For complete repair parts information, repair instructions, or other technical assistance, contact factory.

Operating Specifications

Fluid: Filtered, non-lubricated or lubricated, compressed air or vacuum.

Valve Working Pressure Ranges with:
Air, Manual, Mechanical Operators, and Solenoid Operators with External Pilot Supply: Vacuum to 150 psig (10.3 bar). See Operator Pilot Pressure below for minimum pilot pressures.

Solenoid Operated Valves with Internal Pilot Supply: 150psig (10.3 bar). See Operator Pilot Pressure below for minimum pilot pressures.

Temperature Range (Ambient & Inlet):
Solenoid Operated Valves: -20° to 130° F (-29° to 54° C)

Air Operated Valves: -20° to 160° F (-29° to 71° C)

Operator Pilot Pressures:
Maximum pressure: 150 psig (10.3 bar)
Minimum pressures are given in the following table:

Minimum Pilot Pressure Nondetent Valves

Primary Operator	Secondary Return Oper.	Min. Press. psig (bar)
Large Air	Large Air	15 (1.0)
Small Air	Large Air	35 (2.4)
Solenoid	Solenoid	25 (1.7)**
Small Air	Small Air	25 (1.7)
Spring	Large Air	45 (3.1)
Spring	Solenoid	45 (3.1)
Spring	Low Press. Air	4 (0.28)
Spring	Small Air	70 (4.8)
Air Bleed	Air Bleed	15 (1.0
Spring	Air Bleed	45 (3.1)

Minimum Pilot Pressures Detent Valves

Primary Operator	Secondary Return Oper.	Min. Press. psig (bar)
Large Air	Large Air	25 (1.7)
Solenoid	Solenoid	25 (1.7)
Air Bleed	Air Bleed	25 (1.7)

Minimum Pilot Pressures Spring Control Valves

Primary Operator	Secondary Return Oper.	Min. Press. psig (bar)
Large Air	Large Air	45 (3.1)
Solenoid	Solenoid	45 (3.1)

*With dewpoint of supply air less than air temperature below 35° F (2° C).
**Solenoid Operators must be externally piloted if the supply pressure to the main valve is below the minimum pilot pressure listed in the table above.

WARNINGS

Do not use these valves to control a power press clutch or brake.

These products are intended for use in industrial pneumatic systems. They are designed and tested for use with filtered, lubricated compressed air at pressures and temperatures within specified limits.

For use with fluids other than air, for non-industrial applications, or for life support systems, consult factory. These product must not be used in applications which do no fully comply with all operating specifications.

Compressed air systems may contain lubricants or contaminants which can attack materials utilized in the manufacture of these products and cause failure. The user is cautioned to be certain that his compressed air system is fully compatible with the materials utilized in these products.

High Energy Level – Compressed air systems contain high levels of stored energy. Any attempt to connect, disconnect, or repair these products when a system is under pressure can lead to serious personal injury. Do not attempt to install, operate, or repair these products unless you are trained in the proper techniques for working on fluid power systems, or are under competent supervision.

Code Compliance – The user of these products is cautioned to conform to all applicable electrical, mechanical, and other codes in the installation and operation of these products.

Failure Modes – Through misuse, wear, or malfunction, these valves and related accessories can fall in modes which can simultaneously pressurize all ports to the highest applied pressure level. They can also fail to shift as expected upon the application or removal of operator signals. These failure modes must be considered in the use of these valves and related accessories, and all appropriate safeguards to prevent personal injury or property damage in the event of such failure must be provided.

Repair & Conversion – Any time these valves are disassembled for repair or conversion to a different configuration, the reassembled valve or accessory must be checked for leakage and proper function prior to installation.

Electric Shock – To avoid electrical shock and the possibility of serious or fatal injury, always disconnect electrical power before servicing any electrically operated valve.

Manual Operator Warning
When a solenoid or air operator is used as a return for a manual operator, the pilot pressure applied to the return operator must not exceed 40 psig (2.8 bar).

INSTALLATION

Valve Exhaust
Adequately sized mufflers should be used in the valve exhaust ports. Valves should not be mounted with unprotected exhaust ports facing upward. If exhaust is to be piped away, piping should be installed horizontally or at a downward angle from the valve to provide adequate drainage and minimize the accumulation of debris in the air line.

Pilot Supply
If the valve inlet pressure is less than the specified minimum pilot pressure for the type of solenoid operator used, an external pilot supply must be provided.

Observe Rated Pressure Range
These spool valves are designed to operate from vacuum to 150 psig (0 to 10.3 bar) with proper pilot pressure. See Operating Specifications. Be sure valve has an adequate supply flow and the tube or tube fittings do not cause restrictions.

Observe Rated Temperature Range
The recommended temperature range for the air flowing through the valve and for the ambient temperature is between -20° F and 130° F (-24° to 54° C) for solenoid operated valves and -20° to 160° F (-24° to 71° C) for air operators. Air dewpoint should be less than the air temperature for -20° F to 35° F (-24° to 2° C). Improper valve action, or a shortening of valve life, can result if these limits are exceeded.

Use a Filter and Lubricator
Dirt, scale, moisture, etc. are present in virtually all compressed air systems and should be removed continuously with an air line filter located upstream of the valve. An air line lubricator capable of lubricating at low as well as high air flows should be installed as close as possible to the valve downstream of the filter. Nondetergent, petroleum-based oils with sufficient fogging capability and an SAE Number 10, or lighter viscosity equivalent, are generally compatible with the seals used in these valves. Phosphate ester based fluids must never be used in any part of the air system or seal damage will result.

Solenoid Operators
Voltages should not vary more than plus 5% or minus 15% of the voltage printed on the coil. For example, a 120-volt coil will operate between 102 and 126 volts. At the time of installation, it may be advisable to check voltage for compatibility with solenoid coil.

Seal Compatibility
Valve Seals are compatible with most good quality O-ring lubricants, including:

DC BR-2+ grease (Dow Corning)
DC 44 grease (Dow Corning)
Magnalube G (Saunders Industries)
Nondetergent mineral-based oils such as Mobil DTE light oil.

Valve seals are not compatible with WD-40, commonly used de-icer fluids, or diester-based synthetic lubricants. Consult factory to verify compatibility of lubricants or fluids not listed above.

WARNING
Improper selection, misuse, age or malfunction of components used in systems can cause failure in various modes. The system designer is warned to consider the failure modes of all component parts and to provide adequate safeguards to prevent personal injury or damage to equipment or property in the event of such failure modes. System designers and end users are cautioned to consult instruction sheets and specifications available from the factory. The system designer/end user is responsible for verifying that all requirements for the application are met.

WARRANTY
The products described herein are warranted subject to seller's Standard Terms and Condition of Sale, available at seller's website.