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WESTLUND/EMCO WATER SOLUTIONS

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Chemline

Valves
Piping
Flow Meters
& Controls

Actuation and Actuated Valves





• FOR BALL, BUTTERFLY AND DIAPHRAGM VALVES •

Distributed by:
WESTLUND/EMCO
WATER SOLUTIONS

REGISTERED ISO 9001:2015 ISO 9001

Materials of Construction

Electric Actuators

Pneumatic Actuators

700 Series Diaphragm Valves

1968 40 Years 2008

Chemline Technical Resources

- Manual Thermoplastic Valves Catalogue
- Actuation & Actuated Valves Catalogue
- Controls & Flow Meters Catalogue
- DigiflowFlowX3® Flow Meters & Instrumentation Catalogue
- Chemical Resistance Guide
- Specification Guide

CHEMLINE Plastics Limited

Your Pipeline To Quality Valves, Piping, Flow Meters and Controls

ISO 9001:2000 Certified

Actuation & Actuated Valves

Electromni® Electric on a Compact Ball

Q Series Electric on a Ball Valve

V Series Electric on a Ball Valve

V Series Electric on a Butterfly Valve

A Series Electric a Butterfly Valve

A Series Electric a Diaphragm Valve

PA Series Pneumatic on a Ball Valve

PA Series Pneumatic on a Butterfly

Type 730 Pneumatic Diaphragm–NC

Type 730 Pneumatic Diaphragm–NO

Type 750 Pneumatic Diaphragm

Type 760 Manual Diaphragm

Type 710 Pneumatic Diaphragm

Type 720 Manual Diaphragm

Materials of Construction

Thermoplastics

PVC (Polyvinyl Chloride)
The most economical and largest selection of Chemline valves are moulded from PVC. It offers excellent mechanical and chemical resistance properties at low cost. The working temperature range of PVC valves is **0 to 60°C (30 to 140°F)**.

PVC used for Chemline valves is identified by cell classification number **11564-A** as per ASTM Standard D 1784. The suffix **"A"** refers to the highest chemical resistance rating. Most other PVC valves as well as pipe and fittings have only a "B" chemical resistance rating.

The special PVC "A" compound used in Chemline valves resists attack of most acids, strong alkalais, salts and many other chemicals. High chemical resistance of this material allows its application on aggressive services such as 98% H_2SO_4, dry chlorine and low pressure wet chlorine gas. PVC is attacked by chlorinated hydrocarbons, ketones, esters and some aromatic compounds. It can be used on solutions containing up to 1000 ppm solvents.

Chemline PVC valves are non-toxic. They meet CSA standard B137.0 for toxicity.

They are resistant to damaging effects of sunlight and weathering, thus painting is not necessary.

CPVC (Chlorinated Polyvinyl Chloride)
CPVC is very similar to PVC in mechanical properties and chemical resistance. It is suitable for applications from **0 to 95°C (30 to 200°F)**.

The special CPVC compound used for Chemline valves is classified as **23567-A** as per ASTM D 1784. The suffix "A" denotes conformance to the highest chemical resistance rating. The compound is non-toxic, conforming to CSA toxicity standard B137.0.

CPVC valves have proven to be an excellent choice for applications at temperatures too high for PVC or when an extra margin of safety is required.

PP (Polypropylene)
PP is light weight and high in chemical resistance. Valves are suitable for service from **–20 to 90°C (–5° to 195°F)**. PP is unaffected by alkalais, salts, organic solvents and most acids, particularly hydrochloric and phosphoric acid. It is unsuitable on strong acids, chlorinated hydrocarbons, aromatic compounds and high concentrations of free chlorine.

PP is very inert thus popular for high purity applications such as deionized water, etc. The material comes normally opaqued by addition of grey-beige pigment to prevent ultraviolet light penetration. Natural translucent material without pigment will degrade if exposed to UV light (sun light). Chemline offers PP pipe, fittings and valves in pigmented and unpigmented PP, both approved by the FDA for contact with food.

PVDF (Polyvinylidene Fluoride)
PVDF is superior to other valve thermoplastics in chemical resistance and abrasion resistance. It has remarkable strength over the largest working temperature range. The working temperature range of PVDF valves is **–40 to 120°C (–40 to 250°F).**

PVDF's impact strength is over twice that of PVC. The valves are extremely durable under mechanical abuse even at –40°F. They also offer the highest abrasion resistance of thermoplastic valves.

PVDF has excellent chemical resistance against halogens such as chlorine and bromine, strong acids such as hydrofluoric and nitric acids, organic solvents and oils. PVDF is not resistant to hot bases.

It is also non toxic and imparts no odours or tastes into the fluid. Our PVDF conforms with USDA Title 21, P121.2593 requirements for contact with food.

Gas permeability of PVDF is extremely low. A patented PVDF gas permeability barrier is available on Type 14 and DV Series Diaphragm Valves. It is a backing to the Teflon® diaphragm and has proven to increase the life of diaphragm valves on chlorine and strong acid services.

Teflon® PTFE (Polytetrafluoroethylene)
PTFE is almost totally insoluble and chemically inert. It has high temperature resistance. Teflon® PTFE ball seats, because of natural lubricity, require no lubrication. Teflon® PTFE diaphragms and flange gaskets are used in the most severe chemical resistance applications.

Elastomers

EPDM (Ethylene Propylene Terpolymer)
EPDM is a synthetic rubber used as the standard seal material for most Chemline valves. It is the most economical choice of elastomer and has excellent chemical resistance on the great majority of applications including acids, alkalais, salts and many others at temperatures up to 90°C. EPDM is weak on organic compounds and cannot be used on oils and fats.

Chemline valves seals of EPDM meet CSA standard B137.0 for non-toxicity.

FKM or FPM ("Viton®" Fluorocarbon Rubber)
FKM/FPM is more expensive than EPDM so is used as an alternate elastomer when required. It has excellent resistance to mineral acids, oils and many aliphatic and aromatic hydrocarbons. FKM/FPM (Viton®) is weak on sodium hydroxide.

FKM-C is a special formulation with higher resistance to chlorine services.

FKM-F offers better chemical resistance on inorganic acids than standard FKM. Ratings are included for hydrochloric, nitric and sulphuric acids.

CPE (Chlorinated Polyethylene)
CPE is superior to all other elastomers on sodium hypochlorite. It resists hypochlorite up to full strength (13%). Ball valves supplied with CPE seals are very price competitive on this service.

NITRILE (Acrylonitrile-Butadiene Copolymer, abv. NBR)
Nitrile is also know as Buna-N. It has high chemical resistance to oil and petroleums but is weak on oxidizing media i.e. acids. Nitrile has excellent abrasion resistance and is less expensive than FKM/FPM (Viton®).

Electromni® Actuators

CHEMLINE Plastics Limited

Your Pipeline To Quality

for Chemline Ball Valves up to 2"

SERIES:	EO – Standard EL – With Lights
VOLTAGES:	12, 24, 115 or 220 VAC, 12 or 24 VDC
ENCLOSURE:	High Impact ABS Plastic Cover and PVC Base NEMA 4X (IP 65)

The Chemline Electromni® Actuator is a high quality yet economical electric actuator for mounting onto all Chemline ball valves up to 2" – Compact, Type 21 True Union and Type 23 Multi Port. The actuator is compact and light weight – well suited for plastic and also metal ball valves.

Chemline normally mounts Electromni's to ball valves in-house. The units are assembled, adjusted and bench tested prior to shipment.

Low Cost

Compact & Light Weight

Features

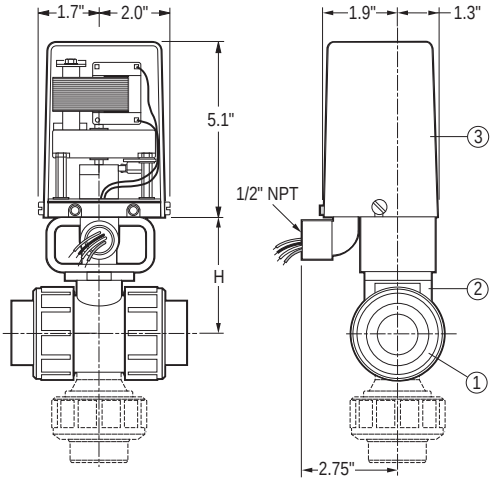
- **Approved by CSA** (Canadian Standards Association)
- **Compact Design**
  Perfect for space limited applications
- **Light Weight**
- **NEMA 4X Plastic Housing**
  Corrosion-proof/Waterproof housing with high impact ABS plastic cover, PVC base, stainless steel fasteners
- **No Maintenance**
  Permanently lubricated gear train
- **25% Duty Cycle Unidirectional Motors**
  120 and 220 VAC
- **75% Duty Cycle Reversible Motors**
  12 and 24 VAC and VDC
- **Thermal Overload Protection** – Thermal switch imbedded in motor windings
- **Minimum Design Life** – 250,000 cycles

Options

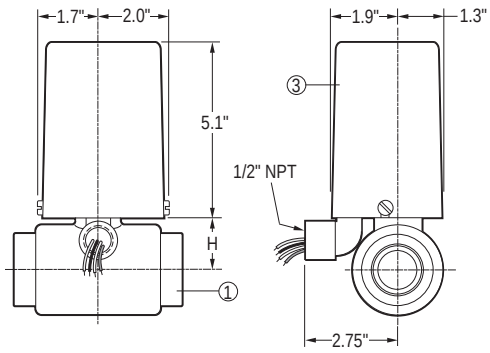
- **Position Indication Lights** – Built into PVC base. Lights indicate valve is fully open (amber) or closed (green)
- **Extra Limit Switch** – Only one extra SPDT switch is required for both open and closed position feedback
- **Two-Wire Control** – For retrofitting solenoids or for direct-wiring timers, level switches, etc.

Electromni® on Chemline Compact Ball Valve

Electromni® Actuators



Type 21 True Union and Type 23 Multi Port Ball Valves



Compact Ball Valves

MAJOR PARTS

No.	Component	Pcs.	Materials
1	Valve	1	PVC, CPVC PP or PVDF
2	Mounting Bracket*	1	PVC or Anodized Aluminum
3	Actuator	1	ABS Cover, PVC Base

*Electromni Actuator direct mounts to Compact Ball Valves requiring no mounting bracket or socket screws. For Type 21 TU ball valves and Type 23 Multi Port ball valves, mounting hardware is PPG bracket and 304 SS coupling.

DIMENSION "H" INCHES

Valve Size	Ball Valve Type		
	Type 21	Compact	Type 23
1/2"	2.76	0.8	2.76
3/4"	3.01	0.1	3.01
1"	3.29	1.2	3.29
1-1/4"	3.64	1.4	3.64
1-1/2"	3.98	1.5	3.98
2"	4.43	1.9	4.43

For valve dimensions and parts refer to separate valve data sheets.

SPECIFICATIONS

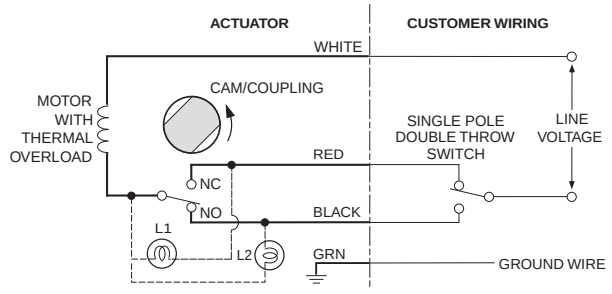
- **Output Torque** – 120 in-lb.
- **Enclosure** – NEMA Type 4X
- **Weight** – 3.4 lb. (excluding valve)
- **Limit Switches** – Standard unit has 1 SPDT switch rated 5 amps at 120 volts
- **Conduit Entry** – 1/2" NPT
- **Lubrication** – Not necessary. Gear train is permanently lubricated
- **Ambient Temperature Range** –10 to 60°C (15 to 140°F)
- **Failure Mode** – In case of power failure actuator stops in last position. If manual override or failsafe functions are required, another actuator, the Q Series model is available.

SPECIFICATIONS

Model Number							
no Lights	with Lights[1]	Volts	Hz	Speed sec/90°	Motor[2]	Duty Cycle	Current Draw (amp)*
EO1	EL1	120 VAC	60/50	5	Uni	25%	2.2
EO2	EL2	220 VAC	60/50	5	Uni	25%	0.6
EO3	EL3	12 VDC	–	5	Rev	75%	1.0
EO4	EL4	24 VDC	–	5	Rev	75%	1.0
EO5	EL5	12 VAC	60/50	5	Rev	75%	2.25
EO6	EL6	24 VAC	60/50	5	Rev	75%	4.0

*Current draw values are maximum, ie. for locked rotor position. Running current draw will be less.
[1] "Lights" are optional Position Indication Lights built into actuator base.
[2] **Uni** = Unidirectional motor; **Rev** = Reversible motor.

AC WIRING DIAGRAM



To Open – Power to Black
To Close – Power to Red

L1 – Green light indicates valve closed (optional)

L2 – Amber light indicates valve open (optional)

Valve is shown in closed position

OPTIONS

- **Position Indication Lights** – Built into PVC base. Lights signal when valve is fully open (amber) or closed (green).
- **Extra Limit Switch** – Only one extra SPDT switch is required for both open and closed position feedback. This is for remote indicating lights, the process controller or for sequencing other equipment with the valve actuation.
- **Two-Wire Control or Momentary Contact Actuation** – For retrofitting solenoid or for direct-wiring timers, level switches, etc.

Q Series Electric Actuators

CHEMLINE Plastics Limited

Your Pipeline To Quality

The Chemline Q Series Electric Actuator is a reversible rotary unit with output torques of 150 or 300 in.-lb. These units are ideal for all Chemline ball valves up to 3" size, as well as butterfly valves up to 4". The Q Series is compact, light weight and has a plastic housing. A large red handle provides manual override and position indicator.

Chemline also offers complete actuated ball, butterfly and diaphragm valves, assembled and bench tested. Actuation service is also available for all quarter-turn metal valves.

Visual Position Indicator

Manual Override

Plastic Housing

for Chemline Ball Valves up to 3" and Butterfly Valves to 4"

SERIES:	QA – 150 in.-lb. QB – 300 in.-lb.
VOLTAGES:	12, 24, 115 or 220 VAC 12 or 24 VDC
ENCLOSURE:	High Impact "Zytel" Plastic NEMA 4X

Features

Large Selection of Options and Accessories

Approved by CSA (Canadian Standards Association)

Compact and Light Weight
- Ideal for plastic and metal valves

NEMA Type 4X Plastic Housing
- Waterproof housing of high impact Zytel† plastic with stainless steel fasteners

Reversible
- Turns valve stem back and forth for quick response in cycling applications

Minimum 75% Duty Cycle
- For high cycling applications

No Maintenance
- Permanently lubricated gear train
- Unit is designed for minimum life of 250,000 cycles

Standard Mounting Dimensions
- ISO 5211 mounting bolt circle

Technical

Limit Switches
- Rated 5 amps at 120 volts

Conduit Entry
- 1/2" NPT with provision for a second separate entry

Ambient Temperature Range
- –10 to 60°C (15 to 140°F)

† Zytel FR-50 is a flame retardant 25% glass reinforced high strength polyamide (Nylon) resin from DuPont.

Q Series on Type 57 Butterfly Valve

Declutchable Manual Override/ Position Indicator

Q Series on Type 21 True Union Ball Valve

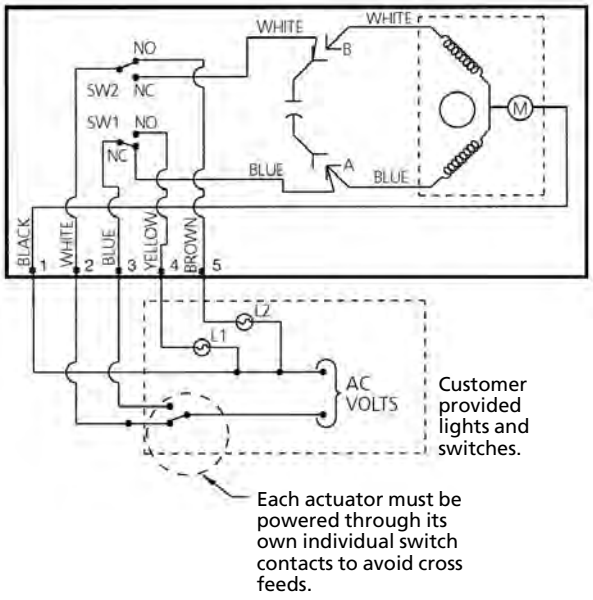
Q Series Electric Actuators

SPECIFICATIONS

Model	Output Torque (in.-lbs.)	115 VAC (x=1)		220 VAC (x=2)		12 VDC (x=3)		24 VDC (x=4)		12 VAC (x=5)		24 VAC (x=6)		Cycle Time/90° (sec.)	Weight (lbs.)
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
QAx	150	0.50	100%	0.40	100%	2.0	75%	4.0	75%	2.0	75%	4.0	75%	5	6.6
QBx	300	0.75	75%	0.60	75%	2.0	75%	4.0	75%	2.0	75%	4.0	75%	5	6.6

Current draw values are for actuators with rotors locked. Duty cycles are for ambient temperature 20°C (68°F).

AC WIRING



VALVE OPERATION

1. Black – Neutral

   To Open – Power to White (Terminal 2)

   To Close – Power to Blue (Terminal 3)

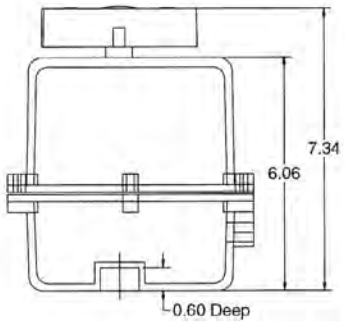
   L1 – Possible Customer Equipment

   L2 – Possible Customer Equipment

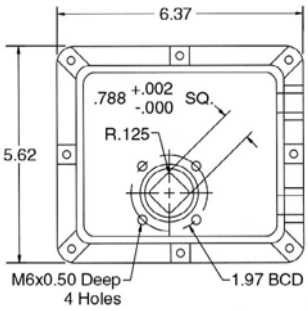
NOTES:

1. Actuator shown in counter clockwise extreme of travel, or 'open' position.
2. Motor has a thermal protector as shown by Ⓜ in the diagram.

DIMENSIONS INCHES



Side View

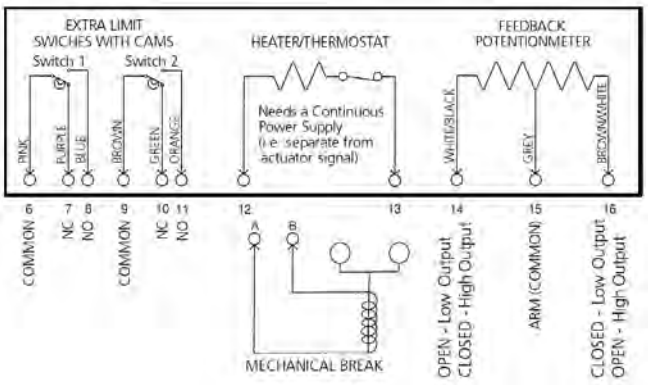


Bottom View

CONTROL ACCESSORIES

- **Extra Limit Switches** – For position feedback
- **Heater/Thermostat** – For outdoor or humid environments. Maintains internal temperature of actuator at 5°C (40°F)
- **3-Position Control** – For 3-way ball valves or dribble control on 2-way valves
- **Digital Positioner** – New onboard digital position controller accepts 4 to 20 mA and other inputs. These new units are easier to calibrate, have faster response and provide more precise proportional control.
- **4 to 20 mA Retransmit** – A circuit board coupled with a feedback potentiometer provides 4 to 20 mA output used by other equipment (PLC, data logger, etc.)
- **Failsafe Capability** – Onboard backup battery pack powers actuator in case of power failure
- **Feedback Potentiometer** – For feedback indicating the precise valve position to a remote location, or to allow "jogging" control
- **Cycle Length Control Module** – For lengthening closing/opening times when water hammer is a concern
- **Two-Wire Control** – For direct wiring timers, level switches, pump control, etc.
- **Mechanical Brake** – To eliminate oscillation when seating butterfly valves or large ball valves

ACCESSORIES WIRING



V Series Electric Actuators

The Chemline V Series Electric Actuator is a reversible rotary unit with output torques up to 8,860 in.-lb. These actuators are ideal for Chemline butterfly valves up to 14" size, as well as all sizes of Chemline ball valves up to 6". The V Series actuator features a die cast aluminum housing with a thermally bonded epoxy powder coating, rated as a NEMA 4X enclosure. NEMA 7 and 9 enclosures are available. Consult Chemline.

