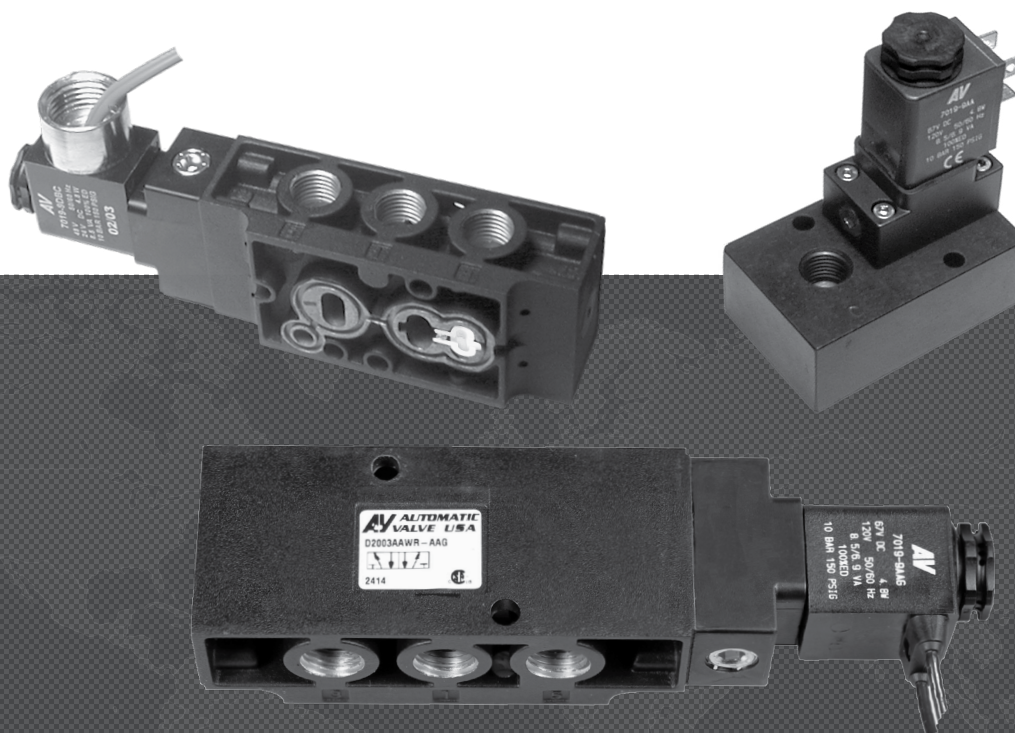


NAMUR INTERFACE VALVES



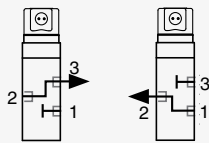
CONTENTS		Page
NAMUR Interface Valves	3-Way Solenoid Pilot Controlled	4 - 5
	5-Way Solenoid Pilot Controlled	6 - 8
	Intrinsically-Safe Solenoid Pilot Controlled	9 - 11
	Explosion-Proof Solenoid Pilot Controlled	12 - 15
Accessories & Options		16 - 19
Configuration Examples		20
Cautions and Warranty		23

VALVE OPERATION

3/2 Normally Closed

De-Energized:

Exhausts Pressure from Port 2 to Port 3
Blocks Pressure at Port 1



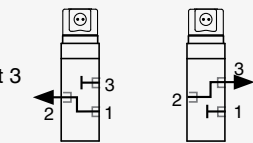
Energized:

Pressure from Port 1 to Port 2

3/2 Normally Closed

De-Energized:

Exhausts Pressure from Port 2 to Port 3
Blocks Pressure at Port 1



Energized:

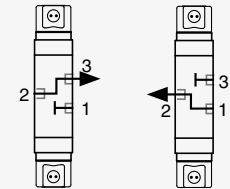
Pressure from Port 1 to Port 2

DE-ENERGIZED 12 ENERGIZED 10

3/2 Double

Momentarily Energized 10:

Exhausts Pressure from Port 2 to Port 3
Blocks Pressure at Port 1



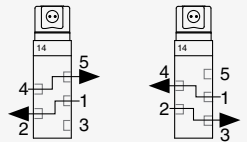
Momentarily Energized 12:

Pressure from Port 1 to Port 2

5/2 Single

De-Energized:

Pressure from Port 1 to Port 2
Exhaust from Port 4 to Port 5



Energized:

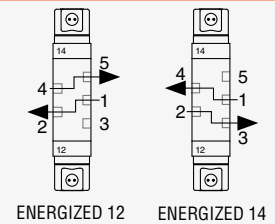
Pressure from Port 1 to Port 4
Exhaust from Port 2 to Port 3

DE-ENERGIZED 12 ENERGIZED 14

5/2 Double

Momentarily Energized 12:

Pressure from Port 1 to Port 2
Exhaust from Port 4 to Port 5



Momentarily Energized 14:

Pressure from Port 1 to Port 4
Exhaust from Port 2 to Port 3

ENERGIZED 12 ENERGIZED 14

5/3 Power Center

Maintained Energized 12:

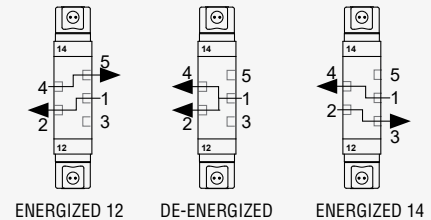
Pressure from Port 1 to Port 2
Exhaust from Port 4 to Port 5

De-Energized:

Port 1 open to Ports 2 & 4; Ports 3 & 5 Blocked

Maintained Energized 14:

Pressure from Port 1 to Port 4
Exhaust from Port 2 to Port 3



ENERGIZED 12 DE-ENERGIZED ENERGIZED 14

5/3 Closed Center

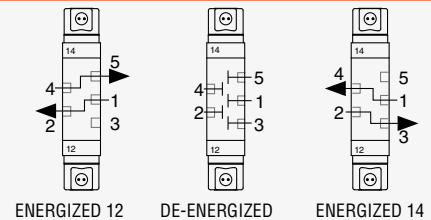
Maintained Energized 12:

Pressure from Port 1 to Port 2
Exhaust from Port 4 to Port 5

De-Energized: All ports Blocked

Maintained Energized 14:

Pressure from Port 1 to Port 4
Exhaust from Port 2 to Port 3



ENERGIZED 12 DE-ENERGIZED ENERGIZED 14

5/3 Open Center

Maintained Energized 12:

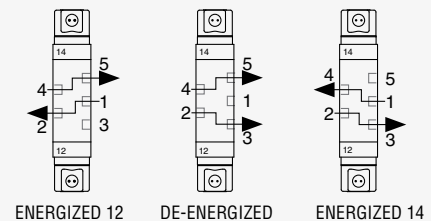
Pressure from Port 1 to Port 2
Exhaust from Port 4 to Port 5

De-Energized:

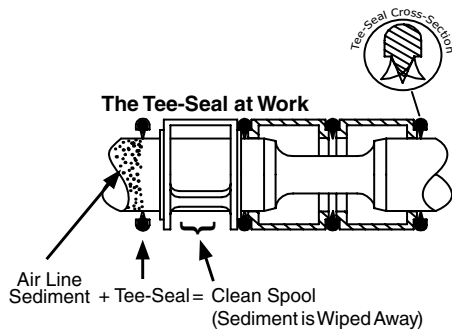
Port 2 open to Port 3, Port 4 open to Port 5
Port 1 Blocked

Maintained Energized 14:

Pressure from Port 1 to Port 4
Exhaust from Port 2 to Port 3



ENERGIZED 12 DE-ENERGIZED ENERGIZED 14



Valves

- Proven design with over 25 years OEM experience
- Many options available to meet your requirements including:
 - Explosion-proof and intrinsically-safe operators
 - Stainless Steel
 - Fluoroelastomer Seals
- Easily converted from 4-way to 3-way operation
- Specific application needs? Consult AVI.
We will build it for you.



Tapered Tee-Seal Eats Dirt

- Bidirectional tapered Tee-Seal eliminates sticking problems
 - Flexes to clean spool
 - Mechanically Locked
 - No Spiral Twist
 - No Extrusion
 - Air Line Sediment is Wiped Away.
- Tested tough and proven reliable according to SAE specifications: Rust and water injected every 864,000 cycles for 20-million cycles.



Solenoid ... Guaranteed Against Burnout

- 3-way pilot uses full air line pressure to shift the valve
- Pilot is internally supplied when the pressure at port one is 35 to 150 psig (2.4 to 10.3 bar)
- Coil is hermetically sealed as an integral watertight molded unit
- Intrinsically-safe and explosion-proof versions available
- Push Non-Locking Override is standard. (Extended Turn and Turn-Locking available)



Products Certified To:

- CSA - (C22.2 and UL STD 429)
- Factory Mutual - Explosion-Proof Environments
- ATEX - Explosion-Proof Environments
- CE - EMF and Low Voltage Directives

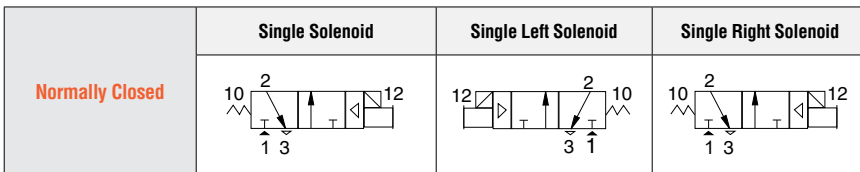
3-Way Solenoid Pilot Controlled NAMUR Interface Valves

NAMUR Series

3-Way 2-Position Valves

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

Port Size	Series	Port Size	Series	Solenoid	Options*
1/4	D06	1/4	D20	D06 Single AWR	Fluoroelastomer Seals A
1/4	D20			D06 Single Left CWR	External Pilot Connection (D20 only) B
				D20 Single Right AWR	Conduit Coil C
					Conduit Coil High Temp. CT
					Dustproof (D20 only) D
					18" Flying Leads G
					Low Watt Coil (2.5 Watts) L
					Lowest Watt Coil (0.7 Watts) with Type 2 override only (24 VDC only) (D20 only) LL
					G (BSPP)Threads W
					Push Turn-Locking Override 1
					Extended Turn-Locking Override 2
					No Override 4
					10-24 Mounting Kit 8
					10-32 Mounting Kit 9
					No Options (Leave Blank)



Series	Actuation Pilot Type	Flow l/min (Cv)	Weight kg (lb)
D06	Single	59 (0.06)	0.26 (0.58)
D20	Single Left	1770 (1.8)	0.32 (0.70)
	Single Right		

For Accessories and Options, see page 16 thru 19.
Additional Electrical Information, see page 19.

