Safe Air Entry Assemblies with SV27 Series Valves

Product Catalog

a global family

Safe Air Entry Assemblies with Sensing Valves SV27 Series
Product Overview

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

Combination with Classic Lockout Valve	Combination with Modular Lockout Valve
	

Illustration examples.

Air entry system via a manual Lockout L-O-X® valve, air preparation FRL combinations, and an SV27 Series Safe Exhaust sensing valve.

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.

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

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
Filter and Regulator (FR), **Integrated Filter/Regulator (F/R),** **or Filter, Regulator, and Lubricator (FRL)** MD Series	• Filter, Pressure Regulator, and Lubricator with metal bowls, or 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
Safe Exhaust Sensing Valve SV27 Series	• 3/2 valve • Senses internal position & state • Electrical feedback via DPST switch (Double-Pole Single-Throw) • Directly operated safety-rated force-guided positive-break status switch (DPST) • Poppet construction for near zero leakage & dirt tolerance
Mounting	Mounting plate, direct piping assembly
SISTEMA Library	Available for download

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

MODELS with CLASSIC MANUAL LOCKOUT L-O-X® VALVES

Port Size		Port Thread	Air Preparation		Air Entry Assembly Model Number #		
In-Out 1, 2	Exhaust 3		Series	Type	Voltage*		
					24 volts DC	110-120 volts AC 50/60 Hz	230 volts AC 50/60 Hz **
1/2	1/2	NPT	MD4™	FR	RC208-06W	RC208-06Z	RC208-06Y
				FRL	RC208L-06W	RC208L-06Z	RC208L-06Y
3/4	3/4	NPT	MD4™	FR	RC212-06W	RC212-06Z	RC212-06Y
				FRL	RC212L-06W	RC212L-06Z	RC212L-06Y
1	1	NPT	High-Capacity	FR	RC216-06W	RC216-06Z	RC216-06Y
				FRL	RC216L-06W	RC216L-06Z	RC216L-06Y

Silencer included.

* For other voltages consult ROSS.
** 230 VAC not available in the U.S. (OSHA regulations limit control voltage to no more than 120 volts AC).

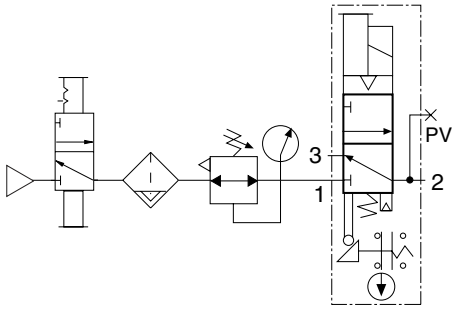
MODELS with MODULAR MANUAL LOCKOUT L-O-X® VALVES

Port Size		Port Thread	Air Preparation		Air Entry Assembly Model Number #		
In-Out 1, 2	Exhaust 3		Series	Type	Voltage*		
					24 volts DC	110-120 volts AC 50/60 Hz	230 volts AC 50/60 Hz **
1/2	1/2	NPT	MD3™	F/R	RC208-09W	RC208-09Z	RC208-09Y
				FRL	RC208L-09W	RC208L-09Z	RC208L-09Y

Silencer included.

* For other voltages consult ROSS.
** 230 volts AC not available in the U.S. (OSHA regulations limit control voltage to no more than 120 volts AC).

