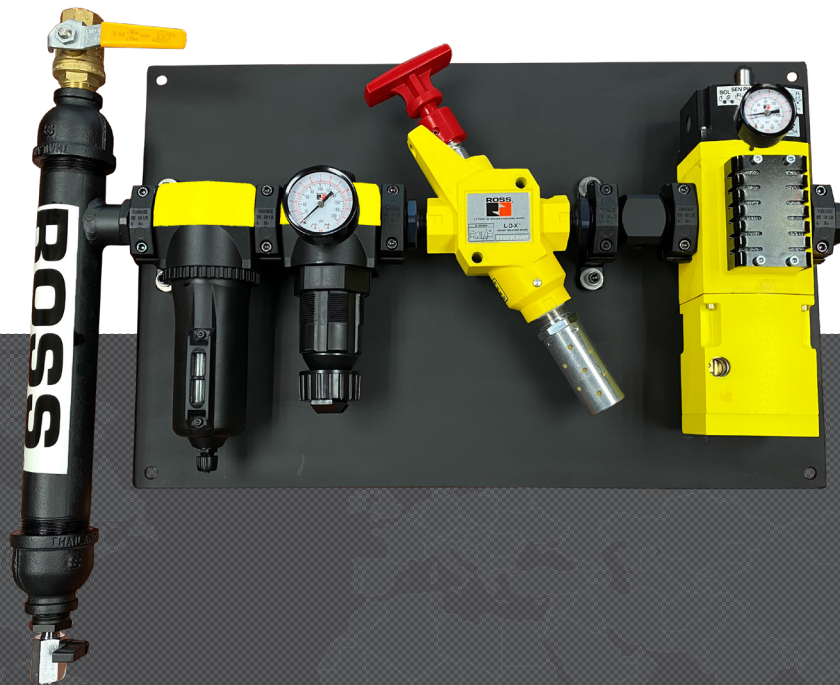




AIR ENTRY SAFETY SOLUTIONS

M35 SERIES DOUBLE VALVES



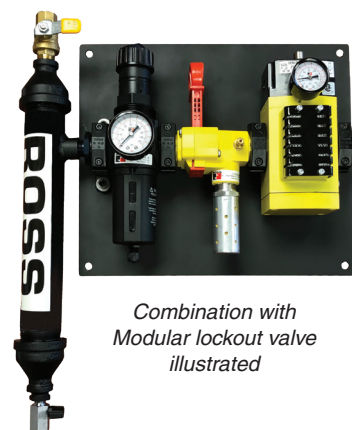
ROSS CONTROLS

Product Information

Pre-engineered panel-mounted design for Pneumatic Control and Air Dump/Release applications.

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 tested and ready for quick and easy installation at the job site.



Combination with
Modular lockout valve
illustrated

Two types of assembly combinations offered:

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

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

Assembly Components & Features

Control Reliable Safe Exhaust Double Valve M35 Series

- 3/2 valve
- Pressure sensors - allow 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

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

Drip Leg

- Inlet and Drain equipped with Ball Valves






Filter and Regulator or Integrated Filter/Regulator MD³ Series

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

Mounting

- Plate mounted assembly

M35 Series Valve Credentials

Safety Category	DGUV (German Social Accident Insurance)	CE Conformity Declaration	ISO Standard	CSA Certificate of Compliance	CRN Certification	SISTEMA Library
 			ISO 13849-1:2015		Available at www.rosscontrols.com	

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.

