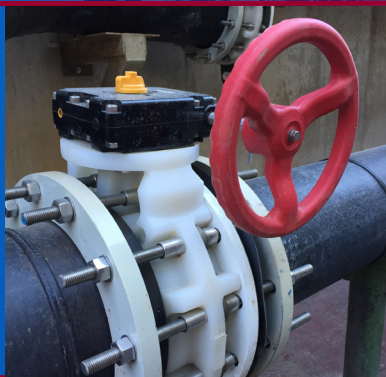




Thermoplastic Valves, Actuation & Controls



Ball Valves ■ Butterfly Valves ■ Diaphragm Valves
Globe Valves ■ Gate Valves ■ Constant Flow Valves
Pneumatic Actuators ■ Electric Actuators

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Corrosion
Problem
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The Advantages of Thermoplastics

Thermoplastics vs. Metal

Understanding the benefits and limitations of both advanced thermoplastics and metals is essential to making an informed choice in valve materials.

For services up to 250° F and pressures up to 230psi, thermoplastic valves outperform metal with respect to corrosion, abrasion and freeze resistance, and lower installed cost. Over 70 percent of all industrial valve applications fall within these ranges. In high pressure, high temperature applications, metals are your only choice. For all other process lines, from wet chlorine, plating solutions, and acid wastes to demineralized water, thermoplastic valve and piping materials are your best solution.

Knowing the compatibility of the process material with the valve materials of construction, which include body, seat, seals, gaskets, diaphragms, discs, plugs, balls, packings and trims – non-wetted as well as wetted parts – impacts the valve's life and performance and contributes to its overall cost. In this catalog, we have made every attempt to provide you with information that will allow you to make the right selection.



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Thermoplastic Materials

The Benefits of Thermoplastics

The advantages of using thermoplastics are constantly being discovered. Over the past few years, there has been a dramatic increase in the application of thermoplastic valves and piping systems in areas where metal valves were thought to be the only solution. Even the most corrosion resistant metals are still susceptible to galvanic and electrolytic corrosion, resulting in scale build-up, which reduces flow rates and increases pressure drop.

Asahi/America is actively trying to educate end users to upgrade to thermoplastic systems.

Thermoplastics are the following:

- Dielectric
- Low thermal conductivity
- Smoother than metal for better flow rates and less energy required to move fluids
- Made to last longer than metal, even when in contact with corrosive liquids
- Pure, so they do not contaminate the fluids they transport
- Chemically resistant
- Corrosion resistant, much more so than metals, which is why thermoplastics are favored by the EPA
- Lightweight, averaging a weight of 1/16th of comparable metal materials
- Used in many industries including semiconductor, mining, pulp and paper, electroplating, printing, landfills, aquaculture, waste water treatment, aquariums, theme parks and cruise ships
- Lower in total material and installation costs than conventional metal systems
- More efficient than metals, especially in operational efficiencies including chemical inertness, resistance to permeation and impurity absorption, abrasion and freeze resistance
- Advancing more steadily than their metal counterparts. These advances in thermoplastics have made possible the needed strength and heat/pressure tolerance for the vast majority of fluid flow applications
- Easier to install than metals, because of lightness in weight, good maneuverability, and compact size

Materials Used in Asahi Valves

THERMOPLASTICS

PVC (Polyvinyl Chloride)

Cell Classification: 12454A, ASTM D 1784 (Formerly, TYPE I, GRADE I)

Properties: Overall balanced properties – Excellent chemical resistance, strength, rigidity and modulus of elasticity

Temperature Range: 32° – 140° F

CPVC (Chlorinated Polyvinyl Chloride)

Cell Classification: 23567A, ASTM D 1784 (Formerly, TYPE IV, GRADE I)

Properties: Similar to PVC

Temperature Range: 32° – 195° F

PP (Polypropylene)

Cell Classification: 0210B67272, ASTM D 4101-92b

Properties: Excellent chemical resistance, highly crystalline, lightest of plastics

Temperature Range: -4° – 195° F

PVDF (Polyvinylidene Fluoride)

Cell Classification: TYPE II, ASTM D 3222-91A

Properties: Superior chemical and abrasion resistance, high mechanical strength, dielectric properties

Temperature Range: -40° – 250° F

ELASTOMERIC AND OTHER MATERIALS

PTFE (Polytetrafluoroethylene)

Properties: Nearly insoluble and chemically inert, thermal stability, non-flammable, dielectric, naturally lubricant

Temperature Range: -40° – 302° F

EPDM (Ethylene Propylene Diene Terpolymer)

Properties: Good for acids, many aggressive chemicals, alcohol, ozone/weathering

Temperature Range: -40° – 195° F

FKM (FKM = Fluorocarbon Rubbers)

Properties: Most chemically resistant, balanced and excellent overall properties

Temperature Range: -20° – 302° F

NITRILE (NBR = Nitrile-Butadiene Rubbers)

Properties: Excellent for oil, alcohol, abrasion resistant

Temperature Range: -5° – 212° F

Materials Used in Asahi Valves

ELASTOMERIC AND OTHER MATERIALS (CONT.)

AFLAS®* (TFE Elastomer = Tetrafluoroethylene/propylene dipolymer)

Properties: Wide varieties of chemicals, bleaches, pulp and paper liquids.

Temperature Range: Up to 450° F

UHMWPE (Ultra High Molecular Weight Polyethylene)

Properties: Abrasion and chemically resistant

PDCPD (Polydicyclopentadiene)

Properties: High impact resistance, high chemical corrosion resistance, high heat deflection temperature

* Trade mark of Asahi Glass Co., Ltd.

Caution:

1. Actual temperature that any particular valve can be used is often different from the above, since individual valve structure is different and a variety of materials is used in the same product. Refer to tables of "Working Pressure vs. Temperature."
2. For details of chemical compatibility, consult factory or web site for recommendation.
3. Asahi/America valves are not recommended for use in compressed gas services.
4. Only hydrostatic pressure is recommended when testing, with a gradual increase in pressure.
5. Recommended fluid velocity is 5 ft./sec. to minimize water hammer and premature wearing.

Product Discussion and Overview

Asahi/America thermoplastic valves provide a dependable and economical way to handle corrosive chemicals, including sulfuric and hydrofluoric acid, nitric acid, oxidizing chemicals, caustics, solvents, halogens, and various other hostile fluids. They perform at temperatures up to 250° F, pressures up to 230psi, and flows up to 18,500 gpm. All valves meet or exceed ANSI Class 6 shut-off. What follows are brief descriptions of the valve types offered by Asahi/America. For further details, see the individual valve sections contained herein.

