Safe Return CrossMirror® Double Valves

CM26 Series

Product Catalog

a global family

Control Reliable CrossMirror® Double Valves CM26 Series
Product Overview

Safe Return Safety Function

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 such as small size pneumatic cylinder-operated presses, valve operators, and safety latches.

Solenoid Pilot Controlled	Pressure Controlled
	

Illustration example.

The valve has a self-contained monitoring system, requires no additional monitoring and is designed for Category 4, Performance Level e applications. Upon detecting a fault due to discordant spool valve action, the valve locks out and remains so until an overt reset signal (electrical solenoid or remote pneumatic) is applied. This prevents unintentional reset and further bolsters safety. The optional pressure switch provides valuable feedback to the operator regarding whether or not the valve is in “ready-to-run” condition.

VALVE FEATURES

Dynamic Monitoring	Self-contained dynamic monitoring system requires no additional valve monitoring controls
Valve Reset	Dedicated reset; requires an overt act to reset unit after lockout
Spool Type Design	Dual stainless steel spools construction
Status Indicator Option	Status indication switch (ready-to-run) to inform machine controller of valve condition The Pressure switch provides a signal when valve is in a faulted position
Mounting	Base mounted; manifoldable for multi-valve applications
SISTEMA Library	Available for download

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.

PRODUCT CREDENTIALS

Performance Level Per ISO 13849-1:2015	Safety Integrity Level Per IEC 2061:2001	DGUV	Declaration of Conformity			Certificate of Compliance
Cat. 4 PL e	SIL 3 Functional Safety	DGUV Test HM 230035 Sicherheit geprüft tested safety	CE	UK CA	EAC	CSA C US

Specifications

STANDARD SPECIFICATIONS					
GENERAL	Function		4-way, 5/2 Valve		
	Construction Design		Double Spool and Sleeve		
	Actuation		Electrical	Solenoid Pilot Controlled	
			Pneumatic	Pressure Controlled	
	Mounting		Type	Base; Manifold	
			Orientation	Any, preferably vertical	
	Connection		Threaded	NPT, G	
	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		
	Minimum Operation Frequency		Once per month, to ensure proper function		
OPERATING CONDITIONS	Temperature		Ambient	40° to 122°F (4° to 50°C)	
			Media	40° to 175°F (4° to 80°C)	
	Flow Media		Filtered air		
	Operating Pressure		Solenoid Pilot Controlled	40 to 150 psig (3 to 10 bar)	
			Pressure Controlled		
	Pilot Pressure		Must be equal to or greater than inlet pressure but should not exceed maximum inlet pressure		
	Valve Reset	Solenoid Reset	Units with solenoid reset include a 3/2 solenoid valve. Energize this solenoid momentarily to reset valve after lock-out condition occurs.		
		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.		
		NOTE: Main solenoids must be off when performing reset procedure.			
ELECTRICAL DATA FOR PRESSURE SWITCH	Switch Current/Voltage	Solenoid Pilot Controlled	5 amps at 30 volts DC		
			5 amps at 250 volts AC		
		Pressure Controlled	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.		
ELECTRICAL DATA FOR SOLENOID PILOT CONTROLLED VALVES	Solenoids	Current Flow	Operating Voltage	Valve Basic Size	Power Consumption (each solenoid)
		DC	24 volts	0	1.5 watts
				2	5.8 watts nominal, 6.5 watts maximum
		AC	110-120 volts, 50/60 Hz	0	1.7 watts
				2	5.8 watts nominal, 6.5 watts maximum
			220 volts, 50/60 Hz	0	5.0 VA
				2	5.8 watts nominal, 6.5 watts maximum
		Rated for continuous duty			
	Enclosure Rating		IP65, IEC 60529		
	Electrical Connection		Basic Size 0	DIN EN 175301-803 Form C	
			Basic Size 2	DIN EN 175301-803 Form A	
CONSTRUCTION MATERIAL	Valve Body		Cast Aluminum		
	Poppet		Stainless Steel		
	Seals		Buna-N		
SAFETY DATA	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	CAT 4, PL e	
			B_{10D}	20,000,000	
			PFH_D	$7.71x10^{-9}$	
			$MTTF_D$	301.9 (n_{op}: 662400)	
	Vibration/Impact Resistance		Calculated to DIN EN 60068-2-6		

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

Ordering Information

5/2 SOLENOID PILOT CONTROLLED VALVES – VALVE AND BASE ASSEMBLY

MODEL NUMBER CONFIGURATOR — 4-Way 2-Position Valves

CM	2	6	P	N	A	01	A	2	1

Series

Monitoring

Valve Function

5/2

Return Override

Pressure Return

Port Thread	
NPT	N
G	D

Revision Level

Basic Size	Port Size		
	In	Out	
0	1/4	1/4	00
	3/8	3/8	01
2	1/2	1/2	22

Status Indicator*	
None	X
Mechanical Pressure Switch DIN EN 175301-803 Form A (connector included)	1

* For M12 type connection consult ROSS.

Valve Reset	
Remote Air	1
Solenoid	2

Current	Voltage*	
DC	24 V	A
AC	110 V, 50 Hz 120 V, 50/60 Hz	B
	230 V, 50/60 Hz #**	C

* For other voltages consult ROSS.

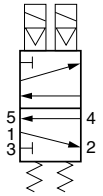
\# Basic Size 2 only.
** 230 V AC (OSHA regulations limit press control voltage to no more than 120 V AC in the US).