Chemline also offers complete actuated ball, butterfly and diaphragm valves, assembled and bench tested. Actuation service is also available for all quarter-turn metal valves.

Improved Manual Override

Rugged and Reliable

CHEMLINE Plastics Limited

Your Pipeline To Quality

for Chemline Ball Valves up to 6" and Butterfly Valves to 14"

SERIES: VR – 220 to 660 in.-lb.
VS – 880 to 2,660 in.-lb.
VT – 5,300 to 8,860 in.-lb.

VOLTAGES: 115 / 220 VAC or 24 VDC / VAC

ENCLOSURE: Baked Hybrid Epoxy Coated Die Cast Aluminum NEMA 4X (7/9)

Features

Approved by CSA (Canadian Standards Association)

Only two Models for Four Voltages
Each model has dual voltages
- Model 12[1] – 115 VAC / 220 VAC
- Model 46 – 24 VDC / 24 VAC

Manual Override
- VR Series – Declutchable knob
- VS & VT Series – Handwheel which does not require declutching due to unique planetary gear design. Handwheel does not turn during actuator operation.

Standard Mounting Dimensions
- ISO 5211 mounting bolt circle

No Maintenance
- Permanently lubricated planetary gear train
- Unit is designed for minimum life of 250,000 cycles

Outstanding Standard Features

Two Wire Control
- Allows operation of actuator from simple single throw on/off switches

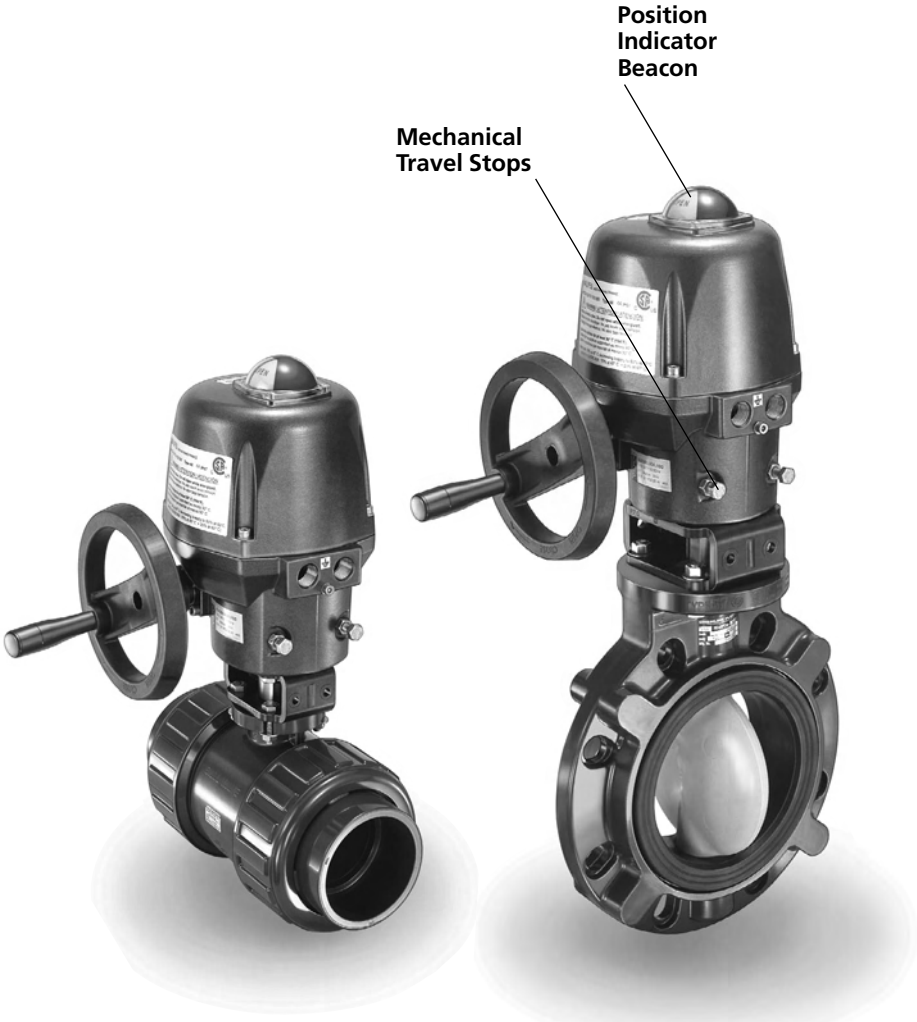
Heater/Thermostat
- 3 Watt heater for humid environments

Extra Limit Switches
- 2 extra limit switches for position feedback

Electronic Torque Limiter
- Prevents damage to actuator or valve in case of obstruction

Mechanical Travel Stops
- End of travel is field adjustable to ± 5 degrees

[1]VT are not available in 115 VAC.



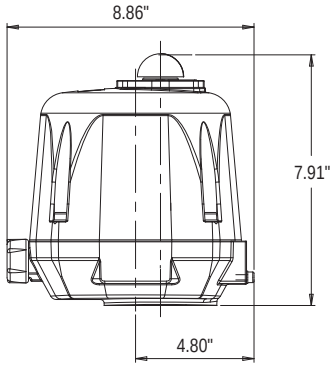
VS Series on Type 21 Ball Valve

VS Series on Type 57 Butterfly Valve

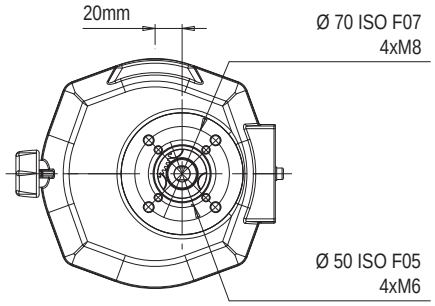
V Series Electric Actuators

DIMENSIONS INCHES

VR Series

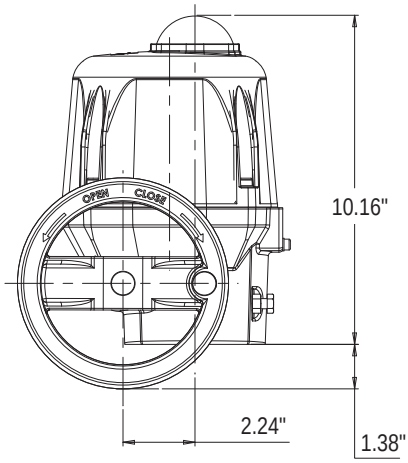


Side

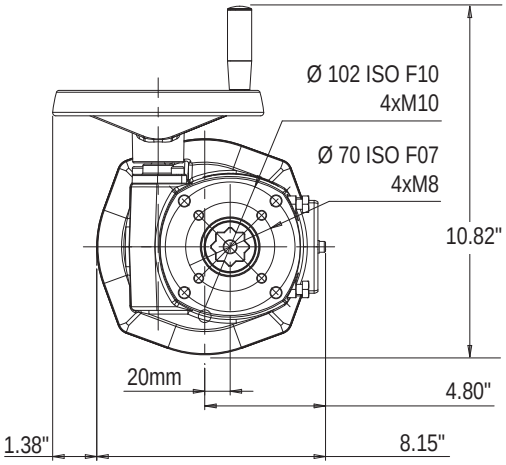


Bottom

VS Series

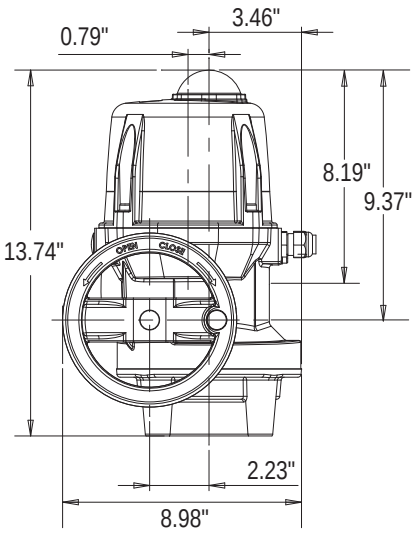


Side



Bottom

VT Series



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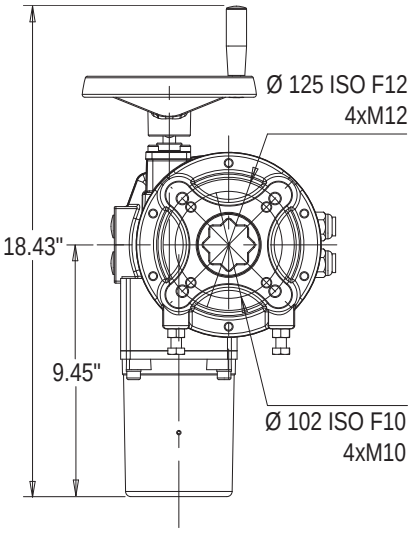


Bottom

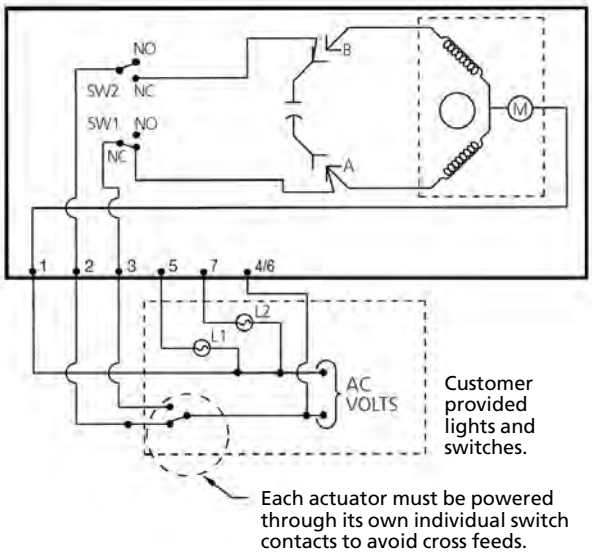
V Series Electric Actuators

SPECIFICATIONS

Model	Running Torques (in.-lbs.)	Nm	115 VAC / 220 VAC (x=12) Power Draw (Watts)[1]	Duty Cycle	24 VDC / VAC (x=46) Power Draw (Watts)[1]	Duty Cycle	Cycle Time/90° (sec.)	Weight (lbs.)
VR25.x	220	25	85W	80%	85W	80%	7	8.8
VR45.x	400	45	85W	80%	85W	80%	15	8.8
VR75.x	660	75	85W	80%	85W	80%	20	8.8
VS100.x	880	100	85W	80%	85W	80%	15	14.3
VS150.x	1,330	150	85W	80%	85W	80%	30	14.3
VS300.x	2,660	300	85W	80%	85W	80%	50	14.3
VT600.x[2]	5,300	600	250W	50%	150W	50%	38	39.7
VT1000.x[2]	8,860	1,000	250W	50%	150W	50%	38	39.7

[1] Power draw values are for actuators with locked rotors.
[2] VT are not available in 115 VAC.

AC WIRING 115 VAC/220 VAC



VALVE OPERATION

Neutral – To Terminal 1
To Open – Power to Terminal 2
To Close – Power to Terminal 3
L1 – Possible Customer Equipment
L2 – Possible Customer Equipment

NOTES:

1. Actuator shown in counter clockwise extreme of travel, or 'open' position.
2. Motor has a thermal protector as shown by Ⓜ in the diagram.

PLUG-IN MODULAR OPTIONS

- **Heater/Thermostat** – 10 Watt heater for outdoor environments. Maintains internal temperature of actuator at 5°C (40°F).
- **4 to 20 mA Retransmit** – A circuit board coupled with a feedback potentiometer provides 4 to 20 mA output used by other equipment (PLC, data logger, etc.)
- **Feedback Potentiometer** – To feedback the precise valve position to a remote location, or to allow "jogging" control.

OTHER OPTIONS

- **Digital Positioner** – Onboard digital position controller accepts 4 to 20 mA and other inputs. These units are easier to calibrate, have faster response and provide more precise proportional control.
- **Failsafe Capability** – Onboard backup battery pack powers actuator in case of power failure

A Series Electric Actuators

The Chemline A Series Electric Actuator is a reversible rotary unit with output torques up to 2000 in.-lb. These actuators power Chemline butterfly valves up to 8" size, as well as all sizes of Chemline ball valves up to 6". The A Series actuator features an epoxy coated die cast aluminum housing with NEMA 4X enclosure rating. NEMA 7 and 9 enclosures are also available.

Chemline also offers complete actuated ball, butterfly and diaphragm valves, assembled and bench tested. Actuation service is also available for all quarter-turn metal valves.

CHEMLINE Plastics Limited

Your Pipeline To Quality

for Chemline Ball Valves up to 6" and Butterfly Valves to 8"*

SERIES: AA – 400 in.-lb.
AB – 700 in.-lb.
AC – 1,100 in.-lb.
AD – 2,000 in.-lb.

VOLTAGES: 12, 24, 115 or 220 VAC, 12 or 24 VDC

ENCLOSURE: Baked Hybrid Epoxy Coated Die Cast Aluminum NEMA 4X (7/9)

Beacon Position Indicator

Manual Override

Rugged and Reliable

Features

Large Selection of Options and Accessories

Approved by CSA (Canadian Standards Association)

Powerful Reversible Motors
- Minimum 75% duty cycle for high cycling applications

No Maintenance
- Permanently lubricated gear train
- Unit is designed for minimum life of 250,000 cycles

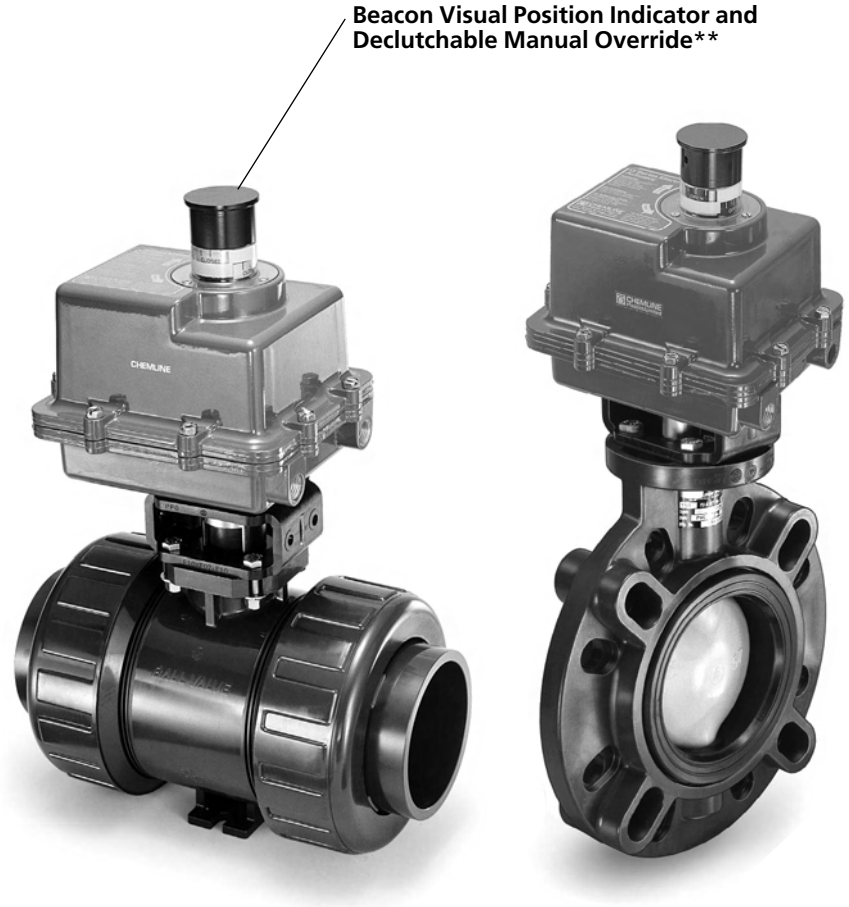
Standard Mounting Dimensions
- ISO 5211 mounting bolt circle

Technical

Limit Switches
- Rated 5 amps at 120 volts

Conduit Entry
- Two separate 1/2" NPT entries

Ambient Temperature Range
- –10 to 60°C (15 to 140°F)



A Series on Type 21 Ball Valve

A Series on Type 57 Butterfly Valve

* For 8" Type 57 butterfly valves or up to 10" Type 56 butterfly valves where maximum allowable differential pressures is 50 psi.

**"D" size actuator has declutching hand wheel override.

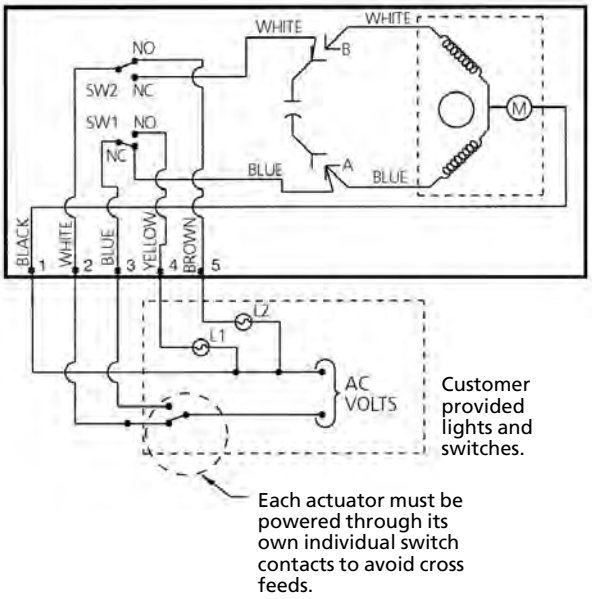
A Series Electric Actuators

SPECIFICATIONS

Model	Torques (in.-lbs.)	115 VAC (x=1)		220 VAC (x=2)		12 VDC (x=3)		24 VDC (x=4)		12 VAC (x=5)		24 VAC (x=6)		Cycle Time/90° (sec.)	Weight (lbs.)
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
AAx	400	0.50	100%	0.40	75%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	10	15.3
ABx	700	0.75	75%	0.60	50%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	10	15.3
ACx	1100	0.50	100%	0.40	75%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	25	15.5
ADx	2000	1.00	50%	0.60	50%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	25	18.3

Current draw values are for actuators with rotors locked. Duty cycles are for ambient temperature 20°C (68°F).

AC WIRING



VALVE OPERATION

1. Black – Neutral

   To Open – Power to White (Terminal 2)

   To Close – Power to Blue (Terminal 3)

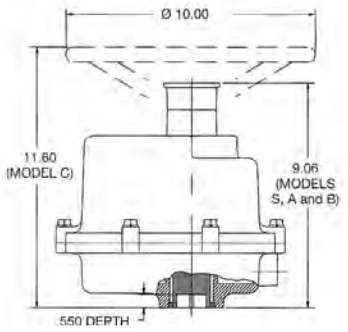
   L1 – Possible Customer Equipment

   L2 – Possible Customer Equipment

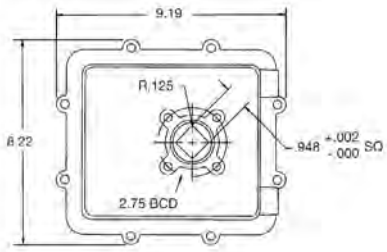
NOTES:

1. Actuator shown in counter clockwise extreme of travel, or 'open' position.
2. Motor has a thermal protector shown as Ⓜ in the diagram.