BALL VALVES

This valve performs an on/off or modulating function. Its name is derived from the flow-controlling ball located within the body of the valve. A hole through the center of the ball along one axis connects the inlet and outlet ports of the body. The ball itself is held in place by, and rotates 90 degrees within, PTFE seats. These provide permanent lubrication and keep the valve bubble-tight. They are backed by elastomeric cushions, which provide pressure against the ball and, at the same time, compensate for wear. Elastomer O-rings are used for stem and carrier seals to prevent leakage to the atmosphere. In the open position, the flow is straight through, and there is minimal pressure drop when the porting through the ball is the same size as the inside diameter of the pipe.

Asahi/America ball valves are quick opening and closing; a quarter-turn is all that is necessary. They are easy to maintain, and they provide tight sealing with low torque. Asahi/America offers three major types of ball valves: (1) Type-21 true union ball valves; (2) Omni® Type-27 ball valves; (3) Type-23 true union Multiport® ball valves. True union ball valves can be lifted from the line, without having to move the piping, simply by loosening the two union nuts. The valves can be disassembled, and parts may be replaced. The Omni® Type-27 series are economical, one-piece valves that cannot be taken apart. Multiport® ball valves are three-way ball valves with true union design. The use of a Multiport® ball valve simplifies piping and eliminates the need for an additional valve and tee fitting. An L ported ball valve permits flow from the bottom entry to either the left or right ports or to an off position. An optional tee ported ball allows simultaneous left and right flow. The Asahi/America true union ball valves and Multiport® ball valves may be electrically or pneumatically operated.

Valve Types

BUTTERFLY VALVES

The name of this valve comes from the wing-like action of the flow-controlling disc, which operates at right angles to the flow. The disc has about the same diameter as the connecting pipe, and the flow is straight through, with a low pressure drop. Maintenance is easy due to the small number of moving parts. The butterfly valve can be used either as an on/off or modulating type of valve. Asahi/America has recently developed the advanced Type-57P valve, which has no metal to media contact whatsoever. These valves may be operated manually, electrically, or pneumatically.

DIAPHRAGM VALVES

The diaphragm valve offers many combinations of body materials and diaphragm materials. The valve design is abrasion resistant and non-clogging. When the diaphragm, which is connected to the stem of the valve by a compressor, is pulled away from the bottom of the valve body or weir, the path of the fluid has a smooth, streamlined flow. Slurries at low pressure that would normally clog most other valve designs easily pass through a diaphragm valve. The bonnet and working parts are completely isolated from the line fluid and only the body and diaphragm materials must be considered for service compatibility. The valve is a top-entry design, allowing in-line maintenance. The valve is suitable for throttling and on/off service in applications ranging from water treatment to chemical abrasion processes. Diaphragm valves are operated manually, electrically, or pneumatically.

CHECK VALVES

Check valves are self-contained, automatic valves, which are used to prevent the reversal of flow in a line. When open and under flow pressure, the checking mechanism will move freely in the media, offering very little resistance and minimal pressure drop. Asahi/America provides three basic types of check valves: swing check valves, ball check and wafer valves. A swing check valve utilizes a swinging disc, which requires only minimal back pressure to close the valve. This valve can also be modified, with a lever and weight or spring, to assist in seating faster to eliminate shock. The Asahi/America ball check valve employs a free moving ball, which unseats to permit flow in one direction, but seals against a seat to prevent back flow. These types of valves may be installed vertically or horizontally. A wafer check is similar to a swing check but with much shorter face to face dimensions, no external shaft and an easy to install EFTE coated spring for vertical installation

GLOBE VALVES

The flow through a globe valve follows a course that takes nearly two 90 degree changes in direction. But, because the seating of a globe valve is parallel to the line of flow of the liquid, it can be used to throttle the flow to any required degree or to give positive shut-offs. The economy and dependability of the Asahi/America globe valve make it desirable for many applications where this pressure drop is not critical. These valves are designed for manual operation only.

GATE VALVES

The gate valve is the most widely used on/off valve for large diameter, full port applications. When the valve is fully open, it allows straight through passage through an opening that is essentially the same size as the inside diameter of the connecting pipe. This is why there is little pressure drop through an Asahi/America gate valve. The valve operates when the handwheel and stem screw (or electric actuator) move a cylindrical plug, the gate, up and down at right angles to the fluid flow. Traditionally, gate valves have been used only for on/off service, but because the unique Asahi/America sliding plug design provides a larger seating area than conventional gate valves, it can be used for throttling. This significantly larger seating area, which runs 360 degrees around the cylindrical plug, has also virtually eliminated the valve chatter normally associated with gate valves. Asahi/America gate valves feature a solid polypropylene plug with a non-rising stem design.

LABCOCK® VALVES

This is another quarter-turn valve related to the family of ball valves. It has many process control monitoring and fluid sampling uses in the laboratory. These are quarter-inch valves, which come in seven configurations: male thread x male thread, male thread x hose, hose x hose, female thread x hose, female thread x female thread, female thread x male thread, and male thread x elbow. They may be used for simple on/off service or for calibrating flow.

AUTOMATED VALVES

Ball valves, butterfly valves, diaphragm valves, and gate valves are often automated with pneumatic or electric actuators. This allows remote operation for a variety of reasons: savings in labor, plant safety, product quality assurance, and automatic sequencing, to name a few. The choice of actuator type depends on many factors, including availability of air supply, cycling requirements, condition of the environment, compatibility with the type of control operation, and cost. Positioners may be mounted on these valves if flow control is required.

GLOBE CONTROL VALVES

The Asahi/America globe control valve is the most advanced available in design, features, performance, and cost effectiveness. Its design includes superior proportional control characteristics and safety features for a wide variety of applications, ranging from common fluids to the most aggressive chemicals. Accurate fluid control is achieved by positioning the valve plug to vary the aperture between the plug and the seat ring. The valve design allows the use of different plug/seat sets to provide desired flow versus travel characteristics. A wide range of controllable Cv is available, from 0.23 to a maximum of 105. Reduced trim is an option. For greater flow requirements, Asahi/America offers an extensive line of modulating ball and butterfly control valves. Both electric and pneumatic actuators are available for any control mode.