Model Number examples: CM26PNA01A21, CM26PDA00B2X.

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

Valve and Base	Size			Flow C_v (Nl/min)				Weight lb (kg)
	Basic	Port 1	Port 2, 4	1-2	1-4	2-3	4-5	
With Status Indicator Switch	0	1/4	1/4	0.8 (790)	0.6 (590)	0.5 (490)	1.1 (1100)	5.85 (2.7)
		3/8	3/8	0.8 (790)	0.6 (590)	0.5 (490)	1.1 (1100)	5.75 (2.6)
	2	1/2	1/2	3.0 (2900)	2.5 (2500)	2.0 (2000)	3.9 (3800)	14.45 (6.6)
Without Status Indicator Switch	0	1/4	1/4	0.8 (790)	0.6 (590)	0.5 (490)	1.1 (1100)	5.30 (2.4)
		3/8	3/8	0.8 (790)	0.6 (590)	0.5 (490)	1.1 (1100)	5.20 (2.4)
	2	1/2	1/2	3.0 (3000)	2.5 (2500)	2.0 (2000)	3.9 (3800)	13.80 (6.3)

Simplified Schematic



5/2 Solenoid Pilot Controlled Valves – 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.

Valve Only

With Status Indicator Switch

Size			Valve Reset	Model Number #		
Basic	Port 1	Port 2, 4		24 V DC	110-120 V AC	230 V AC
0	1/4	1/4	Remote Air	CM26PXA0XA11	CM26PXA0XB11	–
			Solenoid	CM26PXA0XA21	CM26PXA0XB21	–
	3/8	3/8	Remote Air	CM26PXA0XA11	CM26PXA0XB11	–
			Solenoid	CM26PXA0XA21	CM26PXA0XB21	–
2	1/2	1/2	Remote Air	CM26PXA2XA11	CM26PXA2XB11	CM26PXA2XC11
			Solenoid	CM26PXA2XA21	CM26PXA2XB21	CM26PXA2XC21

Valve include DIN EN 175301-803 type connection, for M12 type connection consult ROSS.

Without Status Indicator Switch

Size			Valve Reset	Model Number #		
Basic	Port 1	Port 2, 4		24 V DC	110-120 V AC	230 V AC
0	1/4	1/4	Remote Air	CM26PXA0XA1X	CM26PXA0XB1X	–
			Solenoid	CM26PXA0XA2X	CM26PXA0XB2X	–
	3/8	3/8	Remote Air	CM26PXA0XA1X	CM26PXA0XB1X	–
			Solenoid	CM26PXA0XA2X	CM26PXA0XB2X	–
2	1/2	1/2	Remote Air	CM26PXA2XA1X	CM26PXA2XB1X	CM26PXA2XC1X
			Solenoid	CM26PXA2XA2X	CM26PXA2XB2X	CM26PXA2XC2X

Manifold Bases

Size			Base Model Number	
Basic	Port 1	Port 2, 4	NPT Thread	G Thread
0	1/4	3/8	YD1951D91	Y1951D91
	3/8	1/2	YD1949D91	Y1949D91
2	1/2	3/4	YD1955D91	Y1955D91

End Stations

Size			Manifold End Station with Check Valve		Dual Supply Manifold End Station with Check Valves	
Basic	Port 1	Port 2, 4	Kit Number		Kit Number	
			NPT Thread	G Thread	NPT Thread	G Thread
0	1/4	3/8	D699K86	699K86	D701K86	701K86
	3/8	1/2	D698K86	698K86	DS700K86	700K86
2	1/2	3/4	D702K86	702K86	D704K86	704K86

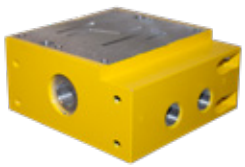
Manifold Base	End Station	End Station with Check Valve
		

Illustration examples.

Valve Operation

SOLENOID PILOT CONTROLLED VALVES

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

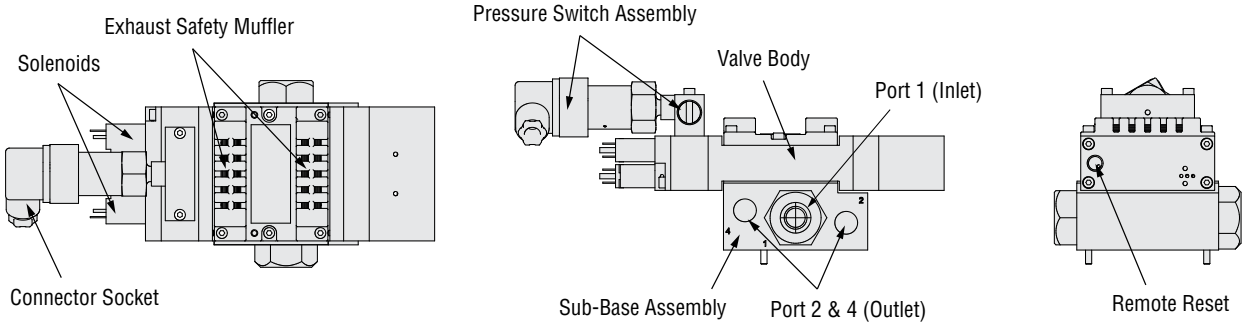
If the main valve elements are not both actuated or de-actuated synchronously, the valve defaults to the locked-out position so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. The valve must now be “reset” to resume normal operation.

