µm	0.3 µm	5 µm	20 µm	40 µm		ACTIVATED CARBON
FILTERS																							
BANTAM												30											G1.3
MINIATURE												23											G1.4
MID-SIZE												75											G1.5
MD3™												92											G1.6
FULL-SIZE												155											G1.7
MD4™												205											G1.8
HIGH-CAPACITY												1000											G1.9 G1.11
COALESCING FILTERS																							
BANTAM												11											G1.12
MINIATURE												10											G1.13
MID-SIZE												100											G1.14
MD3™												125											G1.15
FULL-SIZE												100											G1.16
MD4™												158											G1.17
HIGH-CAPACITY												840											G1.18- G1.22
OIL VAPOR REMOVAL (ADSORBING) FILTERS																							
MD3™												125											G1.23
MD4™												165											G1.24
CLEAN AIR PACKAGES																							
MD3™												125											G1.25 - G1.26
MD4™												158											G1.27 -G1.28
IN-LINE SILENCERS / RECLASSIFIERS																							
																							G1.29
DRIP LEG DRAINS																							
																							G1.30

Port Sizes: 1/8 to 1/4 – Flow to 30 scfm

Port Size	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
	Model Number	Model Number	Model Number	Model Number
With THREADED PORTS				
1/8 NPTF	5B01B0100	5B01B0200	5B01B0300	5B01B0400
1/8 G	C5B01B0100	C5B01B0200	C5B01B0300	C5B01B0400
1/4 NPTF	5B02B0100	5B02B0200	5B02B0300	5B02B0400
1/4 G	C5B02B0100	C5B02B0200	C5B02B0300	C5B02B0400
With Quick-Connect TUBE FITTINGS				
1/4	5B03B0100	5B03B0200	5B03B0300	5B03B0400
3/8	5B04B0100	5B04B0200	5B04B0300	5B04B0400
4mm	5B05B0100	5B05B0200	5B05B0300	5B05B0400
6mm	5B06B0100	5B06B0200	5B06B0300	5B06B0400
8mm	5B07B0100	5B07B0200	5B07B0300	5B07B0400
10mm	5B08B0100	5B08B0200	5B08B0300	5B08B0400

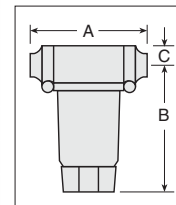


G1

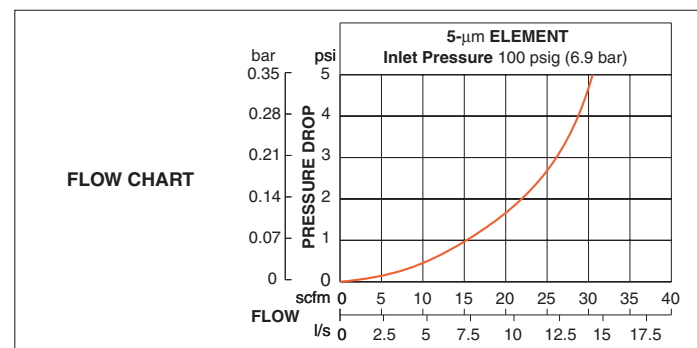


Port Size	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
		A	B**	C	Depth	
No Port	2-oz (60-ml)	1.7 (43)	3.9 (99)	0.5 (13)	1.8 (45)	0.27 (0.12)
1/8, 1/4 (NPT OR BSPP)	2-oz (60-ml)	3.0 (76)	3.9 (99)	0.5 (13)	1.8 (45)	0.49 (0.22)
Models below have quick-connect tube fittings.						
1/4	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
3/8	2-oz (60-ml)	3.9 (99)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
4 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
6 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
8 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
10 mm	2-oz (60-ml)	3.9 (99)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)

** Dimension for polycarbonate bowl; metal bowl is 3.8 (97).



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5- μ m - Standard	Polyethylene	933K77
5- μ m - Optional	Sintered Bronze	R-KA130-27E5
20- μ m - Optional	Sintered Bronze	R-KA130-27E4
40- μ m - Optional	Sintered Bronze	R-KA130-27E3



G

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Operating Pressure Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 150°F (4° to 66°C)	
Fluid Media	Compressed air	
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)	
		Construction Material Filter Element: 5-micron rated polyethylene Body: Acetal Bowl: Polycarbonate or Aluminum Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



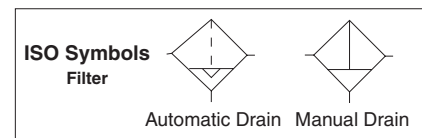
G1

Port Sizes: 1/8 & 1/4 – Flow to 23 scfm

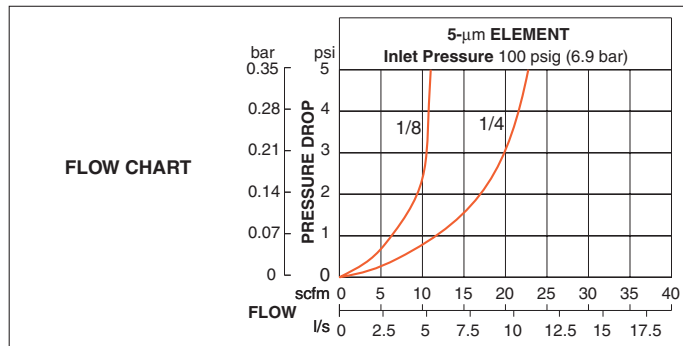
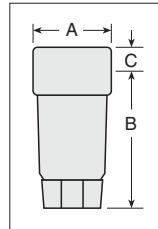
Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/8	NPTF	5021B1010	5022B1010	5011B1010	5012B1010
	G	C5021B1010	C5022B1010	C5011B1010	C5012B1010
1/4	NPTF	5021B2010	5022B2010	5011B2010	5012B2010
	G	C5021B2010	C5022B2010	C5011B2010	C5012B2010



Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	1.6 (41)	3.9 (99)	0.4 (9.5)	1.6 (41)	0.33 (0.15)
	Aluminum	2-oz (60-ml)	1.6 (41)	4.3 (109)	0.4 (9.5)	1.6 (41)	0.35 (0.16)



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Operating Pressure	Manual Drain Models
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 150°F (4° to 66°C)		Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)
Fluid Media	Compressed air	Construction Material	Filter Element: 5-micron rated polyethylene
Operating Pressure	Automatic Drain Models		Body: Aluminum
	Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)		Bowl: Polycarbonate or Aluminum Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

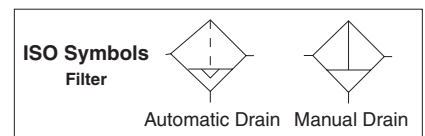
Port Sizes: 1/4, 3/8 & 1/2 – Flow to 75 scfm



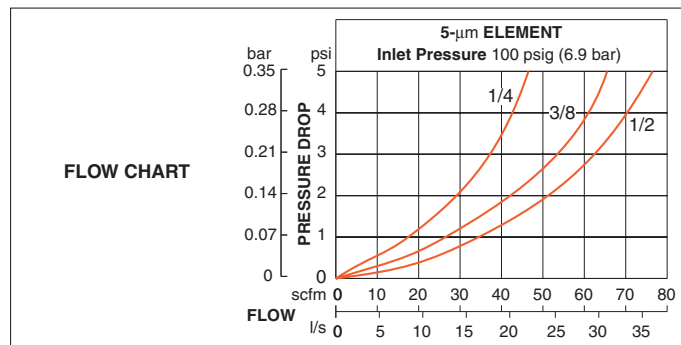
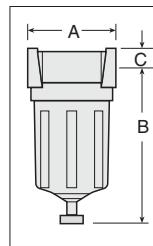
G1

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/4	NPTF	5021B2007	5022B2007	5011B2007	5012B2007
	G	C5021B2007	C5022B2007	C5011B2007	C5012B2007
3/8	NPTF	5021B3027	5022B3027	5011B3026	5012B3026
	G	C5021B3027	C5022B3027	C5011B3026	C5012B3026
1/2	NPTF	5021B4007	5022B4007	5011B4007	5012B4007
	G	C5021B4007	C5022B4007	C5011B4007	C5012B4007

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	2.7 (67)	4.8 (122)	0.6 (16)	2.4 (60)	1.13 (0.51)
	Zinc	4-oz (120-ml)	2.7 (67)	4.9 (123)	0.6 (16)	2.4 (60)	1.50 (0.68)



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5- μ m - Standard	Polyethylene	936K77
5- μ m - Optional	Sintered Bronze	R-KA60F-03E5
20- μ m - Optional	Sintered Bronze	R-KA60F-03E4
40- μ m - Optional	Sintered Bronze	R-KA60F-03E3



G

Options: Internal Float Drain, consult ROSS.
Accessories ordered separately, refer to page G6.3-4, G6.7.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Operating Pressure	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Construction Material	Filter Element: 5-micron rated polyethylene
Fluid Media	Compressed air		Body: Zinc
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)		Bowl: Polycarbonate bowl with zinc shatterguard, or Zinc bowl Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Port Sizes: 1/4, 3/8 & 1/2 – Flow to 92 scfm

G1

HOW TO ORDER

Choose your options (in red) to configure your model number.

MD3 **50P** **A** **M** **C** **2** **2** **A**

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 5.1-oz (151-ml)	50P
Metal Bowl 6-oz (177-ml)	50M

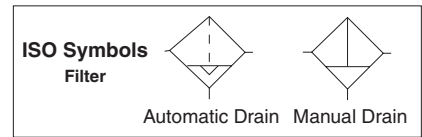
FILTER ELEMENT TYPE	
40-µm Sintered Bronze	A
5-µm Polyethylene	B
5-µm Sintered Bronze	E
20-µm Sintered Bronze	F

BOWL DRAIN	
Manual Drain	M
Float Drain	F
Less Drain Fitting (1/4 NPT female instead)	L

PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 G	B
3/8 G	C
1/2 G	D

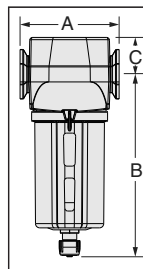
DIFFERENTIAL PRESSURE GAUGE	
Without Gauge	A
Small Slide Gauge	S

CAP COLOR	
Black	2
Yellow	Y

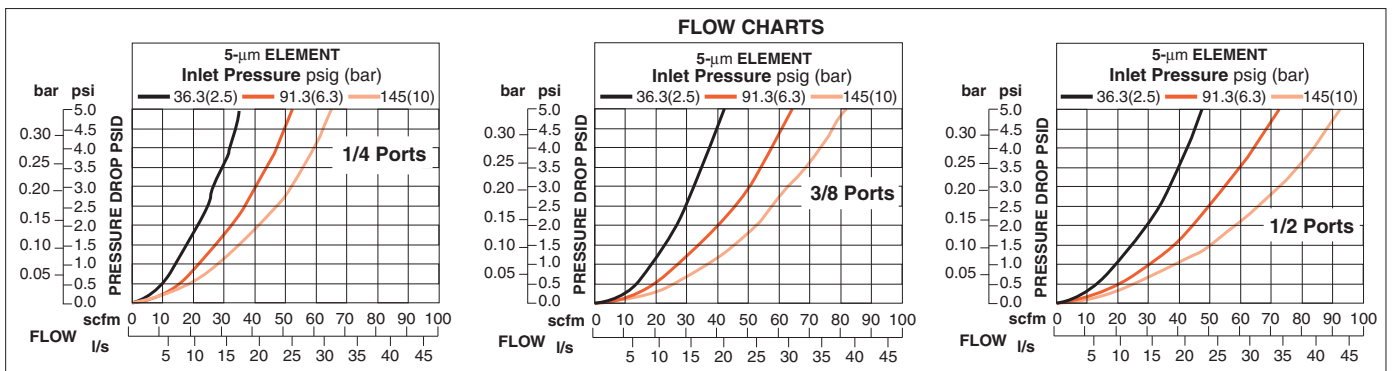


Port Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
1/4, 3/8, 1/2	Polycarbonate	3.0 (76.2)	5.54 (140.6)	1.12 (28.3)	2.51 (63.8)	1.29 (0.59)
	Aluminum	5.0 (127)	6.42 (163.1)	1.12 (28.3)	2.76 (70.1)	1.41 (0.64)

* With small differential gauge, add 1.21 (31) to dimension C.
Bowl removal clearance: add 3.1 (79).



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm	Polyethylene	R-A60F-03PE5
5-µm	Sintered Bronze	R-A60F-03E5
20-µm	Sintered Bronze	R-A60F-03E4
40-µm	Sintered Bronze	R-A60F-03E3



G

Options: Differential Pressure Gauge, for additional information refer to page G6.6.
Options: External Bowl Drains, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Sintered or Fiber	Operating Pressure	Manual Drain Models
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 250 psig (0 to 17 bar)
Fluid Media	Compressed air		Filter Element: 5-micron polyethylene, or 5-, 20-, 40-µm sintered bronze
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 30 to 150 psig (2 to 10 bar) Metal Bowl: 30 to 200 psig (2 to 14 bar)		Body: Cast Zinc Bowl: Polycarbonate bowl with nylon shatterguard, or aluminum bowl with clear nylon sight glass Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

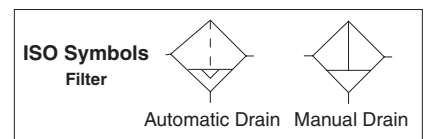
Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 155 scfm



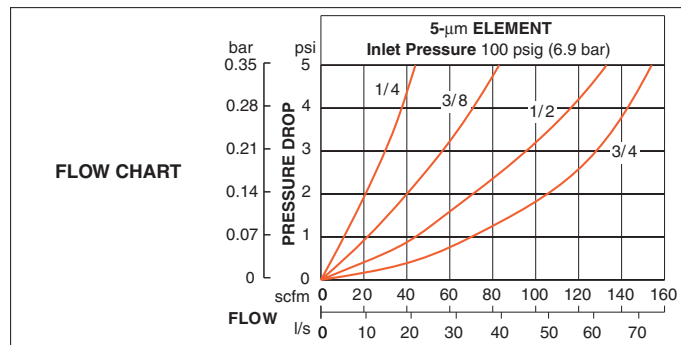
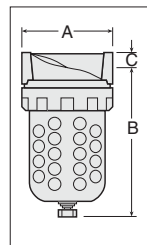
G1

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/4	NPTF	5021B2008	5022B2005	5011B2008	5012B2006
	G	C5021B2008	C5022B2005	C5011B2008	C5012B2006
3/8	NPTF	5021B3008	5022B3005	5011B3008	5012B3006
	G	C5021B3008	C5022B3005	C5011B3008	C5012B3006
1/2	NPTF	5021B4008	5022B4005	5011B4008	5012B4006
	G	C5021B4008	C5022B4005	C5011B4008	C5012B4006
3/4	NPTF	5021B5018	5022B5015	5011B5018	5012B5016
	G	C5021B5018	C5022B5015	C5011B5018	C5012B5016

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	3.5 (89)	5.8 (146)	0.6 (16)	3.5 (89)	1.93 (0.88)
	Zinc	8-oz (240-ml)	3.5 (89)	6.4 (163)	0.6 (16)	3.5 (89)	2.90 (1.32)



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5- μ m - Standard	Polyethylene	939K77
5- μ m - Optional	Sintered Bronze	R-KA103-03E5
20- μ m - Optional	Sintered Bronze	R-KA103-03E4
40- μ m - Optional	Sintered Bronze	R-KA103-03E3



Options: Automatic External Drain, refer to page G6.7.
Internal Float Drain, consult ROSS.
Accessories ordered separately, refer to page G6.3-4.

G

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Filter Element: 5-micron polyethylene
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Body: Zinc
Fluid Media	Compressed air		Bowl: Polycarbonate bowl with steel shatterguard, or zinc bowl with clear nylon sight glass
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)		Bowl Ring: Aluminum
Operating Pressure	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Port Sizes: 3/8, 1/2 & 3/4 – Flow to 205 scfm

HOW TO ORDER

Choose your options (in red) to configure your model number.

MD4 **50P** **B** **A** **B** **5** **2** **L**

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 9-oz (266-ml)	50P
Metal Bowl 9-oz (266-ml)	50M

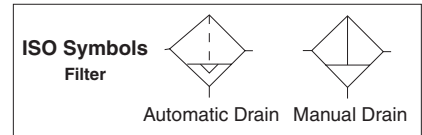
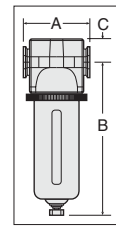
FILTER ELEMENT TYPE	
40-µm Sintered Bronze	A
5-µm Polyethylene	B

BOWL DRAIN	
Automatic Drain	A
Manual Drain	M
Less Drain Fitting - 1/4 NPT female instead	L
Internal Float Drain	F

PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 G	C
1/2 G	D
3/4 G	E

CAP COLOR	
Black	2
Yellow	Y

DIFFERENTIAL PRESSURE GAUGE	
Without Gauge	A
Large Dual Face Gauge	L
Small Slide Gauge	S
Large Dual Face Gauge, with Normally Open Reed Switch	E
Large Dual Face Gauge, with Normally Closed Reed Switch	C

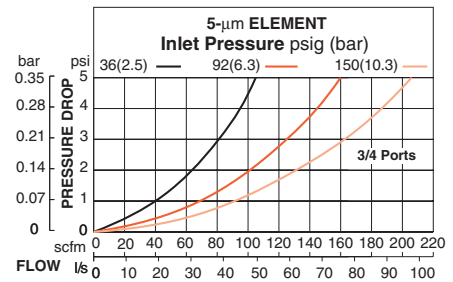
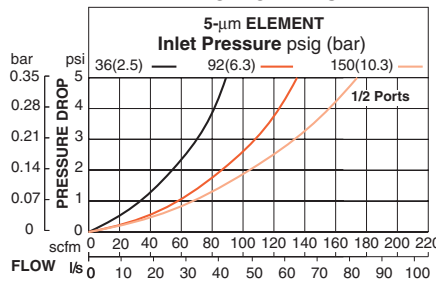
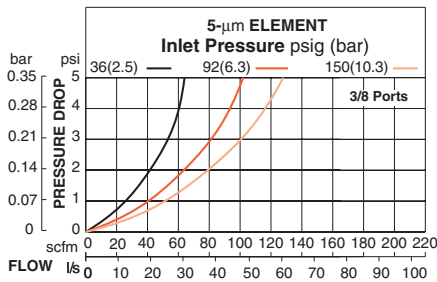


Port Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B**	C	Depth	
3/8, 1/2, 3/4	Polycarbonate	3.0 (76.2)	7.7 (195)	1.1 (28)	2.9 (73)	2.13 (0.97)
	Aluminum	3.5 (76.2)	7.6 (193)	1.1 (28)	3.1 (79)	2.13 (0.97)

**With small differential gauge, add 1.21 (31) to dimension C.
Bowl removal clearance: add 3.1 (79).

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Element Number
5-µm - Standard	Polyethylene	R-A115-106PE5
40-µm - Standard	Sintered Bronze	R-A115-106E3
5-µm - Optional	Sintered Bronze	R-A115-106E5
20-µm - Optional	Sintered Bronze	R-A115-106E4

FLOW CHARTS



Options: Differential Pressure Gauge, for additional information refer to page G6.6.
Options: External Bowl Drains, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Sintered or Fiber	Construction Material	Filter Element: 5-micron rated polyethylene, or 40-micron rated sintered bronze
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Body: Cast Zinc
Fluid Media	Compressed air		Bowl: Polycarbonate bowl with steel shatterguard, or aluminum bowl with clear nylon sight glass
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)		Bowl Ring: Nylon
Operating Pressure	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

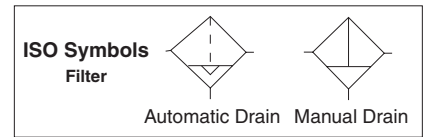
Port Sizes: 3/4 & 1 – Flow to 275 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
3/4	NPTF	5021B5008	5022B5005	5011B5008	5012B5006
	G	C5021B5008	C5022B5005	C5011B5008	C5012B5006
1	NPTF	5021B6008	5022B6005	5011B6008	5012B6006
	G	C5021B6008	C5022B6005	C5011B6008	C5012B6006

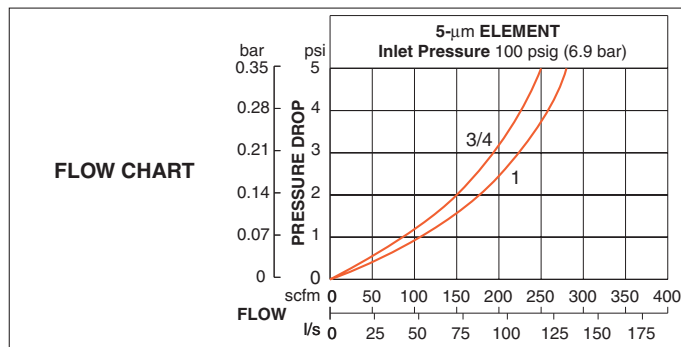
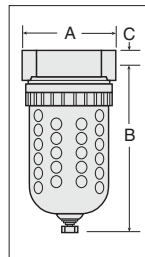


G1

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
3/4	Polycarbonate	16-oz (480-ml)	4.5 (114)	8.0 (203)	0.8 (21)	4.2 (106)	2.44 (1.11)
1	Aluminum	16-oz (480-ml)	4.5 (114)	8.3 (210)	0.8 (21)	4.2 (106)	3.25 (1.48)



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	1010K77
5-µm - Optional	Sintered Bronze	R-KA109-03E5
20-µm - Optional	Sintered Bronze	R-KA109-03E4
40-µm - Optional	Sintered Bronze	R-KA109-03E3



Options: Automatic External Drain, refer to page G6.7.
Internal float drain, consult ROSS.
Accessories ordered separately, refer to page G6.3-4.

G

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Sintered or Fiber	Construction Material	Filter Element: 5-micron rated polyethylene
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Body: Cast Zinc
Fluid Media	Compressed air		Bowl: Polycarbonate bowl with steel shatterguard, or aluminum bowl with clear nylon sight glass
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)		Bowl Ring: Aluminum
Operating Pressure	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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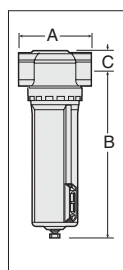
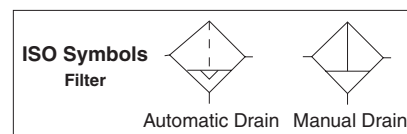
Port Sizes: 1¼ & 1½ – Flow to 660 scfm

G1

Port Size	Filter Element Rating	Automatic Drain		Manual Drain	
		Metal Bowl		Metal Bowl	
		Model Number		Model Number	
		NPTF Threads	G Threads	NPTF Threads	G Threads
1¼	5-µm	5022B7019	C5022B7019	5012B7019	C5012B7019
	40-µm	5X00B7051	C5X00B7051	5X00B7052	C5X00B7052
1½	5-µm	5022B8019	C5022B8019	5012B8019	C5012B8019
	40-µm	5X00B8037	C5X00B8037	5X00B8051	C5X00B8051

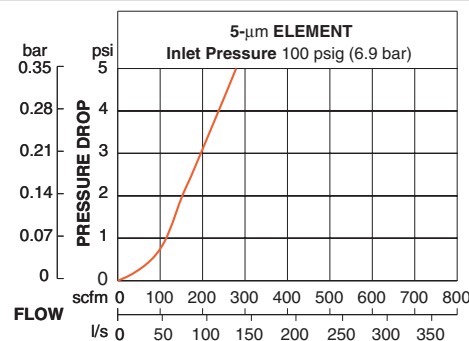
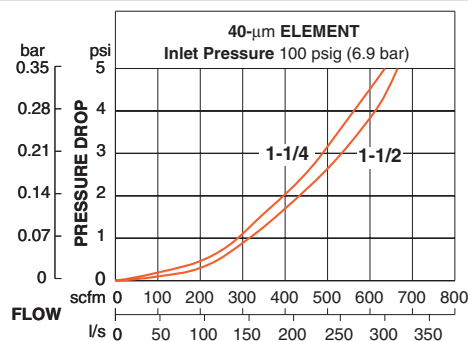


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1¼, 1½	Aluminum	35-oz (1000-ml)	5.5 (140)	10.7 (271)	1.4(36)	4.2 (106)	1.93 (0.88)



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm	Sintered Bronze	1656K77
40-µm	Sintered Bronze	R-A114-106E3

FLOW CHARTS



Options: External Automatic Drain, refer to page G6.7.
 Internal float drain, consult ROSS.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

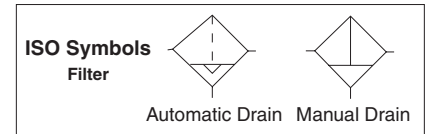
Construction Design	Sintered	Construction Material	Filter Element: 5-micron rated, or 40-micron rated sintered bronze
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		Body: Aluminum
Fluid Media	Compressed air		Bowl: Aluminum bowl with clear nylon sight glass
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 200 psig (up to 14 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Bowl Ring: Aluminum
Operating Pressure	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

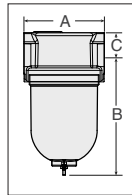
Port Sizes: 1¼, 1½ & 2 – Flow to 1000 scfm

Port Size	Filter Element Rating	Automatic Internal Float Drain		Manual Drain	
		Metal Bowl		Metal Bowl	
		Model Number		Model Number	
		NPTF Threads	G Threads	NPTF Threads	G Threads
1¼	5-µm	5022B7018	C5022B7018	5012B7018	C5012B7018
1¼	40-µm	5X00B7025	C5X00B7025	5X00B7054	C5X00B7054
1½	5-µm	5022B8018	C5022B8018	5012B8018	C5012B8018
1½	40-µm	5X00B8018	C5X00B8018	5X00B8019	C5X00B8019
2	5-µm	5022B9018	C5022B9018	5012B9018	C5012B9018
2	40-µm	5X00B9004	C5X00B9004	5X00B9003	C5X00B9003

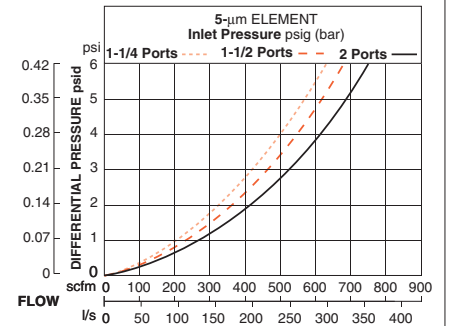
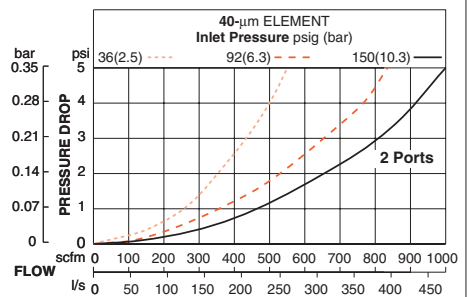
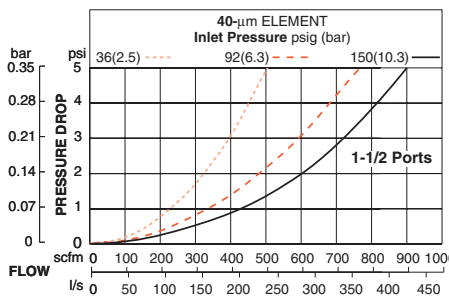
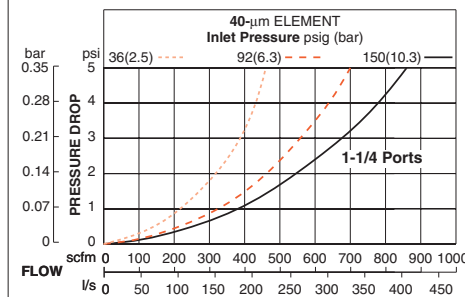
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1¼, 1½, 2	Aluminum	123-oz (3700-ml)	8.1 (204)	12.0 (305)	2.4 (60.3)	8.0 (203.2)	14.3 (6.59)



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm	Sintered Bronze	942K77
40-µm	Sintered Bronze	944K77



FLOW CHARTS



Options: External Automatic Drain, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Sintered or Fiber	Construction Material	Filter Element: 5-micron rated, or 40-micron rated sintered bronze
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		Body: Aluminum
Fluid Media	Compressed air		Bowl: Aluminum
Operating Pressure	Internal Float Drain Models: 30 to 200 psig (2.1 to 14 bar) Manual Drain Models: 0 to 200 psig (0 to 14 bar)		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Modular Coalescing Filters

BANTAM Series

G1

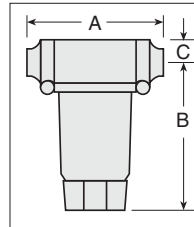
Port Sizes: 1/8 & 1/4 – Flow to 11 scfm

Port Size	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
	Model Number	Model Number	Model Number	Model Number
With THREADED PORTS				
1/8 NPTF	5B01B0700	5B01B0800	5B01B0500	5B01B0600
1/8 G	C5B01B0700	C5B01B0800	C5B01B0500	C5B01B0600
1/4 NPTF	5B02B0700	5B02B0800	5B02B0500	5B02B0600
1/4 G	C5B02B0700	C5B02B0800	C5B02B0500	C5B02B0600
With Quick-Connect TUBE FITTINGS				
1/4	5B03B0700	5B03B0800	5B03B0500	5B03B0600
3/8	5B04B0700	5B04B0800	5B04B0500	5B04B0600
4mm	5B05B0700	5B05B0800	5B05B0500	5B05B0600
6mm	5B06B0700	5B06B0800	5B06B0500	5B06B0600
8mm	5B07B0700	5B07B0800	5B07B0500	5B07B0600
10mm	5B08B0700	5B08B0800	5B08B0500	5B08B0600

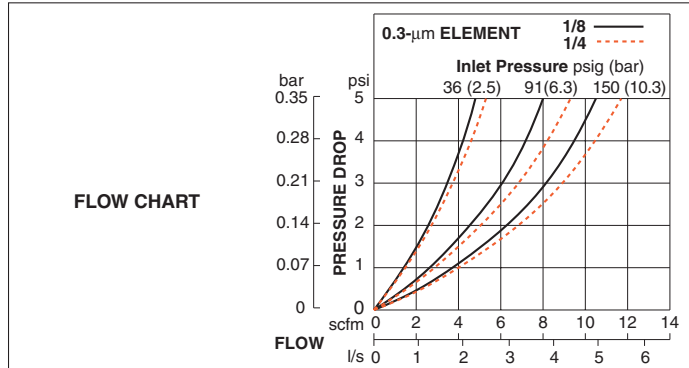


Port Size	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
		A	B**	C	Depth	
No Ports	2-oz (60-ml)	1.7 (43)	3.9 (99)	0.5 (13)	1.8 (45)	0.27 (0.12)
1/8, 1/4 (NPTF or BSPP)	2-oz (60-ml)	3.0 (76)	3.9 (99)	0.5 (13)	1.8 (45)	0.49 (0.22)
Models below have quick-connect tube fittings.						
1/4	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
3/8	2-oz (60-ml)	3.9 (99)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
4 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
6 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
8 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
10 mm	2-oz (60-ml)	3.9 (99)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)

** Dimension for polycarbonate bowl; aluminum bowl is 3.8 (97).



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
0.3- μ m - Standard	Borosilicate-glass-fiber	945K77
0.01- μ m - Optional	Borosilicate-glass-fiber	R-A-10F-16E8



G

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Operating Pressure	Manual Drain Models
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 150°F (4° to 66°C)		Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)
Fluid Media	Compressed air		Filter Element: 0.3-micron rated borosilicate-glass-fiber coalescing element
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)	Construction Material	Body: Acetal Bowl: Polycarbonate or Aluminum Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

In-line Coalescing Filters

MINIATURE Series

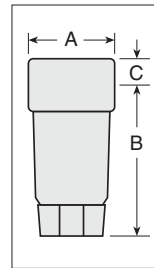
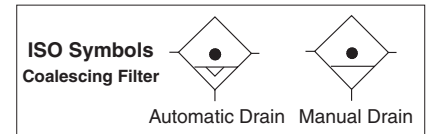
Port Sizes: 1/8 & 1/4 – Flow to 10 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/8	NPTF	5031B1128	5032B1118	5031B1028	5032B1028
	G	C5031B1128	C5032B1118	C5031B1028	C5032B1028
1/4	NPTF	5031B2128	5032B2128	5031B2028	5032B2028
	G	C5031B2128	C5032B2128	C5031B2028	C5032B2028

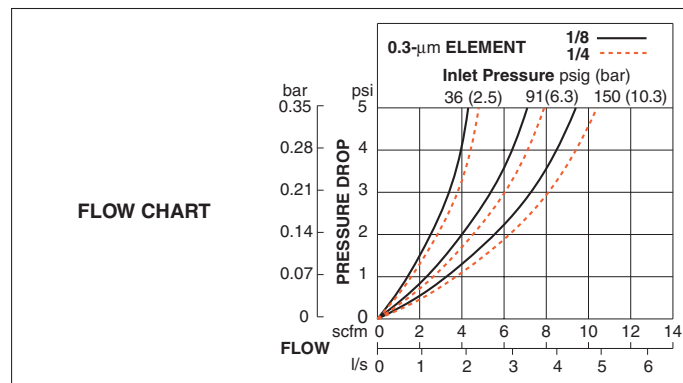


G1

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	1.6 (41)	3.6 (92)	0.4 (9.5)	1.6 (41)	0.33 (0.15)
	Aluminum	2-oz (60-ml)	1.6 (41)	4.3 (109)	0.4 (9.5)	1.6 (41)	0.35 (0.16)



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
0.3- μ m - Standard	Borosilicate-glass-fiber	945K77
0.01- μ m - Optional	Borosilicate-glass-fiber	R-A-10F-16E8



G

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Operating Pressure	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 150°F (4° to 66°C)		Construction Material
Fluid Media	Compressed air	Body: Aluminum	
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)		Bowl: Polycarbonate or Aluminum Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G1.13

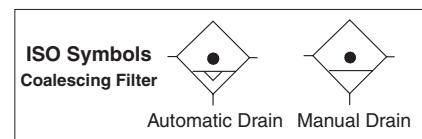
G1

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 85 scfm

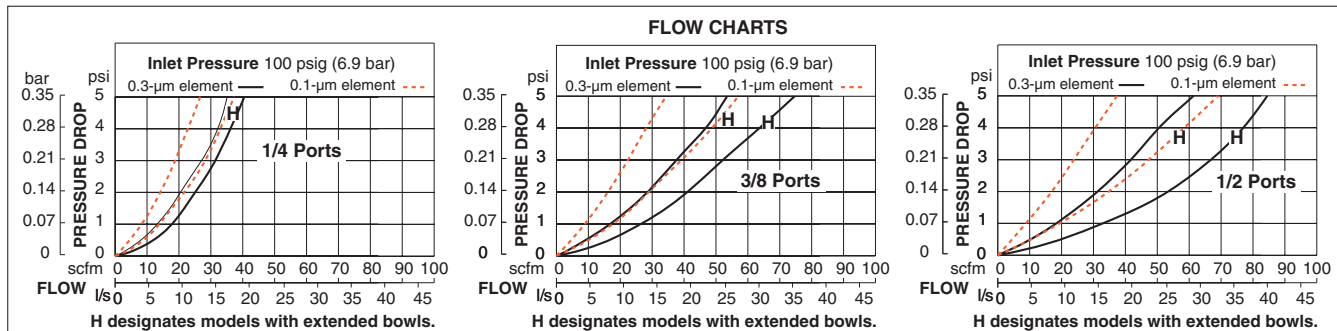
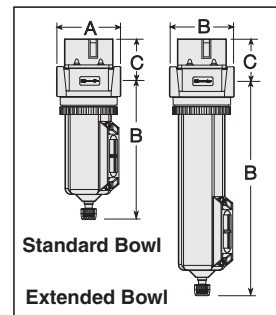


Port Size	Filter Element Rating	Automatic Drain				Manual Drain			
		Metal Bowl		Extended Metal Bowl		Metal Bowl		Extended Metal Bowl	
		Model Number		Model Number		Model Number		Model Number	
		NPTF Threads	G Threads	NPTF Threads	G Threads	NPTF Threads	G Threads	NPTF Threads	G Threads
1/4	0.3- μ m	5032B2138	C5032B2138	5032B2148	C5032B2148	5032B2038	C5032B2038	5032B2048	C5032B2048
	0.01- μ m	5032B2239	C5032B2239	5032B2249	C5032B2249	5032B2238	C5032B2238	5032B2248	C5032B2248
3/8	0.3- μ m	5032B3138	C5032B3138	5032B3148	C5032B3148	5032B3038	C5032B3038	5032B3048	C5032B3048
	0.01- μ m	5032B3239	C5032B3239	5032B3249	C5032B3249	5032B3238	C5032B3238	5032B3248	C5032B3248
1/2	0.3- μ m	5032B4138	C5032B4138	5032B4148	C5032B4148	5032B4038	C5032B4038	5032B4048	C5032B4048
	0.01- μ m	5032B4239	C5032B4239	5032B4249	C5032B4249	5032B4238	C5032B4238	5032B4248	C5032B4248

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/4, 3/8, 1/2	Standard	6-oz (180-ml)	2.7 (67)	6.5 (165)	1.8 (45)	2.4 (60)	1.75 (0.80)
1/4, 3/8, 1/2	Extended	10-oz (300-ml)	2.7 (67)	9.5 (241)	1.8 (45)	2.4 (60)	2.00 (0.91)



REPLACEMENT FILTER ELEMENTS			
Element Rating	Bowl Type	Element Material	Model Number
0.3- μ m	Standard	Borosilicate-glass-fiber	R-A60F-29
	Extended	Borosilicate-glass-fiber	R-A60F-32
0.01- μ m	Standard	Borosilicate-glass-fiber	R-A60F-29E8
	Extended	Borosilicate-glass-fiber	R-A60F-32E8



Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		Body: Zinc
Fluid Media	Compressed air		Bowl: Aluminum bowl with clear nylon sight glass, or extended aluminum bowl with clear nylon sight glass
Operating Pressure	Automatic Drain Models: Up to 150 psig (up to 10 bar)		Bowl Ring: Nylon
	Manual Drain Models: 0 to 150 psig (0 to 10 bar)		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 125 scfm

HOW TO ORDER

Choose your options (in red) to configure your model number.

MD3 **50P** **C** **M** **C** **4** **2** **A**

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 5.1-oz (151-ml)	50P
Metal Bowl 6-oz (177-ml)	50M
Extended Metal Bowl 10-oz (295-ml)	50E

FILTER ELEMENT TYPE	
0.3-µm Borosilicate Glass	C
0.01-µm Borosilicate Glass	D

BOWL DRAIN	
Manual Drain	M
Float Drain	F
Less Drain Fitting (1/4 NPT female instead)	L

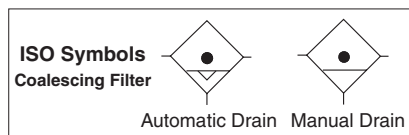
PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 G	B
3/8 G	C
1/2 G	D

CAP COLOR	
Black	2
Yellow	Y

DIFFERENTIAL PRESSURE GAUGE	
Without Gauge	A
Small Slide Gauge	S

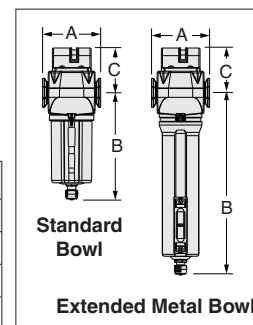


G1

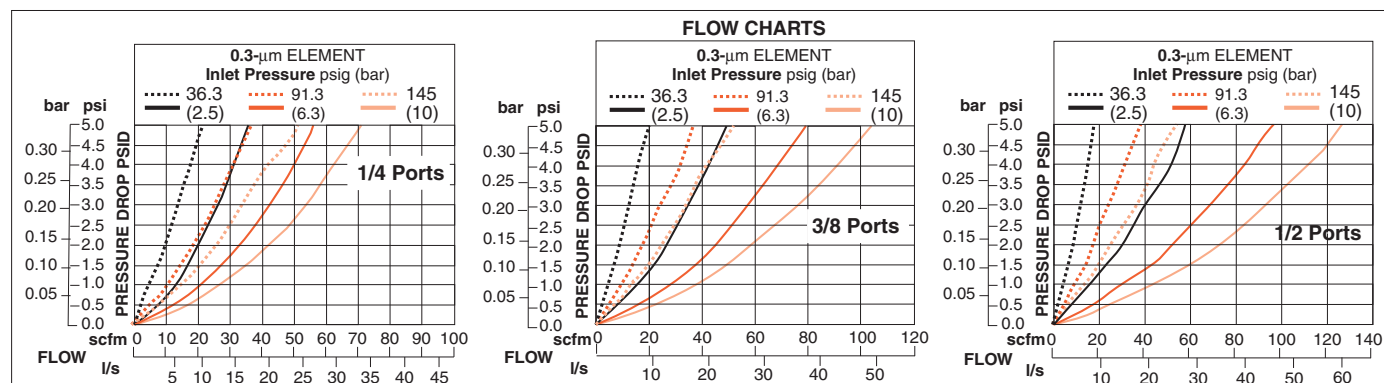


Port Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
1/4, 3/8, 1/2	Polycarbonate	3.0 (76.2)	5.54 (140.6)	2.33 (59.3)	2.51 (63.8)	1.30 (0.59)
	Aluminum	3.0 (76.2)	6.42 (163.1)	2.33 (59.3)	2.76 (70.1)	1.41 (0.64)
	Extended Aluminum	3.0 (76.2)	9.51 (241.6)	2.33 (59.3)	2.76 (70.1)	1.54 (0.70)

* Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



REPLACEMENT FILTER ELEMENTS					
Element Rating	Bowl Type	Model Number	Element Rating	Bowl Type	Model Number
0.3-µm	Polycarbonate	R-A60F-23	0.01-µm	Polycarbonate	R-A60F-23E8
	Metal	R-A60F-29		Metal	R-A60F-29E8
	Extended Metal	R-A60F-32		Extended Metal	R-A60F-32E8



Options: External Bowl Drains, for additional information refer to page G6.7.
Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Operating Pressure	Manual Drain Models
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 250 psig (0 to 17 bar)
Fluid Media	Compressed air		Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element
Operating Pressure	Automatic Drain Models	Construction Material	Body: Cast Zinc
	Polycarbonate Bowl: 30 to 150 psig (2 to 10 bar) Metal Bowl: 30 to 200 psig (2 to 14 bar)		Bowl: Polycarbonate bowl with nylon shatterguard, or aluminum bowl with clear nylon sight glass
			Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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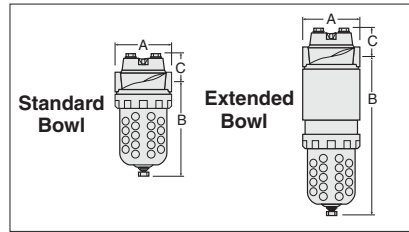
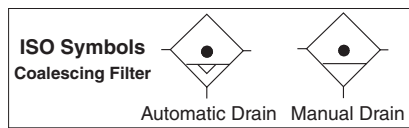
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Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

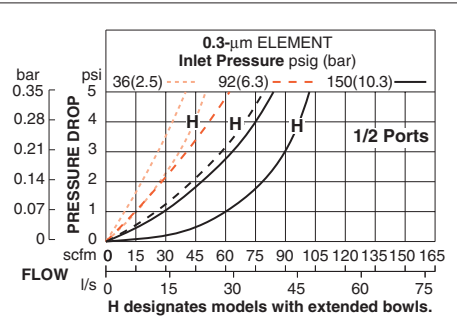
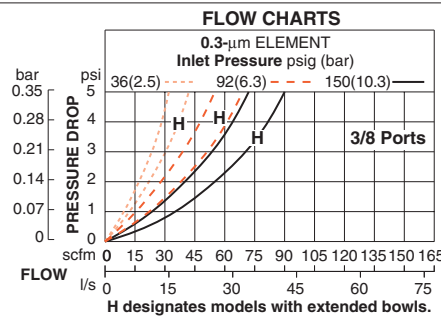
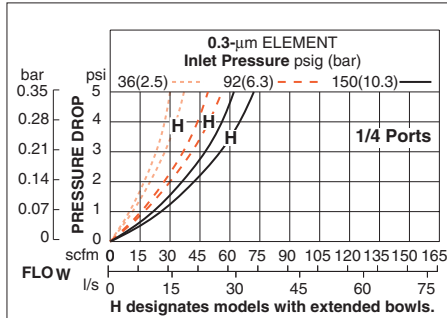
G1

Port Size	Bowl Type	Filter Element Rating	Automatic Drain				Manual Drain			
			Polycarbonate Bowl		Metal Bowl		Polycarbonate Bowl		Metal Bowl	
			Model Number		Model Number		Model Number		Model Number	
			NPTF Threads	G Threads	NPTF Threads	G Threads	NPTF Threads	G Threads	NPTF Threads	G Threads
1/4	Standard	0.3-µm	5031B2108	C5031B2108	5032B2118	C5032B2118	5031B2008	C5031B2008	5032B2018	C5032B2018
		0.01-µm	5031B2209	C5031B2209	5032B2219	C5032B2219	5031B2208	C5031B2208	5032B2218	C5032B2218
3/8	Standard	0.3-µm	5031B3108	C5031B3108	5032B3118	C5032B3118	5031B3008	C5031B3008	5032B3018	C5032B3018
		0.01-µm	5031B3209	C5031B3209	5032B3219	C5032B3219	5031B3208	C5031B3208	5032B3218	C5032B3218
1/2	Standard	0.3-µm	5031B4108	C5031B4108	5032B4118	C5032B4118	5031B4008	C5031B4008	5032B4018	C5032B4018
		0.01-µm	5031B4209	C5031B4209	5032B4219	C5032B4219	5031B4208	C5031B4208	5032B4218	C5032B4218
	Extended	0.3-µm	5031B4128	C5031B4128	5032B4128	C5032B4128	5031B4028	C5031B4028	5032B4028	C5032B4028
		0.01-µm	5031B4229	C5031B4229	5032B4229	C5032B4229	5031B4228	C5031B4228	5032B4228	C5032B4228

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/4, 3/8, 1/2	Standard	8-oz (240-ml)	3.5 (89)	5.8 (146)	1.8 (45)	3.5 (89)	2.13 (0.95)
	Extended	20-oz (600-ml)	3.5 (89)	10.3 (260)	1.8 (45)	3.5 (89)	3.25 (1.54)



REPLACEMENT FILTER ELEMENTS			
Element Rating	Bowl Type	Element Material	Model Number
0.3-µm	Standard	Borosilicate-glass-fiber	947K77
	Extended	Borosilicate-glass-fiber	R-A103-160L
0.01-µm	Standard	Borosilicate-glass-fiber	948K77
	Extended	Borosilicate-glass-fiber	R-A103-160LE8



G

Small slide differential Pressure Gauge included.

Options: Differential Pressure Gauges: Large Dual Face, Large Dual Face with Reed Switch (NO-NC), refer to page G6.6.

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Body: Zinc
Fluid Media	Compressed air	Bowl: Polycarbonate bowl with steel shatterguard, or zinc bowl with clear nylon sight glass	
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)	Bowl Ring: Aluminum	
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Seals: Nitrile	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Coalescing Filters

MD4™ Series

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 158 scfm

HOW TO ORDER

Choose your options (in red) to configure your model number.

