Automatic™ Valve

NAMUR Interface Valves
D Series

Product Catalog

ROSS™ a global family

NAMUR Interface Valves
Product Overview

NAMUR interface valves are designed to easily mount directly to pneumatic valve actuators, and are used as pilot valves to control the actuator in many flow processes.

3/2 & 5/2

Illustration examples.

VALVE FEATURES

Compact Design	Balanced spool construction, compact size, low profile and high performance
Solenoid Pilot	Pilot uses full air line pressure to shift the valve Solenoid guaranteed against burnout
Weather-Proof Coil	Hermetically sealed as an integral water tight molded unit; robust enclosures to function in rugged environments
Tapered Tee-Seal	Bidirectional tapered Tee-Seal eliminates sticking problems Tested tough & proven reliable according to SAE specifications: rust & water injected every 864,000 cycles for 20-million cycle
Manual Override	Allows the solenoid valve to be used manually in case of electrical failure, or for quick cycle testing
External Pilot Supply	Easily field convertible to external pilot supply

Custom options available, consult AVI.

PRODUCT CREDENTIALS

Functional Safety Approval	Safety Integrity Level Per IEC 61508:2001	Declaration of Conformity	Certificate of Compliance
SGS TÜV SAAR FUNKTIONALE SICHERHEIT GEPRÜFT FUNCTIONAL SAFETY APPROVED	*Up to* SIL 3 Functional Safety	CE	CSA C US

Actuation	Function	Port Size	Series		Maximum Flow C_v (l/min)	Page
		1/4	D06	D20		
Solenoid Pilot	3/2	●	●	●	1.8 (1770)	4 – 5
	5/2	●		●	1.8 (1770)	6 – 7
	5/3	●		●	1.4 (1381)	8 – 9
Accessories						10 – 14

Specifications

STANDARD SPECIFICATIONS				
GENERAL	Function	3/2 Valve – Normally Closed 5/2 Valve 5/3 Valve – Closed Center, Open Center, and Power Center		
	Construction Design	Spool		
	Actuation	Electrical – Solenoid Pilot Controlled		
	Mounting	Direct Mount; NAMUR Interface (according to the standard VDI/VDE 3845)		
		Mounting Kit	5 mm Fasteners	
	Connection	Threaded; NPT		
	Manual Override	Push, Non-Locking		
OPERATING CONDITIONS	Temperature	Ambient	-20° to 123°F (-29° to 50°C)	
		Media		
		For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.		
	Flow Media	Filtered air		
	Operating Pressure	3/2 Valves	D06 Series	0 to 150 psig (0 to 10.3 bar)
			D20 Series	35 to 150 psig (2.4 to 10.3 bar)
		5/2 Valves	35 to 150 psig (2.4 to 10.3 bar)	
		5/3 Valves	50 to 150 psig (3.4 to 10.3 bar)	
	External Pilot Supply Pressure	3/2 & 5/2 Valves	35 to 150 psig (2.4 to 10.3 bar)	
		5/3 Valves	50 to 150 psig (3.4 to 10.3 bar)	
ELECTRICAL DATA FOR SOLENOID PILOT	Solenoids	Current Flow	Operating Voltage	Power Consumption (each solenoid)
		AC	120 volts, 60 Hz	6.5 VA
			240 volts, 60 Hz	6.8 VA
		DC	24 volts	4.5 watts
			12 volts	
		Rated for continuous duty		
	Enclosure Rating	IP 65		
	Electrical Connection	DIN EN 175301-803 Form B		
		Molded coil with 18" leads		
		1/2" Conduit coil with 30" leads		
CONSTRUCTION MATERIAL	Valve Body	Bar Stock Aluminum		
	Solenoid Body	Polyamid 66		
	Spool	Aluminum		
	Seals	Buna-N		
SAFETY DATA	Safety Integrity Level (SIL)	Certified by SGS-TÜV Saar in accordance to IEC 61508 safety integrity level 2 (SIL 2) in singular application with HFT = 0, and SIL 3 and PL e in redundant application with HFT ≥ 1.		

