

W74 Series ANSI Valves

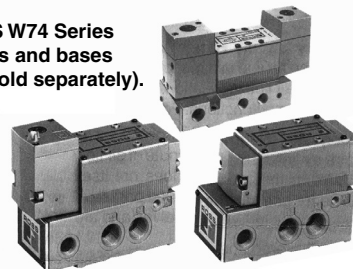


Thank You!

You have purchased a premium-quality ROSS® pneumatic valve. It is a single-spindle poppet valve built to the highest standards.

With care in its installation and maintenance you can expect it to have a long and economical service life. So before you go any further, please take a few minutes to look over the information in this document. Then, save it for future reference and for the useful service information it contains.

ROSS W74 Series
valves and bases
(bases sold separately).



VALVE INSTALLATION

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

Additional technical documentation is available for download at rosscontrols.com.

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 rosscontrols.com to find your distributor.

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

Operating Pressures and Temperatures: Allowable ranges for pressure and temperatures are given in the *Valve Specifications* on page 2. Exceeding the values shown can shorten valve life.

If the model number on your valve ends with 336, 337, 338, or 339 your valve is designed for high temperature service.

If the model number on your valve ends with 331, 332, 333, or 334 your valve is designed for standard temperatures.

If the model number ends with any other group of digits you have ordered a valve with special characteristics. Consult ROSS to verify the characteristics of your particular valve.

Air Lines: Before installing a valve in a new or an existing system, the air lines must be blown clean of all contaminants. It is recommended that an air filter be installed in the inlet line close to the valve.

Valve Inlet (Port 1): Be sure that the supply 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 Outlets (Ports 2 & 4): For faster pressurizing and exhausting of the mechanism being operated by the valve, locate the valve as close as possible to the mechanism. The lines must be of adequate size and be free of crimps and sharp bends.

Valve Exhausts (Ports 3 & 5): Exhaust air flow must not be restricted for proper valve performance. However, any properly sized silencer, such as a ROSS silencer, should be used to reduce impact noise without providing excessive back pressure.

Electrical Supply: The voltage and hertz ratings of the valve solenoids (if any) are shown on the pilot housings. Electrical supply must correspond to these ratings. Otherwise life of the solenoids will be shortened.

Electrical power from the valve's base goes to the solenoid(s) via the plug-in connector at the valve-base interface. If power is supplied by a transformer it must be capable of handling the inrush current without significant voltage drop. See *Valve Specifications* on page 2 for information on in-rush current.

Pilot Supply:

Pressure Control: For valves with single remote pressure control, connect the control line to port 14 in the sub-base or manifold. For valves with double remote pressure control, connect the control lines to ports 12 and 14 in the base. See *Valve Specifications* on page 2 for required pressures.

Solenoid Pilot: Pressure for the pilot valves is supplied from the inlet port. Be sure that the external pilot supply port in the base is plugged or pilot air will escape. If the valve must operate with an inlet pressure less than the required pilot pressure (see *Valve Specifications* on page 2), an external pilot supply must be provided. Connect to the appropriate port in the base.

Non-Air Service: Such applications require an external pilot supply for solenoid valves. Connect to the appropriate port in the base.

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

VALVE MAINTENANCE

Supply Clean Air: Foreign material lodging in valves is a major cause of breakdowns. The use of a 5-micron rated air filter located as close to the valve as possible is strongly recommended. The filter bowl should be drained regularly. If the filter's location makes manual draining difficult, the filter should be equipped with an automatic drain.

Check Lubricator Supply Rate: A lubricator should put atomized oil into the air line in direct proportion to the rate of air flow. Excessive air line 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 of air flow is adequate.

Compatible Lubricants: This valve may be used with lubricated air being supplied to other mechanisms. Some oils contain additives that can harm seals or other valve components and thereby cause the valve to malfunction. The best oils to use are those specifically compounded for air line lubricator service. These 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.

Cleaning 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.

| 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 |

Although ROSS poppet valves are very tolerant of dirty air, cleaning may sometimes be necessary.

