

11 Series and 12 Series Mechanical & Manual Valves



Thank You!

You have purchased a premium-quality ROSS® pneumatic valve. It is a hand or cam-operated poppet or spool & sleeve valve designed for inline mounting, and built to the highest standards. With care in its installation and maintenance you can expect it to have a long and economical service life. Please take a few minutes to look over the accompanying information, and save it for future reference.

VALVE INSTALLATION

Please read and make sure you understand all installation instructions before proceeding with the installation.

If you have any questions about installation or servicing your valve, please contact ROSS or your authorized ROSS distributor, see contact information listed at the back of this document, or visit www.rosscontrols.com to find your distributor.

Pneumatic equipment should be installed only by persons trained and experienced in such installation.

Cam Valves: To operate properly and avoid damage to the valve, cam operators must be moved by the operating cam only within the following limits:

Plunger: 0.07 to 0.25 inch

Roller: 0.10 to 0.29 inch

One-way roller: 0.05 to 0.10 inch

Air Lines: Before installing the valve in your system, the air lines must be blown clean of all contaminants. It is recommended that an air filter be installed in the circuit.

Valve Inlet (Port 1): Be sure the inlet line is of adequate size and does not restrict the air supply because of a crimp in the line, sharp bends or a clogged filter element.

Valve Outlet (Port 2): For best response and control of the mechanism being operated by the valve, locate the valve as close as possible to this mechanism. The lines must be of adequate size and free of crimps and sharp bends.

Valve Exhaust (Port 3): Exhaust of 3-way valves is unported.

Operating Pressures and Temperatures: Allowable ranges are shown under *STANDARD SPECIFICATIONS* on page 3. Exceeding these values can shorten valve life.

Pipe Installation: To install pipe or fittings in the valve ports, engage the pipe or fitting one turn, apply thread sealant (tape *not* recommended), and tighten pipe or fitting. This procedure will prevent sealant from entering and contaminating the valve.

11 Series

Port size: 1/4.

Operators: toggle lever, pushbutton, plunger, roller, one-way roller. 2-way or 3-way normally closed design. Dual mounting flanges.



Roller



Plunger



Toggle Lever



Palm Button



1-Way Roller

12 Series



Flush, Mushroom
Pushbutton



Selector Switch
3-Way

Port size: 1/8 and 1/4, Spring Return.

Operators: Pushbutton, Mushroom Button, Selector Switch. Button actuators in red or green color, Selector Switch in black.



Port size: 1/4.

Operators: Large pushbutton, 2-way or 3-way normally closed design.

Heavy Duty Palm Button
2- or 3-Way

VALVE MAINTENANCE

Pneumatic equipment should be maintained only by persons trained and experienced in the maintenance of such equipment.

Supply Clean Air. Foreign material lodging in valves is a major cause of breakdowns. The use of a 5-micron-rated air filter located in the circuit is strongly recommended. The filter bowl should be drained regularly, and if its location makes draining difficult, the filter should be equipped with an automatic drain.

Check Lubricator Supply Rate. A lubricator should put a fine oil mist into the air line in direct proportion to the rate of air flow. Excessive lubrication can cause puddling in the valve and lead to malfunctions. For most applications an oil flow rate in the lubricator of one drop per minute is adequate. (Note that this valve itself does not require air line lubrication, but some optional adaptors do, i.e. air index, etc.)

Compatible Lubricants. Although this valve does not require air line lubrication, it may be used with lubricated air being supplied to other mechanisms. Some oils contain additives that can harm seals or other valve components and so cause the valve to malfunction. Avoid oils with phosphate additives (e.g., zinc dithiophosphate), and diester oils; both types can harm valve components. The best oils to use are generally 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.

Some compatible oils are listed above at the right. These oils, although believed to be compatible, could change without notice because manufacturers sometimes reformulate their oils. Therefore, use oils specifically compounded for air line service. If it is a synthetic oil, contact the oil manufacturer for compatibility information.

COMPATIBLE LUBRICANTS

Maker	Brand Name
Amoco	American Industrial Oil 32; Amoco Spindle Oil C; Amolite 32
Citgo	Pacemaker 32
Exxon	Spinesstic 22; Teresstic 32
Mobil.....	Velocite 10
Non-Fluid Oil	Air Lube 10H/NR
Shell	Turbo T32
Sun	Sunvis 11; Sunvis 722
Texaco	Regal R&O 32
Union	Union Turbine Oil

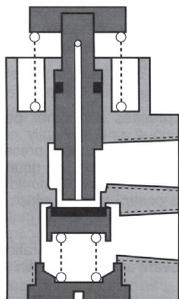
Cleaning the Valve. If the air supplied to the valve has not been well filtered, the interior of the valve may accumulate dirt and varnish which can affect the valve's performance. A schedule should be established for cleaning all valves, the frequency depending on the cleanliness of the air being supplied.

To clean the valve use any good commercial solvent. Do *not* scrape varnished surfaces. Also do not use chlorinated solvents or abrasive materials. The former damages seals, and abrasives can do permanent damage to metal parts. Before reassembling the valve, lubricate all sliding surfaces with a grease such as Mobilgrease 28.