Resetting the Valve

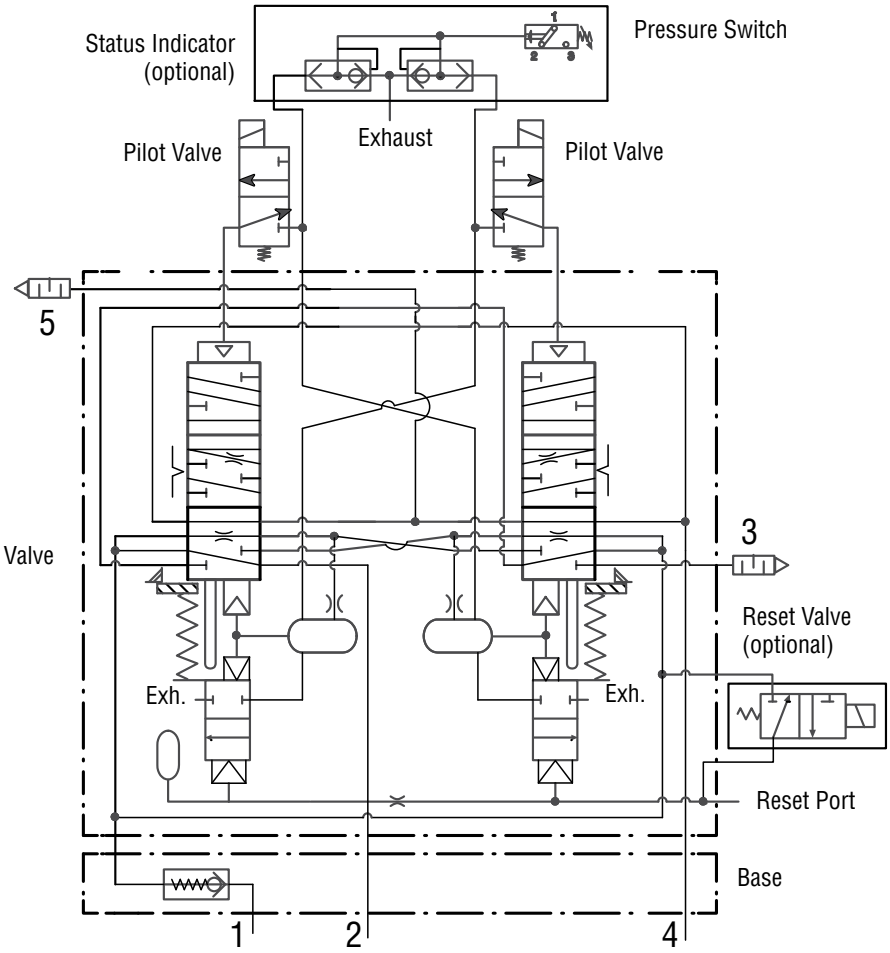
The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied.
A remote reset signal must be applied to reset the valve. Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements 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.

Status Indicator

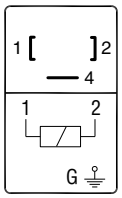
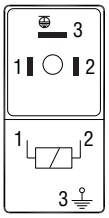
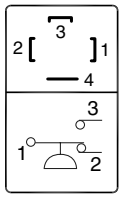
The optional status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the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



Valve Schematic



Solenoid & Pressure Switch Pinouts

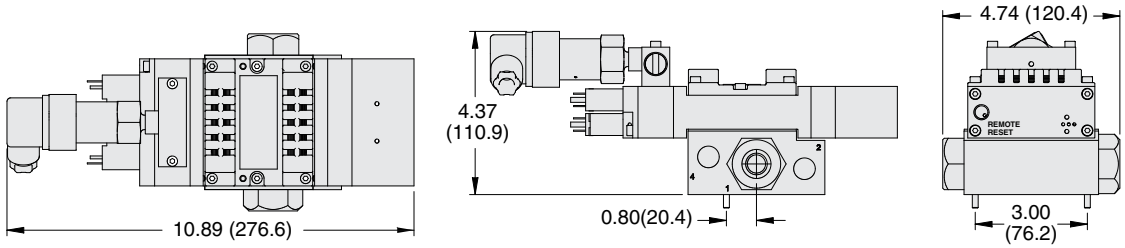
	DIN EN 175301-803 Form A	DIN EN 175301-803 Form C
Solenoid	 1 - Positive 2 - Negative 4 - Ground	 1 - Positive 2 - Negative 3 - Ground
Pressure Switch	DIN EN 175301-803 Form A	
	 1 - Common 2 - Normally Closed 3 - Normally Open 4 - Ground (Not Used)	

Solenoid Pilot Controlled Valves

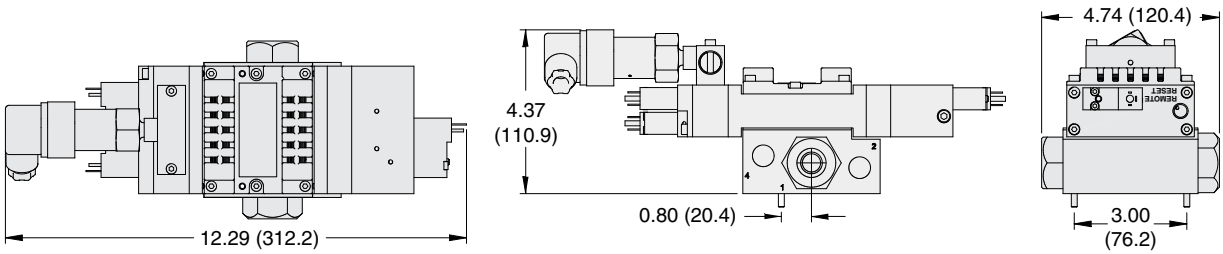
DIMENSIONS — Inches (mm)