Assembly Schematic



PRODUCT CREDENTIALS

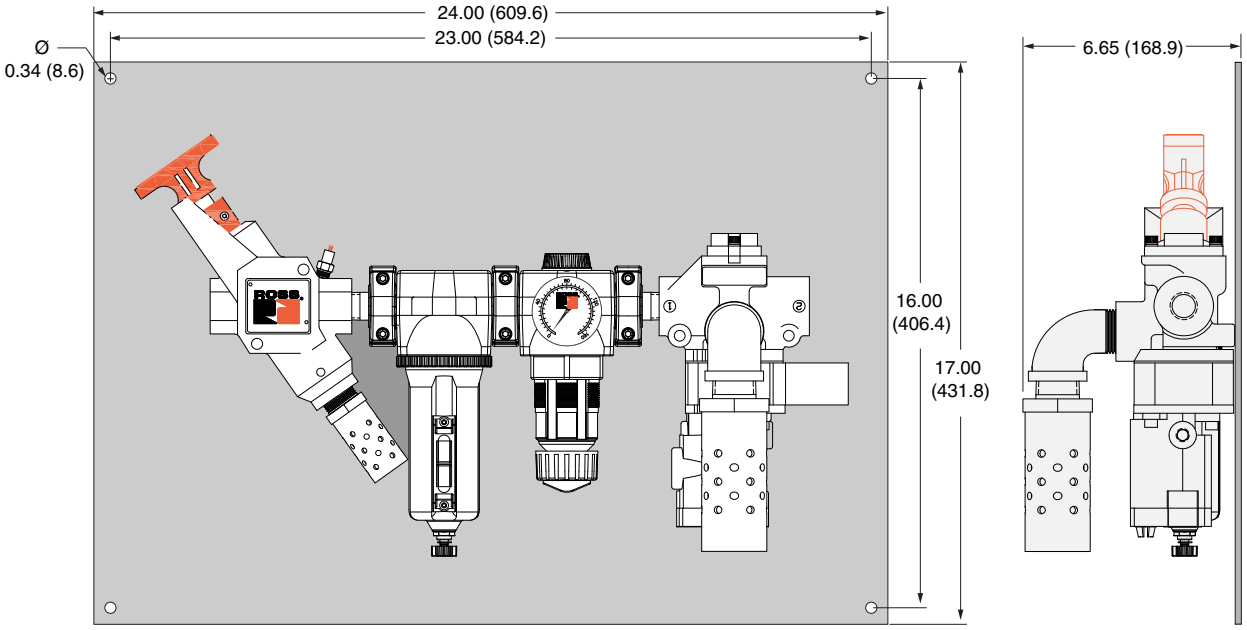
Performance Level	Safety Integrity Level	TÜV Rheinland	Declaration of Conformity		Certificate of Compliance
Per ISO 13849-1:2015	Per IEC 2061:2001	Per ISO 9001:2015			
Cat. 2 PL c	SIL 2 Functional Safety	TÜVRheinland Precisely Right.	CE	EAC	CSA C US

Models with Classic Lockout L-O-X® Valve

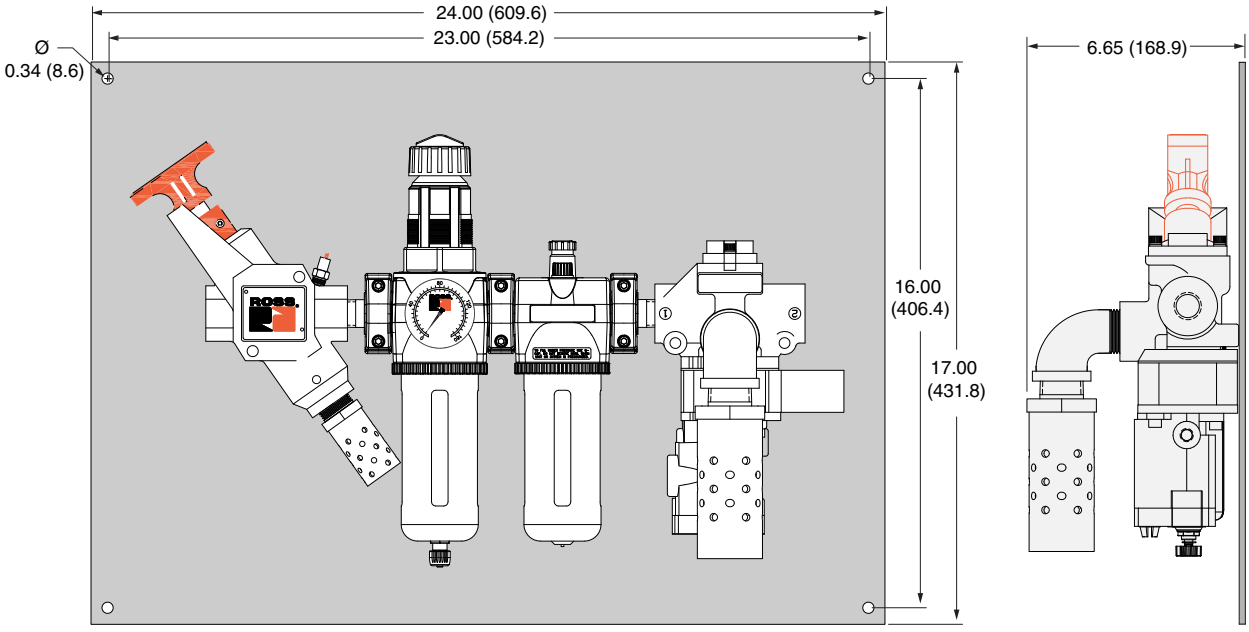
DIMENSIONS — **Inches (mm)**

Port Size 1/2"

with MD4™ Filter and Regulator option



with MD4™ Integrated Filter/Regulator and Lubricator option



Combinations example.