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

Ordering Information

3/2 Valves

MODEL NUMBER CONFIGURATOR — 5-Way 2-Position Valves

D20	03	G	AWR	–	DB								

Valve Function

3/2 Normally Closed

Series	Port Size	Valve Body Height	
D06	1/4	1"	03
D20	1/4	1-1/4"	03
		1"	13

Series	Actuation – Location	
D06	Single Solenoid – Top	AWR
D20	Single Solenoid – Left	CWR
	Single Solenoid – Right	AWR

Current	Voltage*	
DC	24 V	DB
	12 V	DA
AC	120 V, 60 Hz	AA
	240 V, 60 Hz	AB

* For other voltages consult AV.

Seals Material	
Buna-N (Leave Blank)	
Fluoroelastomer	A

Pilot Supply	
Internal (Leave Blank)	
External	B

Coil and Dustproof Options		
None (Leave Blank)		
Coil *	DIN EN 175301-803 Form B (Leave Blank)	
	1/2" Conduit coil with 30" leads	C
	Conduit – High Temperature 0° to 180°F (-18° to 82°C)	CT
Dustproof	For vented ports	D
Coil *	Molded Coil with 18" Flying Leads	G
	2.5 Watt (with Standard Push, Non-Locking Override only)	L
	0.7 Watt (24 V DC only) (with Extended Turn-Locking Override option 2 only)	LL
Add option codes in alphabetical order. * Only one type of Coil can be selected.		

Transition Plate *	
None (Leave Blank)	
Transition Plate for D2003 Model only	P
* Designed for use in situations where the sealing face of the solenoid valve extends beyond the mounting surface.	

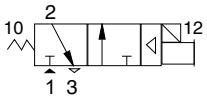
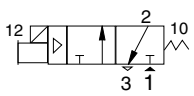
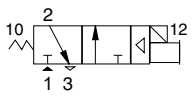
Body Material	
Bar Stock Aluminum (Leave Blank)	
303 Stainless Steel	S
316 Stainless Steel	SS

Thread Type	
NPT (Leave Blank)	
G	W

Manual Override	
Push, Non-Locking (Leave Blank)	
Push Turn-Locking	1
Extended Turn-Locking	2
No Override	4

Mounting Kit	
5 mm Fasteners (Leave Blank)	
10-24	8
10-32	9

Valve model number examples, D2013GAWR-DB, D2003GAWR-DBACDW19.

Valve Schematic	Single Solenoid	Single Solenoid – Left Pilot	Single Solenoid – Right Pilot
			

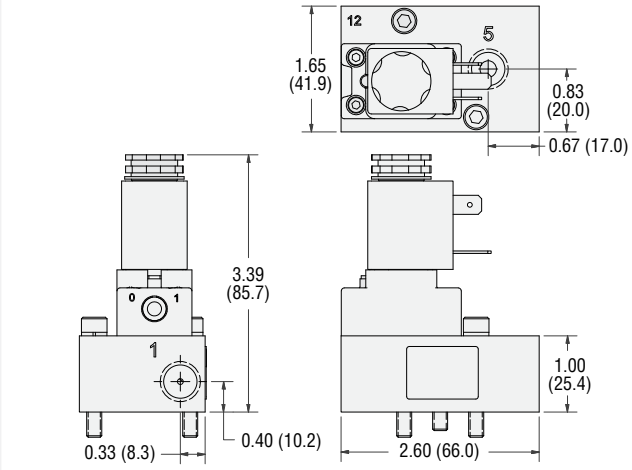
3/2 Valves

Series	Size		Flow Cv (l/min)	Weight lb (kg)
	Port 1	Port 3		
D06	1/4	1/4	0.06 (59)	0.58 (0.26)
D20	1/4	1/4	1.8 (1770)	0.70 (0.32)

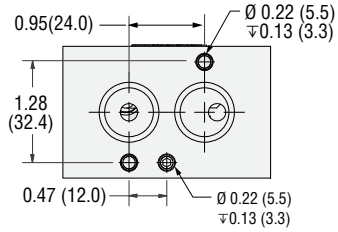
DIMENSIONS

Inches (mm)