Basic Size 0 – Valve and Base assembly

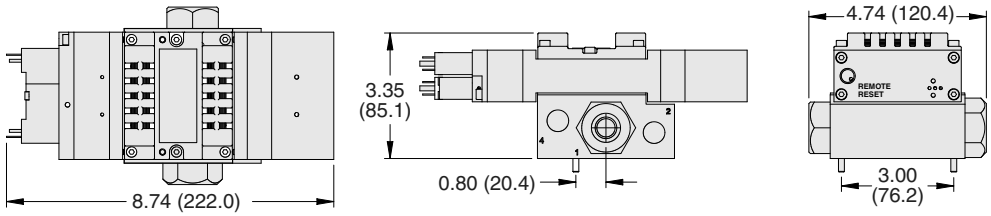
with remote reset and with status indicator switch



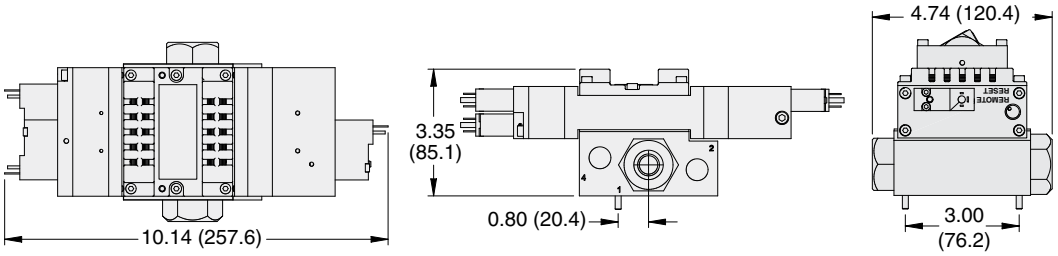
with solenoid reset and with status indicator switch



with remote reset and without status indicator switch



with solenoid reset and without status indicator switch



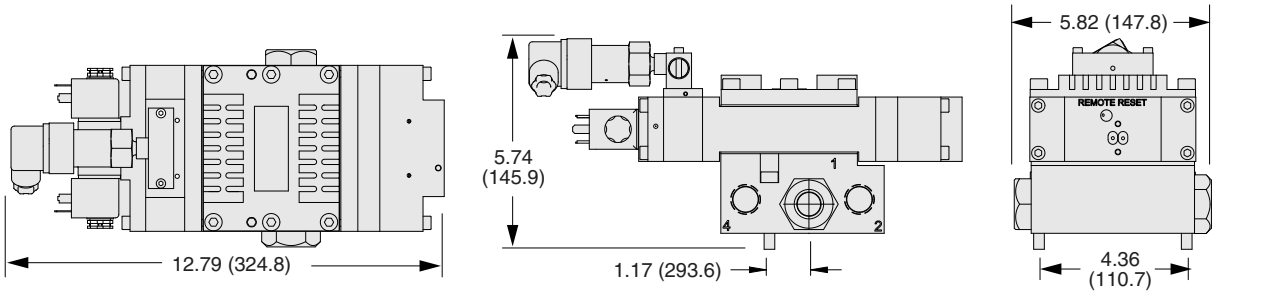
Downloadable CAD models available.

Solenoid Pilot Controlled Valves

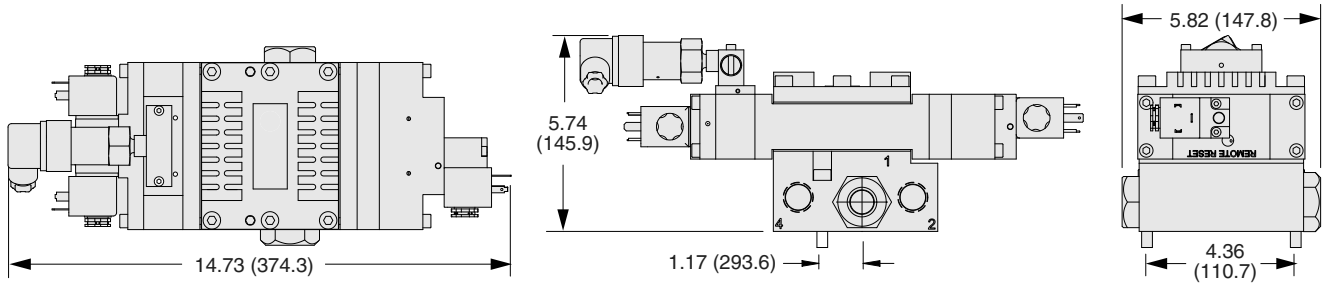
DIMENSIONS — Inches (mm)

Basic Size 2 – Valve and Base assembly

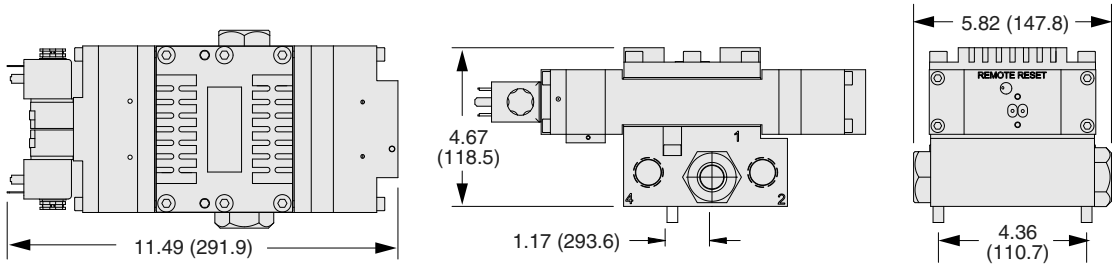
with remote reset and with status indicator switch