D20 Series Pressure Controlled valves available, consult AVI.

STANDARD SPECIFICATIONS (for valves on this page):

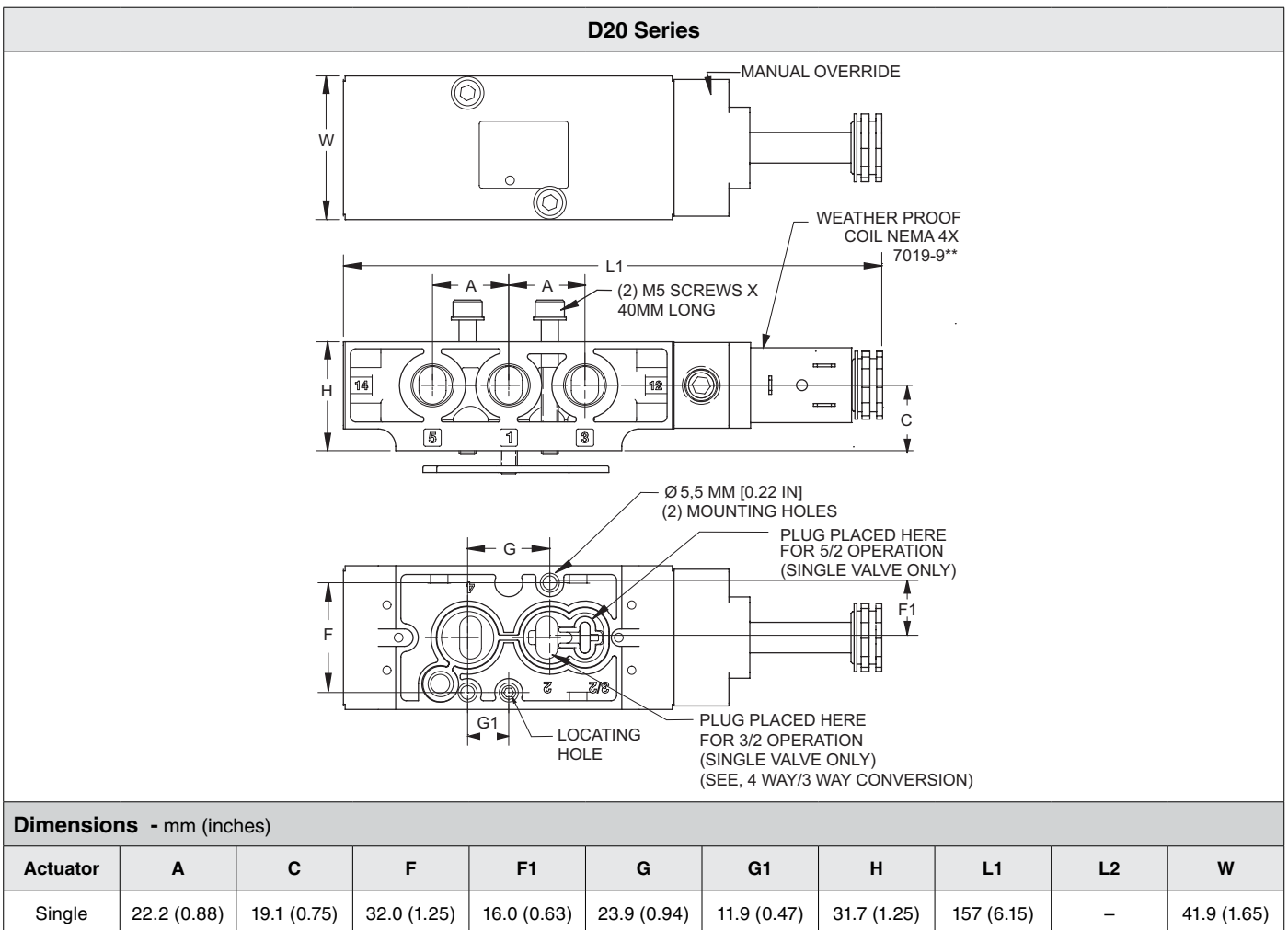
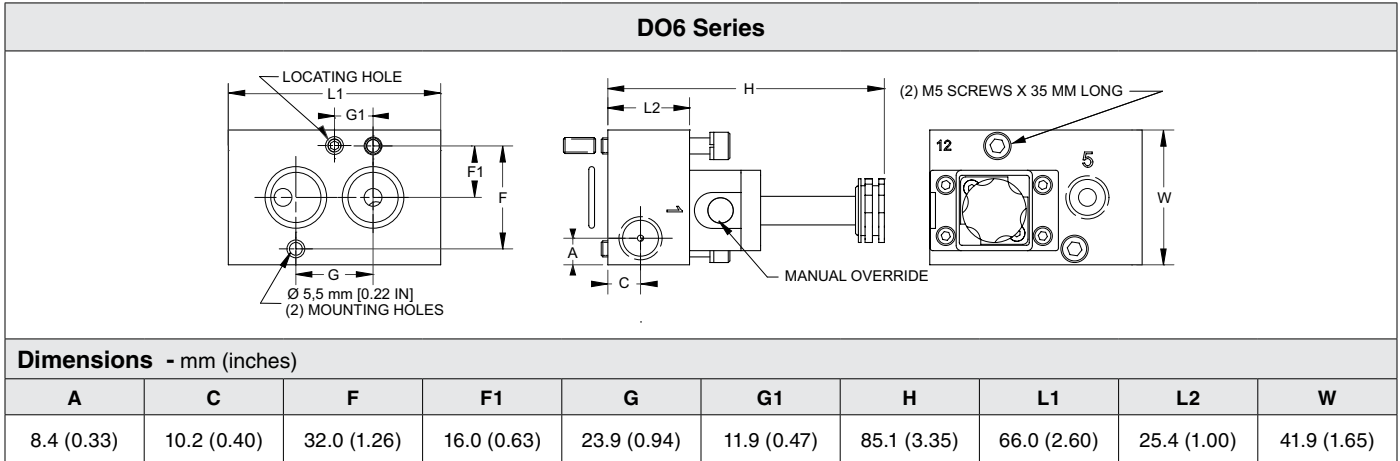
Construction Design	Spool	Operating Pressure	2.4 to 10.3 bar (35 to 150 psig)
Mounting Type	Direct mount; NAMUR Interface	Pilot Supply - Internal or External:	D06 Series: 0 to 10.3 bar (0 to 150 psig) D20 Series: 2.4 to 10.3 bar (35 to 150 psig)
Solenoids	AC or DC power; Rated for continuous duty	Construction Material	D06 Series: Bar Stock Aluminum D20 Series: Cast Aluminum
Voltage	See above	Seals:	Buna-N
Temperature Ambient/Media	Standard Coil: -18° to 50°C (0° to 123°F) High Temperature Coil: -18° to 82°C (0° to 180°F)	Solenoid Body:	Polyamid 66
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.



3-Way Solenoid Pilot Controlled NAMUR Interface Valves - Technical Data

NAMUR Series



5-Way Solenoid Pilot Controlled NAMUR Interface Valves

NAMUR Series

5-Way 2-Position Valves

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

D20 **03** **A** **CWR** **-** **DB**

Series

Port Size/Body Type	
1/4	Cast Aluminum 03
	Bar Stock Aluminum 13

Function/Actuation

5/2 Valves	
------------	--

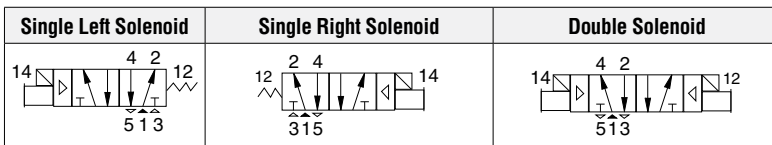
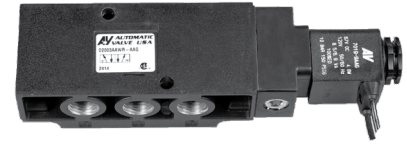
Solenoid

Single Left	CWR
Single Right	AWR
Double	BWW

Voltage*	
110 volts AC, 50 Hz	AA
120 volts AC, 60 Hz	
200 volts AC, 50 Hz	
240 volts AC, 50/60 Hz	AB
125 volts DC	
22 volts AC, 50 Hz	
24 volts AC, 50/60 Hz	DA
12 volts DC	
24 volts DC	DB

* For other voltages consult AVI.