MD4 **50P** **C** **A** **B** **5** **2** **L**



G1

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 9-oz (266-ml)	50P
Metal Bowl 9-oz (266-ml)	50M
Extended Metal Bowl 15-oz (443-ml)	50E

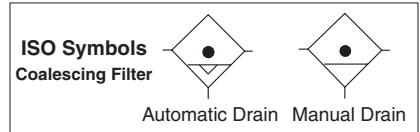
FILTER ELEMENT TYPE	
0.3-µm Borosilicate Glass	C
0.01-µm Borosilicate Glass	D

PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 G	C
1/2 G	D
3/4 G	E

CAP COLOR	
Black	2
Yellow	Y

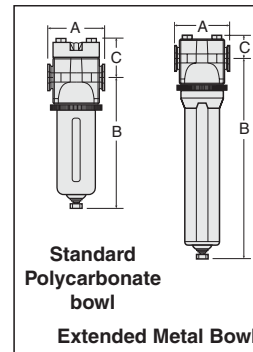
DIFFERENTIAL PRESSURE GAUGE	
Without Gauge	A
Large Dual Face Gauge	L
Small Slide Gauge	S
Large Dual Face Gauge, with Normally Open Reed Switch	E
Large Dual Face Gauge, with Normally Closed Reed Switch	C

BOWL DRAIN	
Automatic Drain	A
Manual Drain	M
Less Drain Fitting - 1/4 NPT female instead	L
Internal Float Drain	F

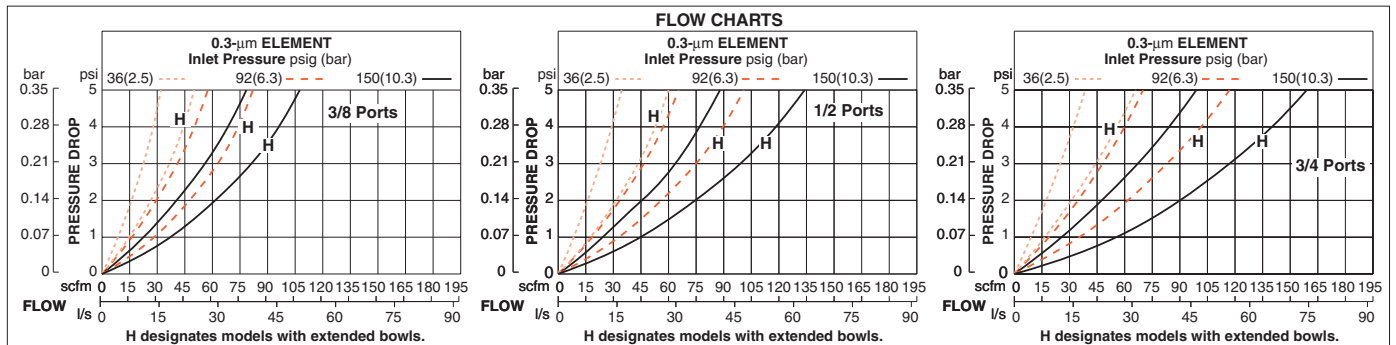


Bowl Type	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
3/8, 1/2, 3/4	Polycarbonate	3.5 (88)	7.7 (195)	2.2 (55)	2.9 (73)	2.13 (0.97)
	Aluminum	3.5 (88)	7.6 (193)	2.2 (55)	3.1 (79)	2.13 (0.97)
	Extended Aluminum	3.5 (88)	11.2 (284)	2.2 (55)	3.1 (79)	2.31 (1.05)

* Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



REPLACEMENT FILTER ELEMENTS					
Element Rating	Bowl Type	Model Number	Element Rating	Bowl Type	Model Number
0.3-µm	Standard	R-A115-117	0.01-µm	Standard	R-A115-117E8
	Extended	R-A115-118		Extended	R-A115-118E8



Options: Differential Pressure Gauges: Large Dual Face, Large Dual Face with Reed Switch (NO-NC), refer to page G6.6.
 Options: External Bowl Drains, for additional information refer to page G6.7.
 Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Body: Cast Zinc
Fluid Media	Compressed air		Bowl: Polycarbonate bowl with steel shatterguard, or aluminum bowl with clear nylon sight glass
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)		Bowl Ring: Nylon
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G1.17

Port Sizes: 3/4 & 1 – Flow to 220 scfm

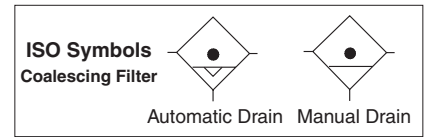


G1

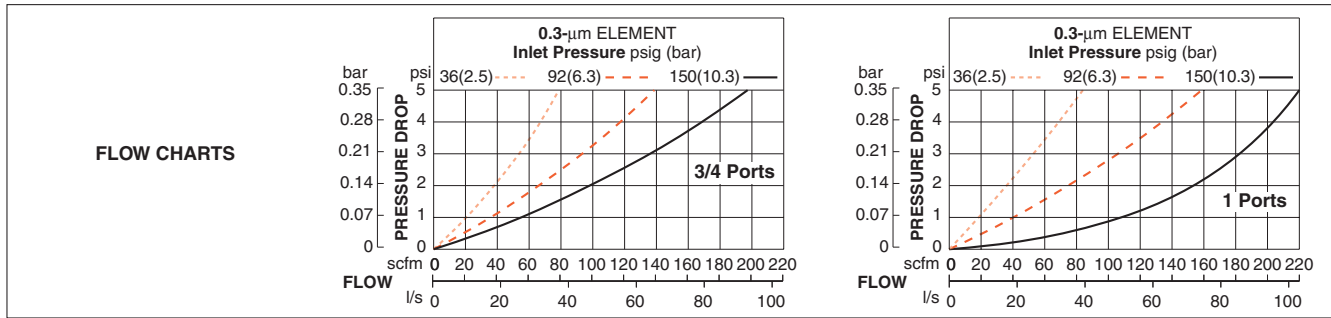
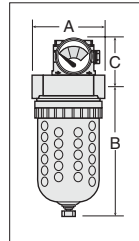
Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
3/4	NPTF	5X00B5099	5X00B5076	5031B5008	5032B5018
	G	C5X00B5099	C5X00B5076	C5031B5008	C5032B5018
1	NPTF	5X00B6027	5X00B6054	5031C6008	5032B6117
	G	C5X00B6027	C5X00B6054	C5031C6008	C5032B6117

* Models include 0.3-micron rated filter element.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
3/4, 1	Polycarbonate	16-oz (480-ml)	4.5 (114)	8.0 (203)	3.1 (78)	4.5 (114)	2.38 (1.09)
3/4, 1	Aluminum	16-oz (480-ml)	4.5 (114)	8.3 (210)	3.1 (78)	4.5 (114)	3.20 (1.46)



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
0.3-µm - Standard	Borosilicate-glass-fiber	949K77
0.01-µm - Optional	Borosilicate-glass-fiber	R-A109-106E8



G

Large dual face differential Pressure Gauge included.
Options: Differential Pressure Gauges: Small Slide, Large Dual Face with Reed Switch (NO-NC), refer to page G6.6.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Filter Element: 0.3-micron rated borosilicate-glass-fiber coalescing element
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Body: Aluminum
Fluid Media	Compressed air		Bowl: Polycarbonate bowl with steel shatterguard, or aluminum bowl with clear nylon sight glass
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)		Bowl Ring: Aluminum
Operating Pressure	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/4 & 1 – Flow to 295 scfm



G1

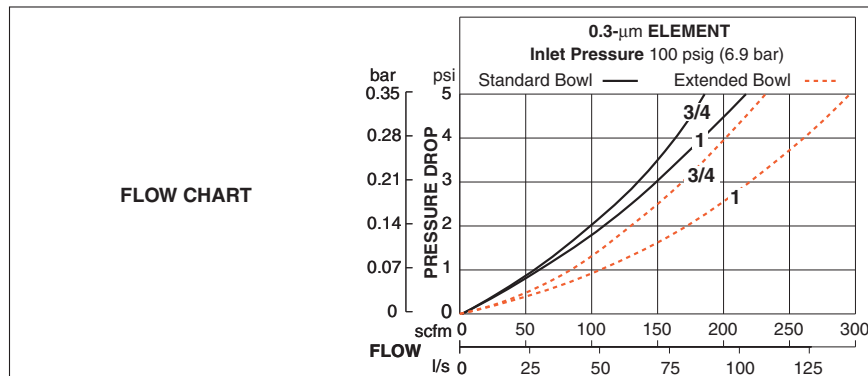
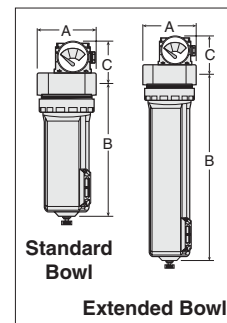
Port Size	Port Threads	Automatic Drain		Manual Drain	
		Metal Bowl	Extended Metal Bowl	Metal Bowl	Extended Metal Bowl
		Model Number	Model Number	Model Number	Model Number
3/4	NPTF	5X00B5086	5X00B5087	5032B5019	5032B5029
	G	C5X00B5086	C5X00B5087	C5032B5019	C5032B5029
1	NPTF	5X00B6064	5X00B6065	5032B6019	5032C6028
	G	C5X00B6064	C5X00B6065	C5032B6019	C5032C6028

* Models include 0.3-micron rated filter element.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
3/4, 1	Standard	35-oz (1050-ml)	4.5 (114)	10.1 (257)	3.3 (83)	4.2 (106)	3.50 (1.59)
3/4, 1	Extended	62-oz (1860-ml)	4.5 (114)	15.7 (399)	3.3 (83)	4.2 (106)	4.25 (1.91)



REPLACEMENT FILTER ELEMENTS			
Element Rating	Bowl Type	Element Material	Model Number
0.3- μ m - Standard	Standard	Borosilicate-glass-fiber	R-A114-112
	Extended	Borosilicate-glass-fiber	R-A114-113
0.01- μ m - Optional	Standard	Borosilicate-glass-fiber	R-A114-112E8
	Extended	Borosilicate-glass-fiber	R-A114-113E8



G

Large dual face differential Pressure Gauge included.
Options: Differential Pressure Gauges: Small Slide, Large Dual Face with Reed Switch (NO-NC), refer to page G6.6.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Filter Element: 0.3-micron rated borosilicate-glass-fiber coalescing element
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		Body: Aluminum
Fluid Media	Compressed air		Bowl: Aluminum bowl, or extended aluminum bowl
Operating Pressure	Automatic Drain Models: Up to 200 psig (up to 14 bar) Manual Drain Models: 0 to 200 psig (0 to 14 bar)		Bowl Ring: Aluminum
			Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



In-line Coalescing Filters

HIGH-CAPACITY Series

Port Sizes: 1¼ & 1½ – Flow to 450 scfm

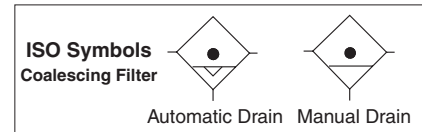


G1

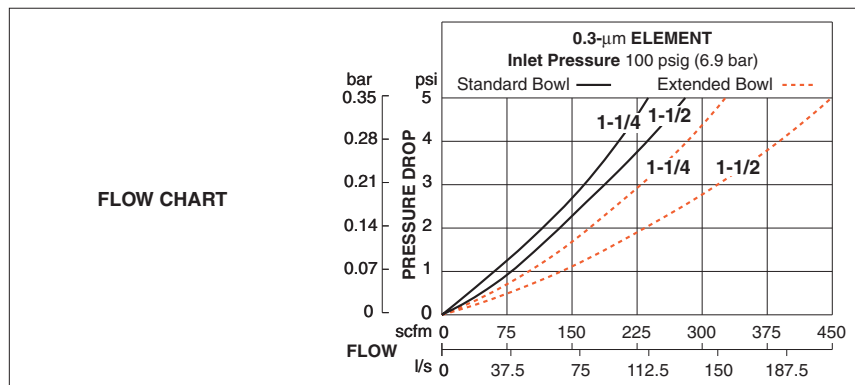
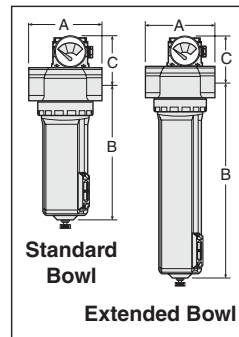
Port Size	Port Threads	Automatic Drain		Manual Drain	
		Metal Bowl	Extended Metal Bowl	Metal Bowl	Extended Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1¼	NPTF	5X00B7034	5X00B7036	5032B7019	5032B7029
	G	C5X00B7034	C5X00B7036	C5032B7019	C5032B7029
1½	NPTF	5X00B8035	5X00B8036	5032B8019	5032B8029
	G	C5X00B8035	C5X00B8036	C5032B8019	C5032B8029

* Models include 0.3-micron rated filter element.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1¼, 1½	Standard	35-oz (1050-ml)	5.5 (140)	10.6 (270)	3.7 (94)	4.2 (106)	4.31 (1.94)
	Extended	62-oz (1860-ml)	5.5 (140)	16.2 (412)	3.7 (94)	4.2 (106)	5.00 (2.27)



REPLACEMENT FILTER ELEMENTS			
Element Rating	Bowl Type	Element Material	Model Number
0.3-µm - Standard	Standard	Borosilicate-glass-fiber	R-A114-112
	Extended	Borosilicate-glass-fiber	R-A114-113
0.01-µm - Optional	Standard	Borosilicate-glass-fiber	R-A114-112E8
	Extended	Borosilicate-glass-fiber	R-A114-113E8



Large dual face differential Pressure Gauge included.
Options: Differential Pressure Gauges: Small Slide, Large Dual Face with Reed Switch (NO-NC), refer to page G6.6.
Bowl Drain - Internal Float Drain (on polycarbonate bowl only), consult ROSS.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Filter Element: 0.3-micron rated borosilicate-glass-fiber coalescing element
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		Body: Aluminum
Fluid Media	Compressed air		Bowl: Aluminum bowl, or extended aluminum bowl
Operating Pressure	Automatic Drain Models: Up to 200 psig (up to 14 bar) Manual Drain Models: 0 to 200 psig (0 to 14 bar)		Bowl Ring: Aluminum
			Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

In-line Coalescing Filters

HIGH-CAPACITY Series

Port Sizes: 1¼ & 1½ – Flow to 465 scfm

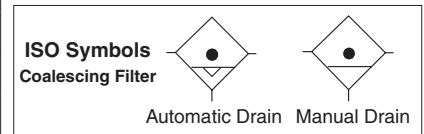


G1

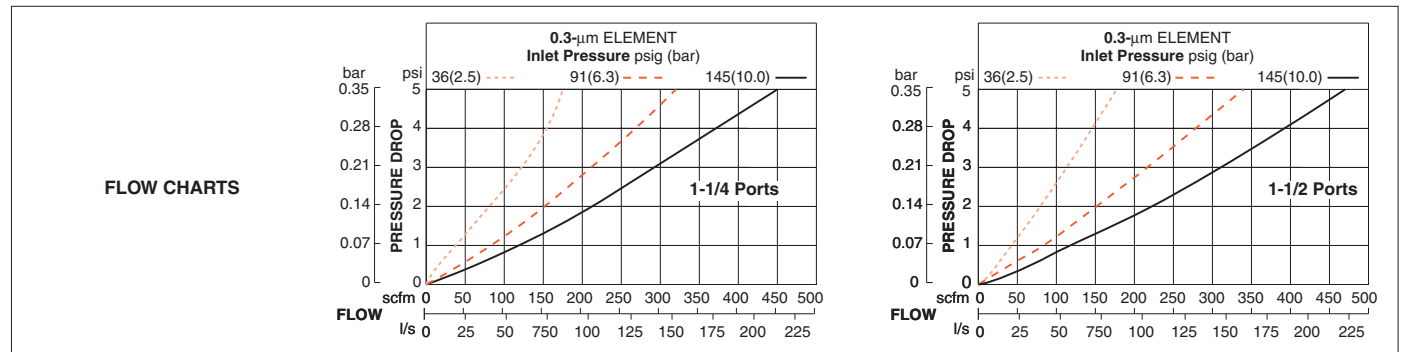
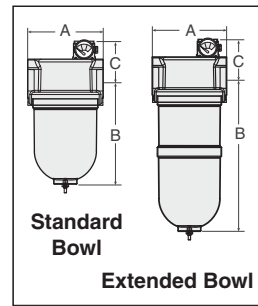
Port Size	Port Threads	Internal Float Drain	Manual Drain	
		Metal Bowl	Metal Bowl	Extended Metal Bowl
		Model Number	Model Number	Model Number
1¼	NPTF	5X00B7019	5032B7018	5032B7028
	G	C5X00B7019	C5032B7018	C5032B7028
1½	NPTF	5X00B8008	5032B8018	5032B8028
	G	C5X00B8008	C5032B8018	C5032B8028

* Models include 0.3-micron rated filter element.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1¼, 1½	Standard	123-oz (3700-ml)	8.1 (204.7)	12.0 (305.1)	4.6 (117.4)	8.0 (203.2)	17.0 (7.8)
1¼, 1½	Extended	233-oz (7000-ml)	8.1 (204.7)	18.3 (465.1)	4.6 (117.4)	8.0 (203.2)	26.0 (11.8)



REPLACEMENT FILTER ELEMENTS			
Element Rating	Bowl Type	Element Material	Model Number
0.3-µm - Standard	Standard	Borosilicate-glass-fiber	952K77
	Extended	Borosilicate-glass-fiber	953K77
0.01-µm - Optional	Standard	Borosilicate-glass-fiber	R-A106-24E8
	Extended	Borosilicate-glass-fiber	R-A106-24LE8



G

Large dual face differential Pressure Gauge included.
Options: Differential Pressure Gauges: Small Slide, Large Dual Face with Reed Switch (NO-NC), refer to page G6.6.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Filter Element: 0.3-micron rated borosilicate-glass-fiber coalescing element
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		Body: Aluminum
Fluid Media	Compressed air		Bowl: Aluminum bowl, or extended aluminum bowl
Operating Pressure	Internal Float Drain Models: 30 to 200 psig (2 to 14 bar) Manual Drain Models: 0 to 200 psig (0 to 14 bar)		V-Band: Stainless Steel
			Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G1.21

In-line Coalescing Filters

HIGH-CAPACITY Series

G1

Port Sizes: 2 – Flow to 840 scfm

Port Size	Internal Float Drain		Manual Drain	
	Metal Bowl		Metal Bowl	
	Model Number*		Model Number*	
	NPTF Threads	G Threads	NPTF Threads	G Threads
2	5X00B9009	C5X00B9009	5032B9018	C5032B9018

* Models include 0.3-micron rated filter element.

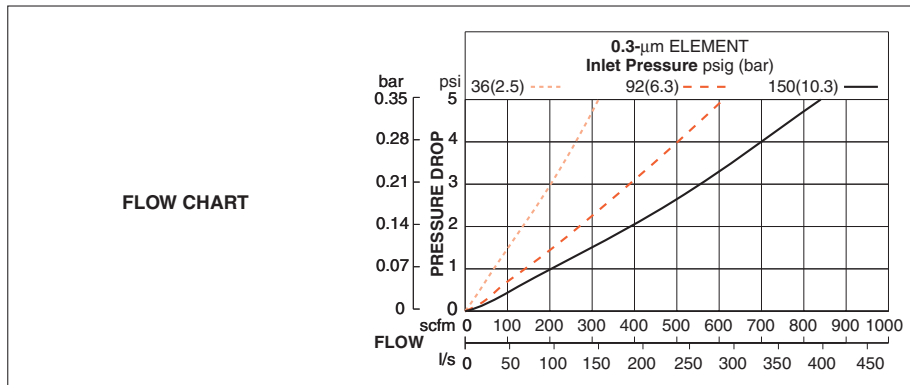
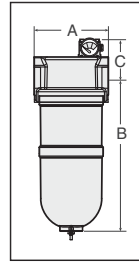


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
2	Aluminum	233-oz (7000-ml)	8.1 (204.7)	18.3 (465.1)	4.6 (117.4)	8.0 (203.2)	26.0 (11.8)

ISO Symbols

Coalescing Filter Automatic Drain Manual Drain

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
0.3- μ m - Standard	Borosilicate-glass-fiber	953K77
0.01- μ m - Optional	Borosilicate-glass-fiber	R-A106-24LE8



G

Large dual face differential Pressure Gauge included.

Options: Differential Pressure Gauges: Small Slide, Large Dual Face with Reed Switch (NO-NC), refer to page G6.6.

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Filter Element: 0.3-micron rated borosilicate-glass-fiber coalescing element
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		Body: Aluminum
Fluid Media	Compressed air		Bowl: Aluminum bowl
Operating Pressure	Internal Float Drain Models: 30 to 200 psig (2 to 14 bar) Manual Drain Models: 0 to 200 psig (0 to 14 bar)		V-Band: Stainless Steel
			Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Oil Vapor Removal (Adsorbing) Filters

MD3™ Series

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 125 scfm

HOW TO ORDER

Choose your options (in red) to configure your model number.

MD3 **50P** C 4 2

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 5.1-oz (151-ml)	50P
Metal Bowl 6-oz (177-ml)	50M
Extended Metal Bowl 10-oz (295-ml)	50E

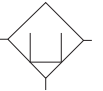
PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 G	B
3/8 G	C
1/2 G	D

CAP COLOR	
Black	2
Yellow	Y



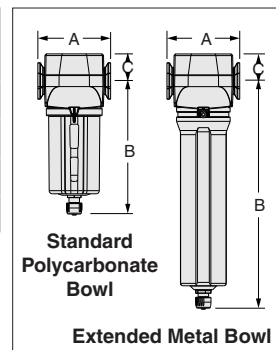
G1

ISO Symbols
Adsorbing Filter
Manual Drain

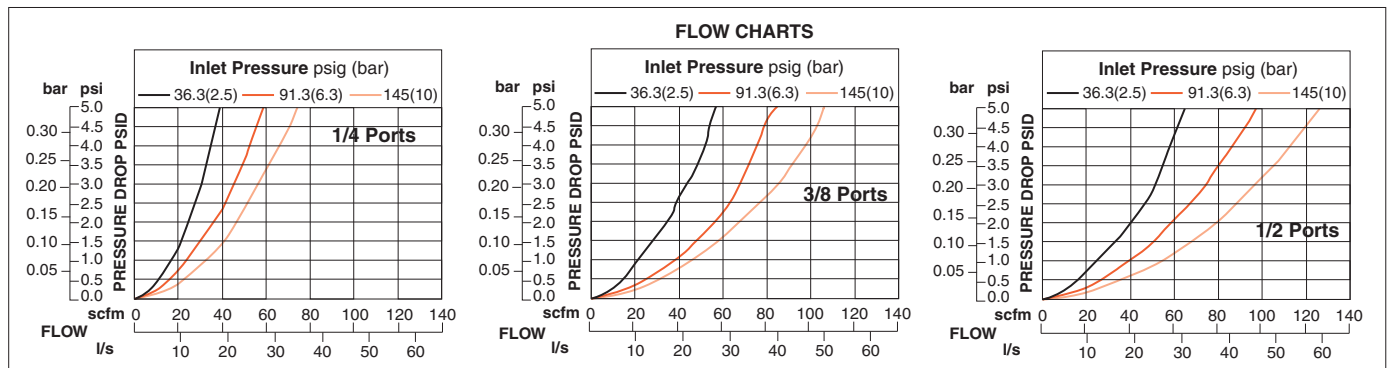


Bowl Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
1/4, 3/8, 1/2	Polycarbonate	3.0 (76.2)	5.54 (140.6)	1.12 (28.3)	2.51 (63.8)	1.29 (0.59)
	Aluminum	3.0 (76.2)	6.42 (163.1)	1.12 (28.3)	2.76 (70.1)	1.41 (0.64)
	Extended Aluminum	3.0 (76.2)	9.51 (241.6)	1.12 (28.3)	2.76 (70.1)	1.54 (0.70)

* Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



REPLACEMENT FILTER ELEMENTS	
Bowl Type	Model Number
Polycarbonate	R-A60F-29E9
Metal	R-A60F-29E9
Extended Metal	R-A60F-32E9



Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Activated carbon with urethane seals
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Body: Cast Zinc
Fluid Media	Compressed air		Bowl: Polycarbonate with nylon shatterguard, aluminum bowl with clear nylon sight glass, or extended aluminum bowl with clear nylon sight glass
Operating Pressure	Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 250 psig (0 to 17 bar)		Seals: Nitrile
Bowl Drain	Manual		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G1.23

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 165 scfm

HOW TO ORDER

Choose your options (in red) to configure your model number.

MD4 **50P** B 5 2

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 9-oz (270-ml)	50P
Metal Bowl 9-oz (270-ml)	50M
Extended Metal Bowl 15-oz (450-ml)	50E

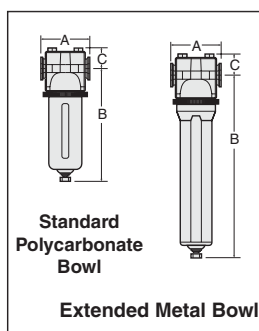
PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 G	C
1/2 G	D
3/4 G	E

CAP COLOR	
Black	2
Yellow	Y

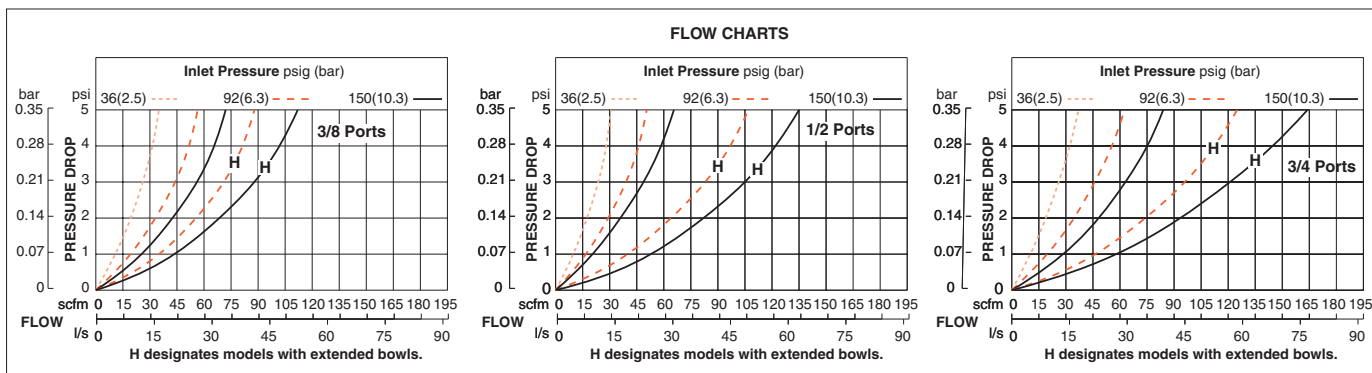


Bowl Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
3/8, 1/2, 3/4	Polycarbonate	3.5 (88)	7.7 (195)	1.1 (28)	2.9 (73)	2.13 (0.97)
	Aluminum	3.5 (88)	7.6 (193)	1.1 (28)	3.1 (79)	2.13 (0.97)
	Extended Aluminum	3.5 (88)	11.2 (284)	1.1 (28)	3.1 (79)	2.31 (1.05)

* Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



REPLACEMENT FILTER CARTRIDGE		
Filter Rating	Bowl Type	Model Number
0.01-µm	Standard	R-A115-117E9
	Extended	R-A115-118E9



Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for filters on this page):

Construction Design	Fiber	Construction Material	Filter Cartridge: Activated carbon with urethane seals
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Body: Zinc
Fluid Media	Compressed air		Bowl: Polycarbonate bowl with steel shatterguard, aluminum bowl, or extended aluminum bowl
Operating Pressure	Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Bowl Ring: Nylon
Bowl Drain	Manual		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 125 scfm

HOW TO ORDER

Choose your options (in red) to configure your model number.

MD3 **CAP** **1** **A** **C** **1** **2** **2** **A** **1**

BOWLS MATERIAL/SIZE	
Polycarbonate Bowls 5.1-oz (151-ml)	1
Metal Bowls 6-oz (177-ml)	2
Extended Metal Bowls 10-oz (295-ml)	3

COALESCING FILTER ELEMENT TYPE	
0.3-µm Borosilicate Glass	A
0.01-µm Borosilicate Glass	B

BOWL DRAIN	
Manual Drain	1
Float Drain	F

CAP COLOR	
Black	2
Yellow	Y

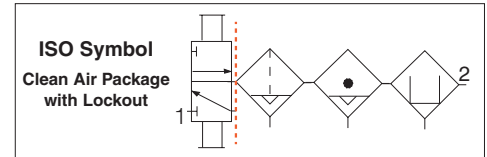
PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 G	B
3/8 G	C
1/2 G	D

DIFFERENTIAL PRESSURE GAUGE	
Without Gauge	A
Small Slide Gauge	S

LOCKOUT VALVE	
L-O-X® on outlet side	1
L-O-X® on the inlet side	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side	4
Without Valve	Leave Blank

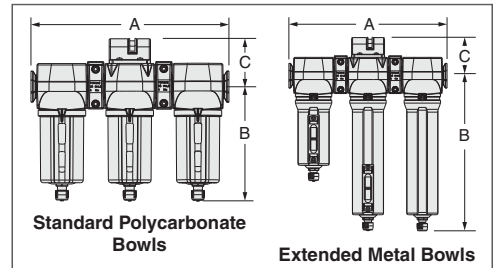


G1



Bowl Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A*	B*	C	Depth	
1/4, 3/8, 1/2	Polycarbonate	9.58 (243.3)	5.54 (140.6)	2.38 (59.3)	2.51 (63.8)	4.3 (2.0)
	Aluminum	9.58 (243.3)	6.42 (163.1)	2.38 (59.3)	2.76 (70.1)	4.6 (2.1)
	Extended Aluminum	9.58 (243.3)	9.51 (241.6)	2.38 (59.3)	2.76 (70.1)	4.9 (2.2)

* Lockout: With the lockout valve, add 2.3 (58) to dimension A.
Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



REPLACEMENT COALESCING ELEMENTS		
Element Rating	Bowl Type	Model Number
0.3-µm	Polycarbonate	R-A60F-23
	Metal	R-A60F-29
	Extended Metal	R-A60F-32
0.01-µm	Polycarbonate	R-A60F-23E8
	Metal	R-A60F-29E8
	Extended Metal	R-A60F-32E8

REPLACEMENT ADSORBING ELEMENTS	
Bowl Type	Model Number
Polycarbonate	R-A60F-29E9
Metal	R-A60F-29E9
Extended Metal	R-A60F-29

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm	Polyethylene	R-A60F-03PE5

G

Accessories ordered separately, refer to page G6.3-5.

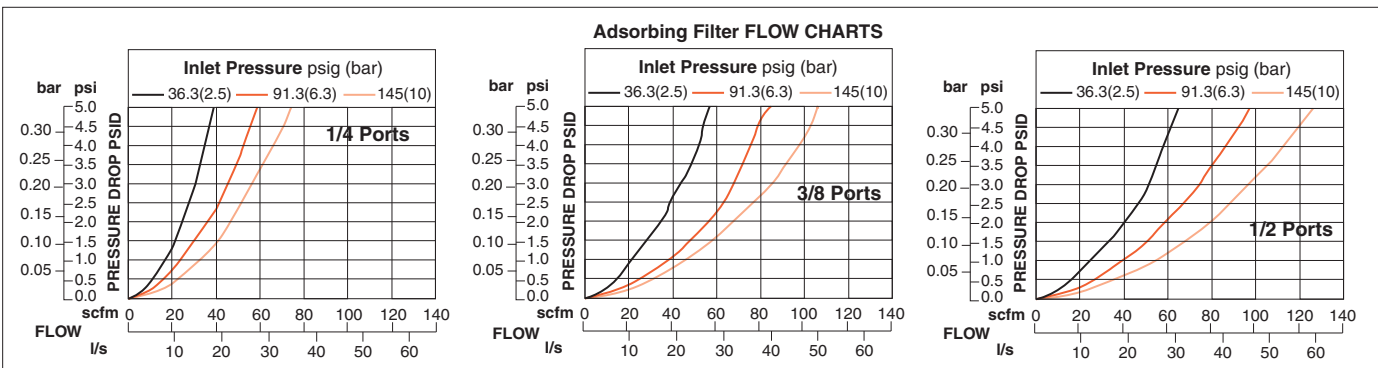
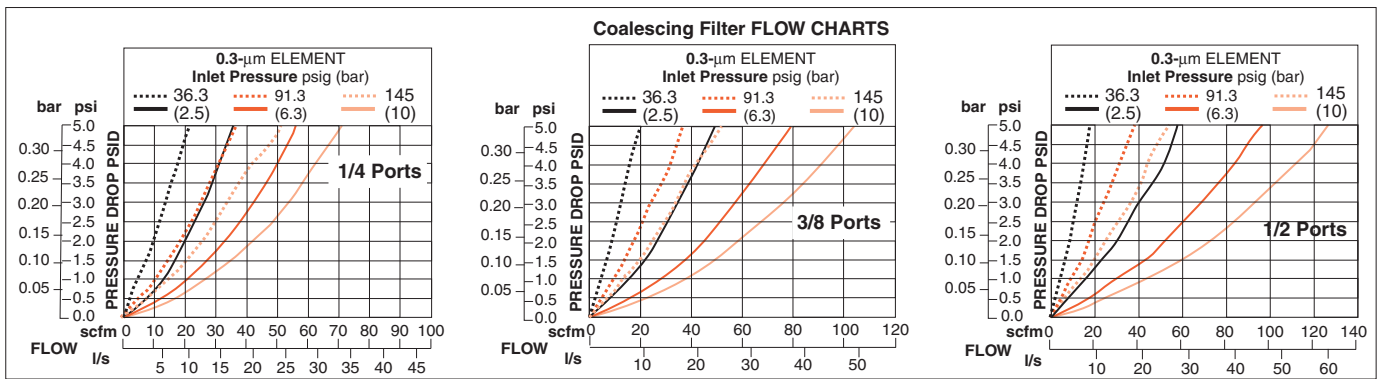
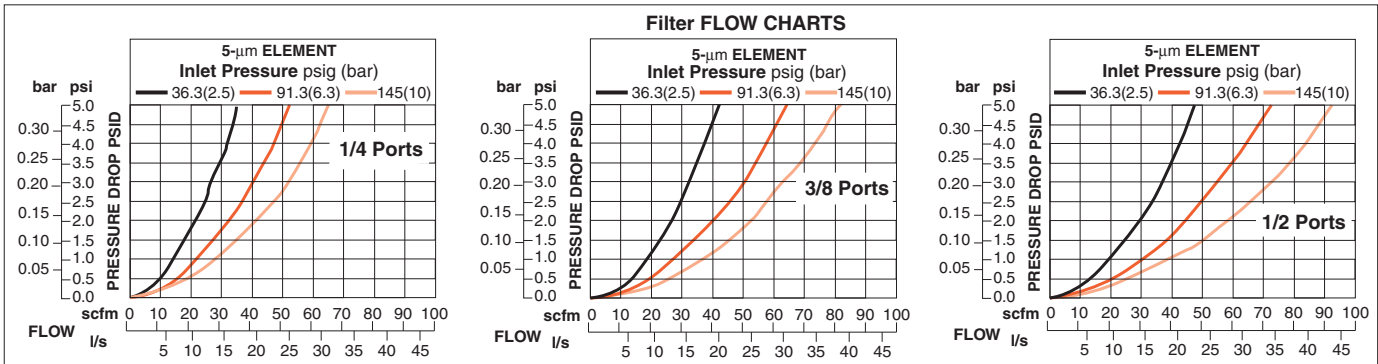
STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter, Coalescing Filter - Fiber	Bowl Drain	Filter and Coalescing Filter: Internal float drain or manual drain. Adsorber Filter: Manual drain only.
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C) Metal Bowl & Float Drain: 40° to 175°F (4° to 80°C)	Construction Material	Filter Element: 5-µm-rated polyethylene Coalescing Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber Adsorbing Filter Element: Activated carbon with urethane seals Bowls: Polycarbonate bowl with nylon shatterguard; aluminum bowl with clear nylon sight glass; extended aluminum bowl with clear nylon sight glass and higher flow filter element (for coalescing and adsorber filter only) Seals: Nitrile
Fluid Media	Compressed air		
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 30 to 150 psig (2 to 10 bar) Metal Bowl: 30 to 200 psig (2 to 14 bar) Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 250 psig (0 to 17 bar)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

AIR FLOW and CONSTRUCTION DATA

G1



G

Modular Clean Air Package

Series MD4™

Port Sizes: 3/8, 1/2 & 3/4

HOW TO ORDER

Choose your options (in red) to configure your model number.

MD4 **CAP** **1** **A** **B** **1** **5** **2** **L** **1**

BOWLS MATERIAL/SIZE	
Polycarbonate Bowls 9-oz (266-ml) - on all units	1
Metal Bowls 9-oz (266-ml) - on all units	2
Metal Bowl 9 oz (266-ml) - on Filter	
Metal Bowls 15-oz (443-ml) - on Coalescing and Adsorbing Filter	3

COALESCING FILTER ELEMENT TYPE	
0.3-µm Borosilicate Glass	A
0.01-µm Borosilicate Glass	B

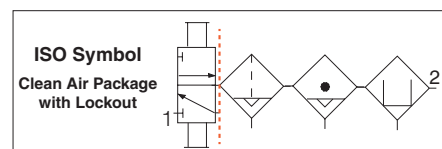
BOWL DRAIN	
Manual	1
Internal Automatic (not available on adsorber)	2
Internal Float drain	F

PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 G	C
1/2 G	D
3/4 G	E

CAP COLOR	
Black	2
Yellow	Y

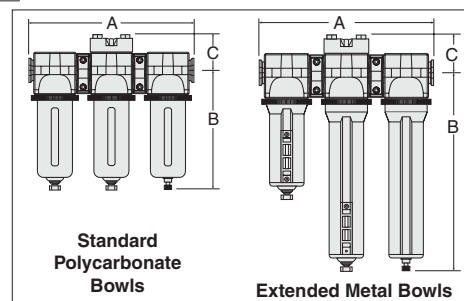
LOCKOUT VALVE	
L-O-X® on outlet side	1
L-O-X® on the inlet side	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side	4
Without Valve	Leave Blank

DIFFERENTIAL PRESSURE GAUGE	
Without Gauge	A
Large Dual Face Gauge	L
Small Slide Gauge	S
Large Dual Face Gauge, with Normally Open Reed Switch	E
Large Dual Face Gauge, with Normally Closed Reed Switch	C



Port Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A**	B**	C	Depth	
3/8, 1/2, 3/4	Polycarbonate	10.9 (276)	7.7 (195)	2.2 (55)	2.9 (73)	6.63 (3.01)
	Aluminum	3.5 (88)	7.7 (195)	2.2 (55)	2.9 (73)	6.63 (3.01)
	Extended Aluminum	3.5 (88)	11.2 (284)	2.2 (55)	2.9 (73)	7.00 (3.18)

** Lockout: With the lockout valve, add 2.3 (58) to dimension A.
Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



REPLACEMENT FILTER ELEMENTS				
Filter Type	Element Rating	Bowl Type	Element Material	Model Number
Filter	5-µm	Standard	Polyethylene	R-A115-106PE5
Coalescing	0.3-µm	Standard	Borosilicate-glass-fiber	R-A115-117
	0.3-µm	Extended	Borosilicate-glass-fiber	R-A115-118
	0.01-µm	Standard	Borosilicate-glass-fiber	R-A115-117E8
	0.01-µm	Extended	Borosilicate-glass-fiber	R-A115-118E8
Adsorbing	Standard Cartridge	Standard	Activated Carbon	R-A115-117E9
	Extended Standard Cartridge	Extended	Activated Carbon	R-A115-118E9

Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter, Coalescing Filter - Fiber	Filter Drain	Internal automatic drains for general purpose and coalescing filters; manual drain for adsorbing filter. <i>Optional internal float drain on polycarbonate bowl only, consult ROSS.</i>
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Construction Material	Filter Element: 5-µm-rated polyethylene Coalescing Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber Adsorbing Filter Element: Activated carbon with urethane seals Bowls: Polycarbonate bowls with steel shatterguard; aluminum bowl with clear nylon sight glasses on general purpose and coalescing units, or extended aluminum bowls for coalescing and adsorbing filters Seals: Nitrile
Fluid Media	Compressed air		
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)		
	Internal Float Drain Models Polycarbonate Bowl: 30 to 150 psig (2 to 10 bar) Metal Bowl: 30 to 200 psig (2 to 14 bar)		
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G1.27

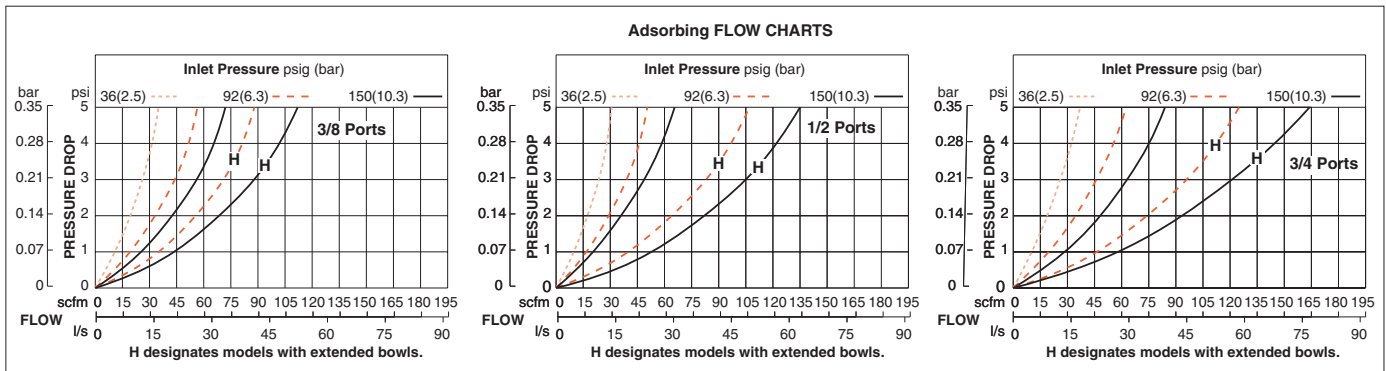
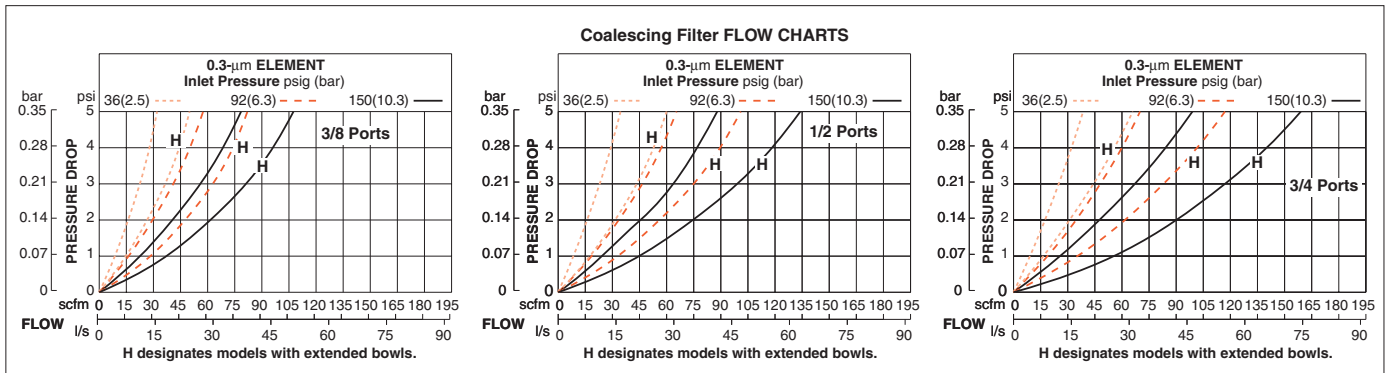
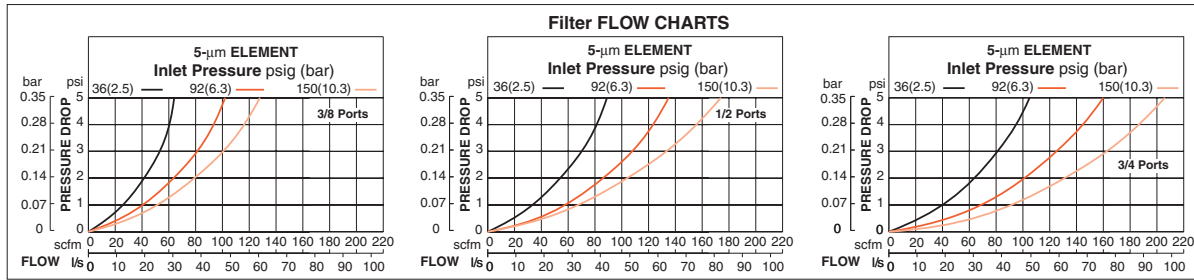
G1

G



AIR FLOW and CONSTRUCTION DATA

G1



G

In-line Silencers/Reclassifiers

Port Sizes: 1/2, 3/4 & 1

Port Size	Bowl Type	Model Number	
		NPTF Threads	G Threads
1/2	Polycarbonate	5055B4009	C5055B4009
3/4	Polycarbonate	5055B5009	C5055B5009
1	Polycarbonate	5055B6009	C5055B6009

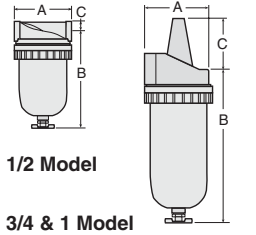


1/2 Model



3/4 & 1 Model

Port Size	Dimensions inches (mm)				Weight lb (kg)
	A	B	C	Depth	
1/2	3.5 (89)	5.5 (140)	0.7 (18)	3.5 (89)	1.3 (0.59)
3/4	4.2 (107)	8.4 (213)	2.7 (69)	4.2 (107)	2.8 (1.27)
1	4.2 (107)	8.4 (213)	2.7 (69)	4.2 (107)	2.8 (1.27)

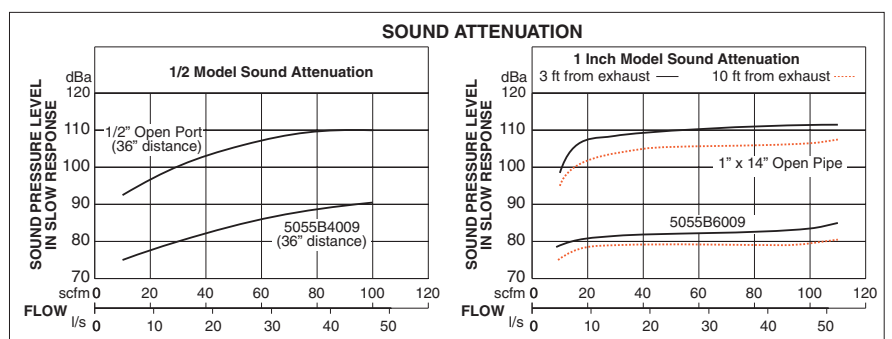
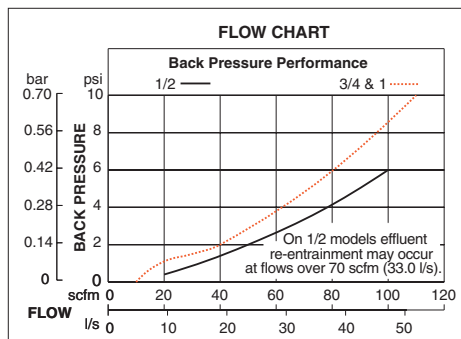


REPLACEMENT FILTER ELEMENTS			
Port Size	Element Rating	Element Material	Model Number
1/2	20- μ m	Sintered Bronze	940K77
3/4, 1	100- μ m	Sintered Bronze	981K77

SOUND ATTENUATION DATA

Constant-flow tests - conducted in a 14' x 22' room with a 14' ceiling.

Sound pressure levels - recorded using a B & K precision impulse sound meter (model 22045), a 1-inch microphone (DB0375), a flexible extension rod (UA0196), and a random incidence corrector (UA0055). Test system was mounted on the 14-foot wall with exhaust port 4 feet from the 14-foot wall.



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for silencers/reclassifiers on this page):

Construction Design	Sintered	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Temperature	Ambient/Media: 40° to 125°F (4° to 52°C)	Construction Material	Filter Element: 20- or 100- μ m-rated sintered bronze Bowl: Polycarbonate Seals: Nitrile
Fluid Media	Compressed air		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G1

Port Sizes: 3/4, 1, 1¼, 1½ & 2

Port Size	Port Threads	With Drain-Cock		With Ball Valve				
		Bowl Capacity ounce (ml)		Bowl Capacity ounce (ml)				
		35 (1035)	62 (1833)	35 (1035)	62 (1833)	120 (3548)	230 (6801)	340 (10055)
		Model Number	Model Number	Model Number	Model Number	Model Number	Model Number	Model Number
3/4	NPTF	RC012-01	RC012-01-64	RC012-01-BV	RC012-01-64-BV	–	–	–
	G	RC012-01D	RC012-01-64D	RC012-01-BVD	RC012-01-64-BVD	–	–	–
1	NPTF	RC013-01	RC013-01-64	RC013-01-BV	RC013-01-64-BV	–	–	–
	G	RC013-01D	RC013-01-64D	RC013-01-BVD	RC013-01-64-BVD	–	–	–
1¼	NPTF	RC014-01	RC014-01-42	RC014-01-BV	RC014-01-64-BV	–	–	–
	G	RC014-01D	RC014-01-64D	RC014-01-BVD	RC014-01-64-BVD	–	–	–
1½	NPTF	RC015-01	RC015-01-64	RC015-01-BV	RC015-01-64-BV	–	–	–
	G	RC015-01D	RC015-01-64D	RC015-01-BVD	RC015-01-64-BVD	–	–	–
2	NPTF	–	–	–	–	RC016-01-120	RC016-01-225	RC016-01
	G	–	–	–	–	RC016-01-120D	RC016-01-225D	RC016-01D

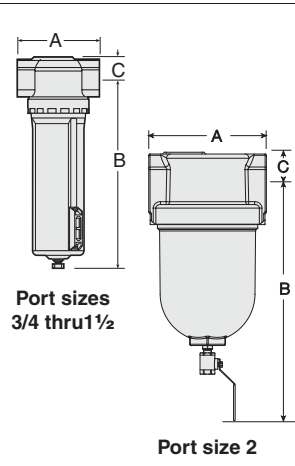


Port sizes 3/4 thru 1½



Port size 2

Port Size	Bowl Capacity ounce (ml)	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
3/4	35 (1035)	4.5 (114)	10.6 (269)	0.81 (21)	4.2 (106)	4.25 (1.93)
	62 (1833)	4.5 (114)	16.2 (412)	0.81 (21)	4.2 (106)	5.00 (2.25)
1	35 (1035)	5.5 (140)	10.6 (269)	1.4 (36)	4.2 (106)	4.25 (1.93)
	62 (1833)	5.5 (140)	16.2 (412)	1.4 (36)	4.2 (106)	5.00 (2.25)
1¼	35 (1035)	5.5 (140)	11.2 (285)	1.4 (36)	4.2 (106)	4.50 (2.04)
	62 (1833)	5.5 (140)	16.7 (424)	1.4 (36)	4.2 (106)	5.81 (2.37)
1½	35 (1035)	5.5 (140)	11.2 (285)	1.4 (36)	4.2 (106)	4.50 (2.04)
	62 (1833)	5.5 (140)	16.7 (424)	1.4 (36)	4.2 (106)	5.81 (2.37)
2	120 (3548)	8.1 (206)	15.5 (394)	4.6 (117)	8.0 (203)	17.00 (7.72)
	230 (6801)	8.1 (206)	22.5 (572)	4.6 (117)	8.0 (203)	21.9 (9.82)
	340 (10055)	8.1 (206)	29.5 (749)	4.6 (117)	8.0 (203)	26.8 (11.92)



* Add 3.5 inches (89 mm) to Dimension "B" and 0.29 lb (0.13 kg) to weight for units with Ball valves (BV option).

G

The ROSS Drip Leg Drain replaces conventional welded drip legs through improvements in both performance and serviceability resulting in increased machine productivity.

The ROSS Drip Leg Drain has a baffling device that increases the contamination removal efficiency by requiring the air to make more direction changes than a standard drip leg drain. This efficiency gain puts less contamination at the point of filtration, allowing the filter to function longer before maintenance is necessary.