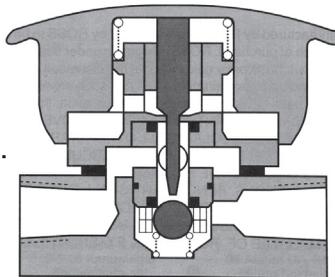
Replace Worn Components. In some cases it is not necessary to remove the valve from its installation for servicing. However, turn off the electrical power to the valve, shut off the air supply, and exhaust the air in the system before beginning any disassembly operation.

Service kits for these valves are listed on page 3.

VALVE BODY CROSS SECTIONS



**11 Series
Valve Body.
3/2 design shown.**



**12 Series Valve Body with pushbutton operator.
3/2 design shown.
Model numbers ending in 1 or 3.**

VALVE SPECIFICATIONS

11 Series Valves

Toggle Lever

Construction: Poppet.
Mounting Type: Side and bottom mounting flanges.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar) .
Valve Body: Die-cast aluminum.
Lever Knob Material: Glass filled Nylon.

Palm Button

Construction: Poppet.
Mounting Type: Side and bottom mounting flanges.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar) .
Valve Body: Die-cast aluminum.
Button Materials: Aluminum.

Mechanical Cam Valves

Construction: Poppet.
Mounting Type: Side and bottom mounting flanges.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar) .

12 Series Valves

Flush, Mushroom Pushbutton or Selector Switch Valves

Construction: Spool & Sleeve.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar).
Valve Body: Die-cast aluminum.
Button Materials: Stainless steel, polyoxymethylene.
Spool Material: Aluminum.
Seals Material: Nitrile rubber.
Spring Material: Stainless Steel.
Switch Parts: Glass filled Nylon.

Valid Operation Distance: 0.22 inches (5.5 mm).
Invalid Operation Distance: 0.04 inches (1.0 mm).
Pressure for Valid/Invalid Operation: 7.7 lb (3.5 Kg).

Heavy Duty Palm Button

Construction: Poppet.
Mounting Type: Bottom mounting flanges.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar) .
Valve Body: Die-cast aluminum.
Button Materials: High-strength plastic.

IMPORTANT NOTE: Please read carefully and thoroughly all the **CAUTIONS** and **WARNINGS** on page 4.

VALVE SERVICE

Valve Body Service Kits. The service kits listed at right contain all the internal parts needed to recondition your 11 Series valve. Included are poppets, springs and retainers, stem assemblies, seals and instructions for use.

Kits are not available for 12 Series valves.

If you have any questions about installing or servicing your valve, call ROSS *Technical Services* at your nearest ROSS location (see page 4) or in the U.S.A. at: **1-888-TEK-ROSS(835-7677)**.

Service Kits for 11 Series Valves

Valve Model Number	Valve Body Service Kit
1121A2001	681K87
1121A2002	681K87
1123A2001	682K87
1123A2002	682K87
1131A2001	681K87
1131A2002	681K87
1131A2003	681K87
1133A2001	682K87
1133A2002	682K87
1133A2003	682K87

CAUTIONS And WARNINGS



PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure that all sources of energy are turned off, the entire pneumatic system is shut off and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).
2. All ROSS® products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any installation can be tampered with or need servicing after installation, persons responsible for the safety of others or the care of equipment must check every installation on a regular basis and perform all necessary maintenance.
3. All applicable instructions should be read and complied with before using any fluid power system in order 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 location listed in the table below.
4. Each ROSS product should be used within its specification limits. In addition, use only ROSS parts to repair ROSS products.

WARNINGS: Failure to follow these directions can adversely affect the performance of the product or result in the potential for human injury or damage to property.

FILTRATION and LUBRICATION

5. 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. ROSS recommends a filter with a 5-micron rating for normal applications.
6. All standard ROSS filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Do not fail to 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, hazardous leakage, and the potential for human injury or damage to property. Immediately replace a crazed, cracked, or deteriorated bowl. When bowl gets dirty, replace it or wipe it with a clean dry cloth.

7. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum based 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 human injury, and/or damage to property.

AVOID INTAKE/EXHAUST RESTRICTION

8. Do not restrict the air flow in the supply line. To do so could reduce the pressure of the supply air below the minimum requirements for the valve and thereby cause erratic action.
9. 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:

ROSS expressly disclaims all warranties and responsibility for any unsatisfactory performance or injuries caused by the use of the wrong type, wrong size, or an inadequately maintained silencer installed with a ROSS product.

POWER PRESSES

10. 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.

ENERGY ISOLATION/EMERGENCY STOP

11. Per specifications and regulations, ROSS **L-O-X®** valves and **L-O-X®** valves with **EEZ-ON®** operation are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

STANDARD WARRANTY

All products sold by ROSS CONTROLS are warranted for a one-year period [with the exception of all Filters, Regulators and Lubricators ("FRLs") which are warranted for a period of seven years] from the date of purchase to be free of defects in material and workmanship. ROSS' obligation

under this warranty is limited to repair or replacement of the product or refund of the purchase price paid solely at the discretion of ROSS and provided such product is returned to ROSS freight prepaid and upon examination by ROSS is found to be defective. This warranty becomes void in the event that product has been subject to misuse, misapplication, improper maintenance, modification or tampering.

THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND ROSS EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ROSS 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 ROSS 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 ROSS MAY EXTEND THE LIABILITY OF ROSS AS SET FORTH HEREIN.

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