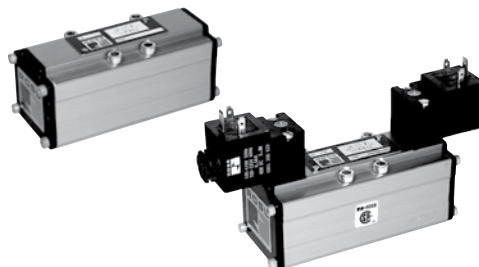


W60 Series ISO 5599-1 Valves



Thank You!

You have purchased a premium-quality ROSS® pneumatic valve. It is a stainless-steel spool and sleeve 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.



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.

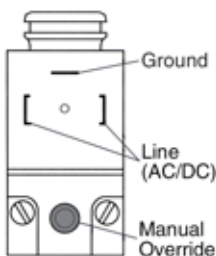
Air Lines: Before installing a valve in a new or an existing system, the air lines must be blown clean of all contaminants. It is recommended that an air filter be installed in the inlet line close to the valve.

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): To reduce exhaust noise use an efficient silencer. ROSS silencers reduce impact noise by as much as 25 dB, and produce little back pressure.

Electrical Supply: The voltage and hertz ratings for solenoid pilot-operated valves are printed on the side of each solenoid. It is important that the electrical supply used to power the valve is equal to these ratings to avoid possible solenoid burnout. The electrical connection for such valves is achieved by means of a connector whose connections correspond to the prongs pictured in the sketch of a typical solenoid pilot.



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 inrush current.

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.

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 both ports 12 and 14 in the base. See *Valve Specifications* on page 2 for required pressures.

Solenoid Control: Pressure for the pilot valves is supplied from the inlet port. Be sure that port 14 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 of sufficient pressure must be provided. Connect the external pilot supply to port 14 in the base.

Vacuum or Non-Air Service: Such applications require an external pilot supply for solenoid valves. Connect to port 14 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 an 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. (Note that your ROSS valve does not itself require air line lubrication.)

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 thereby cause the valve to malfunction. The best oils to use are those specifically compounded for air line lubricator service.

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. To clean the valve use a solvent which will dry without leaving a residue. This is especially important for the spool-and-sleeve assembly.

Do not use a chlorinated solvent or abrasive materials which can damage seals or do permanent damage to metal parts.

To reassemble the spool and sleeve put one drop of Anderol 735 (or equivalent lubricant) on each spool land. Insert the spool into the sleeve and rotate it several times to ensure even distribution of the lubricant. If the valve is used in a non-lubricated application, do not use a lubricant for reassembly which can dry out and leave a residue. Dry assembly of the spool and sleeve is preferable. Each spool and sleeve is a matched set, so care must be taken not to reverse the position of the spool in the sleeve.

Before inserting the spool-and-sleeve into the valve body, very lightly lubricate the O-rings with a lubricant compounded for use on Buna-N seals. *Do not use Anderol; it causes the O-rings to deteriorate.*

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.

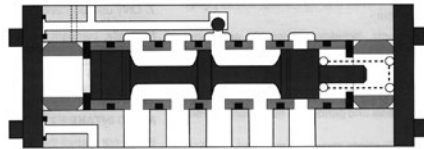
Replace Worn Components: After long usage the spool and sleeve may show signs of wear, as indicated by excessive air leakage between ports. The valve can be completely reconditioned with the use of a ROSS valve body service kit. See page 3 for information about such kits.

VALVE SPECIFICATIONS

Construction Design	Spool and Sleeve
Mounting Type	Base
Flow Media	Filtered air
Construction Material	Valve Body: Bar Stock Aluminum Spool: Stainless Steel Seals: Buna-N

Pressure Controlled Valves	
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C) <i>For other temperature ranges, consult ROSS.</i>
Operating Pressure	Vacuum to 150 psig (10 bar)
	Pilot Supply - External: ISO Size 1: Minimum 30 psig (2 bar) ISO Size 2 & 3: Minimum 15 psig (1 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; 110-120 volts AC, 50/60 Hz
Power Consumption (each solenoid)	6 watts on DC; 11 VA inrush, 8.5 VA holding on 50 or 60 Hz
Enclosure Rating	IP65, IEC 60529

Electrical Connections	EN 175301-803 Form A connector
Temperature	Ambient: 40° to 120°F (4 to 50°C)
	Media: 40° to 175°F (4° to 80°C) <i>For other temperature ranges, consult ROSS.</i>
Pilot Supply	Internal or External; Selected automatically
Operating Pressure	Vacuum to 150 psig (10 bar)
	Pilot Supply - Internal or External: ISO Size 1: Minimum 30 psig (2 bar) ISO Size 2 & 3: Minimum 15 psig (1 bar) <i>When external pilot supply, pressure must be equal to or greater than inlet pressure.</i>
Manual Override	Flush; Metal, non-locking



Typical cross section of a ROSS W60 Series spool and sleeve valve body, spring return model shown.

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

Listed below are the parts and service kits most likely to be needed if your valve requires service.

Valve Body Service Kits

These kits contain all parts needed for a complete reconditioning of a valve body. Included are a spool and sleeve assembly, all required gaskets and seals, detent assemblies for valves requiring them, and instructions for use.

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.)

Solenoid Coils

Replacement coils for solenoid controlled valves can be ordered by part number listed in the table below.

Complete Solenoid Pilot Assemblies

These assemblies consist of new pilot valve mechanisms and a new solenoid coil, ready to bolt in position on the valve.

Voltage	Complete Solenoid Pilot Assemblies	Replacement Solenoid Coils
	Part Number	Part Number
24 volts DC 48 volts AC	1524C7916	411B3316
110-120 volts AC 60 volts DC	1524C79105	411B33105
230-240 volts AC 120 volts DC	1524C79177	411B33177

Valve Model Number	Valve Body Service Kit	Valve-to-Base Gasket
W6056B2411	1020K77	617B11
W6056B2417	831K77	617B11
W6056B3411	832K77	618B11
W6056B3417	916K77	618B11
W6056B4411	833K77	619B11
W6056B4417	917K77	619B11
W6057B2411	837K77	617B11
W6057B2417	838K77	617B11
W6057B3411	839K77	618B11
W6057B3417	840K77	618B11
W6057B4411	841K77	619B11
W6057B4417	842K77	619B11
W6076B2401	1020K77	617B11
W6076B2407	831K77	617B11
W6076B3401	832K77	618B11
W6076B3407	916K77	618B11
W6076B4401	833K77	619B11
W6076B4407	917K77	619B11
W6077B2401	837K77	617B11
W6077B2407	838K77	617B11
W6077B3401	839K77	618B11
W6077B3407	840K77	618B11
W6077B4401	841K77	619B11
W6077B4407	842K77	619B11

Electrical Connector	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
				Without Light	Lighted Connector*	
					24 Volts DC	120 Volts AC
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	Connector for threaded conduit (1/2 inch electrical conduit fittings)	—	—	371K77	383K77-W	383K77-Z
	Connector Only	—	—	723K77	724K77-W	724K77-Z
				937K87	936K87-W	936K87-Z

*Lights in connectors with a translucent housing can be used as indicator lights to show when solenoids are energized.