Ordering Information

RCM35

Series

M35 Valve

With Soft-Start

Without Soft-Start

S

With Soft-Start

Without Soft-Start

4

Port Size

1/2

3/4

4

1/2

3/4

G

Thread

G

NPT

P

Plate

With

Without

D

Drip Leg

With

Without

L

Lockout Valve - Air Preparation Type

Classic L-O-X® with FR

Modular L-O-X® with F/R

AA

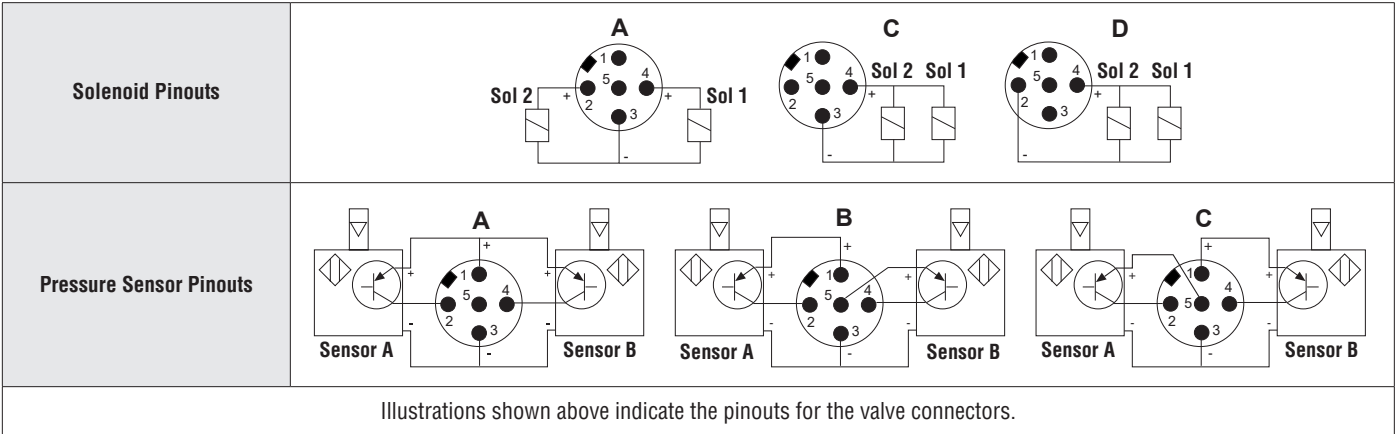
Revision Level

Pin Configuration Combinations*

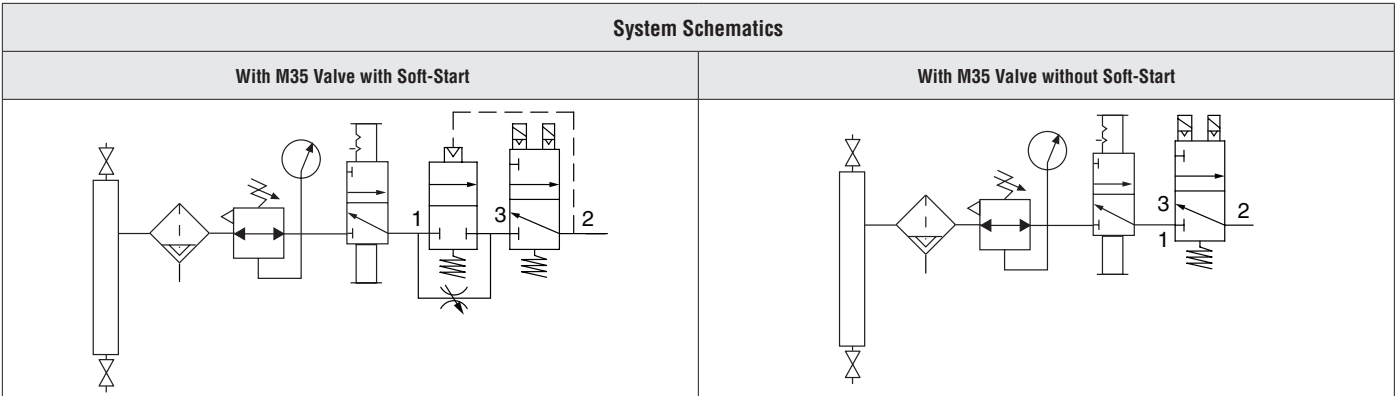
Solenoid	Sensor	
A	A	AA
A	B	AB
A	C	AC
C	C	CC
D	B	DB
D	C	DC

A

Custom configurations available, consult ROSS.



M35 Serie Valve				
Port Size	Basic Size	Soft Start	C _v	
			1-2	2-3
1/2	8	With	4.1	7.5
1/2	8	Without	4.3	7.5
3/4	8	With	4.1	7.5
3/4	8	Without	4.3	7.5