Options*	
Fluoroelastomer Seals	A
External Pilot Connection	B
Conduit Coil	C
Conduit Coil High Temp.	CT
Dustproof	D
18" Flying Leads	G
Low Watt Coil (2.5 Watts)	L
Lowest Watt Coil (0.7 Watts) with Type 2 override only (24 VDC only)	LL
Transition Plate	P
Closed Loop	Q
303 Stainless Steel Body (D20 Bar Stock)	S
316 Stainless Steel Body (D20 Bar Stock)	SS
G (BSP)Threads	W
Push Turn-Locking Override	1
Extended Turn-Locking Override	2
No Override	4
10-24 Mounting Kit	8
10-32 Mounting Kit	9
No Options (Leave Blank)	



Valve Body Type	Actuation Pilot Type	Flow l/min (Cv)	Weight kg (lb)
Cast Aluminum	Single Left	1770 (1.8)	0.26 (0.58)
	Single Right		
	Double	1770 (1.8)	0.34 (0.75)
Bar Stock Aluminum	Single Left	1770 (1.8)	0.34 (0.75)
	Single Right		
	Double	1770 (1.8)	0.37 (0.82)

Valve dimensions, see page 8.

For Accessories and Options, see page 16 thru 19.
Additional Electrical Information, see page 19.

The NAMUR D20 Series valves, can be converted from a 4-Way valve to a 3-Way valve.
D20 Series Pressure Controlled valves available, consult AVI.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Pilot Supply	Internal or External
Mounting Type	Direct mount; NAMUR Interface	Operating Pressure	2.4 to 10.3 bar (35 to 150 psig)
Solenoids	AC or DC power; Rated for continuous duty		Pilot Supply - Internal or External: 2.4 to 10.3 bar (35 to 150 psig)
Voltage	See above		Valve Body: Cast or Bar Stock Aluminum
Temperature Ambient/Media	Standard Coil: -18° to 50°C (0° to 123°F) High Temperature Coil: -18° to 82°C (0° to 180°F)	Construction Material	Seals: Buna-N (Standard)
Flow Media	Filtered air		Solenoid Body: Polyamid 66

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

5-Way Solenoid Pilot Controlled Namur Interface Valves

NAMUR Series

5-Way 3-Position Valves

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

D20 03 C BWDW - DB

Series
 D20

Port Size/Body Type
 1/4 Cast Aluminum 03
 Bar Stock Aluminum 13

Function/Actuation
 5/3 Valves
 Closed Center C
 Open Center D
 Power Center E

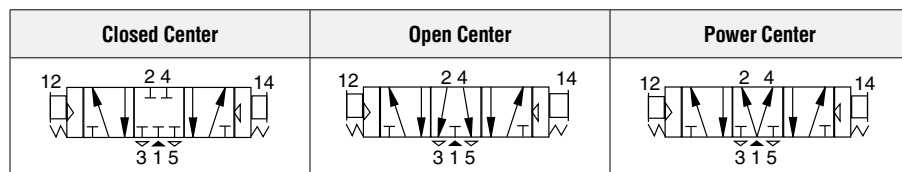
Solenoid
 Double

Voltage*
 110 volts AC, 50 Hz AA
 120 volts AC, 60 Hz AA
 200 volts AC, 50 Hz
 240 volts AC, 50/60 Hz AB
 125 volts DC
 22 volts AC, 50 Hz
 24 volts AC, 50/60 Hz DA
 12 volts DC
 24 volts DC DB

* For other voltages consult AVI.



Options*	
Fluoroelastomer Seals	A
External Pilot Connection	B
Conduit Coil	C
Conduit Coil High Temp.	CT
Dustproof	D
18" Flying Leads	G
Low Watt Coil (2.5 Watts)	L
Lowest Watt Coil (0.7 Watts) with Type 2 override only (24 VDC only)	LL
Transition Plate	P
Closed Loop	Q
303 Stainless Steel Body (D20 Bar Stock)	S
316 Stainless Steel Body (D20 Bar Stock)	SS
G (BSPP)Threads	W
Push Turn-Locking Override	1
Extended Turn-Locking Override	2
No Override	4
10-24 Mounting Kit	8
10-32 Mounting Kit	9
No Options (Leave Blank)	



Valve Body Type	Actuation Pilot Type	Flow l/min (Cv)	Weight kg (lb)
Cast Aluminum	Double	1381 (1.4)	0.36 (0.80)
Bar Stock Aluminum	Double	1770 (1.8)	0.37 (0.82)

Valve dimensions, see page 8.

For Accessories and Options, see page 16 thru 19.
Additional Electrical Information, see page 19.

The NAMUR D20 Series valves, can be converted from a 4-Way valve to a 3-Way valve.
D20 Series Pressure Controlled valves available, consult AVI.

STANDARD SPECIFICATIONS (for valves on this page):

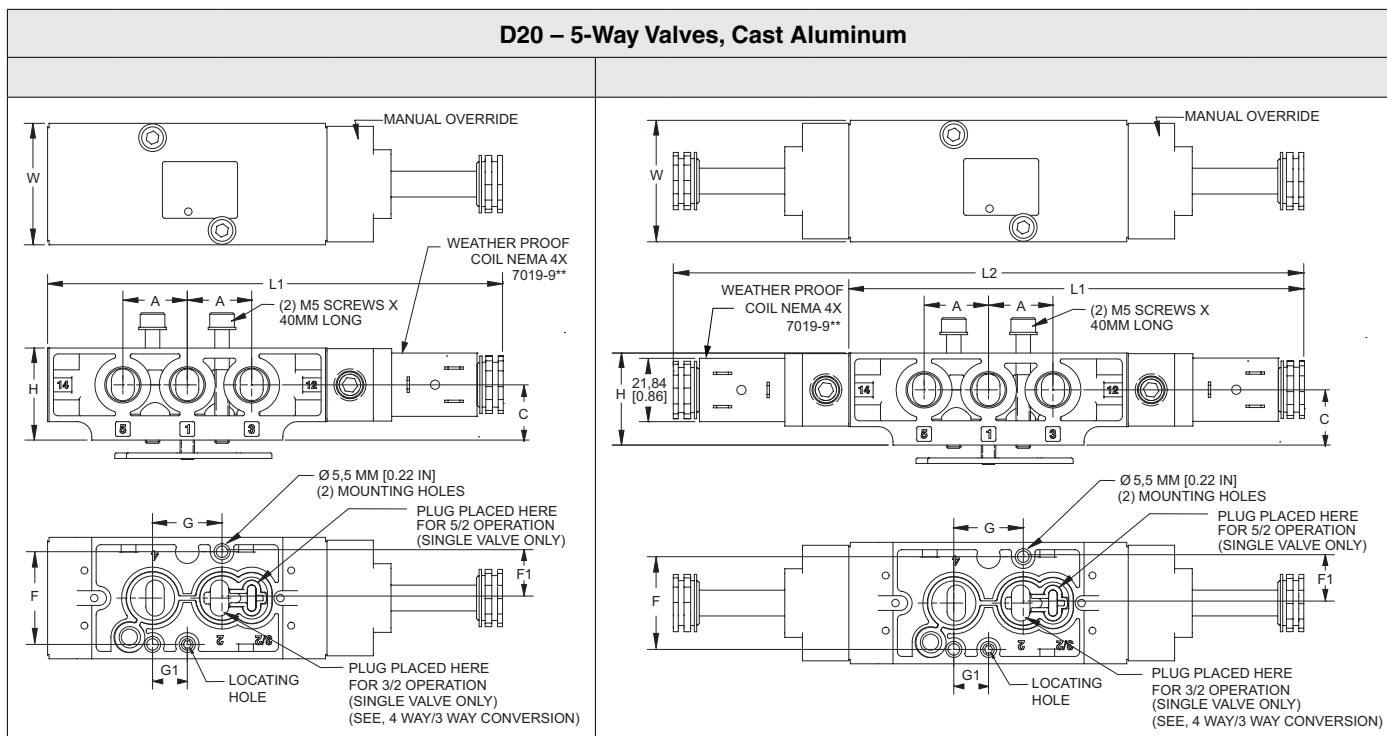
Construction Design	Spool	Pilot Supply	Internal or External
Mounting Type	Direct mount; NAMUR Interface	Operating Pressure	3.4 to 10.3 bar (50 to 150 psig)
Solenoids	AC or DC power; Rated for continuous duty	Pilot Supply - Internal or External: 3.4 to 10.3 bar (50 to 150 psig)	
Voltage	See above	Valve Body: Cast or Bar Stock Aluminum	
Temperature Ambient/Media	Standard Coil: -18° to 50°C (0° to 123°F) High Temperature Coil: -18° to 82°C (0° to 180°F)	Construction Material	Seals: Buna-N (Standard)
Flow Media	Filtered air	Solenoid Body: Polyamid 66	