To clean the valve use any good commercial solvent or kerosene. Do *not* use a chlorinated solvent or abrasive materials which can damage seals or do permanent damage to metal parts. Before reassembling the valve lubricate all sliding surfaces with a grease equivalent to MobilGrease 28.

Electrical Contacts: In the external electrical circuits associated with the valve solenoids, keep all switches or relay contacts in good condition to avoid solenoid malfunctions.

Replace Worn Components: After long usage the poppets may show signs of wear. The valve can be reconditioned with the use of ROSS service kits. See page 3 for information about such kits.

VALVE SPECIFICATIONS

| | |
|-----------------------|--|
| Construction Design | Poppet |
| Mounting Type | Base |
| Flow Media | Filtered air |
| Construction Material | Valve Body: Cast Aluminum Poppet: Rubber Coated Aluminum & Stainless Steel Seals: Buna-N |

| Pressure Controlled Valves | |
|----------------------------|---|
| Temperature | Ambient/Media: Standard Temp: 40° to 175°F (4° to 80°C) High Temp: 40° to 220°F (4° to 105°C) <i>For other temperature ranges, consult ROSS.</i> |
| Pilot Supply | Internal |
| Operating Pressure | 30 to 150 psig (2 to 10 bar) Pilot Supply: Minimum 30 psig (2 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i> |

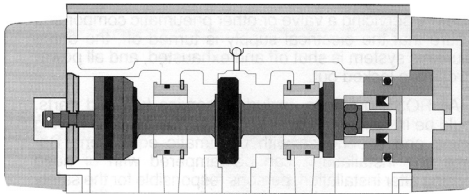
| Solenoid Pilot Controlled Valves | |
|-----------------------------------|---|
| Solenoids | Rated for continuous duty |
| Voltage | 24 volts DC; 110/50, 110-120/60 volts AC/Hz |
| Power Consumption (each solenoid) | ANSI Size 1: 5 watts on DC; 10 VA inrush, 24 VA holding on 50 or 60 Hz ANSI Size 2.5, 4, 10 & 20: 14 watts on DC; 87 VA inrush, 55 VA holding on 50 or 60 Hz |
| Temperature | Ambient: 40° to 120°F (4 to 50°C); extended to 175°F (80°C) for High Temperature models. Media: 40° to 175°F (4° to 80°C); extended to 220°F (105°C) for High Temperature models <i>For other temperature ranges, consult ROSS.</i> |
| Pilot Supply | Internal or External |
| Operating Pressure | Vacuum to 150 psig (10 bar) Pilot Supply - Internal or External: Minimum 30 psig (2 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i> |
| Indicator Light | Included for ANSI Size 4, 10 & 20 only; one per solenoid |
| Manual Override | Flush; Rubber, non-locking |

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

VALVE SERVICE

ROSS would be happy to service this valve for you at its factory repair center. If you purchased your valve from ROSS please contact ROSS customer service, if you purchased your valve thru an authorized ROSS distributor please contact the distributor for return instructions.

However, if you choose to service this valve yourself, it is strongly recommended that you visit our website at rosscontrols.com for available downloadable technical documentation.



Typical cross section of a ROSS W74 Series poppet valve body. Internal pressure return model shown.

Listed below and in the chart at the right are the service kits and other parts required to repair or refurbish W74 Series valves.

Valve Body Service Kits. These kits contain all parts needed for a complete reconditioning of a valve body. Included are a spindle, all poppets and spacers, all required gaskets and seals, detent assemblies for valves requiring them, and instructions for use. Order by the part number given in the chart at the right.

Valve-to-Base Gasket. If your valve is removed from its base for any reason, a new valve-to base gasket must be used to ensure a leak-free seal. (This gasket is included as a part of all valve body service kits.) Order by the part number given in the chart at the right.

Solenoid Pilot Kits. These kits contain all parts needed to recondition the pilot valve.

