



SAFE AIR ENTRY ASSEMBLIES WITH M35 SERIES VALVES

PRODUCT CATALOG



Safe Air Entry Assemblies with M35 Series Double Valves

Product Overview

Air entry assembly for Pneumatic Control and Air Dump/Release applications.

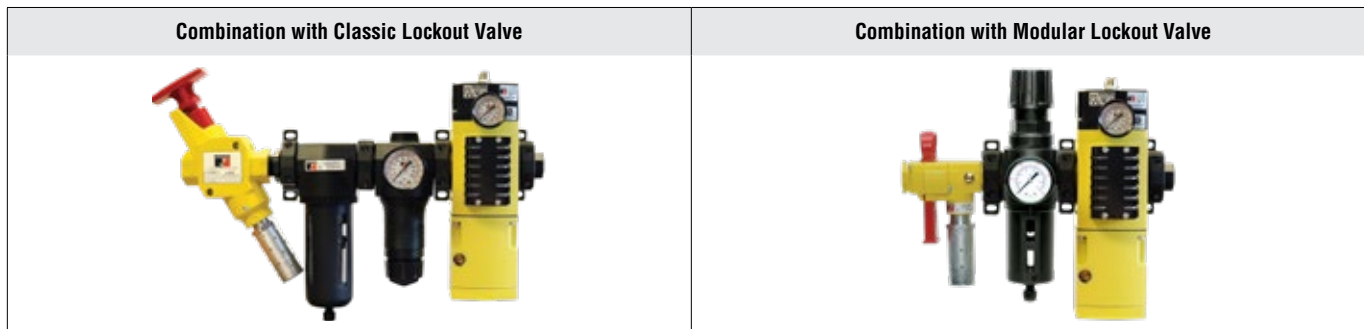


Illustration examples.

Air entry system via a manual Lockout L-O-X® valve, air preparation FRL combinations, and an M35 Series Safe Exhaust double valve with or without Soft-Start function.

ROSS systems have the same quality that you have come to expect from ROSS components. Units are fully configurable, tested, and ready for quick and easy installation at the job site.

Mounting accessories are used for modular connection to ROSS MD Series Filter-Regulator units. Bracket, Screw, Clamp and Mounting Adapter required for mounting.

ASSEMBLY COMPONENTS & FEATURES

Energy Isolation Lockout L-O-X® Valve

15 Series

- 3/2 valve
- Classic L-O-X® or Modular L-O-X®
- Lockable only in the OFF position
- Has a full size exhaust port (equal to or larger than supply)
- Simple push/pull of the large handle provides positive direct manual operation
- Fluorocarbon slipper seals for easy shifting, even after long periods of inactivity
- Integrated sensing port for pressure verification or visual indicator
- High flow, clog resistant; silencers included

Integrated Filter/Regulator Filter/Regulator, and Lubricator

MD4™ Series

- Lubricator with metal bowl
- Integrated Filter/Regulator (Filter and Pressure Regulator combined into a single unit) with high-strength polycarbonate plastic bowl
- Automatic filter drain; 5-micron filter element
- Self relieving regulator
- Analog gauge

Control Reliable Safe Exhaust Double Valve

M35 Series

- 3/2 valve
- Valve have both modular receptacles, and female threaded ports, which allows either modular connection or direct piping
- Pressure sensors - for external monitoring of valve state
- Integrated EEZ-ON® (Soft-Start) module option, allows slower build-up of pressure during start-up
- LED indicators - aid troubleshooting
- Built-in silencer

Mounting

Modular or inline

SISTEMA Library

Available for download

PRODUCT CREDENTIALS

Performance Level Per ISO 13849-1:2015	Safety Integrity Level Per IEC 2061:2001	DGUV	Declaration of Conformity			Certificate of Compliance
						

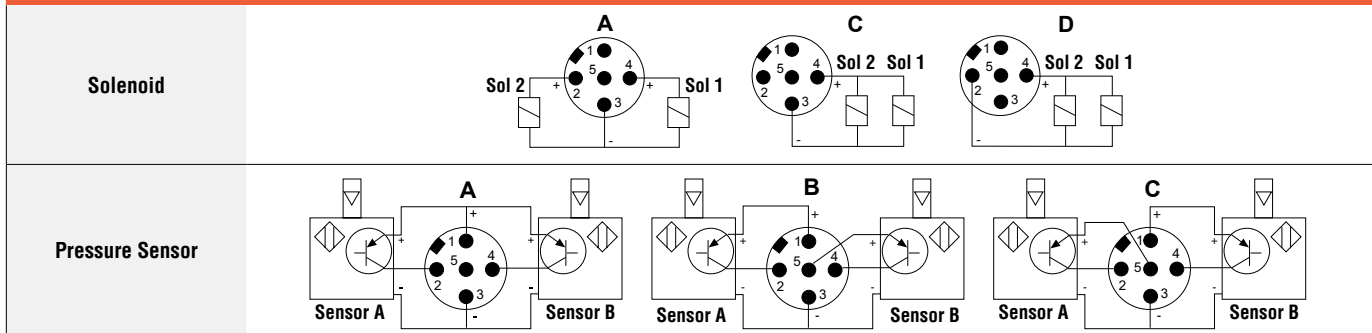
NOTE: Per specifications and regulations, lockout L-O-X® products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES. These valve assemblies are not designed for controlling clutch/brake mechanisms on mechanical power presses.