PTFE bellows stem sealing eliminates old-fashioned packing glands, minimizing valve maintenance, and increasing performance, safety, reliability, and useful life. The Asahi/America globe control valves provide long, reliable, accurate, and economic life without resorting to highly expensive control valves in exotic materials. Cost is surprisingly low for initial purchase, installation, operation, and maintenance.

SEDIMENT STRAINERS

Sediment strainers protect pipeline components such as pumps and meters by removing suspended solids and impurities. Transparent thermoplastic construction permits easy detection of the screen's condition. An optional strainer drain kit permits inline cleaning of the screen housing.

GASKETS

Asahi valve gaskets offer a unique double convex ring design that gives optimum sealing with only one-third the torque commonly required with flat-faced gaskets. Asahi/America offers EPDM gaskets from 1/2" to 12"; PTFE-bonded EPDM gaskets in sizes from 1/2" to 12"; and PVDF-bonded EPDM gaskets from 1/2" to 10".

CONSTANT FLOW VALVES

Using the constant flow valve provides an accurate way of controlling flow without automation (neither electricity nor an air supply is required). Accurate control is achieved by the globe style body and seat and plug configuration. This unique design allows the valve to maintain a constant preset flow, even if the differential pressure changes. The all-thermoplastic construction makes it ideal for semiconductor, chemical, swimming pool, and saltwater applications.



Type-21/21A Ball Valve

Standard Features (Sizes 1/2" – 6")

- Pressure rated up to 230psi (PVC, CPVC, PVDF)
- Double O-ring seals on stem for added protection
- Full bore, sizes 1/2" – 2"
- Full vacuum rated, all sizes
- Blocks in two directions, upstream and downstream, leaving full pressure on the opposite end of the valve
- Integrally molded ISO mounting pad for both manual and actuated operations
- Integrally molded base pad to mount valves securely on panel mounting
- PTFE seats with elastomeric backing cushions ensure bubble tight shut-off and a low fixed torque, while at the same time compensating for wear
- True union design for easier installation or repairs without expanding the pipe system
- Built-in spanner wrench on the handle for valve disassembly and assembly
- Two sets of end connectors (socket and threaded included with all PVC and CPVC valves in sizes 1/2" – 2"
- CPVC threaded end connectors on sizes 1/2" – 1" come with stainless steel reinforcing rings
- New PTFE seat design – Facilitates easier field maintenance if required
- Tapered O-ring groove – Helps to keep the end connector O-rings on the valve body during installation
- Body flats – Flats have been added to either side of the valve body where a wrench can be applied to prevent the valve body from turning when the union nuts are tightened
- 1/2 - 2 " PVC and CPVC T-21A design

Options

- Pneumatic and electric actuators and accessories
- Stem extensions
- 2" square operating nut or "T" nut
- Locking handles
- Limit switches
- Vented ball

Specifications

Sizes: 1/2" – 6"
Models: PVC & CPVC: Socket, Threaded and Flanged (ANSI)
 PP & PVDF: IPS and Metric (DIN) Socket, Threaded, Butt and Flanged (ANSI)
Bodies: PVC, CPVC, PP and PVDF
Seats: PTFE backed with EPDM or FKM
Seals: EPDM or FKM or AFLAS®†
Sizes 1/2" - 4" PVC/EPDM/FKM Models
NSF-61 Certified

† Trademark of Asahi Glass Co., Ltd.

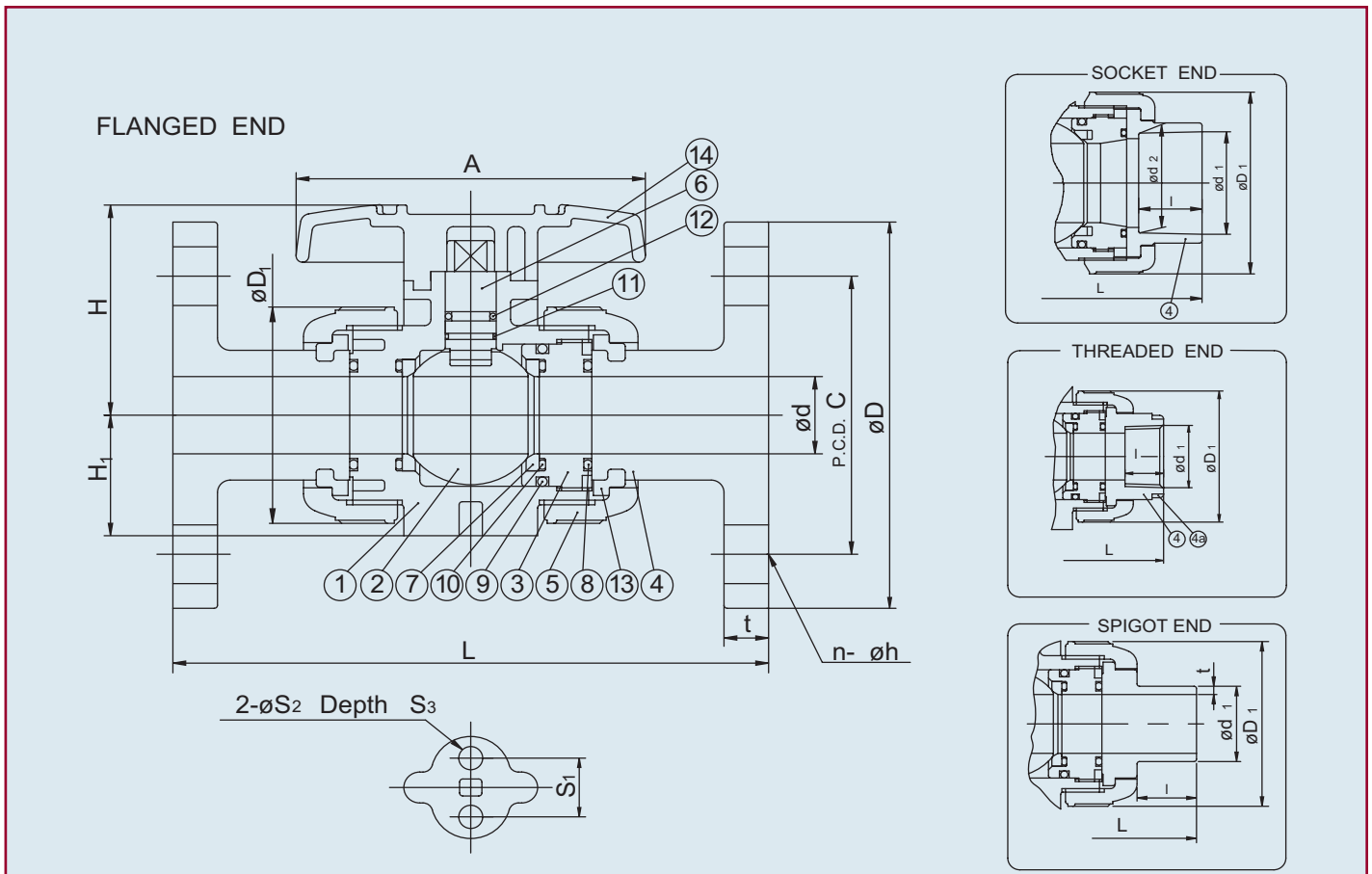
Parts List (Sizes 1/2" – 2")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Ball	1	PVC, CPVC, PP, PVDF
3	Carrier	1	PVC, CPVC, PP, PVDF
4	End Connector	2	PVC, CPVC, PP, PVDF
5	Union Nut	2	PVC, CPVC, PP, PVDF
6	Stem	1	PVC, CPVC, PP, PVDF
7	Seat	2	PTFE
8	O-Ring (A)	2	EPDM, FKM, Others
9	O-Ring (B)	1	EPDM, FKM, Others
10	O-Ring (C)	2	EPDM, FKM, Others
11	O-Ring (D)	1	EPDM, FKM, Others
12	O-Ring (E)	1	EPDM, FKM, Others
13	Stop Ring*	2	PVDF
14	Handle	1	ABS
4a	Ring**	2	304 Stainless Steel

