

Type 750 Diaphragm Valves



pneumatically actuated

SERIES: Type 750

SIZES: 1" – 2"

ENDS: True Union Socket, Threaded or ChemFlare™¹ Spigot² bodies with Plain, Socket, Threaded or Flanged ends

DIAPHRAGMS: EPDM³, FKM-B (Viton®) or PTFE

CONTROL FUNCTIONS: Normally Closed, Normally Open or Double Acting



Normally closed version shown with True Union body and Position Indicator

The Type 750 Pneumatically Actuated Diaphragm Valve features a new design plastic piston actuator, reversible normally closed to normally open. It offers compact dimension, long cycling life and higher leakage resistance, all at a cost lower than 730 Series pneumatically actuated diaphragm valves.

The Type 750 is part of the 700 Series of diaphragm valves. They feature interchangeable bodies, diaphragms and actuators. Modular construction minimizes spare parts requirements. All major parts are solid plastic, corrosion resistant and light weight to minimize stress on plastic piping. Being a diaphragm valve, it is available for sanitary or slurry applications. With a PTFE diaphragm, it has corrosion resistance superior to ball or butterfly valves.

features

Solid Plastic Body Actuator

- Light weight
- Corrosion resistant inside and out

Good Flow Characteristics

- High C_v values due to smooth and wide body cavity
- Bidirectional
- Self draining

Modular Construction

- Spare parts requirements are minimized because of only 3 actuator and diaphragm sizes for 6 valve sizes
- Convertible from Normally Closed to Normally Open or Double Acting

New Design for Superior Sealing

- Risk of leakage is reduced
- Lower control air pressures are required for full pressure closure

Easy Maintenance

- Actuator may be easily removed after valve is installed
- Body is easily removed with True Union ends

Long Life Maintenance Free Actuator

- Valve is factory tested to 1,000,000 plus cycles
- Piston seal has double lip ring to retain grease

¹ For ChemFlare™ end connectors, consult JJ DOWNS INDUSTRIAL PLASTICS INC.

² PP and PVDF spigot ends have metric dimensions and will butt fuse directly to PP and PVDF piping systems.

³ Epoxy cured EPDM



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Toronto, ON




Type 750 Diaphragm Valves

Actuator Housing of "Ixef"

Virtually unbreakable, corrosion proof and lightweight

Multi-coil Nested Springs

- Epoxy coated for corrosion resistance
- Field Reversible from Normally Closed to Normally Open

True Union Ends

- Spigot or solid flanged bodies are also available



Threads at top of actuator are for easy mounting of a large selection of Accessories:

- Position Indicator
- Travel Stop/Position Indicator
- Travel Stop/Position Indicator with manual override
- Limit Switches mechanical or proximity

Air Supply Ports

- Rp 1/4 threaded
- Standard NAMUR spacing

Polished SS Spindle and Self-Lubricating Bearing

provide extremely long cycling life (factory tested to 1,000,000 plus cycles)

Threaded Inserts in valve base for fixing valve to support structures

Normally Closed Version

MINIMUM REQUIRED CONTROL PRESSURE PSI 100% ΔP

| Control Function | Valve Size | Line Pressure PSI | | | | | | | | | | |
|------------------|------------------|-------------------|----|----|----|----|----|----|-----|-----|-----|-----|
| | | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 |
| Normally Closed | 1" | 60 | 58 | 56 | 53 | 49 | 46 | 43 | 39 | 38 | 34 | 31 |
| | 1-1/4" to 1-1/2" | 68 | 67 | 65 | 64 | 63 | 61 | 60 | 59 | 57 | 56 | 55 |
| | 2" | 60 | 56 | 53 | 50 | 47 | 44 | 40 | 37 | 34 | 31 | 28 |
| Normally Open | 1" | 23 | 25 | 27 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 |
| | 1-1/4" to 1-1/2" | 14 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 40 | 43 | 46 |
| | 2" | 17 | 21 | 24 | 28 | 31 | 35 | 38 | 42 | 45 | 48 | 52 |

Minimum required control air pressures vary with line (fluid in the pipe) pressures.

Actuator closes against 100% drop (ie. pressure applied to inlet side of valve only) up to 150 psi, or up to 90 psi on both sides.

Maximum recommended control pressure is 90 psi for NC valves, 70 psi for NO/DA valves.

Maximum recommended control temperature is 40°C.

For **double acting** valves, use control pressures respective of open or closed side.

