Energy Isolation
Lockout Valves

Product Catalog

ROSS®
a global family

Manual Lockout L-O-X® Valves 15 Series
Product Overview

Energy Isolation for Lockout/Tagout (LOTO)

The Lockout L-O-X® valve is used to block the supply and remove the downstream pressure from the circuit or machine and allow the employee to lockout the pneumatic energy for safe machine access.

Modular	Classic	High-Capacity	Stainless Steel
			

Illustration examples.

ROSS manual L-O-X® (lockout & exhaust) valves are energy isolation valves and are generally used as the first valve in a line supplying compressed air to equipment.

OSHA and ISO 14118 compliance requires that the valve be padlocked in the closed position to prevent the handle from being pulled out inadvertently during maintenance and/or servicing.

VALVE FEATURES	
Unique Appearance	Easily identifiable with a yellow body and a red handle to control ON/OFF positions (non-Stainless Steel)
Quick Energy Dump	Full size exhaust ports (equal to or larger than supply) provide rapid exhaust of downstream air and are threaded for silencers or remote exhaust lines
Locking Protection	Design only allows the valve to be lockable in the OFF (closed) position
PTFE Seals	Fluorocarbon slipper seals for easy shifting, even after long periods of inactivity
Visible Pressure Indication Option	Includes integrated sensing port for pressure verification with either a visual pop-up indicator or electrical pressure switch
Mounting	Inline or Surface

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

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

Specifications

STANDARD SPECIFICATIONS

GENERAL	Function			3/2 Valve	
	Construction Design			Spool	
	Actuation			Pneumatic	Manual
	Mounting	Valve Type	Classic High-Capacity Stainless Steel	Inline or Surface	
			Modular	Inline	
		Orientation	Any, preferably vertical; easy access to the handle		
	Connection			Threaded Port	NPT
					G
	Minimum Operation Frequency			Once per month, to ensure proper function	
OPERATING CONDITIONS	Temperature	Valve Type	Modular Classic High-Capacity	Ambient	40° to 175°F (4° to 80°C)
				Media	
			Stainless Steel	Ambient	30° to 175°F (-1° to 80°C)
				Media	
	Flow Media			Filtered air	
	Operating Pressure	Valve Type	Modular	0 to 200 psig (0 to 14 bar)	
			Classic High Capacity Stainless Steel	0 to 300 psig (0 to 20.7 bar)	
LOCK HOLE MEASURES	Valve Type	Modular Classic High-Capacity	Diameter	All Sizes	0.27 inch (7.0 mm)
			Length of Hole	All Sizes	0.43 inch (10.9 mm)
		Stainless Steel	Diameter	All Sizes	0.34 inch (8.64 mm)
			Length of Hole	Port Size 1/4	0.44 inch (11.17 mm)
				Port Size 1/2	0.47 inch (11.93 mm)
				Port Size 1 and 2	0.55 inch (13.97 mm)
CONSTRUCTION MATERIAL	Valve Body	Valve Type	Modular Classic High-Capacity	Cast Aluminum	
			Stainless Steel	316 Stainless Steel	
	Spool			Stainless Steel	
	Seals			Fluorocarbon	

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

PRODUCT CREDENTIALS

Performance Level
Per ISO 13849-1:2015

Cat. 1
PL c

Declaration of Conformity

EAC

Ordering Information

MANUAL LOCKOUT L-O-X® VALVES — 3-Way 2-Position Valves

Valve Style	Body Size	Port Size		Valve Model Number	
		In-Out	Exhaust	NPT Thread	G Thread
Modular	3/4	1/4	3/4	Y1523A2003	YD1523A2003
		3/8	3/4	Y1523A3003	YD1523A3003
		1/2	3/4	Y1523A4003	YD1523A4003
		3/4	3/4	Y1523A5013	YD1523A5013
Classic	3/8	1/4	3/8	Y1523E2002	YD1523E2002
		3/8	3/8	Y1523E3012	YD1523E3012
	1/2	3/8	3/4	Y1523C3002	YD1523C3002
		1/2	3/4	Y1523C4002	YD1523C4002
		3/4	3/4	Y1523C5012	YD1523C5012
	1	3/4	1-1/4	Y1523C5002	YD1523C5002
		1	1-1/4	Y1523C6002	YD1523C6002
		1-1/4	1-1/4	Y1523C7012	YD1523C7012
High-Capacity	2	1-1/2	2	Y1523C8002	YD1523C8002
		2	2	Y1523C9012	YD1523C9012
Stainless Steel	1/4	1/4	1/4	1523B2004	D1523B2004
	1/2	3/8	1/2	1523B3004	D1523B3004
		1/2	1/2	1523B4004	D1523B4004
	1	3/4	1	1523B5004	D1523B5004
		1	1	1523B6004	D1523B6004
	2	1-1/2	2	1523B8004	D1523B8004
		2	2	1523B9004	D1523B9004

Valve Style	Size			Flow Cv (Nl/min)		Weight ≈ lb (kg)
	Body	Port 1, 2	Port 3	1-2	2-3	
Modular	3/4	1/4	3/4	3.7 (3600)	7.8 (7700)	1.7 (0.8)
		3/8	3/4	5.1 (5000)	8.3 (8200)	
		1/2	3/4	5.5 (5400)	8.6 (8500)	1.8 (0.8)
		3/4	3/4	5.6 (5500)	8.1 (8000)	
Classic	3/8	1/4	3/8	2.8 (2800)	2.6 (2600)	0.8 (0.35)
		3/8	3/8	2.8 (2800)	2.6 (2600)	
	1/2	3/8	3/4	4.7 (4600)	3.6 (3500)	2 (0.9)
		1/2	3/4	7.1 (7000)	4.0 (3900)	
		3/4	3/4	8.3 (8200)	4.1 (4000)	
	1	3/4	1-1/4	13 (13000)	9.0 (8900)	3 (1.4)
		1	1-1/4	17 (17000)	9.5 (9300)	
		1-1/4	1-1/4	19 (19000)	9.7 (9600)	
High-Capacity	2	1-1/2	2	36 (35000)	51 (50000)	8.3 (3.7)
		2	2	40 (39000)	52 (51000)	
Stainless Steel	1/4	1/4	1/4	2.1 (2100)	2.1 (2100)	3.8 (1.7)
	1/2	3/8	1/2	5.8 (5700)	6.2 (6100)	6 (2.7)
		1/2	1/2	5.8 (5700)	6.2 (6100)	
	1	3/4	1	14 (14000)	17 (17000)	13 (5.9)
		1	1	14 (14000)	17 (17000)	
	2	1-1/2	2	39 (38000)	45 (44000)	35 (15.9)
		2	2	39 (38000)	45 (44000)	