MODEL NUMBER CONFIGURATOR with 3-Way 2-Position Valves

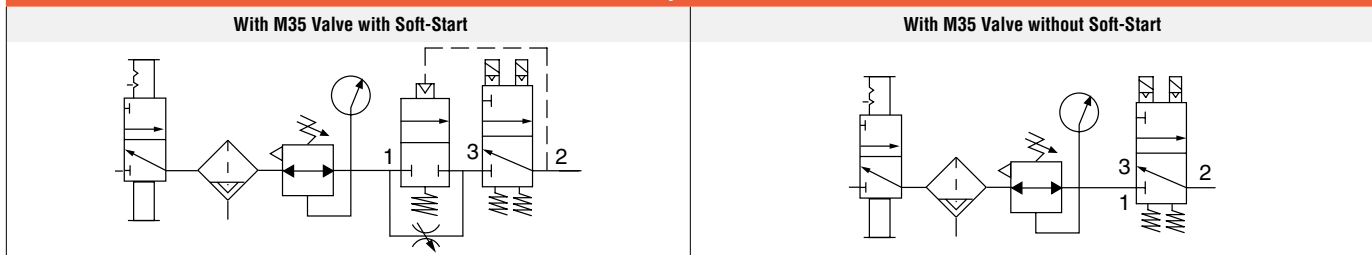
Series	M35	S	L	F	2U	40	G	A	E	X	AA	G	A
M35 Series Valve Soft-Start Option													
With Soft-Start	S												
Without Soft-Start	X												
Lockout Valve*													
Classic L-O-X®	L												
Modular L-O-X®	M												
None	X												
* Silencer Included.													
Filter, Regulator, Lubricator													
Integrated Filter/Regulator	F												
Filter and Regulator	R												
Integrated Filter/Regulator, and Lubricator	L												
Voltage	24 V DC												
Communication	None												
Monitoring	External												
Port Thread													
NPT	N												
G	G												
Pressure Measuring Device (for M35 Series valve)													
Analog Gauge	G												
Digital Transducer	T												
None (plugged port)	X												
Revision Level													
Extra Port Block (in relation to M35 valve)													
Location	Size												
Upstream	1/4	2U											
	3/8	3U											
	1/2	4U											
Downstream	1/4	2D											
	3/8	3D											
	1/2	4D											
Both	1/4	2B											
	3/8	3B											
	1/2	4B											
None	NA	XX											
Port Size	In-Out	Exhaust	M35 Series Valve Exhaust Type										
1/2	-	-	Built-in Silencer	40									
3/4	-	-	Built-in Silencer	50									
1/2	1	1	Threaded Exhaust Flange*	46									
3/4	1	1	Threaded Exhaust Flange*	56									
* Silencer not included but recommended, see accessories.													
Pin Configuration Combinations			Solenoid	Sensor									
A	A	AA											
A	B	AB											
A	C	AC											
C	C	CC											
D	B	DB											
D	C	DC											