D06 Series

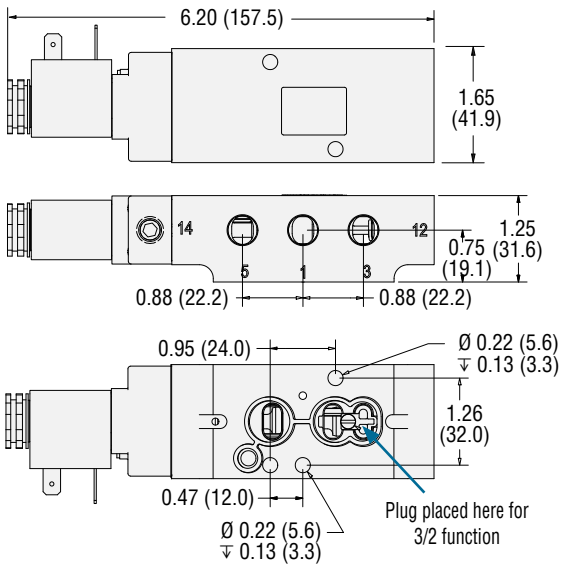


Bottom View

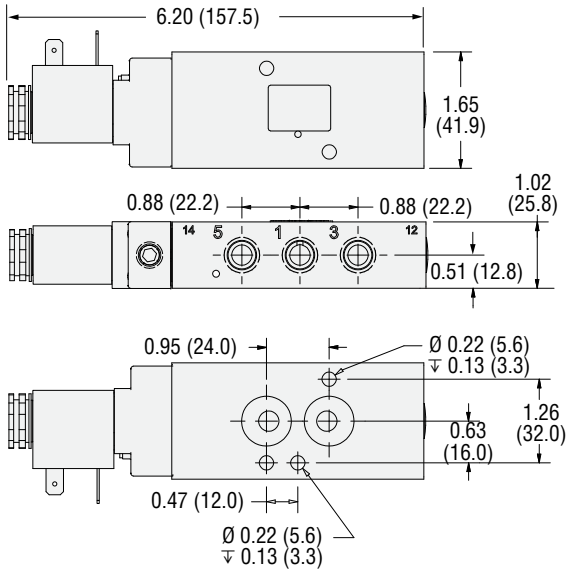


D20 Series

D2003 Model



D2013 Model



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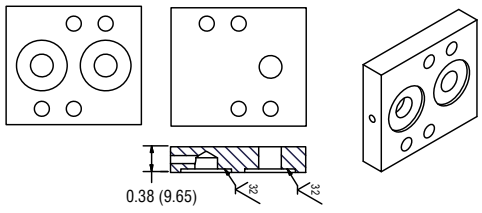
3/2 Valve Conversion Plate (Included)

2013 Models only



Ordering Information

5/2 Valves

MODEL NUMBER CONFIGURATOR — 5-Way 2-Position Valves

D20	03	A	AWR	–	DB								

Series

Valve Function

5/2

Port Size	Valve Body Height	
1/4	1-1/4"	03
	1"	13

Actuation – Location	
Single Solenoid – Left	CWR
Single Solenoid – Right	AWR
Double Solenoid	BWW

Current	Voltage*	
DC	24 V	DB
	12 V	DA
AC	120 V, 60 Hz	AA
	240 V, 60 Hz	AB

* For other voltages consult AV.

Seals Material	
Buna-N (Leave Blank)	
Fluoroelastomer	A

Pilot Supply	
Internal (Leave Blank)	
External	B

Coil and Dustproof Options		
None (Leave Blank)		
Coil *	DIN EN 175301-803 Form B (Leave Blank)	
	1/2" Conduit coil with 30" leads	C
	Conduit – High Temperature 0° to 180°F (-18° to 82°C)	CT
Dustproof	For vented ports	D
Coil *	Molded Coil with 18" Flying Leads	G
	2.5 Watt (with Standard Push, Non-Locking Override only)	L
	0.7 Watt (24 V DC only) (with Extended Turn-Locking Override option 2 only)	LL

Add option codes in alphabetical order.
* Only one type of Coil can be selected.

Transition Plate *	
None (Leave Blank)	
Transition Plate for D2003 Model only	P

* Designed for use in situations where the sealing face of the solenoid valve extends beyond the mounting surface.