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



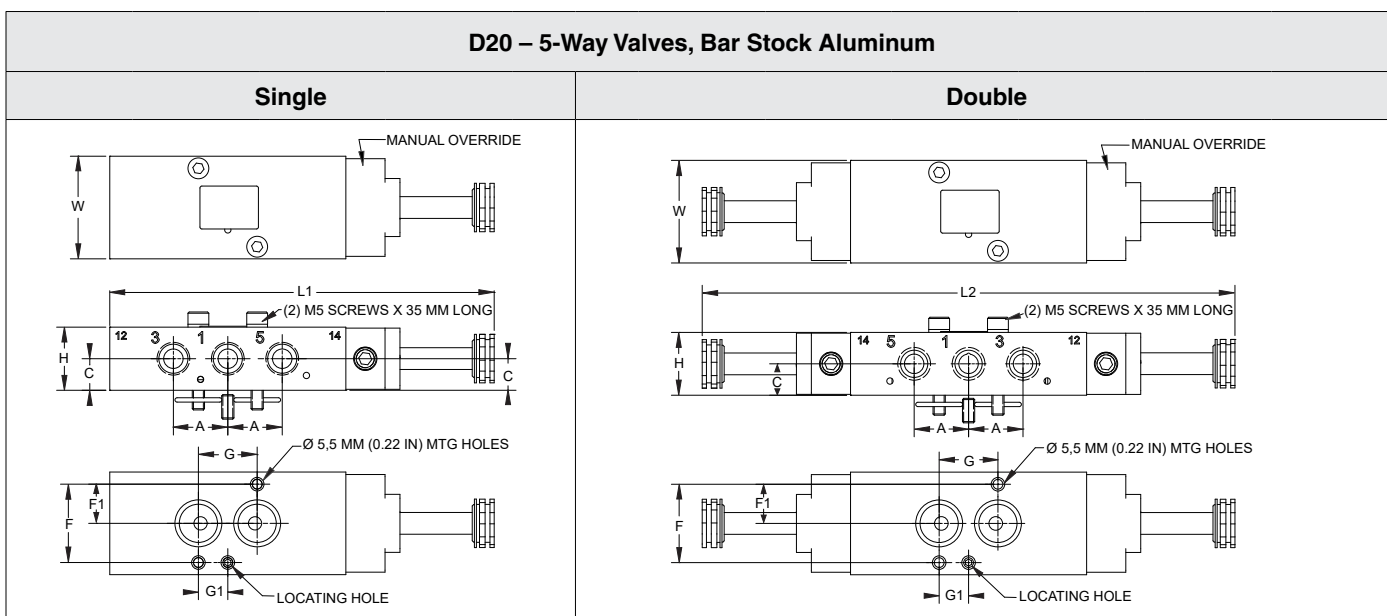
5-Way Solenoid Pilot Controlled Namur Interface Valves - Technical Data

NAMUR Series



Valve Dimensions - mm (inches)

Actuator	A	C	F	F1	G	G1	H	L1	L2	W
Single	22.2 (0.88)	19.1 (0.75)	32.0 (1.25)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	31.7 (1.25)	157 (6.15)	–	41.9 (1.65)
Double	22.2 (0.88)	19.1 (0.75)	32.0 (1.26)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	31.7 (1.25)	–	217 (8.55)	41.9 (1.65)



Valve Dimensions - mm (inches)

Actuator	A	C	F	F1	G	G1	H	L1	L2	W
Single	22.2 (0.88)	12.9 (0.51)	32.0 (1.25)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	25.7 (1.01)	157 (6.15)	–	41.9 (1.65)
Double	22.2 (0.88)	12.9 (0.51)	32.0 (1.26)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	25.7 (1.01)	–	217 (8.55)	41.9 (1.65)



3-Way Intrinsically-Safe Solenoid Pilot Controlled Namur Interface Valves – Hazardous Locations

NAMUR Series

3-Way 2-Position Valves

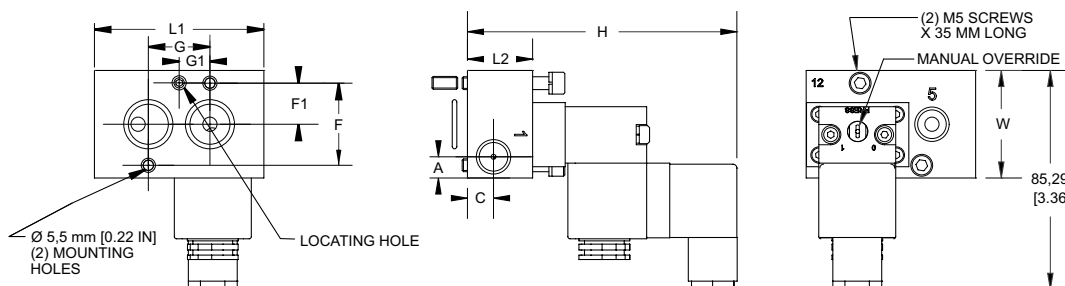
Choose your options (in red) to configure your valve model number.

D06	03	G	AVR	-	DB	24 volts DC
Port Size	Series	Port Size	Series	Solenoid	Voltage	
1/4	D06	1/4	D06	Single	24 volts DC	
1/4	D20		D20	Single Left		
				Single Right		
		Function/Actuation				
		3/2 Valves				
		Normally Closed				

Normally Closed	Single Solenoid	Single Left Solenoid	Single Right Solenoid

Actuation Pilot Type	Flow l/min (Cv)	Weight kg (lb)
Single	59 (0.06)	0.26 (0.58)
Single Left	1770 (1.8)	0.32 (0.70)
Single Right		

D06 – 3-Way Valves



Dimensions - mm (inches)											
Series Size	Actuator	A	C	F	F1	G	G1	H	L1	L2	W
D06	Single	8.4 (0.33)	10.2 (0.40)	32.0 (1.26)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	107.2 (4.22)	85.8 (3.38)	25.4 (1.00)	41.9 (1.65)
D20	Please see page 11 for information (D20 – 5-Way Valves, Single).										

For Accessories and Options, see page 16 thru 19.

D20 Series Pressure Controlled valves available, consult AVI.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Operating Pressure	2.4 to 10.3 bar (35 to 150 psig)	
Mounting Type	Direct mount; NAMUR Interface		Pilot Supply - Internal or External: D06 Series: 0 to 10.3 bar (0 to 150 psig) D20 Series: 2.4 to 10.3 bar (35 to 150 psig)	
Solenoids	DC power; Rated for continuous duty	Construction Material	D06 Series: Bar Stock Aluminum D20 Series: Cast Aluminum	
Voltage	See above		Seals:	Buna-N
Temperature Ambient/Media	Standard Coil: -18° to 50°C (0° to 123°F) High Temperature Coil: -18° to 82°C (0° to 180°F)		Solenoid Body:	Polyamid 66
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.

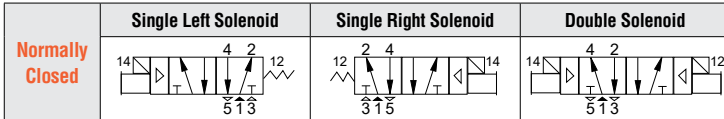
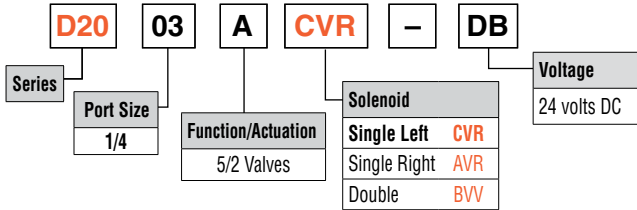


5-Way Intrinsically-Safe Solenoid Pilot Controlled Namur Interface Valves – Hazardous Locations

NAMUR Series

5-Way 2-Position Valves

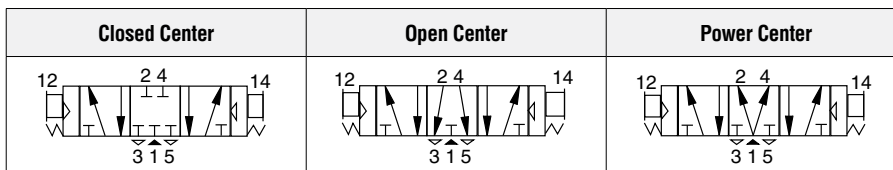
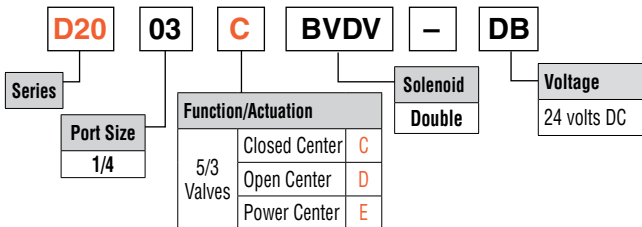
Choose your options (in red) to configure your valve model number.



Actuation Pilot Type	Flow l/min (Cv)	Weight kg (lb)
Single Left	1770 (1.8)	0.32 (0.70)
Single Right		
Double	1770 (1.8)	0.34 (0.75)

5-Way 3-Position Valves

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



Actuation Pilot Type	Flow l/min (Cv)	Weight kg (lb)
Double	1381 (1.4)	0.36 (0.80)

For Accessories and Options, see page 16 thru 19.

The NAMUR D20 Series valves, can be converted from a 4-Way valve to a 3-Way valve.