* Used for flanged end.

** Used for CPVC body, threaded end, 1/2"-1".





Dimensions (Sizes 1/2" - 2") (in.)

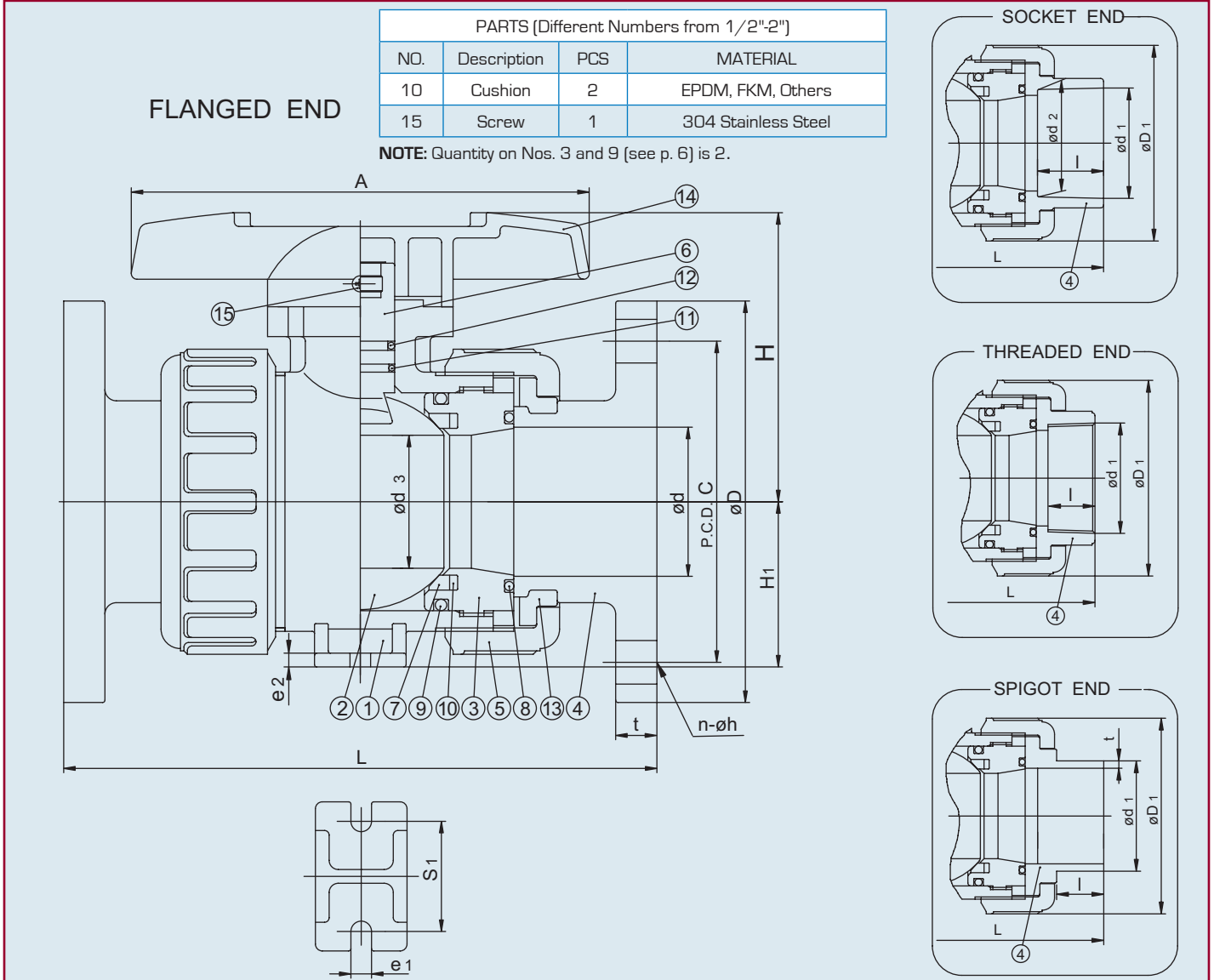
NOMINAL SIZE		FLANGED							SOCKET										
		ANSI CLASS 150							PVC, CPVC				PP, PVDF (DIN)				PP, PVDF (IPS)		
		d	D	C	n	h	L	t	ASTM SCH 80				DIN 16962				d1	/	L
INCHES	mm							d1	d2	/	L	d1	d2	/	L	d1	/	L	
1/2	15	0.59	3.50	2.38	4	0.62	5.63	0.47	0.848	0.836	0.875	4.45	0.768	0.760	0.57	3.90	0.83	0.87	4.45
3/4	20	0.79	3.88	2.75	4	0.62	6.77	0.55	1.058	1.046	1.000	5.08	0.965	0.957	0.63	4.45	1.03	1.00	5.08
1	25	0.98	4.25	3.12	4	0.62	7.36	0.55	1.325	1.310	1.125	5.75	1.240	1.232	0.71	4.84	1.30	1.13	5.75
1-1/4	32	1.26	4.62	3.50	4	0.62	7.48	0.63	1.670	1.655	1.250	6.46	1.553	1.543	0.81	5.47	1.65	1.25	6.46
1-1/2	40	1.57	5.00	3.88	4	0.62	8.35	0.63	1.912	1.894	1.375	7.24	1.947	1.937	0.93	5.87	1.89	1.37	7.24
2	50	2.01	6.00	4.75	4	0.75	9.21	0.63	2.387	2.369	1.500	8.23	2.461	2.445	1.08	6.93	2.36	1.50	8.23