Valve Operation

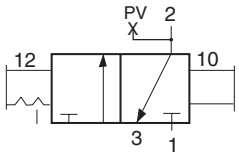
Valve Closed

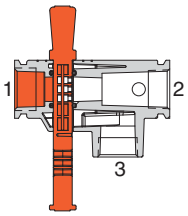
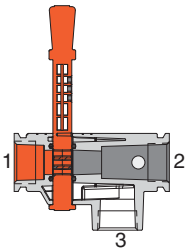
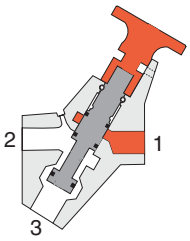
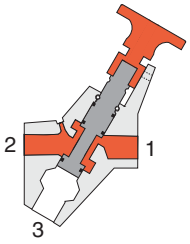
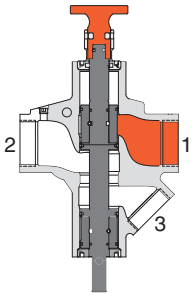
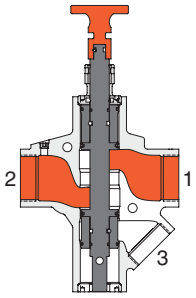
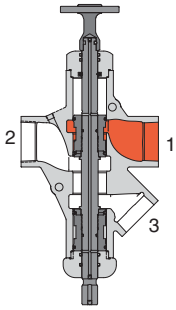
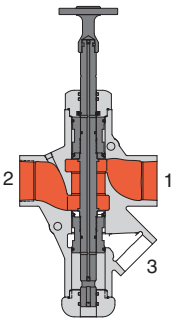
With a short push of the red handle inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port at the bottom of the valve. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently where potential for human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

Valve Open

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

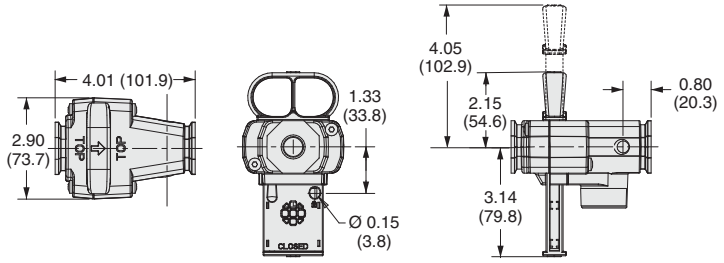
Valve Schematic



Valve Style		Valve Closed	Valve Open
Modular			
Classic			
High-Capacity			
Stainless Steel			

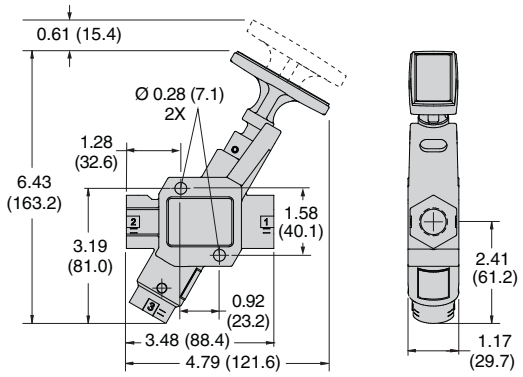
DIMENSIONS — Inches (mm)

Modular

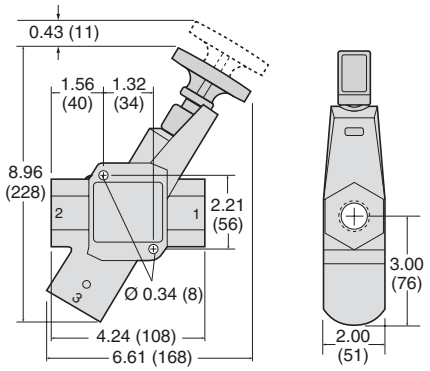


Classic

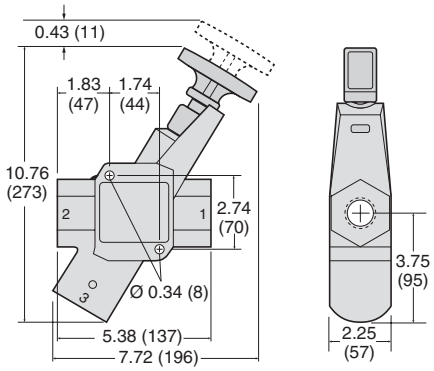
Body Size 3/8



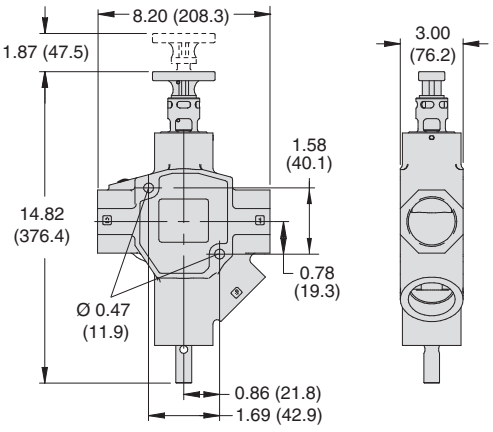
Body Size 1/2



Body Size 1



High-Capacity



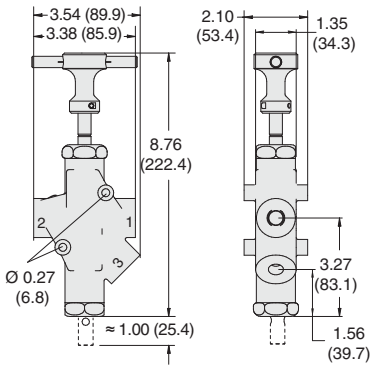
Downloadable CAD models available.