Model Number examples: M35XMF2U40NAEXAATA, M35SLR2U40NAEXAAGA,

Valve Connector Pinouts



Assembly Schematics



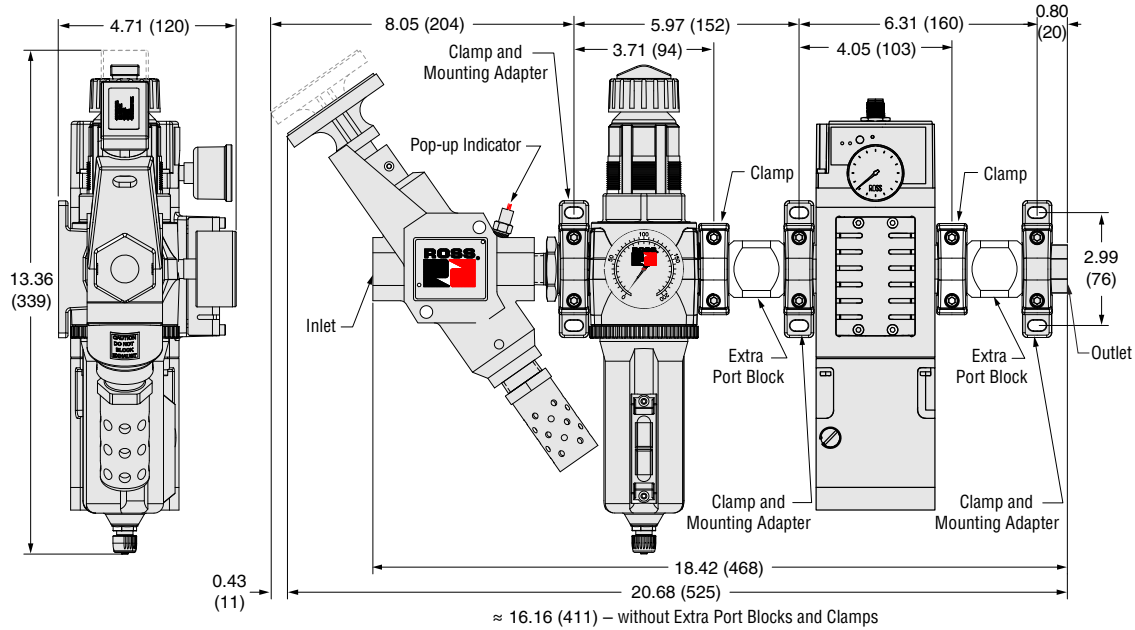
Assembly Technical Data

Models with Classic Lockout L-O-X® Valve

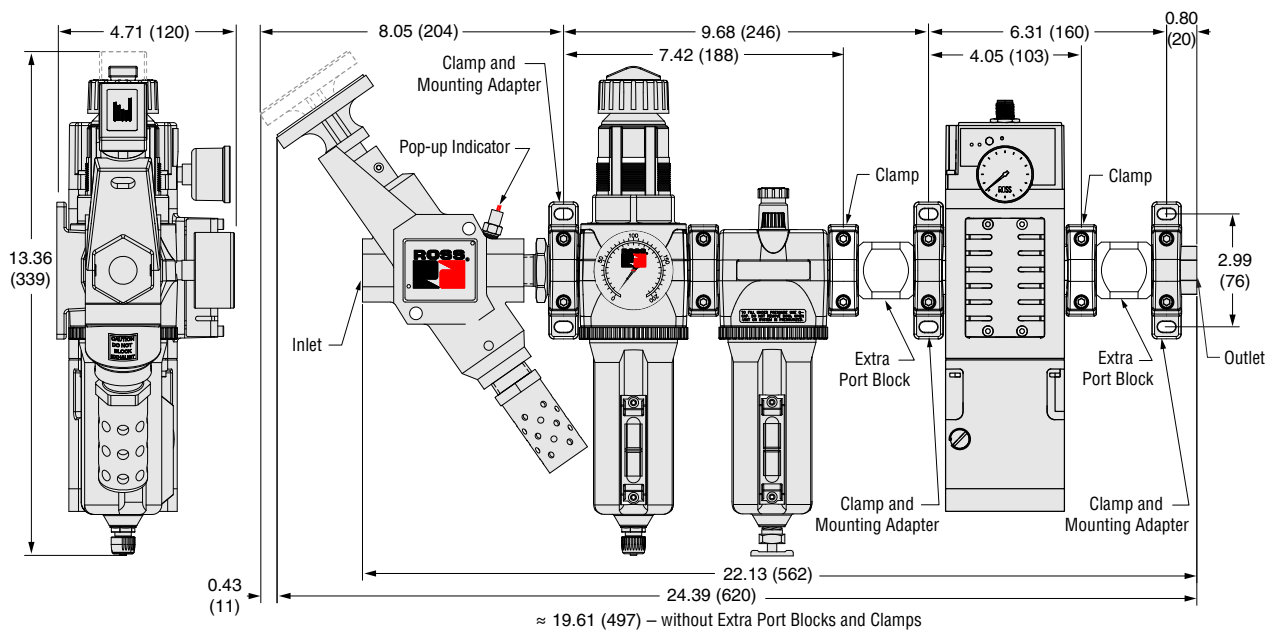
DIMENSIONS

Inches (mm)

with MD4™ Integrated Filter/Regulator option, with or without Extra Port Blocks



with MD4™ Integrated Filter/Regulator and Lubricator option, with or without Extra Port Blocks



Combinations example.

Downloadable CAD models available.

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

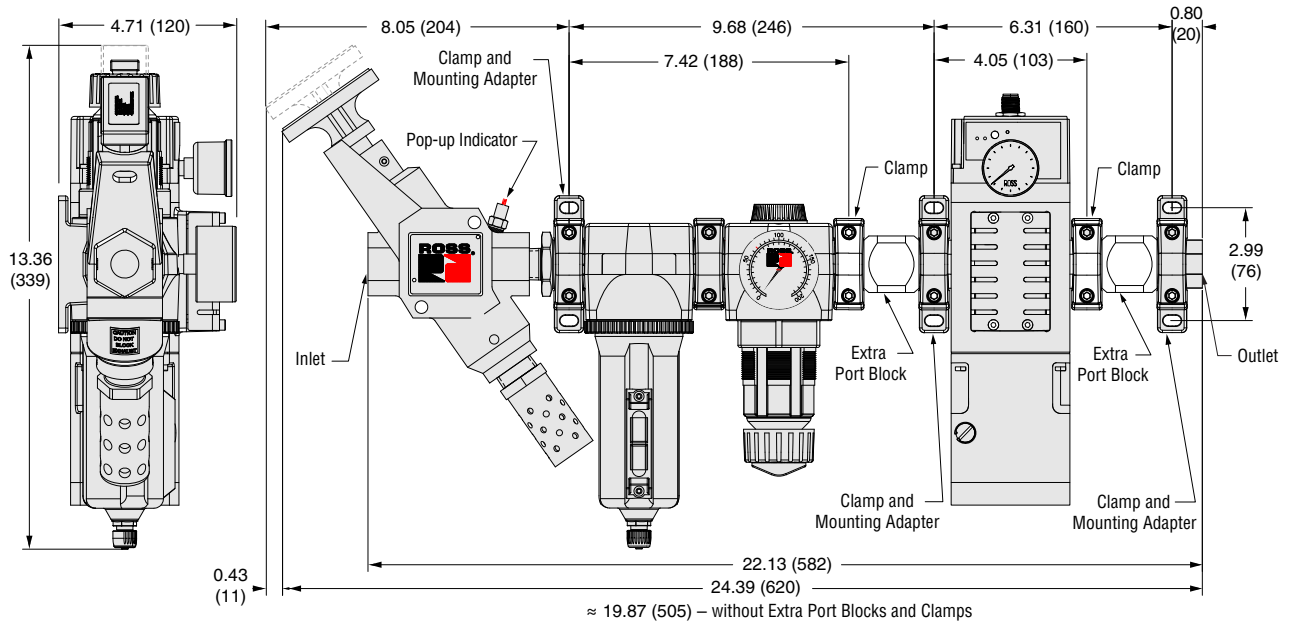
[Integration Guide - M35 Series Safe Exhaust Double Valves](#)

Models with Classic Lockout L-O-X® Valve

DIMENSIONS

Inches (mm)

with MD4™ Filter and Regulator option, with or without Extra Port Blocks



Combination example.

Downloadable CAD models available.

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

[Integration Guide - M35 Series Safe Exhaust Double Valves](#)