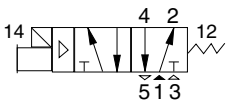
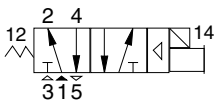
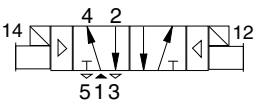
Body Material	
Bar Stock Aluminum (Leave Blank)	
303 Stainless Steel	S
316 Stainless Steel	SS

Thread Type	
NPT (Leave Blank)	
G	W

Manual Override	
Push, Non-Locking (Leave Blank)	
Push Turn-Locking	1
Extended Turn-Locking	2
No Override	4

Mounting Kit	
5 mm Fasteners (Leave Blank)	
10-24	8
10-32	9

Valve model number examples, D2013AAWR-DB, D2003AAWR-DBACDW19.

Valve Schematic	Single Solenoid – Left Pilot	Single Solenoid – Right Pilot	Double Solenoid
			

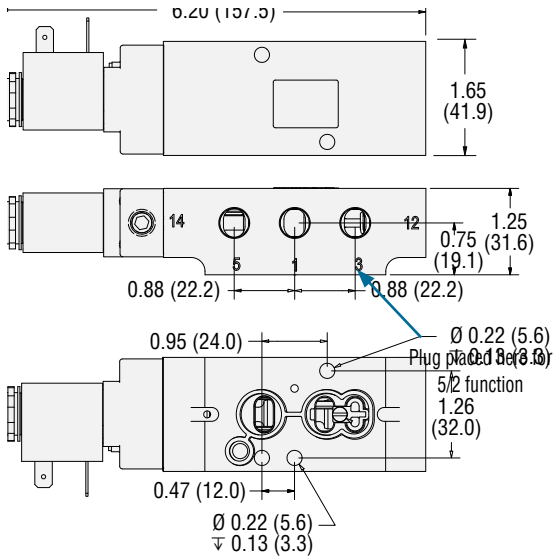
5/2 Valves

Solenoid	Size		Flow Cv (l/min)	Weight lb (kg)
	Port 1	Port 3, 5		
Single	1/4	1/4	1.8 (1770)	0.70 (0.32)
Double	1/4	1/4	1.8 (1770)	0.75 (0.34)

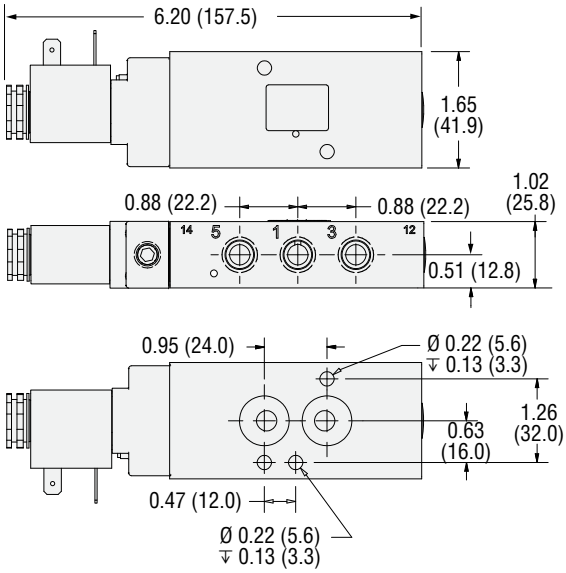
DIMENSIONS — Inches (mm)