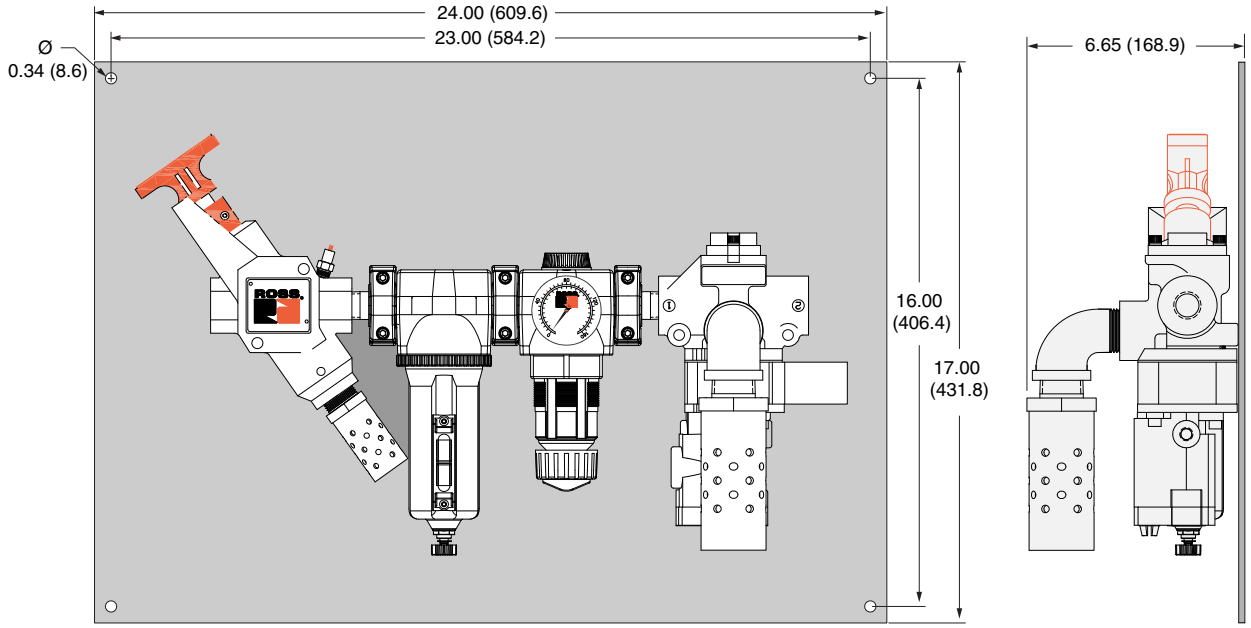
Downloadable CAD models available.

Models with Classic Lockout L-O-X® Valve

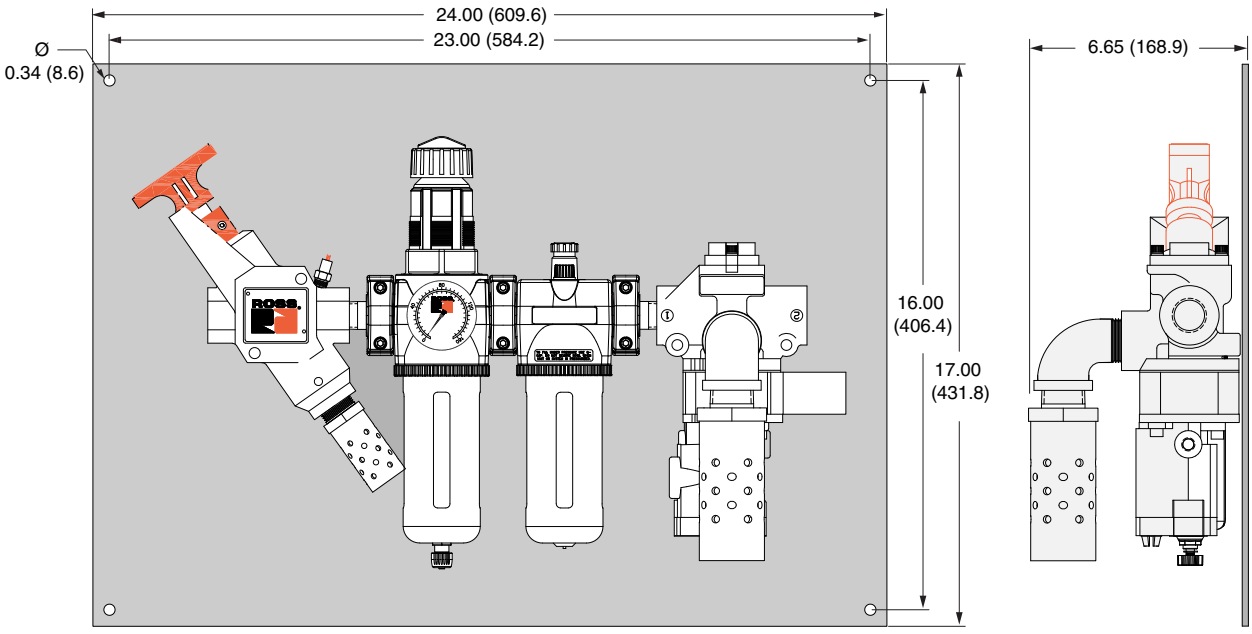
DIMENSIONS — Inches (mm)