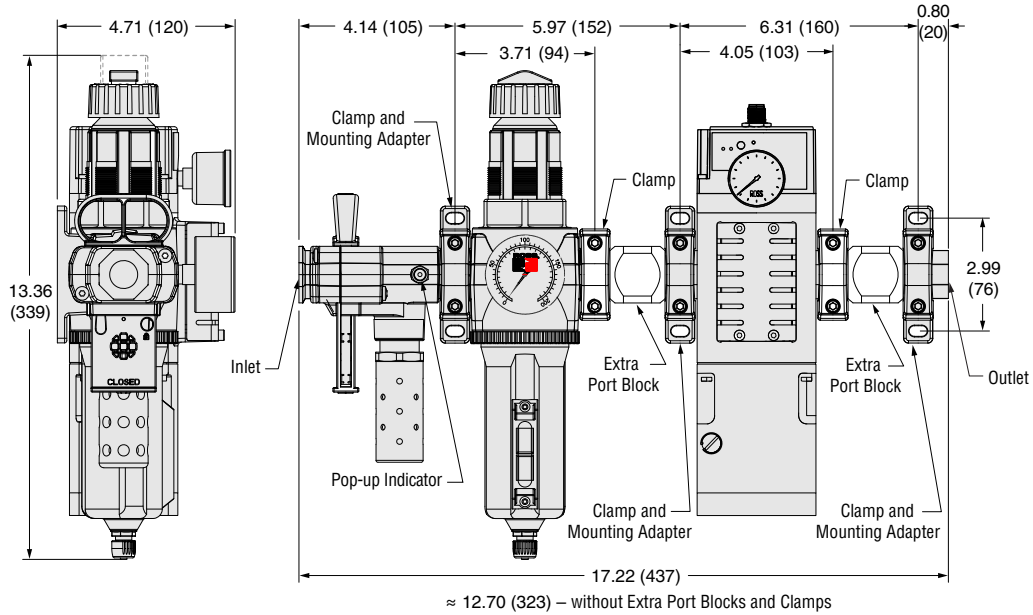
Assembly Technical Data

Models with Modular Lockout L-O-X® Valve

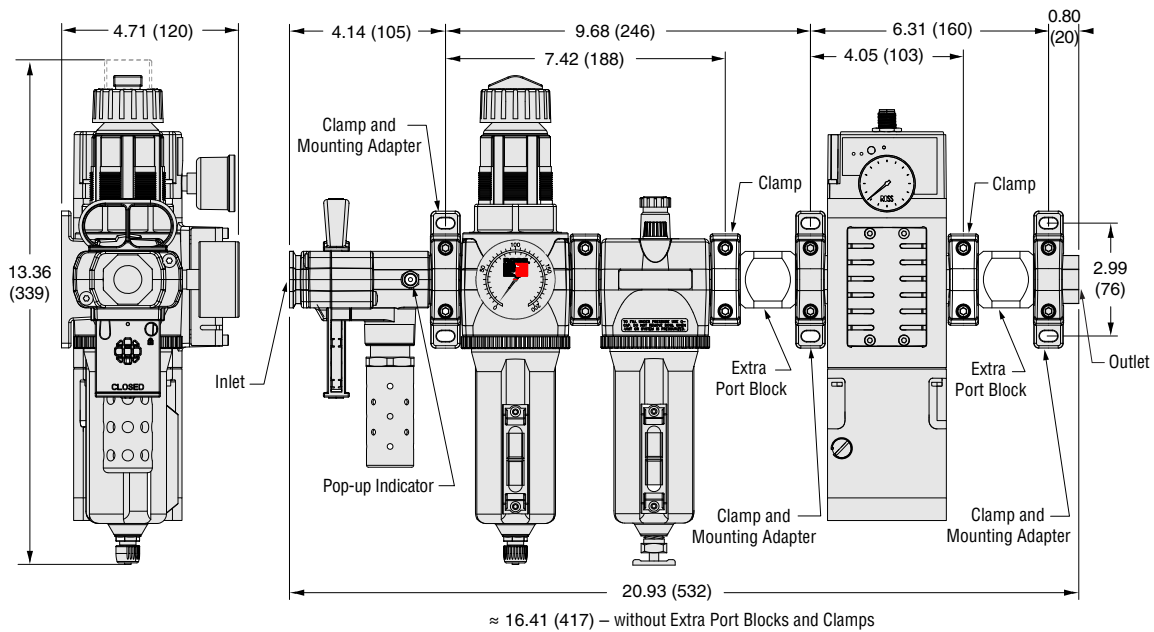
DIMENSIONS

Inches (mm)

with MD4™ Integrated Filter/Regulator option, with or without Extra Port Blocks



with MD4™ Integrated Filter/Regulator and Lubricator option, with or without Extra Port Blocks



Combinations example.

Downloadable CAD models available.

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

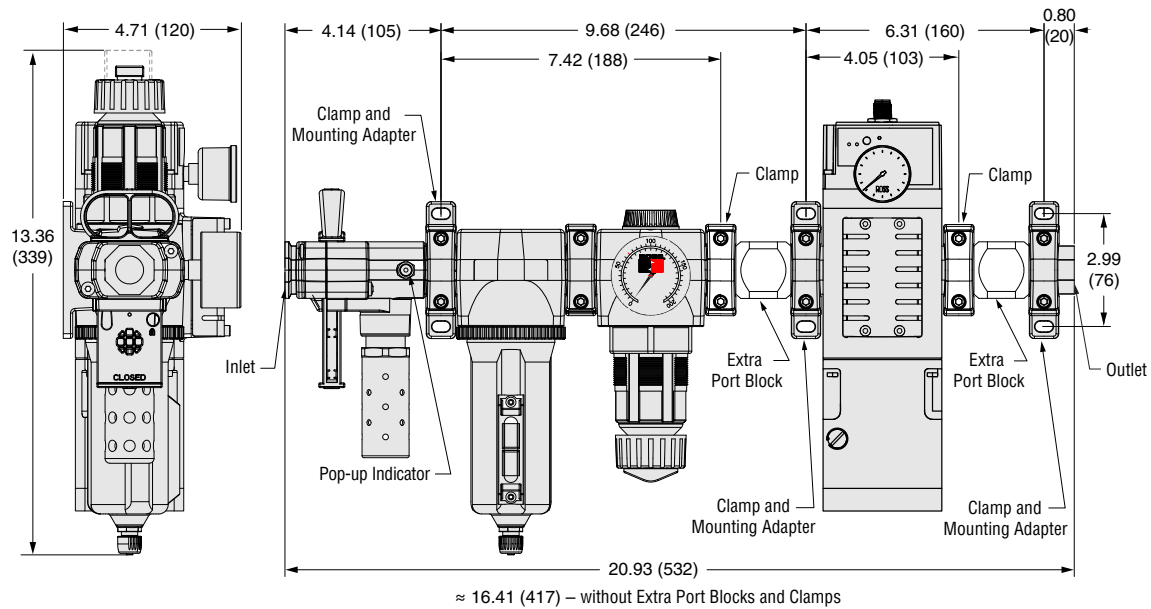
[Integration Guide - M35 Series Safe Exhaust Double Valves](#)

Models with Modular Lockout L-O-X® Valve

DIMENSIONS

Inches (mm)

with MD4™ Filter and Regulator option, with or without Extra Port Blocks



Combination example.