Order by the following kit numbers:

Pilots using solenoid 304B33:

Kit Number: **714K77**

Pilots using solenoid 347B04 or 411B04:

Kit Number: **946K87**

Solenoids: Replacement solenoids can be ordered by the part numbers given in the chart at the right. Specify the correct voltage and hertz when ordering.

| Valve Model Number | Valve Body Service Kit | Gasket & Seal Kit | Valve-Base Gasket | Solenoid Number |
|--------------------|------------------------|-------------------|-------------------|-----------------|
| W7456A2331 | 712K77 | — | 553B11 | — |
| W7456A2332 | 712K77 | — | 553B11 | — |
| W7456A2336 | 854K77 | — | 553B11 | — |
| W7456A2337 | 856K77 | — | 553B11 | — |
| W7456A3331 | 696K77 | — | 549B11 | — |
| W7456A3332 | 699K77 | — | 549B11 | — |
| W7456A3336 | 713K77 | — | 549B11 | — |
| W7456A3337 | 1085K77 | — | 549B11 | — |
| W7456C4331 | 615K77 | 819K77 | 958B11 | — |
| W7456C4332 | 615K77 | 819K77 | 958B11 | — |
| W7456C4336 | 1065K77 | — | 958B11 | — |
| W7456C4337 | 616K77 | — | 958B11 | — |
| W7456A6331 | 742K77 | — | 344B11 | — |
| W7456A6332 | 743K77 | — | 344B11 | — |
| W7456A6336 | 811K77 | — | 344B11 | — |
| W7456A6337 | 812K77 | — | 344B11 | — |
| W7456A8331 | 744K77 | — | 339C11 | — |
| W7456A8332 | 745K77 | — | 339C11 | — |
| W7456A8336 | 711K77 | — | 339C11 | — |
| W7456A8337 | 711K77 | — | 339C11 | — |
| W7476A2331 | 712K77 | — | 553B11 | 304B33 |
| W7476A2332 | 712K77 | — | 553B11 | 304B33 |
| W7476A2336 | 854K77 | — | 553B11 | 304B33 |
| W7476A2337 | 856K77 | — | 553B11 | 304B33 |
| W7476A3331 | 696K77 | — | 549B11 | 347B04 |
| W7476A3332 | 699K77 | — | 549B11 | 347B04 |
| W7476A3336 | 713K77 | — | 549B11 | 347B04 |
| W7476A3337 | 1085K77 | — | 549B11 | 347B04 |
| W7476C4331 | 615K77 | 819K77 | 958B11 | 411B04 |
| W7476C4332 | 615K77 | 819K77 | 958B11 | 411B04 |
| W7476C4333 | 615K77 | 819K77 | 958B11 | 411B04 |
| W7476C4334 | 615K77 | 819K77 | 958B11 | 411B04 |
| W7476C4336 | 1065K77 | — | 958B11 | 411B04 |
| W7476C4337 | 616K77 | — | 958B11 | 411B04 |
| W7476C4338 | 1065K77 | — | 958B11 | 411B04 |
| W7476B4339 | 616K77 | — | 356B11 | 411B04 |
| W7476A6331 | 742K77 | — | 344B11 | 411B04 |
| W7476A6332 | 743K77 | — | 344B11 | 411B04 |
| W7476A6336 | 811K77 | — | 344B11 | 411B04 |
| W7476A6337 | 812K77 | — | 344B11 | 411B04 |
| W7476A8331 | 744K77 | — | 339C11 | 411B04 |
| W7476A8332 | 745K77 | — | 339C11 | 411B04 |
| W7476A8336 | 711K77 | — | 339C11 | 411B04 |
| W7476A8337 | 711K77 | — | 339C11 | 411B04 |

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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| ROSS EUROPA GmbH | Germany | Tel: 49-6103-7597-100 | rosseuropa.com |
| ROSS ASIA K.K. | Japan | Tel: 81-42-778-7251 | rossasia.co.jp |
| ROSS UK Ltd. | UK | Tel: 44-1543-671495 | rossuk.co.uk |
| ROSS SOUTH AMERICA Ltda. | Brazil | Tel: 55-11-4335-2200 | rosscontrols.com.br |
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| ROSS CONTROLS (CHINA) Ltd. | China | Tel: 86-21-6915-7961 | rosscontrolschina.com |
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