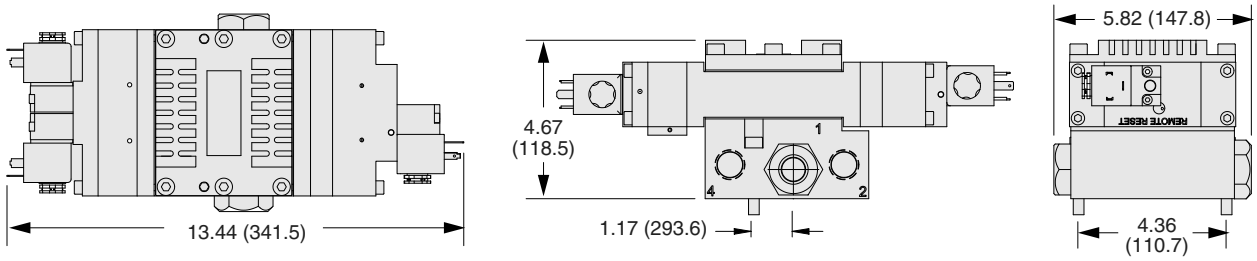
with solenoid reset and with status indicator switch



with remote reset and without status indicator switch



with solenoid reset and without status indicator switch



Downloadable CAD models available.

Ordering Information

5/2 PRESSURE CONTROLLED VALVES – VALVE AND BASE ASSEMBLY

MODEL NUMBER CONFIGURATOR — 4-Way 2-Position Valves

CM	2	6	P	N	A	01	P	2	1

Series

Monitoring

Valve Function
5/2

Return Override
Pressure Return

Port Thread	
NPT	N
G	D

Revision Level

Status Indicator*	
None	X
Mechanical Pressure Switch DIN EN 175301-803 Form A (connector included)	1

* For M12 type connection consult ROSS.

Valve Reset
Remote Air

Control Type
Pressure Controlled

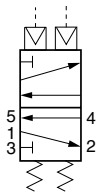
Basic Size	Port Size In-Out	
0	1/4	00
	3/8	01
2	1/2	22

Model Number examples: CM26PNA01P21, CM26PDA00P2X.

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

Valve and Base	Size		Flow C_v (Nl/min)				Weight lb (kg)
	Basic	Port 1, 2, 4	1-2	1-4	2-3	4-5	
With Status Indicator Switch	0	1/4	0.8 (790)	0.6 (590)	0.5 (490)	1.1 (1100)	6.15 (2.79)
		3/8	0.8 (790)	0.6 (590)	0.5 (490)	1.1 (1100)	6.05 (2.74)
	2	1/2	3.0 (2900)	2.5 (2500)	2.0 (2000)	3.9 (3800)	14.45 (6.56)
Without Status Indicator Switch	0	1/4	0.8 (790)	0.6 (590)	0.5 (490)	1.1 (1100)	5.60 (2.54)
		3/8	0.8 (790)	0.6 (590)	0.5 (490)	1.1 (1100)	5.50 (2.49)
	2	1/2	3.0 (3000)	2.5 (2500)	2.0 (2000)	3.9 (3800)	13.80 (6.26)

Simplified Schematic



5/2 Pressure Controlled Valves – 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.

Valve Only

With Status Indicator Switch

Size		Model Number
Basic	Port 1, 2, 4	
0	1/4	CM26PXA0XP11
	3/8	CM26PXA0XP11
2	1/2	CM26PXA2XP11
# Valve include DIN EN 175301-803 type connection, for M12 type connection consult ROSS.		

Without Status Indicator Switch

Size		Model Number
Basic	Port 1, 2, 4	
0	1/4	CM26PXA0XP1X
	3/8	CM26PXA0XP1X
2	1/2	CM26PXA2XP1X

Manifold Bases

Size			Base Model Number	
Basic	Port 1	Port 2, 4	NPT Thread	G Thread
0	1/4	3/8	YD1951D91	Y1951D91
	3/8	1/2	YD1949D91	Y1949D91
2	1/2	3/4	YD1955D91	Y1955D91

End Stations

Size			Manifold End Station with Check Valve		Dual Supply Manifold End Station with Check Valves	
Basic	Port 1	Port 2, 4	Kit Number		Kit Number	
			NPT Thread	G Thread	NPT Thread	G Thread
0	1/4	3/8	D699K86	699K86	D701K86	701K86
	3/8	1/2	D698K86	698K86	DS700K86	700K86
2	1/2	3/4	D702K86	702K86	D704K86	704K86

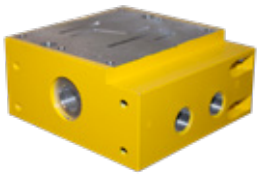
Manifold Base	End Station	End Station with Check Valve
		

Illustration examples.