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Temperature	Ambient/Media: 40° to 175°F (4° to 79°C)	Construction Material	Filter Drain: Drain-cock or Ball valve Heads: Aluminum Bowl Rings: Aluminum Seals: Nitrile
Fluid Media	Compressed air		
Operating Pressure	5 to 200 psig (0.3 to 14 bar)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.





AIR PREPARATION PRESSURE REGULATORS



ROSS CONTROLS

PRESSURE REGULATORS – KEY FEATURES

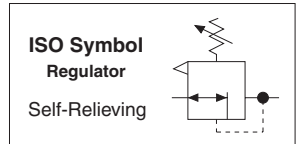
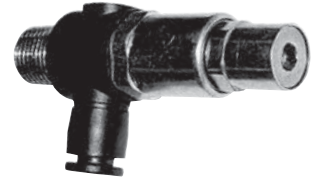
- Two design options available:
Piston design for highest air flow
Diaphragm design for high sensitivity and quick response
- Modular or In-line Mounting options
- Pressure Gauge included
- Removable Adjusting Knob for tamper resistance
- Self-relieving or non-relieving options
- Reverse Flow option available on some regulator models
- T-Handle option available on some regulator models

REGULATOR TYPE/SERIES	AVAILABLE PORT SIZES										MOUNTING		FLOW	CONSTRUCTION		OPTIONS					Page
	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	3	IN-LINE	MODULAR	MAX FLOW (scfm)	PISTON	DIAPHRAGM	SELF RELIEVING	NON RELIEVING	REVERSE FLOW	T-HANDLE	LOCKING KNOB	
STANDARD REGULATORS																					
RIGHT-ANGLE													55								G2.3
BANTAM													23								G2.4
MINIATURE													40								G2.5
MID-SIZE													100								G2.6
MD3™													120								G2.7
FULL-SIZE													155								G2.8
MD4™													220								G2.9
HIGH-CAPACITY													800								G2.10
HIGH-PRESSURE REGULATORS																					
HIGH-PRESSURE													70								G2.11
PRECISION REGULATORS																					
MINIATURE													4								G2.12
FULL-SIZE													155								G2.13
MD4™													170								G2.14
HIGH-CAPACITY													800								G2.15
REMOTE PILOT REGULATORS																					
FULL-SIZE													155								G2.16 - G2.18
MD4™													190								G2.19
HIGH-CAPACITY													4000								G2.20 - G2.23
RELIEF VALVES																					
MINIATURE													40								G2.24
HIGH-FLOW													450								G2.25
PROPORTIONAL VALVES																					
RER Series													1000								G2.26
RB-RER Series													4000								G2.27

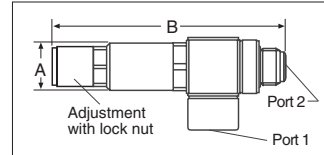
In-line Pressure Regulators

RIGHT-ANGLE Series

Port Sizes: 1/8, 1/4, 3/8 & 1/2 – Flow to 55 scfm

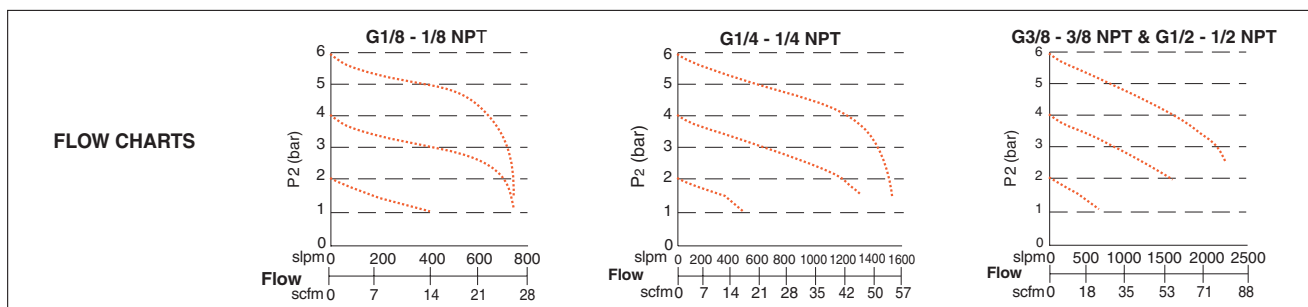
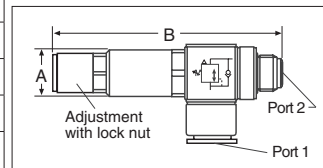


Models with Threaded Banjo						
Port Size		Port Threads	Model Number	Dimensions inches (mm)		Tightening Torque Max. Ft-lb (Nm)
Port 1 (female threads)	Port 2 (male threads)			A	B	
1/8	1/8	NPT	5214A1010	0.7 (17)	2.9 (74)	7.38 (10)
1/4	1/4	NPT	5214A2010	0.7 (17)	3.2 (81)	8.85 (12)
3/8	3/8	NPT	5214A3010	0.9 (22)	3.5 (88)	14.75 (20)
1/2	1/2	NPT	5214A4010	1.1 (27)	3.5 (89)	22.13 (30)
1/8	1/8	G	D5214A1010	0.7 (17)	2.9 (74)	11.06 (15)
1/4	1/4	G	D5214A2010	0.7 (17)	3.2 (81)	14.75 (20)
3/8	3/8	G	D5214A3010	0.9 (22)	3.5 (88)	22.13 (20)
1/2	1/2	G	D5214A4010	1.1 (27)	3.5 (89)	22.50 (30)



Models with Push-to-Connect Fitting					
Port Size		Valve Model Number	Dimensions inches (mm)		Tightening Torque Max. Ft-lb (Nm)
Port 1# (tube size)	Port 2** (thread size)		A	B	
1/4"	1/8 NPT	5214A1120	0.7 (17)	2.9 (73)	11.06 (15)
1/4"	1/4 NPT	5214A2120	0.7 (17)	3.2 (81)	14.75 (20)
3/8"	1/4 NPT	5214A2130	0.7 (17)	3.2 (81)	14.75 (20)
3/8"	3/8 NPT	5214A3130	0.9 (22)	3.5 (88)	22.13 (30)
4 mm	1/8 G	D5214A1140	0.5 (13)	2.9 (73)	7.38 (10)
6 mm	1/8 G	D5214A1160	0.5 (13)	2.9 (73)	7.38 (10)
8 mm	1/8 G	D5214A1180	0.5 (13)	2.9 (73)	7.38 (10)
6 mm	1/4 G	D5214A2160	0.7 (17)	3.2 (81)	8.85 (12)
8 mm	1/4 G	D5214A2180	0.7 (17)	3.2 (81)	8.85 (12)
10 mm	1/4 G	D5214A2110	0.7 (17)	3.2 (81)	8.85 (12)
8 mm	3/8 G	D5214A3180	0.9 (22)	3.5 (88)	14.75 (20)
10 mm	3/8 G	D5214A3110	0.9 (22)	3.5 (88)	14.75 (20)

Port 1 tubing size in inches (") or millimeters (mm). ** Port 2 threads are male.



STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Self-relieving	Operating Pressure	15 to 240 psig (1 to 17 bar)
Temperature	Ambient/Media: 15° to 160°F (-10° to 70°C)	Regulated Pressure Range:	15 to 120 psig (1 to 8 bar).
Fluid Media	Filtered air	Construction Material	Bowl: Metal

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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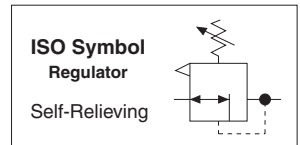
G2.3

Modular Regulators

BANTAM Series

Port Sizes: 1/8, 1/4 & 3/8 – Flow to 23 scfm

Port Size	Piston			Diaphragm		
	Model Number			Model Number		
	Regulated Pressure psig (bar)			Regulated Pressure psig (bar)		
	0-50 (0-3.4)	0-100 (0-6.9)	0-125 (0-8.6)	0-50 (0-3.4)	0-100 (0-6.9)	0-125 (0-8.6)
With THREADED PORTS						
1/8 NPTF	5B01C0030	5B01C0010	5B01C0050	5B01C0040	5B01C0020	5B01C0060
1/8 G	C5B01C0030	C5B01C0010	C5B01C0050	C5B01C0040	C5B01C0020	C5B01C0060
1/4 NPTF	5B02C0030	5B02C0010	5B02C0050	5B02C0040	5B02C0020	5B02C0060
1/4 G	C5B02C0030	C5B02C0010	C5B02C0050	C5B02C0040	C5B02C0020	C5B02C0060
With Quick Connect TUBE FITTINGS						
1/4	5B03C0030	5B03C0010	5B03C0050	5B03C0040	5B03C0020	5B03C0060
3/8	5B04C0030	5B04C0010	5B04C0050	5B04C0040	5B04C0020	5B04C0060
4mm	5B05C0030	5B05C0010	5B05C0050	5B05C0040	5B05C0020	5B05C0060
6mm	5B06C0030	5B06C0010	5B06C0050	5B06C0040	5B06C0020	5B06C0060
8mm	5B07C0030	5B07C0010	5B07C0050	5B07C0040	5B07C0020	5B07C0060
10mm	5B08C0030	5B08C0010	5B08C0050	5B08C0040	5B08C0020	5B08C0060

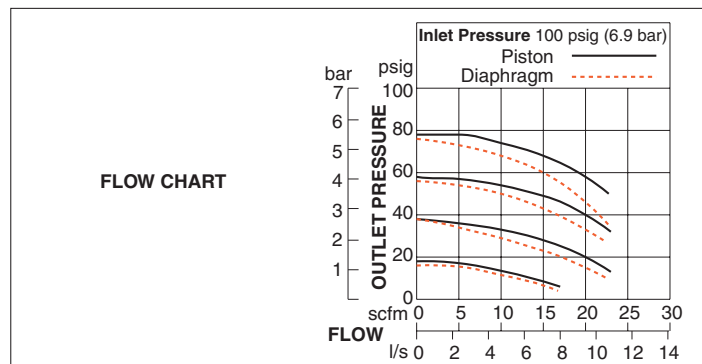
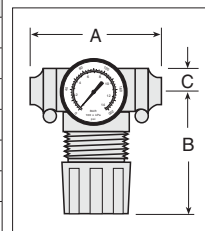


Port Size	Dimensions inches (mm)				Weight lb (kg)
	A	B	C	Depth*	
No Port	1.7 (43)	2.6 (67)	0.5 (13)	1.8 (45)	0.21 (0.09)
1/8, 1/4 (NPT or G)	3.0 (76)	2.6 (67)	0.5 (13)	1.8 (45)	0.43 (0.19)

Models below have quick-connect tube fittings.

1/4	3.4 (86)	2.6 (67)	0.5 (13)	1.8 (45)	0.21 (0.09)
3/8	3.9 (99)	2.6 (67)	0.5 (13)	1.8 (45)	0.21 (0.09)
4 mm	3.4 (86)	2.6 (67)	0.5 (13)	1.8 (45)	0.41 (0.18)
6 mm	3.4 (86)	2.6 (67)	0.5 (13)	1.8 (45)	0.41 (0.18)
8 mm	3.1 (79)	2.6 (67)	0.5 (13)	1.8 (45)	0.41 (0.18)
10 mm	3.9 (99)	2.6 (67)	0.5 (13)	1.8 (45)	0.41 (0.18)

* Less gauge.



Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Piston or Diaphragm Self-relieving; For non-relieving option consult ROSS.	Pressure Gauge	0 to 160 psig (0 to 11 bar); 1/8 gauge ports front and rear
Temperature	Ambient/Media: 40° to 125°F (4° to 52°C)	Panel Mounting	1-3/16 inch (30 mm) hole required
Fluid Media	Compressed air	Construction Material	Body: Acetal Dome and Knob: Acetal Seals: Nitrile
Operating Pressure	Inlet: Maximum 150 psig (10 bar) Outlet: Adjustable up to 100 psig (7 bar)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/8 & 1/4 – Flow to 40 scfm

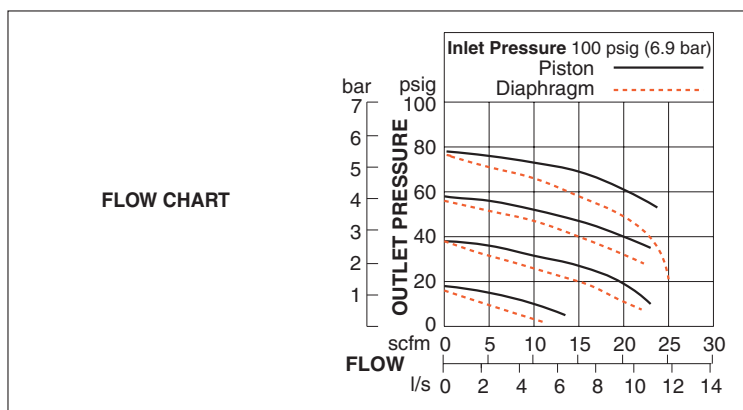
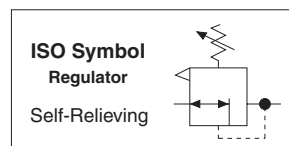
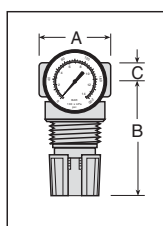
Port Size	Port Threads	Piston			Diaphragm		
		Model Number			Model Number		
		Regulated Pressure psig (bar)			Regulated Pressure psig (bar)		
		0-50 (0-3.4)	0-100 (0-6.9)	0-125 (0-8.6)	0-50 (0-3.4)	0-100 (0-6.9)	0-125 (0-8.6)
1/8	NPTF	5212C1004	5211C1004	5213C1004	5212C1005	5211C1005	5213C1005
	G	C5212C1004	C5211C1004	C5213C1004	C5212C1005	C5211C1005	C5213C1005
1/4	NPTF	5212C2004	5211C2004	5213C2004	5212C2005	5211C2005	5213C2005
	G	C5212C2004	C5211C2004	C5213C2004	C5212C2005	C5211C2005	C5213C2005



G2

Port Size	Dimensions inches (mm)				Weight* lb (kg)
	A	B	C	Depth*	
1/8, 1/4	1.6 (41)	2.7 (68)	0.4 (10)	1.6 (41)	0.24 (0.11)

* Less gauge.



G

Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Piston or Diaphragm Self-relieving; For non-relieving option consult ROSS.	Pressure Gauge	0 to 160 psig (0 to 11 bar); 1/8 gauge ports front and rear
Temperature	Ambient/Media: 40° to 125°F (4° to 52°C)	Panel Mounting	1-3/16 inch (30 mm) hole required
Fluid Media	Compressed air	Construction Material	Body: Aluminum
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable up to 100 psig (7 bar)		Dome and Knob: Acetal
			Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

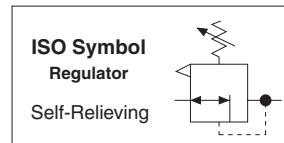
Port Size	Pressure Range psig (bar)					
	0-50 (0-3.4)		0-100 (0-6.9)		0-150 (0-10.3)	
	Model Number		Model Number		Model Number	
	NPTF Threads	G Threads	NPTF Threads	G Threads	NPTF Threads	G Threads
1/4	5212B2015	C5212B2015	5211B2015	C5211B2015	5213B2015	C5213B2015
3/8	5212B3015	C5212B3015	5211B3015	C5211B3015	5213B3015	C5213B3015
1/2	5212B4015	C5212B4015	5211B4015	C5211B4015	5213B4015	C5213B4015



G2

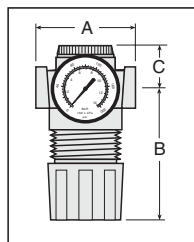
REGULATORS with REVERSE FLOW

Port Size	Regulated Pressure Range psig (bar)	Pressure Adjustment			
		Knob		T-Handle	
		Model Numbers		Model Numbers	
		NPTF Threads	BSPP Threads	NPTF Threads	BSPP Threads
1/4	0-100 (0-6.9)	5X00B2035	C5X00B2035	5X00B2039	C5X00B2039
3/8	0-100 (0-6.9)	5X00B3024	C5X00B3024	5X00B3021	C5X00B3021
1/2	0-100 (0-6.9)	5X00B4023	C5X00B4023	5X00B4041	C5X00B4041



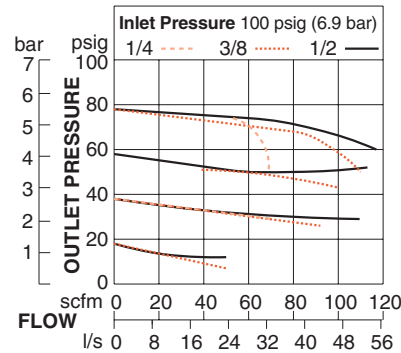
Port Size	Dimensions inches (mm)				Weight* lb (kg)
	A	B	C	Depth*	
1/4, 3/8, 1/2	2.7 (68)	3.3 (83)	1.3 (33)	2.1 (52)	1.0 (0.46)

*Less gauge.



Reverse-Flow Regulators provide regulated in-to-out pressure control, plus quick exhausting from out-to-in. Used for downstream pressure regulation of weld guns and other applications requiring quick exhausting through the regulator.

FLOW CHART



G

Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Piston or Diaphragm Self-relieving; For non-relieving option consult ROSS.	Panel Mounting	1-9/16 inch (40 mm) hole required
Temperature	Ambient/Media: 40° to 125°F (4° to 52°C)	Construction Material	Body: Zinc
Fluid Media	Compressed air		Cap: Nylon
Operating Pressure	Inlet: Maximum 250 psig (17 bar) Outlet: Adjustable up to 150 psig (10 bar)		Dome: Acetal
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear		Knob: Acetal
			Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 120 scfm



Choose your options (in red) to configure your model number.

MD3 **52K** **A** **R** **C** **2** **2** **A**

ADJUSTMENT TYPE	
Knob	52K
Tee Handle	52T
Locking Knob	52L

ADJUSTMENT RANGE	
0-200 psig (0-13.8 bar)	A
0-150 psig (0-10.3 bar)	B
0-100 psig (0-6.9 bar)	C
0-50 psig (0-3.4 bar)	D

PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 G	B
3/8 G	C
1/2 G	D

FLOW OPTIONS	
Reverse Flow	R
Standard Flow	S

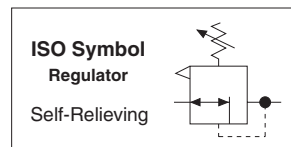
GAUGE	
Without Gauge	A
Gauge 0-200 psig (0-13.8 bar)	B
Gauge 0-60 psig (0-4.1 bar)	C
Without Gauge, with Panel Mount Nut	D
Gauge 0-200 psig (0-13.8 bar), with Panel Mount Nut	E
Gauge 0-60 psig (0-4.1 bar), with Panel Mount Nut	F

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B*	C**	Depth†	
1/4, 3/8, 1/2, 3/4	3.0 (76.2)	4.52 (114.9)	1.46 (37)	2.51 (63.8)	1.9 (0.86)

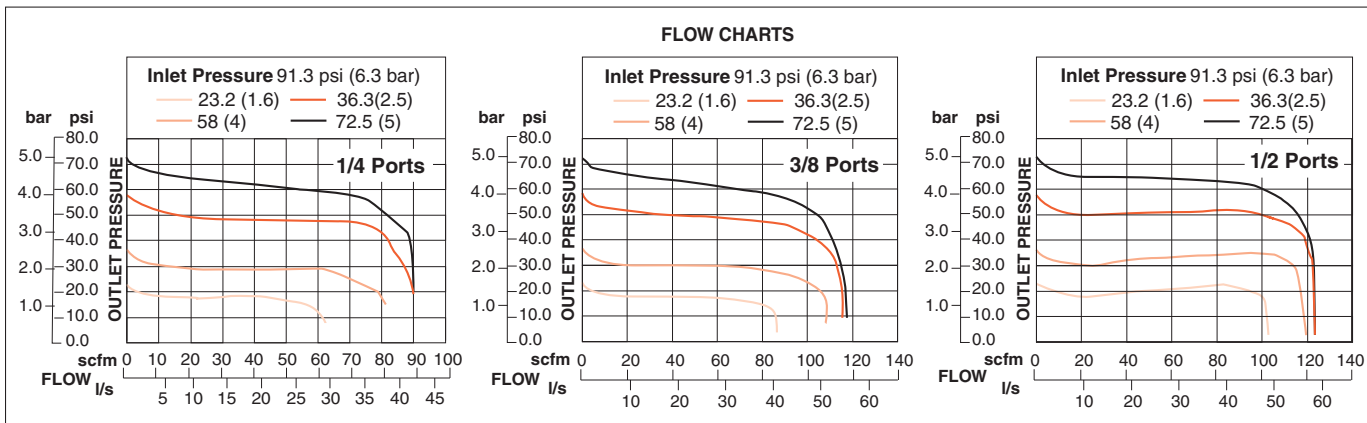
* Dome removal clearance: add 0.575 (14.6).

** Cap removal clearance: add 0.750 (19.1).

† Less gauge.



G2



G

Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving; For non-relieving option consult ROSS.	Panel Mounting	2-1/16 inch (52 mm) hole required
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Body: Zinc
Fluid Media	Compressed air		Dome: Nylon
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable up to 200 psig (14 bar); optional adjusting springs.		Knob: Acetal
Optional Pressure Adjustment	Locking Key: Removable		Seals: Nitrile
Pressure Gauge	0-200 psig (0-14 bar) or 0-60 psig (0-4 bar); 1/4-NPT gauge ports front and rear		Valve: Brass Valve Cap: Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Modular Regulators

FULL-SIZE Series

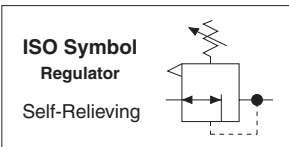
Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 155 scfm

Port Size	Pressure Range psig (bar)					
	0-50 (0-3.4)		0-125 (0-8.6)		0-175 (0-12.1)	
	Model Number		Model Number		Model Number	
	NPTF Threads	G Threads	NPTF Threads	G Threads	NPTF Threads	G Threads
1/4	5212B2017	C5212B2017	5211B2017	C5211B2017	5213B2017	C5213B2017
3/8	5212B3017	C5212B3017	5211B3017	C5211B3017	5213B3017	C5213B3017
1/2	5212B4017	C5212B4017	5211B4017	C5211B4017	5213B4017	C5213B4017
3/4	5212B5027	C5212B5027	5211B5027	C5211B5027	5213B5027	C5213B5027



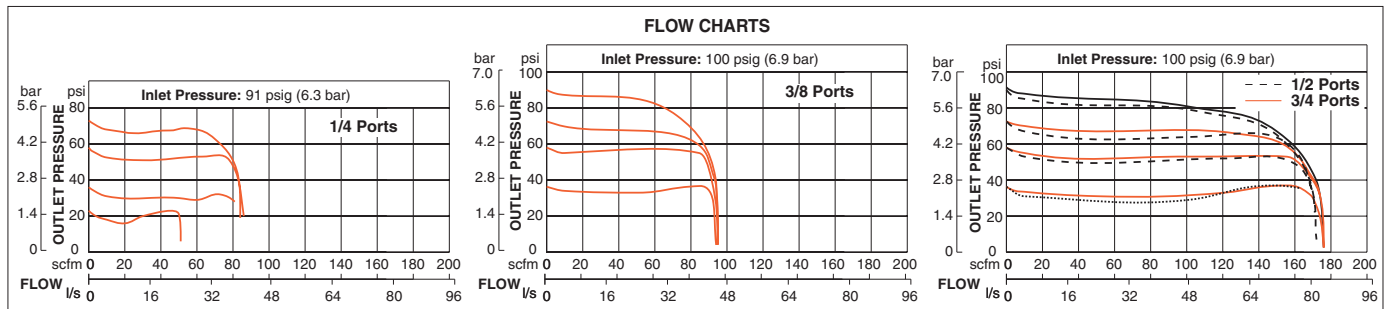
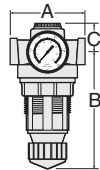
REGULATORS with REVERSE FLOW

Port Size	Pressure Adjustment 0-125 (0-8.6)			
	Knob		T-Handle	
	Model Number		Model Number	
	NPT Threads	G Threads	NPT Threads	G Threads
1/4	5X00B2010	C5X00B2010	–	–
3/8	5X00B3004	C5X00B3004	5X00B3012	C5X00B3012
1/2	5X00B4004	C5X00B4004	5X00B4047	C5X00B4047
3/4	5X00B5034	C5X00B5034	5X00B5044	C5X00B5044



Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B**	C***	Depth †	
1/4, 3/8, 1/2, 3/4	3.5 (89)	5.8 (146)	1.3 (33)	2.8 (71)	2.06 (0.92)

** Dome removal clearance: add 0.63 (16).
 *** Cap removal clearance: add 0.5 (13).
 † Less gauge.



Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving; For non-relieving option consult ROSS.	Panel Mounting	2-1/16 inch (52 mm) hole required
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Body: Zinc
Fluid Media	Compressed air		Dome: Nylon; aluminum with optional 0 to 175 psig (0 to 12 bar) spring
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable up to 175 psig (1 bar); optional adjusting springs.		Knob: Acetal
Optional Pressure Adjustment	Locking Key: Removable		Seals: Nitrile
Pressure Gauge	0-200 psig (0-14 bar); 1/4-NPT gauge ports front and rear		Valve: Brass Valve Cap: Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 220 scfm

HOW TO ORDER

Choose your options (in red) to configure your model number.

MD4 **52K** **A** **S** **B** **5** **2** **B**

ADJUSTMENT TYPE

Knob	52K
Tee Handle	52T

ADJUSTMENT RANGE

0-175 psig (0-12.1 bar)	A
0-125 psig (0-8.6 bar)	B
0-50 psig (0-3.4 bar)	C
0-20 psig (0-1.4 bar)	D

PIPE SIZE

3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 G	C
1/2 G	D
3/4 G	E

FLOW OPTIONS

Reverse Flow	R
Standard Flow	S

CAP COLOR

Black	2
Yellow	Y

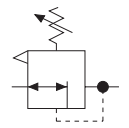
GAUGE

Without Gauge	A
Gauge 0-200 psig (0-13.8 bar)	B
Gauge 0-60 psig (0-4.1 bar)	C
Without Gauge, with Panel Mount Nut	D
Gauge 0-200 psig (0-13.8 bar), with Panel Mount Nut	E
Gauge 0-60 psig (0-4.1 bar), with Panel Mount Nut	F



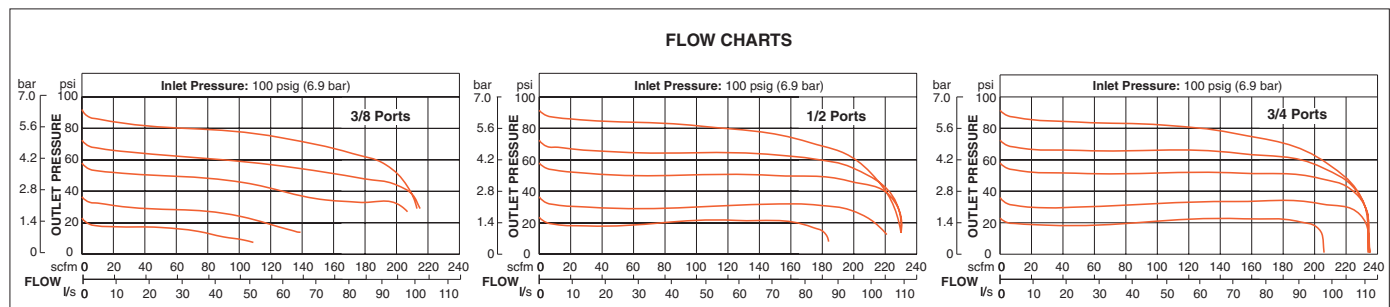
G2

ISO Symbol
Regulator
Self-Relieving



Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B*	C**	Depth †	
3/8, 1/2, 3/4	3.5 (87)	5.6 (142)	1.6 (40)	2.9 (73)	2.56 (1.16)

*Dome removal clearance: add 0.625 (16).
 **Cap removal clearance: add 0.50 (13).
 † Dimensions reflect less gauge.



G

Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving; For non-relieving option consult ROSS.	Panel Mounting	2-1/16 inch (52 mm) hole required
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Body: Zinc
Fluid Media	Compressed air		Dome: Nylon; aluminum with optional 0 to 175 psig (0 to 12 bar) spring
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable up to 175 psig (1 bar); optional adjusting springs.		Knob: Acetal
Optional Pressure Adjustment	Locking Key: Removable		Seals: Nitrile
Pressure Gauge	0-200 psig (0-14 bar); 1/4-NPT gauge ports front and rear		Valve: Brass Valve Cap: Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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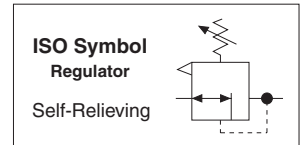
G2.9

In-line Regulators

HIGH-CAPACITY Series

Port Sizes: 3/4, 1, 1¼ & 1½ – Flow to 800 scfm

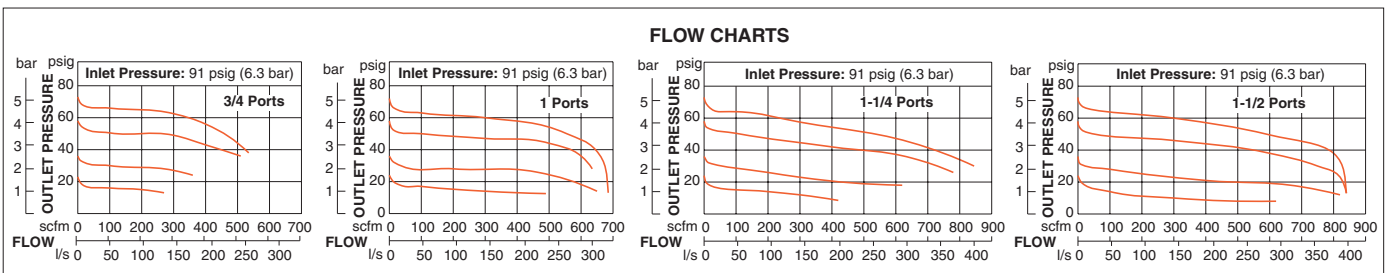
Port Size	Pressure Range psig (bar)			
	0-50 (0-3.4)		0-100 (0-6.9)	
	Model Number		Model Number	
	NPTF Threads	G Threads	NPTF Threads	G Threads
3/4	5212D5017	C5212D5017	5211D5017	C5211D5017
1	5212D6017	C5212D6017	5211D6017	C5211D6017
1¼	5212C7017	C5212C7017	5211C7017	C5211C7017
1½	5212C8017	C5212C8017	5211C8017	C5211C8017



REGULATORS with REVERSE FLOW:					
Port Size	Pressure Range psig (bar)	Pressure Adjustment			
		Knob		T-Handle	
		Model Number		Model Number	
		NPTF Threads	G Threads	NPTF Threads	G Threads
3/4	0-100 (0-6.9)	5X00B5049	C5X00B5049	5X00B5050	C5X00B5050
1	0-100 (0-6.9)	5X00D6003	C5X00D6003	5X00B6038	C5X00B6038
1¼	0-100 (0-6.9)	5X00C7003	C5X00C7003	5X00B7016	C5X00B7016
1½	0-100 (0-6.9)	5X00C8001	C5X00C8001	5X00B8024	C5X00B8024

Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B**	C***	Depth †	
3/4, 1	4.4 (111)	6.1 (154)	2.4 (62)	2.8 (71)	2.19 (0.99)
1¼, 1½	4.9 (124)	6.4 (162)	2.1 (54)	2.8 (71)	2.50 (1.14)

** Dome removal clearance: add 0.63 (16).
*** Cap removal clearance: add 0.65 (16.5).
† Dimensions reflect less gauge.



Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Piston Self-relieving	Construction Material	Body: Aluminum
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		Dome: Nylon; aluminum with optional 0 to 150 psig (0 to 10 bar) spring
Fluid Media	Compressed air		Knob: Acetal
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable up to 100 psig (7 bar)		Seals: Nitrile
Optional Pressure Adjustment	Locking Key: Removable		Valve: Brass
Pressure Gauge	0-200 psig (0-14 bar); 1/4-NPT gauge ports front and rear		Valve Cap: Nylon
Panel Mounting	2-1/16 inch (52 mm) hole required		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

In-line High-Pressure Regulators

HIGH-PRESSURE Series

Port Sizes: 1/8, 1/4 & 3/8 – Flow to 70 scfm

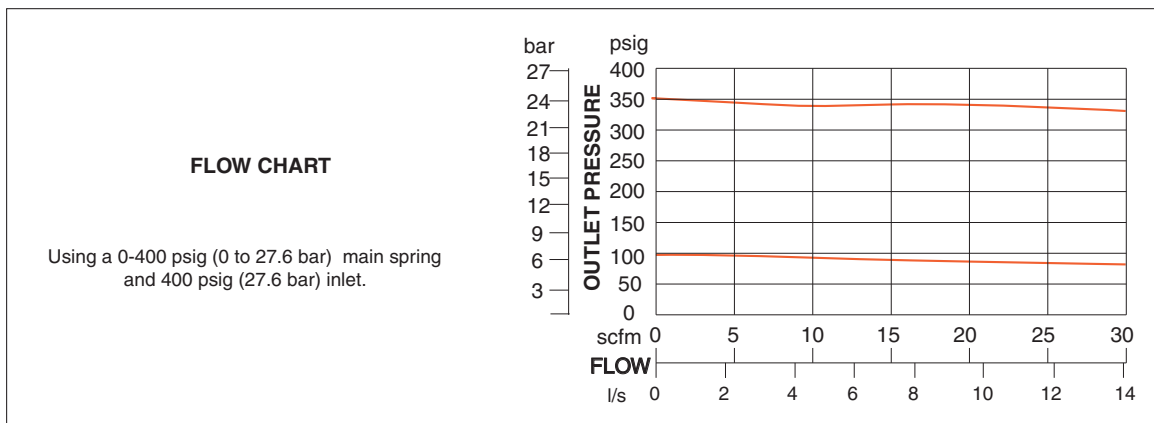
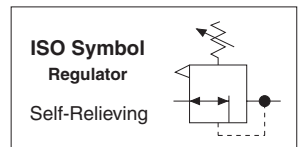
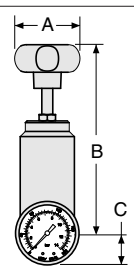
Port Size	Piston Type			
	Relieving		Non-Relieving	
	Model Number		Model Number	
	NPTF Threads	G Threads	NPTF Threads	G Threads
1/8	5215B1004	C5215B1004	5X00B1025	C5X00B1025
1/4	5215B2004	C5215B2004	5X00B2076	C5X00B2076
3/8	5215B3004	C5215B3004	5X00B3052	C5X00B3052



G2

Port Size	Dimensions inches (mm)				Weight** lb (kg)
	A	B	C	Depth**	
1/8, 1/4	1.9 (47)	7.3 (186) max	0.4 (10)	1.9 (47)	1.15 (0.53)
3/8	2.1 (54)	7.4 (188) max	0.5 (13)	2.1 (54)	1.30 (0.59)

** Less gauge.



G

*Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.*

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Piston Self-relieving, Non-relieving	Maximum Flow Rate	70 scfm (33.0 l/s) @400 psi (28 bar)
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Body: Aluminum
Fluid Media	Compressed air		Dome: Aluminum
Operating Pressure	Inlet: Maximum 400 psig (28 bar) Outlet: Adjustable up to 390 psig (27 bar)		Knob: Nylon
Pressure Gauge	0-600 psig (0-40 bar)		Seals: Fluoroelastomer
			Valve: Brass Valve Cap: Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G2.11

In-line Precision Regulators

MINIATURE Series

Port Sizes: 1/8 & 1/4 – Flow to 4 scfm

Port Size	Regulated Pressure Range# psig (bar)	Model Number	
		NPTF Threads	G Threads
1/8	0-50 (0-3.4)	5212C1006	C5212C1006
1/4	0-50 (0-3.4)	5212C2006	C5212C2006

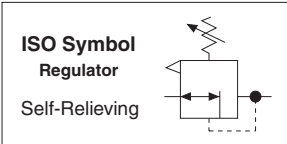
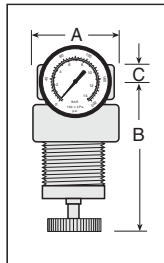
For 0-10 psig (0-0.7 bar), 0-20 psig (0-1.4 bar), and 0-60 psig (0-4.1 bar) ranges, consult ROSS.



G2

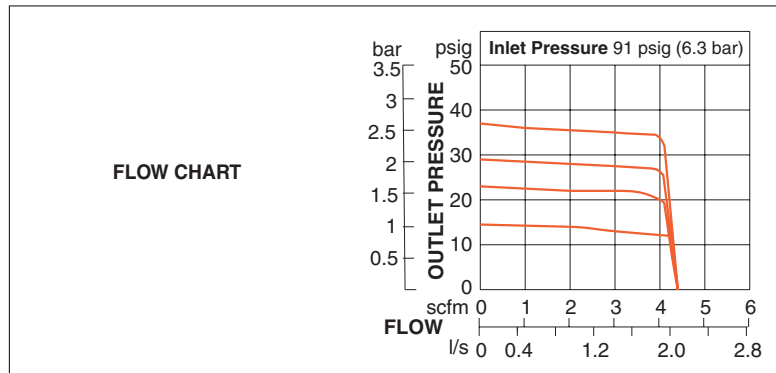
Port Size	Dimensions inches (mm)				Weight** lb (kg)
	A	B	C	Depth**	
1/8, 1/4	1.8 (44)	3.4 (86)	0.4 (10)	1.8 (44)	0.38 (0.16)

**Less gauge.



Precision Regulators have a small valve seat and a large diaphragm area, a combination that allows greater precision, sensitivity, adjustment resolution, and less variation in regulated pressure.

G



Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Panel Mounting	1-3/16 inch (30 mm) hole required
Temperature	Ambient/Media: 40° to 125°F (4° to 52°C)	Construction Material	Body: Aluminum
Fluid Media	Compressed air		Dome: Acetal
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable up to 100 psig (7 bar)		Knob: Acetal
Pressure Gauge	0-160 psig (0-11 bar); 1/8-NPT gauge ports front and rear		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

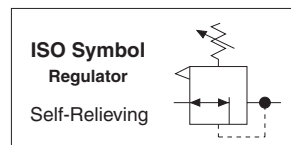
Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 155 scfm



Internally Piloted Regulator				
Port Size	Pressure Range psig (bar)			
	15-200 (1-13.8)		15-250 (1-17.2)	
	Model Number		Model Number	
	NPTF Threads	G Threads	NPT F Threads	G Threads
1/4	5213C2018	C5213C2018	5214C2018	C5214C2018
3/8	5213C3018	C5213C3018	5214C3018	C5214C3018
1/2	5213C4018	C5213C4018	5214C4018	C5214C4018
3/4	5213C5018	C5213C5018	5214C5018	C5214C5018

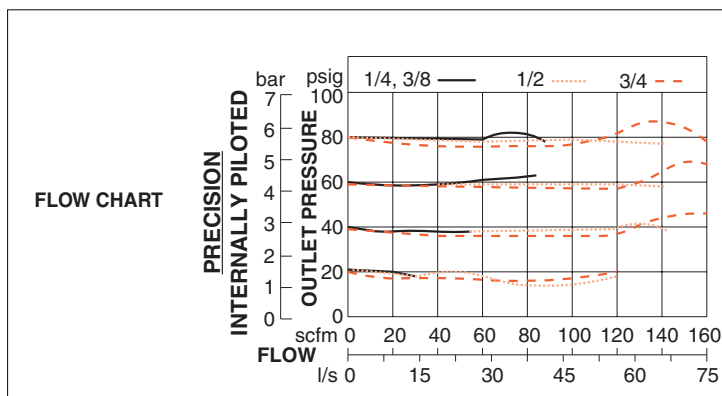
Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B**	C***	Depth †	
1/4, 3/8, 1/2, 3/4	3.5 (89)	4.2 (106)	1.3 (33)	2.8 (71)	2.06 (0.92)

** Dome removal clearance: add 0.63 (16).
 *** Cap removal clearance: add 0.5 (13).
 † Less gauge.



G2

Precision internal Pilot Regulators provide improved torque control for pneumatic tools; diaphragm type. Pressure settings held within 3 psig (0.2 bar).



G

*Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.*

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Panel Mounting	2-1/16 inch (52 mm) hole required
Temperature	Ambient/Media: 40° to 125°F (4° to 52°C)	Construction Material	Body: Zinc
Fluid Media	Compressed air		Dome: Nylon; Aluminum with optional 0 to 175 psig (0 to 12 bar) spring
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable 15 to 250 psig (1 to 17 bar)		Knob: Acetal
Optional Pressure Adjustment	Locking Key: Removable		Seals: Nitrile
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear		Valve: Brass Valve Cap: Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Modular Precision Regulators

MD4™ Series

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 170 scfm

Choose your options (in red) to configure your model number.

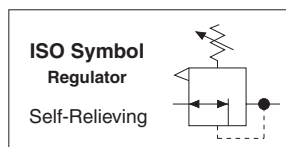
MD4 **52K** **E** **B** **5** **2** **B**

ADJUSTMENT RANGE	
15-200 psig (1.0-13.8 bar)	E
15-250 psig (1.0-17.2bar)	F
15-100 psig (1.0-6.9 bar)	G

PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 G	C
1/2 G	D
3/4 G	E

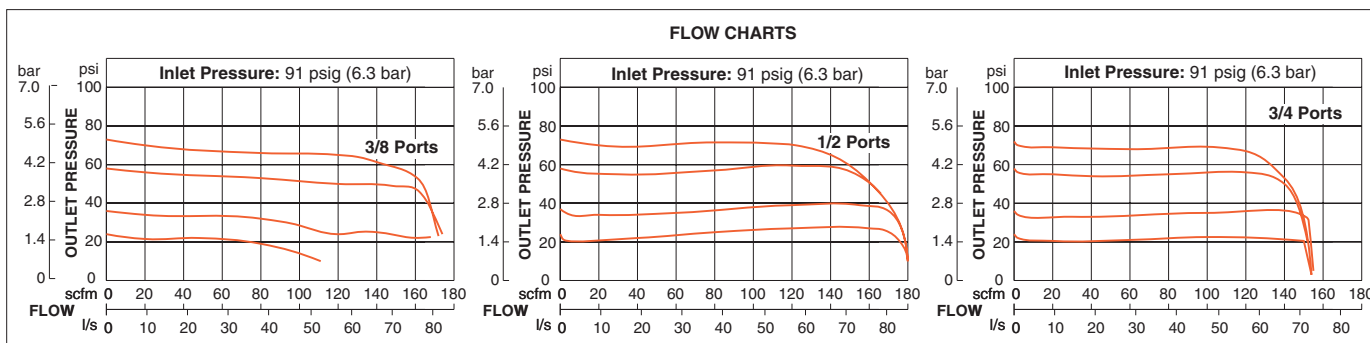
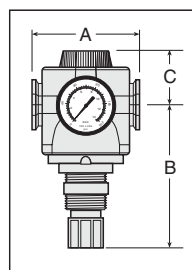
GAUGE	
Without Gauge	A
Gauge 0-200 psig (0-13.8 bar)	B
Without Gauge, with Panel Mount Nut	D
Gauge 0-200 psig (0-13.8 bar), with Panel Mount Nut	E

CAP COLOR	
Black	2
Yellow	Y



Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B	C	Depth †	
3/8, 1/2, 3/4	3.5 (87)	4.8 (122)	1.6 (40)	2.9 (73)	2.3 (1.0)

† Dimensions reflect less gauge.



Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Construction Material	Body: Zinc
Temperature	Ambient/Media: 40° to 125°F (4° to 52°C)		Bonnet and Knob: Acetal
Fluid Media	Compressed air		Dome: Zinc
Operating Pressure	Inlet: Maximum 250 psig (17 bar) Outlet: Adjustable 15 to 250 psig (1 to 17 bar)		Seals: Nitrile
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear		Valve: Brass
Panel Mounting	2-1/16 (52 mm) hole required		Precision Regulators: Provide improved torque control for pneumatic tools; diaphragm type. Pressure settings held within 3 psig (0.2 bar)

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

In-line Precision Regulators

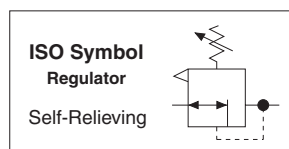
HIGH-CAPACITY Series

Port Sizes: 3/4, 1, 1¼, 1½ – Flow to 800 scfm

Port Size	Pressure Range psig (bar)			
	15-200 (1-13.8)		15-250 (1-17.2)	
	Model Number		Model Number	
	NPTF Threads	G Threads	NPTF Threads	G Threads
3/4	5213D5017	C5213D5017	5214D5017	C5214D5017
1	5213D6017	C5213D6017	5214D6017	C5214D6017
1¼	5213D7017	C5213D7017	5214D7017	C5214D7017
1½	5213D8017	C5213D8017	5214D8017	C5214D8017



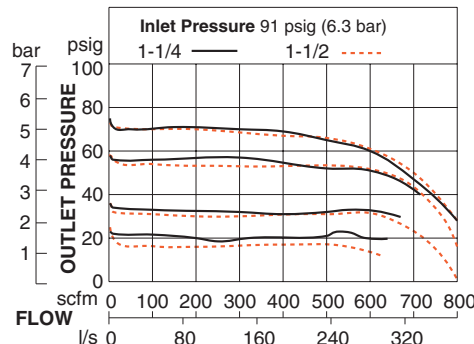
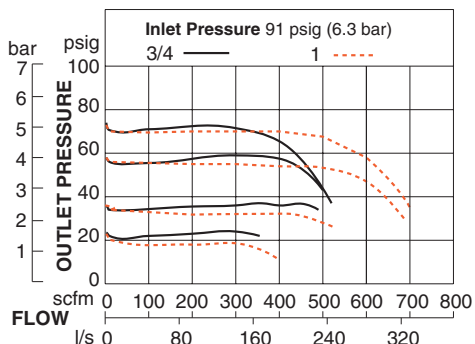
G2



Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B	C	Depth †	
3/4, 1	4.4 (111)	4.6 (112)	2.4 (62)	2.8 (71)	2.0 (0.91)
1¼, 1½	4.9 (124)	4.9 (125)	2.1 (54)	2.8 (71)	2.38 (1.08)

† Dimensions reflect less gauge.

FLOW CHARTS



Precision Regulators:

Provide improved torque control for pneumatic tools. Pressure settings held within 3 psig (0.2 bar).

G

Pressure Gauge included.

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Construction Material	Body: Aluminum
Temperature	Ambient/Media: 40° to 125°F (4° to 52°C)		Bonnet and Knob: Acetal
Fluid Media	Compressed air		Dome: Zinc
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable 15 to 250 psig (1 to 17 bar)		Seals: Nitrile
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear		Valve: Brass
Panel Mounting	1-3/16 (30 mm) hole required		Valve Cap: Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G2.15

Modular Remote Pilot Regulators

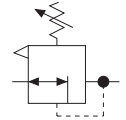
FULL-SIZE Series

Port Sizes: 1/4, 3/8, 1/2, 3/4 – Flow to 155 scfm

Port Size	Pressure Range psig (bar)	
	0-200 (0-13.8)	
	Model Number	
	NPTF Threads	G Threads
1/4	5211C2007	C5211C2007
3/8	5211C3007	C5211C3007
1/2	5211C4007	C5211C4007
3/4	5211C5007	C5211C5007

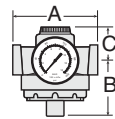


ISO Symbol
Regulator
Self-Relieving



G2

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B**	C***	Depth†	
1/4, 3/8, 1/2, 3/4	3.5 (89)	2.4 (62)	1.3 (33)	2.8 (71)	2.06 (0.92)

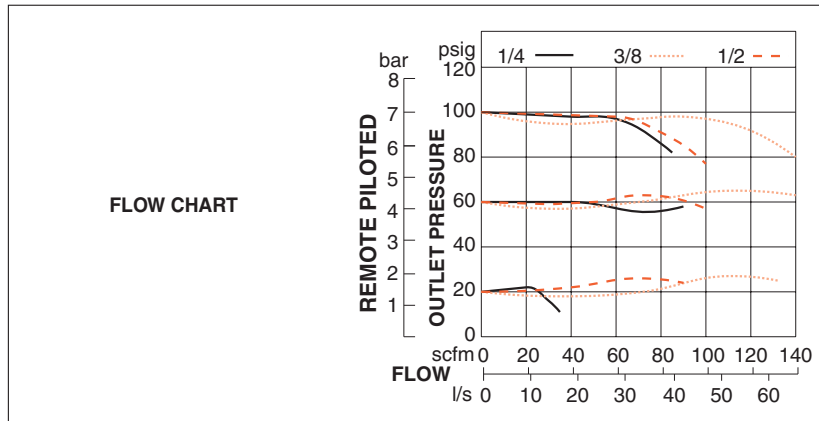


** Dome removal clearance: add 0.63 (16).

*** Cap removal clearance: add 0.5 (13).

† Less gauge.

Remote Pilot Regulators use any small regulator to provide remote adjustment and to ensure accurate pressure control.



G

Pressure Gauge included.