DIMENSIONS INCHES



Side View

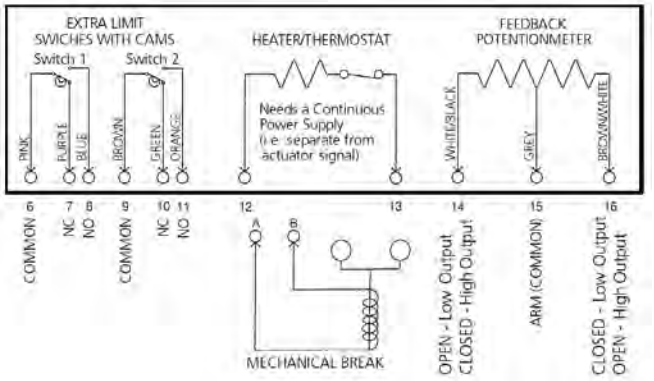


Bottom View

CONTROL ACCESSORIES

- **Extra Limit Switches** – For position feedback
- **Heater/Thermostat** – For outdoor or humid environments. Maintains internal temperature of actuator at 5°C (40°F)
- **3-Position Control** – For 3-way ball valves or dribble control on 2-way valves
- **Digital Positioner** – Onboard digital position controller accepts 4 to 20 mA and other inputs. These units are easier to calibrate, have faster response and provide more precise proportional control.
- **4 to 20 mA Retransmit** – A circuit board coupled with a feedback potentiometer provides 4 to 20 mA output used by other equipment (PLC, data logger, etc.)
- **Failsafe Capability** – Onboard backup battery pack powers actuator in case of power failure
- **Feedback Potentiometer** – For feedback indicating the precise valve position to a remote location, or to allow "jogging" control
- **Cycle Length Control Module** – For lengthening closing/opening times when water hammer is a concern
- **Two-Wire Control** – For direct wiring timers, level switches, pump control, etc.
- **Mechanical Brake** – To eliminate oscillation when seating butterfly valves or large ball valves
- **Multi-Turn Models** – For diaphragm and gate valves
- **ASi Bus System Capability** – Available with 24 VDC model for 30 VDC ASi systems

ACCESSORIES WIRING



PA Series Pneumatic Actuators

CHEMLINE Plastics Limited

Your Pipeline To Quality

Epoxy and Rilsan Coated Aluminum

SERIES: PAS – Spring Return
PAD – Double Acting

CONTROL PRESSURE: 40 to 120 psi

OUTPUT TORQUES (at 80 psi air):
Up to 15,660 in.-lb. Spring Return[1] and 40,660 in.-lb. Double Acting

Chemline PA Series is part of the P Series family of quarter-turn pneumatic rack and pinion actuators designed for long cycling life in demanding industrial applications.

PA Series features aluminum bodies and end caps coated inside and out with a two part coating of cataphoresis epoxy then Rilsan polyamide. The result is a superior actuator with longer cycling life and durable abrasion and corrosion resistant surfaces.

Output torques are up to 31,300 in.-lbs. spring return (SR) and 40,660 in-lbs. double acting (DA) with 80 psi control air. They will power all Chemline ball valves and butterfly valves up to 24" DA and 20" SR.

Chemline offers complete actuated ball and butterfly valves assembled and bench tested. Actuation services are also available for all quarter-turn metal valves.

Corrosion Resistant

Long Cycling Life

PA Series on Type 21 True Union Ball Valve

Features

Quality Built for Long Cycling Life
- Rated for 1 million cycles
- Smooth Rilsan coating on inner surfaces minimizes wear
- Double O-ring shaft seals
- Minimal backlash with no play in parts
- Massive tooth engagement between racks and pinion
- Balanced internal forces

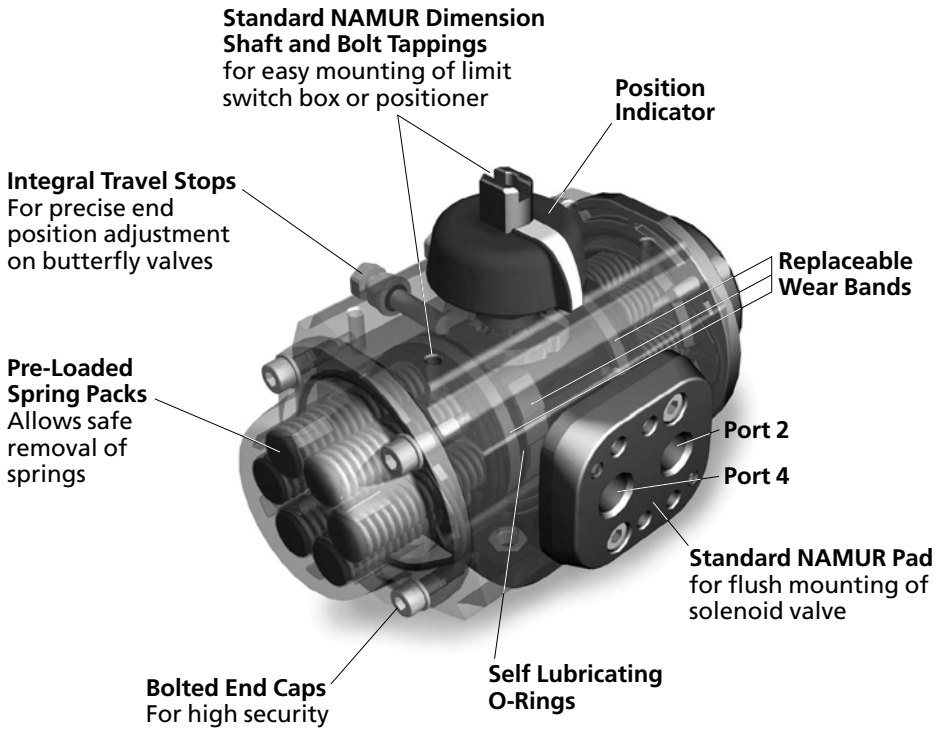
Corrosion Resistant
- Special Epoxy/Rilsan coating[2] offers outstanding chemical and abrasion resistance

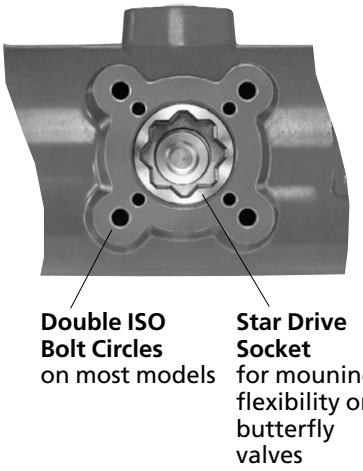
Standard Mounting Dimensions
- ISO 5211 bolt circle allows direct mounting to most valves
- Mounting kits/brackets are readily available for many valve makes.
- NAMUR top shaft and solenoid pad makes accessory mounting easy

Compact, Simple Design
- Double piston, double rack and pinion design supplies constant torque output
- High torque-to-weight ratio
- All porting is integral

[1] Based on Spring End torque, used for sizing on normally closed butterfly valves.
[2] See page 14 for details of coating process.

PA Series Pneumatic Actuators

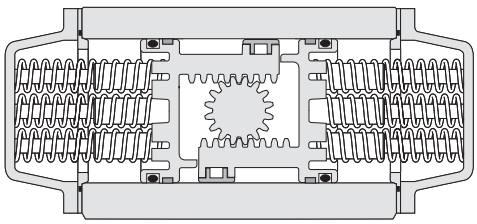




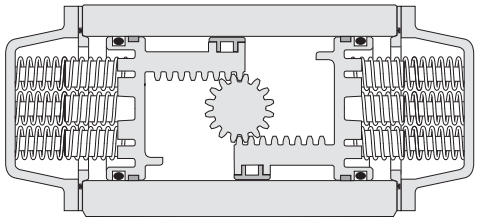
OPERATION–SPRING RETURN MODELS

Spring Cycle: Provided left port (4) is exhausted, the springs move pistons inward, turning the shaft 90° clockwise, as viewed from top of actuator.

Air Cycle: Air pressure to right port (2) moves pistons outward, compressing springs and turning the shaft 90° counter-clockwise, as viewed from top of actuator.



Spring End or Air Start Cycles



Spring Start or Air End Cycles

SPECIAL PROCESS FOR A SUPERIOR COATING

The aluminum body and end caps of the PA Series actuators are coated inside and out. First the aluminum actuator bodies and end caps undergo a four-step cleaning and passivation treatment.

The next step is epoxy coating by cationic electro deposition (cataphoresis). A 20 micron thick layer is applied to create a smooth chemical resistant coat which bonds into the aluminum crystalline structure.

The final step is application of a Rilsan 11 Polyamide coat up to 250 microns thick . Rilsan is a fully polymerized thermoplastic which provides outstanding chemical resistance to effluents, sea water, sea mist, hydrocarbons, solvents, and many chemicals. The final result is an actuator with a very smooth internal finish which offers long cycle life as well as durable, abrasion resistant external resistance to hostile chemical environments.

Technical

WORKING TEMPERATURES: –32 to 90°C (–25 to 175°F)

CONTROL PRESSURE: Control pressure range is minimum 40 to maxiumum 120 psi

CONTROL MEDIA: Actuator may be powered using air, water, natural gas or non-aggressive fluids

ENVIRONMENT: PA Series may be operated while submerged in water

PA Series Pneumatic Actuators

OUTPUT TORQUES – DOUBLE ACTING INCH POUNDS

Item No.	Supply Pressure (psi)				
	40	60	80	100	120
PADW	62	103	137	172	209
PAD00	93	147	201	256	309
PAD05	188	295	401	506	612
PAD10	263	417	571	725	880
PAD15	442	690	939	1,187	1,437
PAD20	622	978	1,334	1,689	2,045
PAD25	1,128	1,734	2,342	2,948	3,601
PADA30	1,823	2,804	3,789	4,770	5,757
PADA40	4,708	7,124	9,549	11,963	14,392
PADA50	8,033	12,357	16,697	21,019	25,367
PAD70	19,157	29,889	40,662	51,388	62,181

OUTPUT TORQUES – SPRING RETURN INCH POUNDS

Item No.	Number of Springs[1]	Spring Cycle		Air Cycle							
				Supply Pressure (psi)							
				60		80		100		120	
		Start	End	Start	End	Start	End	Start	End	Start	End
PASW	6	89	59	43	13	78	49	114	85	150	120
PAS00	6	146	98	48	1	103	55	157	109	211	163
PAS05	6	278	185	110	17	216	123	322	229	427	335
PAS10	6	404	273	145	14	299	168	453	322	608	477
PAS15	6	633	434	257	58	506	306	754	555	1,003	804
PAS20	6	927	582	397	52	752	408	1,107	763	1,462	1,118
PAS25	6	1,609	1,057	668	116	1,292	740	1,915	1,363	2,539	1,986
PASR30	4	2,422	1,592	1,212	382	2,196	1,366	3,181	2,350	4,165	3,334
PASR40	4	6,787	4,351	2,780	344	5,200	2,764	7,620	5,183	10,040	7,603
PASR50	4	10,673	6,404	5,966	1,697	10,297	6,028	14,628	10,359	18,690	14,690
PAS70	6	31,320	15,660	14,262	1,398	25,012	9,352	35,763	20,103	46,513	30,853

[1]Standard Spring set. Higher torques for air operation can be obtained by removing springs. Consult Chemline.

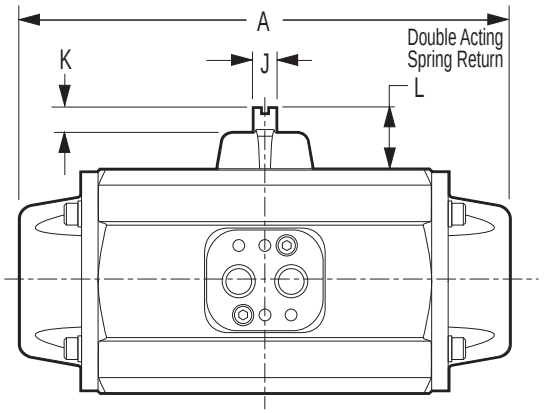
WEIGHTS, AIR CONSUMPTION, CYCLE TIMES

Size	Double Acting						Spring Return				
	Item No.	Weight lbs.	Air Consumption (li)[2]		Cycle Time (sec.)		Item No.	Weight lbs.	Air Consumption (Standard litres)[2]	Cycle Time (sec.)	
			Open Port B	Close Port A	Open Port B	Close Port A				Open Port B	Close Port A
W	PADW	2.02	0.08	0.11	0.10	0.10	PASW	2.20	0.08	0.15	0.15
00	PAD00	3.09	0.15	0.18	0.15	0.15	PAS00	3.58	0.15	0.20	0.20
05	PAD05	5.67	0.28	0.37	0.20	0.20	PAS05	6.49	0.28	0.25	0.25
10	PAD10	6.79	0.35	0.45	0.25	0.25	PAS10	7.68	0.35	0.30	0.30
15	PAD15	9.25	0.65	0.82	0.30	0.30	PAS15	11.10	0.65	0.40	0.40
20	PAD20	12.36	0.80	0.11	0.40	0.40	PAS20	14.60	1.15	0.50	0.50
25	PAD25	20.50	1.5	2.0	0.50	0.50	PAS25	24.92	1.05	0.80	0.80
30	PADA30	20.02	2.1	1.9	0.60	0.60	PASR30	34.98	2.1	1.20	1.20
40	PADA40	38.72	5.3	5.3	1.20	1.02	PASR40	80.10	5.3	2.00	2.00
50	PADA50	67.50	10.5	7.0	2.00	2.00	PASR50	128.50	10.5	6.00	6.00
70	PAD70	171.74	31.0	30.0	6.00	6.00	PAS70	260.59	31.0	15.00	10.00

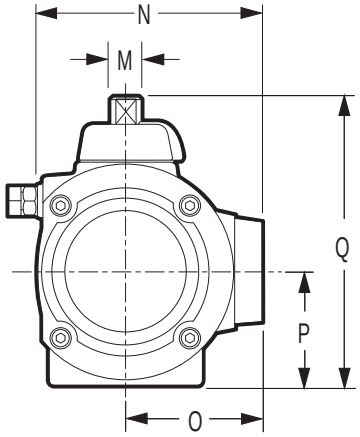
[2]1 Liter = 61.02 cubic inches

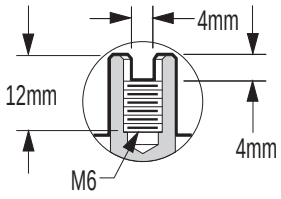
PA Series Pneumatic Actuators

Front View

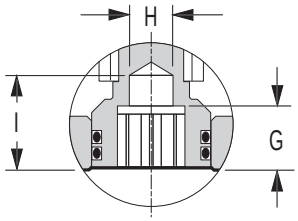


Side View

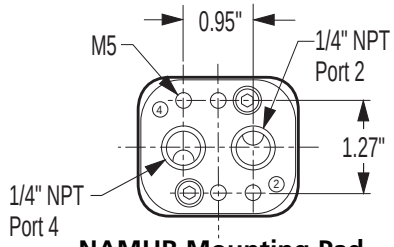




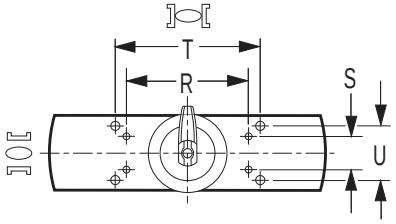
Top Shaft



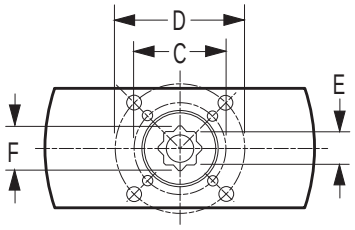
Bottom Shaft



NAMUR Mounting Pad



Top Detail



Bottom Mount

DIMENSIONS INCHES

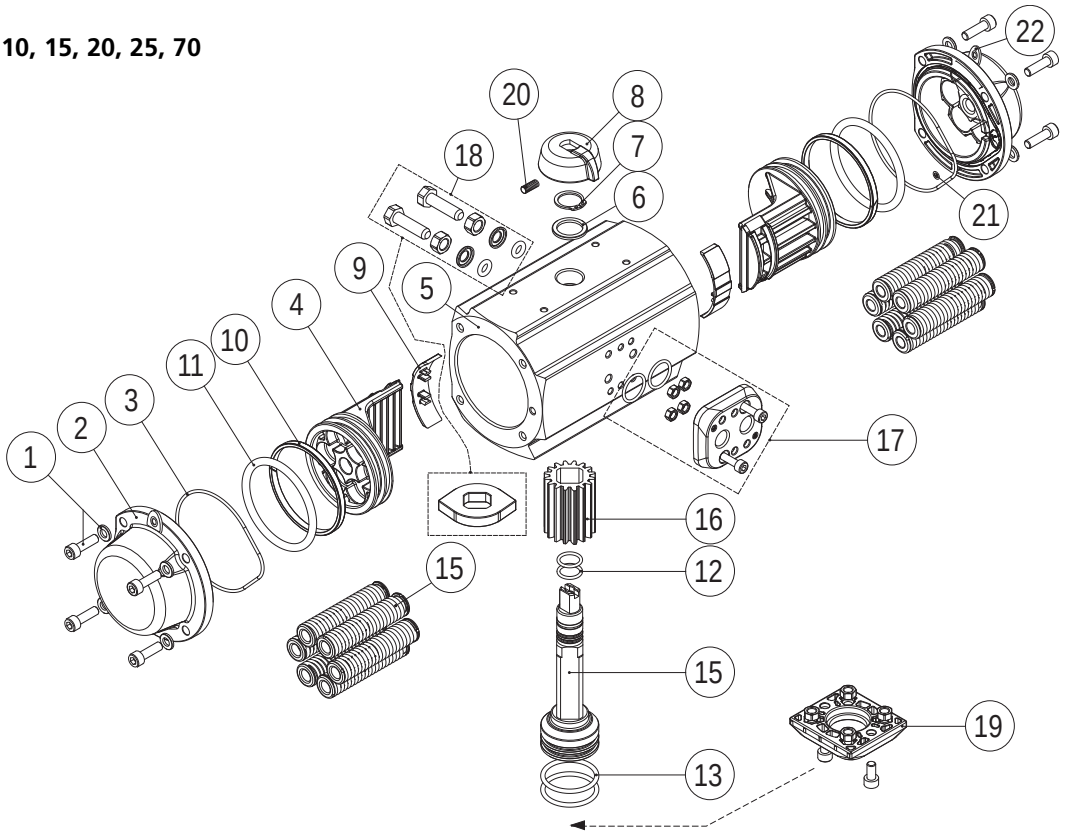
Size	Item No. DA	Item No. SR	A DA	A SR	Bottom Mount C Dia.	C Thread	C Depth	D Dia.	D Thread	D Depth	E	F	Bottom Shaft G	H	I
W	PADW	PASW	5.52	5.52	1.42 (F03)	M5	0.57	1.65 (F07)	M5	0.57	0.43	0.56	0.69	0.39	0.80
00	PAD00	PAS00	6.00	6.00	1.65 (F04)	M6	0.57	1.97 (F07)	M6	0.57	0.55	0.75	0.70	0.57	1.21
05	PAD05	PAS05	7.61	7.61	1.97 (F05)	M6	0.57	2.76 (F07)	M8	0.79	0.67	0.91	0.81	0.59	1.20
10	PAD10	PAS10	8.83	8.83	1.97 (F05)	M6	0.57	2.76 (F07)	M8	0.79	0.67	0.91	0.82	0.59	1.21
15	PAD15	PAS15	10.40	10.40	1.97 (F05)	M6	0.71	2.76 (F07)	M8	0.91	0.67	0.91	0.82	0.72	1.21
20	PAD20	PAS20	12.19	12.19	1.97 (F05)	M6	0.71	2.76 (F07)	M8	0.91	0.67	0.91	0.81	0.72	1.29
25	PAD25	PAS25	14.02	14.02	2.76 (F07)	M8	0.91	4.02 (F10)	M10	1.06	1.06	1.44	1.22	1.87	1.42
30	PADA30	PASR30	13.74	18.86	2.76 (F07)	M8	0.91	4.02 (F10)	M10	1.06	1.18	1.57	1.18	1.18	1.65
40	PADA40	PASR40	17.48	23.54	–	–	–	4.92 (F12)	M12	1.02	1.42	1.93	1.50	1.38	1.97
50	PADA50	PASR50	20.63	27.32	–	–	–	5.51 (F14)	M16	1.18	1.42	1.93	1.50	1.38	1.97
70	PAD70	PAS70	29.23	29.23	–	–	–	6.50 (F16)	M16	1.18	1.81	2.40	2.05	1.93	2.05