STANDARD SPECIFICATIONS (for valves on this page):

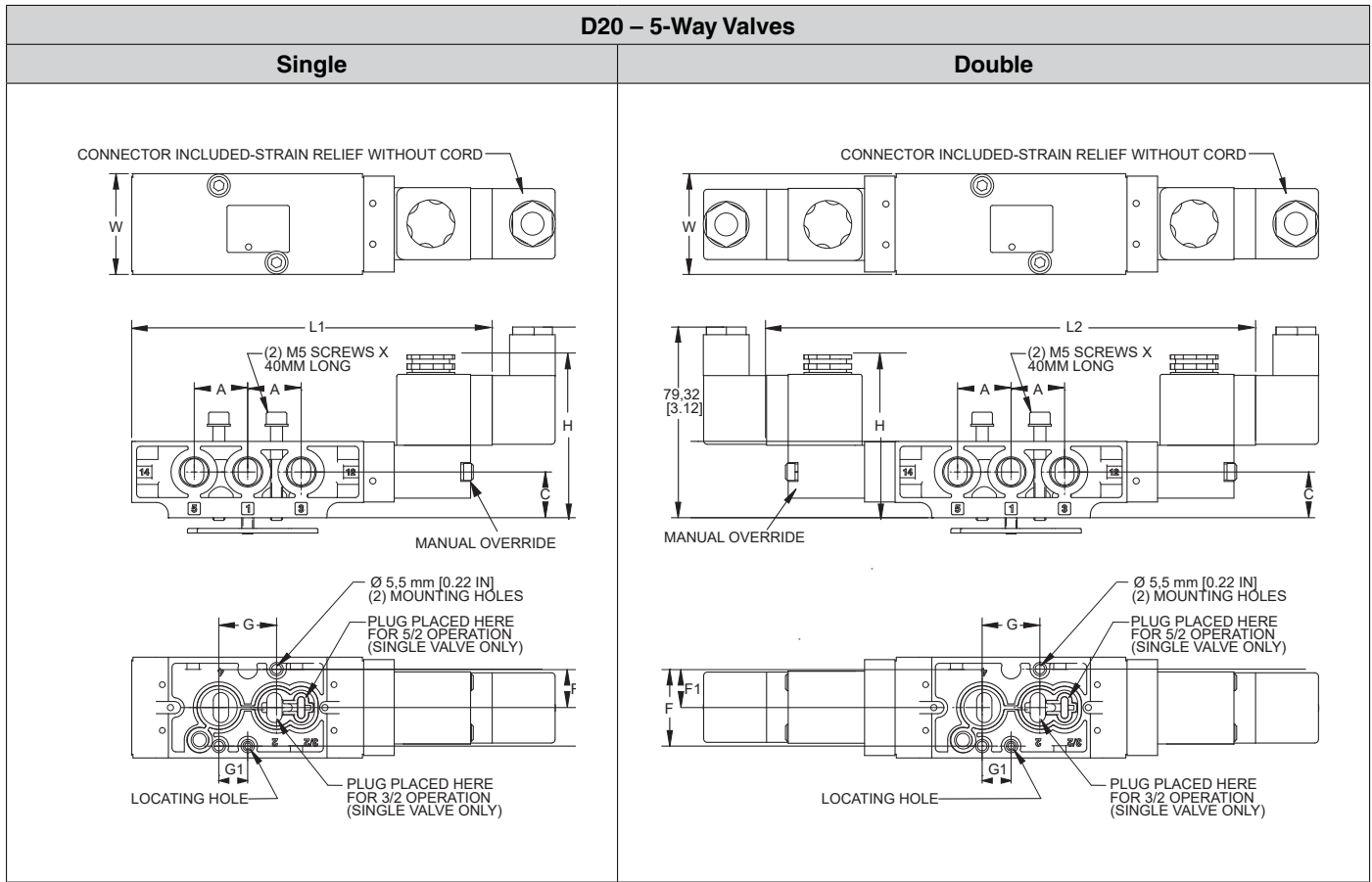
Construction Design	Spool	Pilot Supply	Internal or External
Mounting Type	Direct mount; NAMUR Interface	Operating Pressure	5/2 Valves: 2.4 to 10.3 bar (35 to 150 psig) 5/3 Valves: 3.4 to 10.3 bar (50 to 150 psig)
Solenoids	DC power; Rated for continuous duty		Pilot Supply - Internal or External: 2.4 to 10.3 bar (35 to 150 psig)
Voltage	See above	Construction Material	Valve Body: Cast Aluminum
Temperature Ambient/Media	Standard Coil: -18° to 50°C (0° to 123°F) High Temperature Coil: -18° to 82°C (0° to 180°F)		Seals: Buna-N
Flow Media	Filtered air	Solenoid Body: Polyamid 66	

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

Intrinsically-Safe Solenoid Pilot Controlled Valves

Namur Interface - Technical Data

NAMUR Series



Valve Dimensions - mm (inches)

Series Size	Actuator	A	C	F	F1	G	G1	H	L1	L2	W
D20	Single	22.2 (0.88)	19.1 (0.75)	32.0 (1.26)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	68.3 (2.69)	149 (5.86)	–	41.9 (1.65)
	Double	22.2 (0.88)	19.1 (0.75)	32.0 (1.26)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	68.3 (2.69)	–	214 (8.42)	41.9 (1.65)

Intrinsic Safety is a type of protection based on the restriction of electrical energy within an apparatus and of interconnecting wiring exposed to the potentially explosive atmosphere to a level below that which can cause ignition by either sparking or heating effects.

Basic Circuit and Application:

FM: Factory Mutual Entity Approved Barrier(s) used in an Approved configuration with:
 "V" max. > ("Vt" or "Voc")
 and "I" max. > ("It" or "Isc")

CSA: "CSA Barrier rated 28V max./300 Ohms min." or equivalent.
 Connect with CSA approved: Cable diameter 6mm to 8mm.

3-Way Explosion-Proof Solenoid Pilot Controlled Namur Interface Valves – Hazardous Locations

NAMUR Series

3-Way 2-Position Valves

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

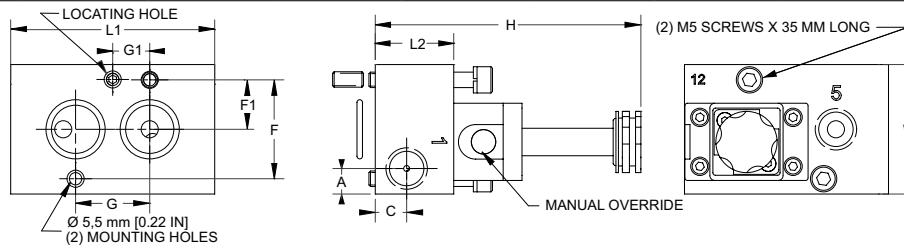
Port Size	Series	Port Size	Series	Series	Solenoid
1/4	D06	1/4		D06	Single AWR
1/4	D20			D20	Single Left CWR
					Single Right AWR
		Actuation			
		Normally Closed			
				Voltage*	
				110 volts AC, 50 Hz	
				120 volts AC, 60 Hz	AA
				200 volts AC, 50 Hz	
				240 volts AC, 50/60 Hz	AB
				125 volts DC	
				22 volts AC, 50 Hz	
				24 volts AC, 50/60 Hz	DA
				12 volts DC	
				24 volts DC	DB
				* For other voltages consult AVI.	

Options*	
Fluoroelastomer Seals	A
External Pilot Connection (D20 only)	B
Conduit Coil High Temp.	CT
Dustproof (D20 only)	D
18" Flying Leads	G
G (BSP)Threads	W
Explosion-Proof Coil (CSA, FM)	Y
Explosion-Proof Coil (ATEX, PTB)	Z
Push Turn-Locking Override	1
Extended Turn-Locking Override	2
No Override	4
10-24 Mounting Kit	8
10-32 Mounting Kit	9
No Options (Leave Blank)	
* For low Watt coil, consult AVI.	



Series	Actuation Pilot Type	Flow l/min (Cv)	Weight kg (lb)		Single Solenoid	Single Left Solenoid	Single Right Solenoid
D06	Single	59 (0.06)	0.26 (0.58)	Normally Closed			
D20	Single Left Single Right	1770 (1.8)	0.32 (0.70)				

D06 – 3-Way Valves



Dimensions - mm (inches)

Series Size	A	C	F	F1	G	G1	H	L1	L2	W
D06	8.4 (0.33)	10.2 (0.40)	32.0 (1.26)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	85.1 (3.35)	66.0 (2.60)	25.4 (1.00)	41.9 (1.65)
D20	Please see page 15 for information (D20 – 5-Way Valves, Cast Aluminum, Single).									

For Accessories and Options, see page 16 thru 19.
Additional Electrical Information, see page 19.

D20 Series Pressure Controlled valves available, consult AVI.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Operating Pressure	2.4 to 10.3 bar (35 to 150 psig)
Mounting Type	Direct mount; NAMUR Interface		Pilot Supply - Internal or External: D06 Series: 0 to 10.3 bar (0 to 150 psig) D20 Series: 2.4 to 10.3 bar (35 to 150 psig)
Solenoids	AC or DC power; Rated for continuous duty	Construction Material	
Voltage	See above		Seals:
Temperature Ambient/Media	Standard Coil: -18° to 50°C (0° to 123°F) High Temperature Coil: -18° to 82°C (0° to 180°F)	Solenoid Body:	Polyamid 66
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.

5-Way Explosion-Proof Solenoid Pilot Controlled Namur Interface Valves – Hazardous Locations

NAMUR Series

5-Way 2-Position Valves

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

D20 **03** **A** **CWR** **-** **DB**

Series

Port Size/Body Type	
1/4	Cast Aluminum 03
	Bar Stock Aluminum 13

Function/Actuation

5/2 Valves	
------------	--

Solenoid

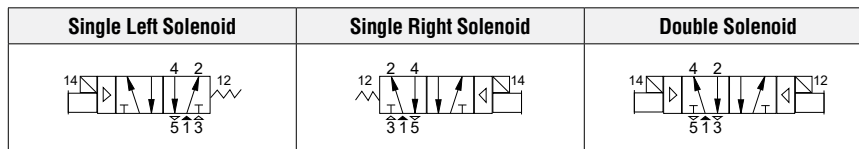
Single Left	CWR
Single Right	AWR
Double	BWW

Voltage*	
110 volts AC, 50 Hz	AA
120 volts AC, 60 Hz	AA
200 volts AC, 50 Hz	
240 volts AC, 50/60 Hz	AB
125 volts DC	
22 volts AC, 50 Hz	
24 volts AC, 50/60 Hz	DA
12 volts DC	
24 volts DC	DB

* For other voltages consult AVI.