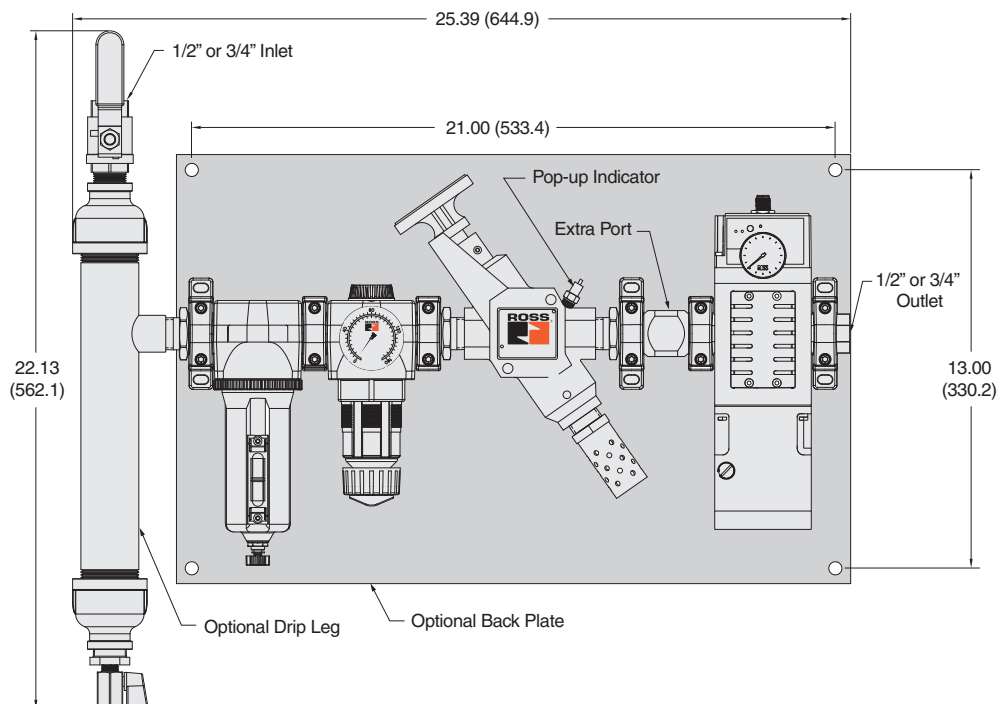
NOTE: Per specifications and regulations, lockout L-O-X® products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES. These valve assemblies are not designed for controlling clutch/brake mechanisms on mechanical power presses.

Dimensions

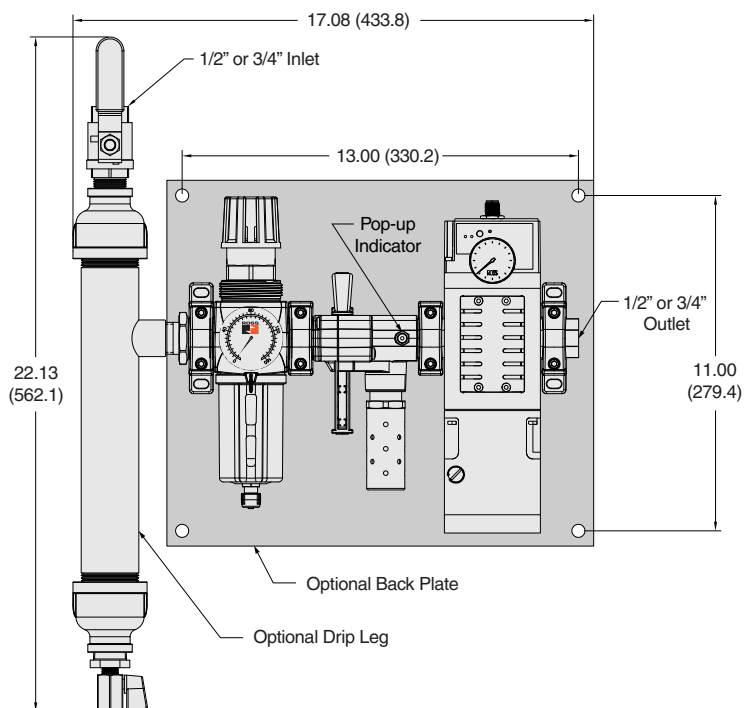
Dimensions – inches (mm)

Assembly Technical Data

Model with Classic Lockout L-O-X® Valve



Model with Modular Lockout L-O-X® Valve



For additional information, and to assist you with piping and connectivity designs, our products are available in downloadable 2D and 3D CAD models in a wide range of formats at www.rosscontrols.com

Specifications

STANDARD SPECIFICATIONS			
OPERATING CONDITIONS	Temperature	Ambient	40° to 120°F (4° to 50°C)
		Media	40° to 175°F (4° to 80°C)
	Flow Media		Compressed air according to ISO 8573-1 Class 7:4:4
	Operating Pressure		30 to 150 psig (2 to 10 bar)
	Pressure Sensors (2 per valve)		PNP solid state
	Pressure Sensors Current Consumption (each sensor)		<23mA (each without contacts)
ELECTRICAL DATA	Voltage		24 volts DC
	Power Consumption		15 watts
	Enclosure Rating		IP65, IEC 60529
	Electrical Connection		Two 5-pin M12 connectors
	Pressure Switch (Status Indicator) Rating		Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC
MONITORING	External Monitoring		Dynamic, cyclical, external with customer supplied equipment. Monitoring should check state of both valve pressure sensors with any and all changes in state of valve control signals.
IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.			

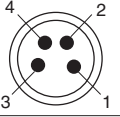
The M35 Series valve is designed to supply air to a zone or entire machine/system until signaled to shut off and exhaust residual downstream pneumatic energy from the machine. Thus, reducing the hazards associated with the presence of residual energy during employee access and/or minor servicing.