DIMENSIONS

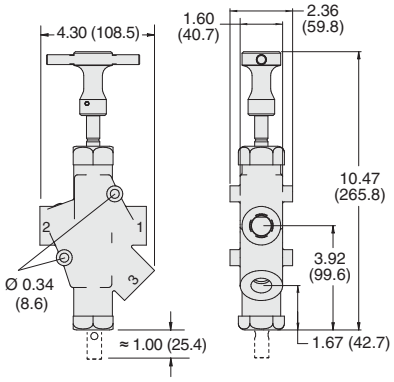
Inches (mm)

Stainless Steel

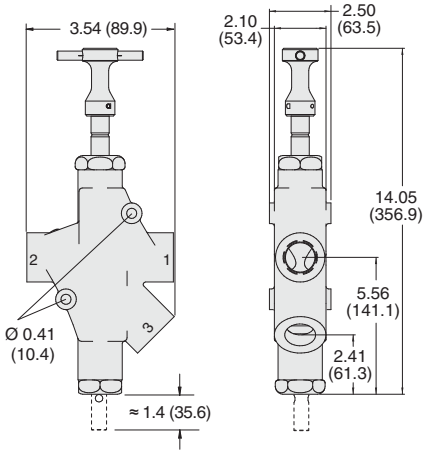
Body Size 1/4



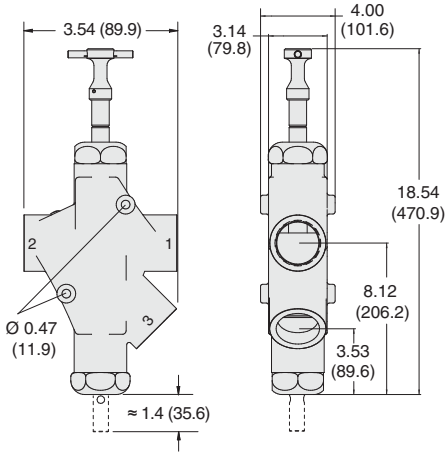
Body Size 1/2



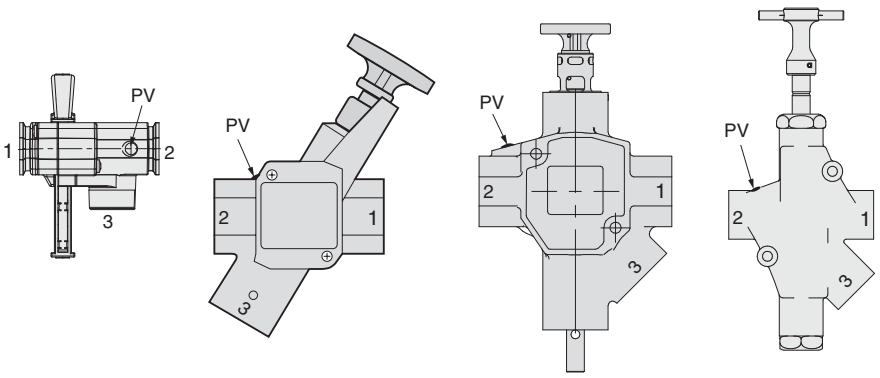
Body Size 1



Body Size 2



Downloadable CAD models available.

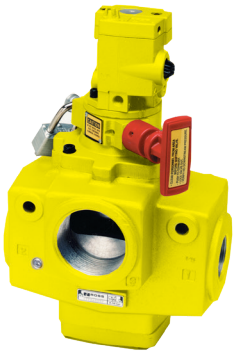
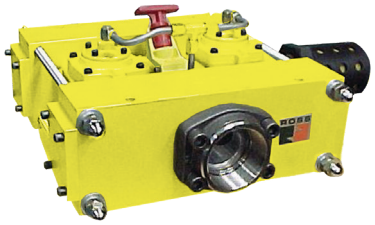


PV = 1/8" Pressure Verification Port
Port 1 (Inlet)
Port 2 (Outlet)
Port 3 (Exhaust)

Valves with Manual Lockout L-O-X® Control 27 Series
Product Overview

Energy Isolation for Lockout/Tagout (LOTO)

The **Lockout L-O-X®** valve is used to block the supply and remove the downstream pressure from the circuit or machine and allow the employee to lockout the pneumatic energy for safe machine access. The shut-off function of the solenoid pilot controlled L-O-X® valve is the same as that of the manual L-O-X® valves.

Solenoid Pilot Controlled – Body Size 2	Pressure Controlled – Body Size 3
	

Ilustration examples.

The solenoid pilot and manual lockout controlled valve allows the air supply to be turned on or off by remote electrical control whenever the L-O-X® handle is in the outward position. Air flows only if the L-O-X® handle is outward and the solenoid pilot is energized. When the L-O-X® handle is pushed in, air will not flow regardless of the pilot being energized or not.

Because of the poppet construction of the main valve body, air pressure provides the forces both to open the valve and to close it. These are large forces so that quick response is ensured even after the valve has been on standby for a long time.