DIMENSIONS INCHES

Size	Item No. DA	Item No. SR	Top Shaft J	K	L	ØM	N	O	P	Q	R	S	T	U
W	PADW	PASW	0.31	0.32	0.79 (ISO-1)	0.35	3.00	1.90	1.46	3.52	3.15	1.18	–	–
00	PAD00	PAS00	0.39	0.49	1.18 (ISO-2)	0.54	3.31	2.06	1.70	4.38	3.15	1.18	–	–
05	PAD05	PAS05	0.39	0.49	1.18 (ISO-2)	0.54	4.00	2.43	1.94	5.05	3.15	1.18	–	–
10	PAD10	PAS10	0.39	0.49	1.18 (ISO-2)	0.54	4.08	2.47	2.06	2.21	3.15	1.18	–	–
15	PAD15	PAS15	0.39	0.49	1.18 (ISO-2)	0.54	4.70	2.78	2.35	5.82	3.15	1.18	–	–
20	PAD20	PAS20	0.63	0.49	1.18 (ISO-2)	0.86	5.02	2.96	2.51	6.15	3.15	1.18	–	–
25	PAD25	PAS25	0.63	0.49	1.18 (ISO-2)	0.86	6.04	3.51	3.04	7.26	3.15	1.18	–	–
30	PADA30	PASR30	0.63	0.43	1.18 (ISO-2)	0.86	6.97	3.70	3.78	8.31	3.15	1.18	3.78	1.61
40	PADA40	PASR40	1.26	0.79	1.97 (ISO-4)	1.65	8.90	4.72	4.57	10.71	5.12	1.18	4.65	1.61
50	PADA50	PASR50	1.26	0.79	1.97 (ISO-4)	1.65	10.14	5.31	5.24	12.32	5.12	1.18	4.65	1.61
70	PAD70	PAS70	1.42	0.31	1.97 (ISO-4)	1.71	15.85	8.50	7.52	16.85	5.12	1.18	–	–

PA Series Pneumatic Actuators

SIZES
W, 00, 05, 10, 15, 20, 25, 70



PARTS ▲ Recommended Spare Parts

No.	Part	Size	Pcs.	Materials
1▲	Allen Screw & Washer	W to 25	8	304 SS
		70	20	
2	Cap (DA&SR)	All	2	Aluminum Alloy coated with epoxy and Rilsan polyamide
3▲	Cap O-Ring	All	2	Nitrile
4	Piston	W	2	Polyarilamide
		00 to 25	2	Aluminum Alloy epoxy coated
		70	2	Aluminum Alloy
5	Cylinder	All	1	Aluminum Alloy coated with epoxy and Rilsan polyamide
6	Washer	All	1	Polyamide
7	Spring Clip	W	1	420 SS
		00 to 25	1	Steel coated with Nickel-PTFE
		70	1	Epoxy coated Steel
8	Position Indicator	W	1	Polyacetal
		00 to 25	1	Polyamide
		70	1	Polypropylene
9	Piston Guide	00 to 25	2	Polyacetal
		70	4	Nylon
10	Guide Ring	W	2	Polyacetal & Mb
		00 to 25	2	Polyacetal
		70	2	PTFE-Bronze
11▲	Piston O-Ring	W to 25	2	Nitrile
		70	4	

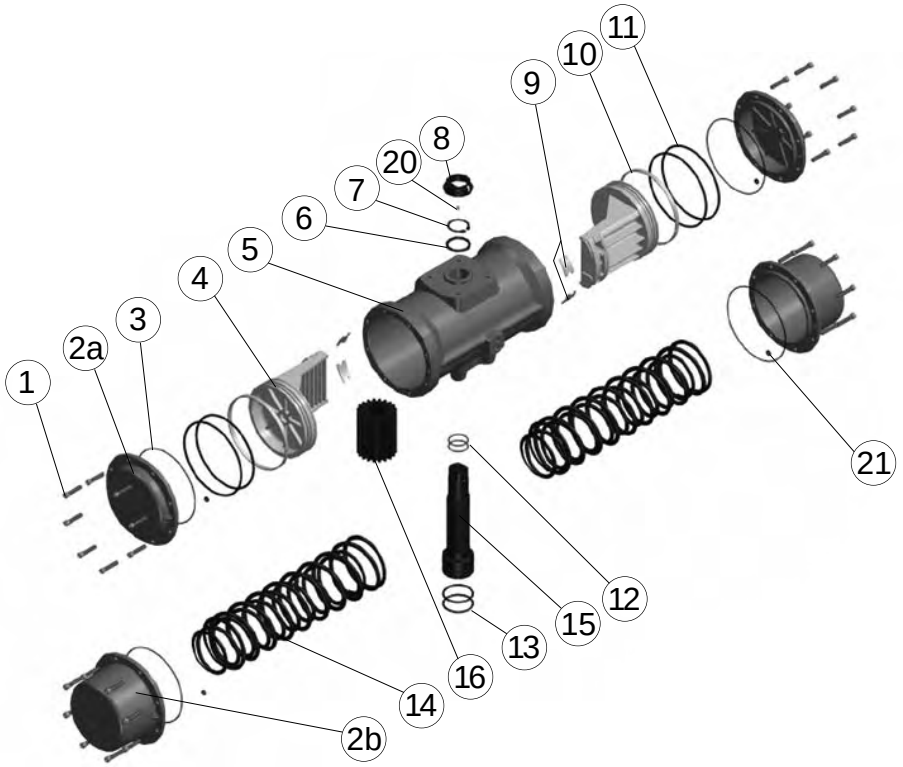
PARTS ▲ Recommended Spare Parts

No.	Part	Size	Pcs.	Materials
12▲	Upper Shaft O-Ring	All	2	Nitrile
13▲	Lower Shaft O-Ring	All	2	Nitrile
14	Spring Set	W to 25	1	DIN 17223-C passivated[1] Spring Steel and epoxy coated
		70	1	DIN 17223-C Spring Steel epoxy coated
15	Shaft	W	1	Polyamide with 303 SS insert and drive adapter
		00 to 70	1	Epoxy coated Steel
16	Gear	10 to 25, 70	1	Ball burnished Aluminum Alloy
17	Pneumatic Connection Plate Assembly	W to 25, 70	1	50% glass filled Polyamide base plate, 304 SS bolts & nuts, Nitrile O-rings
18	Travel Stop Assembly	00 to 70	1	304 SS nuts & bolts, 303 SS bushings, Nitrile O-rings
19	Base Plate Assembly	W to 00	1	50% glass filled Polyamide base plate, 304 SS nuts & bolts
20	Threaded Pin	70	1	304 SS
21	Port Seal O-Ring	70	2	Nitrile
22	Hoop	70	2	304 SS

[1] Trivalent Chromium Passivation.

PA Series Pneumatic Actuators

SIZES
30, 40, 50



PARTS ▲ Recommended Spare Parts

No.	Part	Size	Pcs.	Materials
1▲	Allen Screw	30	12	304 SS
		40 to 50	16	304 SS
2a	Double Acting Cap	30 to 50	2	Aluminum Alloy coated with Rilsan epoxy and polyamide
2b	Spring Return Cap	30 to 50	2	Aluminum Alloy coated with Rilsan epoxy and polyamide
3▲	Cap O-Ring	30 to 50	2	Nitrile
4	Piston	30 to 50	2	Aluminum Alloy
5	Cylinder	30 to 50	1	Aluminum Alloy coated with Rilsan epoxy and polyamide
6	Washer	30 to 50	1	Polyamide
7	Spring Clip	30	1	420 SS Nickel-PTFE coated
		40 to 50	1	Epoxy coated Steel
8	Position Indicator	30	1	Polyamide
		40 to 50	1	Polypropylene

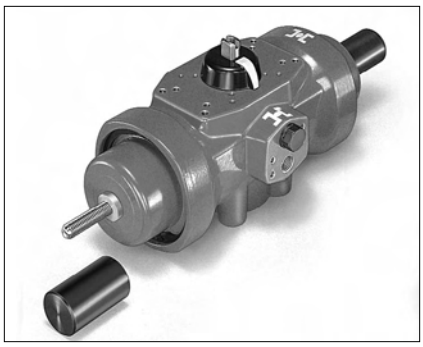
PARTS ▲ Recommended Spare Parts

No.	Part	Size	Pcs.	Materials
9	Piston Guide	30 to 40	4	PTFE-Bronze
		50	4	Polyamide
10	Guide Ring	30 to 50	2	PTFE-Bronze
11▲	Piston O-Ring	30 to 50	4	Nitrile
12▲	Upper Shaft O-Ring	30 to 50	2	Nitrile
13▲	Lower Shaft O-Ring	30 to 50	2	Nitrile
14	Spring Set	30 to 50	1	DIN 17223-C Spring Steel epoxy coated
15	Shaft	30 to 50	1	Epoxy coated Steel
16	Gear	30 to 50	1	Epoxy coated Aluminum Alloy
20	Threaded Pin	30 to 50	1	304 SS
21	Port Seal O-Ring	30 to 50	2	Nitrile

PA Series Options

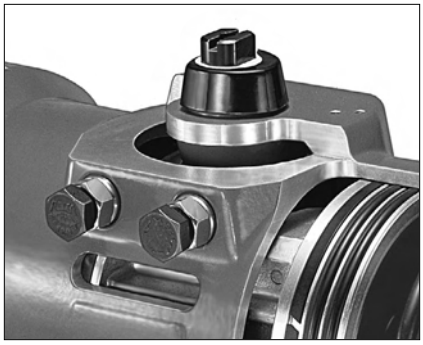
END CAP TRAVEL STOPS

End cap travel stops are available on PA Series actuators, sizes 00 to 70. Two bolts in the actuator end caps act as adjustable travel stops for **one** end of travel, either the open position of a normally closed valve, or closed position of a normally open valve. They must be adjusted equally to apply balanced stopping pressure on both pistons. The **full length of piston travel is adjustable**.



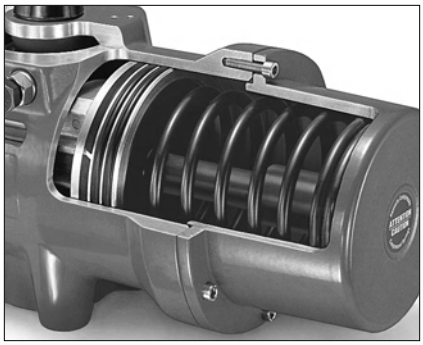
INTEGRAL TRAVEL STOPS

Integral travel stops are **standard on PA Series actuators, sizes 00 to 50 and 70. They are optional on sizes 30, 40 and 50**. Two bolts in the actuator body act as adjustable travel stops for **both** the open and closed valve end of travel. The bolt ends contact stops on the output shaft. They are **adjustable for the last 5 degrees of travel**.



RETAINED SPRING SET

Retained concentric spring packs prevent sudden release of spring tension during actuator end cap removal, preventing possible actuator damage or personal injury. They are available as an **option on sizes 30, 40 and 50**. **All other sizes (W to 25 and 70) have pre-loaded spring packs as standard.**



OPTION ITEM NUMBERS

Size	End Cap Travel Stops		Integral Travel Stops	Retained Spring Set
	Spring Return	Double Acting		
W	N/A	N/A	N/A	Standard
00	LP-00S	LP-00	Standard	Standard
05	LP-05S	LP-05	Standard	Standard
10	LP-10S	LP-10	Standard	Standard
15	LP-15S	LP-15	Standard	Standard
20	LP-20S	LP-20	Standard	Standard
25	LP-25S	LP-25	Standard	Standard
30	LP-30S	LP-30	TR30 (Optional)	SM30 (Optional)
40	LP-40S	LP-40	TR40 (Optional)	SM40 (Optional)
50	LP-50S	LP-50	TR50 (Optional)	SM50 (Optional)
70	LP-70S	LP-70	Standard	Standard

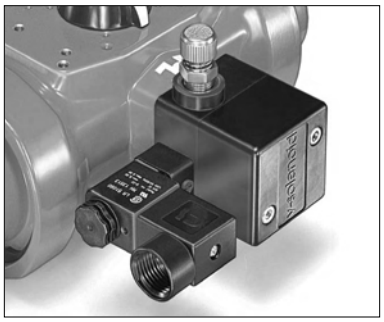
P Series Accessories

For PA and PP Series Actuators

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

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. V Series Solenoid Valves are CSA/UL approved and designed for multi-million cycle life. These mount flush to P Series or any other NAMUR compliant pneumatic actuator. They are robust, reliable and corrosion resistant, offering high air flows and fast response. The same valve functions as both 5/2 way (for double acting actuators) and 3/2 way (for spring return actuators). Simply flip over the base plate which changes porting configurations. A screw type manual override is standard. Construction is glass reinforced polyamide 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

LIMIT SWITCHES

Limit switches are for On and/or Off valve position feedback. YT Series Limit Switch Boxes are CSA/UL approved 2-position units which are easily mounted to P Series or any other NAMUR compliant rotary actuator. They are compact and robust, featuring quick-setting switch cams, high visibility position indicator beacon and a quick-access cover. Dual 1/2" NPT conduit entries and an 8-position terminal strip allow for wiring of a solenoid valve through the box. The standard model has an epoxy coated aluminum housing and single-pole double-throw switches rated for multi million cycles. An intrinsically safe version is available with inductive proximity switches. Also available are hazardous area enclosures. Another series is available with various BUS modules.

Limit Switches

DECLUTCHABLE GEAR OVERRIDE

The MO Series Manual Declutchable Gear Override allows manual valve/actuator operation of actuated valves in case supply pressure fails. The unit is mounted between the actuator and the valve mounting bracket. For normal powered operation the worm gear is disengaged by moving the lever bar upwards. Construction is epoxy coated cast iron housing with aluminum or welded steel hand wheel. These rugged units are suitable for indoor and outdoor use. The self-locking worm gear design offers safe and easy operation, positive manual positioning and long life.

Declutchable Gear Override

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 P Series actuators and other NAMUR compliant rotary 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
- **YT1300R 4–20 mA Electro-Pneumatic** – an electronic positioner designed for vibration resistance, better control and easy calibration
- **YT2300 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

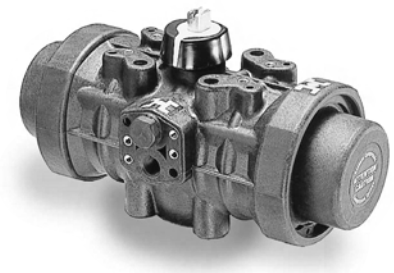
A filter/regulator is required to protect pneumatic equipment with small orifices from clogging due to debris and to protect from corrosion or fouling due to excess oil or condensed water in the air supply. Chemline **includes an air filter/regulator with all positioners** mounted to actuators. Chemline 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

Other P Series Actuators

PP Series Plastic

PP Series is made of glass-reinforced polyamide. It offers light weight and compliments Chemline valves in an "all-plastic" actuated valve package.



OUTPUT TORQUES IN.-LB. @ 80 PSI AIR

	Double Acting		Spring Return		
				Output Torque	
Size	Item No.	Output Torque	Item No.	Spring End	Air Start
W	PPDAW	137	PPSRW	58	79
00	PPDA00	201	PPSR00	100	101
10	PPDA10	571	PPSR10	286	286
20	PPDA20	1,334	PPSR20	569	766

PG Series 180° Rotation

PG Series are half turn actuators and are designed to operate all sizes of 3-way ball valves. Construction is the same as the PA Series epoxy and Rilsan coated aluminum for high corrosion resistance.

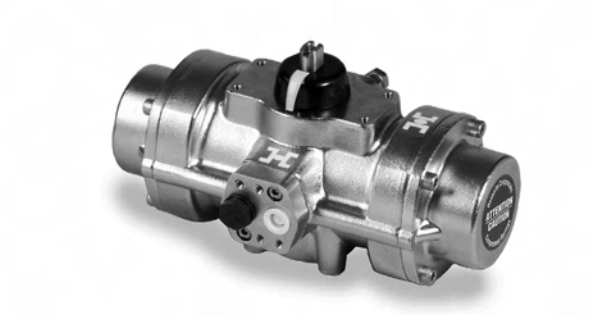
OUTPUT TORQUES IN.-LB. @ 80 PSI AIR

	Double Acting		Spring Return		
				Output Torque	
Size	Item No.	Output Torque	Item No.	Spring End	Air Start
10	PGDA10	321	PGSR10	160	161
20	PGDA20	711	PGSR20	303	408
30	PGDA30	1,866	PGSR30	784	1,081

P3 Series Stainless Steel

P3 Series are made of cast 316 stainless steel. They are designed to withstand highly corrosive environments, underwater and marine applications.

Normal working temperatures are –32°C to 90°C.



OUTPUT TORQUES IN.-LB. @ 80 PSI AIR

	Double Acting		Spring Return		
				Output Torque	
Size	Item No.	Output Torque	Item No.	Spring End	Air Start
00	P3D00	201	P3S00	100	101
10	P3D10	571	P3S10	286	286
20	P3D20	1,334	P3S20	569	766
30	P3D30	3,789	P3S20	1,592	2,199

PH Series High Temperature

PH Series actuators are designed to operate in ambient temperatures up to 265°C on kilns, boilers, furnaces, process vessels and heat exchangers. They have a special high temperature PTFE based coating for corrosion resistance.

OUTPUT TORQUES IN.-LB. @ 80 PSI AIR

	Double Acting				
				Output Torque	
Size	Item No.	Output Torque	Item No.	Spring End	Air Start
00	PHDA00	201	PHSR00	62	139
10	PHDA10	571	PHSR10	230	341
20	PHDA20	1,334	PHSR20	416	918
30	PHDA30	3,789	PHSR30	1,434	2,356
40	PHDA40	9,549	PHSR40	4,351	6,764
50	PHDA50	16,697	PHSR50	6,404	16,803

PP Series Pneumatic Actuators

CHEMLINE Plastics Limited

Your Pipeline To Quality

Polyamide[1]

SERIES: PPSR – Spring Return
PPDA – Double Acting

CONTROL PRESSURE: 40 to 120 psi

OUTPUT TORQUES (at 80 psi air)**:**
Up to 915 in.-lb. Spring Return[2]
and 1,335 in.-lb. Double Acting

Chemline PP Series is part of the P Series family of quarter-turn pneumatic rack and pinion actuators designed for long cycling life in demanding industrial applications.