Options*	
Fluoroelastomer Seals	A
External Pilot Connection	B
Conduit Coil High Temp.	CT
Dustproof	D
18" Flying Leads	G
Transition Plate	P
Closed Loop	Q
303 Stainless Steel Body (D20 Bar Stock)	S
316 Stainless Steel Body (D20 Bar Stock)	SS
G (BSPP)Threads	W
Explosion-Proof Coil (CSA, FM)	Y
Explosion-Proof Coil (ATEX, PTB)	Z
Push Turn-Locking Override	1
Extended Turn-Locking Override	2
No Override	4
10-24 Mounting Kit	8
10-32 Mounting Kit	9
No Options (Leave Blank)	

* For low Watt coil, consult AVI.



Valve Body Type	Actuation Pilot Type	Flow l/min (Cv)	Weight kg (lb)
Cast Aluminum	Single Left	1770 (1.8)	0.26 (0.58)
	Single Right		
	Double		
Bar Stock Aluminum	Single Left	1770 (1.8)	0.34 (0.75)
	Single Right		
	Double		

Valve dimensions, see page 15.

For Accessories and Options, see page 16 thru 19.
Additional Electrical Information, see page 19.

The NAMUR D20 Series valves, can be converted from a 4-Way valve to a 3-Way valve.
D20 Series Pressure Controlled valves available, consult AVI.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Pilot Supply	Internal or External	
Mounting Type	Direct mount; NAMUR Interface	Operating Pressure	2.4 to 10.3 bar (35 to 150 psig)	
Solenoids	AC or DC power; Rated for continuous duty		Pilot Supply - Internal or External: 2.4 to 10.3 bar (35 to 150 psig)	
Voltage	See above	Construction Material	Valve Body: Cast or Bar Stock Aluminum	
Temperature Ambient/Media	Standard Coil: -18° to 50°C (0° to 123°F) High Temperature Coil: -18° to 82°C (0° to 180°F)		Seals:	Buna-N (standard)
Flow Media	Filtered air		Solenoid Body:	Polyamid 66

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



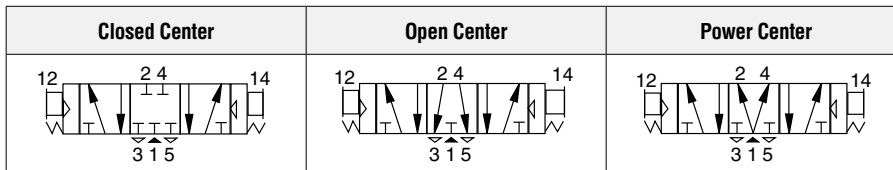
5-Way Explosion-Proof Solenoid Pilot Controlled Namur Interface Valves

NAMUR Series

5-Way 3-Position Valves

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

D20	03	C	BWDW	-	DB	
Series			Solenoid			
Port Size/Body Type			Double		Options*	
1/4	Cast Aluminum	03			Fluoroelastomer Seals A	
	Bar Stock Aluminum	13			External Pilot Connection B	
Function/Actuation			Voltage*		Conduit Coil High Temp. CT	
5/3 Valves	Closed Center	C	110 volts AC, 50 Hz AA		Dustproof D	
	Open Center	D	200 volts AC, 50 Hz		18" Flying Leads G	
	Power Center	E	120 volts AC, 60 Hz		Transition Plate P	
			240 volts AC, 50/60 Hz		Closed Loop Q	
			125 volts DC		303 Stainless Steel Body (D20 Bar Stock) S	
			22 volts AC, 50 Hz		316 Stainless Steel Body (D20 Bar Stock) SS	
			24 volts AC, 50/60 Hz		G (BSP)Threads W	
			12 volts DC		Push Turn-Locking Override 1	
			24 volts DC DB		Extended Turn-Locking Override 2	
			* For other voltages consult AVI.		No Override 4	
					10-24 Mounting Kit 8	
					10-32 Mounting Kit 9	
					No Options (Leave Blank)	
					* For low Watt coil, consult AVI.	



Valve Body Type	Actuation Pilot Type	Flow l/min (Cv)	Weight kg (lb)
Cast Aluminum	Double	1381 (1.4)	0.36 (0.80)
Bar Stock Aluminum	Double	1770 (1.8)	0.37 (0.82)

Valve dimensions, see page 15.

For Accessories and Options, see page 16 thru 19.
Additional Electrical Information, see page 19.

The NAMUR Series valves, can be easily converted from a 4-Way valve to a 3-Way valve.

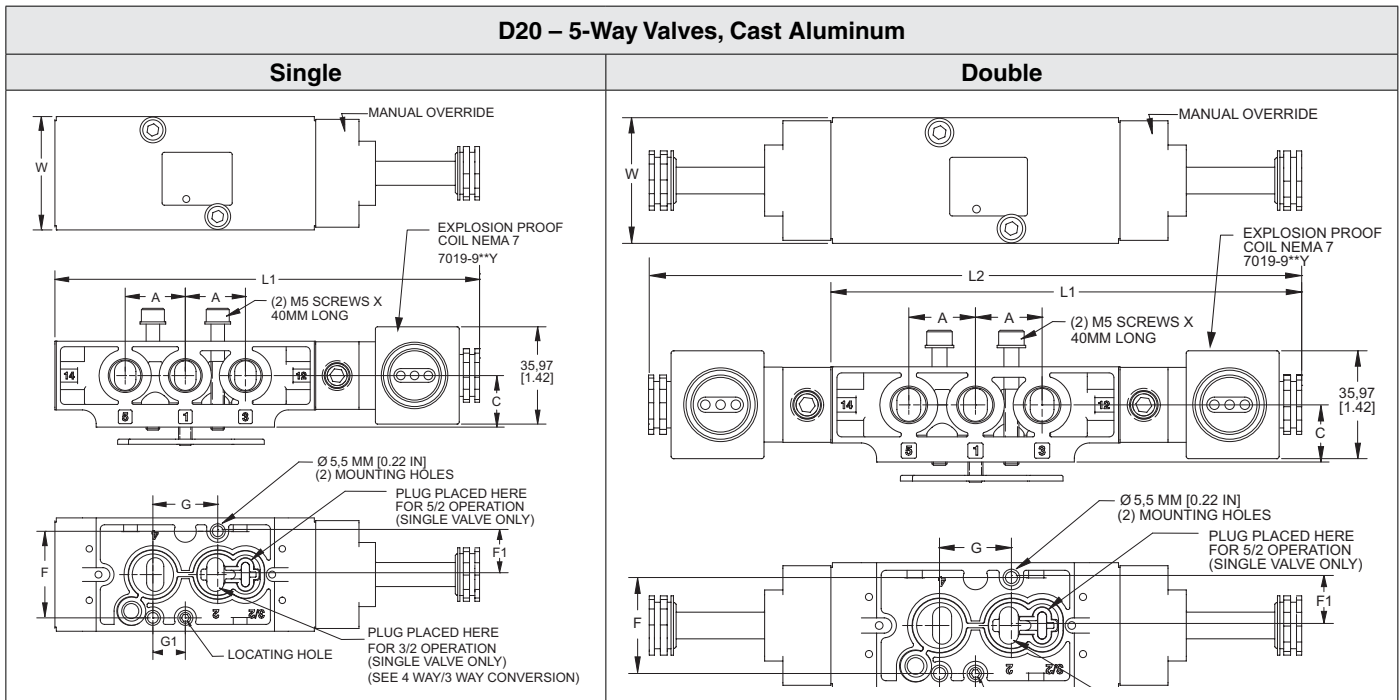
STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Spool	Pilot Supply	Internal or External	
Mounting Type	Direct mount; NAMUR Interface	Operating Pressure	3.4 to 10.3 bar (50 to 150 psig)	
Solenoids	AC or DC power; Rated for continuous duty		Pilot Supply - Internal or External: 3.4 to 10.3 bar (50 to 150 psig)	
Voltage	See above		Valve Body: Cast or Bar Stock Aluminum	
Temperature Ambient/Media	Standard Coil: -18° to 50°C (0° to 123°F) High Temperature Coil: -18° to 82°C (0° to 180°F)	Construction Material	Seals:	Buna-N (Standard)
Flow Media	Filtered air		Solenoid Body:	Polyamid 66

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

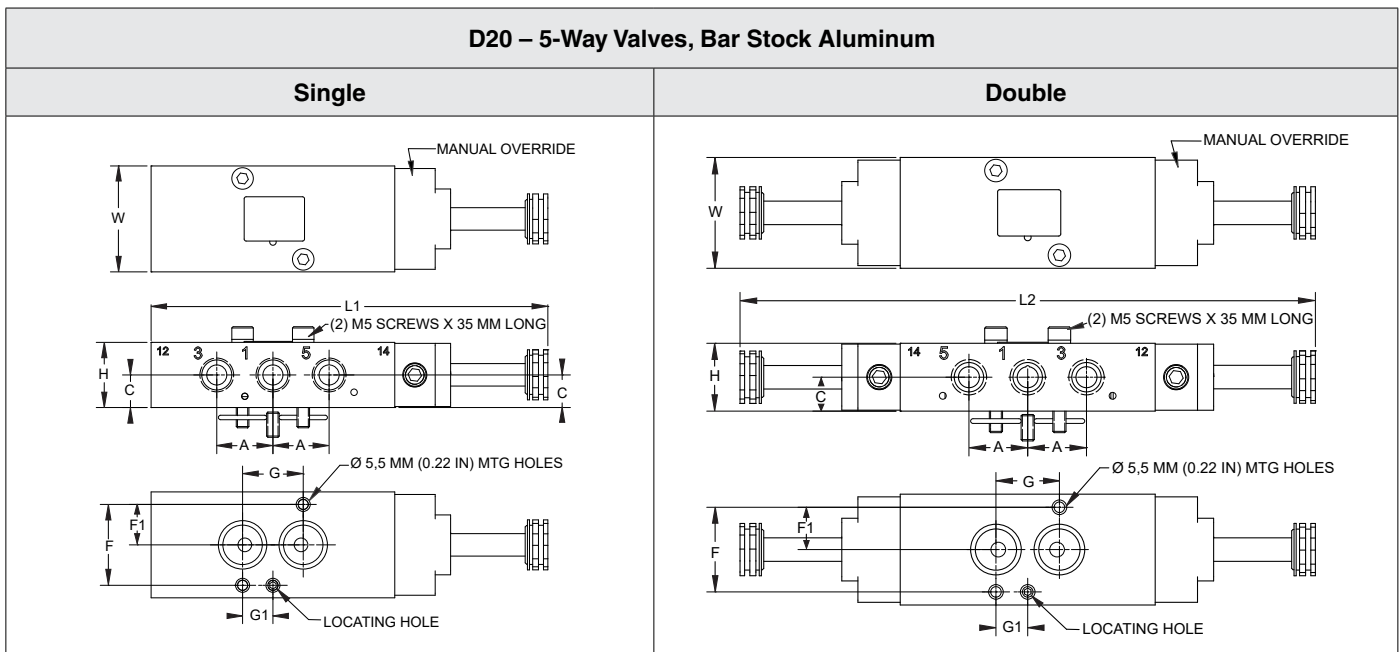
5-Way Explosion-Proof Solenoid Pilot Controlled Namur Interface Valves - Technical Data