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Construction Material	Body: Zinc
Temperature	Ambient/Media: 40° to 125°F (4° to 52°C)		Dome: Zinc
Fluid Media	Compressed air		Knob: Acetal
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable 15 to 250 psig (1 to 17 bar)		Seals: Nitrile
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear		Valve: Brass
Panel Mounting	2-1/16 inch (52 mm) hole required		Valve Cap: Nylon

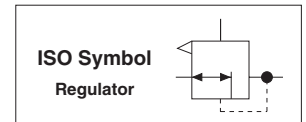
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Remote High-Relief Pilot Regulators

FULL-SIZE Series

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 150 scfm

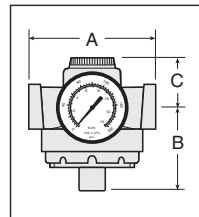
Port Size	Model Number	
	NPTF Threads	G Threads
1/4	5X00B2037	C5X00B2037
3/8	5X00B3025	C5X00B3025
1/2	5X00B4040	C5X00B4040
3/4	5X00B5035	C5X00B5035



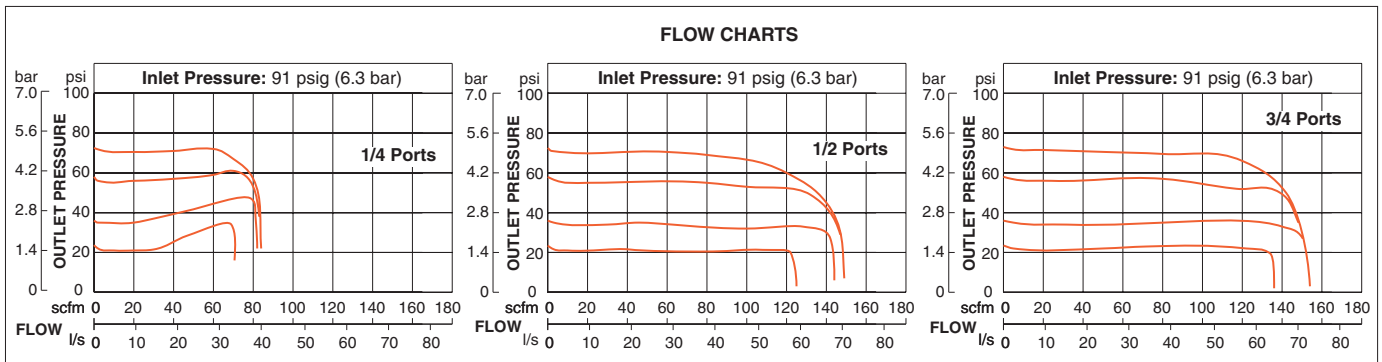
G2

Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B	C	Depth †	
1/4, 3/8, 1/2, 3/4	3.5 (87)	2.4 (62)	1.3 (33)	2.8 (71)	2.06 (0.92)

† Dimensions reflect less gauge.



FLOW CHARTS



G

Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Panel Mounting	2-1/16 inch (52 mm) hole required
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Body: Zinc
Fluid Media	Compressed air		Dome: Zinc
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable 15 to 200 psig (1 to 14 bar)		Seals: Nitrile; Fluoroelastomer seals optional, consult ROSS
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear		Valve: Brass
Pilot Ports	1/4 NPTF		Valve Cap: Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G2.17

In-line Premium High-Relief Remote Pilot Regulators

FULL-SIZE Series

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 150 scfm

Port Size	Model Number	
	NPTF Threads	G Threads
1/4	5216A2007	C5216A2007
3/8	5216A3007	C5216A3007
1/2	5216A4007	C5216A4007



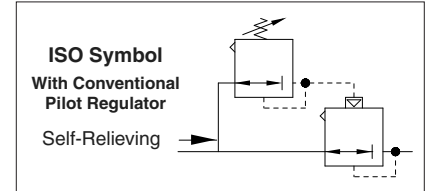
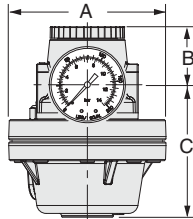
G2

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B**	C***	Depth†	
1/4, 3/8, 1/2	4.18 (106)	1.54 (39.1)	3.52 (89.3)	4.18 (106)	4.84 (2.2)

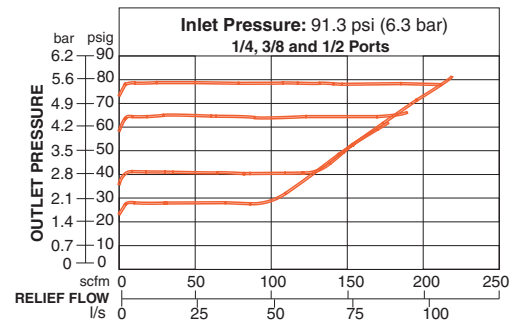
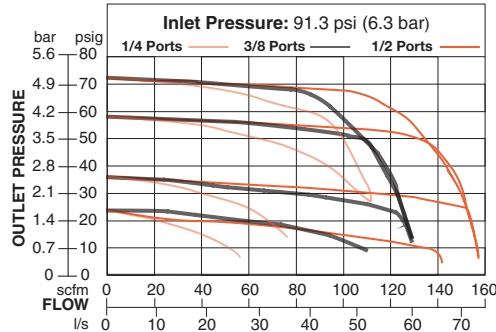
** Dome removal clearance: add 0.63 (16).

*** Cap removal clearance: add 0.5 (13).

† Less gauge.



FLOW CHARTS



G

Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Pressure Gauge	0 to 200 psig (0 to 14 bar) standard, 1/4-NPTF (1/4 BSPP) gauge ports front and rear; 0 to 600 psig (0 to 40 bar) optional
Temperature	Ambient/Media: 0° to 158°F (-18° to 70°C)		Construction Material
Fluid Media	Compressed air	Dome: Zinc	
Operating Pressure	Inlet: Maximum 400 psig (28 bar)	Seals: Nitrile	
	Outlet: Adjustable up to 250 psig (7 bar)	Valve: Brass	
		Valve Cap: Glass filled Nylon	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Remote Pilot Regulators

MD4™ Series

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 190 scfm

Choose your options (in red) to configure your model number.

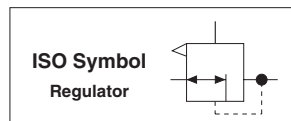
MD4 52K 1 B 5 2 B

RELIEF OPTION	
Relieving	1
Non-relieving	2

PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 G	C
1/2 G	D
3/4 G	E

CAP COLOR	
Black	2
Yellow	Y

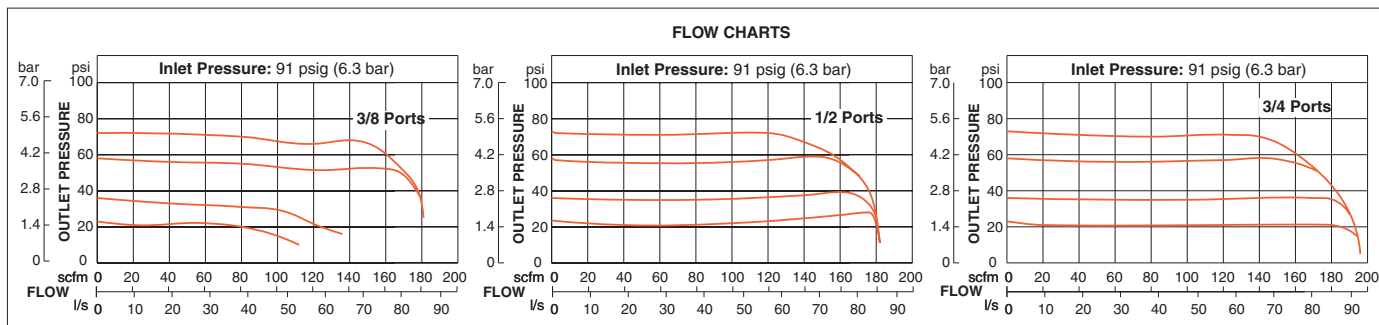
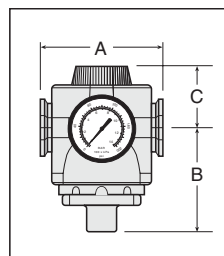
GAUGE	
Without Gauge	A
Gauge 0-200 psig (0-13.8 bar)	B



G2

Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B	C	Depth †	
1/4, 3/8, 1/2, 3/4	3.5 (87)	2.4 (62)	1.6 (41)	2.9 (73)	2.2 (1.0)

† Dimensions reflect less gauge.



G

Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Pressure Gauge	0 to 200 psig (0 to 14 bar) standard, 1/4-NPTF (1/4 BSPP) gauge ports front and rear;
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Body: Zinc Dome: Zinc Seals: Nitrile Valve: Brass Valve Cap: Nylon
Fluid Media	Compressed air		
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable 0 to 250 psig (0 to 17 bar)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G2.19

Port Sizes: 3/4, 1, 1¼ & 1½– Flow to 740 scfm

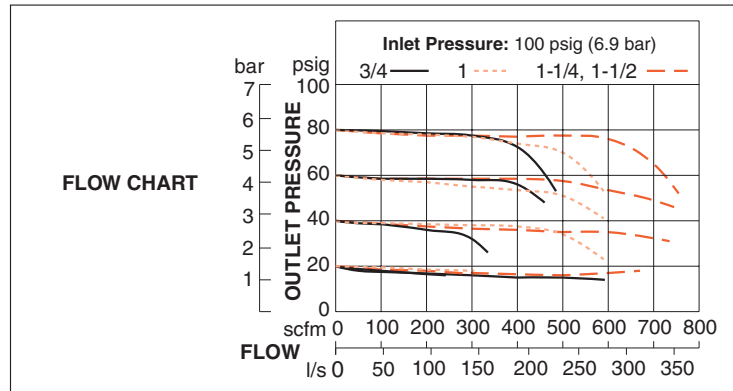
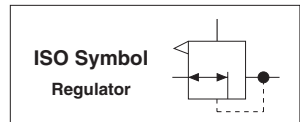
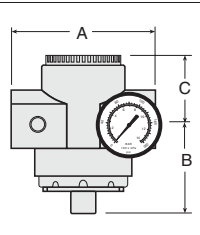
Port Size	Model Number	
	NPTF Threads	G Threads
3/4	5211D5006	C5211D5006
1	5211D6007	C5211D6007
1¼	5211D7007	C5211D7007
1½	5211D8007	C5211D8007



G2

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B*	C**	Depth†	
3/4, 1	4.4 (111)	2.9 (74)	2.4 (62)	2.8 (71)	1.88 (0.85)
1¼, 1½	4.9 (124)	3.2 (81)	2.1 (54)	2.8 (71)	2.25 (1.02)

† Less gauge.



G

Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Pressure Gauge	0 to 200 psig (0 to 14 bar) standard, 1/4-NPTF gauge ports front and rear
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Body: Aluminum
Fluid Media	Compressed air		Dome: Zinc
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable 0 to 200 psig (0 to 14 bar) NOTE: Outlet pressure depends on the adjustment of the pilot regulator		Seals: Nitrile
	Pilot Ports		1/4-NPTF

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

In-line High-Relief Remote Pilot Regulators

HIGH-CAPACITY Series

Port Sizes: 3/4, 1, 1¼ & 1½ – Flow to 700 scfm

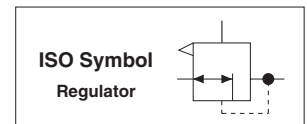
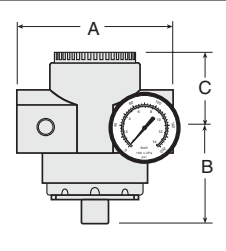
Port Size	Model Number	
	NPTF Threads	G Threads
3/4	5X00B5046	C5X00B5046
1	5X00B6039	C5X00B6039
1¼	5X00B7021	C5X00B7021
1½	5X00B8049	C5X00B8049



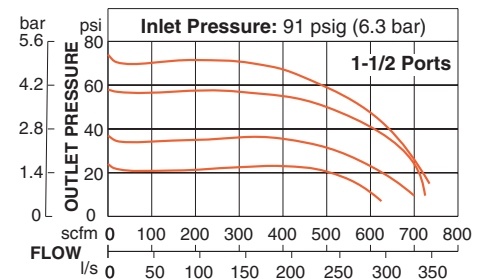
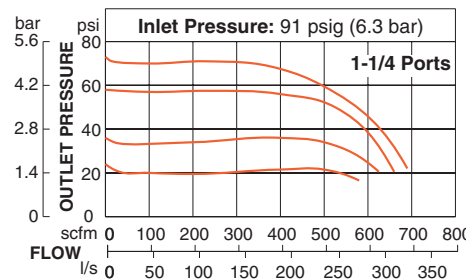
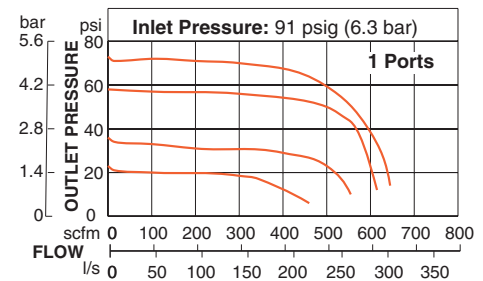
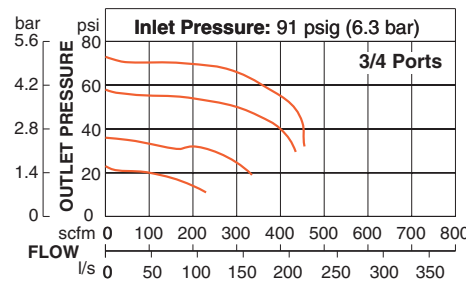
G2

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B**	C***	Depth†	
3/4, 1	4.4 (111)	2.9 (74)	2.4 (62)	2.8 (71)	1.88 (0.85)
1¼, 1½	4.9 (124)	3.2 (81)	2.1 (54)	2.8 (71)	2.25 (1.02)

** Dome removal clearance: add 0.63 (16).
 *** Cap removal clearance: add 0.5 (13).
 † Less gauge.



FLOW CHARTS



G

*Pressure Gauge included.
 Accessories ordered separately, refer to page G6.3-4.*

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Pressure Gauge	0 to 200 psig (0 to 14 bar) standard, 1/4-NPTF) gauge ports front and rear
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Body: Aluminum
Fluid Media	Compressed air		Dome: Zinc
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable 0 to 200 psig (0 to 14 bar)		Seals: Nitrile
Pilot Ports	1/4-NPTF		Valve: Brass
			Valve Cap: Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G2.21

In-line Premium High-Relief Remote Pilot Regulators

HIGH-CAPACITY Series

Port Sizes: 3/4, 1 & 1 1/4 – Flow to 400 scfm

Port Size	Model Number	
	NPTF Threads	G Threads
3/4	5216A5007	C5216A5007
1	5216A6007	C5216A6007
1 1/4	5216A7007	C5216A7007



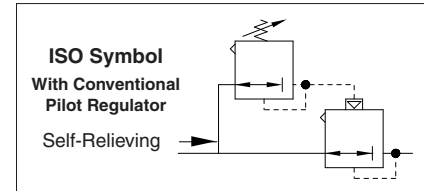
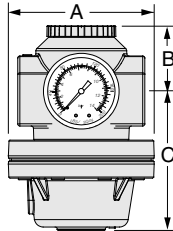
G2

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B**	C***	Depth†	
3/4, 1, 1 1/4	4.18 (117)	1.87 (47.5)	3.99 (101.3)	4.18 (106)	6.44 (3.0)

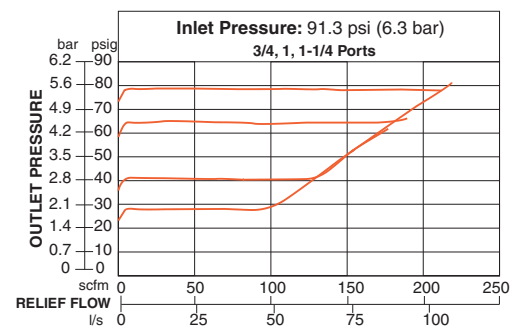
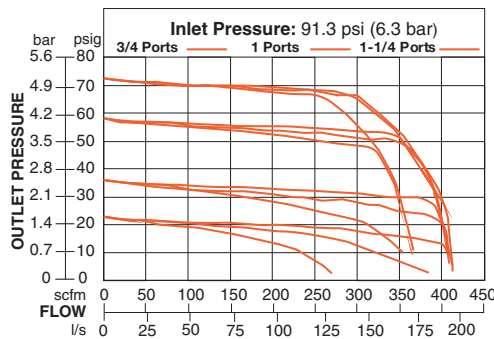
** Dome removal clearance: add 0.63 (16).

*** Cap removal clearance: add 0.5 (13).

† Less gauge.



FLOW CHARTS



G

Pressure Gauge included.

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Diaphragm Self-relieving	Construction Material	Body: Zinc
Temperature	Ambient/Media: 0° to 158°F (-18° to 70°C)		Dome: Zinc
Fluid Media	Compressed air		Seals: Nitrile
Operating Pressure	Inlet: Maximum 400 psig (28 bar) Outlet: Adjustable up to 250 psig (up to 17 bar)		Valve: Brass
Pressure Gauge	0 to 200 psig (0 to 14 bar) standard, 1/4-NPTF (1/4 BSPP) gauge ports front and rear; 0 to 600 psig (0 to 40 bar) optional		Valve Cap: Glass filled Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

In-line Remote Pilot Regulators

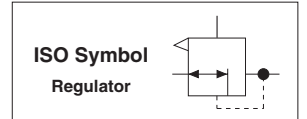
HIGH-CAPACITY Series

Port Sizes: 1½, 2 & 3 – Flow to 4000 scfm

Flow to 850 scfm		
Port Size	Model Number	
	NPTF Threads	G Threads
1½	5211B8027	C5211B8027
2	5211B9007	C5211B9007



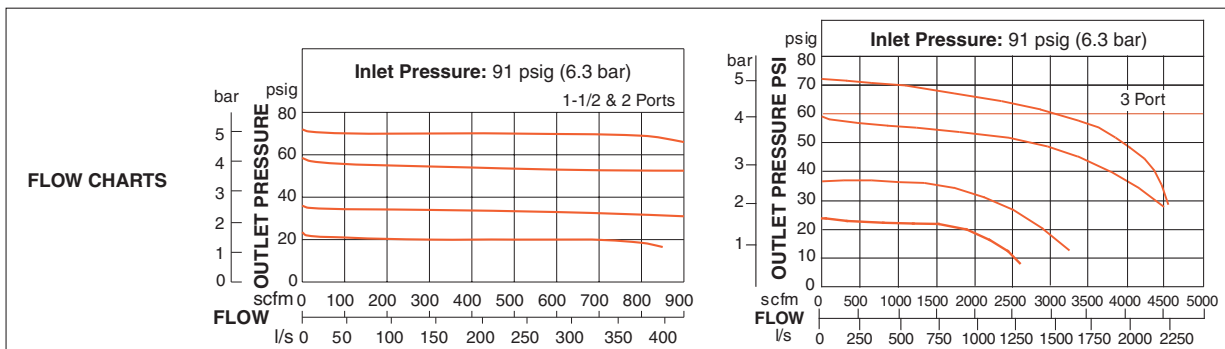
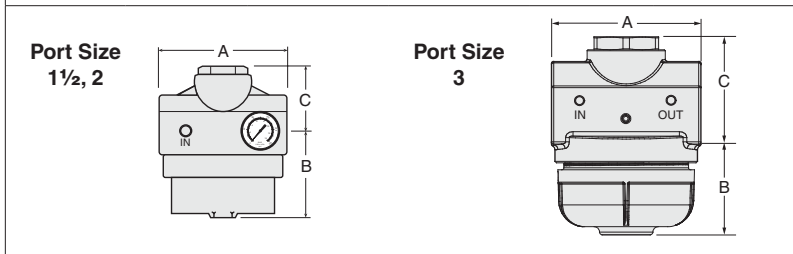
Flow to 4000 scfm			
Port Size	Seals	Model Number	
		NPTF Threads	G Threads
3	Nitrile	5211B9008	C5211B9008
3	Fluoroelastomer	5X00B9021	C5X00B9021



G2

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B	C	Depth†	
1½, 2	6.4 (162)	5.0 (127)	3.0 (76)	2.8 (71)	8.94 (4.06)
3	8.4 (214)	7.36 (187)	3.74 (95)	8.0 (203)	21.77 (9.88)

† Less gauge.



Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for regulators on this page):

Construction Design	Piston Self-relieving	Pilot Ports	1/4-NPTF
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Pressure Gauge	0 to 200 psig (0 to 14 bar) standard, 1/4-NPTF gauge ports front and rear
Fluid Media	Compressed air	Construction Material	Body: Aluminum
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable 0 to 200 psig (0 to 14 bar) NOTE: Outlet pressure depends on the adjustment of the pilot regulator		Dome: Aluminum
	Pilot Ports		1/4-NPTF
			Valve: Brass on 1/2" & 2" ports; Aluminum on 3" ports Valve Cap: Aluminum

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G2.23

G

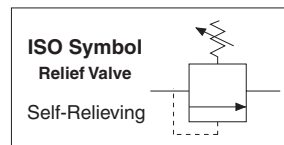
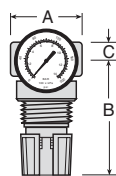
Port Sizes: 1/8 & 1/4 – Flow to 40 scfm

Port Size	Port Threads	Pressure Range psig (bar)			
		1-15 (0.07-1.0)	1-30 (0.07-2.1)	1-50 (0.07-3.4)	1-140 (0.07-9.6)
		Model Number	Model Number	Model Number	Model Number
1/8	NPTF	5210B1002	5210B1003	5210B1004	5210B1001
	G	C5210B1002	C5210B1003	C5210B1004	C5210B1001
1/4	NPTF	5210B2002	5210B2003	5210B2004	5210B2001
	G	C5210B2002	C5210B2003	C5210B2004	C5210B2001



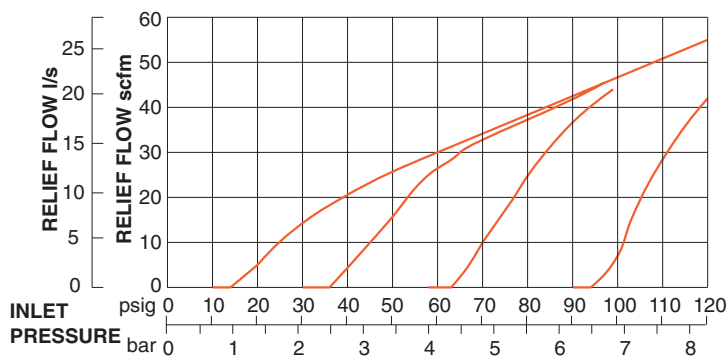
G2

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B	C	Depth†	
1/8, 1/4	1.6 (41)	2.7 (68)	0.4 (10)	1.6 (41)	0.24 (0.11)



†Less gauge.

FLOW CHART



G

Relief Valves have maximum relief flows of 10 to 20 scfm (4.7 to 9.4 l/s).
For models with increased sensitivity at lower pressure, consult ROSS.

*Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.*

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Diaphragm Self-relieving	Panel Mounting	1-3/16 inch (30 mm) hole required
Temperature	Ambient/Media: 40° to 125°F (4° to 52°C)	Construction Material	Body: Aluminum
Fluid Media	Compressed air		Dome: Acetal
Operating Pressure	Inlet: Maximum 300 psig (21 bar) Outlet: Adjustable 1 to 140 psig (0.07 to 9.6 bar)		Knob: Acetal
Pressure Gauge	0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear		Seals: Nitrile; Fluoroelastomer seals optional, consult ROSS

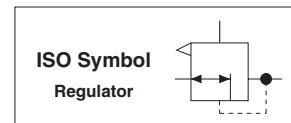
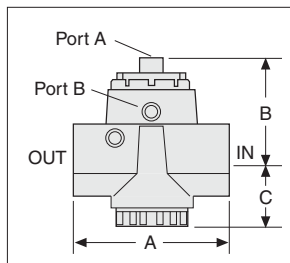
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1 – Flow to 450 scfm

Port Size	Model Number	
	NPTF Threads	G Threads
1	5X00D6012	C5X00D6012



Port Size	Dimensions inches (mm)				Weight lb (kg)
	A	B	C	Depth	
1	4.4 (111)	4.8 (122)	2.5 (62)	2.9 (72)	1.8 (0.8)



G2

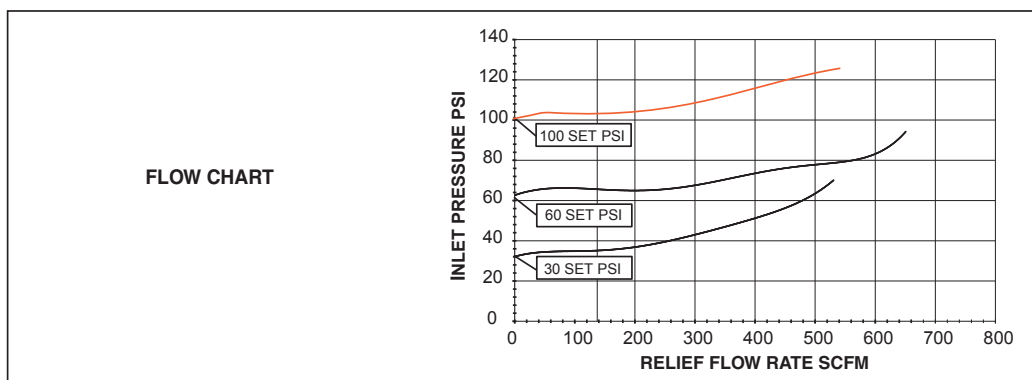
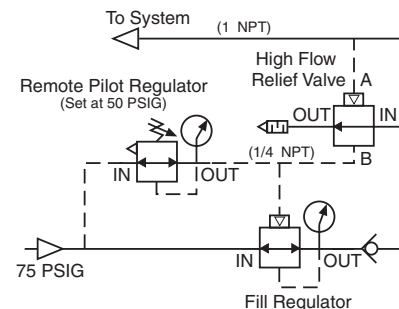
On the right is a typical circuit using the High-Flow Relief Valve. The circuit utilizes a remotely piloted “fill” regulator (port size 1 NPT) and a small, remotely mounted, pilot regulator with 1/4 NPT ports.

The required system pressure is set by adjusting the knob on the pilot regulator until the desired system pressure is shown on the pilot regulator’s gauge. An example system pressure of 50 psig was selected in the circuit.

Outlet pressure from the pilot regulator is sent to the fill regulator’s signal port and the Port 2 of the High-Flow Relief Valve. The Port 1 of the High-Flow Relief Valve is connected to the system, as shown, to monitor system pressure.

If the system pressure exceeds the pilot regulator setting (set-point), the High-Flow Relief Valve will begin to exhaust air after an approximate 2 psig (0.1 bar) rise above the set-point.

Should the system pressure drop below the set-point, the fill valve will open to supply air downstream and maintain the system at the set-point.



G

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Diaphragm Self-relieving	Pilot Ports	1/4 NPTF
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Body: Aluminum
Fluid Media	Compressed air		Dome: Zinc
Operating Pressure	Inlet: Maximum 200 psig (14 bar) Outlet: Adjustable 0 to 200 psig (0 to 14 bar)		Seals: Nitrile
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear		Valve: Brass
			Valve Cap: Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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HOW TO ORDER

Choose your options (in red) to configure your model number.

RER1 A 1 A 100

CONNECTOR	
6-Pin Brad Harrison	A
5-Pin M12	B

COMMAND INPUT	
0-10 volts DC	1
4-20 mA	2

MONITOR SIGNAL	
0-10 volts DC	A
4-20 mA - sinking	B
4-20 mA - sourcing	C

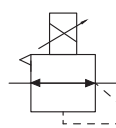
MAXIMUM CALIBRATED PRESSURE RANGE	
0-30 psig (0 to 2.1 bar)	030
0-50 psig (0 to 3.5 bar)	050
100 psig (0 to 6.9 bar)	100
0-200 psig (0 to 13.8 bar)	200
0-300 psig (0 to 20.7 bar)	300
0-20 in Hg (vacuum)	V20



G2

Accessories ordered separately, see below.

ISO Symbol



ACCESSORIES

Cables

For 6-Pin Brad Harrison Connector.

Cable Length	Model Number*
6 feet (1.8 meters)	RER-CBL-6
12 feet (3.7 meters)	RER-CBL-12
25 feet (7.5 meters)	RER-CBL-25

*For cables for 5-Pin M12 connector, consult ROSS.



G

STANDARD SPECIFICATIONS (for valves on this page):

Supply Voltage/Current	15 – 24 volts DC/250 mA (required)	Construction Material	Body: Zinc
Analog Monitor Signal:	Voltage: 0 – 10 volts DC@20 mA maximum Current: 4 – 20 mA sinking (sourcing optional)		Dome: Zinc
Command Signal Impedance:	Voltage: 4.7 kΩ Current: 100Q	Accuracy:	Housing: Aluminum; powder coated
Command Signal Voltage/Current:	0 – 10 volts DC/4 – 20 mA		Linearity/Hysteresis:
Electrical Connector:	6-pin Brad Harrison or 5-pin M12	Repeatability:	Seals: Fluorocarbon
Temperature	Ambient/Media: 32° to 158°F (0° to 70°C)	Note: High-pressure Proportional valve Q175 psi (12 bar) - inlet and exhaust ports reversed from picture shown	Transducer: Silicon, Aluminum
Fluid Media	Compressed air		Valve: Nickel-plated Brass
Operating Pressure	Input: 29.9 in Hg to 300 psig (760 mm Hg to 21 bar) Output: 0 to 200 psi (0 to 14 bar)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E-P Proportional Valves with Volume Booster

RB Series

Port Sizes: 1½, 2 & 3 – Flow to 4000 scfm



G2

RB 1 2 A RER1 A 1 A 100

REGULATOR TYPE	
1/4 to 3/4 - Self Relieving	1
3/4 to 1½ - Self Relieving	2
1/4 to 1/2 - High-Relief	3
3/4 to 1¼ - High-Relief	4

CONNECTOR	
6-Pin Brad Harrison	A
5-Pin M12	B

COMMAND INPUT	
0-10 volts DC	1
4-20 mA	2

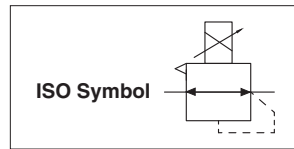
MAXIMUM CALIBRATED PRESSURE RANGE	
0-30 psig (0 to 2.1 bar)	030
0-50 psig (0 to 3.5 bar)	050
0-100 psig (0 to 6.9 bar)	100
0-200 psig (0 to 13.8 bar)	200
0-300 psig (0 to 20.7 bar)	300
0-20 in Hg (vacuum)	V20

INLET/OUTLET PORTS			
1/4 NPTF	2	1/4 G	B
3/8 NPTF	3	3/8 G	C
1/2 NPTF	4	1/2 G	D
3/4 NPTF	6	3/4 G	E
1 NPTF	8	1 G	F
1¼ NPTF	J	1¼ G	G
1½ NPTF	K	1½ G	H

GAUGE	
Without Gauge	A
Gauge 0-200 psig (0-13.8 bar)	B
Gauge 0-600 psig (0-40 bar)	C
Gauge 0-30 psig (0-2 bar)	D
Gauge 0-60 psig (0-4 bar)	E

For Electronic Gauge, consult ROSS.

MONITOR SIGNAL	
0-10 volts DC	A
4-20 mA - sinking	B
4-20 mA - sourcing	C



Accessories ordered separately, see below.

Regulator Pressure Model	Inlet psi (bar)	Outlet psi (bar)	Relief scfm
RB1 - RB2	300 (20.7)	200 (13.8)	627
RB3 - RB4	400 (27.6)	250 (17.3)	200

Brass Inlet Filter (R37-R288) is included when purchasing a proportional-valve.
 NOTE: Cable not included with the product, see choices below.

ACCESSORIES

Mounting Bracket Kit

Regulator Type	Kit Number1
Self Relieving	RER-BRK-1
High-Relief	R-A37-381



Cables

For 6-Pin Brad Harrison Connector.

Cable Length	Model Number*
6 feet (1.8 meters)	RER-CBL-6
12 feet (3.7 meters)	RER-CBL-12
25 feet (7.5 meters)	RER-CBL-25

*For cables for 5-Pin M12 connector, consult ROSS.



G

STANDARD SPECIFICATIONS (for valves on this page):

Supply Voltage/Current	15 – 24 volts DC/250 mA (required)	Construction Material Body: Zinc Dome: Zinc Housing: Aluminum; powder coated Manifold: Brass Seals: Fluorocarbon Transducer: Silicon, Aluminum Valve: Nickel-plated Brass Accuracy: < ± .25% F.S. Linearity/Hysteresis: < ± .2% F.S. BFSL Repeatability: < ± .06% F.S.
Analog Monitor Signal:	Voltage: 0 – 10 volts DC@20 mA maximum Current: 4 – 20 mA sinking (sourcing optional)	
Command Signal Impedance:	Voltage: 4.7 kΩ Current: 100Q	
Command Signal Voltage/Current:	0 – 10 volts DC/4 – 20 mA	
Electrical Connector:	6-pin Brad Harrison or 5-pin M12	
Temperature	Ambient/Media: 32° to 158°F (0° to 70°C)	
Fluid Media	Compressed air	
Operating Pressure	Input: 29.9 in Hg to 300 psig (760 mm Hg to 21 bar) Output: 0 to 200 psi (0 to 14 bar)	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G2.27



AIR PREPARATION INTEGRATED FILTER/REGULATORS



ROSS CONTROLS

INTEGRATED FILTER/REGULATORS – KEY FEATURES

- Filter and Pressure Regulator combined into a single module to provide the compactness needed where space is limited
- All sizes have essentially the same operating characteristics as their corresponding individual filters and regulators
- All Filter/Regulator include internal automatic filter drain or manual drain options
- Pressure gauge included
- Regulator function is self relieving, and includes front and rear gauge ports
- 5-, 20-, 40-micron filter elements available (see table below)
- Metal or high strength polycarbonate bowl
- Modular or in-line mounting
- MD3™ and MD4™ series can be modularly connected to a L-O-X® Lockout Valve
- Stainless steel Filter/Regulator and L-O-X® Lockout Valve combination available

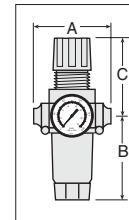
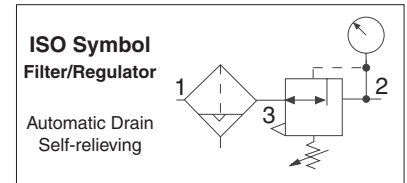
INTEGRATED FILTER/REGULATOR TYPE/SERIES	AVAILABLE PORT SIZES					FLOW	FILTRATION			BOWLS & DRAINS OPTIONS				REGULATOR TYPE		OPTIONS		Page
	1/8	1/4	3/8	1/2	3/4	MAX FLOW (scfm)	5 μ	20 μ	40 μ	POLYCARBONATE BOWL	METAL BOWL	AUTOMATIC DRAIN	MANUAL DRAIN	PISTON	DIAPHRAGM	SELF RELIEVING	NON RELIEVING	
BANTAM	■	■				24	■			■	■	■	■	■	■	■	■	G3.3
MINIATURE	■	■				24	■			■	■	■	■	■	■	■	■	G3.4
MID-SIZE		■	■	■		105				■	■	■	■	■	■	■	■	G3.5
MD3™		■	■	■		110	■	■	■	■	■	■	■	■	■	■	■	G3.6
FULL-SIZE		■	■	■	■	180	■	■	■	■	■	■	■	■	■	■	■	G3.7
MD4™		■	■	■		230	■		■	■	■	■	■	■	■	■	■	G3.8
STAINLESS STEEL with L-O-X® LOCKOUT VALVE																		
		■		■	■													G3.9

Modular Integrated Filter/Regulators

BANTAM Series

Port Sizes: 1/8 & 1/4 – Flow to 24 scfm

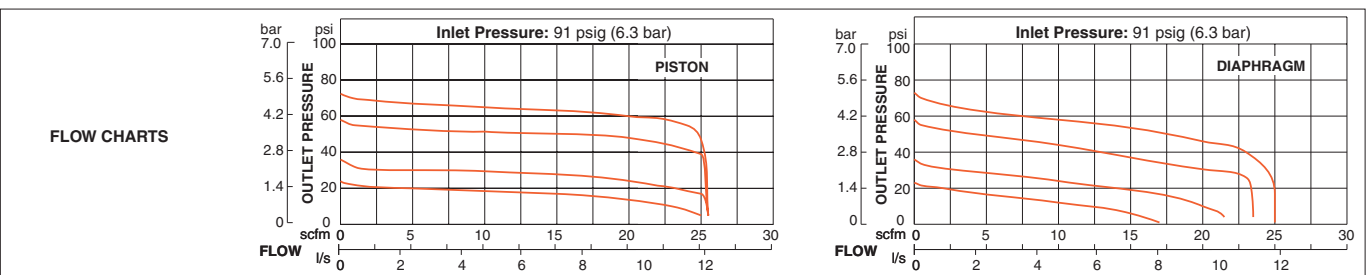
Port Size	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
	Model Number	Model Number	Model Number	Model Number
With THREADED PORTS - Piston Type Regulator:				
1/8 NPTF	5D01C0110	5D01C0210	5D01C0310	5D01C0410
1/8 G	C5D01C0110	C5D01C0210	C5D01C0310	C5D01C0410
1/4 NPTF	5D02C0110	5D02C0210	5D02C0310	5D02C0410
1/4 G	C5D02C0110	C5D02C0210	C5D02C0310	C5D02C0410
With Quick-Connect TUBE FITTINGS - Piston Type Regulator:				
1/4	5D03C0110	5D03C0210	5D03C0310	5D03C0410
3/8	5D04C0110	5D04C0210	5D04C0310	5D04C0410
4mm	5D05C0110	5D05C0210	5D05C0310	5D05C0410
6mm	5D06C0110	5D06C0210	5D06C0310	5D06C0410
8mm	5D07C0110	5D07C0210	5D07C0310	5D07C0410
10mm	5D08C0110	5D08C0210	5D08C0310	5D08C0410
With Quick-Connect TUBE FITTINGS - Diaphragm Type Regulator:				
1/4	5D03C0120	5D03C0220	5D03C0320	5D03C0410
3/8	5D04C0120	5D04C0220	5D04C0320	5D04C0420
4mm	5D05C0120	5D05C0220	5D05C0320	5D05C0420
6mm	5D06C0120	5D06C0220	5D06C0320	5D06C0420
8mm	5D07C0120	5D07C0220	5D07C0320	5D07C0420
10mm	5D08C0120	5D08C0220	5D08C0320	5D08C0420



Port Size	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
		A	B**	C	Depth †	
No Port	2-oz (60-ml)	1.7 (43)	3.6 (92)	2.6 (67)	1.8 (45)	0.31 (0.15)
1/8, 1/4 (NPTF or G)	2-oz (60-ml)	3.0 (76)	3.6 (92)	2.6 (67)	1.8 (45)	0.53 (0.24)
Models below have quick-connect tube fittings.						
1/4, 4, 6 mm	2-oz (60-ml)	3.4 (86)	3.6 (92)	2.6 (67)	1.8 (45)	0.51 (0.23)
3/8, 10 mm	2-oz (60-ml)	3.9 (99)	3.6 (92)	2.6 (67)	1.8 (45)	0.51 (0.23)
8 mm	2-oz (60-ml)	3.1 (79)	3.6 (92)	2.6 (67)	1.8 (45)	0.51 (0.23)

** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97). † Less gauge.

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Pressure Gauge included. Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston	Outlet Pressure	Adjustable up to 100 psig (7 bar).
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 150°F (4° to 66°C)	Pressure Gauge	0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear
Fluid Media	Compressed air	Panel Mounting	1-3/16 inch (30 mm) hole required
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Body: Acetal Bowl: Polycarbonate or Aluminum Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G3.3

G3

G

In-line Integrated Filter/Regulators

MINIATURE Series

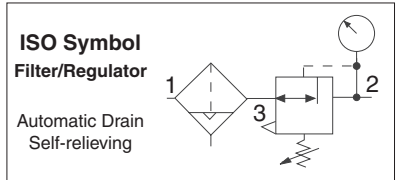
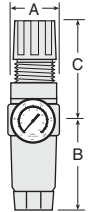
Port Sizes: 1/8 & 1/4 – Flow to 24 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
with Piston Type Regulator					
1/8	NPTF	5321C1032	5322C1031	5321C1002	5322C1001
	G	C5321C1032	C5322C1031	C5321C1002	C5322C1001
1/4	NPTF	5321C2032	5322C2031	5321C2002	5322C2001
	G	C5321C2032	C5322C2031	C5321C2002	C5322C2001
with Diaphragm Type Regulator					
1/8	NPTF	5321C1042	5322C1041	5321C1022	5322C1021
	G	C5321C1042	C5322C1041	C5321C1022	C5322C1021
1/4	NPTF	5321C2042	5322C2041	5321C2022	5322C2021
	G	C5321C2042	C5322C2041	C5321C2022	C5322C2021



G3

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	1.6 (41)	3.6 (92)	2.6 (65)	1.6 (41)	0.53 (0.24)
	Aluminum	2-oz (60-ml)	1.6 (41)	4.3 (109)	2.6 (65)	1.6 (41)	0.53 (0.24)

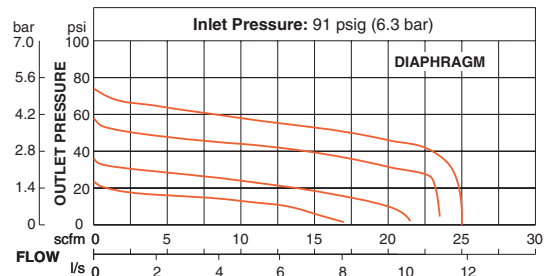
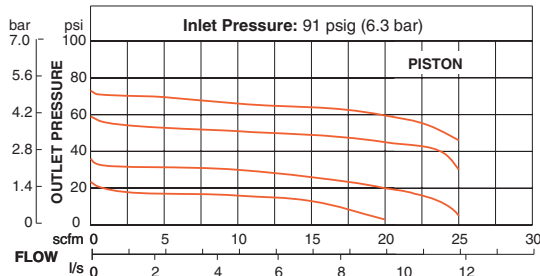


† Less gauge.

REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3

FLOW CHARTS



G

Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston	Outlet Pressure	Adjustable up to 100 psig (7 bar).
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 150°F (4° to 66°C)	Pressure Gauge	0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear
Fluid Media	Compressed air	Panel Mounting	1-3/16 inch (30 mm) hole required
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)	Filter Drain	Internal automatic drain or manual drain
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene Body: Aluminum Dome: Acetal Knob: Acetal Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Modular Integrated Filter/Regulators

MID-SIZE Series

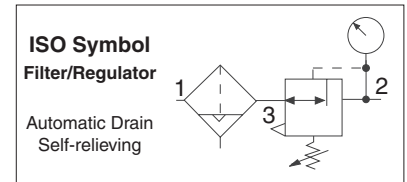
Port Sizes: 1/4, 3/8 & 1/2 – Flow to 105 scfm



Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/4	NPTF	5321B2052	5322B2051	5321B2062	5322B2061
	G	C5321B2052	C5322B2051	C5321B2062	C5322B2061
3/8	NPTF	5321B3052	5322B3051	5321B3062	5322B3061
	G	C5321B3052	C5322B3051	C5321B3062	C5322B3061
1/2	NPTF	5321B4052	5322B4051	5321B4062	5322B4061
	G	C5321B4052	C5322B4051	C5321B4062	C5322B4061

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B**	C***	Depth †	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	2.7 (67)	4.6 (116)	3.3 (83)	2.4 (60)	1.44 (0.65)
	Zinc	4-oz (120-ml)	2.7 (67)	4.9 (123)	3.3 (83)	2.4 (60)	1.50 (0.68)

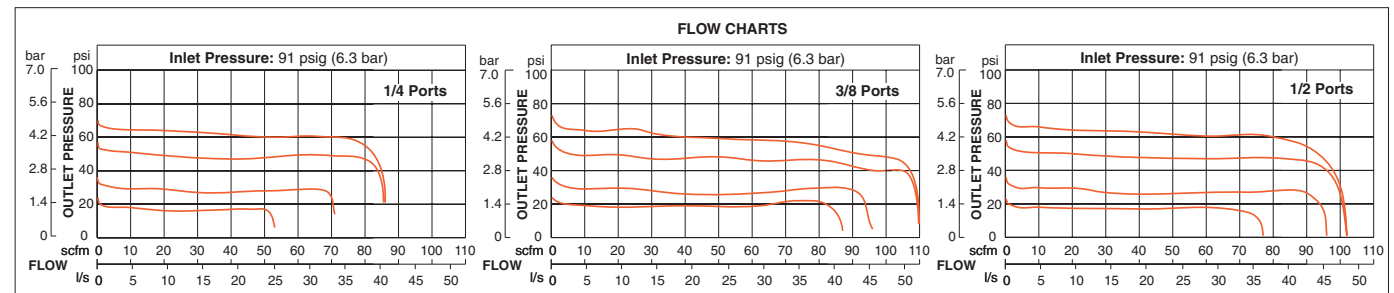
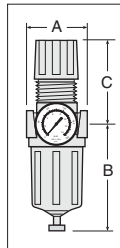
** Bowl removal clearance: add 3.1 (79). *** Dome removal clearance: add 0.63 (16).
† Less gauge.



G3

REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	936K77
5-µm - Optional	Sintered Bronze	R-KA60F-03E5
20-µm - Optional	Sintered Bronze	R-KA60F-03E4
40-µm - Optional	Sintered Bronze	R-KA60F-03E3



Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

G

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston	Outlet Pressure	Adjustable up to 100 psig (7 bar).
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Fluid Media	Compressed air	Panel Mounting	1-9/16 inch (40 mm) hole required
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)	Filter Drain	Internal automatic drain or manual drain
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene Body: Zinc Bowl: Polycarbonate with zinc shatterguard, or zinc bowl. Dome: Acetal Knob: Acetal Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G3.5

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 110 scfm

Choose your options (in red) to configure your model number.

MD3 **53P** **B** **M** **C** **2** **A** **A** **1**

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 5.1-oz (151-ml)	53P
Metal Bowl 6-oz (177-ml)	53M

FILTER ELEMENT TYPE	
40-µm Sintered Bronze	A
5-µm Polyethylene	B
5-µm Sintered Bronze	E
20-µm Sintered Bronze	F

BOWL DRAIN	
Manual Drain	M
Float Drain	F
Less Drain Fitting (1/4 NPT female instead)	L

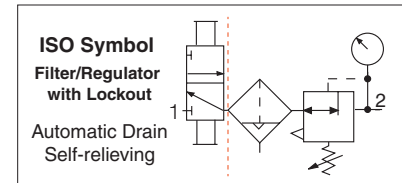
PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 G	B
3/8 G	C
1/2 G	D

ADJUSTMENT RANGE	
0-200 psig (0-14 bar)*	A
0-150 psig (0-10 bar)	B
0-100 psig (0-6.9 bar)	C
0-50 psig (0-3.4 bar)	D
Reverse Flow 0-200 psig (0-14 bar)*	F
Reverse Flow 0-150 psig (0-10.3 bar)	G
Reverse Flow 0-100 psig (0-6.9 bar)	H
Reverse Flow 0-50 psig (0-3.4 bar)	J

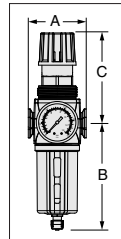
*Must be ordered with metal bowl.

LOCKOUT VALVE	
L-O-X® on outlet side	1
L-O-X® on the inlet side (must also choose Reverse Flow)	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Without Valve - Leave Blank	

GAUGE	
Without Gauge	A
Gauge 0-200 psig (0-14 bar)	B
Gauge 0-60 psig (0-4 bar)	C
Without Gauge, with Panel Mount Nut	D
Gauge 0-200 psig (0-13 bar), with Panel Mount Nut	E
Gauge 0-60 psig (0-4 bar), with Panel Mount Nut	F

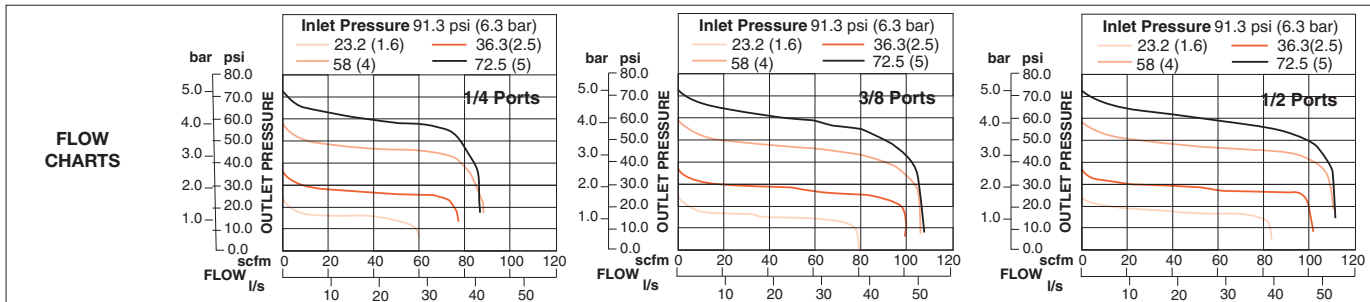


Bowl Type	Dimensions inches (mm)				Weight lb (kg)
	A	B*	C	Depth	
Polycarbonate	3.0 (76.2)	5.54 (140.6)	4.68 (119)	2.51 (63.8)	1.98 (0.90)
Metal	3.0 (76.2)	6.42 (163.1)	4.68 (119)	2.76 (70.1)	2.17 (0.99)



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	R-A60F-03PE5
5-µm - Optional	Sintered Bronze	R-A60F-03E5
20-µm - Optional	Sintered Bronze	R-A60F-03E4
40-µm - Optional	Sintered Bronze	R-A60F-03E3

Lockout: With the lockout valve, add 2.3 (58) to dimension A.
 * Bowl (standard) removal clearance: add 3.1 (79)
 * Bowl (extended) removal clearance: add 6.1 (155)
 Dimensions above reflect less gauge.