PP Series actuators feature bodies and end caps of injection moulded poyamide, 50% glass filled. These light weight compact actuators offer good chemical resistance. Chemline valves with PP actuators make an "all-plastic" lighter package, attractive for plastic piping systems.

Output torques are up to 915 in.-lbs. spring return (SR) and 1,335 in.-lbs. double acting (DA) with 80 psi control air. They will power all Chemline ball valves and butterfly valves up to 6" DA and 4" SR.

Chemline offers actuated ball and butterfly valves, assembled and bench tested. A complete range of control accessories is available. Also offered is actuation service for all quarter-turn metal valves.

Light Weight

Long Cycling Life

PP Series on Type 21 True Union Ball Valve

Features

Quality Built for Long Cycling Life
- Rated for 1 million cycles
- Double O-ring shaft seals
- Massive teeth engagement between racks and pinion
- Balanced internal forces
- Minimal backlash and no play in parts

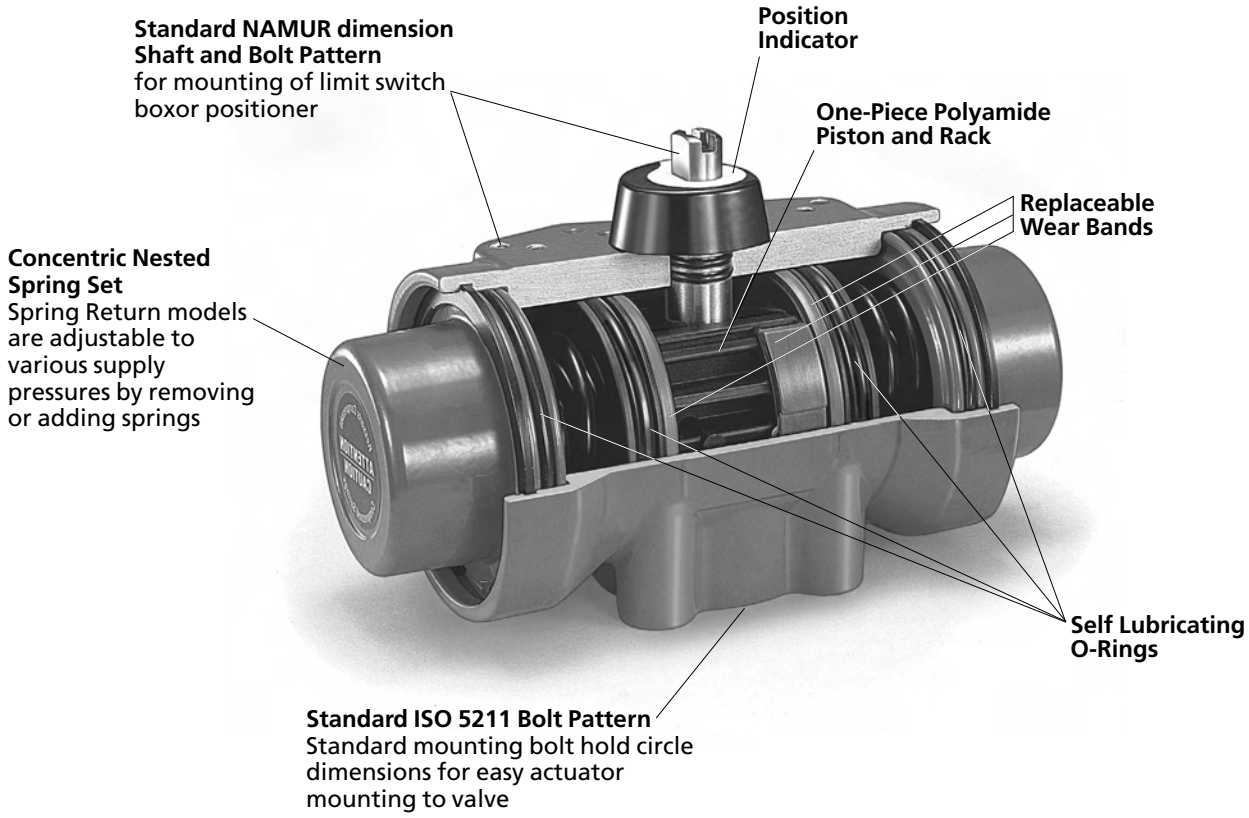
Light Weight
- High output torque to weight ratio

Compact, Simple Design
- Double piston, double rack and pinion design supplies constant torque output
- All porting is integral

Standard Mounting Dimensions
- ISO 5211 bolt circle allows direct mounting to most valves
- NAMUR top shaft and solenoid pad makes accessory mounting easy

[1]50% Glass Reinforced Polyamide, also know as "Nylon 66".
[2]Based on Spring End torque, used for sizing on normally closed butterfly valves.

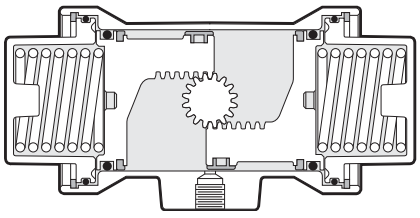
PP Series Pneumatic Actuators



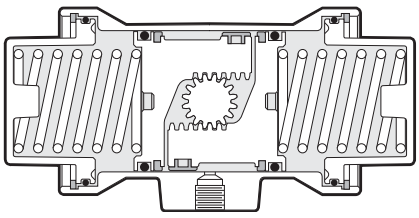
OPERATION–SPRING RETURN MODELS

Spring Cycle: Provided upper port (4) is exhausted, the springs move pistons inward, turning the shaft 90° clockwise, as viewed from top of actuator.

Air Cycle: Air pressure to lower port (2) moves pistons outward, compressing springs and turning the shaft 90° counter-clockwise, as viewed from top of actuator.

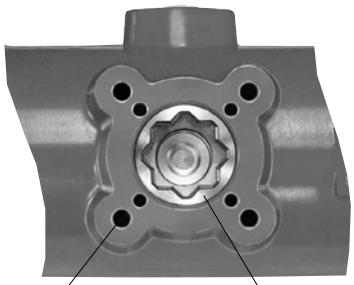


Spring Start or Air End Cycles



Spring End or Air Start Cycles

Standard ISO 5211 Bolt Pattern
for mounting to valve



Technical

WORKING TEMPERATURES: –32 to 90°C (–25 to 175°F)

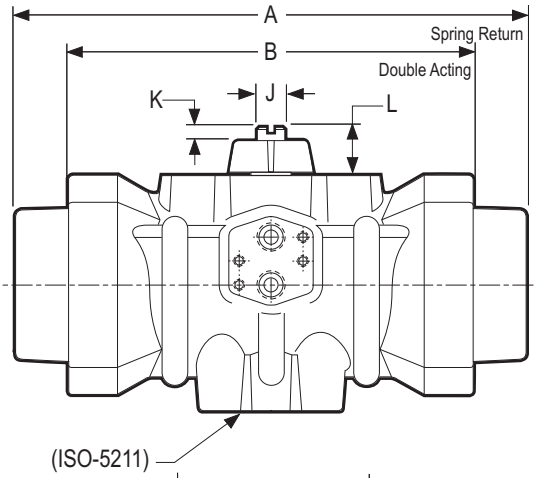
CONTROL PRESSURE: Control pressure range is minimum 40 to maxiumum 120 psi

CONTROL MEDIA: Compressed air only should be used

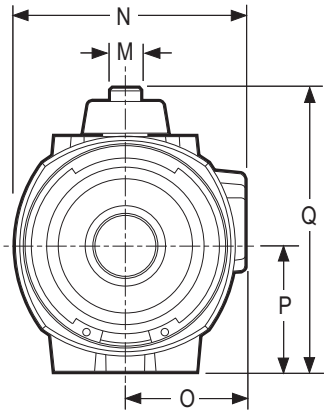
ENVIRONMENT: PP Series should ***not*** be submerged in water

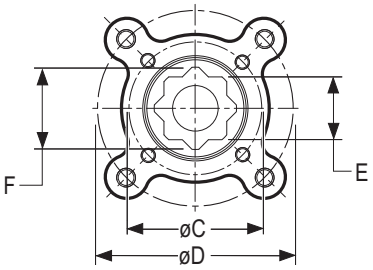
PP Series Pneumatic Actuators

Front View

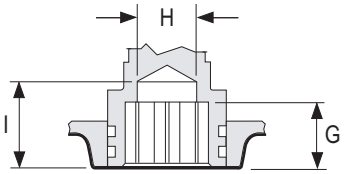


Side View

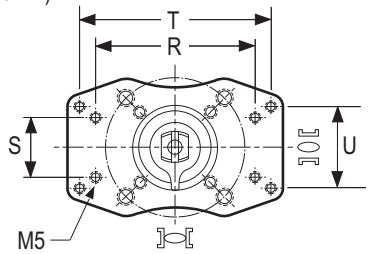




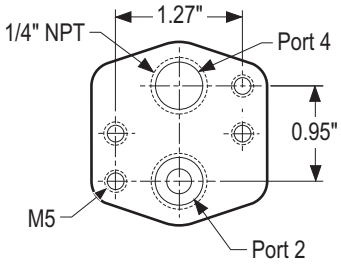
Bottom Mount



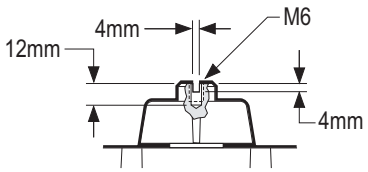
Bottom Shaft



Top Detail



NAMUR Mounting Pad



Top Shaft

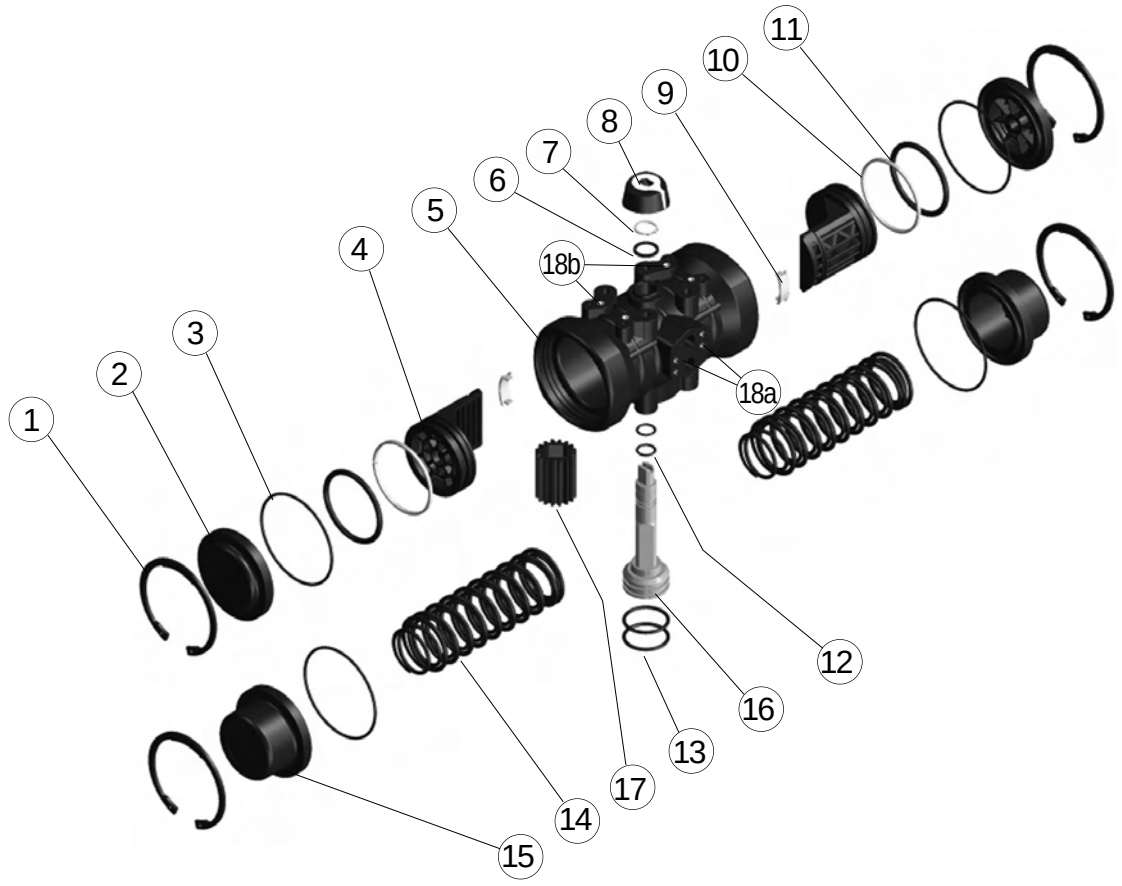
DIMENSIONS INCHES

Size	Item No. DA	Item No. SR	A SR	B DA	Bottom Mount C Dia.	C Thread	C Depth	D Dia.	D Thread	D Depth	D E	D F	Bottom Shaft G	Bottom Shaft H	Bottom Shaft I
W	PPDAW	PPSRW	5.59	4.21	1.65 (F04)	M5	0.47	–	–	–	0.43	0.56	0.53	0.39	0.70
00	PPDA00	PPSR00	6.10	4.92	1.97 (F05)	M6	0.71	–	–	–	0.79	1.03	0.59	0.57	1.18
10	PPDA10	PPSR10	9.06	7.17	1.97 (F05)	M6	0.67	2.76 (F07)	M8	0.79	0.94	1.27	0.59	0.59	1.18
20	PPDA20	PPSR20	11.97	9.17	1.97 (F05)	M6	0.71	2.76 (F07)	M8	0.91	0.94	1.27	0.75	0.87	1.26

DIMENSIONS INCHES

Size	Item No. DA	Item No. SR	Top Shaft J	Top Shaft K	Top Shaft L	Top Shaft ØM	N	O	P	Q	R	S	T	U
W	PPDAW	PPSRW	0.31	0.30	0.79 (ISO-1)	0.35	2.70	1.48	1.22	3.35	3.15	1.18	–	–
00	PPDA00	PPSR00	0.39	0.43	1.18 (ISO-2)	0.54	3.15	1.73	1.77	4.33	3.15	1.18	3.78	1.61
10	PPDA10	PPSR10	0.39	0.43	1.18 (ISO-2)	0.54	4.02	2.09	1.97	5.04	3.15	1.18	3.78	1.61
20	PPDA20	PPSR20	0.63	0.43	1.18 (ISO-2)	0.86	4.92	2.56	2.77	6.38	3.15	1.18	3.78	1.61

PP Series Pneumatic Actuators



PARTS ▲ Recommended Spare Parts

No.	Part	Size	Pcs.	Materials
1▲	Snap Ring	W to 20	2	Epoxy coated steel
2	Double Acting Cap	W to 20	2	50% glass filled Polyamide
3▲	Cap O-Ring	W to 20	2	Nitrile
4	Piston	W to 20	2	Polyarilamide
5	Cylinder	W to 20	1	50% glass filled Polyamide
6	Washer	W to 20	1	Polyamide
7	Spring Clip	W to 20	1	420 SS
8	Position Indicator	W	1	Polyacetal
		00 to 20	1	Polyamide
9	Piston Guide	W to 20	2	Polyacetal
10	Guide Ring	W	2	Polyacetal + Mb
		00 to 20	2	Polyacetal

PARTS ▲ Recommended Spare Parts

No.	Part	Size	Pcs.	Materials
11▲	Piston O-Ring	W to 20	2	Nitrile
12▲	Upper Shaft O-Ring	W to 20	2	Nitrile
13▲	Lower Shaft O-Ring	W to 20	2	Nitrile
14	Springs Set	W to 20	1	DIN 17223-C Spring Steel, epoxy coated
15	Spring Return Cap	W to 20	2	50% glass filled Polyamide
16	Shaft	W	1	Polyamide and 303 SS insert
		00 to 20	1	303 SS
17	Gear	10 to 20	1	Epoxy coated Aluminum Alloy
18a	Solenoid Threaded Inserts	W to 20	10	316 SS
18b	Mounting & Accessory Inserts	W to 20	10	303 SS

PP Series Pneumatic Actuators

OUTPUT TORQUES – DOUBLE ACTING INCH POUNDS

Item No.	Supply Pressure (psi)					Item No.	Supply Pressure (psi)				
	40	60	80	100	120		40	60	80	100	120
PPDAW	62	103	137	172	209	PPDA10	263	417	571	725	880
PPDA00	93	147	201	256	309	PPDA20	622	978	1,334	1,689	2,045

OUTPUT TORQUES – SPRING RETURN INCH POUNDS

Item No.	Number of Springs	Spring		Supply Pressure (psi)									
				40		60		80		100		120	
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
PPSRW	1	40	26	37	24	74	61	111	98	148	135	–	–
	2	58	38	–	–	62	43	99	80	136	117	173	153
	3	82	51	–	–	49	19	85	55	121	91	158	127
	4*	92	58	–	–	43	9	79	45	115	81	151	117
PPSR00	1	62	42	50	31	105	85	159	139	213	194	–	–
	2	93	66	–	–	81	54	136	108	190	163	244	217
	3	116	91	–	–	56	31	110	85	164	139	218	193
	4*	141	100	–	–	47	6	101	60	155	115	210	169
PPSR10	1	166	115	147	97	302	252	457	407	612	561	–	–
	2	248	175	–	–	241	169	396	323	550	477	704	632
	3	358	253		–	164	60	318	214	473	368	627	523
	4*	412	286	–	–	131	5	286	159	440	313	594	468
PPSR20	1	371	223	399	251	755	607	1,111	963	1,467	1,319	–	–
	2	593	346	–	–	632	384	987	740	1,342	1,095	1,698	1,451
	3	816	494	–	–	483	162	839	518	1,195	874	1,551	1,229
	4*	915	569	–	–	410	64	766	419	1,121	774	1,476	1,130

* Standard Spring set.

WEIGHTS, AIR CONSUMPTION, CYCLE TIMES

Size	Double Acting						Spring Return				
	Item No.	Weight lbs.	Air Consumption (li)[1]		Cycle Time (sec.)		Item No.	Weight lbs.	Air Consumption (Standard litres)[1]	Cycle Time (sec.)	
			Open Port A	Close Port B	Open Port A	Close Port B				Open Port A	Close Port B
W	PPDAW	0.73	4.58	3.05	0.10	0.10	PPSRW	1.03	4.58	0.15	0.15
00	PPDA00	1.66	9.15	6.10	0.15	0.15	PPSR00	2.27	9.15	0.20	0.20
10	PPDA10	3.11	21.36	19.53	0.25	0.25	PPSR10	4.73	21.36	0.30	0.30
20	PPDA20	6.47	48.82	42.72	0.40	0.40	PPSR20	10.90	48.82	0.50	0.50

[1]1 Liter = 61.02 cubic inches

ACCESSORIES

- Solenoid Valve
- Limit Switches
- Positioner
- Declutchable Gear Override
- Air Filter/Regulator

See page 20 for complete technical descriptions.

OPTION

Travel Stop Plate

- Mechanical travel stop (camstop) for PP Series actuators allow independent adjustment of both the opening stroke and closing stroke. It is mounted between the actuator and the mounting bracket, with the camstop acting as the actuator-to-valve coupling. Construction is all 304 stainless steel.