Downloadable CAD models available.

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

[Integration Guide - M35 Series Safe Exhaust Double Valves](#)

Air Entry Assemblies with M35 Series Double Valves and Drip Leg Option

Product Overview

Air entry assembly for Pneumatic Control and Air Dump/Release applications.

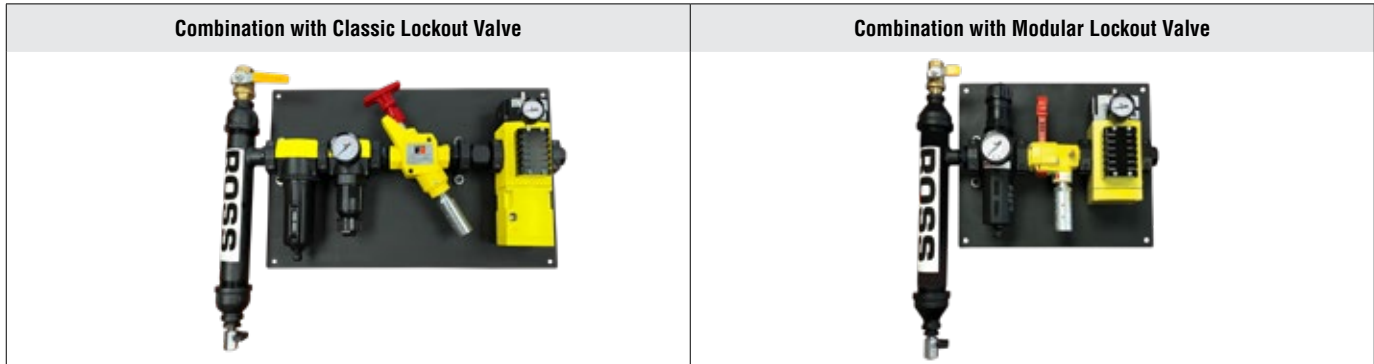


Illustration examples.

Air entry system via an optional drip leg, with integrated filter/regulator “F/R” or an air filter and pressure regulator “FR”, manual Lockout L-O-X® valve, and an M35 Series Safe Exhaust double valve with or without Soft-Start function.

ROSS systems have the same quality that you have come to expect from ROSS components. Units are fully configurable, tested, and ready for quick and easy installation at the job site.

Two types of Lockout Valve - Air Preparation combinations offered:

Type C – with Classic Lockout L-O-X® valve, and filter (with metal bowl) and pressure regulator “FR”

Type M – with Modular Lockout L-O-X® valve, and integrated filter/regulator “F/R” with high-strength polycarbonate plastic bowl.

ASSEMBLY COMPONENTS & FEATURES

Drip Leg

- Inlet and Drain equipped with Ball Valves

Filter and Regulator

MD4™ Series

Filter/Regulator, and Lubricator

MD3™ Series

- Filter with metal bowl
- Integrated Filter/Regulator (Filter and Pressure Regulator combined into a single unit) with high-strength polycarbonate plastic bowl
- Automatic filter drain; 5-micron filter element
- Self relieving regulator
- Analog gauge

Energy Isolation Lockout L-O-X® Valve

15 Series

- 3/2 valve
- Classic L-O-X® or Modular L-O-X®
- Lockable only in the OFF position
- Has a full size exhaust port (equal to or larger than supply)
- Simple push/pull of the large handle provides positive direct manual operation
- Fluorocarbon slipper seals for easy shifting, even after long periods of inactivity
- Integrated sensing port for pressure verification or visual indicator; Pop-Up indicator included
- High flow, clog resistant; silencers included

Control Reliable Safe Exhaust Double Valve

M35 Series

- 3/2 valve
- Pressure sensors - for external monitoring of valve state
- Integrated EEZ-ON® (Soft-Start) module option, allows slower build-up of during start-up
- LED indicators - aid troubleshooting
- Built-in silencer

Mounting

Modular, inline, or plate mounted assembly option

SISTEMA Library

Available for download

PRODUCT CREDENTIALS

Performance Level Per ISO 13849-1:2015	Safety Integrity Level Per IEC 2061:2001	DGUV	Declaration of Conformity	Certificate of Compliance
				