Port Size 3/4"

with MD4™ Filter and Regulator option



with MD4™ Integrated Filter/Regulator and Lubricator option



Combinations example.

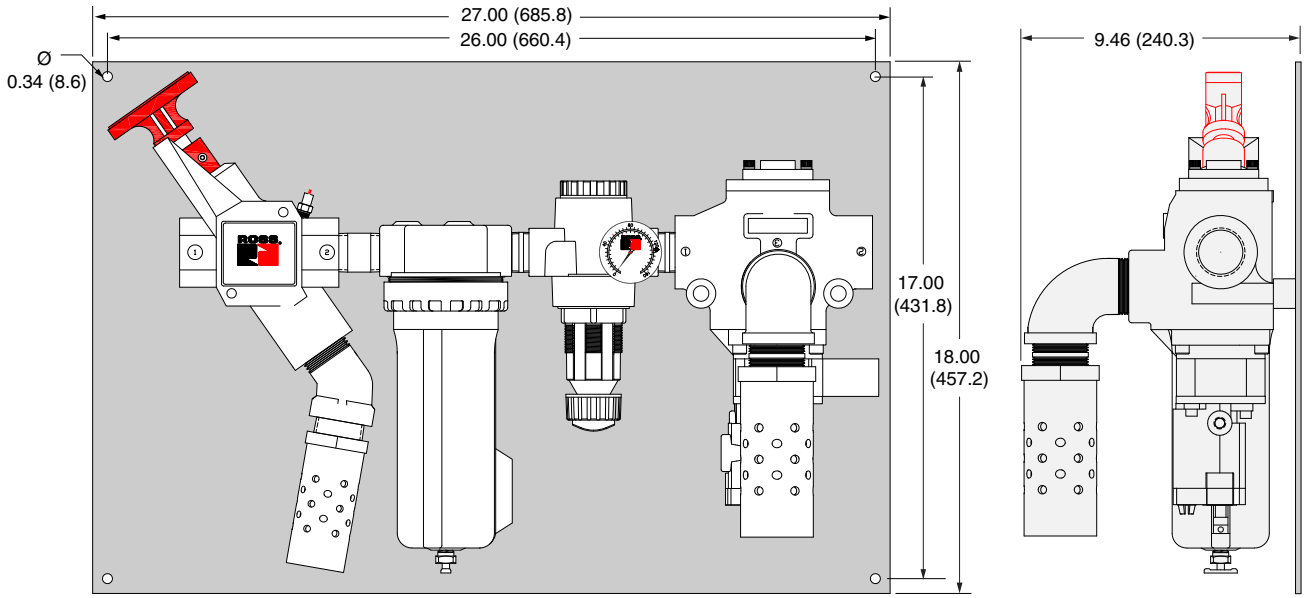
Downloadable CAD models available.