NOMINAL SIZE		THREADED				SPIGOT (BUTT END)												
						PP, PVDF												
						DIN 3442		PP	PVDF									
INCHES	mm	d1	/	L	d1	/	t	t	L	D1	H	H1	A	S1	S2	S3		
1/2	15	1/2 - 14 NPT		0.59	4.02	0.787	0.728	0.098	0.075	4.882	1.89	2.03	1.14	3.62	0.75	0.29	0.43	
3/4	20	3/4 - 14 NPT		0.67	4.72	0.984	0.866	0.106	0.075	5.669	2.36	2.34	1.38	3.94	0.75	0.29	0.43	
1	25	1 - 11-1/2 NPT		0.79	5.16	1.260	0.886	0.118	0.094	6.063	2.76	2.68	1.54	4.33	0.75	0.29	0.43	
1-1/4	32	1-1/4 - 11-1/2 NPT		0.87	5.91	1.575	1.024	0.146	0.094	6.850	3.23	3.17	1.85	4.76	1.18	0.35	0.59	
1-1/2	40	1-1/2 - 11-1/2 NPT		0.98	6.42	1.968	1.260	0.181	0.118	7.638	3.94	3.50	2.17	5.16	1.18	0.35	0.59	
2	50	2 - 11-1/2 NPT		1.10	7.76	2.480	1.417	0.228	0.118	8.819	4.96	4.04	2.60	6.26	1.18	0.35	0.59	

Note: The shape and appearance of assembly differ a little with nominal size compared to this drawing.

Type-21/21A

Ball Valves



PARTS (Different Numbers from 1/2"-2")			
NO.	Description	PCS	MATERIAL
10	Cushion	2	EPDM, FKM, Others
15	Screw	1	304 Stainless Steel

NOTE: Quantity on Nos. 3 and 9 (see p. 6) is 2.

Dimensions (Sizes 2-1/2" - 4") (in.) For 6" size consult factory.

NOMINAL SIZE		FLANGED										SOCKET													
		ANSI CLASS 150										PVC, CPVC				PP, PVDF (DIN)				PP, PVDF (IPS)					
		L					ASTM SCH 80					DIN 16962				PP		PVDF		PP		PVDF			
INCHES	mm	d	D	C	n	h	PVC CPVC	PP	PVDF	t	d1	d2	/	L	d1	d2	/	L	L	d1	/	L	L	L	L
2-1/2	65	2.56	7.0	5.5	4	0.75	10.20	10.12	10.08	0.71	2.889	2.868	1.750	9.45	2.923	2.911	1.22	8.07	8.03	2.88	1.752	9.37	9.33		
3	80	3.07	7.5	6.0	4	0.75	12.05	12.07	11.89	0.71	3.516	3.492	1.875	11.14	3.512	3.498	1.40	9.92	9.80	3.48	1.874	11.10	10.28		
4	100	3.94	9.0	7.5	8	0.75	14.72	14.72	14.53	0.71	4.518	4.491	2.000	13.89	4.293	4.278	1.63	12.28	12.09	4.48	2.252	14.37	14.13		

NOMINAL SIZE		THREADED					SPIGOT (BUTT END)													
		L					PP, PVDF													
		PVC CPVC		PP	PVDF	DIN 3442		PP	PVDF	PP	PVDF									
INCHES	mm	d1	/	t	t	L	L	d3	D1	H	H1	A	e1	e2	S1					
2-1/2	65	2-1/2 - 8NPT	1.26	8.46	8.39	8.35	2.953	1.496	0.272	0.142	9.648	9.606	2.28	5.24	4.96	2.83	7.87	0.35	0.24	1.89
3	80	3 - 8NPT	1.38	10.43	10.39	10.28	3.543	1.496	0.323	0.169	11.654	11.535	2.70	5.98	5.51	3.35	9.45	0.43	0.28	2.17
4	100	4 - 8NPT	1.77	14.25	14.25	14.06	4.331	1.752	0.394	0.209	13.978	13.779	3.54	8.27	7.01	4.33	11.81	0.43	0.31	2.56

Note: The shape and appearance of assembly differ a little with nominal size compared to this drawing.

Pressure vs. Temperature (psi, water, non-shock)

NOMINAL SIZE		PVC				CPVC						PP				PVDF				
		30° F 70° F	71° F 105° F	106° F 120° F	121° F 140° F	30° F 70° F	71° F 105° F	106° F 120° F	121° F 140° F	141° F 175° F	176° F 195° F	- 5° F 85° F	86° F 120° F	121° F 140° F	141° F 175° F	- 5° F 70° F	71° F 105° F	106° F 140° F	141° F 175° F	176° F 210° F
INCHES	mm																			
1/2-2	15-50	230	170	150	30	230	170	150	120	75	55	150	110	90	55	230	185	150	115	85
2-1/2	65	230	170	150	NA	230	170	150	120	75	55	150	95	70	40	230	185	150	115	85
3	80	230	170	150	NA	230	170	150	85	55	40	150	95	70	40	230	185	150	100	70
4-6	100-150	150	150	150	NA	150	150	150	85	55	40	150	95	70	40	150	150	150	100	70

Sample Specification

All Type-21/21A ball valves, sizes 1/2" to 4", shall be of true union design with two-way blocking capability. All O-rings shall be EPDM or FKM with PTFE seats. PTFE seats shall have elastomeric backing cushion of the same material as the valve seals. Stem shall have double O-rings and be of blowout-proof design. The valve handle shall double as carrier removal and/or tightening tool. ISO mounting pad shall be integrally molded to valve body for actuation. PVC conforming to ASTM D1784 Cell Classification 12454A, CPVC conforming to ASTM D1784 Cell Classification 23567-A, PP conforming to ASTM D4101 Cell Classification PP0210B67272 and PVDF conforming to ASTM D3222 Cell Classification Type II. The ball valves, except PP, shall have a pressure rating of 230psi for sizes 1/2" to 3" and 150psi for 4" (150psi for PP, all sizes) at 70° F. Type-21/21A ball valves must carry a two year guarantee, as manufactured by Asahi/America, Inc.