Single Solenoid

D2003 Model

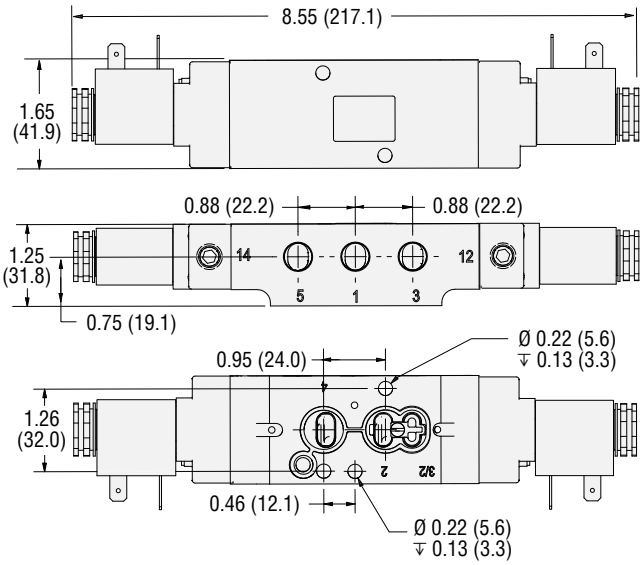


D2013 Model

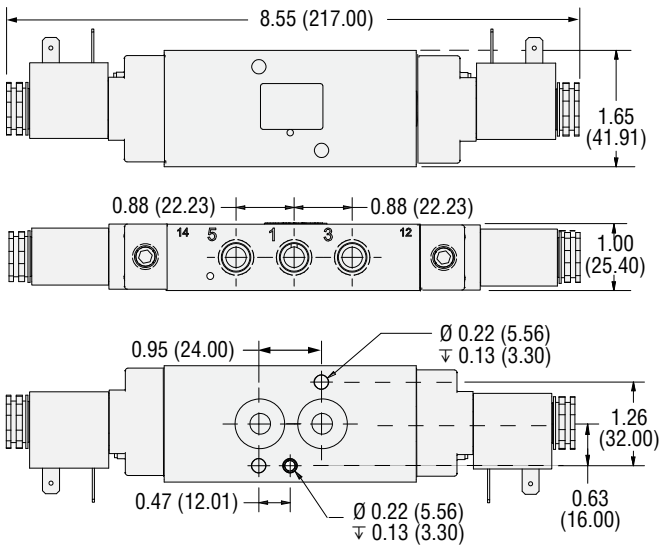


Double Solenoid

D2003 Model



D2013 Model



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Ordering Information

5/3 Valves

MODEL NUMBER CONFIGURATOR — 5-Way 3-Position Valves

D20	03	C	BWDW	–	DB								
Series	Port Size / Valve Body Height	Valve Function	Actuation		Current / Voltage*	Seals Material	Pilot Supply	Coil and Dustproof Options	Transition Plate *	Body Material	Thread Type	Manual Override	Mounting Kit

Series

D20

Port Size / Valve Body Height

Port Size	Valve Body Height	
1/4	1-1/4"	03
	1"	13

Valve Function

5/3 Closed Center	C
5/3 Open Center	D
5/3 Power Center	E

Actuation

Double Solenoid

Current / Voltage*

Current	Voltage*	
DC	24 V	DB
	12 V	DA
AC	120 V, 60 Hz	AA
	240 V, 60 Hz	AB

* For other voltages consult AV.

Seals Material

Buna-N (Leave Blank)	
Fluoroelastomer	A

Pilot Supply

Internal (Leave Blank)	
External	B

Coil and Dustproof Options

None (Leave Blank)		
Coil *	DIN EN 175301-803 Form B (Leave Blank)	
	1/2" Conduit coil with 30" leads	C
	Conduit – High Temperature 0° to 180°F (-18° to 82°C)	CT
Dustproof	For vented ports	D
Coil *	Molded Coil with 18" Flying Leads	G
	2.5 Watt (with Standard Push, Non-Locking Override only)	L
	0.7 Watt (24 V DC only) (with Extended Turn-Locking Override option 2 only)	LL

Add option codes in alphabetical order.
* Only one type of Coil can be selected.

Transition Plate *

None (Leave Blank)	
Transition Plate for D2003 Model only	P

* Designed for use in situations where the sealing face of the solenoid valve extends beyond the mounting surface.

Body Material

Bar Stock Aluminum (Leave Blank)	
303 Stainless Steel	S
316 Stainless Steel	SS

Thread Type

NPT (Leave Blank)	
G	W

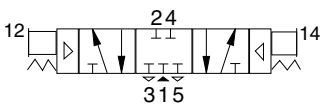
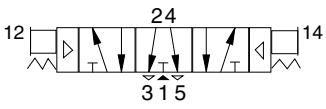
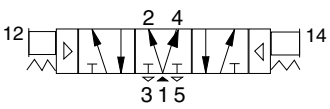
Manual Override

Push, Non-Locking (Leave Blank)	
Push Turn-Locking	1
Extended Turn-Locking	2
No Override	4

Mounting Kit

5 mm Fasteners (Leave Blank)	
10-24	8
10-32	9

Valve model number examples, D2013CBWDW-DB, D2013CBWDW-DBACDW19.