WORKING PRESSURES PSI

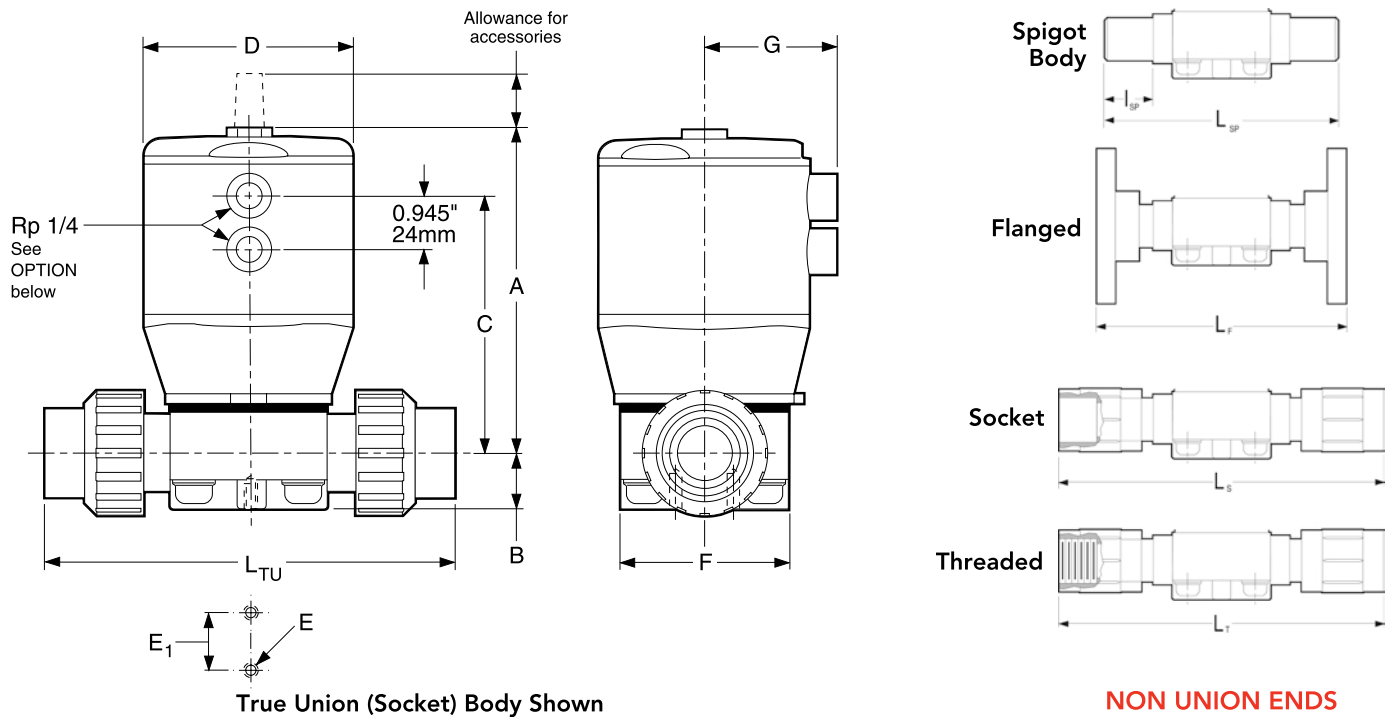
| Size | PVC | | | CPVC | | | | PP | | | | PVDF | | | |
|----------|--------------|---------------|---------------|--------------|---------------|---------------|---------------|--------------|---------------|---------------|---------------|--------------|---------------|----------------|----------------|
| | 25°C 77°F | 40°C 104°F | 60°C 140°F | 30°C 86°F | 45°C 113°F | 60°C 140°F | 80°C 176°F | 30°C 86°F | 45°C 113°F | 60°C 140°F | 80°C 176°F | 30°C 86°F | 60°C 140°F | 100°C 212°F | 120°C 248°F |
| 1" to 2" | 150 | 90 | 26 | 150 | 103 | 70 | 40 | 150 | 90 | 58 | 22 | 150 | 98 | 48 | 36 |

Temperature Ranges: PVC 0 to 60°C (32 to 140°F), CPVC 0 to 80°C (32 to 176°F), PP 0 to 80°C (32 to 176°F), PVDF 0 to 120°C (32 to 248°F).