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

MODEL NUMBER CONFIGURATOR with 3-Way 2-Position Valves

RCM35 **S** **4** **G** **P** **D** **C** **AA** **A**

Series

M35 Series Valve Soft-Start Option	
With Soft-Start	S
Without Soft-Start	X

Port Size

1/2	4
3/4	5

Port Thread

NPT	N
G	G

Plate

With	P
Without	X

Drip Leg

With	D
Without	X

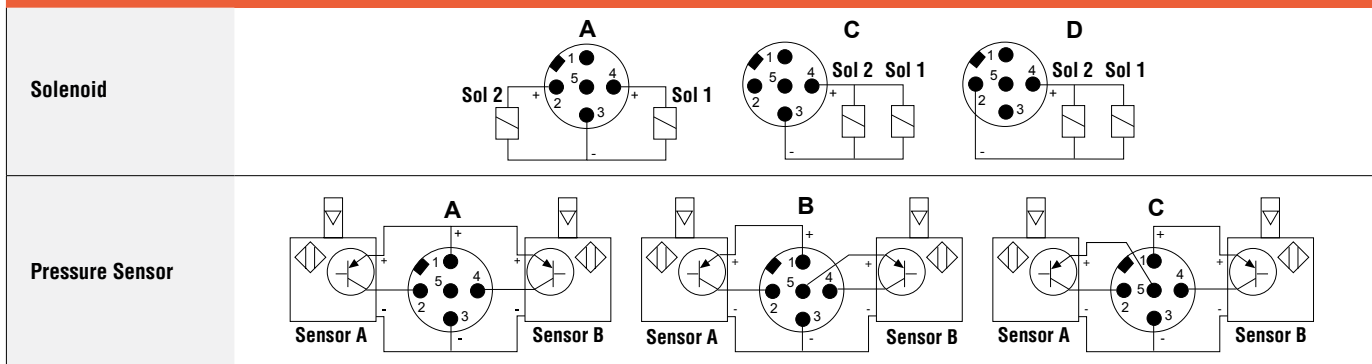
Revision Level

Pin Configuration Combinations*		
Solenoid	Sensor	
A	A	AA
A	B	AB
A	C	AC
C	C	CC
D	B	DB
D	C	DC

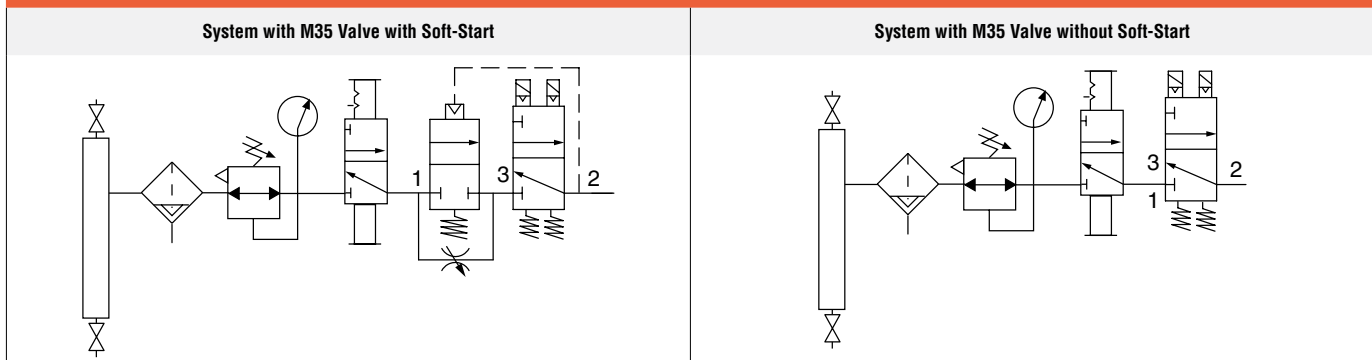
Lockout L-O-X® Valve	Air Preparation Type	
Classic	Filter and Regulator	C
Modular	Integrated Filter/Regulator	M