Valve Schematic	Closed Center	Open Center	Power Center
			

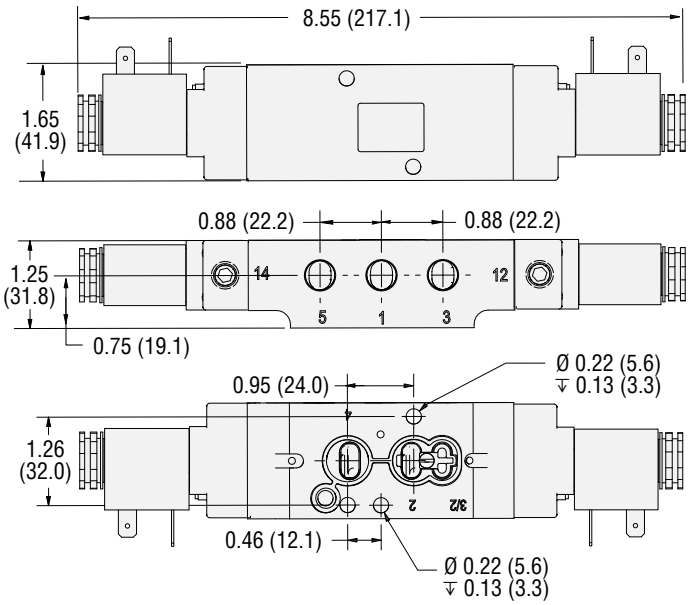
5/3 Valves

Actuation Pilot Type	Size		Flow Cv (l/min)	Weight lb (kg)
	Port 1	Port 3, 5		
Double	1/4	1/4	1.4 (1381)	0.80 (0.36)

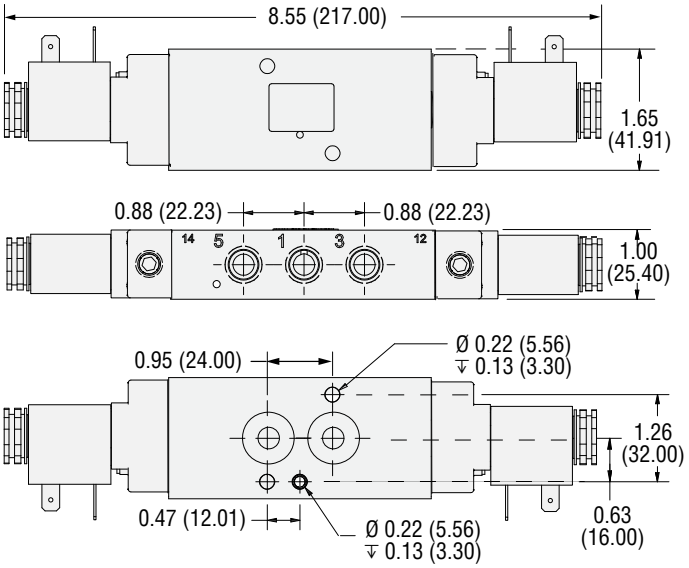
DIMENSIONS

Inches (mm)

D2003 Model



D2013 Model



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ELECTRICAL CONNECTORS

Connectors

Connector					Model Number		
Type	Connection	Fitting Connection	Quantity Included	Maximum Cord Diameter mm	Without Light	Lighted Connector	
						6-48 V AC/DC	100-240 V AC 48-120 V DC
DIN 43650 Industrial Form B	Solenoid	Cable grip	1	9mm	7020-001	7020-DB	7020-AA
		1/2" NPT conduit	1	–	7039-001	–	–
# Not polarity dependent.							

PREWIRED ELECTRICAL CONNECTORS

Prewired Connectors

Cable						Model Number		
End 1	End 2	Length feet (meters)	Connection	Quantity Included	Cord Diameter mm	Without Light	Lighted Connector	
Connector	Cord						6-48 V AC/DC	100-240 V AC 48-120 V DC
Molded DIN 43650 Industrial Form B	Flying leads	6 (1.8)	Solenoid	1	6	7020-006	–	–
Cable grip DIN 43650 Industrial Form B	Flying leads	6 (1.8)	Solenoid	1	6	–	7094-007	7094-006

Electrical Connectors			Prewired Electrical Connectors	
7020-001	7020-AA, 7020-DB	7039-001	7020-006	7094-006, 7094-007
				

Illustration examples.