Models with Classic Lockout L-O-X® Valve

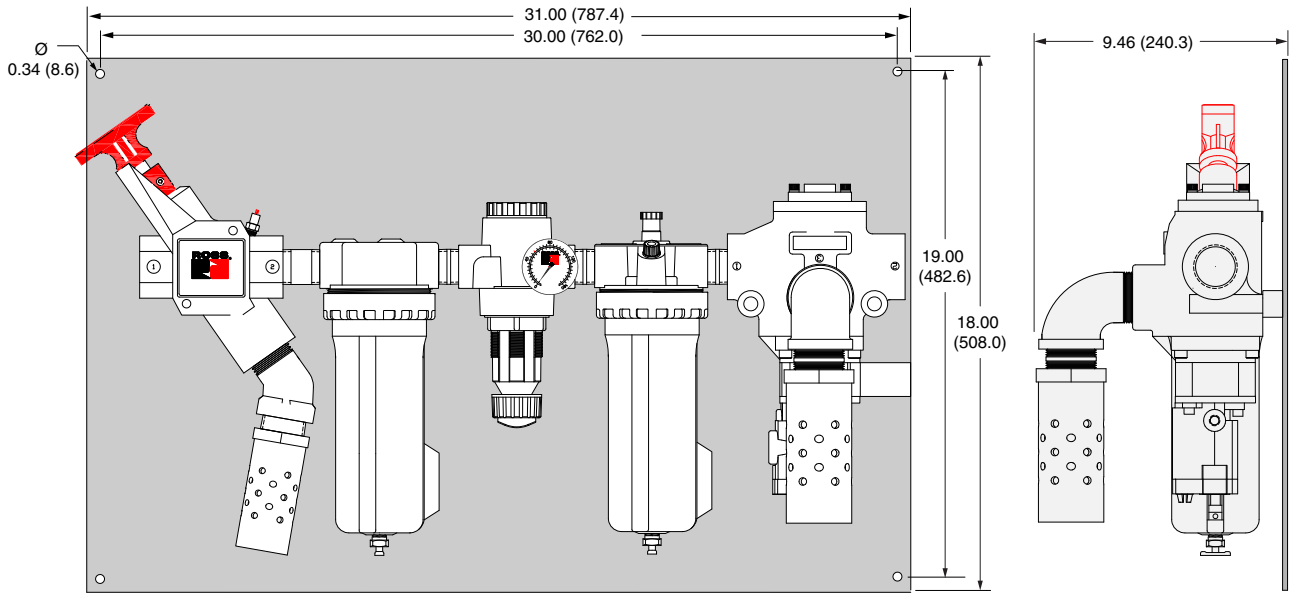
DIMENSIONS — **Inches (mm)**

Port Size 1"

with MD4™ Filter and Regulator option



with MD4™ Filter, Regulator and Lubricator option



Combinations example.

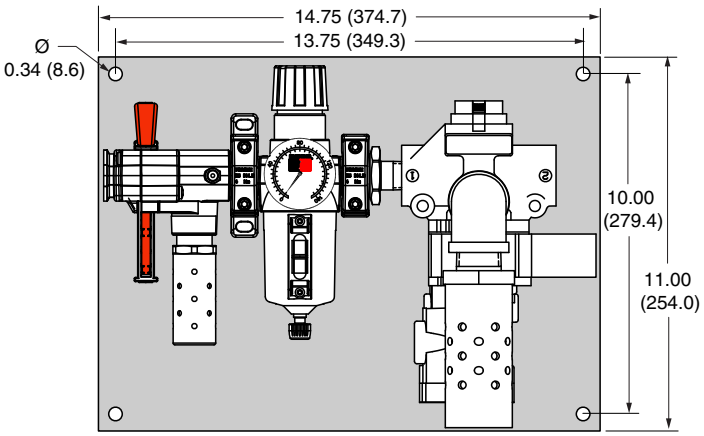
Downloadable CAD models available.

Models with Modular Lockout L-O-X® Valve

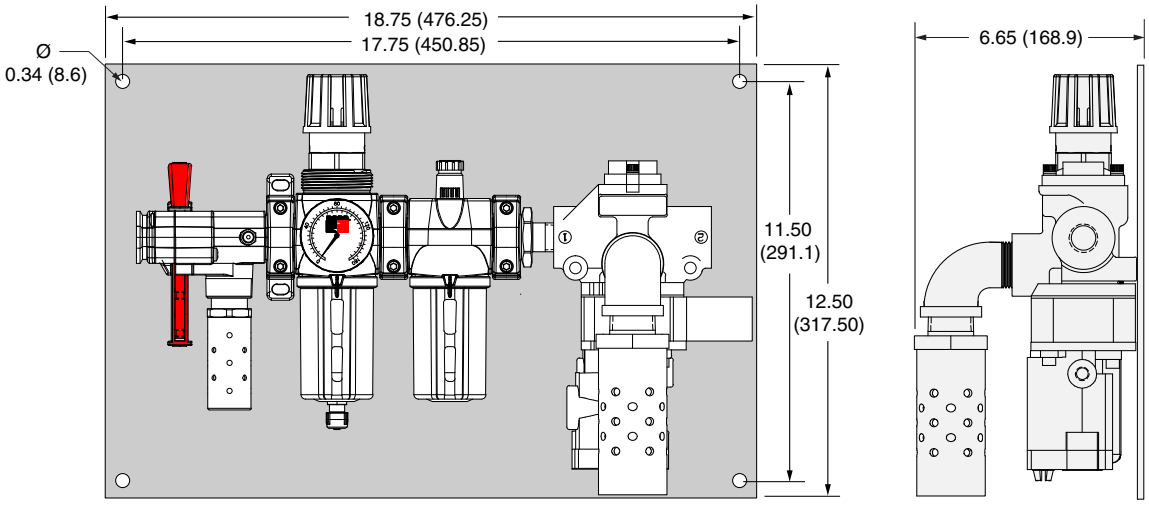
DIMENSIONS — Inches (mm)