VALVE FEATURES	
Poppet Design	Dirt tolerant, wear compensating for quick response and high flow capacity
Manual Lockout Control	Operated like the manual lockout L-O-X® valve, the position of the red handle indicates instantaneous full flow pressurizing or exhausting capability
Solenoid Pilot	Allows the air supply to be turned on or off by remote electrical control when valve is not in the lockout position
Quick Energy Dump	Full size exhaust ports (equal to or larger than supply) provide rapid exhaust of downstream air and are threaded for silencers or remote exhaust lines
Locking Protection	Design only allows the valve to be lockable in the OFF position
PTFE Seals	Fluorocarbon slipper seals for easy shifting, even after long periods of inactivity
Visible Pressure Indication Option	Includes integrated sensor port for pressure verification with either a visual pop-up indicator or electrical pressure switch

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

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

Specifications

STANDARD SPECIFICATIONS

GENERAL	Function		3/2 Valve	Normally Closed
	Construction Design		Poppet and Spool	
	Actuation	Electrical	Solenoid Manual Lockout Controlled	
		Pneumatic	Internal Pressure Manual Lockout Controlled	
	Mounting	Type	Inline	
		Orientation	Any, preferably vertical; easy access to the handle	
	Connection		Threaded Port	NPT
				G
	Minimum Operation Frequency		Once per month, to ensure proper function	

OPERATING CONDITIONS	Temperature	Solenoid Manual Lockout Controlled Valves	Ambient	40° to 120°F (4° to 50°C)
			Media	40° to 175°F (4° to 80°C)
		Manual Lockout Controlled Valves	Ambient	40° to 175°F (4° to 80°C)
			Media	
	Flow Media		Filtered air	
	Operating Pressure	Valve Body Size	3/8 through 1-1/2	15 to 150 psig (1 to 10 bar)
			2 & 3	30 to 150 psig (2 to 10 bar)
	Pilot Supply Pressure (Solenoid Manual Lockout Controlled valves only)		Internal	Must meet minimum operating pressure
			External	Must be equal to or greater than inlet pressure, and meet minimum operating pressure

ELECTRICAL DATA FOR SOLENOID PILOT VALVES	Solenoids	Current Flow	Operating Voltage	Power Consumption (each solenoid)
		DC	24 volts	14 watts
		AC	110-120 volts, 50/60 Hz	87 VA inrush, 30 VA holding
			230 volts, 50/60 Hz	
		Rated for continuous duty		

CONSTRUCTION MATERIAL	Valve Body		Cast Aluminum	
	Poppet		Acetal and Stainless Steel	
	Spool (Lockout Valve)		Stainless Steel	
	Seals	Valve Body Size	3/8 through 2	Buna-N
			3	Fluorocarbon

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.

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

PRODUCT CREDENTIALS

Performance Level Per ISO 13849-1:2015	**Safety Integrity Level** Per IEC 2061:2001	**Declaration of Conformity**	**Certificate of Compliance**
Cat. 1 PL c	SIL 2 Functional Safety	EAC	C SA US Solenoid Pilot Valves

Ordering Information

SOLENOID AND MANUAL LOCKOUT CONTROLLED VALVES — 3-Way 2-Position Valves

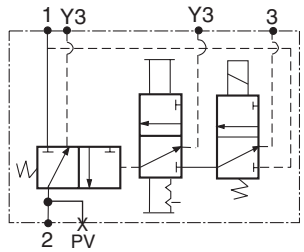
Body Size	Port Size		Valve Model Number					
			NPT Thread			G Thread		
	In-Out	Exhaust	24 V DC	110-120 V AC	230 V AC	24 V DC	110-120 V AC	230 V AC
3/8	1/4	1/2	Y2773A2072W	Y2773A2072Z	Y2773A2072Y	YD2773A2072W	YD2773A2072Z	YD2773A2072Y
	3/8	1/2	Y2773A3072W	Y2773A3072Z	Y2773A3072Y	YD2773A3072W	YD2773A3072Z	YD2773A3072Y
	1/2	1/2	Y2773A4082W	Y2773A4082Z	Y2773A4082Y	YD2773A4082W	YD2773A4082Z	YD2773A4082Y
3/4	1/2	1	Y2773A4072W	Y2773A4072Z	Y2773A4072Y	YD2773A4072W	YD2773A4072Z	YD2773A4072Y
	3/4	1	Y2773A5072W	Y2773A5072Z	Y2773A5072Y	YD2773A5072W	YD2773A5072Z	YD2773A5072Y
	1	1	Y2773A6082W	Y2773A6082Z	Y2773A6082Y	YD2773A6082W	YD2773A6082Z	YD2773A6082Y
1-1/4	1	1-1/2	Y2773A6072W	Y2773A6072Z	Y2773A6072Y	YD2773A6072W	YD2773A6072Z	YD2773A6072Y
	1-1/4	1-1/2	Y2773A7072W	Y2773A7072Z	Y2773A7072Y	YD2773A7072W	YD2773A7072Z	YD2773A7072Y
	1-1/2	1-1/2	Y2773A8082W	Y2773A8082Z	Y2773A8082Y	YD2773A8082W	YD2773A8082Z	YD2773A8082Y
2	1-1/2	2-1/2	Y2773A8072W	Y2773A8072Z	Y2773A8072Y	YD2773A8072W	YD2773A8072Z	YD2773A8072Y
	2	2-1/2	Y2773A9072W	Y2773A9072Z	Y2773A9072Y	YD2773A9072W	YD2773A9072Z	YD2773A9072Y
	2-1/2	2-1/2	Y2773A9082W	Y2773A9082Z	Y2773A9082Y	YD2773A9082W	YD2773A9082Z	YD2773A9082Y
3	3	2-1/2	Y3900A0896W	Y3900A0896Z	Y3900A0896Y	–	–	–

For other voltages, consult ROSS.