SOLENOID COILS

	Electrical Connection	Enclosure Rating	Maximum Operating Temperature	ModelNumber	Weight lb (kg)
Weather-Proof Coils	DIN EN 43650 Industrial Form B	IP65	123°F (50°C)	7019-9**	0.12 (0.05)
	Molded Coil with 18" Leads			7019-9**G	
	1/2" Conduit Coil with 30" Leads	IP65	123°F (50°C)	7019-9**C	0.12 (0.05)
			180°F (82°C)	7019-9**CT	
	** *Insert voltage code from below.*				

Coil Type	Current Flow	Voltage +/- 10%	** Voltage Code	Power		Current Amps		Resistance OHMS @ 25°C
				DC = Watts	AC = VA	Inrush	Holding	
DIN EN 43650 Industrial Form B	DC	12 V	**DA**	4.8	–	0.380	0.380	32
		24 V	**DB**	4.8	–	0.200	.0200	121
	AC	120 V 60 Hz	**AA**	–	6.9	0.075	0.050	32
		240 V 60	**AB**	–	6.4	0.038	0.025	121
Molded Coil with 18" Leads	DC	12 V	**DA**	4.8	–	0.380	0.380	32
		24 V	**DB**	4.8	–	0.200	.0200	121
	AC	120 V 60 Hz	**AA**	–	6.9	0.075	0.050	32
		240 V 60 Hz	**AB**	–	6.4	0.038	0.025	121
1/2" Conduit Coil with 30" Leads 123°F (50°C)	DC	12 V	**DA**	4.8	–	0.400	0.400	32
		24 V	**DB**	4.8	–	0.200	0.200	121
	AC	120 V 60 Hz	**AA**	–	6.9	0.078	0.058	840
		240 V 60	**AB**	–	6.4	0.039	0.028	3900
1/2" Conduit Coil with 30" Leads 180°F (82°C)	DC	12 V	**DA**	4.8	–	0.400	0.400	32
		24 V	**DB**	4.8	–	0.200	0.200	121
	AC	120 V 60 Hz	**AA**	–	6.9	0.078	0.058	840
		240 V 60	**AB**	–	6.4	0.039	0.028	3950

Solenoid Coils

DIN EN 43650 Industrial Form B	Molded coil with 18" Leads	1/2" Conduit coil with 30" Leads
		

Illustration examples.

Accessories

EXHAUST SILENCERS

	Material	Port Size	Thread Type	Model Number NPT Thread	Flow C_v (l/min)	Dimensions Inches (mm) Length	Dimensions Inches (mm) Hex Size	Weight lb (kg)	Pressure Range psig (bar)
Silencers	Aluminum	1/4	Male	84C-2	2.3 (2060)	1.69 (42.9)	0.56 (14.3)	0.04 (0.02)	0-300 (0-20) maximum
	Sintered Bronze	1/4	Male	84D-2	0.7 (600)	1.31 (33.3)	0.56 (14.3)	0.03 (0.01)	

EXHAUST RESTRICTOR SILENCER

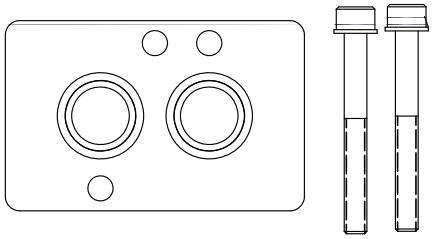
	Material	Port Size	Thread Type	Model Number NPT Thread	Flow C_v (l/min)	Dimensions Inches (mm) Length	Dimensions Inches (mm) Hex Size	Weight lb (kg)	Pressure Range psig (bar)
Speed Control Silencers	Sintered Bronze	1/4	Male	266B-2	0.7 (600)	1.69 (42.9)	0.56 (14.3)	0.07 (0.32)	0-300 (0-20) maximum

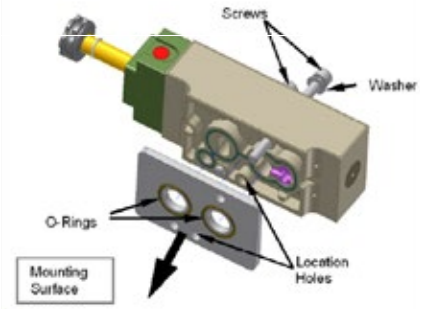
Aluminum Silencer	Sintered Bronze Silencer	Sintered Bronze Restrictor
		

Illustration examples.