Port Size 1/2"

with MD3™ Integrated Filter/Regulator option



with MD3™ Integrated Filter/Regulator and Lubricator option



Combinations example.

Downloadable CAD models available.

Accessories

ENERGY RELEASE VERIFICATION

Visual Pressure Indicator	Pressure Switch
	

Illustration examples.

Visual Pressure Indicator

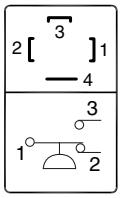
Verification Type	Installation Location	Indicator Type	Model Number	Port Thread
Pneumatic	Pressure Sensing Port	Visual Pop-up Pin	988A30	1/8 NPT

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

Pinout

DIN EN 175301-803 Form A



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

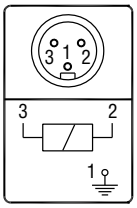
PREWIRED ELECTRICAL CONNECTORS

Illustration example.

Prewired Connector Kits	Cable					Kit Number
	End 1 Connector	End 2 Cord	Connection	Quantity Included	Length feet (meters)	Without Light
	MINI, 3-pin	Flying leads	Solenoid	1	13.1 (4)	2239H77
	M12, 5-pin		Sensing Switch	1		
	MINI, 3-pin	Flying leads	Solenoid	1	32.8 (10)	2240H77
	M12, 5-pin		Sensing Switch	1		

Solenoid Connector Pinout

MINI, 3-pin

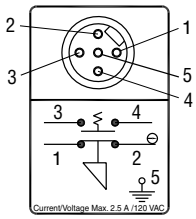


1 - Green/Yellow (Ground)
2 - Blue
3 - Brown

Sensing Switch Connector Pinout

M12, 5-pin

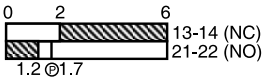
Valve Basic Size 3/4 & 1-1/4



1 - Brown
2 - White
3 - Blue
4 - Black
5 - Gray
Current/Voltage Max. 2.5 A / 120 V AC

Integrated Double-Pole Single-Throw Switch (DPST) Switch States
Contact conditions during switch travel (0 to 6 mm).

NC - Normally Closed
NO - Normally Open



The DPST switch is actuated whenever the valve is not in the normal home position.

SOLENOID PILOT INDICATOR LIGHT KITS

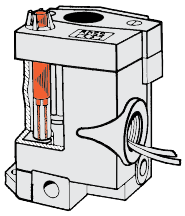


Illustration example.

	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.		

SOLENOID PILOT MANUAL OVERRIDE KITS

Flush Button	**Extended Button**	**Extended Button with Palm**
		

Illustration examples.

	Manual Override Type	Kit Number	
		Locking Type	**Non-Locking Type**
Manual Override Kits	Flush Button	792K87	790K87
	Extended Button	–	791K87
	Extended Button with Palm	–	984H87
	Flush rubber button, non-locking manual override is standard on solenoid models. Each of the buttons in the override kits is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.		

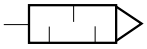
LOCKOUT DEVICE

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

EXHAUST SILENCERS

Illustration example.

Silencers

SPECIFICATIONS	Silencer Material	Pressure Range psig (bar)	Schematic
	Aluminum	0-290 (0-20) maximum	

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)	
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)

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.

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

	Options	Port Size	Model Number	
			NPTF Thread	G Thread
Port Block and End Ports	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 Series	Bowl Type	Element Material	Model Number		
				Element Rating		
				5-µm	20-µm	40-µm
Filter Elements	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
	HIGH-CAPACITY	Standard	Sintered Bronze	1656K77	–	R-A114-106E3

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

Trade Names of Substances HARMFUL to Polycarbonate Bowls

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

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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