Model Number examples: RCM35X4GXXMAAA, RCM35S4NPDMABA,

Valve Connector Pinouts



Assembly Schematics

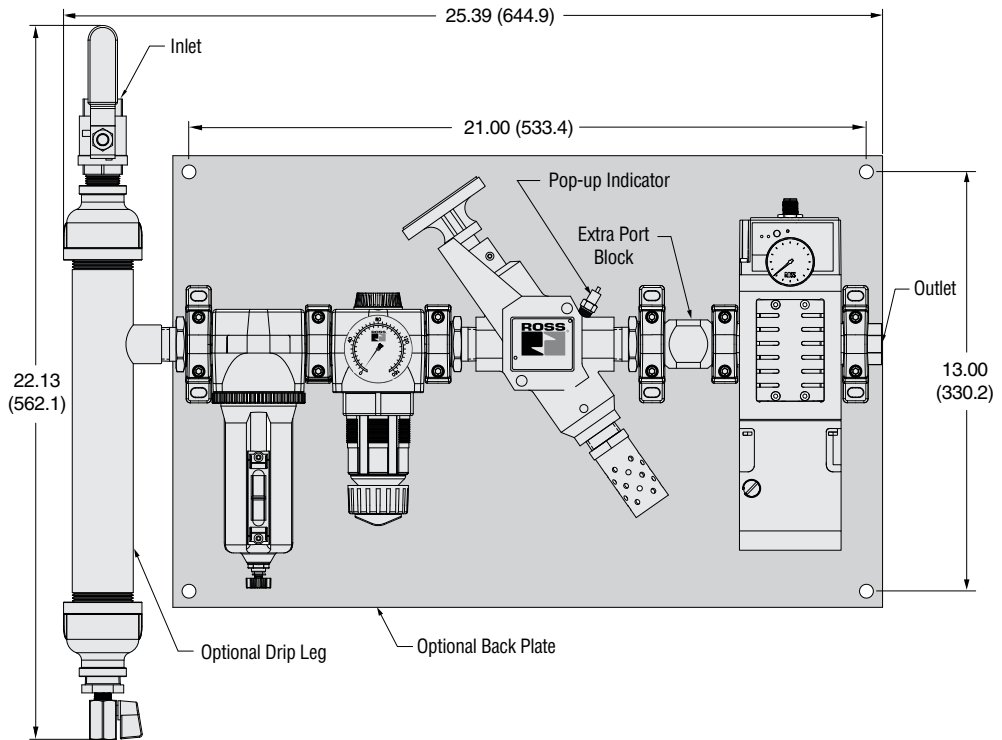


Assembly Technical Data

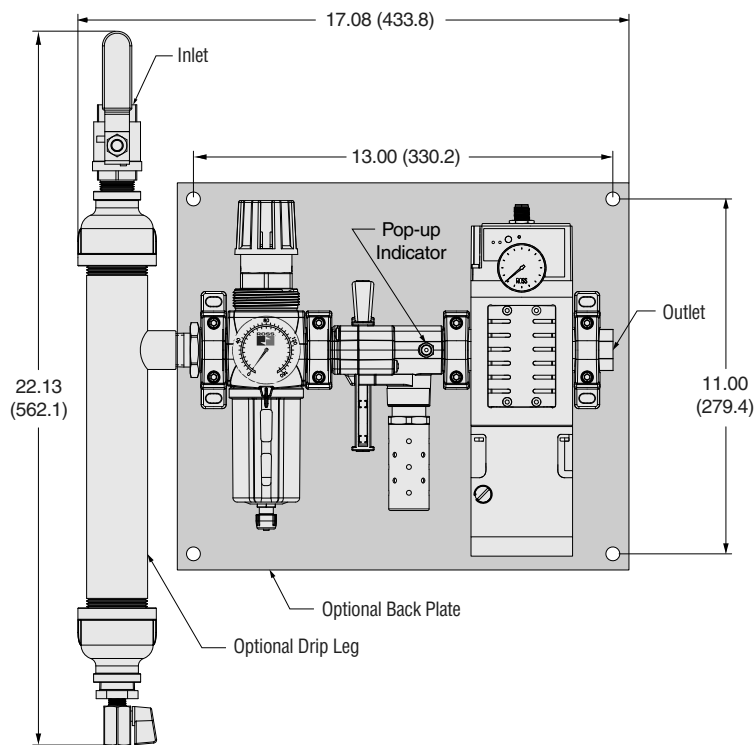
DIMENSIONS

Inches (mm)

Model with Filter and Regulator and Classic Lockout L-O-X® Valve option



Model with Integrated Filter/Regulator and Modular Lockout L-O-X® Valve option



Combinations example.

Downloadable CAD models available.

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

[Integration Guide - M35 Series Safe Exhaust Double Valves](#)

PRESSURE GAUGE



Illustration example.

Analog Pressure Gauge	Mounting	Port Size	Thread Type	Model Number	Pressure Range psig (bar)	Case Diameter inches (mm)
	Center Back	1/8	Male	5400A1002	0-160 (0-11)	1.5 (38)

ENERGY RELEASE VERIFICATION

Visual Pressure Indicator	Pressure Switch	Redundant Pressure Switch Assembly

Illustration examples.

Visual Pressure Indicator	Verification Type	Installation Location	Indicator Type	Model Number	Port Thread	
	Pneumatic	Pressure Sensing Port	Visual Pop-up Pin	988A30	1/8 NPT	
Pressure Switch	Verification Type	Installation Location	Connector Type	Model Number	Port Thread	Factory Preset psi (bar)
	Electrical	Pressure Sensing Port or Downstream	DIN EN 175301-803 Form A	586A86	1/8 NPT	5 (0.3) falling
Redundant Pressure Switch Assembly	Verification Type	Installation Location	Connector Type	Model Number	Port Thread	Factory Preset psi (bar)
	Electrical (Dual)	Downstream	DIN EN 175301-803 Form A	RC026-13	3/8 NPT	5 (0.3) falling

Pressure Switch Pinout	
DIN EN 175301-803 Form A	
	<p>1 - Common 2 - Normally Closed 3 - Normally Open 4 - Ground (Not Used)</p>

Accessories

PRESSURE TRANSDUCERS



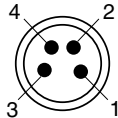
Illustration example.

Digital Pressure Transducers	Monitoring Type	Electrical Connection	Electrical Output	Model Number		Pressure Port Size	Pressure Range psig (bar)	Weight lb (Kg)
				NPT Thread	G Thread			
	Electrical	M8, 4 Pin	(1) PNP with (1) 4-20ma	760B94	D760B94	1/8	0 to 145 (0 to 10)	0.099 (0.045)

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

Pinout

Sensor Pinout with Analog Output



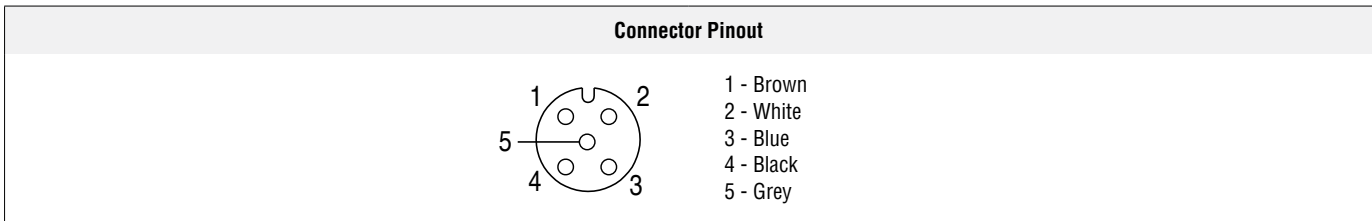
- 1 - Brown - 24 VDC
- 2 - White - 4 to 20mA
- 3 - Blue - 0 VDC
- 4 - Black PNP Open Collector Output 1

PREWIRED ELECTRICAL CONNECTORS




Illustration example.

	Cable						Kit Number
	End 1	End 2	Length meters (feet)	Connection	Quantity Included	Cord Diameter mm	Without Light
	Connector	Cord / Connector					
Prewired Connector Kits	M12, Female 5-pin straight A-coded	Flying Leads	5 (16.4)	Solenoid	1	6	2644B77
				Sensor	1	6	
			10 (32.8)	Solenoid	1	6	2370B77
				Sensor	1	6	
		Male Connector	5 (16.4)	Solenoid	1	6	2645B77
				Sensor	1	6	
			10 (32.8)	Solenoid	1	6	2371B77
				Sensor	1	6	



Accessories

LOCKOUT DEVICE

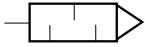
Lockout Hasp	Valve Model Use	Model Number	
	Lockout L-O-X® Classic Style	356A30	

EXHAUST SILENCERS

Silencers for M35 Valves with Threaded Exhaust Flange Option



Illustration example.