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Type 750 Diaphragm Valves



DIMENSIONS INCHES

| Size | A | B | C | D | E | E ₁ | F | G | I _{SP} |
|--------|------|------|------|------|----|----------------|------|------|-----------------|
| 1" | 5.70 | 1.00 | 4.40 | 3.74 | M6 | 1.00 | 2.90 | 4.23 | 1.20 |
| 1-1/4" | 6.70 | 1.60 | 5.00 | 4.50 | M8 | 1.80 | 3.90 | 4.97 | 1.30 |
| 1-1/2" | 6.70 | 1.60 | 5.00 | 4.50 | M8 | 1.80 | 3.90 | 4.97 | 1.40 |
| 2" | 8.50 | 1.60 | 6.65 | 5.70 | M8 | 1.80 | 5.00 | 6.17 | 1.50 |

"L" END DIMENSIONS INCHES

| Size | "L" END DIMENSIONS | | | | WEIGHTS | | Cv VALUES | |
|--------|---------------------------------|---------------------------|---------------------------------------|---|--|---|-----------|----------------|
| | Union Socket L _{TU} | Spigot L _{SP} | Socket ¹ L _S | Threaded ¹ L _T | PVC/CPVC Flanged ¹ L _F | PP/PVDF Flanged ¹ L _F | Pounds | C _V |
| 1" | 7.1 | 6.1 | 8.6 | 8.3 | 6.3 | 8.0 | 2.7 | 12.0 |
| 1-1/4" | 8.1 | 6.9 | 9.5 | 9.1 | 7.2 | 8.8 | 5.5 | 21.0 |
| 1-1/2" | 9.2 | 7.6 | 10.8 | 10.8 | 7.9 | 9.5 | 5.5 | 29.0 |
| 2" | 10.8 | 8.9 | 12.2 | 11.2 | 9.4 | 10.8 | 9.3 | 54.0 |

¹Fabricated Socket, Threaded and Flanged dimensions.

Weights are for PVC Spigot valves.

AIR CONSUMPTION CUBIC INCHES

| Size | Normally Closed | Normally Open |
|------------------|-----------------|---------------|
| 1" | 11.6 | 10.4 |
| 1-1/4" to 1-1/2" | 18.9 | 20.1 |
| 2" | 41.5 | 48.2 |

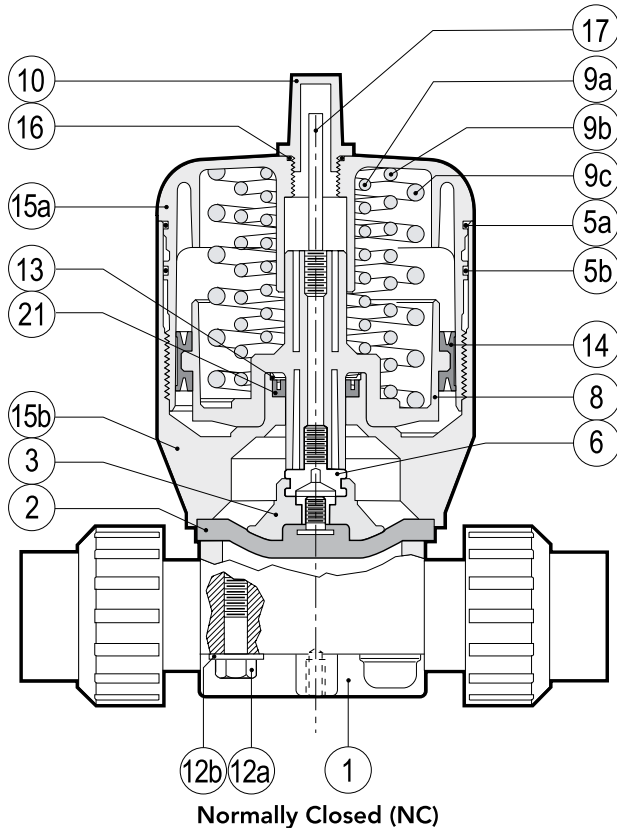
OPTION

• In-Line Air Supply Ports

- For space saving, actuators are available with air supply ports in-line with pipeline



Type 750 Diaphragm Valves



PARTS

▲ Recommended Spare Parts

| No. | Part | Pcs. | Materials |
|-----|-----------------------------------|------|----------------------------|
| 1 | Valve Body | 1 | PVC, CPVC, PP, PVDF |
| 2▲ | Process Diaphragm | 1 | EPDM, FKM-B (Viton®), PTFE |
| 3 | Compressor | 1 | PBTB ¹ |
| 5a | Upper O-Ring | 1 | Nitrile |
| 5b | Lower O-Ring | 1 | Nitrile |
| 6 | Adaptor Assembly | 1 | Ixef ² |
| 8 | Piston | 1 | Ixef ² |
| 9 | Spring Set (a, b, c) ³ | 1-3 | Epoxy Coated Spring Steel |
| 10 | Indicator Cover ⁴ | 1 | Polycarbonate |
| 12a | Hex Bolt | 4 | Cad. Plated Steel |
| 12b | Washer | 4 | Cad. Plated Steel |
| 13▲ | Ring Retainer | 1 | Brass |
| 14 | Double Lip Ring | 1 | Nitrile |
| 12a | Hex Bolt | 4 | Cad. Plated Steel |
| 12b | Washer | 4 | Cad. Plated Steel |
| 15a | Upper Actuator Housing | 1 | Ixef ² |
| 15b | Lower Actuator Housing | 1 | Ixef ² |
| 16 | Indicator O-Ring ⁴ | 1 | Nitrile |
| 17 | Position Indicator ⁴ | 1 | Polypropylene |
| 21 | Spindle Bearing | 1 | PTFE/Aluminum |