TRANSITION PLATE (Option P)

Model Number	
A8021-339	**Option P** – When ordering the plate with a valve. 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")

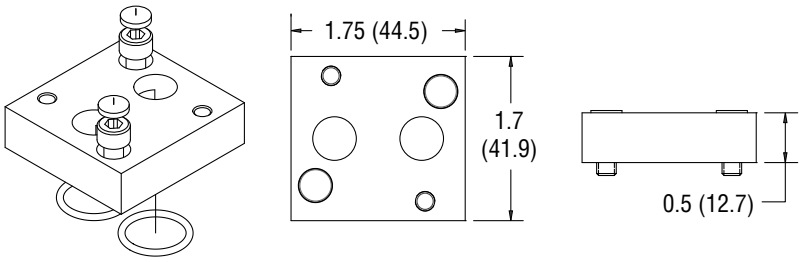




90° MOUNTING PLATE

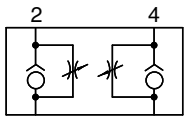
Model Number	
A7106-554	• Allows horizontal installation of the directional control valve • Orientates the valve 90° to the actuator

Dimensions: Inches (mm)



SPEED CONTROL VALVE

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

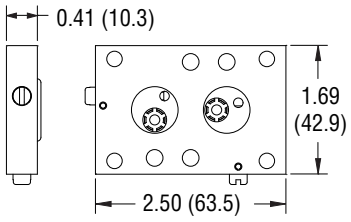


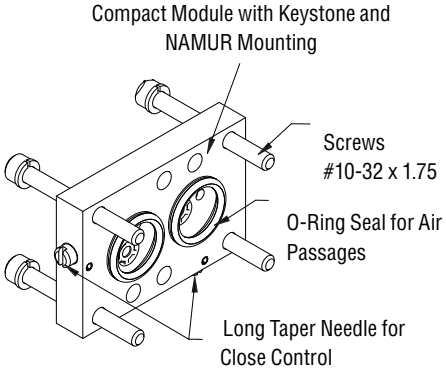
Operating Pressure:
35 to 150 psig (2 to 10 bar)

Operating Temperature:
0°F to +125°F (-18°C to +52°C)

Approximate Weight:
0.16 lb (0.07 kg)

Dimensions: Inches (mm)



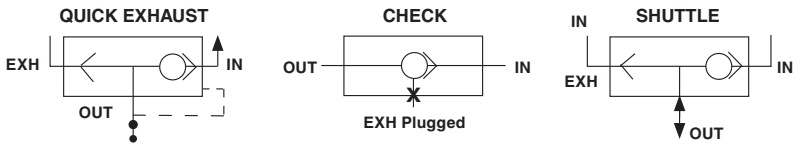


QUICK EXHAUST, CHECK AND SHUTTLE VALVE

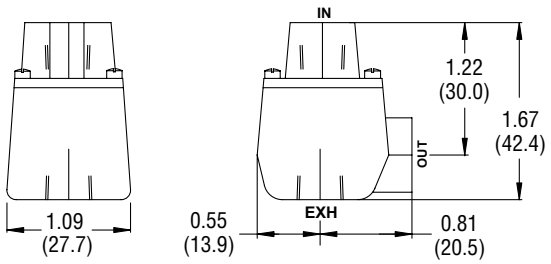
Series	Port Size		Port Thread	Model Number	Flow C_v (l/min)	Pressure psig (bar)		Weight lb (kg)
	Inlet, Outlet	Exhaust				Min.	Max.	
MQ2	1/4	1/4	NPTF	370A-22	0.97 (890)	0.3 (4)	10.7 (150)	0.16 (0.07)

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.



Dimensions: Inches (mm)



For additional information, and to assist you with piping and connectivity designs, our products are available in downloadable 2D drawings and 3D CAD models in a wide range of options including native formats. Please visit www.automaticvalve.com.

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. Safe 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 Safe 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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