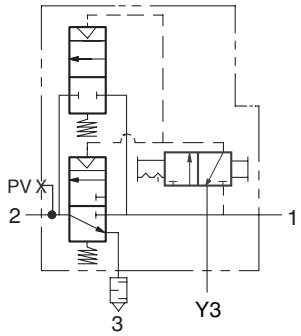
Size			Flow Cv (Nl/min)		Weight ≈ lb (kg)
Body	Port 1, 2	Port 3	1-2	2-3	
3/8	1/4	1/2	1.9 (1900)	3.3 (3200)	3.5 (1.6)
	3/8	1/2	2.9 (2800)	4.4 (4300)	
	1/2	1/2	3.8 (3800)	5.0 (4900)	
3/4	1/2	1	6.2 (6100)	9.4 (9300)	4.3 (1.9)
	3/4	1	8.2 (8100)	10 (9800)	
	1	1	9.1 (9000)	12 (12000)	
1-1/4	1	1-1/2	21 (21000)	27 (27000)	8.0 (3.6)
	1-1/4	1-1/2	29 (29000)	29 (29000)	
	1-1/2	1-1/2	30 (30000)	30 (30000)	
2	1-1/2	2-1/2	45 (44000)	75 (74000)	17.5 (7.9)
	2	2-1/2	57 (56000)	78 (77000)	
	2-1/2	2-1/2	70 (69000)	71 (70000)	
3	3	2-1/2	140 (138000)	71 (70000)	115 (53)

Valve Schematics

Body Size 3/8 through 2



Body Size 3

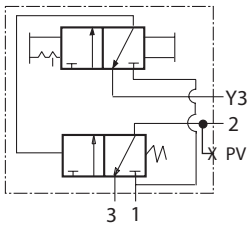


MANUAL LOCKOUT CONTROLLED VALVES				3-Way 2-Position Valves
Body Size	Port Size		Valve Model Number	
	In-Out	Exhaust	NPT Thread	G Thread
1-1/4	1	1-1/2	Y2783A6006	YD2783A6006
	1-1/4	1-1/2	Y2783A7006	YD2783A7006
	1-1/2	1-1/2	Y2783A8016	YD2783A8016
2	1-1/2	2-1/2	Y2783A8006	YD2783A8006
	2	2-1/2	Y2783A9006	YD2783A9006
	2-1/2	2-1/2	Y2783A9016	YD2783A9016
3	3	2-1/2	Y3900A0829	–

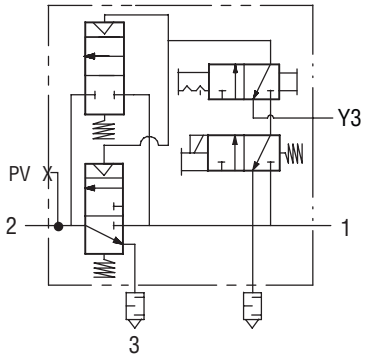
Size			Flow Cv (NI/min)		Weight ≈ lb (kg)
Body	Port 1, 2	Port 3	1-2	2-3	
1-1/4	1	1-1/2	21 (21000)	27 (27000)	7.0 (3.2)
	1-1/4	1-1/2	29 (29000)	29 (29000)	
	1-1/2	1-1/2	30 (30000)	30 (30000)	
2	1-1/2	2-1/2	45 (44000)	75 (74000)	15.3 (6.9)
	2	2-1/2	57 (56000)	78 (77000)	
	2-1/2	2-1/2	70 (69000)	71 (70000)	
3	3	2-1/2	140 (138000)	71 (70000)	115 (53)

Valve Schematics

Body Size 3/8 through 2



Body Size 3

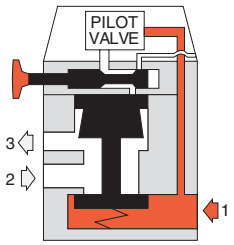


Valve Operation

Solenoid and Manual Lockout Controlled Valves

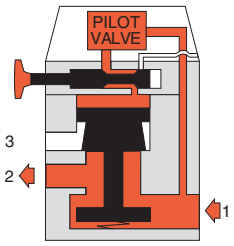
Pilot De-energized

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



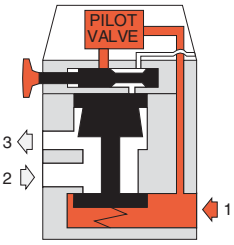
Pilot Energized

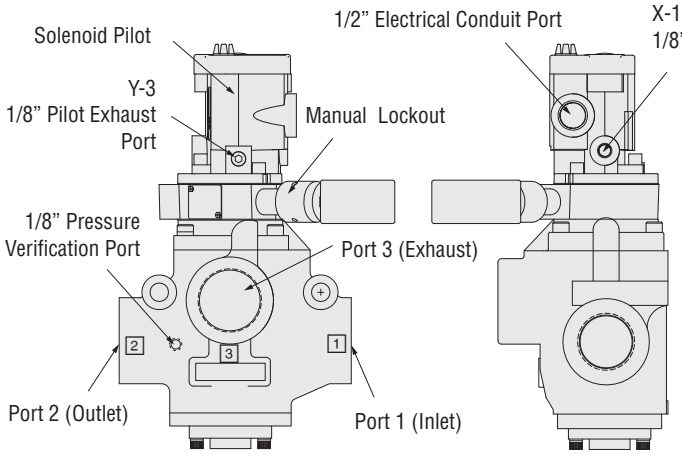
With the solenoid pilot energized and the L-O-X® control in the open position, air can flow from inlet to outlet port. The exhaust port is closed.