NAMUR Series



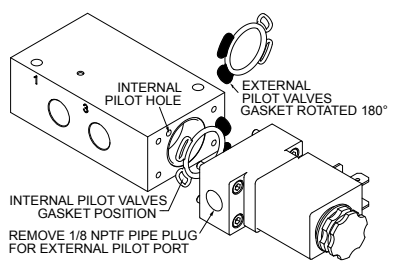
Valve Dimensions - mm (inches)

Actuator	A	C	F	F1	G	G1	H	L1	L2	W
Single	22.2 (0.88)	19.1 (0.75)	32.0 (1.25)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	31.7 (1.25)	157 (6.15)	-	41.9 (1.65)
Double	22.2 (0.88)	19.1 (0.75)	32.0 (1.26)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	31.7 (1.25)	-	217 (8.55)	41.9 (1.65)



Valve Dimensions - mm (inches)

Actuator	A	C	F	F1	G	G1	H	L1	L2	W
Single	22.2 (0.88)	12.9 (0.51)	32.0 (1.25)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	25.7 (1.01)	157 (6.15)	-	41.9 (1.65)
Double	22.2 (0.88)	12.9 (0.51)	32.0 (1.26)	16.0 (0.63)	23.9 (0.94)	11.9 (0.47)	25.7 (1.01)	-	217 (8.55)	41.9 (1.65)

OPTIONS		
<i>(Add the suffix to the end of the Model Number in alpha-numeric order)</i>		
Suffix	Option	Description
A	Fluoroelastomer Seals	For applications where fluid media or ambient conditions are not compatible with nitrile seals (D20 only). <i>Note: Fluorocarbon seals do not increase the effective temperature range of the valve. For high temperature applications, consult the factory.</i>
B	External Pilot	For solenoid applications where the pressure to port one is less than 2 BAR (35 PSIG). See example below for field conversion. (D20 only)
		<p style="text-align: center;">Field Conversion</p> <ul style="list-style-type: none"> Remove solenoid and cap from the valve body. Rotate the gasket 180° so that the internal pilot hole in the valve body is covered by the gasket. Refasten the gasket, cap and solenoid to the valve body. Make sure the gasket completely covers the internal pilot hole before tightening the M3 screws. Torque to 1,02 N-m (9 in-lbs) ±10%. Remove the 1/8 NPTF pipe plug from the cap and make the external pilot connection. 
C	Conduit Coil	Refer to the "Electrical Information" page in this section for details.
CT	Conduit Coil High Temperature	
D	Dustproof	For applications in extremely dusty and contaminated environments. Vent ports are plugged and spring pad breather vent is eliminated. (D20 only)
G	Coil With 18" Leads	Refer to the "Electrical Information" page in this section for details.
L	Low Watt Coil	Power Consumption = 2.5 Watts. Standard as Push Non-Locking Override. Also available with Option 2, Extended Turn-Locking Override.
LL	Lowest Watt Coil	Power Consumption = 0.7 watts. Standard as Extended Turn-Locking Override.
P	Transition Plate	For mounting to surface pads smaller than 6,4 cm x 3,5 cm (2 1/2" x 1 3/8"). Refer to next page for Installation Instructions (D20 only).
Q	Closed Loop	Exhaust feedback in closed loop position (D20 only).
S	303 Stainless Steel	303 Stainless Steel body, all other external parts are corrosion resistant; for corrosive environment applications (D20 Bar Stock only).
SS	316 Stainless Steel	316 Stainless Steel body, all other external parts are corrosion resistant; for corrosive environment applications (D20 Bar Stock only).
W	G Threads	All ports tapped to metric "G" standard.
Y	Explosion-Proof Coil (CSA, FM)	Refer to the "Electrical Information" page in this section for details.
Z	Explosion-Proof Coil (Atex, PTB)	Refer to the "Electrical Information" page in this section for details.
1	Push Turn-Locking Override	Solenoid cap provides an override that is pushed in and turned to actuate & lock in the "on" position.
2	Extended Turn-Locking Override	Solenoid cap provides an extended override that is turned to lock in the "on" position.
4	No Override	Solenoid cap does not provide a manual override.
8	10-24 Mounting Kit	Mounting kit contains #10-24 mounting screws and set screw
9	10-32 Mounting Kit	Mounting kit contains #10-32 mounting screws and set screw

TRANSITION PLATE (Option P)

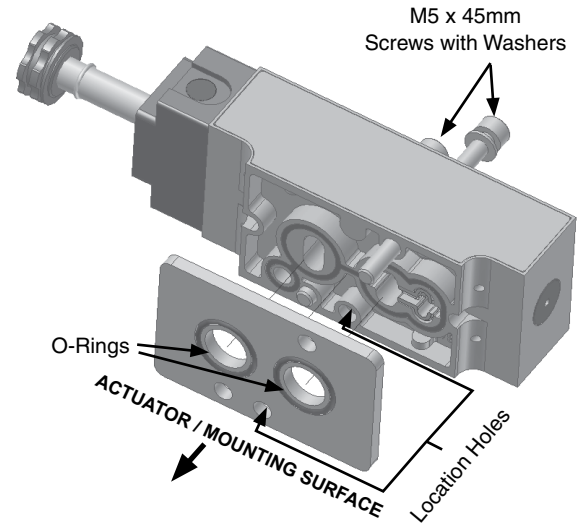
The Transition Plate is designed for use in situations where the sealing face of the solenoid valve extends beyond the mounting surface. (The minimum required mounting area measures 6,4 cm x 3,5 cm (2 1/2" x 1 3/8"))

Model Number

Option P: when ordering the plate with a valve
A8021-339: when ordering the plate only

Installation Instructions: Transition Plate

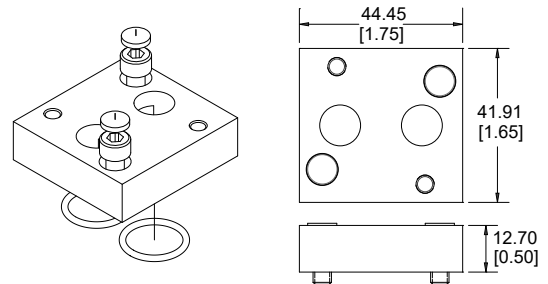
1. Place the plate between the solenoid valve and the actuator with the O-rings facing the actuator.
2. Use the supplied **M5 x 45mm screws** to secure the solenoid valve/plate assembly to the mounting surface. These are the screws supplied in the plate kit, not those originally supplied with the valve. Do NOT use the shorter 40mm original screws; they will not engage properly.
3. Torque screws to 4,4-5,3 N-m (39-47 in-lbs) ±10% to effect a seal on the O-ring and gasket side of the transition plate.



90° MOUNTING PLATE (Bar Stock Models Only)

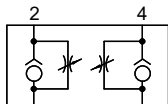
Model Number
A8022-438

- Allows horizontal installation of the directional control valve
- Orientates the valve 90° to the actuator

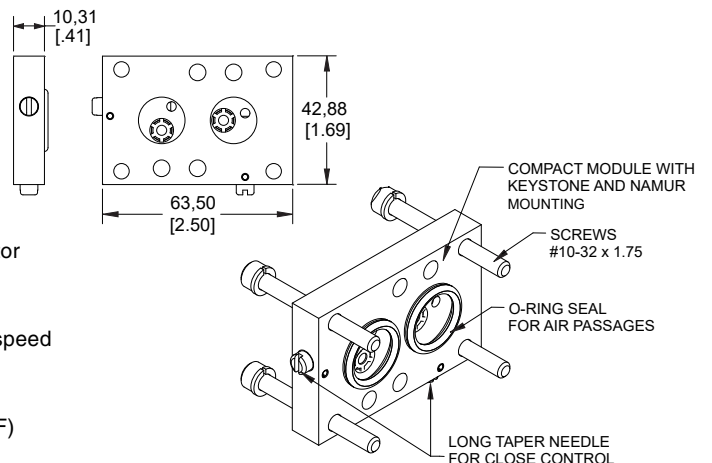


SPEED CONTROL VALVE (Bar Stock Models Only)