Type 730 Diaphragm Valves

CHEMLINE Plastics Limited

Your Pipeline To Quality

Pneumatically Actuated

BODIES: PVC, CPVC, PP or PVDF

SIZES: 1/2" – 4"

ENDS: True Union Socket, Threaded or ChemFlare™[1]
Spigot[2] Bodies with Plain, Socket, Threaded or Flanged ends

DIAPHRAGMS: EPDM, FPM (Viton®) or Teflon®

CONTROL FUNCTIONS:
Normally Closed, Normally Open, or Double Acting

The Chemline Type 730 Pneumatically Actuated Diaphragm Valve features a plastic diaphragm actuator, either normally closed, normally open or double acting. This valve offers long cycling life, high pressure resistance and a size range 1/2" to 4". Being a diaphragm valve, it is available for sanitary or slurry applications. With a Teflon® diaphragm, it has corrosion resistance superior to ball or butterfly valves. This becomes an economical control valve when a positioner is added.

The Type 730 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.

Long Cycling Life

High Pressure Resistance

Features

Pressure rated to 150 psi
- Highest pressure ratings of 700 Series diaphragm valves

Solid Plastic Body and Actuator
- Light weight
- Corrosion resistant inside and out

Excellent for Sanitary Applications
- Self draining
- PVDF and unpigmented PP bodies are FDA approved for food applications
- Sanitary clamp end connections are available

Excellent Flow Control
- With a positioner, this is an inexpensive control valve
- Diaphragm type actuator provides smooth, sensitive operation

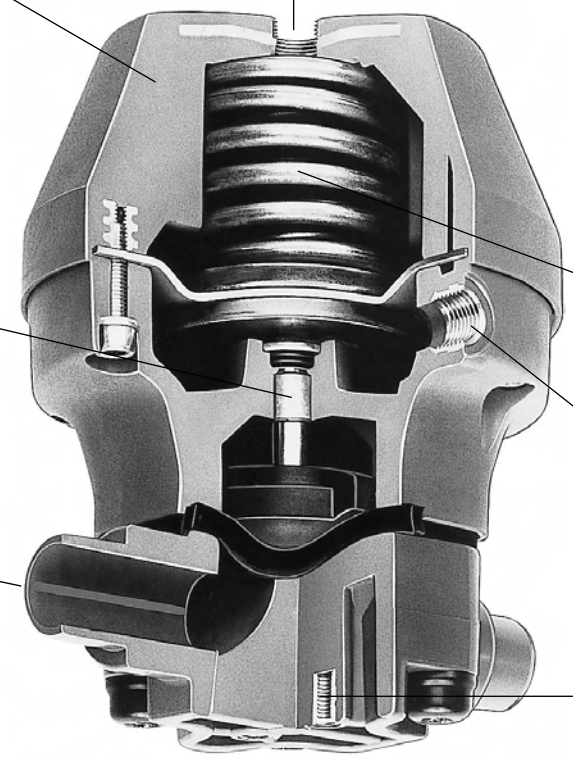
Modular Construction
- Only 5 actuator and diaphragm sizes for 9 valve sizes. Spare parts requirements are minimized.

Long Cycling Life
- Valve is designed for extremely long cycling life
- Actuator is essentially maintenance free

Normally closed version shown with True Union body and position indicator

[1] For ChemFlare™ end connectors, consult Chemline.
[2] PP and PVDF spigot ends have metric dimensions and will butt fuse directly to Chemline PP and PVDF piping systems.

Type 730 Diaphragm Valves



Actuator Housing of PPG (Glass reinforced PP) Virtually unbreakable, corrosion proof and lightweight

Polished **SS Spindle and Self-Lubricating Bearing** provide extremely long cycling life

Spigot Body
- For direct butt fusion to Chemline PP or PVDF metric pipe
- True Union or solid flanged bodies are also available

A Complete Range of Accessories are mounted using Threaded Insert:
- Position Indicator
- Travel Stop/Position Indicator
- Travel Stop/Position Indicator with manual override
- Positioners (pneumatic 3 to 15 psi or electro-pneumatic 4 to 20 mA)
- Limit Switches (mechanical or proximity)

Multi-coiled Nested Springs
- Allows for compact actuator
- Epoxy coated for corrosion resistance

Air Supply Ports
- Rp 1/4 threaded

Stainless Steel Threaded Inserts in valve base for fixing valve to support structures

Normally Closed Version

MINIMUM REQUIRED CONTROL PRESSURES PSI 100% △P

Line Pressure	Valve Size /Control Function									
	1/2" – 1"		1-1/4" & 1-1/2"		2"		2-1/2" & 3"		4"	
	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO
0	78	23	78	23	78	23	90	30	90	30
15	75	23	75	23	75	26	87	36	87	35
30	72	24	72	26	72	30	84	42	83	40
45	69	27	69	30	69	35	82	48	80	45
60	66	30	66	33	66	41	78	54	77	50
75	63	33	63	38	63	47	76	60	73	55
85	61	35	61	41	61	51	74	66	70	60
90	60	36	60	42	60	53	–	–	–	–
105	56	41	56	47	56	60	–	–	–	–
120	53	47	53	53	53	68	–	–	–	–
135	49	53	49	60	49	78	–	–	–	–
150	46	60	46	68	46	90	–	–	–	–

Minimum required control air pressures vary with line (pipe line) pressures. Above control pressures are for closure against 100% drop (ie. pressure on upstream side of closed valve only). Consult Chemline on applications requiring closure against downstream pressure.
Maximum recommended control pressure is 90 psi.
For **double acting** valves, subtract 15 psi from normally open control pressure values.

LINE PRESSURES VS. TEMPERATURE PSI

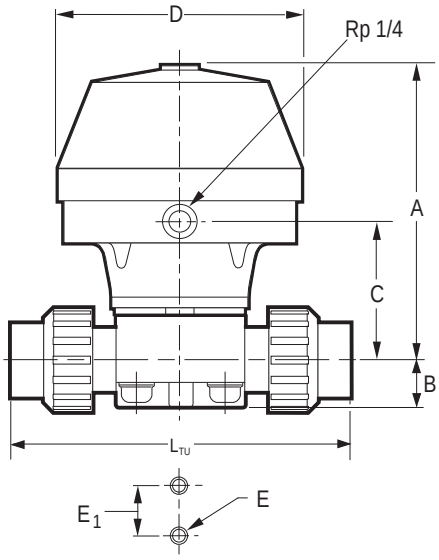
1/2" to 2" Sizes

Temperature °C	Temperature °F	PVC	PP	CPVC	PVDF
0–27	32–80	150	150	150	150
35	95	110	110	140	150
45	113	60	75	110	130
60	140	25	60	90	120
80	176	–	20	50	95
100	212	–	–	15	75

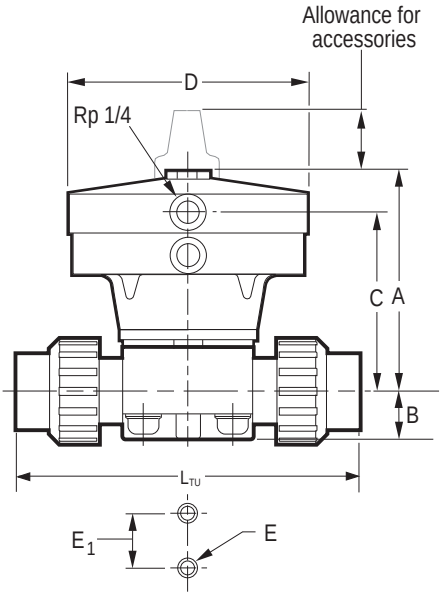
2-1/2" to 4" Sizes

Temperature °C	Temperature °F	PVC	PP	CPVC	PVDF
0–35	32–95	85	85	85	85
45	113	60	75	85	85
60	140	25	60	85	85
80	176	–	20	50	85
100	212	–	–	15	75

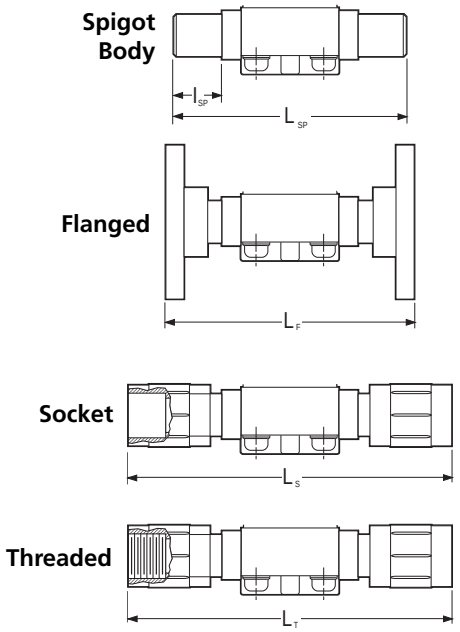
Type 730 Diaphragm Valves



Normally Closed (NC)



Normally Open (NO) and Double Acting (DA)



NON UNION ENDS

DIMENSIONS INCHES

AIR CONSUMPTION CUBIC INCHES

Size	A NC	A NO/DA	B	C NC	C NO/DA	D	E	E_1	l_{SP}	NC	NO	DA
1/2"	5.8	4.8	1.0	2.6	4.7	5.0	M6	1.0	0.9	9.8	7.9	15.8
3/4"	5.8	4.8	1.0	2.6	4.7	5.0	M6	1.0	1.1	9.8	7.9	15.8
1"	5.8	4.8	1.0	2.6	4.7	5.0	M6	1.0	1.2	9.8	7.9	15.8
1-1/4"	7.9	6.3	1.6	4.0	5.2	6.1	M8	1.8	1.3	22.0	17.1	34.2
1-1/2"	7.9	6.3	1.6	4.0	5.2	6.1	M8	1.8	1.4	22.0	17.1	34.2
2"	9.9	7.9	1.6	4.9	6.1	8.2	M8	1.8	1.5	70.1	30.5	61.0
2-1/2"	13.1	10.2	2.2	7.3	7.5	10.2	M12	3.9	1.7	128.1	134.3	268.6
3"	13.1	10.2	2.2	7.3	7.5	10.2	M12	3.9	2.0	128.1	134.3	268.6
4"	16.2	14.6	2.5	10.5	11.4	10.2	M22	4.7	2.3	128.1	134.3	268.6

"L" END DIMENSIONS INCHES

WEIGHTS LB.

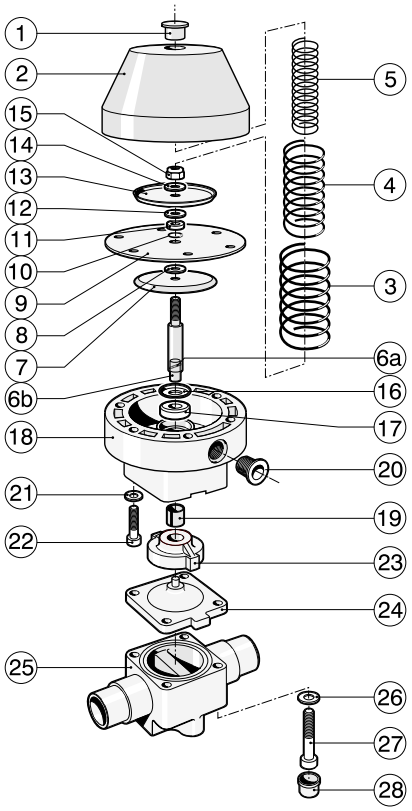
C_V VALUES

Size	Union Socket L_{TU}	Spigot L_{SP}	Socket† L_S	Threaded† L_T	Flanged† L_F	Flanged"S"‡ L_{FS}	Normally Closed	Normally Open & Double Acting	C_V
1/2"	6.4	5.5	7.5	7.3	5.8	–	4.1	2.9	6.5
3/4"	6.6	5.7	8.1	7.5	6.0	5.9	4.1	2.9	9.6
1"	7.1	6.1	8.6	8.3	6.3	5.9	4.1	2.9	12.
1-1/4"	8.1	6.9	9.5	9.1	7.2	6.4	8.8	6.2	21.
1-1/2"	9.2	7.6	10.8	10.8	7.9	6.9	8.8	6.2	29.
2"	10.8	8.9	12.2	11.2	9.4	7.9	15.3	10.1	54.
2-1/2"	–	11.2	15.1	14.7	11.8	–	35.2	22.0	91.
3"	17.6*	11.8	16.0	15.7	12.1	10.4	37.4	24.2	140.
4"	–	13.5	18.5	17.4	13.8	–	53.9	35.6	220.

† Fabricated Socket, Threaded and Flanged dimensions are for PVC and CPVC valves only. Consult Chemline for PP or PVDF fabricated spigot end dimensions.
‡ **Flanged "S" and L_{FS} =** ITT Saunders plastic lined valve length.
* 3" Union socket body is fabricated using a spigot body.

Weights are for PVC Spigot valves.

Type 730 Diaphragm Valves



PARTS ▲ Recommended Spare Parts

No.	Part	Pcs.	Materials
1a	Plug	1	PP
1b	O-Ring (NO & DA Only)	1	Nitrile
2	Upper Actuator Housing	1	PPG
3	Outer Spring*	1	Epoxy Coated Spring Steel
4	Middle Spring*	1	
5	Inner Spring*	1	
6	Spindle Assembly	1	Stainless Steel
7	Diaphragm Support Plate	1	Cad. Plated Steel
8	Washer	1	Nitrile
9▲	Control Diaphragm	1	Fabric Reinforced Neoprene
10	O-Ring††	1	Nitrile
11	Spacer Ring††	1	Cad. Plated Steel
12	Washer	1	Nitrile
13	Spring Support Plate	1	Cad. Plated Steel

*Springs 3 to 5 are for normally closed control function. Normally open actuator has a different single spring below diaphragm support plate.

PARTS ▲ Recommended Spare Parts

No.	Part	Pcs.	Materials
14	Washer	1	Cad. Plated Steel
15	Lock Nut	1	Cad. Plated Steel
16	Spring Washer	1	Mild Steel
17	Quad Ring	1	Nitrile
18	Lower Actuator Housing	1	PPG
19	Spindle Bearing	1	Teflon®/Aluminum
20	Plug	1	Polyethylene
21	Washer	6**	304 SS
22	Socket Head Bolt	6**	304 SS
23	Compressor	1	PBTP
24▲	Process Diaphragm	1	EPDM, FPM (Viton®), Teflon®
25	Valve Body	1	PVC, CPVC, PP, PVDF
26	Washer	4†	304 SS
27	Hex Bolt	4†	304 SS
28	Bolt Cap	4†	PE

†† Not supplied in 1/2" to 1" valves.
† Quantity 8 for 2-1/2" and 3", 12 for 4" valves.
** Quantity 12 for 2-1/2" to 4" valves.

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)†
Position Indicator	NC, NO, DA	700PI	1.6
Travel Stop/Position Indicator	NC, NO, DA	700TP*	2.5
Travel Stop/Position Indicator Allen Key Manual Override	NC	700M*	4.6
2 Mechanical Limit Switches in Waterproof Box	NC, NO, DA	700LSM*	4.2
2 Proximity Limit Switches in Waterproof Box	NC, NO, DA	700LSP*	4.2
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†	NC, NO	SOL7ASR*	0.5
4/2 Way Solenoid Nema 4†	DA	SOL7ADA*	2.1
Handwheel Override	NC, NO, DA	700HW*	7.7

†Height allowance varies with valve size. *Part number differs by valve type and size. See price list for details.

ORDERING EXAMPLE

Chemline Diaphragm Valves	730	NC	010	A	E	U
Control Function	**NC** – Normally Closed **NO** – Normally Open **DA** – Double Acting					
Size	**005** – 1/2" **007** – 3/4" **010** – 1" **012** – 1-1/4" **015** – 1-1/2" **020** – 2" **025** – 2-1/2" **030** – 3" **040** – 4"					
Body Material	**A** – PVC **B** – PP **C** – CPVC **K** – PVDF					
Diaphragm	**E** – EPDM **B** – Nitrile **V** – FPM (Viton®) **P** – Teflon® one-piece[1] **P2** – Teflon® two-piece					
Ends	**Blank** – Spigot **S** – Socket **T** – Threaded **F** – Flanged **FS** – Flanged to ITT Saunders end to end **U** – Union Socket **CF** – ChemFlare™					

Example: Chemline Type 730 Pneumatically Actuated Diaphragm Valve, normally closed, 1" PVC body, EPDM diaphragm, socket ends.
[1]Teflon® one-piece diaphragm is supplied standard.

Type 750 Diaphragm Valves

CHEMLINE Plastics Limited

Your Pipeline To Quality

Pneumatically Actuated

BODIES: PVC, CPVC, PP or PVDF

SIZES: 1/2" – 2"

ENDS: True Union Socket, Threaded or ChemFlare™[1]
Spigot[2] Bodies with Plain, Socket, Threaded or Flanged ends

DIAPHRAGMS: EPDM, FPM (Viton®) or Teflon®

CONTROL FUNCTIONS:
Normally Closed, Normally Open, or Double Acting

The Chemline 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 Teflon® diaphragm, it has corrosion resistance superior to ball or butterfly valves.

New Design Actuator

Low Cost

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 requirments 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

shown with True Union body and Position Indicator

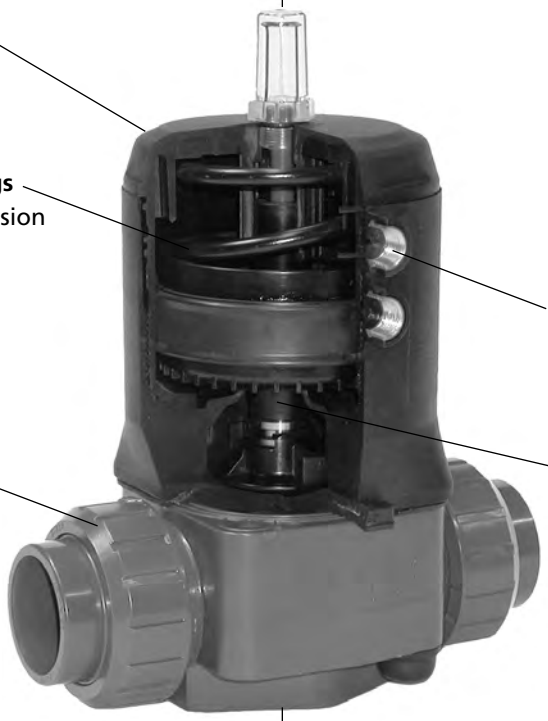
[1] For ChemFlare™ end connectors, consult Chemline.
[2] PP and PVDF spigot ends have metric dimensions and will butt fuse directly to Chemline PP and PVDF piping systems.

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
		Control Pressure PSI										
Normally Closed	1/2" to 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	1/2" to 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

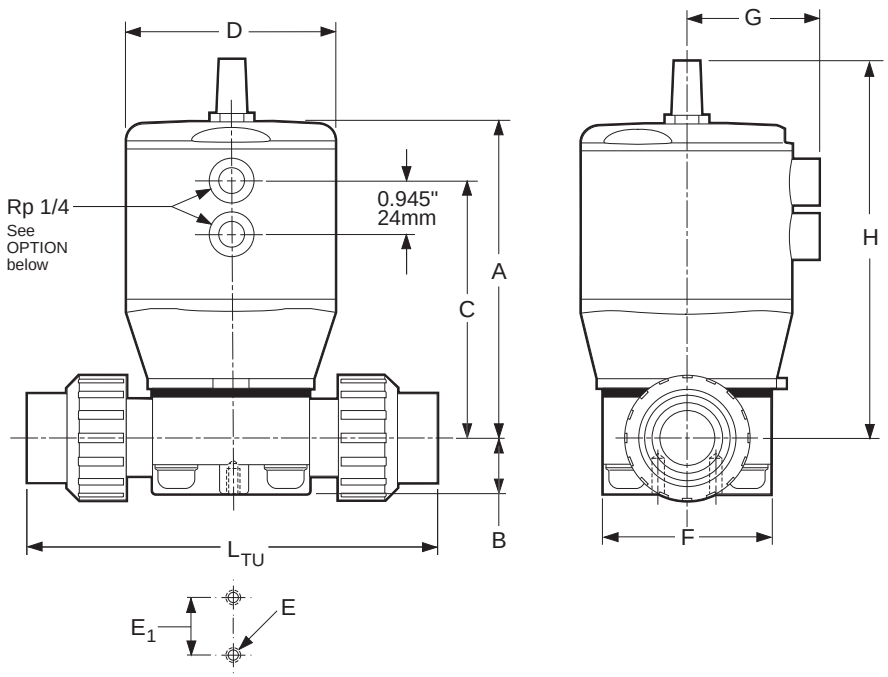
Minimum required control air pressures vary with line (fluid in the pipe) pressures.
Actuator closes against 100% drop (ie. pressure applied to inlet side of valve only) up to 150 psi, or up to 90 psi on both sides.
Maximum recommended control pressure is 90 psi for NC valves, 70 psi for NO/DA valves.
Maximum recommended control temperature is 40°C.
For **double acting** valves, use normally open control pressure values.