Caution

- Do not use ball valves where media has suspended particles. Use the following valves:
 - Butterfly valves – PVDF disc is most abrasion resistant. Make sure of chemical compatibility.
 - Diaphragm valves – Elastomeric diaphragm is designed for handling suspended particles.
- Volatile fluids such as sodium hypochlorite (NaClO) and hydrogen peroxide (H₂O₂) could be trapped and gasified within the valve. We can provide you with a Type-21 ball valve with a vented ball to relieve pressure build-up inside the valve.

Troubleshooting

What if the fluid still flows when valve is closed?

1. Carrier is not properly tightened. Tighten it.
2. PTFE seat is damaged or worn. Replace seat.
3. Foreign material is caught between ball and PTFE seat. Remove material and clean.
4. Ball is damaged or worn. Change ball.

What if fluid leaks outside of valve?

1. Union nut not properly tightened. Retighten.
2. Carrier is not properly tightened. Thread it in firmly.
3. Carrier or face O-ring is damaged, worn, or missing. Replace O-ring.

What if handle does not rotate smoothly?

1. Foreign material has formed on the ball or seat. Clean both.
2. Internal part(s) chemically attacked or swollen. Refer to Asahi/America Chemical Resistance Chart for compatibility. Replace part(s) as required.
3. Carrier overtightened. Retighten properly.

What if handle rotates too freely?

1. Stem is damaged. Replace stem.
2. Handle is not engaged with stem. Disassemble and reengage. Inspect.
3. Engaging part of stem and/or ball is damaged. Change stem and/or ball.

Cv Values

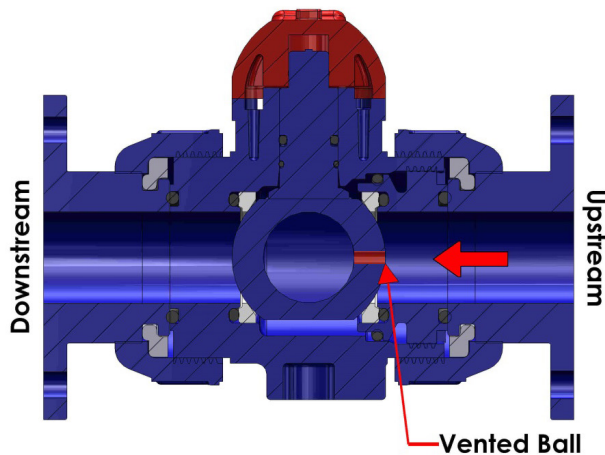
Weight (lbs.)

NOMINAL SIZE		Cv	NOMINAL SIZE		SOCKET	
INCHES	mm		INCHES	mm	THREADED	FLANGED
1/2	15	14	1/2	15	0.44	1.10
3/4	20	29	3/4	20	0.66	1.54
1	25	47	1	25	1.1	2.70
1-1/4	32	72	1-1/4	32	1.54	3.30
1-1/2	40	155	1-1/2	40	2.64	4.40
2	50	190	2	50	4.4	8.15
2-1/2	65	365	2-1/2	65	6.17	8.80
3	80	410	3	80	9.7	13.00
4	100	680	4	100	24.00	26.67

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.
- Watch out for trapped fluid in valve. It is safe to close valve before removing it from the pipeline.

Type-21/21α Ball Valves for use with Sodium Hypochlorite



The Type-21/21α ball valve can be factory equipped with a 1/8" vent hole for sodium hypochlorite applications.

When a ball valve is closed, fluid gets trapped in the cavity of the ball. If the valve is not frequently operated, this trapped fluid begins to age and break down. As sodium hypochlorite breaks down, it begins to off-gas. This can create pressure in the cavity of the ball, which can lead to valve failure and can be a safety hazard. By adding the vent hole, the fluid that would have been trapped is now maintained by the upstream process fluid when the valve is in the closed position. This modification provides for longer valve life and safer operation.

Standard Features

- PVC or CPVC construction valve
- FKM O-ring seals
- Flanged configuration eliminates all cemented joints
- Alternately, the valve can be equipped with Chem Proline® end connectors for use in Asahi/America's piping material of choice for sodium hypochlorite service – Consult sales or engineering to learn more about Chem Proline® piping systems
- Supported up to a 20% concentration of sodium hypochlorite

Specifications

Sizes: 1/2" - 4"
Models: PVC & CPVC: Socket, Threaded
Bodies: and Flanged [ANSI]
Seats: PVC, CPVC
Seals: PTFE backed with FKM
FKM

Sizes 1/2" - 4" PVC/FKM Models
NSF-61 Certified

Sample Specification

All Type-21/21α ball valves for use with sodium hypochlorite up to 20% concentration, sizes 1/2" to 4", shall be either PVC or CPVC construction and of true union design with two-way blocking capability. All O-rings shall be FKM with PTFE seats. PTFE Seats shall have elastomeric backing cushions of FKM. The stem shall feature double O-ring seals and be of blowout-proof design. The addition of a 1/8" vent hole drilled and deburred by the manufacturer is required. The valve shall be installed with the vent hole on the upstream side of the system to keep the liquid in the cavity of the ball fluid. A flow directional arrow is affixed to the valve body to indicate flow. The valve handle shall double as the carrier removal and/or tightening tool. ISO-5211 mounting pad shall be integrally molded to valve body for actuation mounting. PVC shall conform to ASTM D1784 Cell Classification 12454A and CPVC shall conform to ASTM D1784 Cell Classification 23567A. The ball valves shall have a pressure rating of 230psi for sizes 1/2" to 3" and 150psi for 4" at 70° F. Type-21 ball valves must carry a two year guarantee, as manufactured by Asahi/America, Inc.