Valve Operation

PRESSURE CONTROLLED VALVES

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

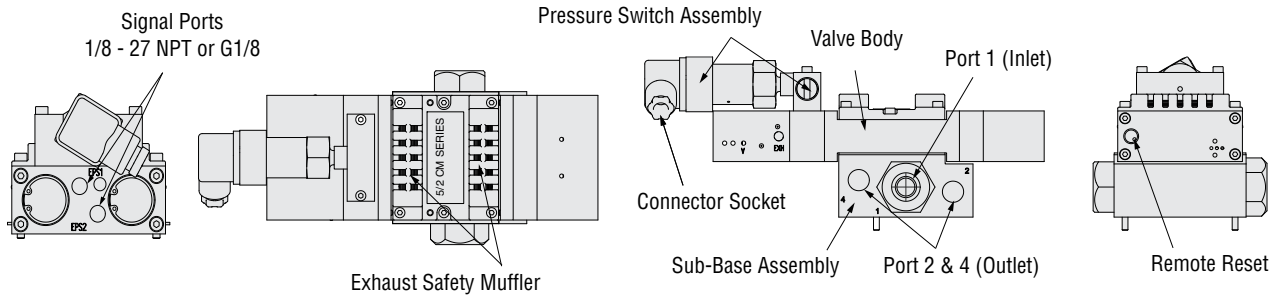
If the main valve elements are not both actuated or de-actuated synchronously, the valve defaults to the locked-out position so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. The valve must now be “reset” to resume normal operation.

Resetting the Valve

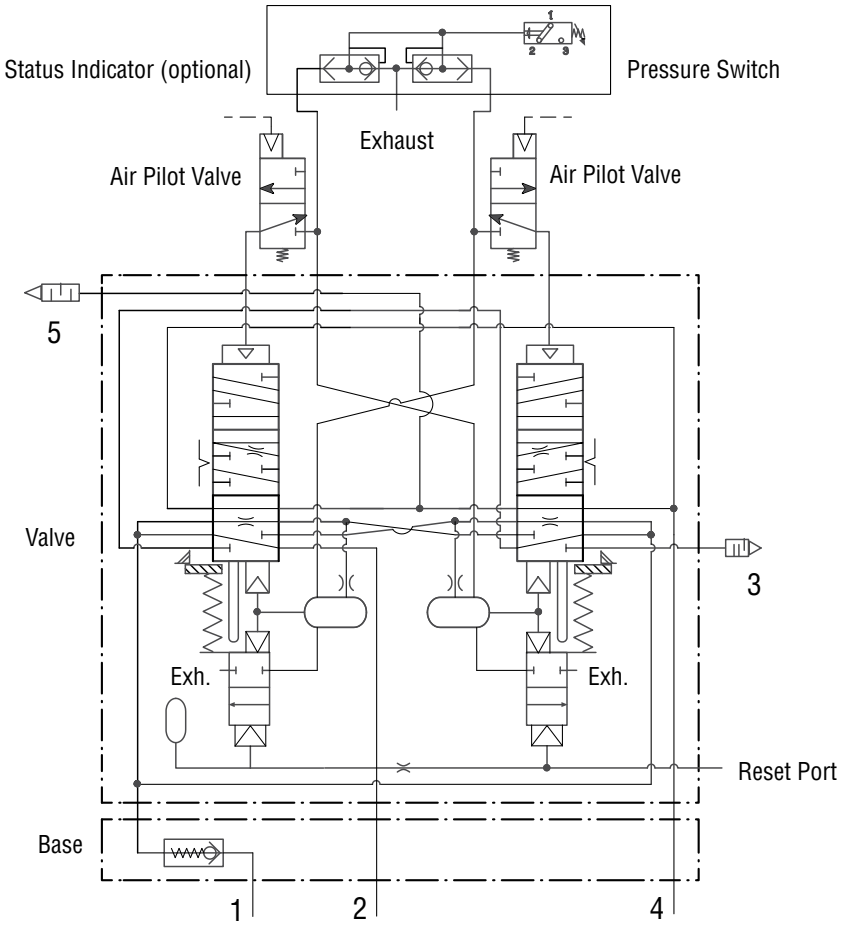
The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied.
A remote reset signal must be applied to reset the valve. Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements 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.

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.

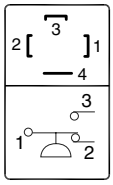


Valve Schematic



Pressure Switch Pinout

DIN EN 175301-803 Form A



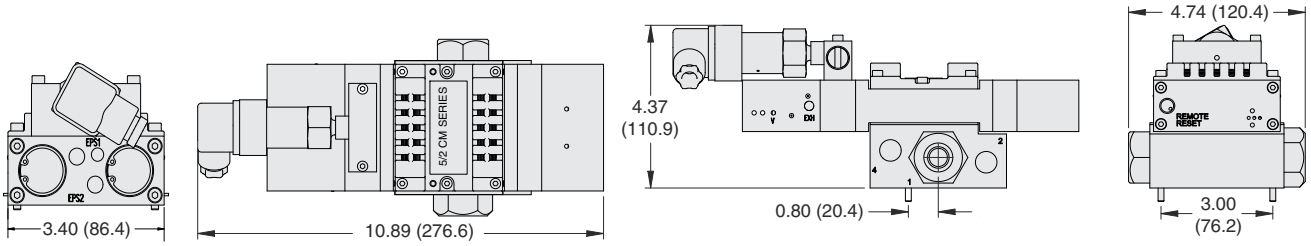
1 - Common
2 - Normally Closed
3 - Normally Open
4 - Ground (Not Used)