Silencers	SPECIFICATIONS		Silencer Material	Pressure Range psig (bar)	Schematic		
			Aluminum	0-290 (0-20) maximum			
	Port Size	Thread Type	Flow C _v (NI/min)	Model Number		Dimensions inches (mm)	
1	Male	18 (18000)	NPT Thread	R/Rp Thread	Length	Hex Size (D)	0.9 (0.4)
			5500A6003	D5500A6003	5.4 (14)	2.0 (51)	

MODULAR CONNECTION

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






Clamp		Bracket, Screw, and Clamp	
			
Extra Port Blocks	Female End Ports		Male End Ports
			

Illustration examples.

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

Port Block and End Ports	Options	Port Size	Model Number	
			NPTF Thread	G Thread
	Extra Port Blocks	1/2	R-118-106-4	R-118-106-4W
	Female End Ports	1/2	R-118-100-4	R-118-100-4W
		3/4	R-118-100-6	R-118-100-6W
	Male End Ports	1/2	R-118-109-4F	R-118-109-4FW
3/4		R-118-109-6F	R-118-109-6FW	

REPLACEMENT FILTER ELEMENTS

Filter Elements	Filter Series	Bowl Type	Element Material	Model Number			
				Element Rating			
					5-µm	20-µm	40-µm
	MD3™	Standard	Polyethylene	R-A60F-03PE5	-	-	
			Sintered Bronze	R-A60F-03E5	R-A60F-03E4	R-A60F-03E3	
MD4™	Standard	Polyethylene	R-A115-106PE5	-	-		
		Sintered Bronze	R-A115-106E5	R-A115-106E4	R-A115-106PE3		

LUBRICANTS, POLYCARBONATE BOWL CAUTIONS

COMPATIBLE LUBRICANTS

Although air line lubrication is not required for most ROSS valves, other mechanisms in the system may need such lubrication. When a lubricator is used, it should be supplied only with oils which are compatible with the materials used in the valves for seals and poppets. Generally speaking, these are petroleum base oils with oxidation inhibitors, and aniline point between 180°F (82°C) and 220°F (104°C) and an ISO 32, or lighter, viscosity. Oils with phosphate type additives, such as zinc dithiophosphate, must be avoided because they can harm polyurethane valve components. The best oils to use in pneumatic systems are those specifically compounded for air line lubricator service.

CAUTIONS ON THE USE OF POLYCARBONATE BOWLS

Use Only with Compressed Air. Filters and lubricators with polycarbonate bowls are specifically designed for compressed air service, and their use with any other fluid (liquid or gas) is a misapplication. The use with or injection of certain hazardous fluids in the system (e.g., alcohol or liquefied petroleum gas) could be harmful to the polycarbonate bowl or result in a combustible condition or hazardous leakage. Before using with a fluid other than air, or for nonindustrial applications, or for life support systems, consult ROSS.

Use Metal Bowl Guard When Supplied. A metal bowl guard is supplied with all but the smallest bowls, and must always be used to minimize danger from fragmentation in the event of failure of a polycarbonate bowl.

Avoid Harmful Substances. Some compressor oils, chemical cleaners, solvents, paints, and fumes will attack polycarbonate bowls and can cause bowl failure. Do not use with or near these materials. When a bowl becomes dirty, replace the bowl or wipe it with a clean dry cloth. Immediately replace any polycarbonate bowl which is crazed, cracked, or deteriorated.

SUBSTANCES HARMFUL TO POLYCARBONATE BOWLS

Acetaldehyde	Carbon disulfide	Ethylene dichloride	Phosphorous trichloride
Acetic acid	Carbon tetrachloride	Ethylene glycol	Propionic acid
Acetone	Caustic potash solution	Formic acid	Pyridine
Acrylonitrile	Caustic soda solution	Freon (refrigerant & propellant)	Sodium hydroxide
Ammonia	Chlorobenzene	Gasoline (high aromatic)	Sodium sulfide
Ammonium fluoride	Chloroform	Hydrazine	Styrene
Ammonium hydroxide	Cresol	Hydrochloric acid	Sulfuric acid
Ammonium sulfide	Cyclohexanol	Lacquer thinner	Sulfural chloride
Anaerobic adhesives & sealants	Cyclohexanone	Methyl alcohol	Tetrahydronaphthalene
Antifreeze	Cyclohexene	Methylene chloride	Thiophene
Benzene	Dimethyl formamide	Methylene salicylate	Toluene
Benzoic acid	Dioxane	Milk of lime (CaOH)	Turpentine
Benzyl alcohol	Ethane tetrachloride	Nitric acid	Xylene
Brake fluids	Ethyl acetate	Nitrobenzene	Perchloroethylene
Bromobenzene	Ethyl ether	Nitrocellulose lacquer	
Butyric acid	Ethylamine	Phenol	
Carbolic acid	Ethylene chlorohydrin	Phosphorous hydroxyl chloride	

TRADE NAMES OF SUBSTANCES HARMFUL TO POLYCARBONATE BOWLS

Atlas Perma-Guard	Loctite Threadlocker Red 271	Pydraul AC
Buna-N	Loctite Threadlocker 290	Sears Regular Motor Oil
Cellulube #150 & #220	Loctite 601	Sinclair oil "Lily White"
Crylex #5 cement	Loctite Teflon sealant	Stauffer Chemical FYRQUEL 150
Eastman 910	Marvel Mystery Oil	Stillman #SR 269-75 (polyurethane)
Garlock #98403 (polyurethane)	Minnesota Rubber 366Y	Stillman #SR 513-70 (neoprene)
Haskel #568-023	National Compound #N11	Tannergas
Hilgard Company's Hil-Phene	Nylock VC-3	Telar
Houghton & Co. oil #1120, #1130, #1055	Parco #1306 Neoprene	Tenneco Anderol 495 & 500 oils
Houtosafe 1000	Permabond 910	Titon
Kano Kroil	Petron PD287	Vibra-TITE
Keystone penetrating oil #2	Prestone	Valvolin ZEREX

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

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