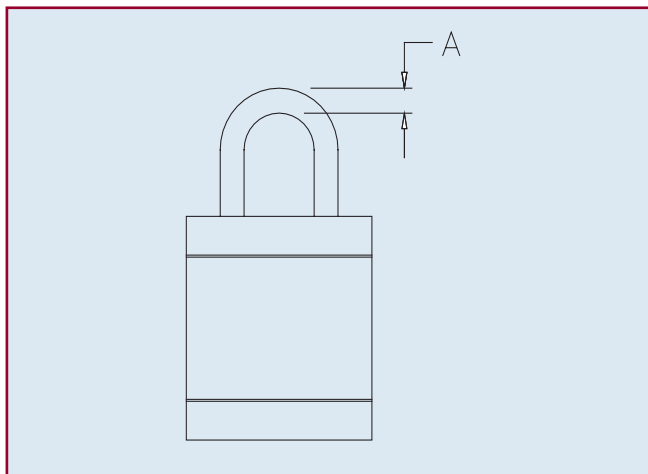
Type-21 Locking Handle

Standard Features (Sizes 1/2" – 4")

- New padlockable handle directly replaces standard valve handle
- 1/2" - 2" No tools required for installation
- 2-1/2" - 4" require Phillips head screwdriver
- Allows for restriction of unauthorized use of valve
- Permits visual position indication
- Trigger activated allows for smooth operation
- Sold in kit form with instructions for easy field installation
- Handle doubles as carrier removal tool, same as standard handle

Padlock Shaft Diameters (max) (Unit: Inch)

Valve Size	A
1/2 - 1	.20
1-1/4 - 2	.24
2-1/2 - 4	.28



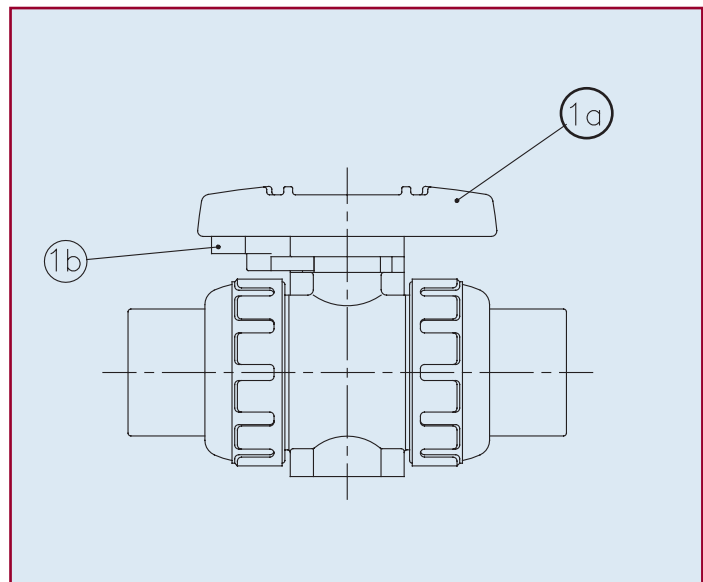
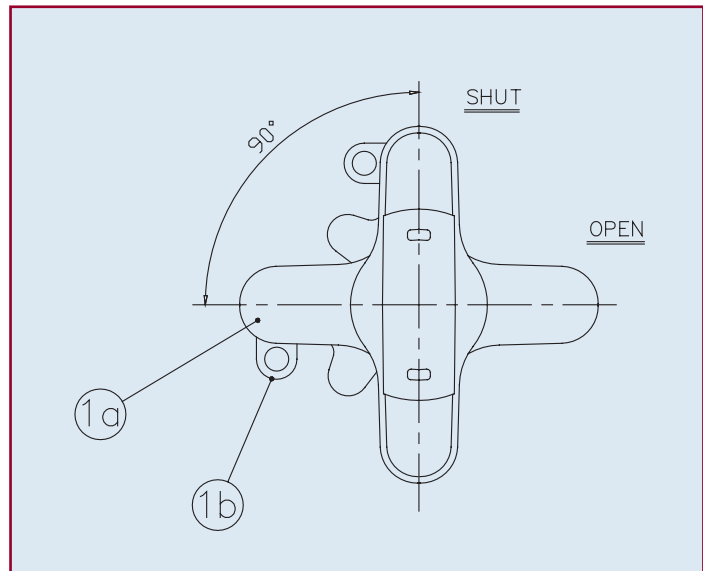
Specifications

Sizes: 1/2" - 4"
Models: 9 Individual handles per valve size

Padlock not included

Parts List (Sizes 1/2" – 4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1B	Trigger	1	PPG
1A	Locking Handle	1	ABS





Type-23 Multiport® Ball Valve

Standard Features (Sizes 1/2" – 6")

- True union design on all three ports
- Double O-ring seals on stem for added protection
- Integrally molded ISO mounting pad for both manual and actuated operations
- Blow-out proof, solid mold bottom entry design
- Blocks from left or right union ports, leaving full pressure on the opposite end of valve
- Standard L port ball permits flow from common port to either left or right port or to off position
- PTFE seats with elastomeric backing cushions ensure bubble tight shut-off and a low fixed torque, while at the same time compensating for wear
- Built-in spanner wrench on the handle for valve disassembly and assembly
- All sizes rated for full vacuum service
- Eliminates need for additional valve and tee

Options

- Pneumatic and electric actuators and accessories
- Stem extensions
- 2" square operating nut or T nut
- Locking handles
- Limit switches
- T port, double L"port

Cross Port Ball Options (1/2" - 2" only)

- Four different flow patterns through three separate ports are possible because of the crossed flow patterns within the ball
- Changing position of handle changes flow pattern. Handle rotates 360 degrees

Specifications

Sizes: 1/2" – 6"
Models: PVC & CPVC: Socket, Threaded and Flanged (ANSI)
Bodies: PVC, CPVC, PP, PVDF
Seats: PTFE backed with EPDM or FKM
Seals: EPDM or FKM or AFLAS®†

Sizes 1/2" - 4" PVC/EPDM/FKM Models
 NSF-61 Certified

† Trademark of Asahi Glass Co., Ltd.