Pressure Controlled Valves

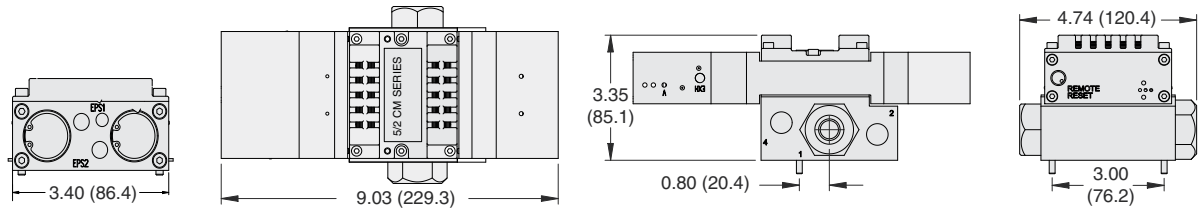
DIMENSIONS — Inches (mm)

Basic Size 0 – Valve and Base assembly

with remote reset and with status indicator switch

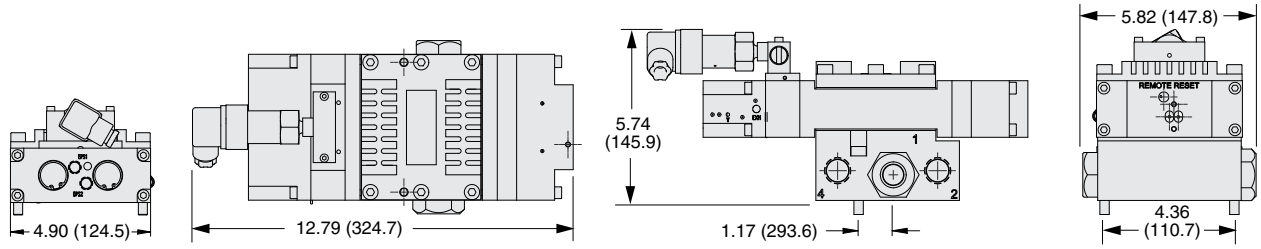


with remote reset and without status indicator switch

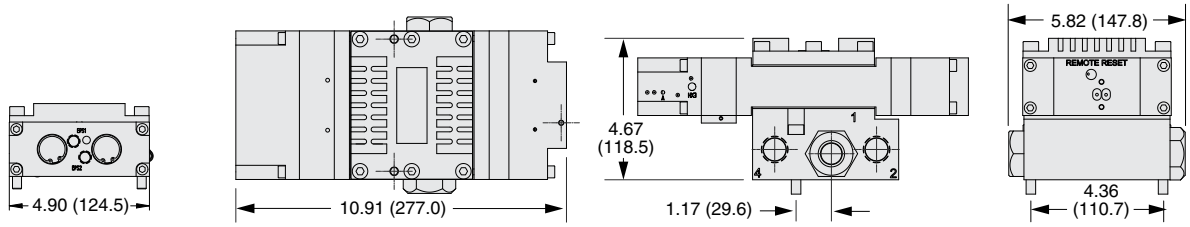


Basic Size 2 – Valve and Base assembly

with remote reset and with status indicator switch



with remote reset and without status indicator switch

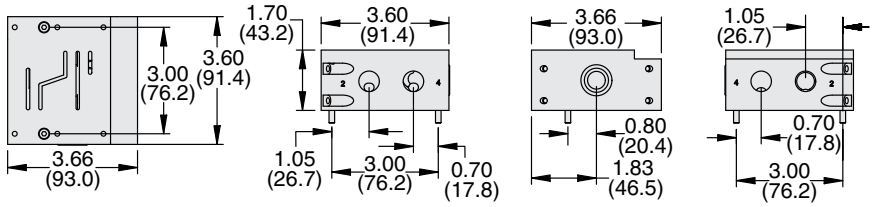


Downloadable CAD models available.

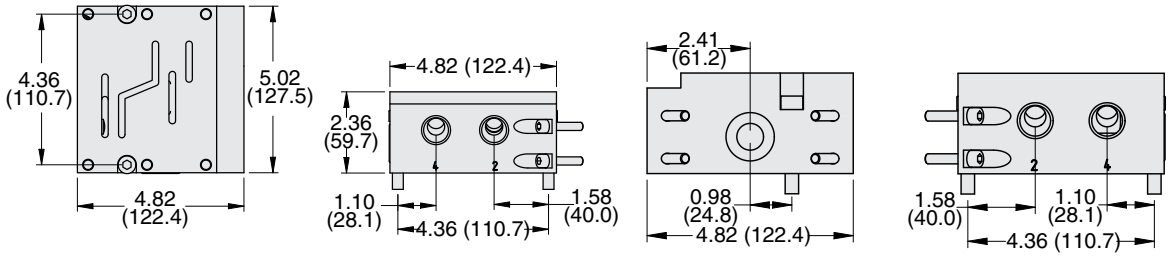
Manifold Bases and End Stations

DIMENSIONS Inches (mm)