Options: External Bowl Drains, refer to page G6.7.
 Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Sintered Regulator – Diaphragm	Pressure Gauge	0 to 200 psig (0 to 14 bar) or 0 to 60 psig (0 to 4 bar); 1/4-NPT gauge ports front and rear
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Panel Mounting	2-1/16 inch (52 mm) hole required
Fluid Media	Compressed air	Filter Drain	Float drain or manual drain
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 30 to 150 psig (2 to 10 bar) Metal Bowl: 30 to 200 psig (2 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene, 5-, 20-, 40-micron rated sintered bronze
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 250 psig (0 to 17 bar)		Body: Zinc
Outlet Pressure	Adjustable up to 200 psig (14 bar)		Bowl: Polycarbonate with nylon shatterguard, or aluminum bowl with clear nylon sight glass
Pressure Adjustment	Locking Key: Removable		Dome: Nylon
			Seals: Nitrile
			Valve: Brass

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Integrated Filter/Regulators

FULL-SIZE Series

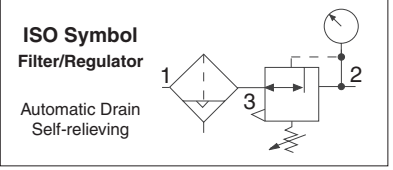
Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 180 scfm



Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/4	NPTF	5321B2072	5322B2071	5321B2012	5322B2011
	G	C5321B2072	C5322B2071	C5321B2012	C5322B2011
3/8	NPTF	5321B3072	5322B3071	5321B3012	5322B3011
	G	C5321B3072	C5322B3071	C5321B3012	C5322B3011
1/2	NPTF	5321B4072	5322B4071	5321B4012	5322B4011
	G	C5321B4072	C5322B4071	C5321B4012	C5322B4011
3/4	NPTF	5321B5072	5322B5071	5321B5012	5322B5011
	G	C5321B5072	C5322B5071	C5321B5012	C5322B5011

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B**	C***	Depth †	
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	3.5 (89)	5.8 (146)	5.8 (146)	3.5 (89)	2.50 (1.15)
	Zinc	8-oz (240-ml)	3.5 (89)	6.4 (163)	5.8 (146)	3.5 (89)	2.55 (1.17)

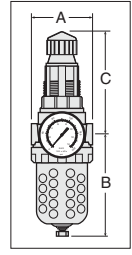
** Bowl removal clearance: add 3.1 (79). *** Dome removal clearance: add 0.63 (16). † Less gauge.



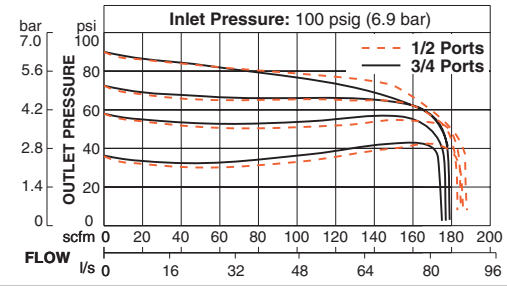
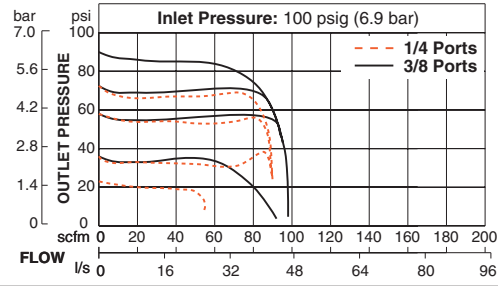
G3

REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	939K77
5-µm - Optional	Sintered Bronze	R-KA103-03E5
20-µm - Optional	Sintered Bronze	R-KA103-03E4
40-µm - Optional	Sintered Bronze	R-KA103-03E3



FLOW CHARTS



Pressure Gauge included.
Options: External Automatic Drain, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-4.

G

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston	Pressure Adjustment	Locking Key: Removable
Temperature	Ambient/Media:	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
	Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Panel Mounting	2-1/16 inch (52 mm) hole required
Fluid Media	Compressed air	Filter Drain	Automatic drain or manual drain
Operating Pressure	Automatic Drain Models	Construction Material	Filter Element: 5-micron rated polyethylene
	Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)		Body: Zinc
Manual Drain Models	Bowl: Polycarbonate with steel shatterguard, or zinc bowl with clear nylon sight glass		
Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Dome: Nylon		
Outlet Pressure	Adjustable up to 125 psig (9 bar).		Knob: Acetal
		Seals: Nitrile	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G3.7

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 230 scfm

Choose your options (in red) to configure your model number.

MD4 **53P** **B** **A** **B** **3** **B** **B** **1**

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 9-oz (266-ml)	53P
Metal Bowl 9-oz (266-ml)	53M

BOWL DRAIN	
Auto Drain	A
Manual Drain	M

PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

GAUGE*	
Without Gauge	A
Gauge 0-200 psig (0-14 bar)	B
Gauge 0-60 psig (0-4 bar)	C
Without Gauge, with Panel Mount Nut	D
Gauge 0-200 psig (0-14 bar), with Panel Mount Nut	E
Gauge 0-60 psig (0-4 bar), with Panel Mount Nut	F

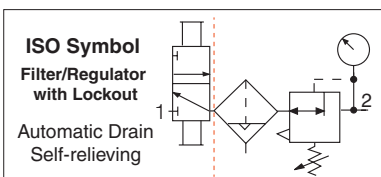
*1/4 NPT gauge ports front and rear.

LOCKOUT VALVE	
L-O-X® on outlet side	1
L-O-X® on the inlet side (must also choose Reverse Flow)	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Without Valve	Leave Blank

FILTER ELEMENT TYPE	
40-µm Sintered Bronze	A
5-µm Polyethylene	B

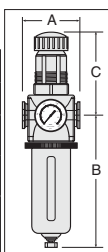
ADJUSTMENT RANGE	
0-175 psig (0-12 bar)*	A
0-125 psig (0-8.6 bar)	B
0-50 psig (0-3.4 bar)	C
0-20 psig (0-1.4 bar)	D
Reverse Flow 0-175 psig (0-12 bar)*	F
Reverse Flow 0-125 psig (0-8.6 bar)	G
Reverse Flow 0-50 psig (0-3.4 bar)	H
Reverse Flow 0-20 psig (0-1.4 bar)	J

*Must be ordered with metal bowl.

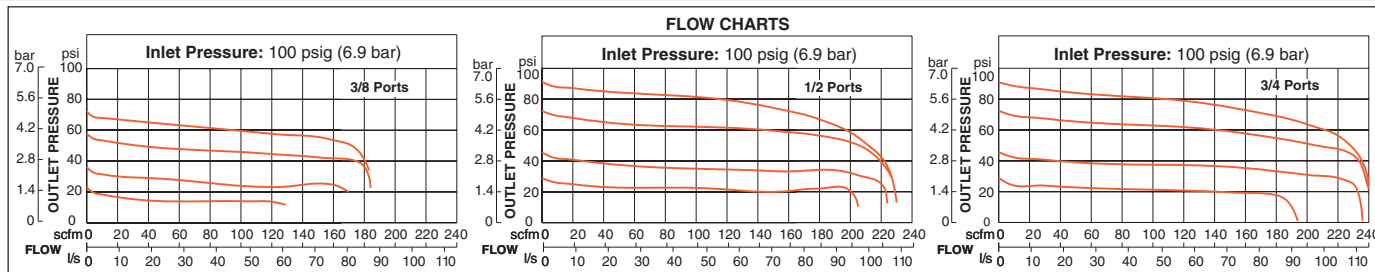


Port Size	Bowl Type	Dimensions inches (mm)				Weight † lb (kg)
		A	B*	C**	Depth †	
3/8, 1/2, 3/4	Polycarbonate	3.5 (88)	7.7 (195)	5.4 (137)	2.9 (73)	3.69 (1.68)
	Aluminum	3.5 (88)	7.6 (193)	5.4 (137)	2.9 (73)	3.69 (1.68)

* Bowl removal clearance: add 3.1 (79).
** Dome removal clearance: add 0.63 (16). † Less gauge.



REPLACEMENT FILTER ELEMENTS*		
Element Rating	Element Material	Element Number
5-µm - Standard	Polyethylene	R-A115-106PE5
40-µm - Standard	Sintered Bronze	R-A115-106E3
5-µm - Optional	Sintered Bronze	R-A115-106E5
20-µm - Optional	Sintered Bronze	R-A115-106E4



Options: External Bowl Drains, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Panel Mounting	2.05 inch (52.1 mm) hole required
Fluid Media	Compressed air	Filter Drain	Automatic or manual
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar) Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene, or 40-micron rated sintered bronze Body: Zinc Bowl: Polycarbonate with steel shatterguard, or aluminum bowl with clear nylon sight glass Bonnet: Nylon; aluminum with optional 0 to 175 psig (0 to 12 bar) spring Cap Color: Black Seals: Nitrile Valve: Brass
Outlet Pressure	Adjustable up to 125 psig (9 bar).		
Pressure Adjustment	Locking Key: Removable		

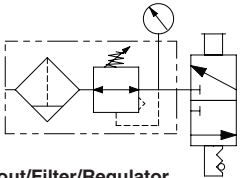
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Stainless Steel Integrated Filter/Regulators with Lockout L-O-X[®] Valves

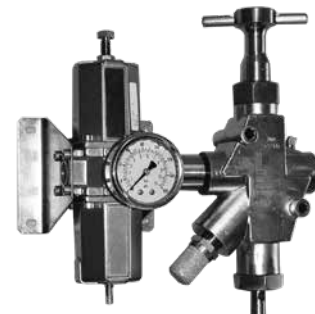
Series 15

Port Sizes: 1/4, 1/2, 3/4 & 1 – Flow to 17 scfm

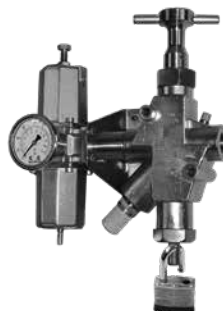
Port Size		Model Number	C _v	
1-2	3		1-2	2-3
1/4	1/4	RC010-13	2.14	2.08
1/2	1/2	RC011-13	4.4	6.24
3/4	1	RC012-13	5.0	17.0
1	1	RC013-13	8.0	17.0



Lockout/Filter/Regulator ISO Symbol
Lockout, Manual Drain, Self-relieving



Port Size		Avg. C _v		Dimensions (inches/mm)		
1-2	3	1-2	2-3	Length	Width	Depth
1/4	1/4	2.14	2.08	8.9 (226.1)	7.65 (194.4)	5.86 (149)
1/2	1/2	4.4	6.24	10.24 (260)	8.98 (228)	5.94 (151)
3/4	1	5.0	17.0	15.75 (400)	12.24 (311)	6.49 (165)
1	1	8.0	17.0	15.75 (400)	12.24 (311)	6.49 (165)



G3

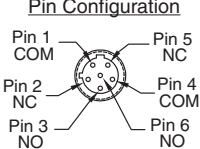
ACCESSORIES

Stainless Steel Pressure Switch

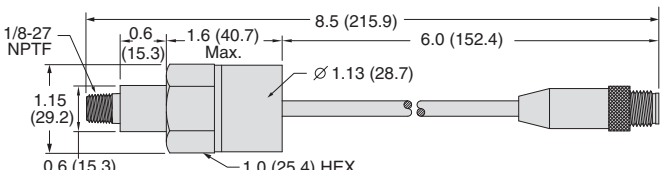
Inlet Port Size	Model Number	Weight lb (kg)
1/8	1162A30	0.23 (.01)



Pin Configuration



1 Red/White Circuit 1
4 Red/Yellow Circuit 2
2 All Red
3 Green
5 Red/Black
6 Red/Blue



Stainless Steel Visual Indicator

Inlet Port Size	Model Number	Weight lb (kg)	Hexagon Nut 1.2 (30.5) Across Flats
1/8	1155H30	0.22 (0.1)	2.33 (59.3) 1.00 (25.4)



G

* NPT threads. For G threads, consult ROSS.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Poppet, 316 Stainless Steel	Operating Pressure	0 to 300 psig (0 to 21 bar) Secondary Pressure: 7 to 174 psig (0.5 to 12 bar)
Mounting Type	In-line	Construction Material	Seals: Fluorocarbon (Viton)
Temperature	Ambient/Media: 30° to 175°F (-1° to 80°C) <i>Note: For lower temperature ratings, consult ROSS.</i>	Lock Hole Diameter	Port sizes 1/4 thru 2: 0.34 inch (8.64 mm)
Flow Media	Filtered air	Length of Hole	Port sizes 1/4: 0.44 in (11.17 mm) Port sizes 1/2: 0.47 in (11.93 mm)

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G3.9



AIR PREPARATION LUBRICATORS



ROSS CONTROLS

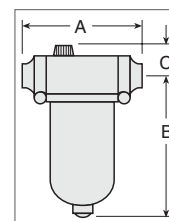
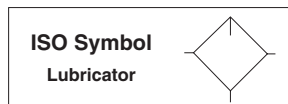
LUBRICATORS – KEY FEATURES

- Sight-feed and wick-feed design options
- Sight-feed Lubricators are easy to adjust, and an indicator on the sight dome measures the amount of oil dispensed
- The adjusting knob can be removed to make the lubricator “tamper-resistant”
- All working parts are in an easily replaceable cartridge
- Modular and in-line mounting options
- Metal and High Strength polycarbonate bowl options
- External tamper resistant adjustment
- Quick-fill cap option for full size, MD3™, and MD4™ Series
- Extended bowls available for MD3™ and MD4™ Series

LUBRICATOR TYPE/SERIES	AVAILABLE PORT SIZES								FLOW MAX FLOW (scfm)	DESIGN		BOWL TYPE		Page
	1/8	1/4	3/8	1/2	3/4	1	1¼	1½		SIGHT FEED	WICK FEED	POLYCARBONATE	METAL	
BANTAM	■	■							27	■	■	■	■	G4.3
MINIATURE	■	■							25	■	■	■	■	G4.4
MID-SIZE		■	■	■					110	■	■	■	■	G4.5
MD3™		■	■	■					150	■	■	■	■	G4.6
FULL-SIZE		■	■	■	■				140	■	■	■	■	G4.7
MD4™			■	■	■	■			205	■	■	■	■	G4.8
HIGH-CAPACITY					■	■	■	■	500	■	■	■	■	G4.9

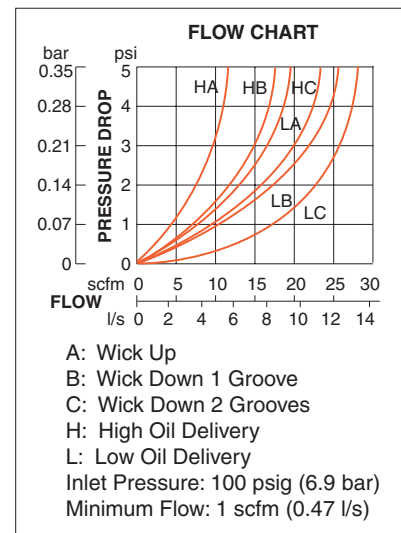
Port Sizes: 1/8 & 1/4, and Tube Fittings – Flow to 27 scfm

Port Size	Threaded Ports		Tube Fittings	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
	Model Number	Model Number	Model Number	Model Number
FILL PORT				
1/8 NPTF	5B01B0005	5B01B0006	–	–
1/8 G	C5B01B0005	C5B01B0006	–	–
1/4 NPTF	5B02B0005	5B02B0006	–	–
1/4 G	C5B02B0005	C5B02B0006	–	–
1/4	–	–	5B03B0005	5B03B0006
3/8	–	–	5B04B0005	5B04B0006
4mm	–	–	5B05B0005	5B05B0006
6mm	–	–	5B06B0005	5B06B0006
8mm	–	–	5B07B0005	5B07B0006
10mm	–	–	5B08B0005	5B08B0006
QUICK-FILL CAP				
1/8 NPTF	5B01B0007	5B01B0008	–	–
1/8 G	C5B01B0007	C5B01B0008	–	–
1/4 NPTF	5B02B0007	5B02B0008	–	–
1/4 G	C5B02B0007	C5B02B0008	–	–
1/4	–	–	5B03B0007	5B03B0008
3/8	–	–	5B04B0007	5B04B0008
4mm	–	–	5B05B0007	5B05B0008
6mm	–	–	5B06B0007	5B06B0008
8mm	–	–	5B07B0007	5B07B0008
10mm	–	–	5B08B0007	5B08B0008



Port Size	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
		A	B**	C	Depth	
No Port	2-oz (60-ml)	1.7 (43)	3.6 (91)	0.9 (22)	1.8 (45)	0.17 (0.08)
1/8, 1/4 (NPTF or G)	2-oz (60-ml)	3.0 (76)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
Models below have quick-connect tube fittings.						
1/4	2-oz (60-ml)	3.4 (86)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
3/8	2-oz (60-ml)	3.9 (99)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
4 mm	2-oz (60-ml)	3.4 (86)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
6 mm	2-oz (60-ml)	3.4 (86)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
8 mm	2-oz (60-ml)	3.4 (86)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
10 mm	2-oz (60-ml)	3.9 (99)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)

** Dimension for polycarbonate bowl; metal bowl is 3.8 (97).



Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for lubricators on this page):

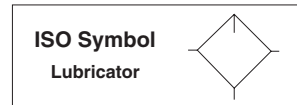
Construction Design	Wick-Feed	Oil Adjustment	External, no shut-off
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 150°F (4° to 66°C)	Construction Material	Body: Acetal Bowl: Polycarbonate or Aluminum Seals: Nitrile
Fluid Media	Compressed air		
Operating Pressure	Polycarbonate Bowl: Maximum 150 psig (10 bar) Metal Bowl: Maximum 200 psig (14 bar)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

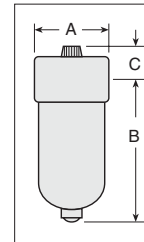


Port Sizes: 1/8 & 1/4 – Flow to 25 scfm

Port Size	Port Threads	Polycarbonate Bowl		Metal Bowl	
		High-Flow	Low Flow	High-Flow	Low Flow
		Model Number	Model Number	Model Number	Model Number
With Fill Port					
1/8	NPTF	5111B1010	5111B1012	5112B1010	5112B1012
	G	C5111B1010	C5111B1012	C5112B1010	C5112B1012
1/4	NPTF	5111B2010	5111B2012	5112B2010	5112B2012
	G	C5111B2010	C5111B2012	C5112B2010	C5112B2012
With Quick-Fill Cap					
1/8	NPTF	5111B1110	5111B1112	5112B1110	5112B1112
	G	C5111B1110	C5111B1112	C5112B1110	C5112B1112
1/4	NPTF	5111B2110	5111B2112	5112B2110	5112B2112
	G	C5111B2110	C5111B2112	C5112B2110	C5112B2112

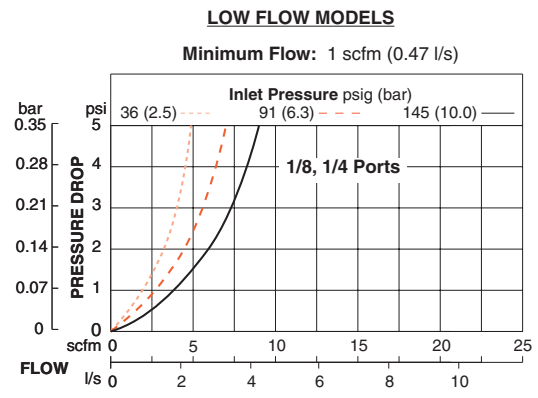
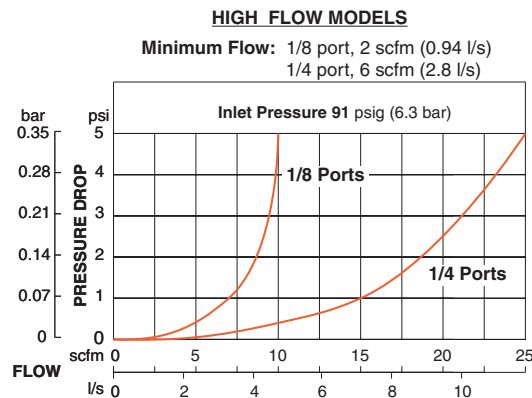


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	1.6 (41)	3.6 (92)	0.7 (17)	1.6 (41)	0.21 (0.10)
	Aluminum	2-oz (60-ml)	1.6 (41)	3.8 (97)	0.7 (17)	1.6 (41)	0.21 (0.10)



G4

FLOW CHARTS



Accessories ordered separately, refer to page G6.3-4.

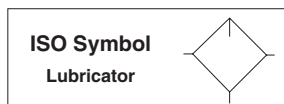
STANDARD SPECIFICATIONS (for lubricators on this page):

Construction Design	Wick-Feed	Oil Adjustment	Internal, tamper-proof
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 150°F (4° to 66°C)	Construction Material	Body: Aluminum Bowl: Polycarbonate or Aluminum Seals: Nitrile
Fluid Media	Compressed air		
Operating Pressure	Polycarbonate Bowl: Maximum 150 psig (10 bar) Metal Bowl: Maximum 200 psig (14 bar)		

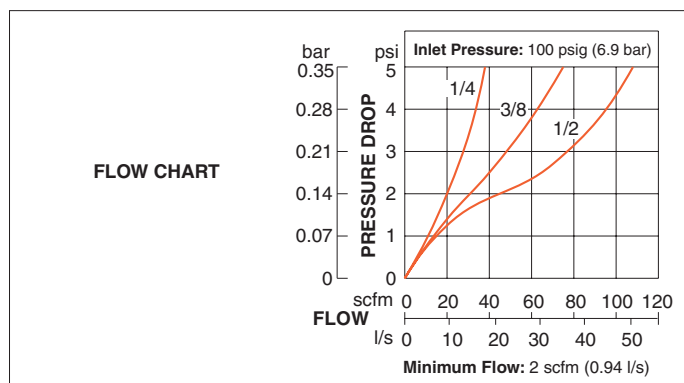
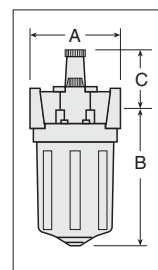
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 110 scfm

Port Size	Polycarbonate Bowl		Metal Bowl	
	Sight-Feed		Sight-Feed	
	Model Number		Model Number	
	NPTF Threads	G Threads	NPTF Threads	G Threads
With Fill Port				
1/4	5111B2007	C5111B2007	5112B2007	C5112B2007
3/8	5111B3007	C5111B3007	5112B3007	C5112B3007
1/2	5111B4007	C5111B4007	5112B4007	C5112B4007
With Quick-Fill Cap				
1/4	5111B2107	C5111B2107	5112B2107	C5112B2107
3/8	5111B3107	C5111B3107	5112B3107	C5112B3107
1/2	5111B4107	C5111B4107	5112B4107	C5112B4107



Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	2.7 (68)	4.1 (103)	1.8 (46)	2.4 (60)	1.06 (0.48)
	Zinc	4-oz (120-ml)	2.7 (68)	4.1 (103)	1.8 (46)	2.4 (60)	1.50 (0.68)



Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for lubricators on this page):

Construction Design	Sight-Feed	Oil Adjustment	External, tamper-resistant
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Construction Material	Body: Zinc Bowl: Polycarbonate bowl with zinc shatterguard, or zinc bowl Sight Dome: Nylon Seals: Nitrile
Fluid Media	Compressed air		
Operating Pressure	Polycarbonate Bowl: Maximum 150 psig (10 bar) Metal Bowl: Maximum 200 psig (14 bar)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 150 scfm

HOW TO ORDER

Choose your options (in red) to configure your model number.

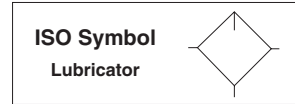
MD3 **51P** **Q** **C** **2** **2**

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 5.1-oz (151-ml)	51P
Metal Bowl 6-oz (177-ml)	51M
Extended Metal Bowl 10-oz (295-ml)	51E

LUBRICATOR FILL TYPE	
Quick Fill Cap	Q
Fill Port	S

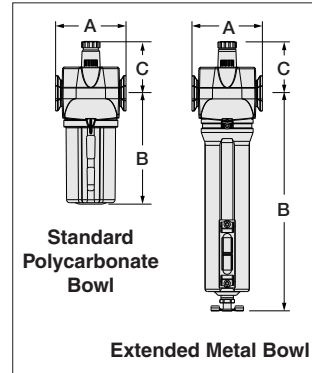
PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 G	B
3/8 G	C
1/2 G	D

CAP COLOR	
Black	2
Yellow	Y

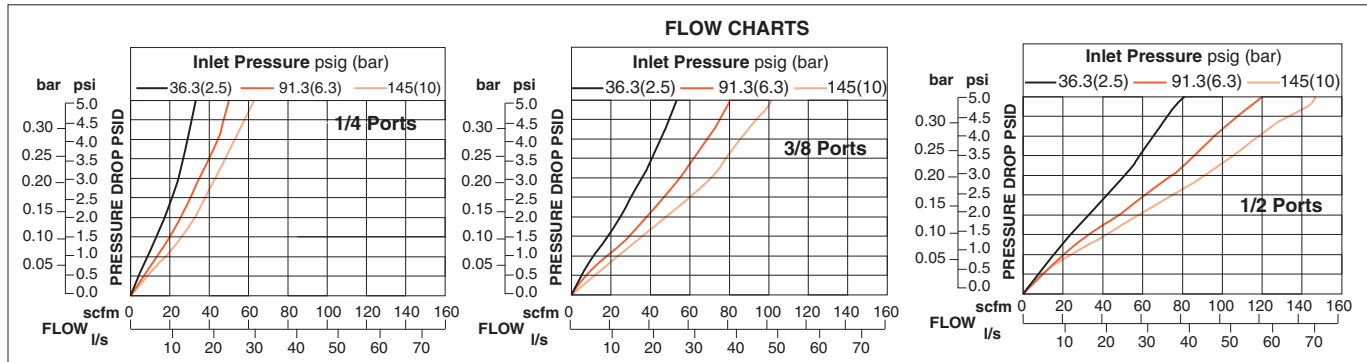


Bowl Type	Dimensions inches (mm)				Weight lb (kg)
	A	B**	C	Depth	
Polycarbonate	3.0 (76.2)	4.72 (119.9)	2.21 (56.1)	2.51 (63.8)	1.30 (0.59)
Aluminum	3.0 (76.2)	6.02 (152.9)	2.21 (56.1)	2.76 (70.1)	1.42 (0.64)
Extended Aluminum	3.0 (76.2)	9.37 (238)	2.21 (56.1)	2.76 (70.1)	1.54 (0.70)

** Bowl removal clearance: add 3.1 (79).
Extended Bowl removal clearance: add 6.1 (155).



G4



Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for lubricators on this page):

Construction Design	Sight-Feed	Oil Adjustment	External, tamper-resistant
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Construction Material	Body: Zinc Bowl: Polycarbonate with nylon shatterguard, or aluminum bowl with clear nylon sight glass Sight Dome: Nylon Seals: Nitrile
Fluid Media	Compressed air		
Operating Pressure	Polycarbonate Bowl: Maximum 150 psig (10 bar) Metal Bowl: Maximum 250 psig (17 bar)		

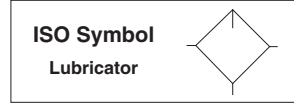
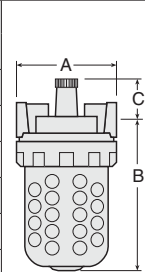
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 140 scfm

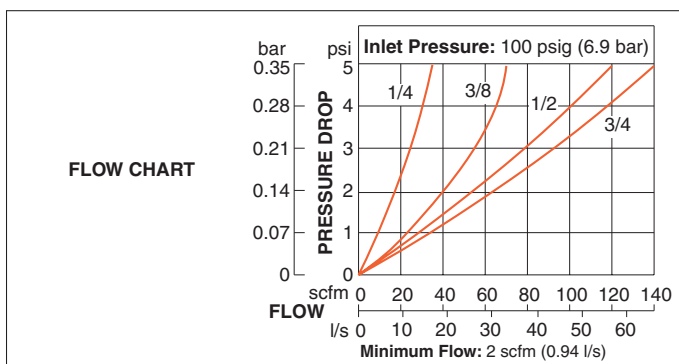


Port Size	Sight-Feed				Wick-Feed			
	Polycarbonate Bowl				Metal Bowl			
	Model Number		Model Number		Model Number		Model Number	
	NPTF Threads	G Threads	NPTF Threads	G Threads	NPTF Threads	G Threads	NPTF Threads	G Threads
With Fill Port								
1/4	5111B2008	C5111B2008	5112B2008	C5112B2008	5111B2014	C5111B2014	5112B2014	C5112B2014
3/8	5111B3008	C5111B3008	5112B3008	C5112B3008	5111B3014	C5111B3014	5112B3014	C5112B3014
1/2	5111B4008	C5111B4008	5112B4008	C5112B4008	5111B4014	C5111B4014	5112B4014	C5112B4014
3/4	5111B5008	C5111B5008	5112B5008	C5112B5008	5111B5014	C5111B5014	5112B5014	C5112B5014
With Quick-Fill Cap								
1/4	5111B2108	C5111B2108	5112B2108	C5112B2108	5111B2114	C5111B2114	5112B2114	C5112B2114
3/8	5111B3108	C5111B3108	5112B3108	C5112B3108	5111B3114	C5111B3114	5112B3114	C5112B3114
1/2	5111B4108	C5111B4108	5112B4108	C5112B4108	5111B4114	C5111B4114	5112B4114	C5112B4114
3/4	5111B5108	C5111B5108	5112B5108	C5112B5108	5111B5114	C5111B5114	5112B5114	C5112B5114

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B**	C	Depth	
With Sight-Feed							
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	3.5 (88)	5.2 (132)	1.3 (32)	3.5 (89)	2.06 (0.94)
	Zinc	8-oz (240-ml)	3.5 (88)	5.3 (135)	1.3 (32)	3.5 (89)	2.90 (1.32)
With Wick-Feed							
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	3.5 (88)	5.2 (132)	0.7 (17)	3.5 (89)	2.25 (1.02)
	Zinc	8-oz (240-ml)	3.5 (88)	5.3 (135)	0.7 (17)	3.5 (89)	2.85 (1.30)



** Bowl removal clearance: add 3.1 (79).



Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for lubricators on this page):

Construction Design	Sight-Feed or Wick-Feed	Construction Material	Adjusting Knob: Acetal
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Body: Zinc
Fluid Media	Compressed air		Bowl: Polycarbonate with steel shatterguard, or zinc bowl with sight glass
Operating Pressure	Polycarbonate Bowl: Maximum 150 psig (10 bar) Metal Bowl: Maximum 200 psig (14 bar)		Bowl Ring: Aluminum
Oil Adjustment	External, tamper-resistant		Sight Dome: Nylon; External, tamper-proof
			Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Online Version
06/25/20



www.rosscontrols.com

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 205 scfm

Choose your options (in red) to configure your model number.

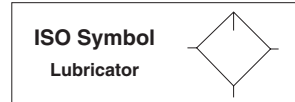
MD4 **51P** **S** **B** **3** **2**

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 9-oz (266-ml)	51P
Metal Bowl 9-oz (266-ml)	51M
Extended Metal Bowl 15-oz (443-ml)	51E

LUBRICATOR FILL TYPE	
Quick Fill Cap	Q
Fill Port	S

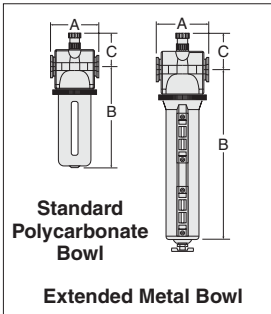
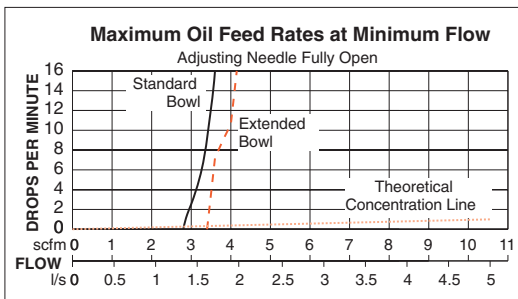
PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 G	C
1/2 G	D
3/4 G	E

CAP COLOR	
Black	2
Yellow	Y

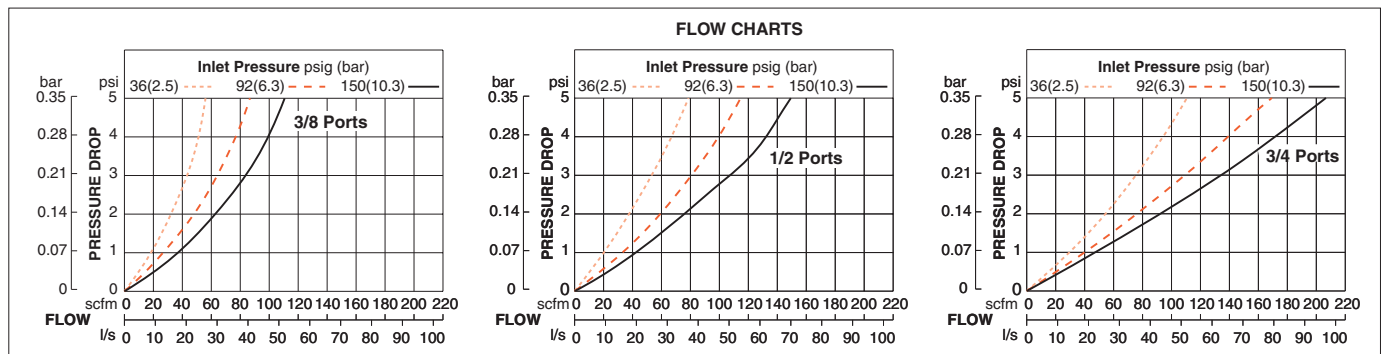


Bowl Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B**	C	Depth	
3/8, 1/2, 3/4	Polycarbonate	3.5 (88)	7.1 (179)	2.2 (56)	2.9 (73)	2.0 (0.91)
	Aluminum	3.5 (88)	7.4 (188)	2.2 (56)	3.1 (79)	2.0 (0.91)

** Bowl removal clearance: add 3.1 (79).
Extended Bowl removal clearance: add 6.1 (155).



G4



G

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for lubricators on this page):

Construction Design	Sight-Feed	Construction Material	Body: Zinc
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Bowl: Polycarbonate with steel shatterguard, aluminum bowl with clear nylon sight glass, or extended aluminum bowl with two clear nylon sight glass
Fluid Media	Compressed air		Bowl Ring: Nylon
Operating Pressure	Polycarbonate Bowl: Maximum 150 psig (10 bar) Metal Bowl: Maximum 200 psig (14 bar)		Sight Dome: Nylon
Oil Adjustment	External, tamper-resistant		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/4, 1, 1 1/4 & 1 1/2 – Flow to 500 scfm

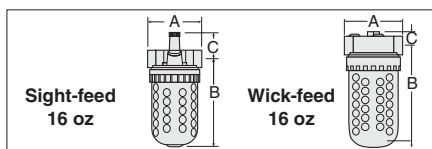
Port Size	Bowl Size oz (ml)	Fill-Port				Quick-Fill Cap			
		Sight-Feed		Wick-Feed		Sight-Feed		Wick-Feed	
		Metal Bowl		Metal Bowl		Metal Bowl		Metal Bowl	
		Model Number		Model Number		Model Number		Model Number	
		NPTF Threads	G Threads	NPTF Threads	G Threads	NPTF Threads	G Threads	NPTF Threads	G Threads
3/4	16 (473.2)	5112B5009	C5112B5009	—	—	5112B5109	C5112B5109	—	—
	35 (1035.1)	5112B5019	C5112B5019	—	—	5112B5119	C5112B5119	—	—
	62 (1833.6)	5112B5029	C5112B5029	—	—	5112B5129	C5112B5129	—	—
1	16 (473.2)	5112B6009	C5112B6009	5112B6011	C5112B6011	5112B6109	C5112B6109	5112B6111	C5112B6111
	35 (1035.1)	5112B6019	C5112B6019	—	—	5112B6119	C5112B6119	—	—
	62 (1833.6)	5112B6029	C5112B6029	—	—	5112B6129	C5112B6129	—	—
1 1/4	16 (473.2)	5112B7009	C5112B7009	—	—	5112B7109	C5112B7109	—	—
	35 (1035.1)	5112B7019	C5112B7019	—	—	5112B7119	C5112B7119	—	—
	62 (1833.6)	5112B7029	C5112B7029	—	—	5112B7129	C5112B7129	—	—
1 1/2	16 (473.2)	5112B8009	C5112B8009	—	—	5112B8109	C5112B8109	—	—
	35 (1035.1)	5112B8019	C5112B8019	—	—	5112B8119	C5112B8119	—	—
	62 (1833.6)	5112B8029	C5112B8029	—	—	5112B8129	C5112B8129	—	—
Port Size	Bowl Size oz (ml)	Polycarbonate Bowl							
3/4	16 (473.2)	5111B5009	C5111B5009	—	—	5111B5109	C5111B5109	—	—
1	16 (473.2)	5111B6009	C5111B6009	5111B6011	C5111B6011	5111B6109	C5111B6109	5111B6111	C5111B6111
1 1/4	16 (473.2)	5111B7009	C5111B7009	—	—	5111B7109	C5111B7109	—	—
1 1/2	16 (473.2)	5111B8009	C5111B8009	—	—	5111B8109	C5111B8109	—	—



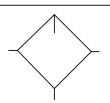
Metal Bowl



Polycarbonate Bowl



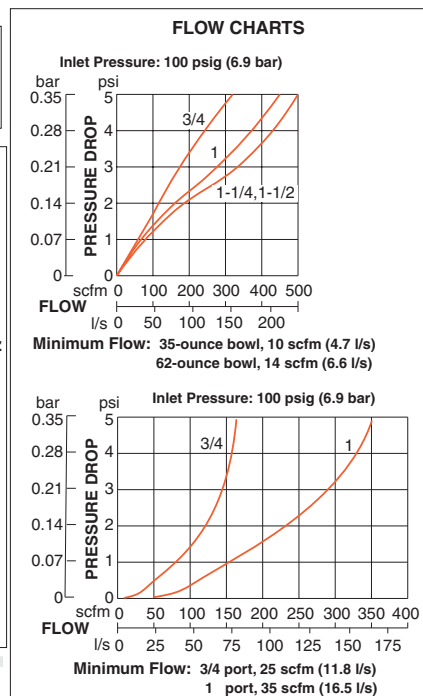
ISO Symbol
Lubricator



Port Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B**	C	Depth	
With Sight-Feed, 16 oz (473.2 ml)						
3/4, 1, 1 1/4, 1 1/2	Polycarbonate	4.3 (108)	8.2 (208)	1.4 (37)	4.2 (106)	2.63 (1.21)
	Aluminum	4.3 (108)	7.3 (185)	1.4 (37)	4.2 (106)	2.85 (1.30)
With Wick-Feed, 16 oz (473.2 ml)						
3/4, 1, 1 1/4, 1 1/2	Polycarbonate	4.5 (114)	7.7 (195)	0.8 (21)	4.3 (108)	2.88 (1.31)
	Aluminum	4.5 (114)	8.2 (208)	0.8 (21)	4.3 (108)	3.00 (1.36)
With Sight-Feed, 35 oz (1035.1 ml)						
3/4, 1	Aluminum	4.3 (108)	10.2 (259)	2.0 (51)	4.2 (106)	2.56 (1.16)
1 1/4, 1 1/2	Aluminum	4.3 (108)	10.6 (268)	1.6 (41)	4.2 (106)	2.53 (1.16)
Extended Bowls, 35oz (1035ml)						
3/4, 1	Aluminum	4.3 (108)	15.8 (400)	2.0 (51)	4.2 (106)	3.38 (1.64)
1 1/4, 1 1/2	Aluminum	4.3 (108)	16.1 (410)	1.6 (41)	4.2 (106)	3.38 (1.64)

** Bowl removal clearance: add 3.1 (79).

Accessories ordered separately, refer to page G6.3-4.



STANDARD SPECIFICATIONS (for lubricators on this page):

Construction Design	Sight-Feed	Construction Material	Body: Zinc
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)		Bowl: Polycarbonate with steel shatterguard, aluminum bowl with clear nylon sight glass, or extended aluminum bowl with two clear nylon sight glass
Fluid Media	Compressed air		Bowl Ring: Nylon
Operating Pressure	Polycarbonate Bowl: Maximum 150 psig (10 bar) Metal Bowl: Maximum 200 psig (14 bar)		Sight Dome: Nylon
Oil Adjustment	External, tamper-resistant		Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.





AIR PREPARATION FRL's COMBINATIONS



ROSS CONTROLS

FRLs Combinations – KEY FEATURES

- Combinations include Filter and Regulator, Filter and Lubricator, Integrated Filter / Regulator combined into a single module plus a Lubricator, and Filter, Regulator and Lubricator
- All sizes have essentially the same operating characteristics as their corresponding individual Filters, Regulators, and Lubricators
- All filters include either a manual or internal automatic filter drain and a pressure gauge
- Regulators are either self relieving or non-relieving and have gauge ports front and rear
- 5-, 20-, and 40-micron filter element options available
- Additional available options are the same as those for the corresponding individual filters
- Modular or in-line mounting

COMBINATION TYPE/SERIES	AVAILABLE PORT SIZES									FLOW MAX FLOW (scfm)	FILTRATION			OPTIONS			REGULATOR TYPE		OPTIONS		LUBRICATOR TYPE		OPT.	Page	
	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	5 µm		20 µm	40 µm	POLYCARBONATE BOWL	METAL BOWL	AUTOMATIC DRAIN	MANUAL DRAIN	PISTON	DIAPHRAGM	SELF RELIEVING	NON RELIEVING	WICK FEED	SIGHT FEED			LOCKOUT
FILTER AND REGULATOR																									
MINIATURE									19																E5.3
MID-SIZE									100																E5.4
FULL-SIZE									138																E5.5
HIGH-CAPACITY									270																E5.6
FILTER AND LUBRICATOR																									
MINIATURE									19																E5.7
MID-SIZE									100																E5.8
FULL-SIZE									138																E5.9
HIGH-CAPACITY									270																E5.10
INTEGRATED FILTER/REGULATOR PLUS LUBRICATOR																									
BANTAM									23																E5.11 - E5.12
MINIATURE									24																E5.13 - E5.14
MID-SIZE									100																E5.15
MD3™									110																E5.16 - E5.17
FULL-SIZE									140																E5.18
MD4™									205																E5.19 - E5.20
FILTER REGULATOR PLUS LUBRICATOR																									
BANTAM									22																E5.21 - E5.22
MINIATURE									19																E5.23
MID-SIZE									100																E5.24
MD3™									110																E5.25 - E5.26
FULL-SIZE									138																E5.27
MD4™									205																E5.28 - E5.28
HIGH-CAPACITY									495																E5.30 - E5.31

G5

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In-line Filter and Regulator Combinations

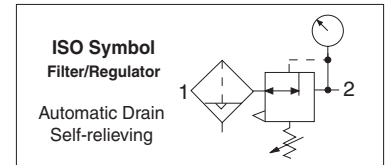
MINIATURE Series

Port Sizes: 1/8 & 1/4 – Flow to 19 scfm

FILTER and PISTON type REGULATOR					
Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/8	NPTF	5321C1027	5322C1024	5321C1026	5322C1025
	G	C5321C1027	C5322C1024	C5321C1026	C5322C1025
1/4	NPTF	5321C2027	5322C2024	5321C2026	5322C2025
	G	C5321C2027	C5322C2024	C5321C2026	C5322C2025



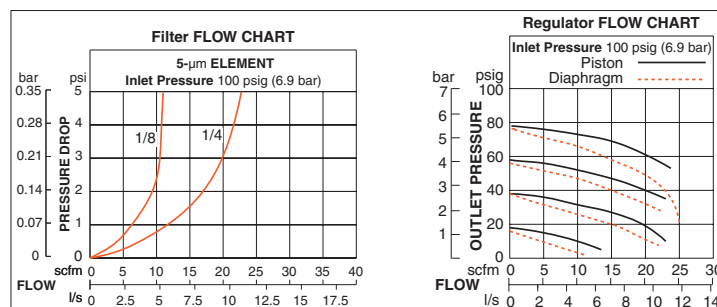
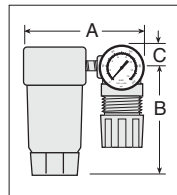
FILTER and DIAPHRAGM type REGULATOR					
Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/8	NPTF	5321C1037	5322C1034	5321C1036	5322C1035
	G	C5321C1037	C5322C1034	C5321C1036	C5322C1035
1/4	NPTF	5321C2037	5322C2034	5321C2036	5322C2035
	G	C5321C2037	C5322C2034	C5321C2036	C5322C2035



Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	4.4 (111)	3.6 (90)	0.7 (17)	1.6 (41)	0.77 (0.34)
	Aluminum	2-oz (60-ml)	4.4 (111)	4.3 (109)	0.7 (17)	1.6 (41)	0.79 (0.36)

† Less gauge.

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston	Outlet Pressure	Adjustable up to 100 psig (7 bar).
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Gauge	0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear
Fluid Media	Compressed air	Oil Adjustment	Internal; tamper-resistant
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)	Panel Mounting	1-3/16 inch (30 mm) hole required
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene Heads: Aluminum Bowl: Polycarbonate or Aluminum Regulator Dome and Knob: Acetal Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Modular Filter and Regulator Combinations

MID-SIZE Series

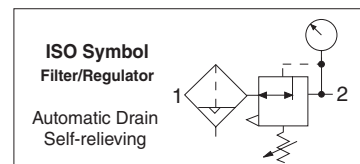
Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/4	NPTF	5M11B2110	5M11B2210	5M11B2310	5M11B2410
	G	C5M11B2110	C5M11B2210	C5M11B2310	C5M11B2410
3/8	NPTF	5M11B3110	5M11B3210	5M11B3310	5M11B3410
	G	C5M11B3110	C5M11B3210	C5M11B3310	C5M11B3410
1/2	NPTF	5M11B4110	5M11B4210	5M11B4310	5M11B4410
	G	C5M11B4110	C5M11B4210	C5M11B4310	C5M11B4410

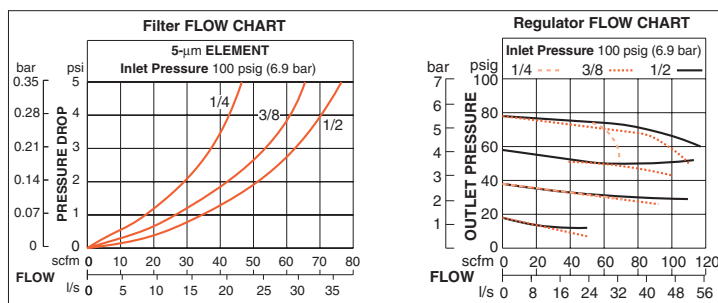
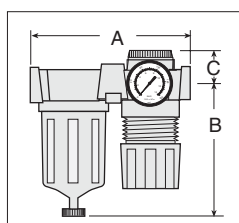


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	5.4 (137)	6.2 (157)	1.3 (33)	2.8 (71)	2.20 (1.00)
	Zinc	4-oz (120-ml)	5.4 (137)	6.3 (160)	1.3 (33)	2.8 (71)	2.57 (1.17)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5- μ m - Standard	Polyethylene	936K77
5- μ m - Optional	Sintered Bronze	R-KA60F-03E5
20- μ m - Optional	Sintered Bronze	R-KA60F-03E4
40- μ m - Optional	Sintered Bronze	R-KA60F-03E3



Pressure Gauge included.
Includes 2 female port blocks.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Adjustment	Locking Key: Removable
Fluid Media	Compressed air	Oil Adjustment	External; tamper-resistant
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)	Panel Mounting	1-9/16 inch (40 mm) hole required
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene
Outlet Pressure	Adjustable up to 100 psig (7 bar).		Heads: Zinc
			Bowl: Polycarbonate bowl with zinc shatterguard, or zinc bowl
			Regulator Dome: Acetal; Metal optional, consult ROSS
			Regulator Knob: Acetal
			Sight Dome: Clear Nylon
			Seals: Nitrile

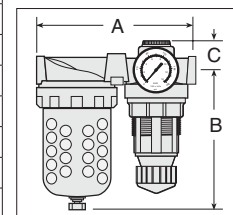
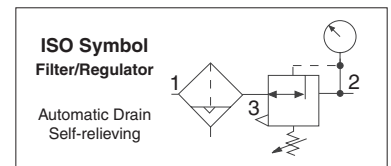
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Filter and Regulator Combinations

FULL-SIZE Series

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 138 scfm

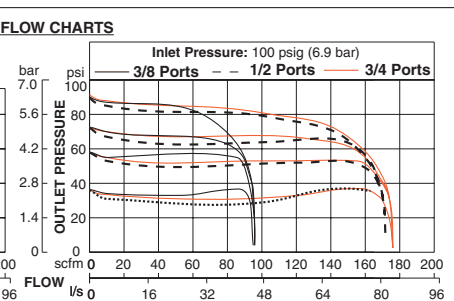
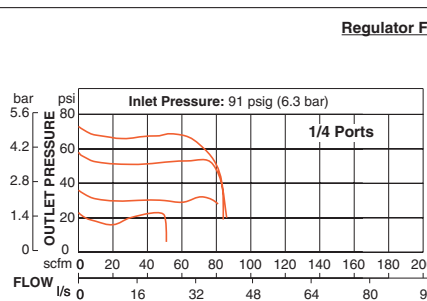
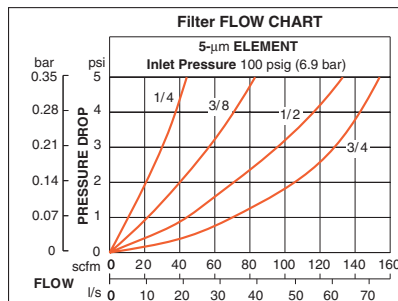
Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
With THREADED PORTS					
1/4	NPTF	5F11B2120	5F11B2220	5F11B2320	5F11B2420
	G	C5F11B2120	C5F11B2220	C5F11B2320	C5F11B2420
3/8	NPTF	5F11B3120	5F11B3220	5F11B3320	5F11B3420
	G	C5F11B3120	C5F11B3220	C5F11B3320	C5F11B3420
1/2	NPTF	5F11B4120	5F11B4220	5F11B4320	5F11B4420
	G	C5F11B4120	C5F11B4220	C5F11B4320	C5F11B4420
3/4	NPTF	5F11B5120	5F11B5220	5F11B5320	5F11B5420
	G	C5F11B5120	C5F11B5220	C5F11B5320	C5F11B5420
With PIPE NIPPLES					
1/4	NPTF	5F00B2120	5F00B2220	5F00B2320	5F00B2420
	G	C5F00B2120	C5F00B2220	C5F00B2320	C5F00B2420
3/8	NPTF	5F00B3120	5F00B3220	5F00B3320	5F00B3420
	G	C5F00B3120	C5F00B3220	C5F00B3320	C5F00B3420
1/2	NPTF	5F00B4120	5F00B4220	5F00B4320	5F00B4420
	G	C5F00B4120	C5F00B4220	C5F00B4320	C5F00B4420
3/4	NPTF	5F00B5120	5F00B5220	5F00B5320	5F00B5420
	G	C5F00B5120	C5F00B5220	C5F00B5320	C5F00B5420



Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	7.0 (178)	5.8 (147)	1.3 (33)	2.8 (71)	4.09 (1.86)
	Zinc	8-oz (240-ml)	7.0 (178)	6.4 (163)	1.3 (33)	2.8 (71)	5.06 (2.30)

† Less gauge.