¹PBTB = Polybutylene Terephthalate; ²Ixef = Polyaramide; ³1/2" to 1" has 2 springs, 1-1/4" to 1-1/2" has 3 springs; 2" has 2 springs. ⁴Optional Indicator parts

ACCESSORIES Accessories are ordered separately from valves but are mounted to valve, adjusted and bench tested before shipping.

| Accessory | Control Function | Item No. | Maximum Additional Height Allowance (in) ⁵ |
|--|------------------|----------------------|---|
| Position Indicator | NC, NO, DA | 700PI | 1.6 |
| Travel Stop | NC, NO, DA | 700TS ⁶ | 2.5 |
| Travel Stop/Position Indicator | NC, NO, DA | 700TP ⁶ | 2.5 |
| Travel Stop/Position Indicator Allen Key Manual Override | NC | 700M ⁶ | 4.6 |
| 1 Mechanical Limit Switch for open position only | NC, NO, DA | 700LS | 1.6 |
| 2 Mechanical Limit Switches in Waterproof Box | NC, NO, DA | 700LSM ⁶ | 4.2 |
| 2 Proximity Limit Switches in Waterproof Box | NC, NO, DA | 700LSP ⁶ | 4.2 |
| Contact-Free Limit Switch | NC, NO, DA | 700LSF ⁶ | 3.1 |
| 3 – 15 PSI Positioner | NC, NO, DA | PO7YT1200L | 4.3 |
| 4 – 20mA Positioner | NC, NO, DA | PO7YT1000L | 4.7 |
| 3/2 Way NC Solenoid Nema 4 ⁵ | NC, NO | SOL7ASR ⁶ | 0.5 |
| 4/2 Way Solenoid Nema 4 ⁵ | DA | SOL7ADA ⁶ | 2.1 |
| Handwheel Override | NC, NO, DA | 700HW ⁶ | 7.7 |

⁵Height allowance varies with valve size.

⁶Part number differs by valve type and size. See price list for details.

ORDERING EXAMPLE

| Diaphragm Valves | 750 | NC | 010 | A | E | U |
|------------------|--|--------------------------|---------------------------------|-------------------------------|-----------------------|---|
| Control Function | NC – Normally Closed NO – Normally Open DA – Double Acting | | | | | |
| Size | 010 – 1" 015 – 1-1/2" | 012 – 1-1/4" 020 – 2" | | | | |
| Body Material | A – PVC | B – PP | C – CPVC | K – PVDF | | |
| Diaphragm | E – EPDM | B – Nitrile | V – FKM-B (Viton®) | P – PTFE 1-piece ¹ | P2 – PTFE 2-piece | |
| Ends | Blank – Spigot UT – True Union Threaded | S – Socket | T – Threaded CF – ChemFlare™ | F – Flanged | U – True Union Socket | |

Example: Type 750 Pneumatically Actuated Diaphragm Valve, Normally Closed, 1", PVC body, EPDM diaphragm, union socket ends.

¹PTFE one-piece diaphragm is supplied standard.

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700 Series Accessories

for all 700 series valves

Accessories are supplied mounted to actuators and bench tested, or separately.

VISUAL POSITION INDICATOR

The PI Series universal position indicator consists of a red nylon indicator and clear polycarbonate cover and o-ring, for remote visual indication of open or closed valve/actuator position. Mounts on top of the actuator and modifiable for different sizes of actuators.



Visual Position Indicator

MECHANICAL TRAVEL STOP

The TS Series mechanical travel stop is a solid threaded stainless steel insert that fits into top of the actuator, with hex lock nut to prevent it from moving with use or vibration. Adjustable by threading into the actuator to limits movement in the open direction but allows full closed position. Available with clear polycarbonate cover and o-ring for use on normally-open actuators.



Mechanical Travel Stop

TRAVEL STOP/VISUAL POSITION INDICATOR

The TP Series travel stop/visual position indicator is a mechanical travel stop with a spring-loaded visual position indicator running through its center. Provides positive visual feedback of actuator/valve position. Comes with hex lock nut to prevent it from moving with use or vibration. Available with clear polycarbonate cover and o-ring for use on normally-open actuators.