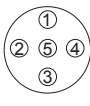
External Monitoring – Each valve element in the M35 Series is equipped with a solid state pressure sensor. Monitoring both of these sensors on each actuation and de-actuation of the M35 Series valve provides a diagnostic coverage up to 99%. Monitoring of these sensors is to be done by an external monitoring system.

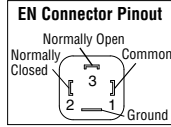
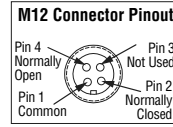
An Integration Guide for the M35 Series valves is available from ROSS to provide information such as operation & monitoring, and validation test procedure for valve operation and external monitoring logic.

Exhaust Time – Normal and Faulted Conditions (s)													
Volume ft ³ (L)	Normal or Faulted	Valve with Built-in Silencer						Valve with Threaded Exhaust Flange					
		Operating Pressure psig (bar)						Operating Pressure psig (bar)					
		30 (2)		90 (6)		145 (10)		30 (2)		90 (6)		145 (10)	
		to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)	to 15 (1)	to 7 (0.5)
0.071 (2)	N	0.055	0.071	0.094	0.112	0.120	0.135	0.052	0.070	0.093	0.113	0.123	0.142
	F	0.072	0.098	0.147	0.183	0.200	0.247	0.065	0.091	0.137	0.175	0.203	0.272
0.35 (10)	N	0.131	0.208	0.317	0.393	0.424	0.507	0.120	0.191	0.308	0.409	0.437	0.520
	F	0.185	0.301	0.533	0.710	0.789	1.024	0.163	0.300	0.503	0.697	0.805	1.048
0.71 (20)	N	0.226	0.379	0.597	0.746	0.804	0.971	0.204	0.342	0.577	0.779	0.829	0.992
	F	0.326	0.555	1.016	1.368	1.526	1.997	0.285	0.562	0.961	1.349	1.558	2.017
1.41 (40)	N	0.416	0.721	1.155	1.451	1.564	1.899	0.373	0.645	1.115	1.519	1.615	1.937
	F	0.608	1.063	1.983	2.685	3.000	3.941	0.530	1.086	1.878	2.655	3.064	3.957
5.30 (150)	N	1.462	2.604	4.227	5.326	5.743	7.006	1.301	2.310	4.071	5.588	5.934	7.130
	F	2.160	3.855	7.298	9.929	11.107	14.635	1.874	3.968	6.919	9.834	11.345	14.622

Accessories & Options

Digital Pressure Transducer	Model Number		Pressure Range psig (bar)	Description			
	G Threads	NPT Threads		Electrical Output	Electrical Connection	Pressure Port Size/Type	Weight lb (Kg)
	D760B94	760B94	0-145 (0-10)	(1) PNP with (1) 4-20ma	M8, 4 Pin	1/8 NPT male	0.099 (0.045)
	<div>Sensor Pinout with Analog Output</div> <div>Wire Colors</div> <div>1 Brown - 24 VDC</div> <div>2 White - 4 to 20mA</div> <div>3 Blue - 0 VDC</div> <div>4 Black PNP Open Collector Output 1</div> <div></div>						

Prewired Connector Sets	Connection Type	Connector Form	End 1	End 2	Length meters (feet)	Model Number Without Light	Quantity	<div>Wire Colors</div> <div>1 Brown</div> <div>2 White</div> <div>3 Blue</div> <div>4 Black</div> <div>5 Grey</div> <div></div>
	Sensor Prewired Connector	M12, 5-pin, straight A-coded	Connector	Flying leads	5 (16.4)	2644B77	2	
					10 (32.8)	2370B77	2	
				Connector	5 (16.4)	2645B77	2	
					10 (32.8)	2371B77	2	

Energy Release Verification	Options		Connection Type	Model Number	Port Threads	Factory Preset psi (bar)
	Pressure Switches (Electrical)		EN 175301-803 Form A	586A86	1/8 NPT	5 (0.3) falling
			M12	1153A30	M10x1	
	Pop-Up (Visual) Indicator		1/8 NPT	988A30	1/8 NPT	—
	Pressure Switch Connector Pinout					
	EN Connector			M12 Mechanical Pressure Switch		
<div>EN Connector Pinout</div> <div>Normally Open</div> <div>Normally Closed</div> <div>Common</div> <div>Ground</div> <div></div>			<div>M12 Connector Pinout</div> <div>Pin 4 Normally Open</div> <div>Pin 3 Not Used</div> <div>Pin 2 Normally Closed</div> <div>Pin 1 Common</div> <div></div>			

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

Multiple Lockout Device	Valve Model Use			Model Number
	Lockout L-O-X®			356A30

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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There are ROSS Distributors Throughout the World

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.

For a current list of countries and local distributors, visit ROSS' at www.rosscontrols.com.