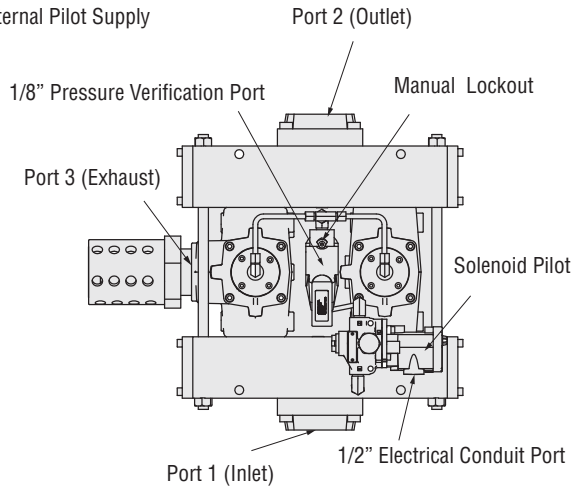


L-O-X® Valve Closed

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



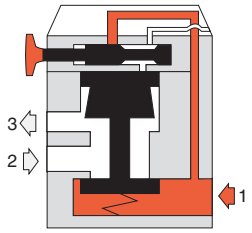




Manual Lockout Controlled Valves

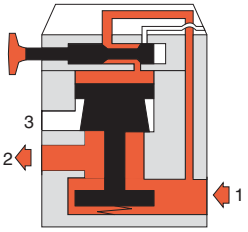
Valve Closed

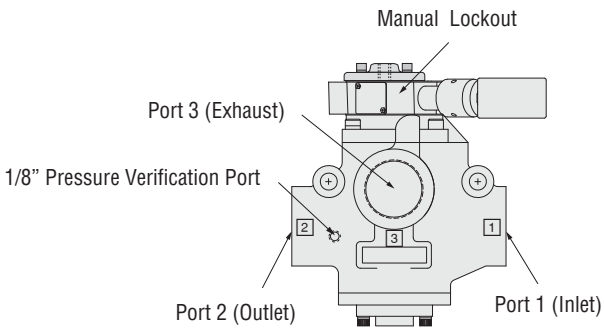
With a short push of the red handle inward the flow of supply air is blocked and downstream air is exhausted via the exhaust port. Air pressure on the inlet and exhaust poppets produces a large closing force. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled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

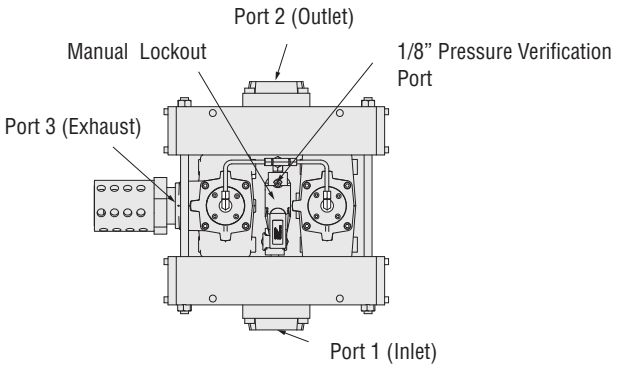


Valve Open

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



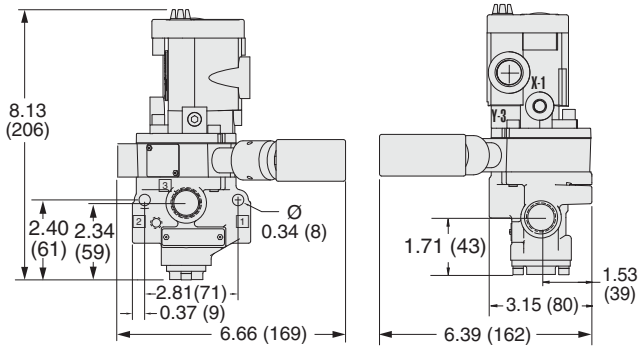




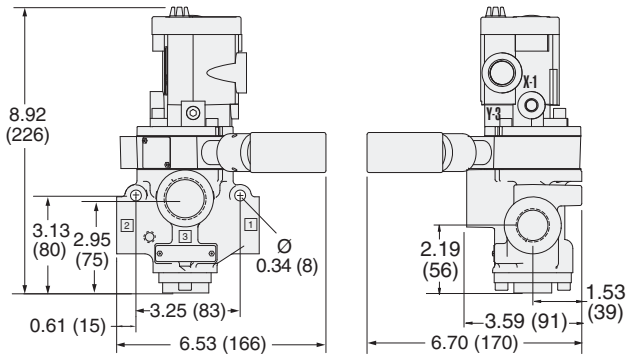
Solenoid and Manual Lockout Controlled Valves

DIMENSIONS — Inches (mm)