Model Number:
A7106-554



- Mounts between the Directional Control Valve and the Actuator
- Mounts on the NAMUR pad
- Functions as a flow control for both cylinder ports
- Is easily adjustable, turn the needles clockwise to decrease speed and counterclockwise to increase speed
- Normal operating pressure: 2 to 10 bar (35 to 150 psig)
- Normal operating temperature: -18°C to +52°C (0°F to +125°F)
- Approximate weight: 0.07 kg (0.16 lb)

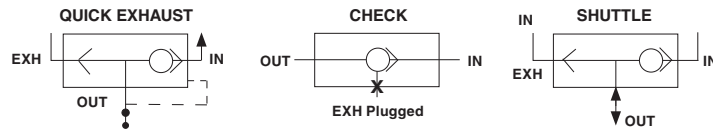


IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

QUICK EXHAUST, CHECK AND SHUTTLE VALVE

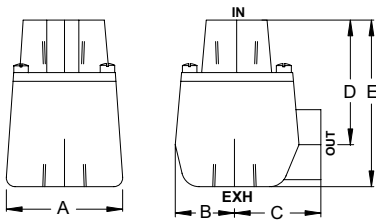


- Rugged internal construction outlasts and out performs the competition.
- Quick Exhaust: When IN is pressurized, flow is from IN to OUT with EXH blocked. When OUT is pressurized, flow is from OUT to EXH with IN blocked.
- Check Valve: Free flow from IN to OUT with EXH plugged. No flow from OUT to IN with EXH plugged.
- Shuttle Valve: When IN is pressurized, flow is from IN to OUT with EXH blocked. When EXH is pressurized, flow is from EXH to OUT with IN blocked.



Series	Model Number	Port Size (NPTF)		Flow l/min (Cv)	Pressure bar (psig)		Weight Kg (lb)
		IN, OUT	EXH		Min	Max	
MQ2	370A-22	1/4	1/4	890 (0.97)	0.3 (4)	10.7 (150)	0.07 (0.16)

Dimensions - mm (inches)



A	B	C	D	E
27.7 (1.09)	13.9 (0.55)	20.5 (0.81)	30 (1.22)	42.4 (1.67)






EXHAUST SILENCERS


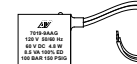
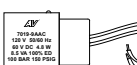
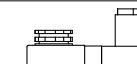
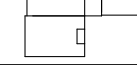
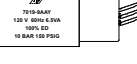
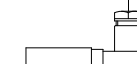
Type	Port Size	Model Number	Flow l/min (Cv)	Dimensions mm (inches)		Weight kg (lb)	Description	
				Length	Hex Size			
Aluminum	1/4	84C-2	2060 (2.3)	2060 (2.3)	44.5 (1.75)	14.3 (9/16)	<ul style="list-style-type: none"> • Reduces exhaust noise level in air systems • Maintains full volume air flow with minimum back pressure • Threads into exhaust port 	
Sintered	1/4	84D-2	600 (0.7)	600 (0.7)	33.3 (1.31)	14.3 (9/16)	<ul style="list-style-type: none"> • Reduces exhaust noise level in air systems • Sintered bronze bonded to a copper plated male pipe fitting. • Corrosion resistant • Cleanable 40-micron filter element 	

EXHAUST RESTRICTOR SILENCER

Sintered	1/4	266B-2	1160 (1.3)	1160 (1.3)	55.9 (2.2)	14.3 (11/16)	<ul style="list-style-type: none"> • Reduces exhaust noise level in air systems • Allows adjustment of exhaust air flow to accurately control cylinder speeds • Corrosion resistant • Cleanable 40-micron filter element 	
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IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

CONNECTORS										
DIN 43650 Industrial Form B						Maximum Cable Diameter: 9mm (0.35")				
	Type	Strain Relief without Cord	Strain Relief with Light 100-240 AC 48-120 DC		6-48 AC/DC	1/2" Conduit without Cord	Molded with 6' Cord	Strain Relief with Light & 6' Cord 100-240 AC 48-120 DC		6-48 AC/DC
Model Number	7020-001	7020-AA	7020-DB	7039-001	7020-006	7094-006	7094-007	Not polarity dependent.		



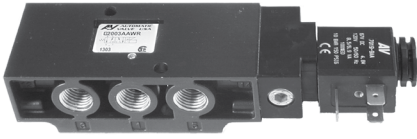


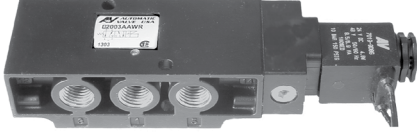





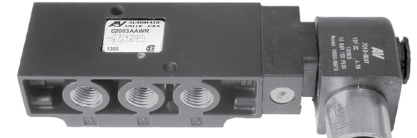


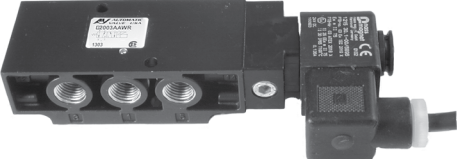
COILS						
Operator Type	Valve Body Size	Instructions	Description	Coil Part Number **=Voltage	Weight kg (lb)	
Weather-Proof	07 20 45	Order coil separately (specify voltage code from below)	DIN 43650 Industrial Form B Connection NEMA 4X	7019-9**	0.05 (0.12)	
			18" Leads NEMA 4X	7019-9**G	0.05 (0.12)	
			1/2" Conduit with 30" Leads NEMA 4X	7019-9**C 7019-9**CT (high temp 82°C max)	0.05 (0.12)	
Intrinsically-Safe	07 20 45	Coil and Connector included with valve (24 VDC only)	Strain Relief Ex ia CL. I; GR. A, B, C, D CL. II; GR. E, F, G CL. III; Div.1; T5	A7106-374-DB#	0.21 (0.46)	
Explosion-Proof		Order coil separately (specify voltage code from below)	1/2" Conduit with 24" Leads, CSA & FM Approved CL. I; Zone1 Exm II T4; AExm II CL. I; Div.1; GR. A, B, C, D CL. II; GR. E, F, G CL. III T4 Ta=-20°C to +60°C NEMA 4, 4X, 7C, 7D, 9	7019-9**Y	0.20 (0.44)	
		Order coil separately (specify voltage code from below)	3m Cable & Strain Relief Ex m II T5 PTB 03 ATEX2019 X Ex II 2 G EEx m II T5 Ex II 2 D IP65 T95°C	7152-9**	0.36 (0.78)	

Voltage Information																						
** Code	Voltage +/-10%		Current (Amps)								Resistance (OHMS @ 25°C)				Power (AC=VA, DC=Watts)							
			Inrush				Holding				W		V		Z		W		V		Z	
	Operator Type:		NEMA		ATEX		NEMA		ATEX		NEMA		ATEX		NEMA		ATEX		NEMA		ATEX	
	NEMA 4	NEMA 7,9 & ATEX	4, 4x	7, 9	Exia	Exm	4, 4x	7, 9	Exia	Exm	4, 4x	7, 9	Exia	Exm	4, 4x	7, 9	Exia	Exm				
DA	24/50 24/60	-	.36	-	-	-	.24	-	-	-	32	-	-	-	6.9	-	-	-				
AA	120/50 120/60	120/60	.08	.10	-	.04	.05	.05	-	.03	840	530	-	1664	6.9	6.5	-	3.4				
AB	230/50 230/60	240/60	.04	.05	-	.02	.03	.03	-	.01	3310	2345	-	6730	6.4	6.8	-	3.3				
DA	12 VDC	12VDC	.38	.38	-	.27	.38	.38	-	.27	32	32	-	45	4.8	4.5	-	3.5				
DB	24 VDC	24VDC	.20	.19	.05	.14	.20	.19	.05	.14	121	128	275	177	4.8	4.5	1.6	3.5				
AB	125 VDC	-	.04	-	-	-	.04	-	-	-	3310	-	-	-	5.9	-	-	-				

Lower wattage options available, consult factory.

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



Valve With W-Solenoid Cap	+	Coil	=	Valve With Coil
 <p>D2003AAWR</p>	+	 <p>NEMA 4x with DIN 43650 Form B Connection 7019-9**</p>	=	 <p>D2003AAWR-**</p>
 <p>D2003AAWR</p>	+	 <p>NEMA 4x with 18" Leads 7019-9**G</p>	=	 <p>D2003AAWR-**G</p>
 <p>D2003AAWR</p>	+	 <p>NEMA 4x 1/2" Conduit with 30" Leads 7019-9**C</p>	=	 <p>D2003AAWR-**C</p>
 <p>D2003AAWR</p>	+	 <p>Explosion-Proof 1/2" Conduit with 24" Leads 7019-9**Y</p>	=	 <p>D2003AAWR-**Y</p>
 <p>D2003AAWR</p>	+	 <p>ATEX Explosion-Proof with 39" Cable 7152-9**</p>	=	 <p>D2003AAWR-**Z</p>

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.

THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND THE ROSS GROUP EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE ROSS GROUP MAKES NO WARRANTY WITH RESPECT TO ITS PRODUCTS MEETING THE PROVISIONS OF ANY GOVERNMENTAL OCCUPATIONAL SAFETY AND/OR HEALTH LAWS OR REGULATIONS. IN NO EVENT IS THE ROSS GROUP LIABLE TO PURCHASER, USER, THEIR EMPLOYEES OR OTHERS FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM A BREACH OF THE WARRANTY DESCRIBED ABOVE OR THE USE OR MISUSE OF THE PRODUCTS. NO STATEMENT OF ANY REPRESENTATIVE OR EMPLOYEE OF THE ROSS GROUP MAY EXTEND THE LIABILITY OF THE ROSS GROUP AS SET FORTH HEREIN.





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