WORKING PRESSURES PSI

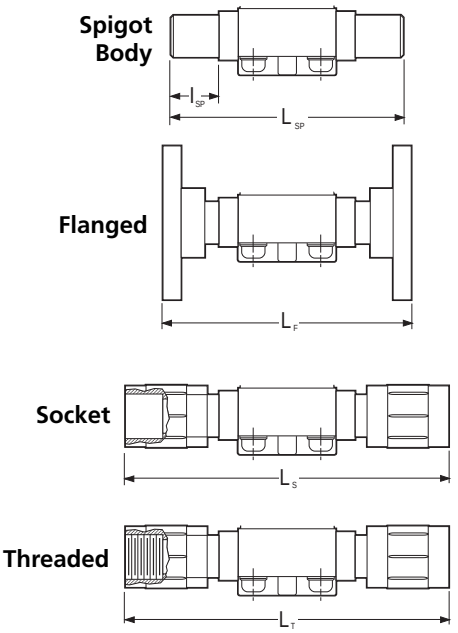
Size	PVC			CPVC				PP				PVDF			
	25°C 77°F	40°C 104°F	60°C 140°F	30°C 86°F	45°C 113°F	60°C 140°F	80°C 176°F	30°C 86°F	45°C 113°F	60°C 140°F	80°C 176°F	30°C 86°F	60°C 140°F	100°C 212°F	120°C 248°F
1/2" to 2"	150	90	26	150	103	70	40	150	90	58	22	150	98	48	36

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).

Type 750 Diaphragm Valves



True Union (Socket) Body Shown



NON UNION ENDS

DIMENSIONS INCHES

Size	A	B	C	D	E	E_1	F	G	l_{SP}
1/2"	5.70	1.00	4.40	3.74	M6	1.00	2.90	4.23	0.90
3/4"	5.70	1.00	4.40	3.74	M6	1.00	2.90	4.23	1.10
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

WEIGHTS

C_V VALUES

Size	Union Socket L_{TU}	Spigot L_{SP}	Socket† L_S	Threaded† L_T	Flanged† L_F	Pounds	C_V
1/2"	6.4	5.5	7.5	7.3	5.8	2.7	6.5
3/4"	6.6	5.7	8.1	7.5	6.0	2.7	9.6
1"	7.1	6.1	8.6	8.3	6.3	2.7	12.0
1-1/4"	8.1	6.9	9.5	9.1	7.2	5.5	21.0
1-1/2"	9.2	7.6	10.8	10.8	7.9	5.5	29.0
2"	10.8	8.9	12.2	11.2	9.4	9.3	54.0

†Fabricated Socket, Threaded and Flanged dimensions are for PVC and CPVC valves only. For PP and PVDF fabricated spigot end dimensions, consult Chemline.

Weights are for PVC Spigot valves.

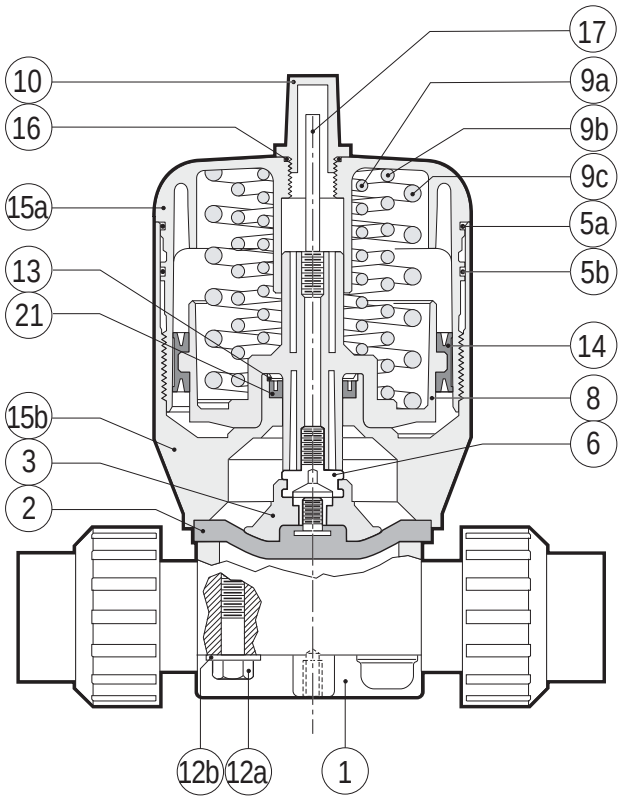
AIR CONSUMPTION CUBIC INCHES

Size	Normally Closed	Normally Open
1/2" to 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



Normally Closed (NC)

PARTS

▲ Recommended Spare Parts

No.	Part	Pcs.	Materials
1	Valve Body	1	PVC, CPVC, PP, PVDF
2▲	Process Diaphragm	1	EPDM, Viton®, Teflon®
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	Teflon®/Aluminum

[1] PBTB = Polybutylene Terephthalate
[2] Ixef = Polyarilamide; [3] 1/2" to 1" has 2 springs, 1-1/4" to 1-1/2" has 3 springs; 2" has 2 springs.
[4] Optional 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)†
Position Indicator	NC, NO, DA	700PI	1.6
Travel Stop/Position Indicator	NC, NO, DA	700TP*	2.5
Travel Stop/Position Indicator Allen Key Manual Override	NC	700M*	4.6
2 Mechanical Limit Switches in Waterproof Box	NC, NO, DA	700LSM*	4.2
2 Proximity Limit Switches in Waterproof Box	NC, NO, DA	700LSP*	4.2
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†	NC, NO	SOL7ASR*	0.5
4/2 Way Solenoid Nema 4†	DA	SOL7ADA*	2.1
Handwheel Override	NC, NO, DA	700HW*	7.7

†Height allowance varies with valve size. *Part number differs by valve type and size. See price list for details.

ORDERING EXAMPLE

Chemline Diaphragm Valves 750	**NC**	**010**	**A**	**E**	**U**
Control Function	**NC** – Normally Closed **NO** – Normally Open **DA** – Double Acting				
Size	**005** – 1/2" **007** – 3/4" **010** – 1" **012** – 1-1/4" **015** – 1-1/2" **020** – 2"				
Body Material	**A** – PVC **B** – PP **C** – CPVC **K** – PVDF				
Diaphragm	**E** – EPDM **B** – Nitrile **V** – FPM (Viton®) **P** – Teflon® one-piece[1] **P2** – Teflon® two-piece				
Ends	**Blank** – Spigot **S** – Socket **T** – Threaded **F** – Flanged **U** – True Union Socket **UT** – True Union Threaded **CF** – ChemFlare™				

Example: Chemline Type 750 Pneumatically Actuated Diaphragm Valve, Normally Closed, 1", PVC body, EPDM diaphragm, union socket ends.
[1]Teflon® one-piece diaphragm is supplied standard.

Type 760 Diaphragm Valves

CHEMLINE Plastics Limited

Your Pipeline To Quality

Manual Operation

BODIES: PVC, CPVC, PP or PVDF

SIZES: 1/2" – 4"

ENDS: True Union Socket, Threaded or ChemFlare™[1]
Spigot[2] Bodies with Plain, Socket, Threaded or Flanged ends

DIAPHRAGMS: EPDM, FPM (Viton®) or Teflon®

The Chemline Type 760 Manual Diaphragm Valve is part of the 700 Series of diaphragm valves. 700 Series valves have modular design and interchangeable bodies, diaphragms and actuators. The Type 760 features compact size and all plastic construction for corrosion resistance and light weight. Being a diaphragm valve it is suitable for sanitary or slurry applications. Because it is slow closing, water hammer problems are eliminated. This is also a good throttling valve. With a Teflon® diaphragm, it has corrosion resistance superior to ball or butterfly valves.

When a few manual valves are required on a system using the pneumatically actuated 700 Series, the Type 760 is a good choice because the bodies and diaphragms are the same.

Compact

All Plastic Construction

Features

Solid Plastic Body and Actuator
- Light weight
- Corrosion resistant inside and out

Excellent for Sanitary Applications
- Self draining
- PVDF and unpigmented PP bodies are approved for food applications
- Sanitary clamp end connections are available

Butt Fusion Ends available
- Spigot bodies are available 1/2" to 3" for direct butt fusion into Chemline PP and PVDF piping systems. All mechanical connections may be eliminated.

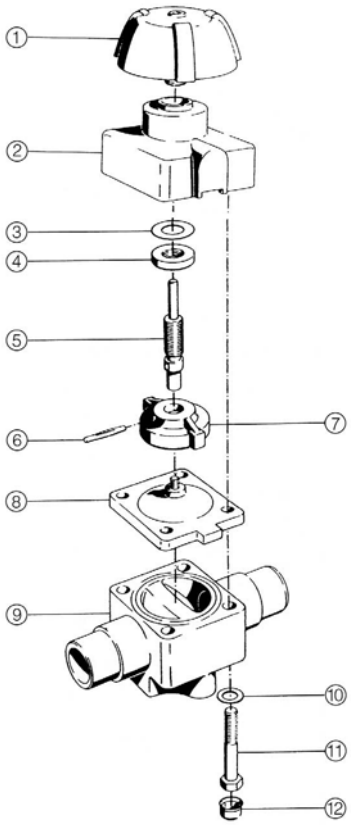
Modular Construction
- Only 5 actuator and diaphragm sizes for 9 valve sizes. Spare parts requirements are minimized.

No Maintenance
- Elastomer diaphragms have life well over one million cycles, but if necessary they are easy to replace

True Union Body

[1] For ChemFlare™ end connectors, consult Chemline.
[2] PP and PVDF spigot ends have metric dimensions and will butt fuse directly to Chemline PP and PVDF piping systems.

Type 760 Diaphragm Valves

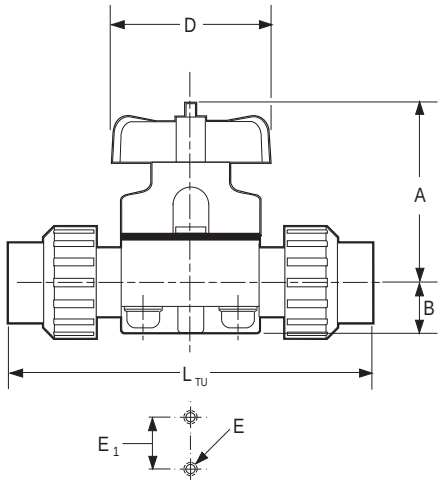


PARTS

▲ Recommended Spare Parts

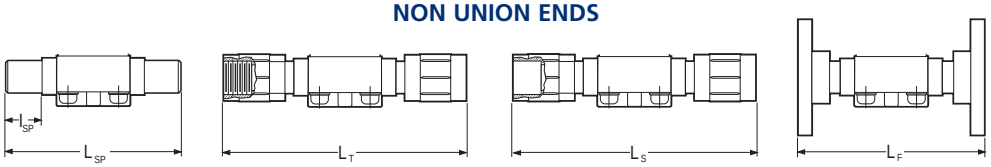
No.	Part	Pcs.	Materials
1	Handwheel with Sleeve	1	PPG/Brass
2	Bonnet	1	PPG
3	Compression Bearing	1	Delrin
4	Nut	1	Stainless Steel
5	Spindle	1	Stainless Steel
6	Spring Pin	1	Spring Steel
7	Compressor	1	PBTP
8▲	Process Diaphragm	1	EPDM, FPM(Viton®), Teflon®
9	Valve Body	1	PVC, PP, PVDF CPVC
10	Washer	4[1]	304 SS
11	Hex Bolt	4[1]	304 SS
12	Bolt Cap	4[1]	PE

[1]8 pieces for 2-1/2" and 3", 12 pieces for 4" valves.



True Union Body

NON UNION ENDS



Spigot Body | Threaded | Socket | Flanged

DIMENSIONS INCHES

WEIGHTS

C_V VALUES

Size	A	B	D	E	E_1	l_{SP}	Union Soc L_{TU}	Spig L_{SP}	Soc† L_S	Thd† L_T	Flg† L_F	Flg"S"‡ L_{FS}	Pounds	C_V
1/2"	3.5	1.0	5.0	M6	1.0	0.9	6.4	5.5	7.5	7.3	5.8	–	1.5	6.5
3/4"	3.5	1.0	5.0	M6	1.0	1.1	6.6	5.7	8.1	7.5	6.0	5.9	1.5	9.6
1"	3.5	1.0	5.0	M6	1.0	1.2	7.1	6.1	8.6	8.3	6.3	5.9	1.5	12.
1-1/4"	4.6	1.6	6.1	M8	1.8	1.3	8.1	6.9	9.5	9.1	7.2	6.4	3.3	21.
1-1/2"	4.6	1.6	6.1	M8	1.8	1.4	9.2	7.6	10.8	10.8	7.9	6.9	3.3	29.
2"	5.5	1.6	8.2	M8	1.8	1.5	10.8	8.9	12.2	11.2	9.4	7.9	5.3	54.
2-1/2"	8.8	2.2	10.2	M12	3.9	1.7	–	11.2	15.1	14.7	11.8	–	16.5	91.
3"	8.8	2.2	10.2	M12	3.9	2.0	17.6*	11.8	16.0	15.7	12.1	10.4	16.5	140.
4"	9.5	2.5	10.2	M22	4.7	2.3	–	13.5	18.5	17.4	13.8	–	33.0	220.

† Socket, Threaded and Flanged fabricated are for PVC and CPVC valves only. Consult Chemline for PP or PVDF fabricated spigot body dimensions.
‡ **Flanged "S"** = ITT Saunders plastic lined valve length.
* 3" Union socket body is fabricated using a spigot body.

Weights are for PVC Spigot valves.

ORDERING EXAMPLE

Chemline Diaphragm Valves	**760**	**010**	**A**	**E**	**U**
Size	**005** – 1/2" **007** – 3/4" **010** – 1" **012** – 1-1/4" **015** – 1-1/2" **020** – 2" **025** – 2-1/2" **030** – 3" **040** – 4"				
Body Material	**A** – PVC **B** – PP **C** – CPVC **K** – PVDF				
Diaphragm	**E** – EPDM **B** – Nitrile **V** – FPM (Viton®) **P** – Teflon® one-piece[1] **P2** – Teflon® two-piece				
Ends	**Blank** – Spigot (Butt) **S** – Socket **T** – Threaded **F** – Flanged **U** – Union Socket **CF** – ChemFlare™				

Example: Chemline Type 760 Diaphragm Valve, 1" PVC body, EPDM diaphragm, Socket Union ends.
[1]Teflon® one-piece diaphragm is supplied standard.

Type 710 Diaphragm Valves

The Chemline Type 710 Pneumatically Actuated Diaphragm Valve features a plastic piston actuator designed for long cycling life and corrosion resistance. Compared to a 1/2" pneumatically actuated ball valve it is a fraction of the size and cost.

Type 710 is part of the 700 Series of diaphragm valves featuring modular construction which minimizes spare parts requirements. Being a diaphragm valve, it is suitable for sanitary or slurry applications. With a Teflon® diaphragm, it has corrosion resistance superior to a ball valve.

Compact

Low Cost

Long Cycling Life

CHEMLINE Plastics Limited

Your Pipeline To Quality

Pneumatically Actuated

BODIES: PVC, CPVC, PP or PVDF

SIZES: 3/8" – 1/2"

ENDS: True Union Socket, Threaded or ChemFlare™[1]
Spigot[2] Bodies with Plain, Socket, Threaded or Flanged ends

DIAPHRAGMS: EPDM, FPM (Viton®) or Teflon®

CONTROL FUNCTIONS:
Normally Closed, Normally Open, or Double Acting

Features

Pressure rated to 90 psi
- 90 psi at 20°C for all materials

Long Cycling Life
- Valves normally operate well over one million cycles maintenance free.[3]

Solid Plastic Body & Actuator
- High strength "Ixef"[4] plastic actuator
- Lightweight
- Corrosion Resistant

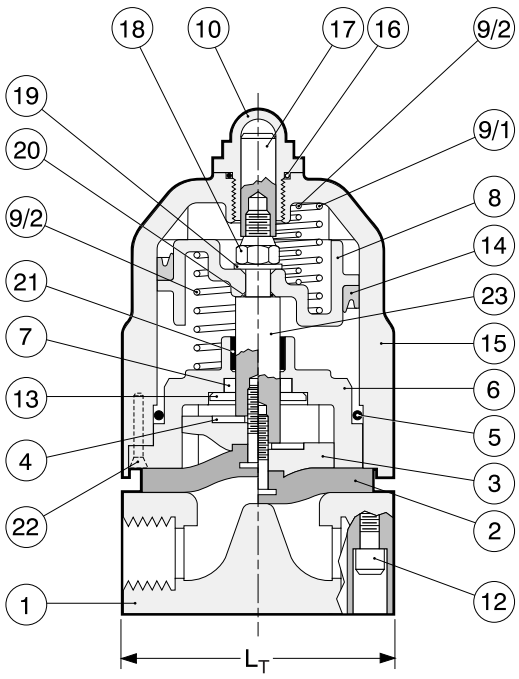
Epoxy Coated Spring Steel Springs
- Spring steel springs have longer life and are stronger than stainless steel springs. Epoxy coating resists corrosive environments.

Safety Spring Cartridge
- Contained spring set allows for safe removal of actuator.
- Spring cartridge may be easily reversed to change between Normally Closed and Normally Open functions.

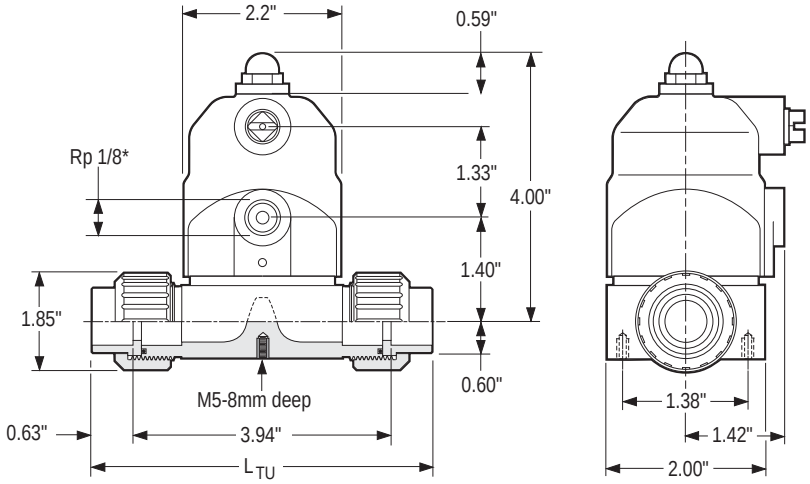
Direct Mount Accessories
- Accessories (travel stop, position indicator, manual override, limit switch box) thread into the top of the actuator and are easily installed in the field.