Manifold Base for Basic Size 0

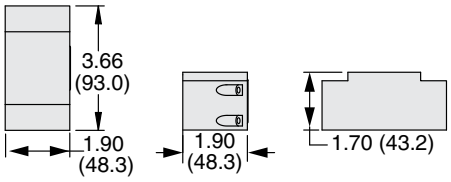


Manifold Base for Basic Size 0

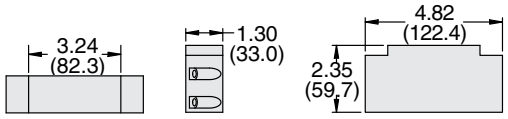


End Station

For Basic Size 0

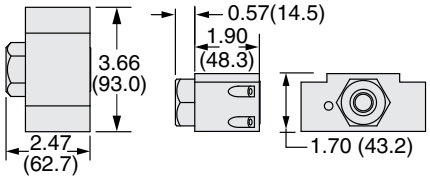


For Basic Size 2

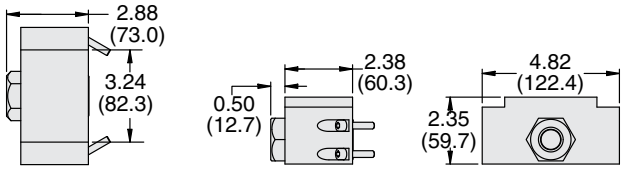


End Station with Check Valve

For Basic Size 0



For Basic Size 2



Downloadable CAD models available.

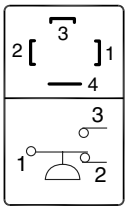
PRESSURE STATUS INDICATION

Illustration example.

Pressure Switches for Status Indicator	Indicator Type	Connector Type	Model Number	Port Thread	Factory Preset psi (bar)
	Mechanical Pressure Switch	DIN EN 175301-803 Form A	1104A30	M10x1	22 (1.5) falling

Pinout

DIN EN 175301-803 Form A



1 - Common
2 - Normally Closed
3 - Normally Open
4 - Ground (Not Used)

PREWIRED ELECTRICAL CONNECTORS

Illustration example.

Prewired Connector Kits

Valve Basic Size	Cable						Kit Number			
	End 1	End 2	Length meters (feet)	Connection	Quantity Included	Cord Diameter mm	Without Light	Lighted Connector		
	Connector	Cord						24 V DC	120 V AC	230 V AC
0	DIN EN 175301-803 Form C & Form A	Flying leads	5 (16.4)	Solenoid	3	6	2526H77	2529H77-W	2529H77-Z	2529H77-Y
				Status Indicator	1					
			10 (32.8)	Solenoid	3	6	2527H77	2530H77-W	2530H77-Z	2530H77-Y
				Status Indicator	1					
2	DIN EN 175301-803 Form A	Flying leads	5 (16.4)	Solenoid	3	6	2283H77	2532H77-W	2532H77-Z	2532H77-Y
				Status Indicator	1					
			10 (32.8)	Solenoid	3	6	2284H77	2533H77-W	2533H77-Z	2533H77-Y
				Status Indicator	1					

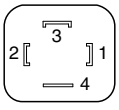
Prewired Connectors

Valve Basic Size	Cable						Model Number			
	End 1	End 2	Connection	Quantity Included	Length meters (feet)	Cord Diameter mm	Without Light	Lighted Connector		
	Connector	Cord						24 V DC	120 V AC	230 V AC
0	DIN EN 175301-803 Form C	Flying leads	Solenoid	1	3 (10)	8	2449K77	2450K77-W	2450K77-Z	2450K77-Y
					10 (32.8)	–	2248H77	–	–	–
2	DIN EN 175301-803 Form A	Flying leads	Solenoid	1	2 (6.5)	6	721K77	720K77-W	720K77-Z	720K77-Y
						10	371K77	383K77-W	383K77-Z	383K77-Y

Connectors Pinout

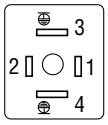
Solenoid

DIN EN 175301-803 Connector Form A



1 - Black
2 - Black
4 - Green/Yellow (Ground)

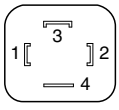
DIN EN 175301-803 Connector Form C



1 - Brown
2 - Blue
3 - Green/Yellow (Ground)
4 - Green/Yellow (Ground)

Status Indicator

DIN EN 175301-803 Connector Form A



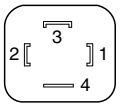
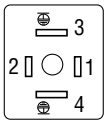
1 - Brown
2 - Grey
3 - Black
4 - Green/Yellow (Ground)

ELECTRICAL CONNECTORS

Cable Grip	
Without Light	With Light
	

Illustration examples.

	Connector					Model Number			
	Type	Connection	Fitting Connection	Quantity Included	Cord Diameter mm	Without Light	Lighted Connector		
							24 V DC	120 V AC	230 V AC
Connectors	DIN EN 175301-803 Form A	Solenoid	Cable grip	1	8 to 10	937K87	936K87-W	936K87-Z	936K87-Y
			1/2" NPT conduit	1	–	723K77	724K77-W	724K77-Z	724K77-Y
	DIN EN 175301-803 Form C	Solenoid	Cable grip	1	8 to 10	2452K77	2453K77-W	2453K77-Z	2453K77-Y

Connectors Pinout	
DIN EN 175301-803 Connector Form A	DIN EN 175301-803 Connector Form C
 1 - Black 2 - Black 4 - Green/Yellow (Ground)	 1 - Brown 2 - Blue 3 - Green/Yellow (Ground) 4 - Green/Yellow (Ground)

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. 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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	AUTOMATIC VALVE INDUSTRIAL LLC	USA	Tel: +1-248-474-6700	www.automaticvalve.com
	ROSS DECCO COMPANY	USA	Tel: +1-248-764-1800	www.rossdecco.com
	ROSS PNEUMATROL Ltd.	United Kingdom	Tel: +44 (0)1254 872277	www.pneumatrol.com
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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.