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	939K77
5-µm - Optional	Sintered Bronze	R-KA103-03E5
20-µm - Optional	Sintered Bronze	R-KA103-03E4
40-µm - Optional	Sintered Bronze	R-KA103-03E3



Pressure Gauge included. Units with Threaded Ports Include 2 female port blocks.
Options: External Automatic Drain, refer to page G6.7. Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Adjustment	Locking Key: Removable
Fluid Media	Compressed air	Oil Adjustment	External; tamper-resistant
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Heads: Zinc
Outlet Pressure	Adjustable up to 125 psig (9 bar).		Bowl: Polycarbonate bowl with steel shatterguard, or zinc bowl with clear nylon sight glass
			Bowl Rings: Aluminum
			Regulator Dome: Nylon
			Regulator Knob: Acetal
			Sight Dome: Clear Nylon
			Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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In-line Filter and Regulator Combinations

HIGH-CAPACITY Series

Port Sizes: 3/4 & 1 – Flow to 270 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
3/4	NPTF	5H00C5110	5H00C5210	5H00C5310	5H00C5410
	G	C5H00C5110	C5H00C5210	C5H00C5310	C5H00C5410
1	NPTF	5H00C6110	5H00C6210	5H00C6310	5H00C6410
	G	C5H00C6110	C5H00C6210	C5H00C6310	C5H00C6410

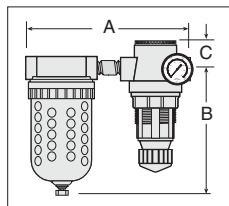


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
3/4, 1	Polycarbonate	16-oz (480-ml)	9.1 (231)	8.0 (203)	2.4 (62)	4.3 (108)	4.53 (2.05)
	Zinc	16-oz (480-ml)	9.1 (231)	8.3 (210)	2.1 (54)	4.3 (108)	5.95 (2.70)

† Less gauge.

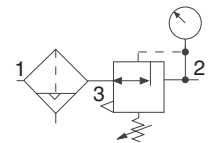
REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	1010K77
5-µm - Optional	Sintered Bronze	R-KA109-03E5
20-µm - Optional	Sintered Bronze	R-KA109-03E4
40-µm - Optional	Sintered Bronze	R-KA109-03E3

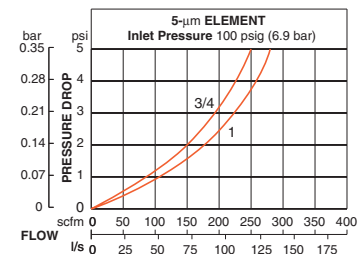


ISO Symbol Filter/Regulator

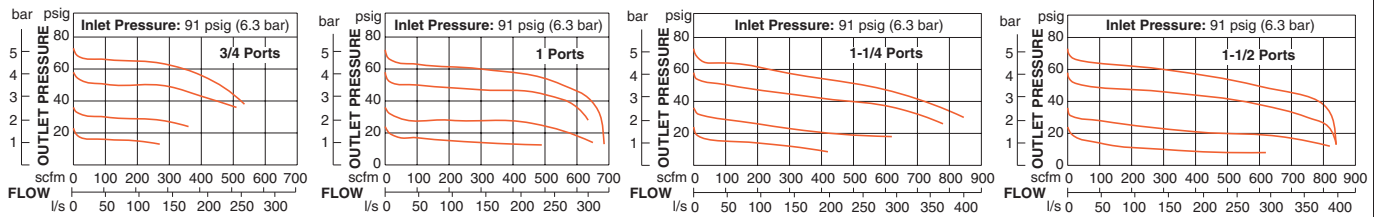
Automatic Drain
Self-relieving



Filter FLOW CHART



Regulator FLOW CHARTS



G5

G

Pressure Gauge included.

Options: External Automatic Drain, Electronic Drain, refer to page G6.7.

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston	Outlet Pressure	Adjustable up to 100 psig (7 bar).
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
		Pressure Adjustment	Locking Key: Removable
Fluid Media	Compressed air	Oil Adjustment	External; tamper-resistant
Operating Pressure	Automatic Drain Models	Construction Material	Filter Element: 5-micron rated polyethylene
	Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)		Heads: Aluminum
	Manual Drain Models		Bowl: Polycarbonate bowl with steel shatterguard, or zinc bowl with clear nylon sight glass
	Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Bowl Rings: Aluminum
			Seals: Nitrile

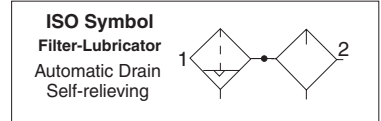
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

In-line Filter and Lubricator Combinations

MINIATURE Series

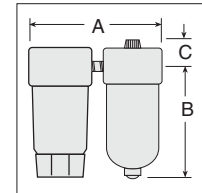
Port Sizes: 1/8 & 1/4 – Flow to 19 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
With Fill Port Lubricator					
1/8	NPTF	5311C1012	5312C1012	5311C1011	5312C1011
	G	C5311C1012	C5312C1012	C5311C1011	C5312C1011
1/4	NPTF	5311C2012	5312C2012	5311C2011	5312C2011
	G	C5311C2012	C5312C2012	C5311C2011	C5312C2011
With Quick-Fill Cap Lubricator					
1/8	NPTF	5311C1112	5312C1112	5311C1111	5312C1111
	G	C5311C1112	C5312C1112	C5311C1111	C5312C1111
1/4	NPTF	5311C2112	5312C2112	5311C2111	5312C2111
	G	C5311C2112	C5312C2112	C5311C2111	C5312C2111



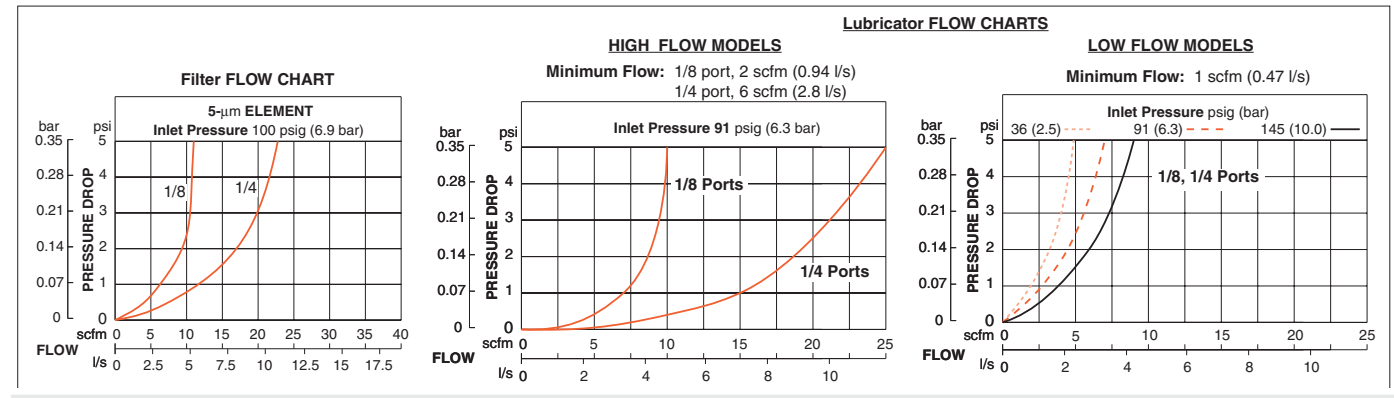
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	3.4 (86)	3.6 (90)	0.7 (17)	1.6 (41)	0.59 (0.27)
	Metal	2-oz (60-ml)	3.4 (86)	4.3 (109)	0.7 (17)	1.6 (41)	0.59 (0.27)

† Less gauge.



REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Lubricator – Wick-Feed or Quick-Fill Cap	Filter Drain	Internal Automatic drain; Manual drain
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Adjustment	Locking Key: Removable
Fluid Media	Compressed air	Oil Adjustment	Internal; tamper-resistant
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Heads: Aluminum Bowl: Polycarbonate or aluminum Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G5.7

Modular Filter and Lubricator Combinations

MID-SIZE Series

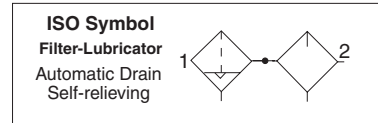
Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/4	NPTF	5M11B2101	5M11B2202	5M11B2301	5M11B2402
	G	C5M11B2101	C5M11B2202	C5M11B2301	C5M11B2402
3/8	NPTF	5M11B3101	5M11B3202	5M11B3301	5M11B3402
	G	C5M11B3101	C5M11B3202	C5M11B3301	C5M11B3402
1/2	NPTF	5M11B4101	5M11B4202	5M11B4301	5M11B4402
	G	C5M11B4101	C5M11B4202	C5M11B4301	C5M11B4402

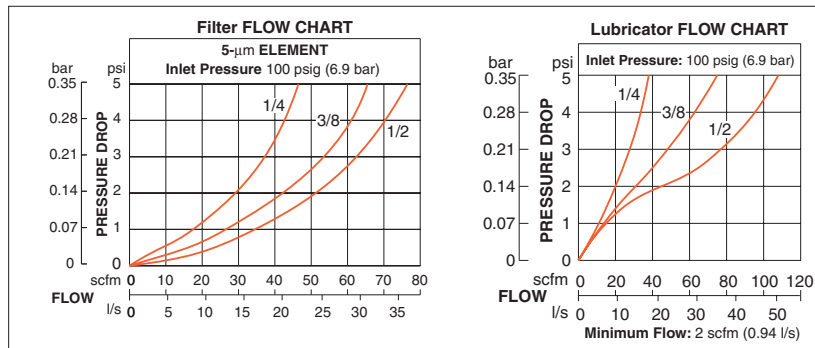
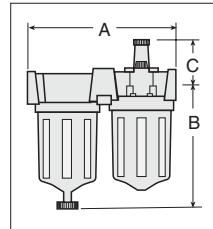


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	5.6 (137)	4.8 (122)	1.8 (46)	2.8 (71)	2.29 (1.04)
	Metal	4-oz (120-ml)	5.6 (137)	4.9 (123)	1.8 (46)	2.8 (71)	3.10 (1.41)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	936K77
5-µm - Optional	Sintered Bronze	R-KA60F-03E5
20-µm - Optional	Sintered Bronze	R-KA60F-03E4
40-µm - Optional	Sintered Bronze	R-KA60F-03E3



Pressure Gauge included.
Includes 2 female port blocks.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Lubricator – Sight-Feed	Filter Drain	Internal Automatic drain; Manual drain
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Oil Adjustment	Internal; tamper-resistant
Fluid Media	Compressed air	Construction Material	Filter Element: 5-micron rated polyethylene Heads: Zinc Bowl: Polycarbonate bowls with zinc shatterguard, or zinc bowls Sight Dome: Clear Nylon Seals: Nitrile
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar) Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		

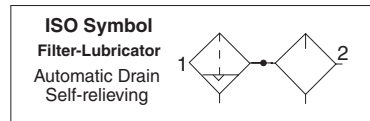
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Filter and Lubricator Combinations

FULL-SIZE Series

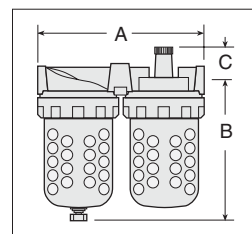
Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 138 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
With THREADED PORTS					
1/4	NPTF	5F11B2101	5F11B2202	5F11B2301	5F11B2402
	G	C5F11B2101	C5F11B2202	C5F11B2301	C5F11B2402
3/8	NPTF	5F11B3101	5F11B3202	5F11B3301	5F11B3402
	G	C5F11B3101	C5F11B3202	C5F11B3301	C5F11B3402
1/2	NPTF	5F11B4101	5F11B4202	5F11B4301	5F11B4402
	G	C5F11B4101	C5F11B4202	C5F11B4301	C5F11B4402
3/4	NPTF	5F11B5101	5F11B5202	5F11B5301	5F11B5402
	G	C5F11B5101	C5F11B5202	C5F11B5301	C5F11B5402
With PIPE NIPPLES					
1/4	NPTF	5F00B2101	5F00B2202	5F00B2301	5F00B2402
	G	C5F00B2101	C5F00B2202	C5F00B2301	C5F00B2402
3/8	NPTF	5F00B3101	5F00B3202	5F00B3301	5F00B3402
	G	C5F00B3101	C5F00B3202	C5F00B3301	C5F00B3402
1/2	NPTF	5F00B4101	5F00B4202	5F00B4301	5F00B4402
	G	C5F00B4101	C5F00B4202	C5F00B4301	C5F00B4402
3/4	NPTF	5F00B5101	5F00B5202	5F00B5301	5F00B5402
	G	C5F00B5101	C5F00B5202	5F00B5301	C5F00B5402

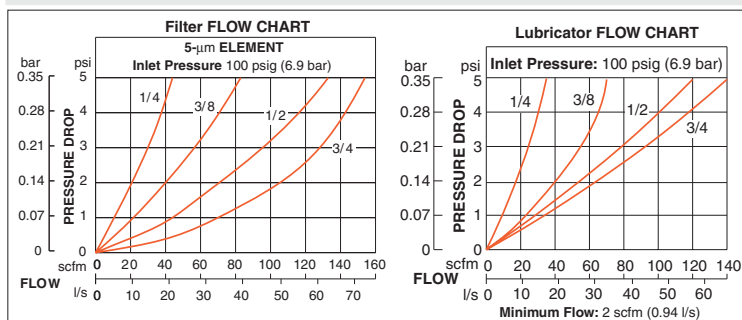


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	7.1 (180)	5.8 (147)	1.3 (33)	2.8 (71)	4.09 (1.86)
	Zinc	8-oz (240-ml)	7.1 (180)	6.4 (163)	1.3 (33)	2.8 (71)	5.9 (2.68)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	939K77
5-µm - Optional	Sintered Bronze	R-KA103-03E5
20-µm - Optional	Sintered Bronze	R-KA103-03E4
40-µm - Optional	Sintered Bronze	R-KA103-03E3



Pressure Gauge included. Units with Threaded Ports Include 2 female port blocks.
Options: **Electronic Drain, refer to page G6.7.**
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Lubricator – Sight-Feed	Filter Drain	Internal Automatic or Manual
Temperature	Ambient/Media:	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
	Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Adjustment	Locking Key: Removable
Fluid Media	Compressed air	Oil Adjustment	Internal; tamper-resistant
Operating Pressure	Automatic Drain Models	Construction Material	Filter Element: 5-micron rated polyethylene
	Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)		Heads: Zinc
Manual Drain Models	Bowl: Polycarbonate bowl with steel shatterguard, or zinc bowl with clear nylon sight glass		
Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Bowl Rings: Aluminum		
Outlet Pressure	Adjustable up to 125 psig (9 bar).		Regulator Dome: Nylon
			Regulator Knob: Acetal
		Sight Dome: Clear Nylon	
		Seals: Nitrile	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G5.9

In-line Filter and Lubricator Combinations

HIGH-CAPACITY Series

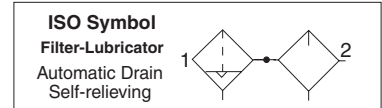
Port Sizes: 3/4 & 1 – Flow to 270 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
3/4	NPTF	5H00B5101	5H00B5202	5H00B5301	5H00B5402
	G	C5H00B5101	C5H00B5202	C5H00B5301	C5H00B5402
1	NPTF	5H00B6101	5H00B6202	5H00B6301	5H00B6402
	G	C5H00B6101	C5H00B6202	C5H00B6301	C5H00B6402

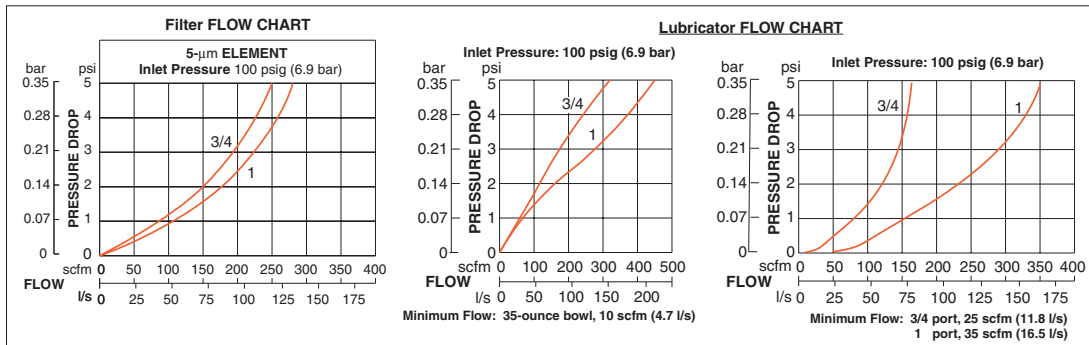
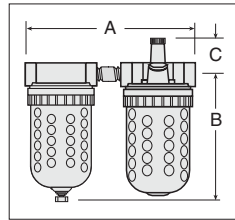


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
3/4, 1	Polycarbonate	16-oz (480-ml)	9.2 (234)	8.0 (204)	1.4 (37)	4.3 (108)	5.27 (2.39)
	Aluminum	16-oz (480-ml)	9.2 (234)	8.3 (210)	1.4 (37)	4.3 (108)	6.3 (2.86)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	1010K77
5-µm - Optional	Sintered Bronze	R-KA109-03E5
20-µm - Optional	Sintered Bronze	R-KA109-03E4
40-µm - Optional	Sintered Bronze	R-KA109-03E3



G5

G

Pressure Gauge included.
Options: Automatic External Drain, Electronic Drain, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Lubricator – Wick-Feed	Filter Drain	Automatic, or Manual
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Oil Adjustment	External; tamper-resistant
Fluid Media	Compressed air	Construction Material	Filter Element: 5-micron rated polyethylene
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)		Heads: Aluminum
		Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Bowl: Polycarbonate bowls with steel shatterguard, or aluminum bowls with sight glass
		Bowl Rings: Aluminum	Seals: Nitrile

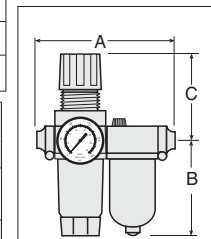
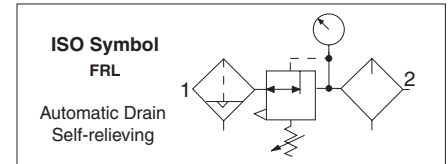
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Integrated Filter/Regulator plus Lubricator Combinations

BANTAM Series

Port Sizes: 1/8 & 1/4 and Tube Fittings – Flow to 23 scfm

Combination with PISTON Type REGULATOR				
Port Size	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
	Model Number	Model Number	Model Number	Model Number
With THREADED PORTS				
1/8 NPTF	5D01C0115	5D01C0216	5D01C0315	5D01C0416
1/8 G	C5D01C0115	C5D01C0216	C5D01C0315	C5D01C0416
1/4 NPTF	5D02C0115	5D02C0216	5D02C0315	5D02C0416
1/4 G	C5D02C0115	C5D02C0216	C5D02C0315	C5D02C0416
With Quick Connect TUBE FITTINGS				
1/4	5D03C0115	5D03C0216	5D03C0315	5D03C0416
3/8	5D04C0115	5D04C0216	5D04C0315	5D04C0416
4mm	5D05C0115	5D05C0216	5D05C0315	5D05C0416
6mm	5D06C0115	5D06C0216	5D06C0315	5D06C0416
8mm	5D07C0115	5D07C0216	5D07C0315	5D07C0416
10mm	5D08C0115	5D08C0216	5D08C0315	5D08C0416



#Change the ninth digit to "7" for quick fill lubricator cap e.g., 5D01C0117

Port Size	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
		A	B**	C	Depth †	
1/8, 1/4 (NPTF or G)	2-oz (60-ml)	4.6 (117)	3.6 (92)	2.6 (67)	1.8 (45)	0.57 (0.32)

Models below have quick-connect tube fittings.

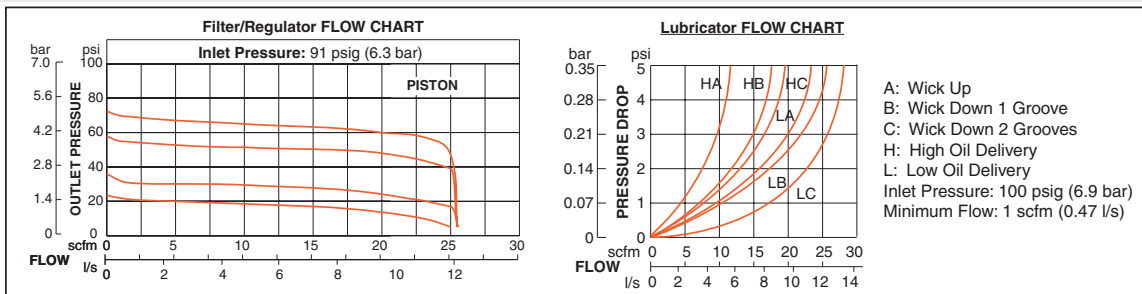
1/4	2-oz (60-ml)	5.0 (127)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
3/8	2-oz (60-ml)	5.6 (142)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
4, 6 mm	2-oz (60-ml)	5.1 (130)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
8 mm	2-oz (60-ml)	4.7 (120)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
10 mm	2-oz (60-ml)	5.6 (142)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)

** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97).

† Less gauge.

REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Pressure Gauge included. Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator - Piston Lubricator - Wick-Feed	Outlet Pressure	Adjustable up to 100 psig (7 bar).
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Filter Drain	Internal Automatic or Manual
Fluid Media	Compressed air	Pressure Gauge	0 to 160 psig (11 bar); 1/8 NPT gauge ports front and rear
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)	Pressure Adjustment	Locking Key: Removable
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Oil Adjustment	External, no shutoff.
		Panel Mounting	1-3/16 inch (30 mm) hole required
		Construction Material	Filter Element: 5-micron rated polyethylene Filter/Regulator & Lubricator Bodies: Acetal Bowl: Polycarbonate bowls or aluminum bowls Regulator Dome: Nylon Regulator Knob: Acetal Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G5.11

G5

G

Modular Integrated Filter/Regulator plus Lubricator Combinations

BANTAM Series

Port Sizes: 1/8 & 1/4 and Tube Fittings – Flow to 23 scfm

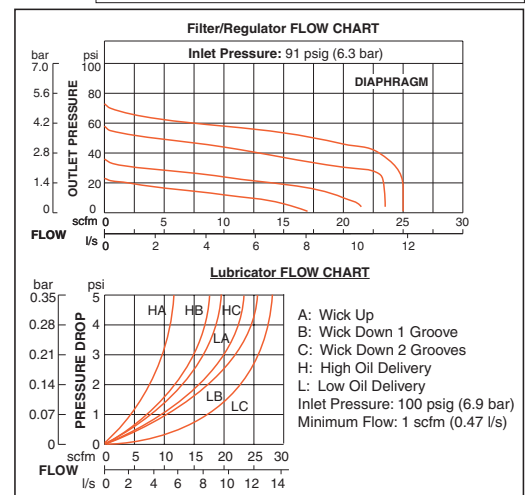
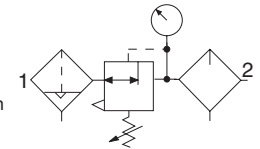
Combination with DIAPHRAGM Type REGULATOR				
Port Size	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
	Model Number	Model Number	Model Number	Model Number
With THREADED PORTS				
With FILL Port Lubricator				
1/8 NPTF	5D01C0125	5D01C0226	5D01C0325	5D01C0426
1/8 NPTF	C5D01C0125	C5D01C0226	C5D01C0325	C5D01C0426
1/4 G	5D02C0125	5D02C0226	5D02C0325	5D02C0426
1/4 G	C5D02C0125	C5D02C0226	C5D02C0325	C5D02C0426
With FILL Port Lubricator				
1/8 NPTF	5D01C0127	5D01C0227	5D01C0327	5D01C0427
1/8 NPTF	C5D01C0127	C5D01C0227	C5D01C0327	C5D01C0427
1/4 G	5D02C0127	5D02C0227	5D02C0327	5D02C0427
1/4 G	C5D02C0127	C5D02C0227	C5D02C0327	C5D02C0427
With Quick Connect TUBE FITTINGS				
With FILL Port Lubricator				
1/4	5D03C0125	5D03C0226	5D03C0325	5D03C0426
3/8	5D04C0125	5D04C0226	5D04C0325	5D04C0426
4mm	5D05C0125	5D05C0226	5D05C0325	5D05C0426
6mm	5D06C0125	5D06C0226	5D06C0325	5D06C0426
8mm	5D07C0125	5D07C0226	5D07C0325	5D07C0426
10mm	5D08C0125	5D08C0226	5D08C0325	5D08C0426
With QUICK-FILL Cap Lubricator				
1/4	5D03C0127	5D03C0227	5D03C0327	5D03C0427
3/8	5D04C0127	5D04C0227	5D04C0327	5D04C0427
4mm	5D05C0127	5D05C0227	5D05C0327	5D05C0427
6mm	5D06C0127	5D06C0227	5D06C0327	5D06C0427
8mm	5D07C0127	5D07C0227	5D07C0327	5D07C0427
10mm	5D08C0127	5D08C0227	5D08C0327	5D08C0427



ISO Symbol

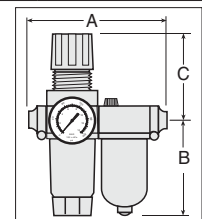
FRL

Automatic Drain
Self-relieving



REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Port Size	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
		A	B**	C	Depth †	
1/8, 1/4 (NPTF or G)	2-oz (60-ml)	4.6 (117)	3.6 (92)	2.6 (67)	1.8 (45)	0.57 (0.32)
Models below have quick-connect tube fittings.						
1/4	2-oz (60-ml)	5.0 (127)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
3/8	2-oz (60-ml)	5.6 (142)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
4, 6 mm	2-oz (60-ml)	5.1 (130)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
8 mm	2-oz (60-ml)	4.7 (120)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
10 mm	2-oz (60-ml)	5.6 (142)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)

** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97). † Less gauge.

Pressure Gauge included. Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Lubricator – Diaphragm	Outlet Pressure	Adjustable up to 100 psig (7 bar).
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Filter Drain	Internal Automatic or Manual
Fluid Media	Compressed air	Pressure Gauge	0 to 160 psig (11 bar); 1/8 NPT gauge ports front and rear
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)	Pressure Adjustment	Locking Key: Removable
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Oil Adjustment	External, no shutoff.
		Panel Mounting	1-3/16 inch (30 mm) hole required
		Construction Material	Filter Element: 5-micron rated polyethylene Filter/Regulator & Lubricator Bodies: Acetal Bowl: Polycarbonate bowls or aluminum bowls Regulator Dome and Knob: Acetal Seals: Nitrile

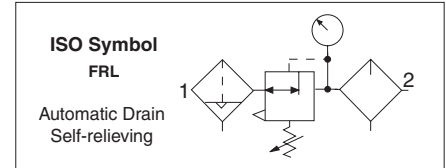
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

In-line Integrated Filter/Regulator plus Lubricator Combinations

MINIATURE Series

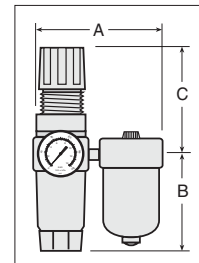
Port Sizes: 1/8 & 1/4 – Flow to 24 scfm

Combination with PISTON Type REGULATOR					
Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
With FILL Port Lubricator					
1/8	NPTF	5351C1006	5352C1006	5351C1005	5352C1005
	G	C5351C1006	C5352C1006	C5351C1005	C5352C1005
1/4	NPTF	5351C2006	5352C2006	5351C2005	5352C2005
	G	C5351C2006	C5352C2006	C5351C2005	C5352C2005
With QUICK-FILL Cap Lubricator					
1/8	NPTF	5351C1106	5352C1106	5351C1105	5352C1105
	G	C5351C1106	C5352C1106	C5351C1105	C5352C1105
1/4	NPTF	5351C2106	5352C2106	5351C2105	5352C2105
	G	C5351C2106	C5352C2106	C5351C2105	C5352C2105

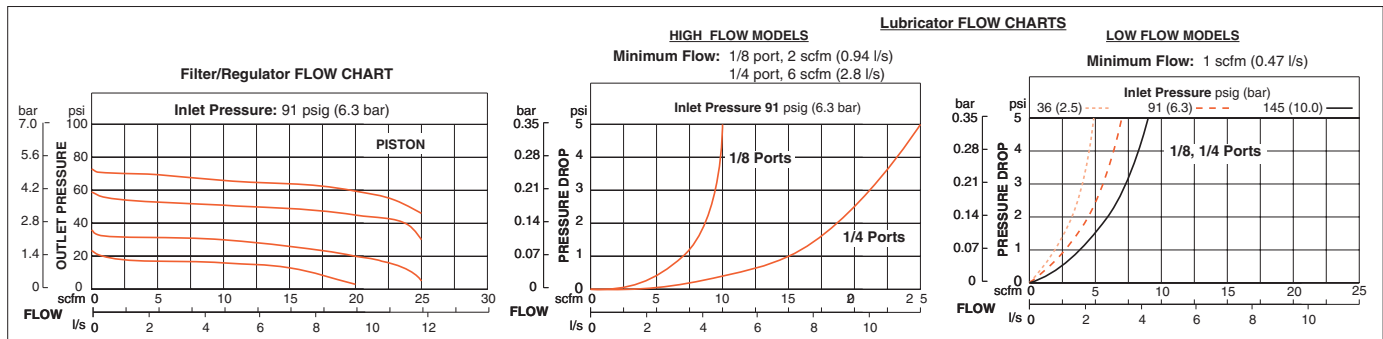


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (59.1-ml)	3.7 (94)	3.9 (99)	2.6 (67)	1.6 (41)	0.66 (0.30)
	Aluminum	2-oz (59.1-ml)	4.0 (101)	4.3 (109)	2.6 (67)	1.6 (41)	0.66 (0.30)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator - Piston Lubricator - Wick-Feed	Outlet Pressure	Adjustable up to 100 psig (7 bar).
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Filter Drain	Internal automatic drain; optional manual drain
Fluid Media	Compressed air	Pressure Gauge	0 to 160 psig (11 bar); 1/8 NPT gauge ports front and rear
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)	Oil Adjustment	External, no shutoff.
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Panel Mounting	1-3/16 inch (30 mm) hole required
		Construction Material	Filter Element: 5-micron rated polyethylene Filter/Regulator & Lubricator Bodies: Aluminum Bowl: Polycarbonate bowls or aluminum bowls Regulator Dome and Knob: Acetal Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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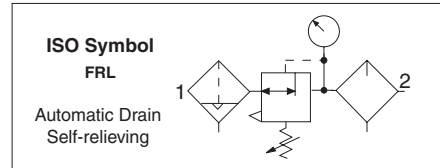
G5.13

In-line Integrated Filter/Regulator plus Lubricator Combinations

MINIATURE Series

Port Sizes: 1/8 & 1/4 – Flow to 24 scfm

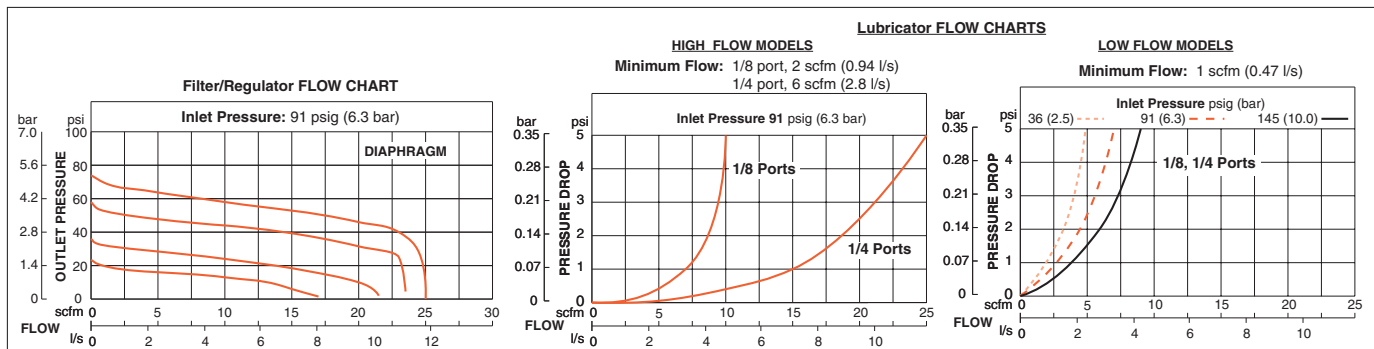
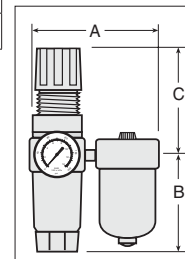
Combination with DIAPHRAGM Type REGULATOR					
Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
Fill Port Lubricator					
1/8	NPTF	5341C1006	5342C1006	5341C1005	5342C1005
	G	C5341C1006	C5342C1006	C5341C1005	C5342C1005
1/4	NPTF	5341C2006	5342C2006	5341C2005	5342C2005
	G	C5341C2006	C5342C2006	C5341C2005	C5342C2005
With QUICK-FILL Cap Lubricator					
1/8	NPTF	5341C1106	5342C1106	5341C1105	5342C1105
	G	C5341C1106	C5342C1106	C5341C1105	C5342C1105
1/4	NPTF	5341C2106	5342C2106	5341C2105	5342C2105
	G	C5341C2106	C5342C2106	C5341C2105	C5342C2105



Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (59.1-ml)	3.7 (94)	3.6 (92)	2.6 (67)	1.6 (41)	0.66 (0.30)
1/8, 1/4	Aluminum	2-oz (59.1-ml)	4.0 (101)	4.3 (109)	2.6 (67)	1.6 (41)	0.66 (0.30)

† Less gauge.

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Diaphragm Lubricator – Week-Feed	Outlet Pressure	Adjustable up to 100 psig (7 bar).
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Filter Drain	Internal Automatic or Manual
Fluid Media	Compressed air	Pressure Gauge	0 to 160 psig (11 bar); 1/8 NPT gauge ports front and rear
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)	Oil Adjustment	Internal; tamper-resistant
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Panel Mounting	1-3/16 inch (30 mm) hole required
		Construction Material	Filter Element: 5-micron rated polyethylene Filter/Regulator & Lubricator Bodies: Aluminum Bowls: Polycarbonate or Aluminum Regulator Dome and Knob: Acetal Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Integrated Filter/Regulator plus Lubricator Combinations

MID-SIZE Series

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

Choose your options (in red) to configure your model number.

5N 00 B 2 1 0 1

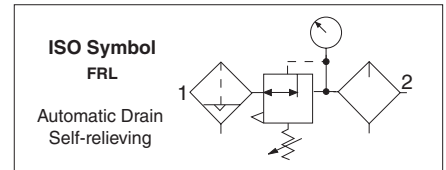
CONNECTIONS	
NPTF Pipe In, Out, Between	00
NPTF Pipe In & Out, Modular Between	09
Modular, Male Ports In & Out	10
Modular, Female Ports In & Out	11

PIPE SIZE	
1/4	2
3/8	3
1/2	4

FILTER DRAIN TYPE	
None	0
Automatic Drain, Plastic Bowl	1
Automatic Drain, Metal Bowl	2
Manual Drain, Plastic Bowl	3
Manual Drain, Metal Bowl	4

Regulator TYPE ADJUSTMENT RANGE	
None	0
0-100 psig (0-6.9 bar)	1
0-50 psig (0-3.4 bar)	3
0-150 psig (0-10 bar)	5

LUBRICATOR FILL TYPE	
None	0
Plastic Bowl	1
Metal Bowl	2
Plastic Bowl, Quick-Fill Cap	3
Metal Bowl, Quick-Fill Cap	4



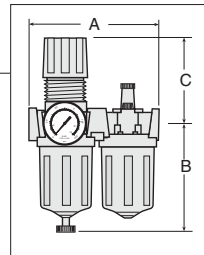
Port Size	Bowl Type	Bowl Capacity	Dimensions* inches (mm)				Weight † lb (kg)
			A	B**	C***	Depth †	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	4.9 (124)	4.6 (116)	3.3 (83)	2.4 (60)	2.94 (1.34)
	Zinc	4-oz (120-ml)	4.9 (124)	4.9 (123)	3.3 (83)	2.4 (60)	2.94 (1.34)

* Dimensions for NPTF Pipe In & Out, Modular Between option; dimensions for other combinations consult ROSS.

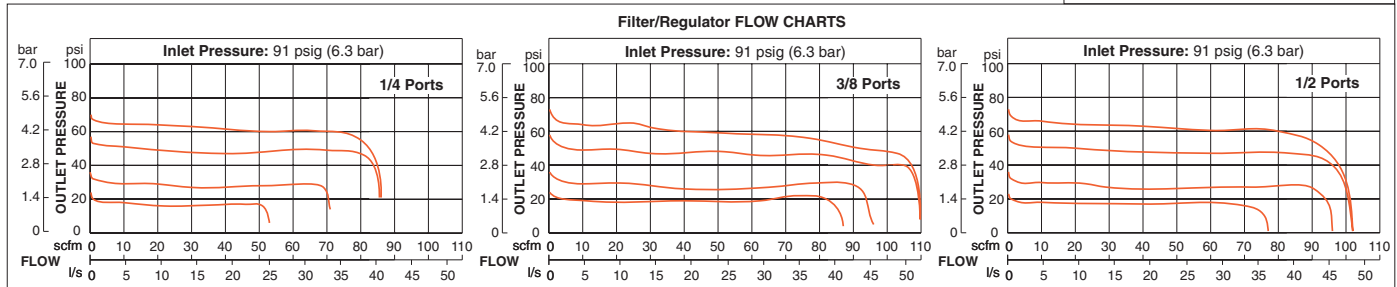
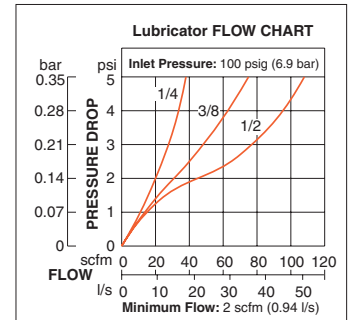
** Bowl removal clearance: add 3.1 (79).

*** Dome removal clearance: add 0.63 (16).

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	936K77
5-µm - Optional	Sintered Bronze	R-KA60F-03E5
20-µm - Optional	Sintered Bronze	R-KA60F-03E4
40-µm - Optional	Sintered Bronze	R-KA60F-03E3



Pressure Gauge included. Includes 2 Female Port Blocks.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Diaphragm Lubricator - Week-Feed	Filter Drain	Internal Automatic or Manual
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Fluid Media	Compressed air	Oil Adjustment	External; tamper-resistant
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)	Panel Mounting	1-9/16 inch (40 mm) hole required
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene
Outlet Pressure	Adjustable up to 100 psig (7 bar).		Filter/Regulator & Lubricator Bodies: Zinc
			Bowls: Polycarbonate bowls with zinc shatterguard, or zinc bowls
			Regulator Dome and Knob: Acetal
		Sight Dome: Nylon	
		Seals: Nitrile	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G5.15

Modular Integrated Filter/Regulator plus Lubricator Combinations

MD3™ Series

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 110 scfm

Choose your options (in red) to configure your model number.

MD3 53P B B 2 C 2 2 Q 1

BOWLS MATERIAL/SIZE	
Polycarbonate Bowls 5.1-oz (151-ml) - on Filter/Regulator and Lubricator	53P
Metal Bowls 6-oz (177-ml) - on Filter/Regulator and Lubricator	53M
Metal Bowl 6-oz (177-ml) - on Filter/Regulator	53E
Metal Bowl 10-oz (295-ml) - on Lubricator	53F
Plastic Bowl 6-oz (177-ml) - on Filter/Regulator	53F
Metal Bowl 10-oz (295-ml) - on Lubricator	53F

ADJUSTMENT RANGE	
0-200 psig (0-14 bar)	A*
0-150 psig (0-10.3 bar)	B
0-100 psig (0-6.9 bar)	C
0-50 psig (0-3.4 bar)	D
Reverse Flow 0-200 psig (0-13.8 bar)	F*
Reverse Flow 0-150 psig (0-10.3 bar)	G
Reverse Flow 0-100 psig (0-6.9 bar)	H
Reverse Flow 0-50 psig (0-3.4 bar)	J

*Must be ordered with metal bowl.

BOWL DRAIN	
Manual Drain	2
Float Drain	0

FILTER ELEMENT TYPE	
40-µm Sintered Bronze	A
5-µm Polyethylene	B
5-µm Sintered Bronze	E
20-µm Sintered Bronze	F

PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 G	B
3/8 G	C
1/2 G	D

CAP COLOR	
Black	2
Yellow	Y

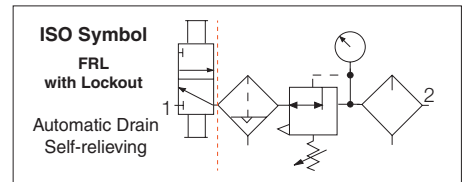
LUBRICATOR FILL TYPE	
None	N
Quick Fill Cap	Q
Fill Port	S

LOCKOUT VALVE	
L-O-X® on outlet side	1
L-O-X® on the inlet side (must also choose Reverse Flow)	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Without Valve	Leave Blank



REPLACEMENT FILTER ELEMENTS*		
Element Rating	Element Material	Model Number
5-µm	Polyethylene	R-A60F-03PE5
5-µm	Sintered Bronze	R-A60F-03E5
20-µm	Sintered Bronze	R-A60F-03E4
40-µm	Sintered Bronze	R-A60F-03E3

* For polycarbonate and metal bowl types.



G5

Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber or Sintered Bronze Regulator – Diaphragm Lubricator - Sight-Feed	Filter Drain	Internal Automatic or Manual
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Fluid Media	Compressed air	Oil Adjustment	External; tamper-resistant
Operating Pressure Filter	Float Drain Models Polycarbonate Bowl: 30 to 150 psig (2 to 10 bar) Metal Bowl: 30-200 psig (2 to 14 bar)	Panel Mounting	2-1/16 inch (52 mm) hole required
Operating Pressure Lubricator	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0-250 psig (0 to 17 bar)	Construction Material	Filter Element: 5-micron rated polyethylene; 5-, 20- or 40-micron rated sintered bronze Filter/Regulator & Lubricator Bodies: Zinc Bowls: Polycarbonate bowl with nylon shatterguard, or aluminum bowl with clear nylon sight glass. Lubricator bowl only: Extended aluminum bowl with clear nylon sight glass
Outlet Pressure	Polycarbonate Bowl: Maximum 150 psig (10 bar) Metal Bowl: Maximum 200 psig (17 bar)	Dome	Nylon
Optional Pressure Adjustment	Adjustable up to 200 psig (14 bar); optional adjusting springs	Sight-Feed Dome	Nylon
	Locking Key: Removable	Seals	Nitrile
		Valve	Brass

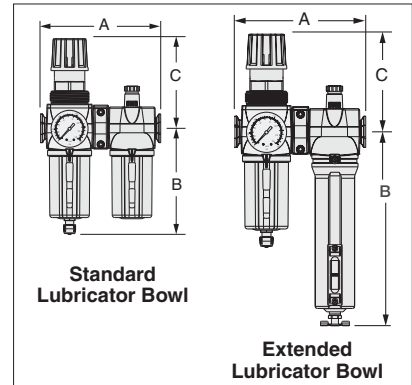
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Integrated Filter/Regulator plus Lubricator Combinations

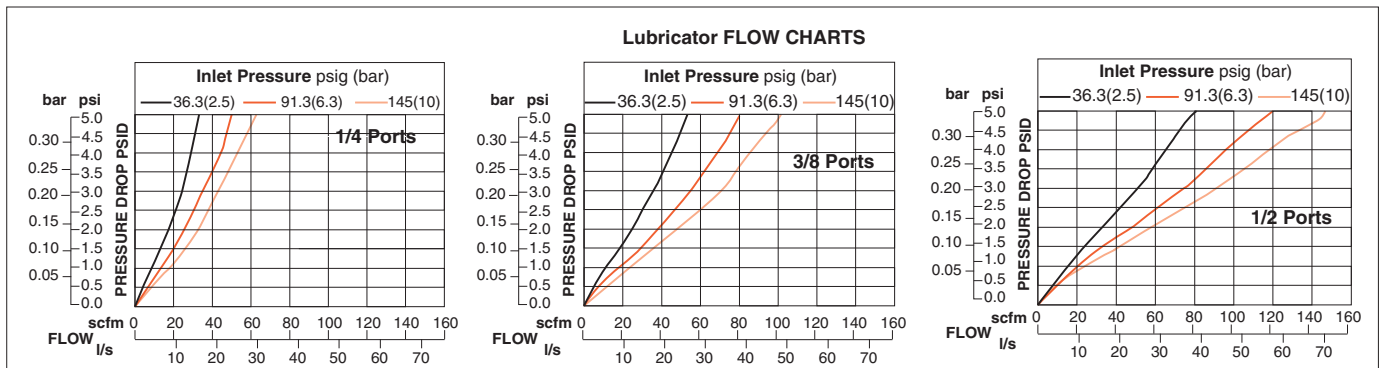
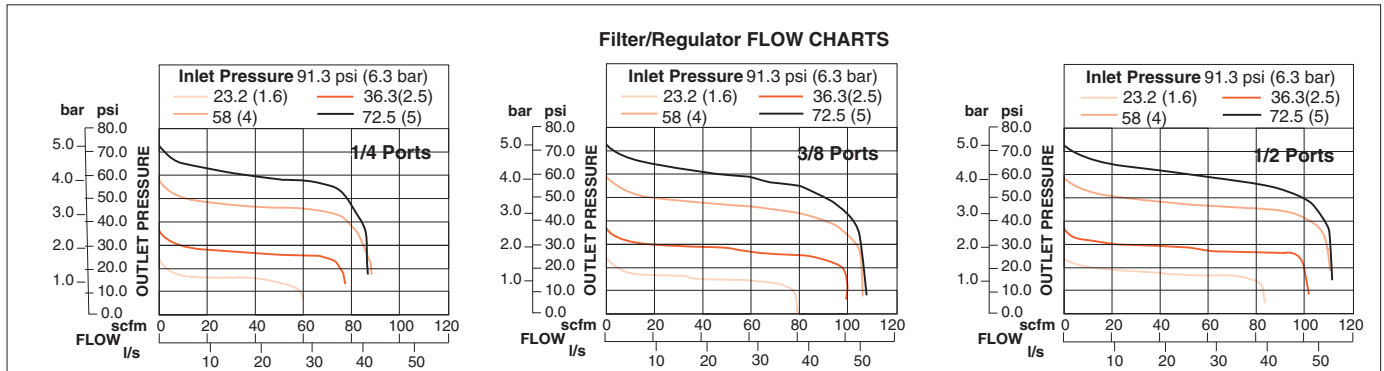
MD3™ Series

Bowl Type	Dimensions inches (mm)				Weight † lb (kg)
	A	B*	C	Depth †	
Polycarbonate	6.46 (164.1)	5.54 (140.6)	4.68 (119)	2.90 (73.7)	4.7 (2.1)
Metal	6.46 (164.1)	6.42 (163.1)	4.68 (119)	2.90 (73.7)	5.1 (2.3)
Extended Metal	6.46 (164.1)	9.37 (238)	4.68 (119)	2.90 (73.7)	5.3 (2.4)

Lockout: With the lockout valve, add 2.3 (58) to dimension A.
 * Bowl (standard) removal clearance: add 3.1 (79)
 * Bowl (extended) removal clearance: add 6.1 (155)
 † Less gauge.



AIR FLOW and CONSTRUCTION DATA



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Modular Integrated Filter/Regulator plus Lubricator Combinations

FULL-SIZE Series

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 140 scfm

Choose your options (in red) to configure your model number.