[1] For ChemFlare™ end connectors, consult Chemline.
[2] PP and PVDF spigot ends have metric dimensions and will butt fuse directly to Chemline PP and PVDF piping systems. PVC spigots are ANSI.
[3] With EPDM or FPM (Viton®) diaphragm.
[4] "Ixef" = Polyarilamide.

Type 710 Diaphragm Valves



Normally Open **Normally Closed**



True Union Body

*Air connections for all control functions are Rp 1/8 (BSP 1/8") as standard. Rp 1/4 is available as an option. **Air consumption** for all sizes is 1.65 cubic inches.

ORDERING EXAMPLE

Chemline Diaphragm Valves	**710**	**NC**	**005**	**A**	**E**	**U**
Control Function	**NC** – Normally Closed **NO** – Normally Open **DA** – Double Acting					
Size	**003** – 3/8" **005** – 1/2"					
Body Material	**A** – PVC **B** – PP **C** – CPVC **K** – PVDF					
Diaphragm	**E** – EPDM **B** – Nitrile **V** – FPM (Viton®) **P** – Teflon® PTFE					
Ends	**Blank** – Spigot (Butt) **T** – Threaded **U** – Union Socket **CFx** – ChemFlare™					

Example: Chemline Type 710 Pneumatically Actuated Diaphragm Valve. Normally Closed, 1/2" diameter, PVC body, EPDM diaphragm, socket union ends. **x = 4** for 1/4", **6** for 3/8", **8** for 1/2" ID tube connections.

PARTS

No.	Part	Pcs.	Materials
1	Body	1	PVC, CPVC, PP, PVDF
2	Diaphragm	1	EPDM, FPM (Viton®), Teflon®
3	Compressor	1	PBTP[1]
4	Thrust Ring	1	Cad. Plated Steel
5	O-Ring	1	Nitrile
6	Guide	1	Ixef[2]
7	Quad Ring	1	Nitrile
8	Piston	1	Ixef[2]
9x	Spring	1	Epoxy Coated Spring Steel
10	Indicator Cover	1	Polycarbonate
12	Socket Head Bolt	4	304 SS
13	Circle Clip	1	Brass
14	Lip Ring	1	Nitrile
15	Actuator Housing	1	Ixef[2]
16	O-Ring	1	Nitrile
17	Position Indicator	1	Polypropylene
18	Lock Nut	1	Cad. Plated Steel
19	Washer	1	Cad. Plated Steel
20	O-Ring	1	Nitrile
21	Shaft Bearing	1	Carbon/Teflon®[3]
22	Bolt Inserts	2	Steel
23	Stem	1	304 SS

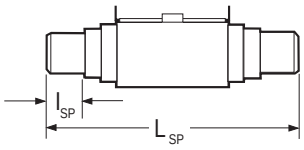
[1] PBTB = Polybutylene Terephthalate
[2] Ixef = Polyarilamide [3] 25% carbon filled PTFE

DIMENSIONS INCHES

C_V VALUES

Size	Union Soc L_{TU}	Spig L_{SP}	Thd L_T	USGPM at 1 psi △P
3/8"	5.12	4.88	2.91	3.3
1/2"	5.12	4.88	2.91	4.1

Spigot Body



MINIMUM CONTROL PRESSURES[4] PSI

Line Pressure	Min. Required Control Pressure	
	Normally Closed	Normally Open
0	62	32
15	60	35
30	57	38
45	56	41
60	53	44
75	51	47
90	48	50

[4] Air or clean water are acceptable control media.

ACCESSORIES

- Travel Stop
- Travel Stop/Position Indicator
- Travel Stop/Position Indicator/Manual Override
- Solenoid Valve
- Limit Switches

Type 720 Diaphragm Valves

CHEMLINE Plastics Limited

Your Pipeline To Quality

Manual Operation

BODIES: PVC, CPVC, PP or PVDF

SIZES: 3/8", 1/2"

ENDS: True Union Socket, Threaded ChemFlare™[1] or Spigot[2] Bodies

DIAPHRAGMS: EPDM, FPM (Viton®) or Teflon®

The Chemline Type 720 Manually Operated Diaphragm Valve features compact size a large variety of body materials and end connections. It is much smaller than other 1/2" diaphgram valves.

This is a good throttling valve and is suitable for sanitary or slurry applications. With a Teflon® diaphragm, it has corrosion resistance superior to a ball valve.

When a few manual valves are required on a system using the pneumatically actuated Type 710, the Type 720 is a good choice because the bodies and diaphragms are interchangeable.

Compact

All Plastic Construction

Features

Pressure rated to 90 psi
- 90 psi at 20°C for all materials

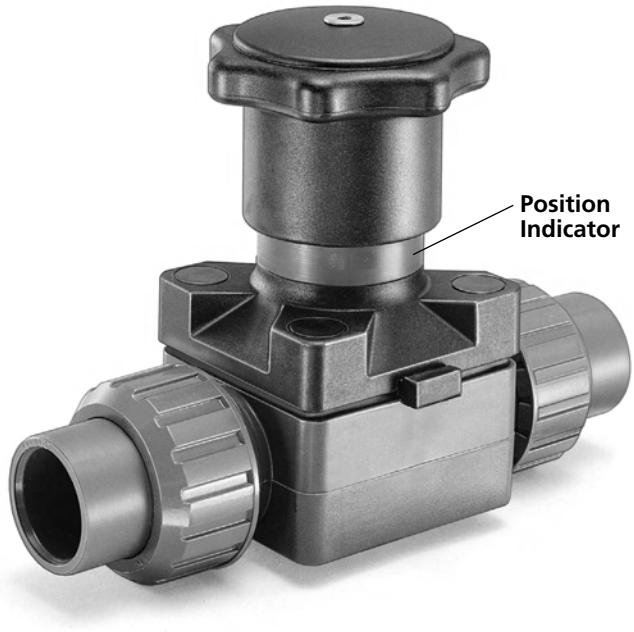
Solid Plastic Body and Actuator
- Light weight
- Corrosion resistant inside and out

Excellent for Sanitary Applications
- Self draining
- PVDF and unpigmented PP bodies are approved for food applications
- Sanitary Tri-clamp end connections are available

Butt Fusion Ends available
- Spigot bodies are available in 1/2" for direct butt fusion into Chemline PP and PVDF piping systems. All mechanical connections may be eliminated.

Adjustable Travel Stop
- Prevents excessive pressure on diaphragm, extending life

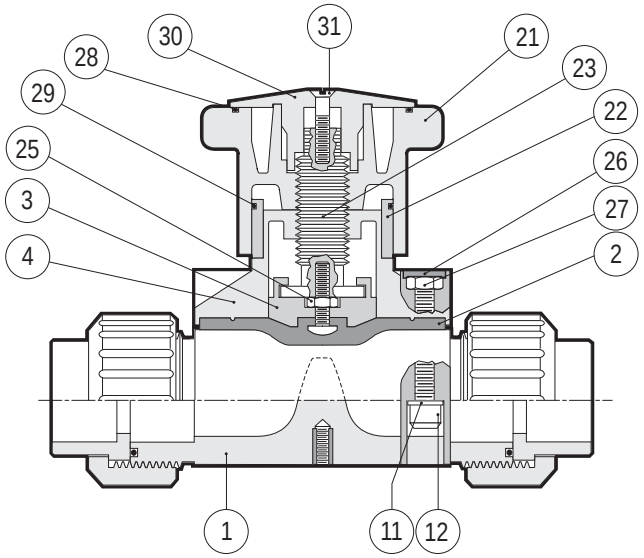
Sealed Handwheel
- Protects the stem from corrosive atmosphere

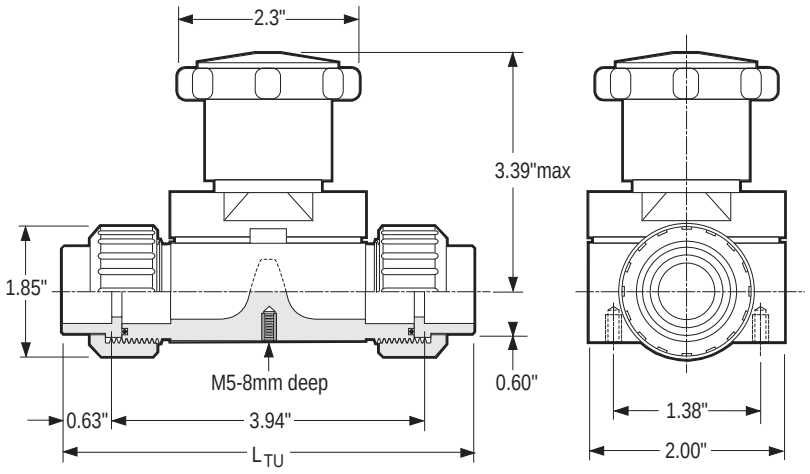


True Union Body

[1] For ChemFlare™ end connectors, consult Chemline.
[2] PP and PVDF spigot ends have metric dimensions and will butt fuse directly to Chemline PP and PVDF piping systems. PVC spigots are ANSI.

Type 720 Diaphragm Valves





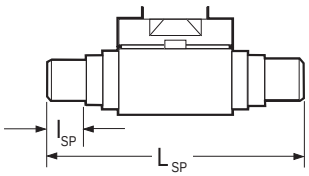
True Union Body

PARTS

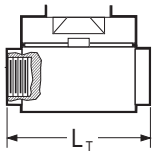
▲ Recommended Spare Parts

No.	Part	Pcs.	Materials
1	Body	1	PVC, PP, PVDF CPVC
2▲	Diaphragm	1	EPDM,FPM(Viton®), Teflon®
3	Compressor	1	PPS[1]
4	Bonnet	1	PPS[1]
11	Washer	4	304 SS
12	Socket Head Bolt	4	304 SS
21	Handwheel	1	PPS[1]
22	Position Indicator Collar	1	PVDF
23	Stem	1	304 SS
25	Hex Nut	1	304 SS
26	Bolt Cap	4	POM
27	Hex Nut	4	304 SS
28	Handwheel O-Ring (upper)	1	FPM (Viton®)
29	Handwheel O-Ring (lower)	1	FPM (Viton®)
30	Handwheel Cap	1	PPS[1]
31	Handwheel Screw	1	304 SS

[1] PPS = Polyphenylene sulfide



Spigot Body



Female Threaded Body

DIMENSIONS INCHES

Cv VALUES

Size	Union Soc L_{TU}	Spig L_{SP}	Thd L_T	USGPM at 1 psi △P
3/8"	5.12	4.88	2.91	3.3
1/2"	5.12	4.88	2.91	4.1

ORDERING EXAMPLE

Chemline Diaphragm Valves	720	005	A	E	U
Size	**003** – 3/8"	**005** – 1/2"			
Body Material	**A** – PVC	**B** – PP	**C** – CPVC	**K** – PVDF	
Diaphragm	**E** – EPDM	**B** – Nitrile	**V** – FPM (Viton®)	**P** – Teflon® PTFE	
Ends	**Blank** – Spigot (Butt)	**T** – Threaded	**U** – Union Socket	**CFx** – ChemFlare™	

Example: Chemline Type 720 Diaphragm Valve, 1/2" PVC body, EPDM diaphragm, Socket Union ends.
x = 4 for 1/4", **6** for 3/8", **8** for 1/2" ID tube connections.

CHEMLINE Plastics Limited
Your Pipeline To Quality

Other Chemline Product Lines

Manual Thermoplastic Valves

- Ball Valves
- Butterfly Valves
- Diaphragm Valves
- Check Valves
- Ball Float Valves
- Gate Valves
- Globe Valves
- Lab Cocks
- Needle Valves
- Strainers
- Flange Gaskets

Size Range

Chemline valves are available in a large size range: 1/4" to 96"

Materials

PVC valves are least expensive. Other materials offer higher pressure/temperature ratings, chemical and abrasion resistance. For high purity liquids, PP is preferred over PVC. PVDF is used on the highest purity applications.

- PVC: 0 - 60°C (30 -140°F)
- PP: –20 - 90°C (–5 - 195°F)
- CPVC: 0 - 95°C (–30 - 203°F)
- PVDF: –40 -120°C (–40 - 250°F)
- PDCPD: –20 - 90°C (–5 - 195°F)
- FRP: –40 - 120°C (–40 - 250°F)

Ends

- True Union valves are available with Socket, Threaded, Butt (PP & PVDF only), ChemFlare™ (for flared Teflon® tubing) or Flanged connections
- Flanged or wafer body valves fit between flanges, require bolts and usually flange gaskets

Seals

- EPDM is the standard seal material
- FPM/FKM (Viton®) is selected when better chemical resistance is required
- Other elastomers are available depending on application
- Diaphragm valves are available with Teflon® diaphragms offering the highest chemical resistance

Type 21 True Union Ball Valves
3/8" – 4"

ChemFlare™ Connections for True Union Valves
3/8" – 1"

Type 26 True Union Ball Valves
1/2" – 2"

Compact Ball Valves
1/2" – 3"

Type 23 Multi Port Ball Valves
1/2" – 4"

High Capacity Ball Valves
4" & 6"

Large Size Compact Ball Valves
4" & 6"

Metering Ball Valves
1/2" – 2"

Type 57/56/TB Elastomer Seated Butterfly Valves
1-1/2" – 24"

PVDF Damper Butterfly Valves
1-1/2" – 24"

Giant Butterfly Valves
28" – 48"

FRP Damper Butterfly Valves
12" – 96"

Type 14/15 Diaphragm Valves
1/2" – 6"

Type 72 Diaphragm Valves
8" – 10"

Ball Float Valves
1/2" – 1-1/2"

Ball Check & Foot Valves
1/2" – 4"

Swing Check Valves
3/4" – 8"

PW Series Wafer Check Valves
3" – 12"

WP Series Wafer Check Valves
2" – 40"

Gate Valves
1-1/2" – 14"

Globe Valves
1/2" – 4"

Lab Cocks
1/4"

Needle Valves
1/4" – 1/2"

Y-Sediment Strainers
1/2" – 4"

Low Torque Flange Gaskets
1/2" – 12"

CHEMLINE Plastics Limited
Your Pipeline To Quality

Other Chemline Product Lines

Controls & Flow Meters

Gauge Isolators
- For any pressure instrument

Air Release Valves
- Both economical and performance models

Back Pressure/Relief Valves
- Proven superior performance on chemical dosing panels

Pressure Regulating/ Reducing Valves
- Provide high flows and precise regulation of aggressive chemicals

Characterized Control Valves
- Single seat globe type with a PTFE bellow stem seal, available with a selection of C_V's characterized either linear or equal percentage
- Pneumatically or electrically actuated

Variable Area Flow Meters
- For water, chemicals or air, maximum 220 USGPM (water)

SG Series Gauge Isolators
1/4" & 1/2"

AR Series Air Release Valves
1/2" – 3"

AA Series Air & Vacuum Release Valves
1-1/4" & 3"

SB17 Mini Back Pressure/Relief Valves
1/4" – 3/8"

SB10/11 & 12 Back Pressure/ Relief Valves
3/8" – 4"

SR50 Pressure Regulating/ Reducing Valves
3/8" – 3"

SB/SR Series Valves
2-1/2" – 4"

ChemFlare™ Connections for True Union Valves
3/8" – 1"

EK Series Pneumatic Characterized Control Valves
1/2" – 4"

EHK Series Pneumatic High Pressure Characterized Control Valves
1/2" – 4"

EE Series Electric Characterized Control Valves
1/2" – 4"

Variable Area Flow Meters
3/8" – 2-1/2"

Digiflow FLOW X3

Paddle Wheel Flow Meters & Instrumentation

Flow Sensors

- Available in CPVC, PVDF, 316L Stainless Steel or Brass
- NEMA 6,6P (IP68) sensors are available for outdoor/ submersible applications
- High Accuracy: ± 0.75% of full scale with standard K factor
- Excellent low flow measurement. Accurately measures flow velocities down to 0.15 m/s (0.5 to 25 ft./sec.)
- ECTFE (Halar®) rotor, ceramic shaft and bearings: Offers long service life on corrosive industrial services

Direct Mount Flow Sensors

Remote Flow Sensors

Mini Flow Sensors

Ultra Low Flow Sensors

Oval Gear Flow Sensors

No-Flow Switches

Adjustable Flow Switches

Adjustable Ultra Low Flow Switches

Blind Transmitters

Ultra Low Flow Blind Transmitters

Hot-Tap Flow Sensors

Electromagnetic Flow Transmitters

Hot-Tap Electromagnetic Flow Transmitters

Instruments

- Modular Design: 1/4" DIN size instruments can be mounted 3 ways: directly to sensor, remotely to panel or wall mounted

Flow Monitor/ Transmitters

Battery Powered Flow Monitor

Batch Controllers

Direct Mount **Panel Mount** **Wall Mount**

Installation Fittings

- Sensor installation fittings are available for all sizes and types of pipes

Tees:
1/2" to 1-1/2"

Bolt-On Saddles:
2" to 12"

Metal Strap-On Saddles:
3" to 18"

Wafer Fittings:
10" and 12"

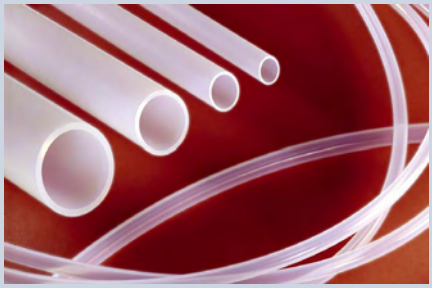
Weld-On Adaptors:
1-1/2" to 24"

CHEMLINE Plastics Limited
Your Pipeline To Quality

Other Chemline Product Lines

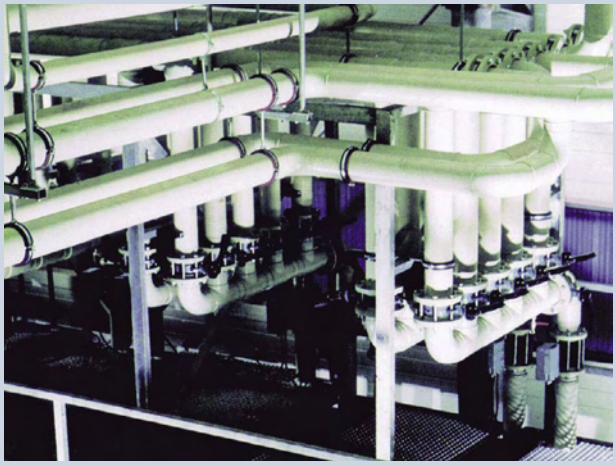
Teflon® Tube, Fittings, Valves & Piping

- PFA Tube, ChemFlare™ Fittings, Valves & Tools 1/8" to 1"
- ChemBond™ PFA Butt Weld Pipe & Fittings 1/2" to 2" and Butt Weld Tube Fittings 1/4" to 1"



Piping Systems

- Polypropylene (PP) Pipe & Fittings 1/2" to 56"
- PolyPure® Unpigmented PP Piping System 1/2" to 4"
- PVDF Pipe & Fittings to 12"
- ECTFE (Halar®) Pipe & Fittings 1" to 4"
- AirPro® Polyethylene Piping System 1/2" to 4"
- Sani-Tech® PP & PVDF Piping Systems 1/2" to 4"
- Dual Containment Pipe & Fittings
- Custom Fabrication
- Manifold Fabrication



Polypropylene butt welded piping installation

PE manifold produced on Chemline's CNC saddle welding machine

Pipe Welding Machines

- For PP, PE, PVDF, PFA or ECTFE pipe, fittings and valve ends
- Butt or socket fusion models available for rent or purchase
- Butt welding machines types are heating element or non-contact infra red (IR)
- Field or shop fabrication machines available for all pipe size ranges

Maxiplast Heating Element Butt Welder for Field or Shop

4001 Heating Element Butt Welding Shop Machine

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