Travel Stop/Position Indicator

TRAVEL STOP/VISUAL POSITION INDICATOR/MANUAL OVERRIDE

The MO/MC Series Manual Override adds to the travel stop/position indicator combination to allow manual valve/actuator operation of actuated valves in case supply pressure fails. The unit is mounted on top of the actuator, in the same manner as other options and links to the control diaphragm, but allows manual operation by turning the threaded center spindle by means of the accompanying Allen key handle. Construction is outer threaded stainless steel insert and center position indicator/override with a clear polycarbonate cover and o-ring for use on normally-open actuators.



Travel Stop/Visual Position Indicator/Manual Override



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700 Series Accessories

for all 700 series valves

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SOLENOID VALVES

Pilot solenoid valves control air supply air in and out of pneumatic actuators to open and close the valve and are electrically actuated. They are usually but not always mounted directly to the actuator. SOL Series Solenoid Valves are CSA/UL approved and designed for multi-million cycle life. These mount flush to 700-Series pneumatic actuators. They are robust, reliable and corrosion resistant, offering high air flows and fast response. The valve functions as 3/2 way (for spring return actuators) and a second solenoid is added for 5/2 way (for double acting actuators). A screw type manual override is standard. Construction is brass body, nitrile seals, nickel plated ports and screws, and epoxy encapsulated coil. The electrical connection is a 3-pin DIN plug with 1/2" NPT for conduit connection. Grommet (cable gripper) and LED grommet (glows to indicate power) version plugs are also available. Versions are available in different voltages, also in intrinsically safe and explosion proof designs.



Solenoid Valves

POSITIONERS

Valve positioners control actuator-valve position, responding to a signal from a process controller, usually electronic (most often 4–20mA) or sometimes pneumatic (3–15 psi). YT Series positioners are easy to mount directly to 700 Series linear actuators. They have epoxy coated aluminum enclosures and are also available in 316 stainless steel. All available models are attractively priced:

- **YT1200R 3–15 psi Pneumatic** – a conventional all-mechanical positioner
- **YT1000R 4–20 mA Electro-Pneumatic** – an electronic positioner designed for vibration resistance, better control and easy calibration
- **YT3300R 4–20 mA Smart** – a fully digital positioner with intelligent functions like auto calibration, PID control, also theoretical and user defined characterized output. Options include alarms (switch or relay output), 4–20 mA transmitter for position feedback and HART digital communication protocol.



Positioners

AIR FILTER/REGULATOR

A filter/regulator is required to protect pneumatic equipment with small orifices from clogging due to debris and to protect from corrosion or fouling due to excess oil or condensed water in the air supply ... includes an air filter/regulator with all positioners mounted to actuators. **JJD** recommends they also be supplied with all pilot solenoid valves. The F/R-A is a one-piece air filter/regulator and pressure gauge with a GRP plastic body, polycarbonate filter bowl and polyethylene filter element. The filter bowl has a manual drain valve.



Air Filter Regulator

HANDWHEEL OPERATOR AND BRACKET

The HW Series handwheel for manual override operation of actuator/valve without mechanical travel stop. Stainless steel threaded insert, center operating spindle and lag mechanism allows switching from manual to powered operation without declutching. Side-pin position indicator allows use without manually operating the actuator/valve too far and damaging the assembly.



Handwheel Operator & Bracket



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700 Series Accessories

for all 700 series valves

Accessories are supplied mounted to actuators and bench tested, or separately.

LIMIT SWITCHES

The LS Series Limit Switch Boxes are CSA/UL approved for On and/or Off valve position feedback. They are compact and robust, featuring quick-setting switch cams, polycarbonate cap, high visibility position indicator beacon and a quick-access cover. Dual 1/2" NPT conduit entries and a 6-position terminal strip in the 2-position mechanical/proximity models allow for wiring of a solenoid valve through the box.

- 700LS Single-Position Mechanical Switch – open position feedback only
- 700LS Dual-Position Mechanical Switch – single-pole double-throw switches rated for multi million cycles
- 700LS Dual-Position Proximity Switch – for intrinsically safe applications
- 700LSP Dual-Position AS-i Switch – built-in solenoid, M12 AS-i connector and air connector to the actuator
- 700LSF Dual-Position Programmable Proximity Switch – for easy set-up and operation



700LS Single-Position Mechanical Limit Switch



700LS Dual-Position Mechanical Limit Switch



700LS Dual-Position Proximity Limit Switch



700LSF Dual-Position Programmable Proximity Switch



700LS Dual-Position AS-i Limit Switch

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