5E 00 B 2 1 0 5

CONNECTIONS	
NPTF Pipe In, Out, Between	00
NPTF Pipe In & Out, Modular Between	09
Modular, Male Ports In & Out	10
Modular, Female Ports In & Out	11

PIPE SIZE	
1/4	2
3/8	3
1/2	4
3/4	5

Regulator TYPE ADJUSTMENT RANGE	
None	0
0-125 psig (0-8.6 bar)	2
0-50 psig (0-3.4 bar)	4
0-175 psig (0-12 bar)	6

FILTER DRAIN TYPE	
None	0
Automatic Drain, Plastic Bowl	1
Automatic Drain, Metal Bowl	2
Manual Drain, Plastic Bowl	3
Manual Drain, Metal Bowl	4

LUBRICATOR FILL TYPE	
None	0
Sight-Feed, Plastic Bowl	1
Sight-Feed, Metal Bowl	2
Sight-Feed, Plastic Bowl, Quick-Fill Cap	3
Sight-Feed, Metal Bowl, Quick-Fill Cap	4
Wick-Feed, Plastic Bowl	5
Wick-Feed, Metal Bowl	6
Wick-Feed, Plastic Bowl, Quick-Fill Cap	7
Wick-Feed, Metal Bowl, Quick-Fill Cap	8



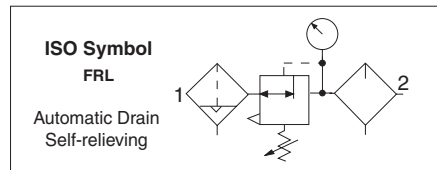
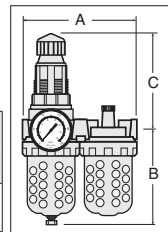
Port Size	Bowl Type	Dimensions* inches (mm)				Weight † lb (kg)
		A	B**	C***	Depth †	
1/4, 3/8, 1/2, 3/4	Polycarbonate 8-oz (240-ml)	6.7 (170)	5.8 (146)	5.8 (146)	3.5 (89)	5.94 (2.69)
	Metal 8-oz (240-ml)	6.7 (170)	6.4 (163)	5.8 (146)	3.5 (89)	5.94 (2.69)

* Dimensions for NPTF Pipe In & Out, Modular Between option; dimensions for other combinations consult ROSS.

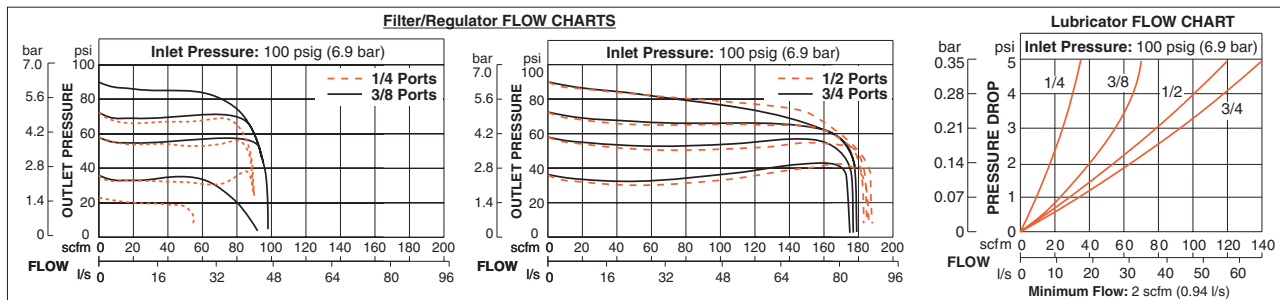
** Bowl removal clearance: add 3.1 (79).

*** Dome removal clearance: add 0.63 (16).

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	939K77
5-µm - Optional	Sintered Bronze	R-KA103-03E5
20-µm - Optional	Sintered Bronze	R-KA103-03E4
40-µm - Optional	Sintered Bronze	R-KA103-03E3



Pressure Gauge included. Units with Threaded Ports Include 2 female port blocks.

Options: External Automatic Drain, refer to page G6.7.

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Diaphragm Lubricator – Sight-Feed, or Week-Feed	Pressure Adjustment	Locking Key: Removable
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Filter Drain	Internal Automatic or Manual
Fluid Media	Compressed air	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar) Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Oil Adjustment	External; tamper-resistant
Outlet Pressure	Adjustable up to 125 psig (9 bar).	Construction Material	Filter Element: 5-micron rated polyethylene Filter/Regulator & Lubricator Bodies: Zinc Bowls: Polycarbonate bowls with steel shatterguard, or zinc bowls with clear nylon sight glasses Regulator Dome: Nylon Regulator Knob: Acetal Sight Dome: Clear Nylon Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Integrated Filter/Regulator plus Lubricator Combinations

MD4™ Series

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 205 scfm

Choose your options (in red) to configure your model number.

MD4 **53P** **B** **B** **1** **B** **5** **2** **S** **1**

BOWLS MATERIAL/SIZE	
Polycarbonate Bowls 9-oz (270-ml) - on Filter/Regulator and Lubricator	53P
Metal Bowls 9-oz (270-ml) - on Filter/Regulator and Lubricator	53M
Metal Bowl 9-oz (270-ml) - on Filter/Regulator	
Extended Metal Bowl 15-oz (450-ml) - on Lubricator	53E
Plastic Bowl 9-oz (270-ml) - on Filter/Regulator	
Extended Metal Bowl 15-oz (450-ml) - on Lubricator	53F

ADJUSTMENT RANGE	
0-175 psig (0-12 bar) with 0-200 psig (0-14 bar) gauge	A*
0-125 psig (0-8.6 bar) standard with 0-200 psig (0-14 bar) gauge	B
0-50 psig (0-3.4 bar) with 0-60 psig (0-4 bar) gauge	C
0-20 psig (0-1.4 bar) with 0-60 psig (0-4 bar) gauge	D
Reverse Flow 0-175 psig (0-12 bar) with 0-200 psig (0-14 bar) gauge	F*
Reverse Flow 0-125 psig (0-8.6 bar) standard with 0-200 psig (0-14 bar) gauge	G
Reverse Flow 0-50 psig (0-3.4 bar) with 0-60 psig (0-4 bar) gauge	H
Reverse Flow 0-20 psig (0-1.4 bar) with 0-60 psig (0-4 bar) gauge	J

*Must be ordered with metal bowl.

PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 G	C
1/2 G	D
3/4 G	E

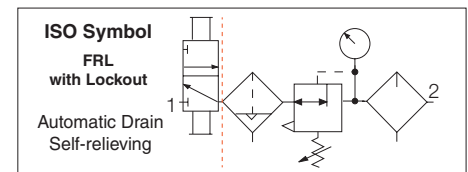
CAP COLOR	
Black	2
Yellow	Y

FILTER REGULATOR DRAIN TYPE	
Automatic Drain	1
Manual Drain	2

FILTER ELEMENT TYPE	
40-µm Sintered Bronze	A
5-µm Polyethylene	B

Lockout Valve	
L-O-X® on outlet side	1
L-O-X® on the inlet side (must also choose Reverse Flow)	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Without Valve - Leave Blank	Leave Blank

LUBRICATOR FILL TYPE	
Quick Fill Cap	Q
Fill Port	S



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Element Number
5-µm - Standard	Polyethylene	R-A115-106PE5
40-µm - Standard	Sintered Bronze	R-A115-106E3
5-µm - Optional	Sintered Bronze	R-A115-106E5
20-µm - Optional	Sintered Bronze	R-A115-106E4

Options: External Bowl Drains, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber, or Sintered Bronze Regulator – Diaphragm Lubricator - Sight-Feed	Pressure Adjustment	Locking Key: Removable
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Filter Drain	Internal Automatic or Manual
Fluid Media	Compressed air	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)	Oil Adjustment	External; tamper-resistant
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene; optional 40-micron element
Outlet Pressure	Adjustable up to 125 psig (9 bar).		Filter/Regulator & Lubricator Bodies: Zinc
			Bowls: Aluminum bowl with clear nylon sight glass, polycarbonate bowl with steel shatterguard, or extended aluminum lubricator bowl with clear nylon sight glass
			Regulator Valve: Brass
		Sight Dome: Clear Nylon	
		Seals: Nitrile	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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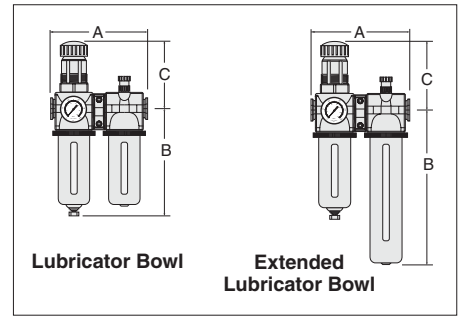
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Modular Integrated Filter/Regulator plus Lubricator Combinations

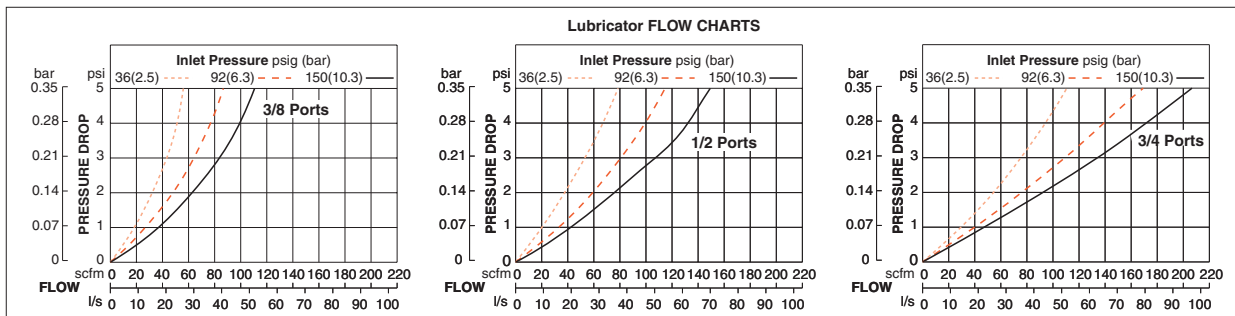
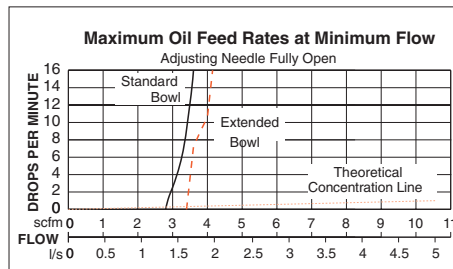
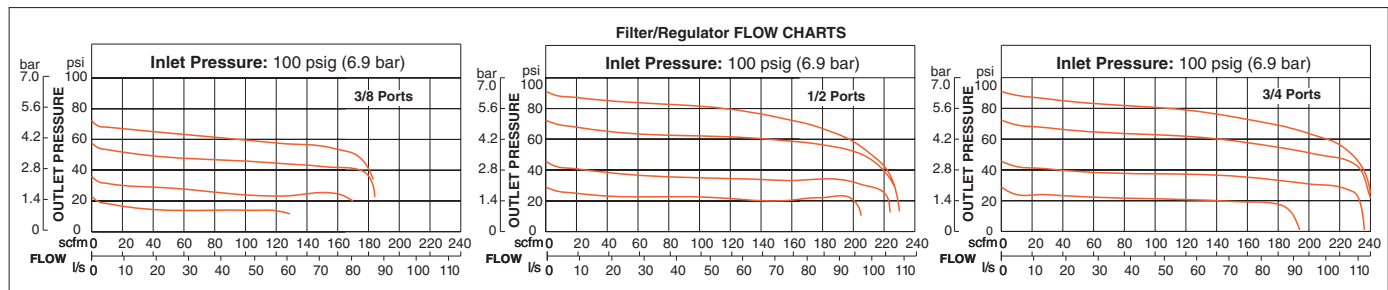
MD4™ Series

Port Size	Bowl Type	Dimensions inches (mm)				Weight † lb (kg)
		A	B*	C	Depth †	
3/8, 1/2, 3/4	Polycarbonate	7.3 (186)	7.7 (195)	5.4 (137)	2.9 (73)	5.81 (2.64)
	Metal	7.3 (186)	7.6 (193)	5.4 (137)	2.9 (73)	5.81 (2.64)
	Extended Metal	7.2 (183)	10.6 (269)	4.68 (119)	5.4 (137)	6.00 (2.73)

Lockout: With the lockout valve, add 2.3 (58) to dimension A.
 * Bowl (standard) removal clearance: add 4.2 (107).
 * Bowl (extended) removal clearance: add 6.1 (155)
 † Less gauge.



AIR FLOW and CONSTRUCTION DATA



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G

Modular Filter, Regulator and Lubricator Combinations

BANTAM Series

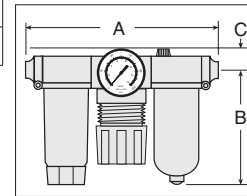
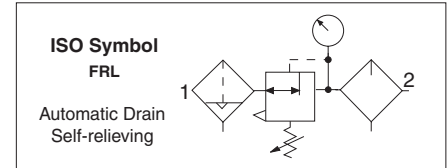
Port Sizes: 1/8 & 1/4 – Flow to 22 scfm

Combination with PISTON Type Regulator - Fill Port Lubricator#				
Port Size	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
	Model Number	Model Number	Model Number	Model Number
With THREADED PORTS				
1/8 NPTF	5B01C0115	5B01C0216	5B01C0315	5B01C0416
1/8 G	C5B01C0115	C5B01C0216	C5B01C0315	C5B01C0416
1/4 NPTF	5B02C0115	5B02C0216	5B02C0315	5B02C0416
1/4 G	CC5B02C0115	C5B02C0216	C5B02C0315	C5B02C0416
With Quick Connect TUBE FITTINGS				
1/4	5B03C0115	5B03C0216	5B03C0315	5B03C0416
3/8	5B04C0115	5B04C0216	5B04C0315	5B04C0416
4mm	5B05C0115	5B05C0216	5B05C0315	5B05C0416
6mm	5B06C0115	5B06C0216	5B06C0315	5B06C0416
8mm	5B07C0115	5B07C0216	5B07C0315	5B07C0416
10mm	5B08C0115	5B08C0216	5B08C0315	5B08C0416

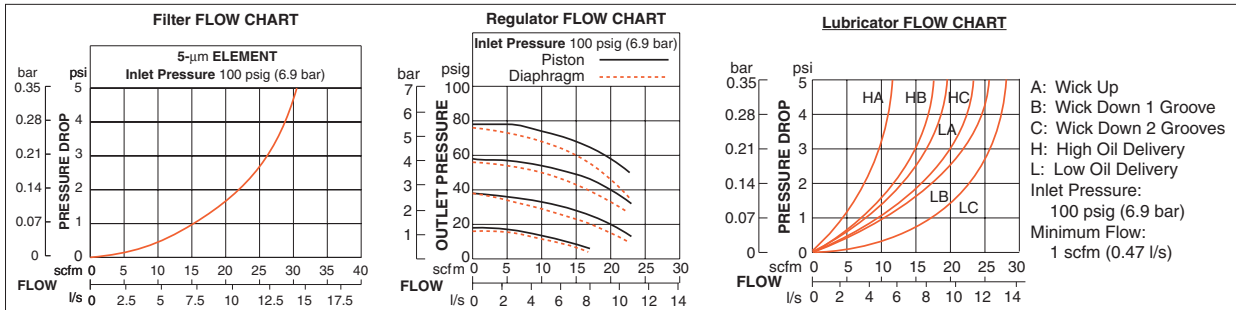
#Change the ninth digit to "7" for quick fill lubricator cap e.g., 5B01C0117.

Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B**	C	Depth †	
1/8, 1/4 (NPTF or G)	6.3 (160)	3.6 (92)	1.7 (43)	3.6 (92)	0.53 (0.24)
Models below have quick-connect tube fittings.					
1/4	6.7 (170)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
3/8	7.2 (183)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
4, 6 mm	6.7 (170)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
8 mm	6.4 (163)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
10 mm	7.2 (183)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)

** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97).
† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston Lubricator - Wick-Feed	Outlet Pressure	Adjustable up to 100 psig (7 bar)
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Adjustment	Locking Key: Removable
Fluid Media	Compressed air	Filter Drain	Internal Automatic or Manual
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)	Pressure Gauge	0 to 60 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Oil Adjustment	External; no shutoff
		Panel Mounting	1-3/16 inch (30 mm) hole required
		Construction Material	Filter Element: 5-micron rated polyethylene Filter/Regulator & Lubricator Bodies: Acetal Bowls: 2-oz (60-ml) polycarbonate bowls or aluminum bowls Regulator Dome and Knob: Acetal Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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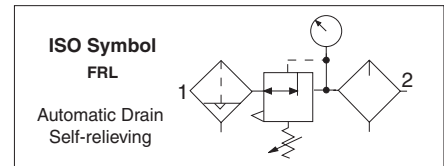
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G5.21

Modular Filter, Regulator and Lubricator Combinations

BANTAM Series

Port Sizes: 1/8 & 1/4 – Flow to 22 scfm



Port Size	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
	Model Number	Model Number	Model Number	Model Number
With THREADED PORTS*				
1/8 NPTF	5B01C0125	5B01C0226	5B01C0325	5B01C0426
1/8 G	C5B01C0125	C5B01C0226	C5B01C0325	C5B01C0426
1/4 NPTF	5B02C0125	5B02C0226	5B02C0325	5B02C0426
1/4 G	C5B02C0125	C5B02C0226	C5B02C0325	C5B02C0426
With Quick Connect TUBE FITTINGS				
1/4	5B03C0125	5B03C0226	5B03C0325	5B03C0426
3/8	5B04C0125	5B04C0226	5B04C0325	5B04C0426
4mm	5B05C0125	5B05C0226	5B05C0325	5B05C0426
6mm	5B06C0125	5B06C0226	5B06C0325	5B06C0426
8mm	5B07C0125	5B07C0226	5B07C0325	5B07C0426
10mm	5B08C0125	5B08C0226	5B08C0325	5B08C0426

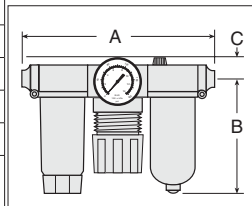
#Change the ninth digit to "7" for quick fill lubricator cap e.g., 5B01C0127.

Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B**	C	Depth †	
1/8, 1/4	6.3 (160)	3.6 (92)	1.7 (43)	3.6 (92)	0.53 (0.24)

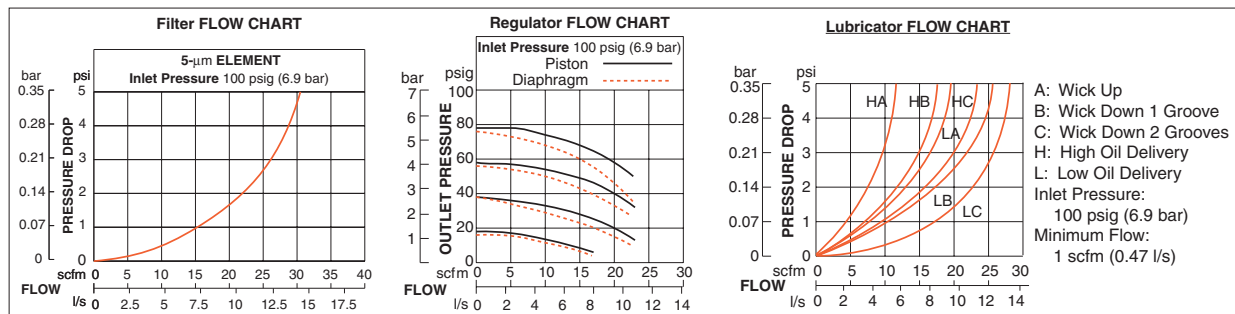
Models below have quick-connect tube fittings.

1/4	6.7 (170)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
3/8	7.2 (183)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
4, 6 mm	6.7 (170)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
8 mm	6.4 (163)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
10 mm	7.2 (183)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)

** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97).
† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Diaphragm Lubricator - Wick-Feed	Outlet Pressure	Adjustable up to 100 psig (7 bar)
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Filter Drain	Internal Automatic or Manual
Fluid Media	Compressed air	Pressure Gauge	0 to 60 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)	Oil Adjustment	External; no shutoff
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Panel Mounting	1-3/16 inch (30 mm) hole required
		Construction Material	Filter Element: 5-micron rated polyethylene Filter/Regulator & Lubricator Bodies: Acetal Bowls: 2-oz (60-ml) polycarbonate bowls or aluminum bowls Regulator Dome and Knob: Acetal Seals: Nitrile

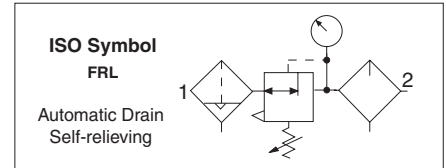
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

In-line Filter, Regulator and Lubricator Combinations

MINIATURE Series

Port Sizes: 1/8 & 1/4 – Flow to 19 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
FILL Port Lubricator					
1/8	NPTF	5331C1006	5332C1006	5331C1005	5332C1005
	G	C5331C1006	C5332C1006	C5331C1005	C5332C1005
1/4	NPTF	5331C2006	5332C2006	5331C2005	5332C2005
	G	C5331C2006	C5332C2006	C5331C2005	C5332C2005
With QUICK-FILL CAP					
1/8	NPTF	5331C1106	5332C1106	5331C1105	5332C1105
	G	C5331C1106	C5332C1106	C5331C1105	C5332C1105
1/4	NPTF	5331C2106	5332C2106	5331C2105	5332C2105
	G	C5331C2106	C5332C2106	C5331C2105	C5332C2105

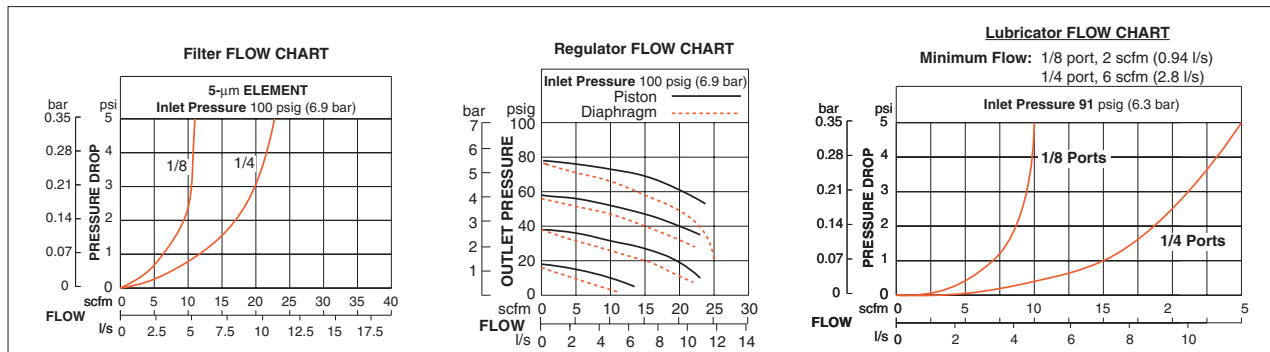
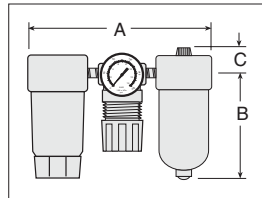


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	5.5 (140)	3.6 (90)	0.7 (17)	1.6 (41)	0.76 (0.34)
	Aluminum	2-oz (60-ml)	5.5 (140)	4.3 (109)	0.7 (17)	1.6 (41)	0.76 (0.34)

† Less gauge.

REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3



Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston Lubricator - Wick-Feed	Outlet Pressure	Adjustable up to 100 psig (7 bar)
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Filter Drain	Internal Automatic or Manual
Fluid Media	Compressed air	Pressure Gauge	0 to 60 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: Up to 150 psig (up to 10 bar) Metal Bowl: Up to 200 psig (up to 14 bar)	Oil Adjustment	Internal; tamper-resistant
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Panel Mounting	1-3/16 inch (30 mm) hole required
		Construction Material	Filter Element: 5-micron rated polyethylene Heads: Aluminum Bowls: Polycarbonate, or Aluminum Regulator Dome and Knob: Acetal Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G5.23

G5

G

Modular Filter, Regulator and Lubricator Combinations

MID-SIZE Series

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

Choose your options (in red) to configure your model number.

5M **00** **B** **2** **1** **0** **1**

PIPE THREAD	
NPTF (Blank)	
BSPB	C

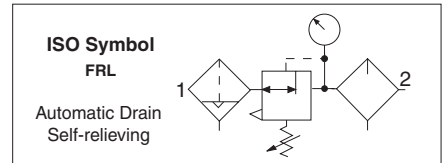
CONNECTIONS	
Pipe In, Out, Between	00
Pipe In & Out, Modular Between	09
Modular, Male Ports In & Out	10
Modular, Female Ports In & Out	11

PIPE SIZE	
1/4	2
3/8	3
1/2	4

ADJUSTMENT RANGE	
None	0
0-100 psig (0-6.9 bar)	1
0-50 psig (0-3.4 bar)	3
0-150 psig (0-10 bar)	5

LUBRICATOR BOWL & FILL TYPE	
None	0
Plastic Bowl, Fill Port	1
Metal Bowl, Fill Port	2
Plastic Bowl, Quick-Fill Cap	3
Metal Bowl, Quick-Fill Cap	4

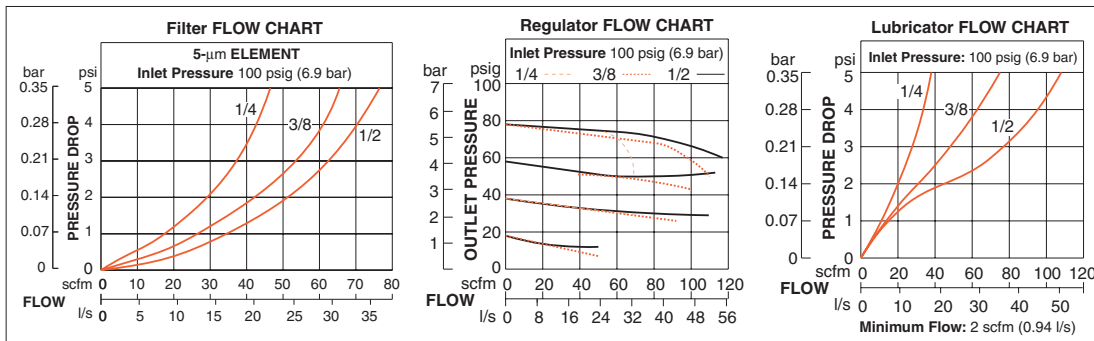
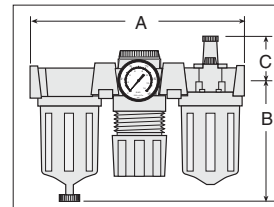
FILTER BOWL & DRAIN TYPE	
None	0
Plastic Bowl, Automatic Drain	1
Metal Bowl, Automatic Drain	2
Plastic Bowl, Manual Drain	3
Metal Bowl, Manual Drain	4



Port Size	Bowl Type	Bowl Capacity	Dimensions* inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	8.5 (215)	4.6 (117)	1.8 (46)	2.8 (71)	3.75 (1.70)
	Zinc	4-oz (120-ml)	8.5 (215)	4.7 (119)	1.8 (46)	2.8 (71)	3.75 (1.70)

* Dimensions for NPTF Pipe In & Out, Modular Between option; dimensions for other combinations consult ROSS.
† Less gauge.

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	936K77
5-µm - Optional	Sintered Bronze	R-KA60F-03E5
20-µm - Optional	Sintered Bronze	R-KA60F-03E4
40-µm - Optional	Sintered Bronze	R-KA60F-03E3



Pressure Gauge included. Includes 2 Female Port Blocks. Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber	Outlet Pressure	Adjustable up to 100 psig (7 bar)
	Regulator – Piston		Filter Drain
Temperature	Lubricator – Sight-Feed	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Oil Adjustment	External; tamper-resistant
Fluid Media	Compressed air	Panel Mounting	1-9/16 inch (40 mm) hole required
Operating Pressure	Automatic Drain Models	Construction Material	Filter Element: 5-micron rated polyethylene
	Polycarbonate Bowl: Up to 150 psig (up to 10 bar)		Heads: Zinc
	Metal bowl: Up to 200 psig (up to 14 bar)		Bowls: Polycarbonate bowls with zinc shatterguard, or zinc bowls
	Manual Drain Models		Sight Dome: Clear Nylon
	Polycarbonate bowl: 0 to 150 psig (0 to 10 bar)		Seals: Nitrile
	Metal Bowl: 0 to 200 psig (0 to 14 bar)		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Filter, Regulator and Lubricator Combinations

MD3™ Series

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 110 scfm

Choose your options (in red) to configure your model number.

MD3 53P B A 6 C 2 2 Q 1

BOWLS MATERIAL/SIZE	
Polycarbonate Bowl 5.1-oz (151-ml) - on Filter and Lubricator	53P
Metal Bowls 6-oz (177-ml) - on Filter and Lubricator	53M
Metal Bowl 6-oz (177-ml) - on Filter	53E
Metal Bowl 10-oz (295-ml) - on Lubricator	53F
Plastic Bowl 6-oz (177-ml) - on Filter	53G
Metal Bowl 10-oz (295-ml) - on Lubricator	53H

ADJUSTMENT RANGE	
0-200 psig (0-14 bar)	A*
0-150 psig (0-10.3 bar)	B
0-100 psig (0-6.9 bar)	C
0-50 psig (0-3.4 bar)	D
No Regulator	E
Reverse Flow 0-200 psig (0-14 bar)	F*
Reverse Flow 0-150 psig (0-10.3 bar)	G
Reverse Flow 0-100 psig (0-6.9 bar)	H
Reverse Flow 0-50 psig (0-3.4 bar)	J

*Must be ordered with metal bowl.

FILTER ELEMENT TYPE	
40-µm Sintered Bronze	A
5-µm Polyethylene	B
5-µm Sintered Bronze	E
20-µm Sintered Bronze	F

BOWL DRAIN	
Manual Drain	6
Float Drain	9

PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 G	B
3/8 G	C
1/2 G	D

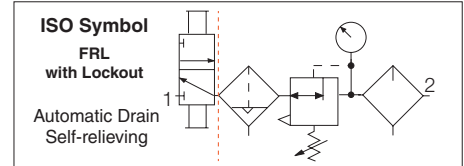
CAP COLOR	
Black	2
Yellow	Y

LUBRICATOR FILL TYPE	
No Lubricator	N
Quick Fill Cap	Q
Fill Port	S

LOCKOUT VALVE	
L-O-X® on outlet side	1
L-O-X® on the inlet side (must also choose Reverse Flow)	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Without Valve	Leave Blank



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm	Polyethylene	R-A60F-03PE5
	Sintered Bronze	R-A60F-03E5
20-µm	Sintered Bronze	R-A60F-03E4
40-µm	Sintered Bronze	R-A60F-03E3



Options: Drains: For additional information, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber or Sintered Bronze Regulator – Diaphragm Lubricator - Sight-Feed	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Regulator Pressure	Self-relieving; Non-relieving optional
Fluid Media	Compressed air	Oil Adjustment	External; tamper-resistant
Operating Pressure Filter	Float Drain Models Polycarbonate Bowl: 30 to 150 psig (2 to 10 bar) Metal Bowl: 30 to 200 psig (2 to 14 bar) Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 250 psig (0 to 17 bar)	Panel Mounting	2-1/16 inch (52 mm) hole required
Operating Pressure Lubricator	Polycarbonate Bowl: Maximum 150 psig (10 bar) Metal Bowl: Maximum 200 psig (17 bar)	Construction Material	Filter Element: 5-micron rated polyethylene; 5-, 20- or 40-micron rated sintered bronze
Outlet Pressure	Adjustable up to 200 psig (14 bar); optional adjusting springs		Filter/Regulator & Lubricator Bodies: Zinc
Optional Pressure Adjustment	Locking Key: Removable		Bowls: Polycarbonate with nylon shatterguard, or aluminum bowl with clear nylon sight glass. Lubricator bowl only: extended aluminum bowl with clear nylon sight glass
Filter Drain	Internal Automatic or Manual		Dome: Nylon
			Knob: Acetal
		Sight-Feed Dome: Nylon	
		Seals: Nitrile	
		Valve: Brass	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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G5.25

G5

G

Modular Filter, Regulator and Lubricator Combinations

MD3™ Series

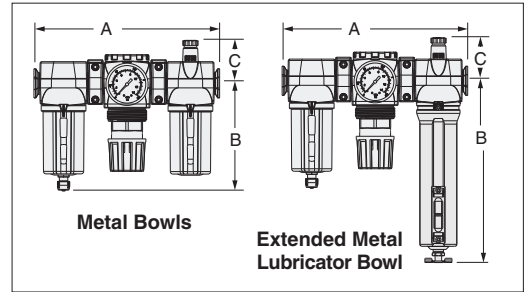
Port Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
1/2, 3/8, 1/2	Polycarbonate	9.72 (247.4)	5.54 (140.6)	2.21 (56.2)	2.90 (73.7)	6.1 (2.8)
	Aluminum	9.72 (247.4)	6.42 (163.1)	2.21 (56.2)	2.90 (73.7)	6.4 (2.9)
	Extended Aluminum	9.72 (247.4)	9.37 (238)	2.21 (56.2)	2.90 (73.7)	6.6 (3.0)

Lockout: With the lockout valve, add 2.3 (58) to dimension A.

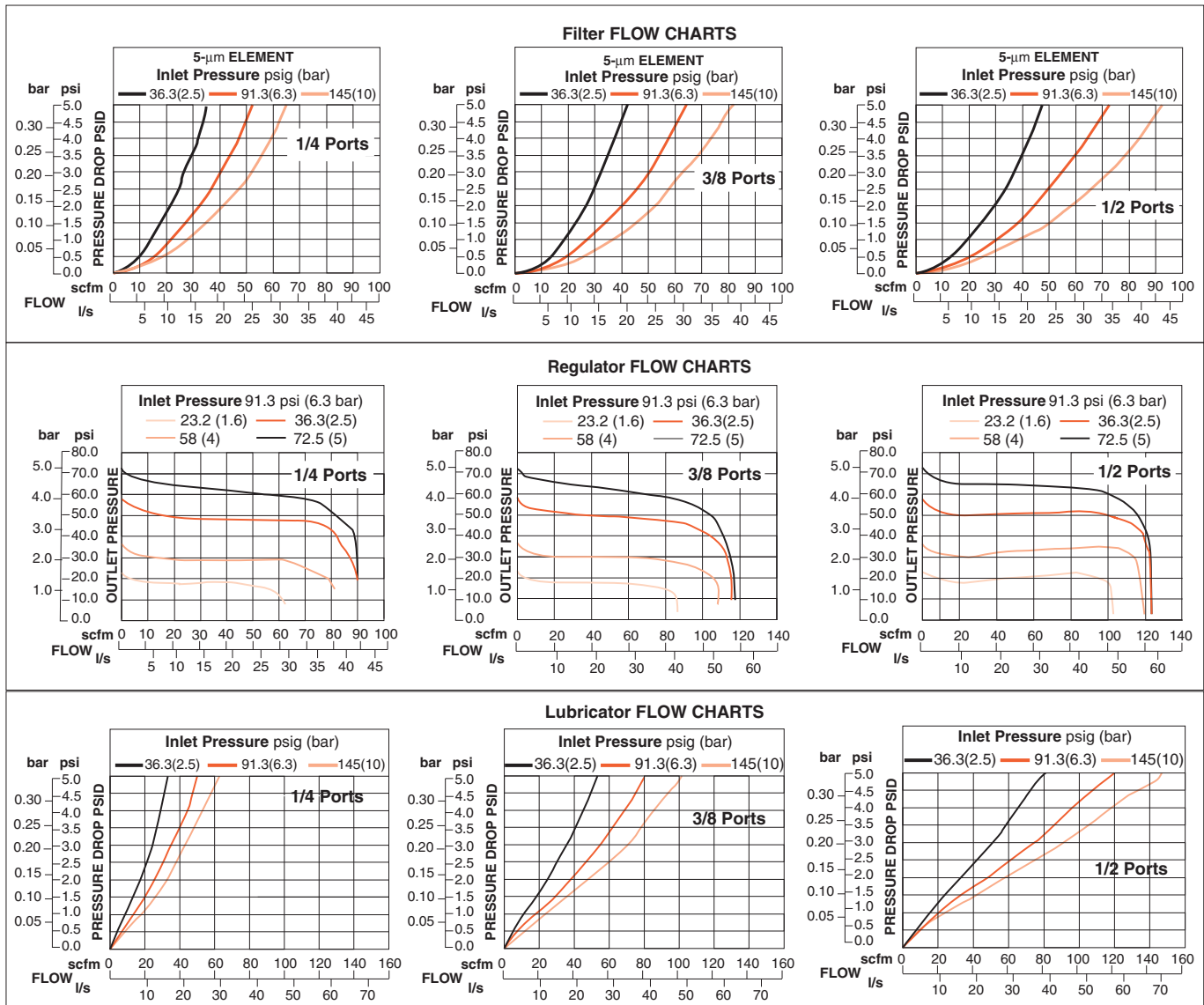
* Bowl (standard) removal clearance: add 3.1 (79)

* Bowl (extended) removal clearance: add 6.1 (155)

Dimensions above reflect less gauge.



AIR FLOW and CONSTRUCTION DATA



G5

G



Modular Filter, Regulator and Lubricator Combinations

FULL-SIZE Series

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 138 scfm

Choose your options (in red) to configure your model number.

5F
00
B
2
1
0
5

PIPE THREAD	
NPTF (Blank)	
G	C

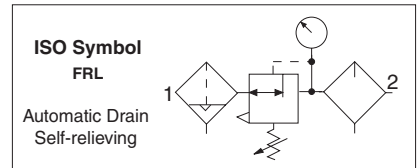
PIPE SIZE	
1/4	2
3/8	3
1/2	4
3/4	5

REGULATOR TYPE	
ADJUSTMENT RANGE	
None	0
0-125 psig (0-8.6 bar)	2
0-50 psig (0-3.4 bar)	4
0-175 psig (0-12 bar)	6

CONNECTIONS	
Pipe In, Out, Between	00
Pipe In & Out, Modular Between	09
Modular, Male Ports In & Out	10
Modular, Female Ports In & Out	11

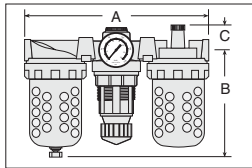
FILTER DRAIN & BOWL TYPE	
None	0
Automatic Drain, Plastic Bowl	1
Automatic Drain, Metal Bowl	2
Manual Drain, Plastic Bowl	3
Manual Drain, Metal Bowl	4

LUBRICATOR FILL & BOWL TYPE	
None	0
Sight-Feed, Plastic Bowl, Fill Port	1
Sight-Feed, Metal Bowl, Fill Port	2
Sight-Feed, Plastic Bowl, Quick-Fill Cap	3
Sight-Feed, Metal Bowl, Quick-Fill Cap	4
Wick-Feed, Plastic Bowl, Fill Port	5
Wick-Feed, Metal Bowl, Fill Port	6
Wick-Feed, Plastic Bowl, Quick-Fill Cap	7
Wick-Feed, Metal Bowl, Quick-Fill Cap	8

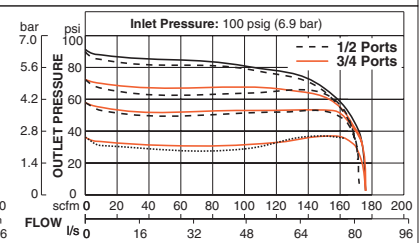
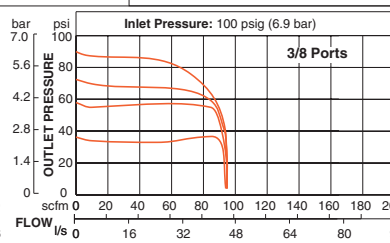
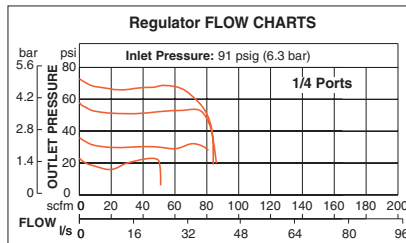
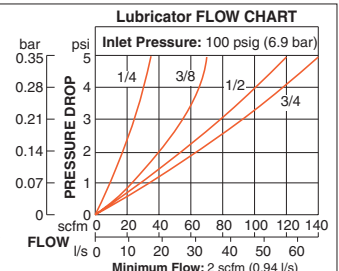
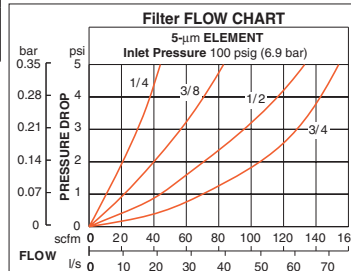


Port Size	Bowl Type	Bowl Capacity	Dimensions* inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	10.1 (256)	5.8 (147)	1.3 (33)	2.8 (71)	7.06 (3.20)
	Zinc	8-oz (240-ml)	10.1 (256)	6.4 (163)	1.3 (33)	2.8 (71)	7.06 (3.20)

* Dimensions for NPTF Pipe In & Out, Modular Between option; dimensions for other combinations consult ROSS. † Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	939K77
5-µm - Optional	Sintered Bronze	R-KA103-03E5
20-µm - Optional	Sintered Bronze	R-KA103-03E4
40-µm - Optional	Sintered Bronze	R-KA103-03E3



Pressure Gauge included. Units with Threaded Ports Include 2 female port blocks.
Options: Electronic Drain, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston Lubricator - Sight-Feed	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Adjustment	Locking Key: Removable
Fluid Media	Compressed air	Oil Adjustment	External; tamper-resistant
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar) Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)	Panel Mounting	1-9/16 inch (40 mm) hole required
Outlet Pressure	Adjustable up to 125 psig (9 bar)	Construction Material	Filter Element: 5-micron rated polyethylene Bowls: Zinc bowl with clear nylon sight glass, or polycarbonate bowl with steel shatterguard Bowl Rings: Aluminum Regulator Dome: Nylon Regulator Knob: Acetal Sight Dome: Clear Nylon Seals: Nitrile
Filter Drain	Internal Automatic or Manual		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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Modular Filter, Regulator and Lubricator Combinations

MD4™ Series

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 205 scfm

Choose your options (in red) to configure your model number.

MD4 53P B A 6 B 3 2 Q 1

BOWLS MATERIAL/SIZE	
Polycarbonate Bowls 9-oz (270-ml) - on Filter and Lubricator	53P
Metal Bowls 9-oz (270-ml) - on Filter and Lubricator	53M
Metal Bowl 9-oz (270-ml) - on Filter	53E
Extended Metal Bowl 15-oz (450-ml) - on Lubricator	53F
Plastic Bowl 9-oz (270-ml) - on Filter	
Extended Metal Bowl 15-oz (450-ml) - on Lubricator	

REGULATOR ADJUSTMENT RANGE	
0-175 psig (0-12 bar)	A*
0-125 psig (0-8.6 bar)	B
0-50 psig (0-3.4 bar)	C
0-20 psig (0-1.4 bar)	D
No Regulator	E
Reverse Flow 0-175 psig (0-12 bar)	F*
Reverse Flow 0-125 psig (0-8.6 bar)	G
Reverse Flow 0-50 psig (0-3.4 bar)	H
Reverse Flow 0-20 psig (0-1.4 bar)	J
*Must be ordered with metal bowl.	

PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 G	C
1/2 G	D
3/4 G	E

CAP COLOR	
Black	2
Yellow	Y

LUBRICATOR FILL TYPE	
No Lubricator	N
Quick Fill Cap	Q
Fill Port	S

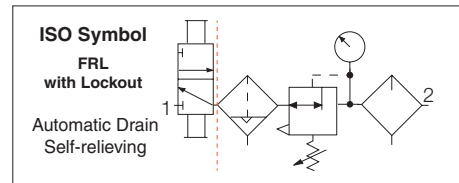
FILTER REGULATOR DRAIN TYPE	
Automatic Drain	5
Manual Drain	6

FILTER ELEMENT TYPE	
40-µm Sintered bronze	A
5-µm Polyethylene	B

LOCKOUT VALVE	
L-O-X® on outlet side	1
L-O-X® on the inlet side (must also choose Reverse Flow)	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Without Valve	Leave Blank



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Element Number
5-µm - Standard	Polyethylene	R-A115-106PE5
40-µm - Standard	Sintered Bronze	R-A115-106E3
5-µm - Optional	Sintered Bronze	R-A115-106E5
20-µm - Optional	Sintered Bronze	R-A115-106E4



G5

Options: External Bowl Drains, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-5.

G

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber, or Sintered Bronze Regulator – Piston Lubricator – Sight-Feed	Pressure Adjustment	Locking Key: Removable
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Oil Adjustment	External; tamper-resistant
Fluid Media	Compressed air	Construction Material	Filter Element: 5-micron rated polyethylene or 40-micron element Heads: Zinc Bowls: Aluminum bowl with clear nylon sight glass, polycarbonate bowl with steel shatterguard; extended aluminum lubricator bowl with two clear nylon sight glasses Bowl Rings: Nylon Regulator Dome: Nylon Regulator Knob: Acetal Sight Dome: Clear Nylon Seals: Nitrile
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar) Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		
Outlet Pressure	Adjustable up to 125 psig (9 bar)		
Filter Drain	Internal Automatic or Manual		
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.		

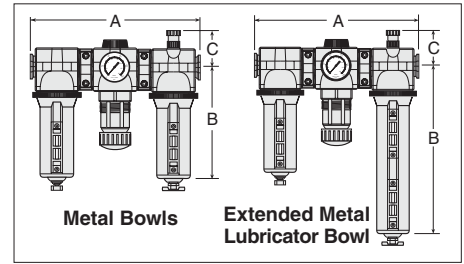
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Filter, Regulator and Lubricator Combinations

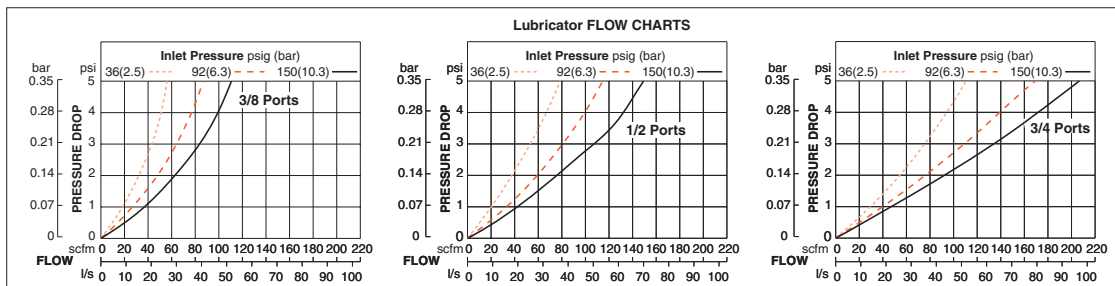
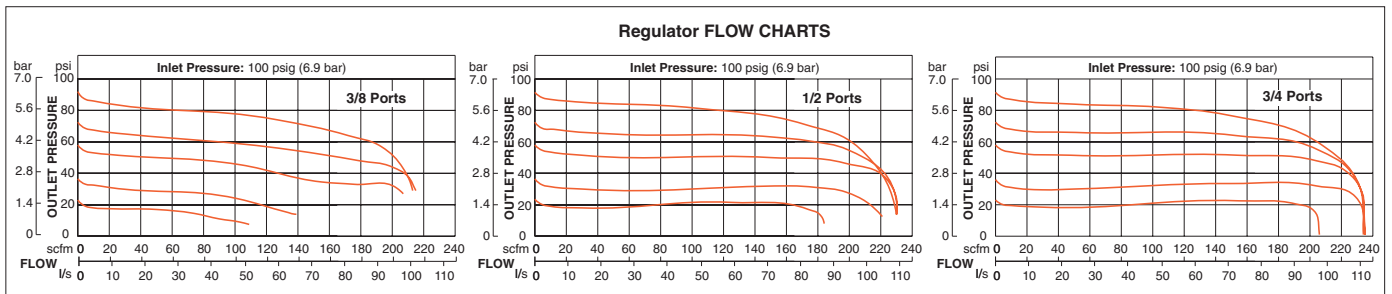
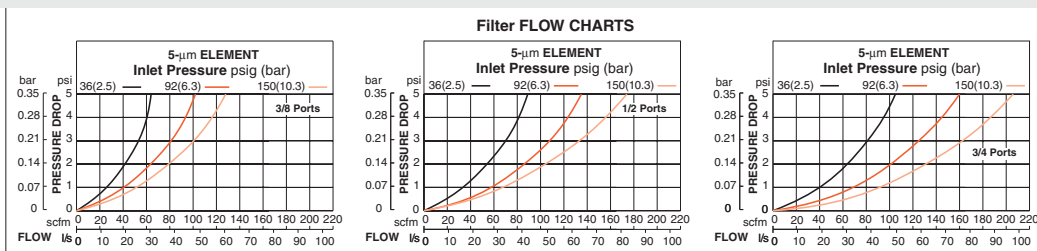
MD4™ Series

Port Size	Bowl Type	Dimensions inches (mm)				Weight † lb (kg)
		A	B*	C	Depth †	
3/8, 1/2, 3/4	Polycarbonate	10.9 (276)	7.7 (195)	2.2 (56)	2.9 (73)	6.94 (3.15)
	Aluminum	10.9 (276)	7.6 (193)	2.2 (56)	3.1 (79)	6.94 (3.15)
	Extended Metal	10.9 (276)	10.6 (269)	2.2 (56)	3.1 (79)	7.13 (3.24)

Lockout: With the lockout valve, add 2.3 (58) to dimension A.
 * Bowl (standard) removal clearance: add 4.2 (107).
 * Bowl (extended) removal clearance: add 6.1 (155)
 † Less gauge.