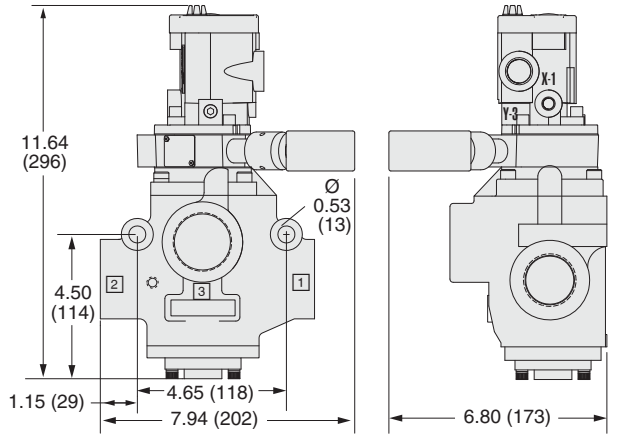
Body Size 3/8



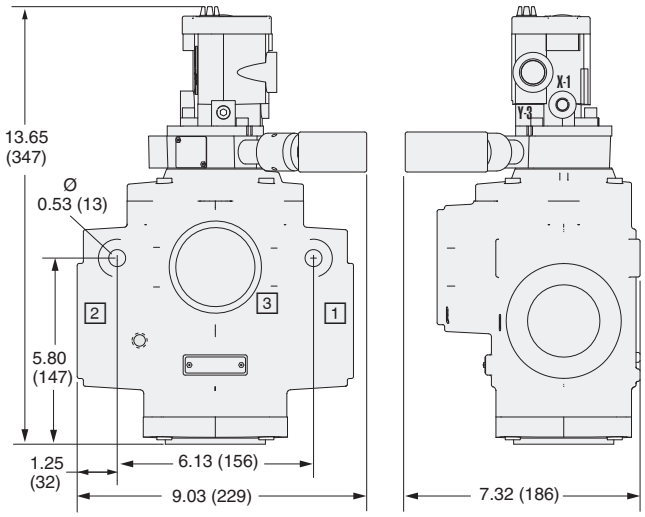
Body Size 3/4



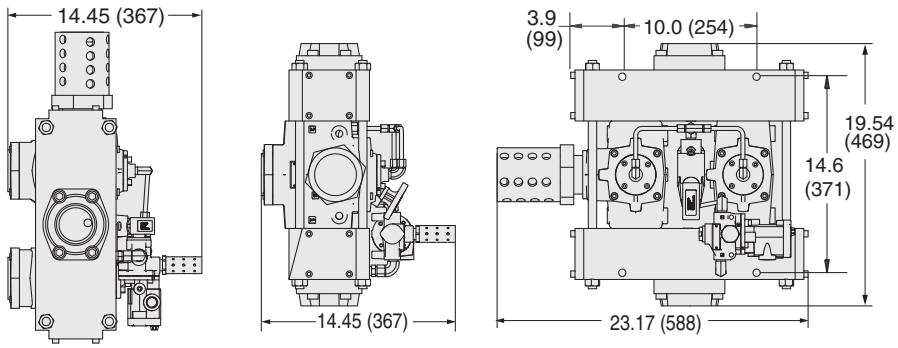
Body Size 1-1/4



Body Size 2



Body Size 3

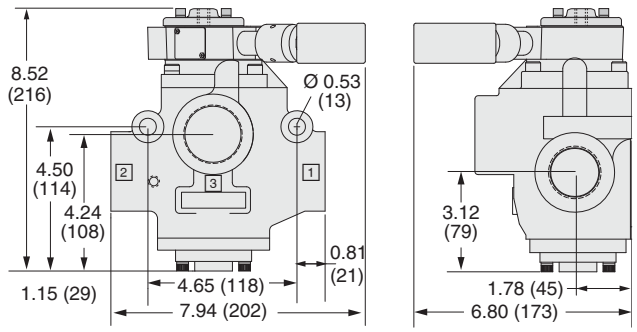


Downloadable CAD models available.

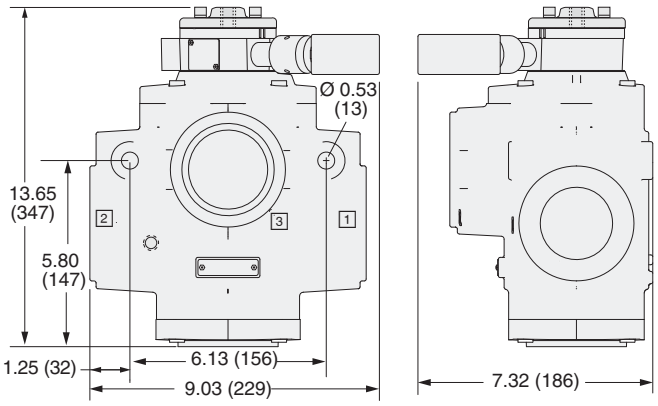
Manual Lockout Controlled Valves

DIMENSIONS — Inches (mm)

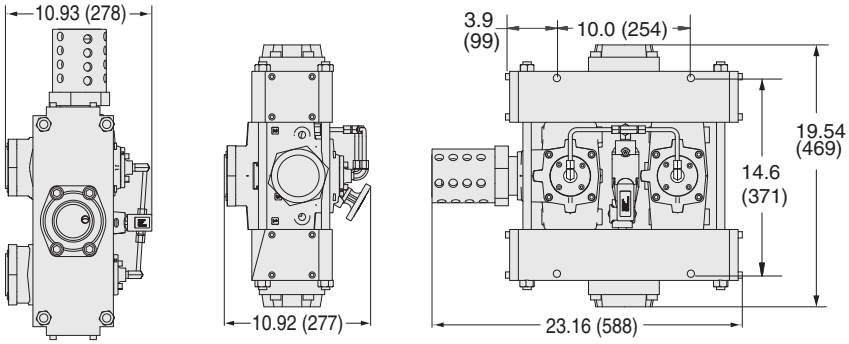
Body Size 1-1/4



Body Size 2



Body Size 3



Downloadable CAD models available.

Accessories

ENERGY RELEASE VERIFICATION

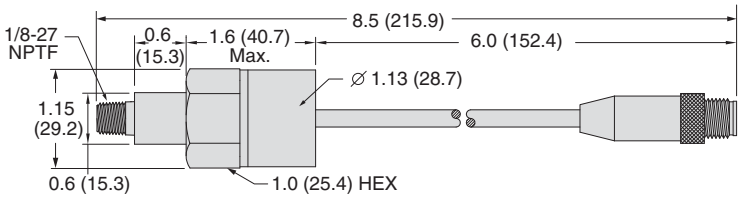
Visual Pressure Indicator		Pressure Switch	
Visual Pop-up Pin	Visual Pop-up	DIN EN 175301-803 Form A	M12
			

Illustration examples.

	Verification Type	Valve Type	Indicator Type	Model Number	Port Thread
Visual Pressure Indicators	Pneumatic	Lockout L-O-X®	Visual Pop-up Pin	988A30	1/8 NPT
		Stainless Steel L-O-X®	Visual Pop-up	1155H30	

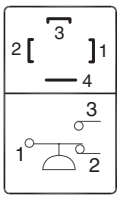
	Verification Type	Valve Type	Connector Type	Model Number	Factory Preset psi (bar)	Port Thread
Pressure Switches	Electrical	Lockout L-O-X®	DIN EN 175301-803 Form A	586A86	5 (0.3) falling	1/8 NPT
		Stainless Steel L-O-X®	M12	1162A30		

M12 Pressure Switch Dimensions– Inches (mm)



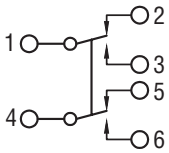
Pinout

DIN EN 175301-803 Form A

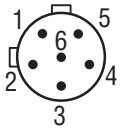


1 - Common
2 - Normally Closed
3 - Normally Open
4 - Ground (Not Used)

M12



1 - Circuit 1, Red/White
2 - All Red
3 - Green
4 - Circuit 2, Red/Yellow
5 - Red/Black
6 - Red Blue



1 - Common
2 - Normally Closed
3 - Normally Open
4 - Common
5 - Normally Closed
6 - Normally Open

EXHAUST SILENCERS

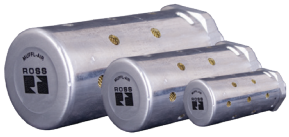
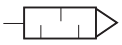
Aluminum		Stainless Steel	316 Stainless Steel Sintered Element
Port Size 1/8 through 2	Port Size 2-1/2		
			

Illustration examples.

Silencers	Silencer Material	Pressure Range psig (bar)	Schematic
	Aluminum	0-290 (0-20) maximum	
	Stainless Steel	0-175 (0-12.3) maximum	
	316 Stainless Steel Sintered Element	0-125 (0-8.6)	

Silencer Material	Port Size	Thread Type	Flow C_v (Nl/min)	Model Number		Dimensions inches (mm)		Weight ≈ lb (kg)
				NPT Thread	R/Rp Thread	Length	Hex Size (D)	
Aluminum	1/8	Male	1.3 (1300)	5500A1003	D5500A1003	2.0 (5)	0.81 (21)	0.07 (0.03)
	1/4	Male	2.3 (2300)	5500A2003	D5500A2003	2.2 (6)	0.81 (21)	0.07 (0.03)
	3/8	Male	2.9 (2900)	5500A3013	D5500A3013	2.2 (6)	0.81 (21)	0.07 (0.03)
			4.9 (4800)	5500A3003	D5500A3003	3.5 (9)	1.25 (32)	0.2 (0.1)
	1/2	Male	6.8 (6700)	5500A4003	D5500A4003	3.6 (9)	1.25 (32)	0.2 (0.1)
	3/4	Male	7.2 (7100)	5500A5013	D5500A5013	3.6 (9)	1.25 (32)	0.2 (0.1)
			15 (15000)	5500A5003	D5500A5003	5.3 (14)	2.0 (51)	0.9 (0.4)
	1	Male	18 (18000)	5500A6003	D5500A6003	5.4 (14)	2.0 (51)	0.9 (0.4)
	1-1/4	Male	24 (23000)	5500A7013	D5500A7013	5.5 (14)	2.0 (51)	0.9 (0.4)
		Female	42 (41000)	5500A7001	D5500A7001	5.7 (14)	2.5 (64)	1.4 (0.6)
	1-1/2	Female	39 (38000)	5500A8001	D5500A8001	5.7 (14)	2.5 (64)	1.3 (0.6)
	2	Female	59 (58000)	5500B9001	D5500B9001	6.6 (17)	3.0 (76)	1.7 (0.8)
	2-1/2	Female	104 (100000)	5500A9002	D5500A9002	4.0 (102)	5.7 (145)	2.9 (1.4)
Stainless Steel	1/4	Male	1.4 (1400)	5500B2004	D5500B2004	1.8 (45)	0.56 (14)	0.05 (0.2)
	1/2	Male	3.0 (3000)	5500B4004	D5500B4004	2.8 (70)	0.87 (22)	0.3 (0.1)
	1	Male	10 (9800)	5500B6004	D5500B6004	3.9 (98)	1.31 (33)	0.5 (0.2)
	2	Male	28 (28000)	5500A9004	D5500A9004	5.5 (140)	2.37 (60)	1.5 (0.7)
316 Stainless Steel Sintered Element	1/4	Male	2.3 (2300)	5500A2005	D5500A2005	2.2 (6)	0.81 (21)	0.07 (0.03)
	1/2	Male	6.8 (6700)	5500A4005	D5500A4005	3.6 (9)	1.25 (32)	0.2 (0.1)
	1	Male	18 (18000)	5500A6005	D5500A6005	5.4 (14)	2.0 (51)	0.9 (0.4)

FEMALE SILENCER CONNECTORS

Hex Nipples	Material	Fitting Pipe Size	Thread Type	Model Number		
				NPT Thread	BSPT Thread	
	Steel	1-1/4	Male - Male	491J27	106J39	
		1-1/2	Male - Male	488J27	122J39	
		2	Male - Male	489J27	108J39	
	Stainless Steel	2-1/2	Male - Male	490J27	123J39	

Accessories

LOCKOUT DEVICE

	Valve Model Use	Model Number	
Lockout Hasp	Lockout L-O-X® Classic Style	356A30	

SOLENOID PILOT INDICATOR LIGHT KITS

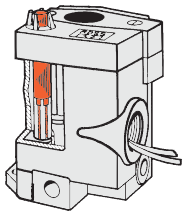


Illustration example.

	Kit Number		
	24 V DC	**110-120 V AC, 50-60 Hz**	**230 V AC, 50-60 Hz**
Indicator Light Kits	862K87-W	862K87-Z	862K87-Y
	To visually verify valve operation, indicator light kits are available for single solenoid models. Indicator lights are standard on double solenoid valves. The indicator light is illuminated when the solenoid is energized.		

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.

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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Asia & Pacific	India	**ROSS** CONTROLS INDIA	Tel: +91-44-2624-9040	www.rosscontrolsindia.com
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