AIR FLOW and CONSTRUCTION DATA



G5

G



In-line Filter, Regulator and Lubricator Combinations

HIGH-CAPACITY Series

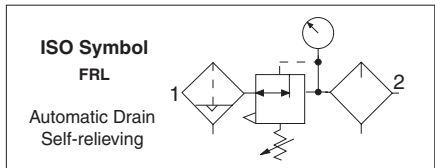
Port Sizes: 3/4 & 1 – Flow to 270 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
3/4	NPTF	5H00C5111	5H00C5212	5H00C5311	5H00C5412
	G	C5H00C5111	C5H00C5212	C5H00C5311	C5H00C5412
1	NPTF	5H00C6111	5H00C6212	5H00C6311	5H00C6412
	G	C5H00C6111	C5H00C6212	C5H00C6311	C5H00C6412

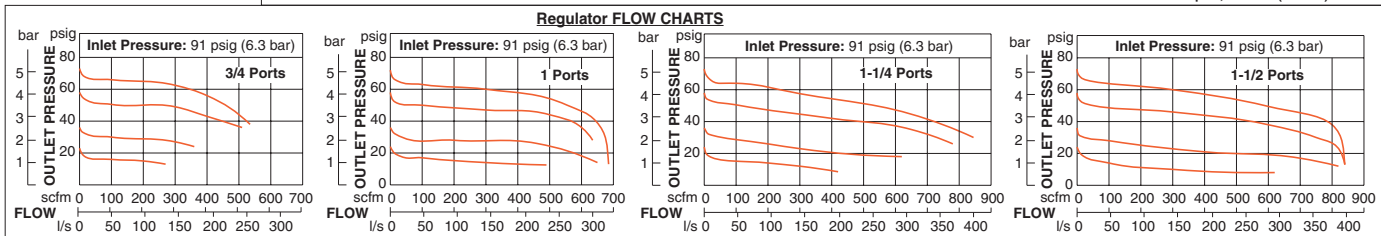
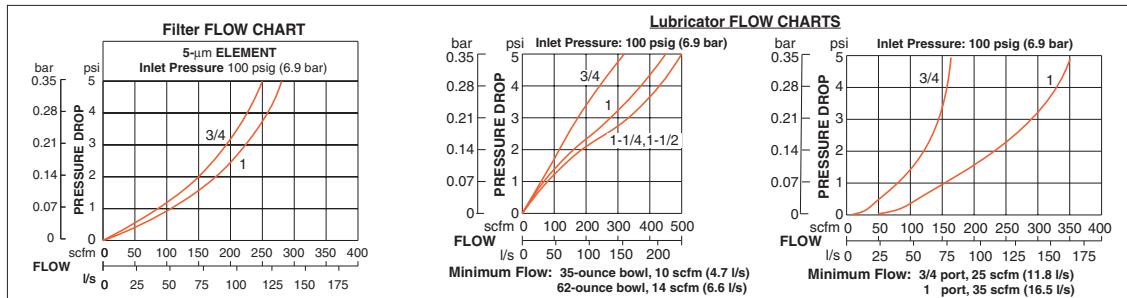
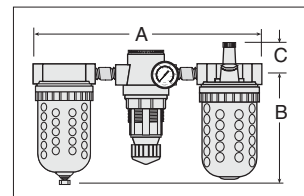


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
3/4, 1	Polycarbonate	16-oz (480-ml)	15.8 (401)	8.0 (204)	1.2 (31)	4.3 (108)	8.00 (3.64)
	Aluminum	16-oz (480-ml)	15.8 (401)	8.3 (210)	1.2 (31)	4.3 (108)	8.9 (4.03)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	1010K77
5-µm - Optional	Sintered Bronze	R-KA109-03E5
20-µm - Optional	Sintered Bronze	R-KA109-03E4
40-µm - Optional	Sintered Bronze	R-KA109-03E3



G5

G

Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston Lubricator - Wick-Feed	Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Temperature	Ambient/Media: Polycarbonate Bowl: 40° to 125°F (4° to 52°C) Metal Bowl: 40° to 175°F (4° to 80°C)	Pressure Adjustment	Locking Key: Removable
Fluid Media	Compressed air	Oil Adjustment	External; tamper-resistant
Operating Pressure	Automatic Drain Models Polycarbonate Bowl: 15 to 150 psig (1 to 10 bar) Metal Bowl: 15 to 200 psig (1 to 14 bar)	Construction Material	Filter Element: 5-micron rated polyethylene
	Manual Drain Models Polycarbonate Bowl: 0 to 150 psig (0 to 10 bar) Metal Bowl: 0 to 200 psig (0 to 14 bar)		Heads: Aluminum
Outlet Pressure	Adjustable up to 125 psig (9 bar)		Bowls: Aluminum bowls with sight glass, or polycarbonate bowls with steel shatterguard
Filter Drain	Internal Automatic or Manual		Bowl Rings: Aluminum
			Regulator Dome: Nylon
		Regulator Knob: Acetal	
		Sight Dome: Clear Nylon	
		Seals: Nitrile	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

In-line Filter, Regulator and Lubricator Combinations

HIGH-CAPACITY Series

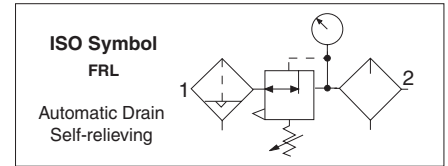
Port Sizes: 1¼ & 1½ – Flow to 495 scfm

Choose your options (in red) to configure your model number.

PIPE THREAD	PIPE SIZE	LUBRICATOR TYPE
NPTF (Blank)	1¼ 7	None 0
G C	1½ 8	Sight-feed, Fill port 2
		Sight-feed, Quick-fill cap 4

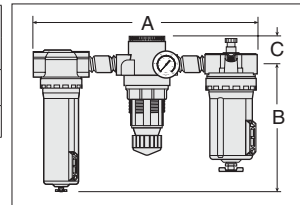
FILTER DRAIN & ELEMENT TYPE	
None	0
Automatic drain, 40-µm	1
Automatic drain, 5-µm	2
Manual drain, 40-µm	3
Manual drain, 5-µm	4

REGULATOR TYPE	
None	0
Piston, 0-100 psig (0-6.9 bar)	1
Internal pilot, 15-200 psig (1.0-14 bar)	8

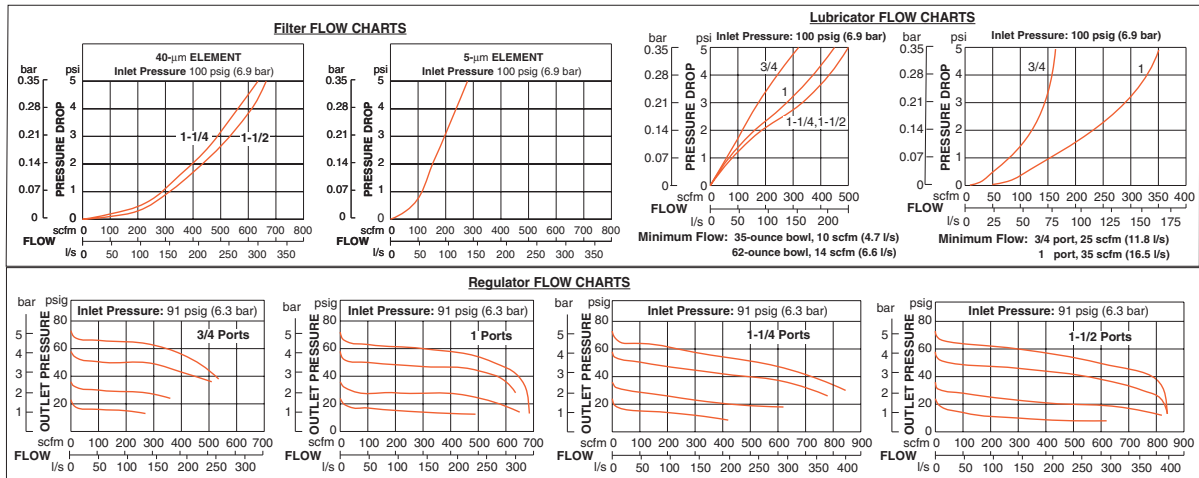


Port Size	Bowl Capacity	Dimensions inches (mm)				Weight† lb (kg)
		A	B	C	Depth†	
1¼, 1½	35-oz (1000-ml)	15.8 (401)	10.6 (268)	2.1 (54)	4.3 (108)	8.00 (3.64)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Element Number
5-µm	Polyethylene	1656K77
40-µm	Sintered Bronze	R-A114-106E3



Options: Drains: For additional information, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston Lubricator - Sight-Feed	Construction Material	Filter Element: 5, or 40-micron rated polyethylene
Temperature	Ambient/Media: 40° to 175°F (4° to 79°C)		Heads: Aluminum
Fluid Media	Compressed air		Bowls: Aluminum bowls with sight glass
Operating Pressure	Automatic Drain Models: 15 to 200 psig (1 to 14 bar) Manual Drain Models: 0 to 200 psig (0 to 14 bar)		Bowl Rings: Aluminum
Outlet Pressure	Adjustable up to 100 psig (7 bar)		Regulator Dome: Nylon
Filter Drain	Internal Automatic or Manual		Regulator Knob: Acetal
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.		Sight Dome: Clear Nylon
Pressure Adjustment	Locking Key: Removable		Seals: Nitrile
Oil Adjustment	External; tamper-resistant		

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



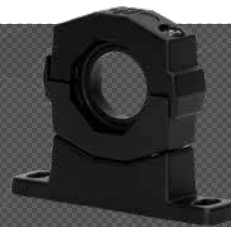
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AIR PREPARATION FRL's ACCESSORIES



ROSS CONTROLS

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Modular Assembly Components	G6.4
Clamp, Brackets, End Ports & Port Blocks	G6.5
Pressure Gauges	G6.6
External Drains, Silencers	G6.7
Replacements Filter Elements	G6.8

Mounting Screws for BANTAM Models

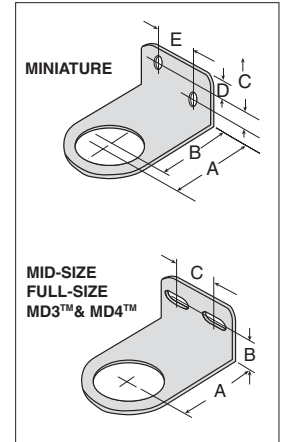
Usage Models	Kit Number
BANTAM	859K77

BANTAM models mounts with long screws that extend through end plates.

Mounting Brackets for Regulators and Integrated Filter/Regulators

Regulators and integrated filter/regulators can be mounted to a surface with a bracket that attaches to the regulator. Brackets and mounting panel nuts can be ordered separately or in a kit which includes both bracket and mounting panel nut.

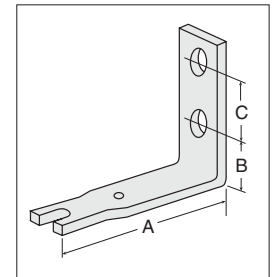
Usage Models	Model Number			Dimensions inches (mm)					Panel Mounting Hole Diameter
	Kit	Bracket	Panel Nut	A	B	C	D	E	
MINIATURE	873K77	872K77	874K77	1.375 (35)	1.125 (29)	0.31 (8)	0.31 (8)	0.69 (17)	1.19 (30)
MID-SIZE	876K77	875K77	877K77	2.38 (60)	1.00 (25)	1.50 (38)	-	-	1.56 (40)
MD3™	R-A127-11	-	R-127-11	2.38 (60)	1.00 (25)	1.50 (38)	-	-	2.06 (52)
FULL-SIZE, MD4™	879K77	878K77	880K77						



Modular Mounting Brackets for Filters, Regulators, Lubricators, FRL's, or Clean Air Packages

Two L-shaped metal brackets as shown at the right can be used for wall mounting of modular FRLs or Clean Air Packages. A single bracket can be used to mount individual filters or lubricators. Kits include two brackets and four screws for attaching the brackets to the modules.

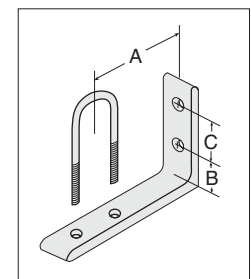
Usage Models	Kit Number	Dimensions inches (mm)			
		A	B	C	D
MID-SIZE & FULL-SIZE	915K77	3.0 (76)	0.88 (22)	1.00 (25)	1.20 (31)



FRLs In-line Mounting Pipe Brackets

Two pipe brackets can be used for wall mounting of FRLs assemblies that use pipe nipples to join the components. The bracket kits listed below include two sets of brackets.

Nipple Size	Kit Number	Dimensions inches (mm)		
		A	B	C
1/4	887K77	2.72 (28)	0.50 (13)	1.00 (25)
3/8	888K77			
1/2	889K77			
3/4	890K77	3.69 (94)	1.13 (29)	1.25 (32)
1	891K77			



Bracket Assembly Kit for HIGH-RELIEF Pilot Operated Regulator

High-Relief Pilot Operated Regulator with 1/4- thru 1 1/4 inch ports can be mounted to a vertical surface using a bracket assembly kit.

Kit Number
R-A37-381



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

MID-SIZE and FULL-SIZE Units

The modular designs of the MID-SIZE and FULL-SIZE series offer maximum flexibility in customizing FRLs assemblies. As shown at the right, connector kits are required to interconnect units. Various port kits (shown below) can be used to connect the assemblies to the inlet and outlet piping. Note that all FRLs components have threaded ports so that conventional pipe fittings may be used where desired.

Female Port Block

Used to connect to piping at inlet or outlet.

Port Size	Model Number	
	NPTF Threads	G Threads
1/4	897K77	D897K77
3/8	898K77	D898K77
1/2	899K77	D899K77
3/4	900K77	D900K77



Male Port Block

Used to connect modular to non-modular units.

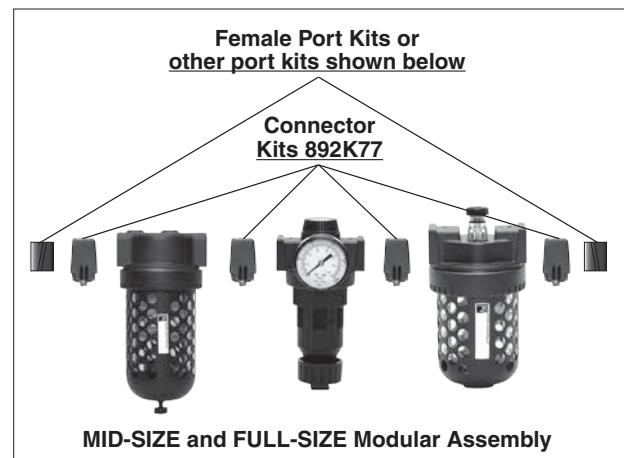
Port Size	Model Number	
	NPTF Threads	G Threads
1/4	893K77	D893K77
3/8	894K77	D894K77
1/2	895K77	D895K77
3/4	896K77	D896K77



Connector Kit

Used to connect units to one another as well as to any of the ports shown on this page.

Kit Number	892K77
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BANTAM Units

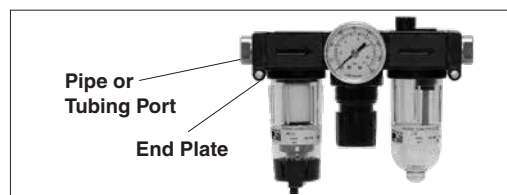
BANTAM modular units use end plates secured with screws to hold the pipe or tubing ports (see below), and also to serve as mounting brackets. Short screws are used to secure the end plates when a single BANTAM unit is used. If two or more units are combined, long screws extend through an end plate and thread into the next unit.

Screw kits required are as follows:

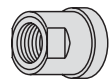
Single Unit: Two short screw kits.

Two-Unit Combination: One each short screw kit and long screw kit.

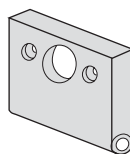
Three-Unit Combination: Two long screw kits.



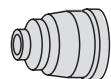
Pipe Ports	
Port Size	Model Number
1/8 NPTF	862K77
1/4 NPTF	863K77
1/8 BSPP	D864K77
1/4 BSPP	D865K77



Pipe Ports	
Kit Description	Model Number
END PLATE (1)	857K77
Short Screw (2)	858K77
Long Screw (2)	859K77
Small O-Ring (for inlet or mating ports)	860K77
Large O-Ring (for outlet or mating ports)	861K77



Tube Ports	
Port Size	Model Number
1/4	866K77
3/8	867K77
4 mm	868K77
6 mm	869K77
8 mm	870K77
10 mm	871K77



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

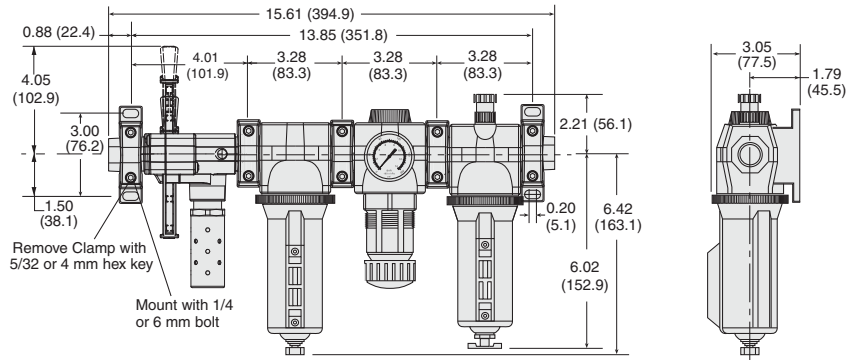
Modular Assemblies

Accessories: Clamp, Brackets, End Ports & Port Blocks

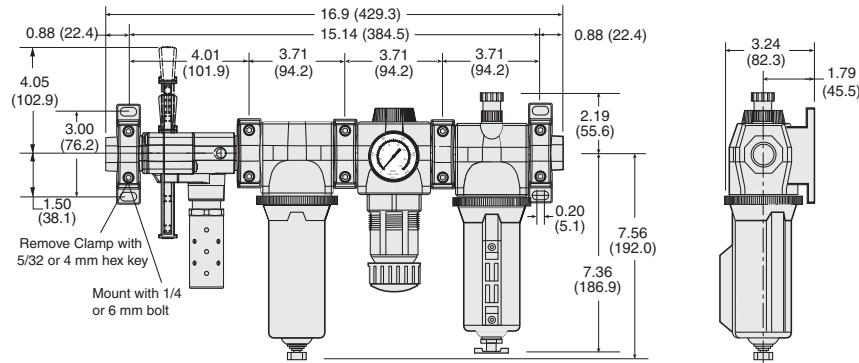
MD Series

Dimensions: inches (mm)

MD3™ Series



MD4™ Series



Mounting Brackets & Clamp for Module Connections

Two brackets are normally used to mount an FRL to a vertical surface. The mounting bracket attaches to the module connecting clamp (see above) with a single screw. Each bracket then employs two bolts (1/4" or 6mm) to connect the assembly to the mounting surface. Specially designed clamps provide a quick and easy assembly or disassembly of MD3™ modules. Two Allen-Head bolts quickly tighten or loosen the clamp using a 5/32 or 4mm hex key. The clamp contains a plate carrying two O-rings to provide positive sealing between modules.



Bracket, Screw, and Clamp



Module Connecting Clamp





Mounting Bracket

Mounting Brackets & Clamp for Module Connections

Description	Model Number
Bracket and Screw	R-A118-103
Module Connecting Clamp	R-A118-105
Bracket, Screw, and Clamp	R-A118-105M

Male and Female End Ports

Either male or female end ports can be attached to threaded inlet and outlet lines. This allows all modules of an FRL assembly to be removed easily and quickly without having to unthread the end modules. The end ports are attached to the modules with clamps (see at left). End ports can be included in an assembled FRL or ordered separately by the following model numbers:

End Ports				
Type	Port Size	Model Number		
		NPTF Threads	G Threads	
Female	1/4	R-118-100-2	R-118-100-2W	
	3/8	R-118-100-3	R-118-100-3W	
	1/2	R-118-100-4	R-118-100-4W	
	3/4	R-118-100-6	R-118-100-6W	
Male	1/4	R-118-109-2F	R-118-109-2FW	
	3/8	R-118-109-3F	R-118-109-3FW	
	1/2	R-118-109-4F	R-118-109-4FW	
	3/4	R-118-109-6F	R-118-109-6FW	

Extra Port Blocks

An extra port block can be placed between modules to provide two auxiliary 1/4 NPTF ports. Its mounting position can be rotated to obtain the most convenient operating orientation. If only one auxiliary port is to be used, the unused port must be closed with a pipe plug. (The inlet and outlet are not threaded.)

Port Size	Model Number	
	NPTF Threads	G Threads
1/4	R-118-106-2	R-118-106-2W
3/8	R-118-106-3	R-118-106-3W
1/2	R-118-106-4	R-118-106-4W



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



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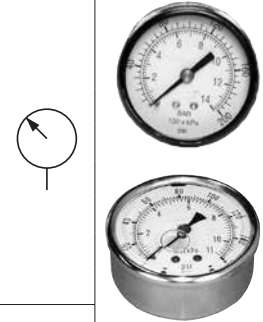


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Analog Pressure Gauges

Pressure Gauges (Center Back Mounting)	Type/Material	Port Size	Model Number		Pressure Range psig (bar)	Case Diameter inches (mm)
			Thread			
			NPT	G		
Standard Aluminum		1/8	5400A1002	D5400A1002	0-160 (0-11)	1.7 (43)
		1/4	5400A2010	D5400A2010	0-60 (0-4)	2.0 (51)
		1/4	5400A2011	D5400A2011	0-200 (0-14)	2.0 (51)
		1/4	5400A2012	D5400A2012	0-300 (0-20)	2.0 (51)
Liquid Filled Stainless Steel		1/4	5400A2014	D5400A2014	0-160 (0-11)	2.5 (64)
		1/4	5400A2015*	D5400A2015*	0-160 (0-11)	2.0 (51)

*Green shade between 40-70 psi (2.7-4.8 bar).



Differential Pressure Gauges

DIFFERENTIAL PRESSURE GAUGE TYPE/SERIES	Small Slide Gauge	Small Slide Gauge	Large Dual Face Gauge	Large Dual Face Gauge with Reed Switch (Normally Open)	Large Dual Face Gauge with Reed Switch (Normally Closed)
	R-A60F-28	R-K103-151	R-106-35	R-106-35E	R-106-35EC
FILTERS					
BANTAM	-	-	-	-	-
MINIATURE	-	-	-	-	-
MID-SIZE	-	-	-	-	-
MD3™		-	-	-	-
FULL-SIZE	-	-	-	-	-
MD4™	-				
HIGH-CAPACITY	-	-	-	-	-
COALESCING FILTERS					
BANTAM	-	-	-	-	-
MINIATURE	-	-	-	-	-
MID-SIZE		-	-	-	-
FULL-SIZE	-				
MD3™		-	-	-	-
MD4™	-				
HIGH-CAPACITY	-				
OIL VAPOR REMOVAL (ADSORBING) FILTERS					
MD3™	-	-	-	-	-
MD4™	-	-	-	-	-
CLEAN AIR PACKAGES					
MD3™		-	-	-	-
MD4™	-				

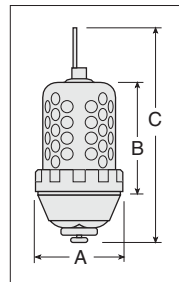
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

External Automatic Drains

Pipe Size	Model Number*	
	Polycarbonate Bowl**	Metal Bowl
1/8	5057B1001	5058B1001
1/4*	5057B2001	5058B2001

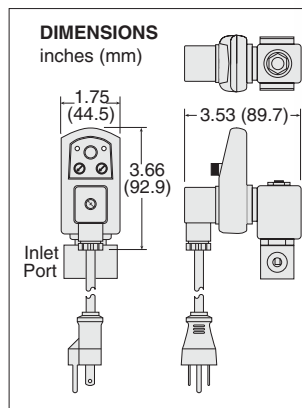
*Use 1/4 size with FULL-SIZE, HIGH-CAPACITY, MD3™ & MD4™ filters.
Use kit 1076K77 to convert standard bowl to accept auto drain unit.
**Available for FULL-SIZE filters only. Polycarbonate bowl includes metal bowl guard.

Port Size	Dimensions inches (mm)			Weight lb (kg)
	A	B	C	
1/8, 1/4	3.5 (89)	4.2 (107)	8.3 (211)	2.6 (1.2)



Electronically Controlled Drain

Pipe Size	Voltage	Model Number	
		NPTF Threads	G Threads
1/4	24 volts DC	R-DED-24V-2	R-DED-24V-2W
3/8	24 volts DC	R-DED-24V-3	R-DED-24V-3W
1/2	24 volts DC	R-DED-24V-4	R-DED-24V-4W
1/4	110-120 volts AC, 50/60 Hz	R-DED-115V-2	R-DED-115V-2W
3/8	110-120 volts AC, 50/60 Hz	R-DED-115V-3	R-DED-115V-3W
1/2	110-120 volts AC, 50/60 Hz	R-DED-115V-4	R-DED-115V-4W



STANDARD SPECIFICATIONS (for electronically controlled drain):

Drain Time	Adjustable 0.5 to 10 seconds	Electrical Connection	DIN 43650A, ISO 440/6952
Drain Interval	0.5 to 45 minutes	Valve Type	2/2 direct acting, normally closed
Current Consumption	Maximum 4 ma	Valve Body	Forged brass; 3/16-inch (4.8 mm) orifice
Temperature	Ambient: 35° to 130°F (2° to 54°C)	Maximum Pressure	230 psig (15.8 bar)
	Media: 35° to 190°F (2° to 88°C)		

Silencers

Port Size	Thread Type	Model Number*		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
3/4	Male	5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)

Flow Media: Filtered air.
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.



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IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Replacements

Filter Elements

FRL's Series

Category	Series	Bowl Type	Element Rating	Element Material	Model Number
Filters	Bantam & Miniature	Standard	5-µm	Polyethylene	933K77
			5-µm	Sintered Bronze	R-KA130-27E5
			20-µm	Sintered Bronze	R-KA130-27E4
			40-µm	Sintered Bronze	R-KA130-27E3
	MID-SIZE	Standard	5-µm	Polyethylene	936K77
	MD3™	Standard	5-µm	Polyethylene	R-A60F-03PE5
			5-µm	Sintered Bronze	R-A60F-03E5
			20-µm	Sintered Bronze	R-A60F-03E4
			40-µm	Sintered Bronze	R-A60F-03E3
	FULL-SIZE	Standard	5-µm	Polyethylene	939K77
			5-µm	Sintered Bronze	R-KA103-03E5
			20-µm	Sintered Bronze	R-KA103-03E4
			40-µm	Sintered Bronze	R-KA103-03E3
	MD4™	Standard	5-µm	Polyethylene	R-A115-106PE5
			5-µm	Sintered Bronze	R-A115-106E5
			20-µm	Sintered Bronze	R-A115-106E4
			40-µm	Polyethylene	R-A115-106PE3
	HIGH-CAPACITY Flow to 275 scfm	Standard	5-µm	Polyethylene	1010K77
			5-µm	Sintered Bronze	R-KA109-03E5
			20-µm	Sintered Bronze	R-KA109-03E4
40-µm			Sintered Bronze	R-KA109-03E3	
HIGH-CAPACITY Flow to 660 scfm	Standard	5-µm	Sintered Bronze	1656K77	
		40-µm	Sintered Bronze	R-A114-106E3	
HIGH-CAPACITY Flow to 1000 scfm	Standard	5-µm	Sintered Bronze	942K77	
		40-µm	Sintered Bronze	944K77	
Coalescing Filters	Bantam & Miniature	Standard	0.3-µm	Borosilicate-glass-fiber	945K77
			0.01-µm	Borosilicate-glass-fiber	R-A-10F-16E8
	MID-SIZE	Standard	0.3-µm	Borosilicate-glass-fiber	R-A60F-29
			0.01-µm	Borosilicate-glass-fiber	R-A60F-32
		Extended	0.01-µm	Borosilicate-glass-fiber	R-A60F-29E8
			0.01-µm	Borosilicate-glass-fiber	R-A60F-32E8
	MD3™	Polycarbonate	0.3-µm	Borosilicate-glass-fiber	R-A60F-23
			0.3-µm	Borosilicate-glass-fiber	R-A60F-29
		Extended Metal	0.3-µm	Borosilicate-glass-fiber	R-A60F-32
			0.01-µm	Borosilicate-glass-fiber	R-A60F-23E8
		Metal	0.01-µm	Borosilicate-glass-fiber	R-A60F-29E8
			0.01-µm	Borosilicate-glass-fiber	R-A60F-32E8
	FULL-SIZE	Standard	0.3-µm	Borosilicate-glass-fiber	947K77
			0.3-µm	Borosilicate-glass-fiber	R-A103-160L
		Extended	0.01-µm	Borosilicate-glass-fiber	948K77
			0.01-µm	Borosilicate-glass-fiber	R-A103-160LE8
	MD4™	Standard	0.3-µm	Borosilicate-glass-fiber	R-A115-117
			0.3-µm	Borosilicate-glass-fiber	R-A115-118
		Extended	0.01-µm	Borosilicate-glass-fiber	R-A115-117E8
			0.01-µm	Borosilicate-glass-fiber	R-A115-118E8
	HIGH-CAPACITY Flow to 220 scfm	Standard	0.3-µm	Borosilicate-glass-fiber	949K77
			0.01-µm	Borosilicate-glass-fiber	R-A109-106E8
		Extended	0.3-µm	Borosilicate-glass-fiber	R-A114-112
			0.3-µm	Borosilicate-glass-fiber	R-A114-113
	HIGH-CAPACITY Flow to 295 & 450 scfm	Standard	0.01-µm	Borosilicate-glass-fiber	R-A114-112E8
			0.01-µm	Borosilicate-glass-fiber	R-A114-113E8
		Extended	0.3-µm	Borosilicate-glass-fiber	952K77
			0.3-µm	Borosilicate-glass-fiber	953K77
	HIGH-CAPACITY Flow to 465 scfm	Standard	0.01-µm	Borosilicate-glass-fiber	R-A106-24E8
			0.01-µm	Borosilicate-glass-fiber	R-A106-24LE8
Extended		0.3-µm	Borosilicate-glass-fiber	953K77	
		0.01-µm	Borosilicate-glass-fiber	R-A106-24E8	
HIGH-CAPACITY Flow to 840 scfm	Extended	0.3-µm	Borosilicate-glass-fiber	953K77	
		0.01-µm	Borosilicate-glass-fiber	R-A106-24E8	
Oil Vapor Removal Filters	MD3™	Standard	–	Borosilicate-glass-fiber	R-A60F-29E9
		Extended	–	Borosilicate-glass-fiber	R-A60F-32E9
	MD4™	Standard	–	Borosilicate-glass-fiber	R-A115-117E9
		Extended	–	Borosilicate-glass-fiber	R-A115-118E9
Silencers Reclassifiers	Port Size 1/2	Standard	20-µm	Sintered Bronze	940K77
	Port Size 3/4, 1		100-µm	Sintered Bronze	981K77

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Lubricants, Polycarbonate Bowl Cautions

Compatible Lubricants

Although air line lubrication is not required for most ROSS valves, other mechanisms in the system may need such lubrication. When a lubricator is used, it should be supplied only with oils which are compatible with the materials used in the valves for seals and poppets. Generally speaking, these are petroleum base oils with oxidation inhibitors, and aniline point between 180°F (82°C) and 220°F (104°C) and an ISO 32, or lighter, viscosity. Oils with phosphate type additives, such as zinc dithiophosphate, must be avoided because they can harm polyurethane valve components. The best oils to use in pneumatic systems are those specifically compounded for air line lubricator service.

Cautions on the Use of Polycarbonate Bowls

Use Only with Compressed Air. Filters and lubricators with polycarbonate bowls are specifically designed for compressed air service, and their use with any other fluid (liquid or gas) is a misapplication. The use with or injection of certain hazardous fluids in the system (e.g., alcohol or liquefied petroleum gas) could be harmful to the polycarbonate bowl or result in a combustible condition or hazardous leakage. Before using with a fluid other than air, or for nonindustrial applications, or for life support systems, consult ROSS.

Use Metal Bowl Guard When Supplied. A metal bowl guard is supplied with all but the smallest bowls, and must always be used to minimize danger from fragmentation in the event of failure of a polycarbonate bowl.

Avoid Harmful Substances. Some compressor oils, chemical cleaners, solvents, paints, and fumes will attack polycarbonate bowls and can cause bowl failure. Do not use with or near these materials. When a bowl becomes dirty, replace the bowl or wipe it with a clean dry cloth. Immediately replace any polycarbonate bowl which is crazed, cracked, or deteriorated.

Substances HARMFUL to Polycarbonate Bowls

Acetaldehyde	Carbon disulfide	Ethylene dichloride	Phosphorous trichloride
Acetic acid	Carbon tetrachloride	Ethylene glycol	Propionic acid
Acetone	Caustic potash solution	Formic acid	Pyridine
Acrylonitrile	Caustic soda solution	Freon (refrigerant & propellant)	Sodium hydroxide
Ammonia	Chlorobenzene	Gasoline (high aromatic)	Sodium sulfide
Ammonium fluoride	Chloroform	Hydrazine	Styrene
Ammonium hydroxide	Cresol	Hydrochloric acid	Sulfuric acid
Ammonium sulfide	Cyclohexanol	Lacquer thinner	Sulfural chloride
Anaerobic adhesives & sealants	Cyclohexanone	Methyl alcohol	Tetrahydronaphthalene
Antifreeze	Cyclohexene	Methylene chloride	Thiophene
Benzene	Dimethyl formamide	Methylene salicylate	Toluene
Benzoic acid	Dioxane	Milk of lime (CaOH)	Turpentine
Benzyl alcohol	Ethane tetrachloride	Nitric acid	Xylene
Brake fluids	Ethyl acetate	Nitrobenzene	Perchloroethylene
Bromobenzene	Ethyl ether	Nitrocellulose lacquer	
Butyric acid	Ethylamine	Phenol	
Carbolic acid	Ethylene chlorohydrin	Phosphorous hydroxyl chloride	

Trade Names of Substances HARMFUL to Polycarbonate Bowls

- Atlas Perma-Guard • Buna N • Cellulube #150 & #220 • Crylex #5 cement • Eastman 910 • Garlock 98403 (polyurethane)
- Haskel 568-023 • Hilgard Company's hil phene • Houghton & Co. oil 1120, 1130, 1055 • Houtosafe 1000 • Kano Kroil
- Keystone penetrating oil #2 • Loctite 271, 290, 601 • Loctite Teflon sealant • Marvel Mystery Oil • Minn. Rubber 366Y
- National Compound N11 Nylock VC-3 • Parco 1306 Neoprene • Permabond 910 • Petron PD287 • Prestone • Pydraul AC
- Sears Regular Motor Oil • Sinclair oil "Lily White" • Stauffer Chemical FYRQUEL 150 • Stillman SR 269-75 (polyurethane)
- Stillman SR 513-70 (neoprene) • Tannergas • Telar • Tenneco anderol 495 & 500 oils • Titon • Vibra-tite • Zerex



ACCESSORIES



ROSS CONTROLS

SILENCERS							
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Length	Width	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.0 (51)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
		5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
		5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1¼	Male	5500A7013	D5500A7013	16.4	2.0 (51)	5.5 (140)	0.6 (0.3)
	Female	5500A7001	D5500A7001	24	2.5 (64)	5.7 (144)	1.0 (0.5)
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2	Female	5500B9001	D5500B9001	34.2	3.0 (76)	6.6 (168)	1.5 (0.7)
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. **Flow Media:** Filtered air.



Port size
1/8 thru 2



Port size 2½



Stainless Steel SILENCERS								
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)	Construction
		NPT Threads	R/Rp Threads		Length	Width		
1/4	Male	5500B2004	D5500B2004	1.44	1.75 (44.5)	0.56 (14.2)	0.05 (0.23)	Stainless steel
1/2	Male	5500B4004	D5500B4004	3.01	2.75 (69.7)	0.87 (22.1)	0.25 (0.11)	
1	Male	5500B6004	D5500B6004	10.41	3.87 (98.3)	1.31 (33.3)	0.45 (0.20)	NPT - Stainless steel
2	Male	5500A9004	D5500A9004	28.11	5.50 (139.7)	2.37 (60.2)	1.5 (0.68)	R - Nickel plated cold rolled steel Nickel plated cold rolled steel

Supplied with a standard pipe thread fitting for attaching directly to the exhaust ports of air-operated equipment.
Pressure Range: 0 to 175 psig (0 to 12.3 bar) maximum. **Flow Media:** Filtered air.



SILENCERS for Stainless Steel L-O-X® Air Entry Assemblies							
Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Description
		NPT Threads	BSP Threads		Length	Width	
1/4	Male	5500A2005	D5500A2005	1.5	1.50 (38)	0.67 (17)	Pressure Range: 0 to 125 psig (0 to 8.6 bar) maximum. Seals: Nitrile.
1/2	Male	5500A4005	D5500A4005	3.5	2.17 (55)	0.94 (24)	
1	Male	5500A6005	D5500A6005	5.7	2.95 (75)	1.41 (36)	

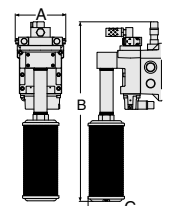


Noise-Reduction SILENCERS for DM ¹ & DM ² ® Series C Double Valves								
Valve Model	Basic Size	Kit Number*		Flow scfm	Dimensions inches (mm)			
		NPT Threads	R/Rp Threads		A	B (NPT)	B (R)	C
DM Series C	2	2324H77	2329H77	800 (378)	4.34 (110.2)	19.06 (484.1)	21.40 (543.6)	7.27 (184.7)
	4	2324H77	2329H77	800 (378)	4.34 (110.2)	19.06 (484.1)	21.40 (543.6)	7.27 (184.7)
	8	2325H77	2329H77	800 (378)	5.41 (137.4)	21.18 (538.0)	23.52 (597.4)	8.41 (213.6)
	12	2326H77	2330H77	2080 (982)	6.74 (117.2)	25.85 (656.6)	28.20 (716.3)	10.66 (270.8)
	30	2327H77	2331H77	7200 (3398)	9.85 (250.2)	41.55 (1055.4)	41.55 (1055.4)	13.47 (342.1)

Pressure Range: 125 psig (8.6 bar) maximum.
* Kits include all plumbing required for installation.
Reduces the Exponentially Perceived Noise (EPNdB), Impact noise reduction in the 35–40 dB range
Recommended for air exhaust applications for pressures up to 125 psig (8.6 bar)
Pressure Range – 125 psig (8.6 bar) maximum



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IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Noise-Reduction SILENCERS for DM ² ® Series D Double Valves						Description
Valve Basic Size	Thread Type	Kit Number*#	Flow scfm	Dimensions inches (mm)		
				Height	Width	
4	NPT	2324H77	800 (378)	19.1 (484)	4.4 (110)	Reduces the Exponentially Perceived Noise (EPNdB), Impact noise reduction in the 35–40 dB range Recommended for air exhaust applications for pressures up to 125 psig (8.6 bar) Pressure Range – 125 psig (8.6 bar) maximum
	BSPT	2329H77	800 (378)	21.4 (544)	4.4 (110)	
8	NPT	2325H77	800 (378)	21.2 (538)	5.4 (138)	
	BSPT	2330H77	800 (378)	23.5 (598)	5.4 (138)	
12	NPT	2326H77	2080 (982)	25.9 (657)	6.8 (117)	
	BSPT	2331H77	2080 (982)	28.2 (716)	6.8 (117)	
30	NPT	2327H77	7200 (3398)	41.6 (1056)	9.9 (250)	
	BSPT	2332H77				

* Kits include all plumbing required for installation.
Exhaust flange kit required, see below ordering information.



Exhaust Flange Kits for Noise Reduction Silencers	Valve Basic Size	Port Size	Kit Number		Used when installing noise reduction silencers
			NPT Threads	G Threads	
	4	1	726B25	D276B25	
8	1	617B25	D617B25		
12	1½	619B25	D619B25		
30	2½	621B25	D621B25		

Electrical CONNECTORS & CORD Sets

Connection Type	EN 175301-803 Connector		Fitting Connection	Cord Type/Termination		Length meters (feet)	Cord Diameter	Model Number			Cord Quantity
	Option	Form		End 1	End 2			Without Light	Lighted Connector		
									24 V DC	120 V AC	
Solenoid	Connector Only	A	–	–	–	–	–	937K87	936K87-W	936K87-Z	–
		A	1/2" NPT conduit	–	–	–	–	723K77	724K77-W	724K77-Z	–
		B	–	–	–	–	–	372K77	328K77-W	328K77-Z	–
		C	–	–	–	–	–	2452K77	2453K77-W	2453K77-Z	–
	Prewired Connector	A	–	Connector	Flying leads	2 (6.5)	6-mm	721K77	720K77-W	720K77-Z	1
							10-mm	371K77	383K77-W	383K77-Z	1
							–	2243H77	–	–	2
		B	–	Connector	Flying leads	2 (6.5)	10-mm	266K77	267K77-W	267K77-Z	1
							–	2244H77	–	–	2
		C	–	Connector	Flying leads	2 (6.5)	5-mm	–	2476K77-W	2476K77-Z	1
							8-mm	2449K77	2450K77-W	2450K77-Z	1
							–	–	–	–	–



CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

PRESSURE Indicators

H Pop-Up (Visual) Indicator	Model Number	Port Threads	May be installed on all valves with pressure sensing port. Provides a means to verify the release of downstream pressure to next obstruction.
	988A30	1/8 NPT	



Stainless Steel Visual Indicator	Model Number	Port Threads	Dimensions inches (mm)		Weight lb (kg)	
	1155H30	1/8 NPT	A	B	0.22 (0.1)	

316 Stainless Steel Body, Internals and Springs, Nitrile Seals
Visual Indicator piston, Acetal; Visual Indicator assembly, Acetal with acrylic lens



Status Indicator	Model Number	The Status Indicator pressure switch actuates when the valve is in a ready-to-run condition and de-actuates when the valve is in a lockout condition or when the inlet air pressure has been removed.
	670B94	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

PRESSURE SWITCHES For Verification Of Downstream Pressure Release

Pressure Switch Type	Connection Type	Model Number	Port Threads	EN Connector Pinout	M12 Connector Pinout
Pressure Switches (Electrical) for Energy Release Verification	EN 175301-803 Form A	586A86	1/8 NPT		
	Pressure Switch M12	1153A30	M10x1		
	Solid State Pressure Sensor M12	1335B30W	M10x1		
Redundant Downstream Feedback Switch for Energy Release Verification	EN 175301-803 Form A	RC026-13	3/8 NPT		

Factory preset, 5 psi (0.3) - falling



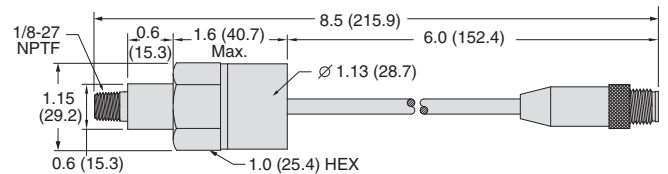
May be installed on all valves with pressure sensing port.
Provides means to verify the release of downstream pressure to next obstruction.

Stainless Steel Pressure Switch	Inlet Port Size	Model Number	Weight lb (kg)
	1/8	1162A30	0.23 (.01)

316 Stainless Steel Body, Nitrile Seals, DPDT (Double-Pole Double-Throw Switch)
Factory preset 5 psi (falling)



NPT port threads.

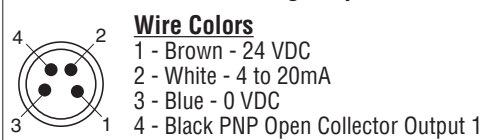


Digital PRESSURE TRANSDUCER For Digital Pressure Readout

Digital Pressure Transducer	Threads	Model Number	Pressure Range psig (bar)	Description			
				Electrical Output	Electrical Connection	Pressure Port Size/Type	Weight lb (Kg)
	NPT	760B94	0 (0) to 145 (10)	(1) PNP with (1) 4-20ma	M8, 4 Pin	1/8 NPT male	0.099 (0.045)

Analog 4-20mA Output, and Transistor Switching Output.

Sensor Pinout with Analog Output



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IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Pressure GAUGES

Pressure Gauges (Center Back Mounting)	Type/Material	Port Size	Model Number		Pressure Range psig (bar)	Case Diameter inches (mm)
			NPT Threads	G Threads		
	Standard Aluminum	1/8	5400A1002	D5400A1002	0-160 (0-11)	1.7 (43)
1/4		5400A2010	D5400A2010	0-60 (0-4)	2.0 (51)	
1/4		5400A2011	D5400A2011	0-200 (0-14)	2.0 (51)	
1/4		5400A2012	D5400A2012	0-300 (0-20)	2.0 (51)	
Liquid Filled Stainless Steel	1/4	5400A2014	D5400A2014	0-160 (0-11)	2.5 (64)	
	1/4	5400A2015*	D5400A2015*	0-160 (0-11)	2.0 (51)	


* Green shade between 40-70 psi (2.7-4.8 bar).



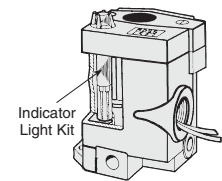
Multiple Lock-out Device	Model Number	For use with any ROSS model valve with L-O-X® capability. Allows use of multiple lockout devices on a single energy isolation device.
	356A30	






INDICATOR Light Kits for valves with Solenoid Controlled Pacer Pilot

Indicator Light Kits for 27 & 21 Series and SV27 & SV27 PO Check Valves	Kit Number			Indicator Light 
	24 volts DC	110-120 volts AC 50-60 Hz	220 volts 50-60 Hz	
	862K87-W	862K87-Z	862K87-Y	

To visually verify valve operation indicator lights are available in kit form. The indicator light extends through the solenoid or pilot cover and is illuminated when the solenoid is energized. Such lights are standard on double solenoid valves. Indicator light kit is available for single solenoid models.



Manual Override Kits	Flush Button			Extended Button			Extended Button with Palm		
	Locking Type	Kit Number		Locking Type	Kit Number		Locking Type	Kit Number	
	Non-Locking	790K87		Non-Locking	791K87		Non-Locking	984H87	
Locking	792K87	Locking	—	Locking	—				

Flush flexible manual overrides are standard on single solenoid models. Double solenoid models have flush metal-button overrides. Both types are non-locking. Each of the buttons in the override kits below is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

CONNECTORS & CORD Sets

Connection Type	Connector Option	Connector Form	Fitting Connection	Cord Type/Termination		Length meters (feet)	Cord Diameter	Model Number		Cord Quantity
				End 1	End 2			Without Light	Lighted Connector 24 Volts DC	
Solenoid	Connector Only	EN 175301-803 Form A	-	-	-	-	-	937K87	936K87-W	-
			1/2" NPT conduit	-	-	-	-	723K77	724K77-W	-
	Prewired Connector	EN 175301-803 Form A	-	Connector	Flying leads	2 (6.5)	6-mm	721K77	720K77-W	1
						5 (16.4)	-	2243H77	-	2
						10 (32.8)	-	2244H77	-	2
Sensor	Prewired Connector	M12 5-pin, straight A-coded	-	Female	Flying leads	5 (16.4)	-	2644B77	-	2
					Male	5 (16.4)	-	2645B77	-	2
					Flying leads	10 (32.8)	-	2370B77	-	2
					Male	10 (32.8)	-	2371B77	-	2



CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

General Information

Approvals and Certifications

ROSS products are designed to meet a number of industrial standards, including the Canadian Standards Association (C.S.A.) guidelines.

For certifications or information and on specific product approvals, visit ROSS' website at www.rosscontrols.com.

Information or Technical Assistance

For additional information or application assistance concerning ROSS products, visit ROSS' website at www.rosscontrols.com,

consult ROSS or your local ROSS distributor (see contact information on the back cover).

Order Placement

For order placement, consult ROSS or your local ROSS distributor.

For a current list of countries and local distributors, visit ROSS' website at www.rosscontrols.com.

CAUTIONS, WARNINGS And STANDARD WARRANTY

ROSS OPERATING VALVE, ROSS CONTROLS®, ROSS DECCO®, and AUTOMATIC VALVE INDUSTRIAL, collectively the “ROSS Group”.

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure all sources of energy are turned off, the entire pneumatic system is shut down and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).
2. All ROSS Group Products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any product can be tampered with and/or need servicing after installation, persons responsible for the safety of others or the care of equipment must check ROSS Group Products on a regular basis and perform all necessary maintenance to ensure safe operating conditions.
3. All applicable instructions should be read and complied with before using any fluid power system to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use. If you have any questions, call your nearest ROSS Group location.
4. Each ROSS Group Product should be used within its specification limits. In addition, use only ROSS Group components to repair ROSS Group Products.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

FILTRATION and LUBRICATION

1. Dirt, scale, moisture, etc., are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment. The ROSS Group recommends a filter with a 5-micron rating for normal applications.
2. All standard ROSS Group filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition and hazardous leakage. Immediately replace crazed, cracked, or deteriorated bowls.
3. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum base oils with oxidation inhibitors, an aniline

point between 180°F (82°C) and 220°F (104°C), and an ISO 32, or lighter, viscosity. Avoid oils with phosphate type additives which can harm polyurethane components, potentially leading to valve failure which risks personal injury, and/or damage to property.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

AVOID INTAKE/EXHAUST RESTRICTION

1. Do not restrict air flow in the supply line. To do so could reduce the pressure of the supply air below minimum requirements for the valve and thereby causing erratic action.
2. Do not restrict a valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and must have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

SAFETY APPLICATIONS

1. Mechanical Power Presses and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
2. Safety exhaust (dump) valves without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All safety exhaust valve installations should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
3. Per specifications and regulations, the ROSS L-O-X® and L-O-X® with EEZ-ON®, N06 and N16 Series operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

STANDARD WARRANTY

All products sold by the ROSS Group are warranted for a one-year period [with the exception of Filters, Regulators and Lubricators (“FRLs”) which are warranted for a period of seven (7) years] from the date of purchase. All products are, during their respective warranty periods, warranted to be free of defects in material and workmanship. The ROSS Group’s obligation under this warranty is limited to repair, replacement or refund of the purchase price paid for products which the ROSS Group has determined, in its sole discretion, are defective. All warranties become void if a product has been subject to misuse, misapplication, improper maintenance, modification or tampering. Products for which warranty protection is sought must be returned to the ROSS Group freight prepaid.

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Full-Service Global Locations

There are ROSS Distributors Throughout the World

To meet your requirements across the globe, ROSS distributors are located throughout the world. Through ROSS or its distributors, guidance is available for the selection of ROSS products, both for those using fluid power components for the first time and those designing complex systems.

Other literature is available for engineering, maintenance, and service requirements.

If you need products or specifications not shown in this catalog, please visit ROSS' website, contact ROSS or your ROSS distributor. The ROSS Support Team will be happy to assist you in selecting the best product for your application.

For a current list of countries and local distributors, visit ROSS' at www.rosscontrols.com.