Parts List (Sizes 1/2" – 6")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Ball	1	PVC, CPVC, PP, PVDF
3	Carrier	2	PVC, CPVC, PP, PVDF
4	End Connector	3	PVC, CPVC, PP, PVDF
5	Union Nut	3	PVC, CPVC, PP, PVDF
6	Stem	1	PVC, CPVC, PP, PVDF
7	Seat	2	PTFE
8	O-Ring (A)	3	EPDM, FKM, Others
9	O-Ring (B)	2	EPDM, FKM, Others
10	Cushion*	2	EPDM, FKM, Others
	O-Ring (C)**		
11	O-Ring (D)	1	EPDM, FKM, Others
12	O-Ring (E)	1	EPDM, FKM, Others
13	Stop Ring***	3	PVDF
14	Handle	1	ABS
15	Screw	1	304 Stainless Steel
4a	Ring****	3	304 Stainless Steel

* Used for size 1/2" – 2", **Used for size 3" and 4".

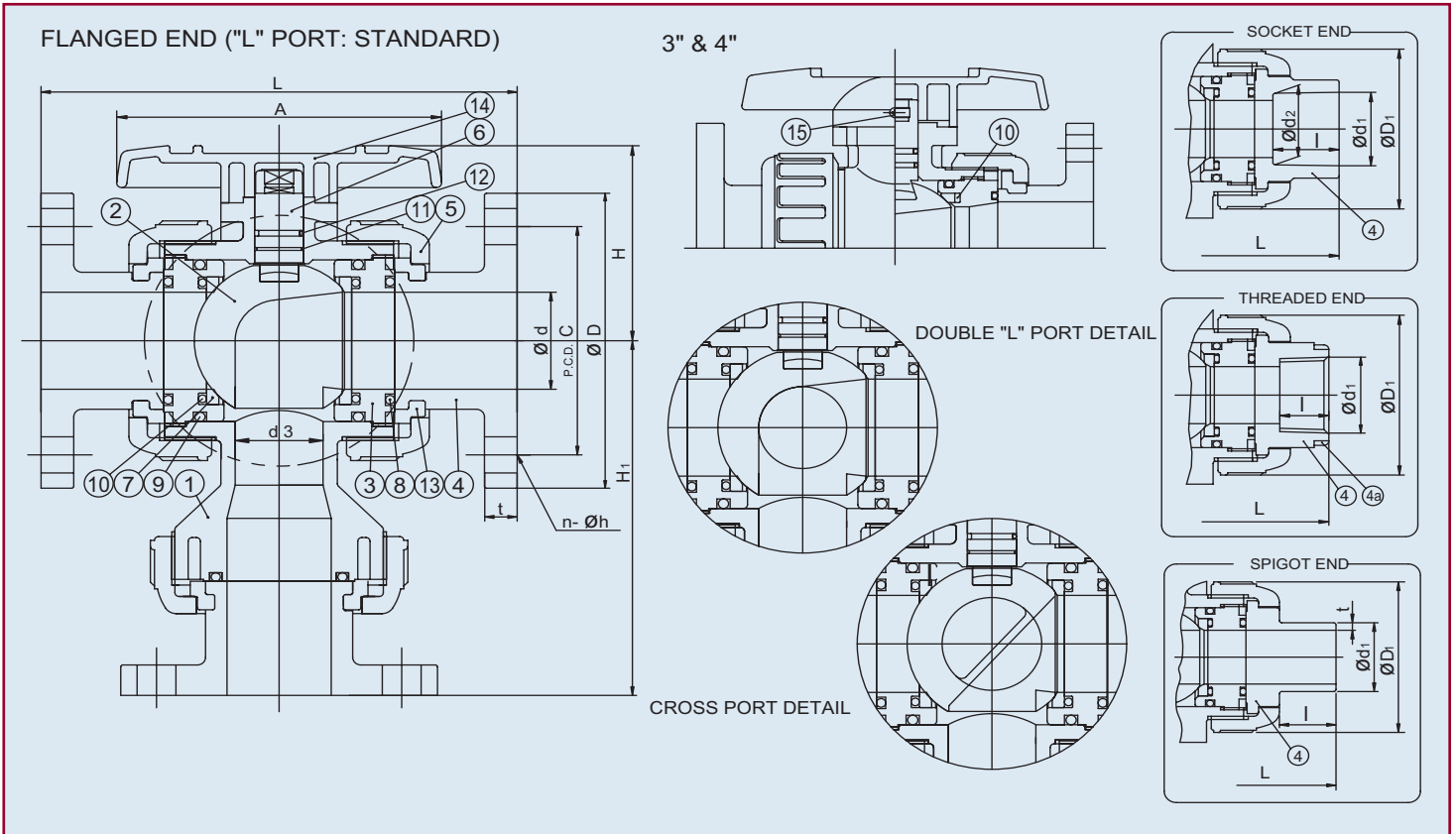
*** Used for flanged end.

****Used for CPVC body, threaded end, 1/2" – 1".



Type-23

Multiport® Ball Valves



Dimensions (Sizes 1/2" - 4") (in.) For 6" size consult factory.

NOMINAL SIZE		FLANGED									THREADED				D1	H	A
		ANSI CLASS 150							PP, PVDF (IPS)								
INCHES	mm	d	d3	D	C	n	h	L	t	H1	d1	l	L	H1			
1/2	15	0.59	0.59	3.50	2.38	4	0.62	5.63	0.47	3.70	1/2 - 14 NPT	0.59	4.02	2.89	1.89	2.03	3.62
3/4	20	0.79	0.79	3.88	2.75	4	0.62	6.77	0.55	4.50	3/4 - 14 NPT	0.67	4.72	3.48	2.36	2.34	3.94
1	25	0.98	0.98	4.25	3.12	4	0.62	7.36	0.55	5.24	1 - 11-1/2 NPT	0.79	5.16	4.13	2.76	2.68	4.33
1-1/2	40	1.57	1.26	5.00	3.88	4	0.62	8.35	0.63	6.50	1-1/2 - 11-1/2 NPT	0.98	6.42	5.53	3.94	3.50	5.16
2	50	2.01	1.69	6.00	4.75	4	0.75	9.21	0.63	7.34	2 - 11-1/2 NPT	1.1	7.76	6.61	4.96	4.04	6.26
3	80	3.07	2.70	7.50	6.00	4	0.75	11.97	0.71	10.06	3 - 8 NPT	1.38	10.39	9.25	5.98	5.51	9.45
4	100	3.94	3.54	9.00	7.50	4	0.75	14.65	0.71	12.01	4 - 8 NPT	1.77	14.17	11.77	8.27	7.01	11.81

NOMINAL SIZE		SOCKET											SPIGOT (BUTT END)								
		PVC, CPVC					PP, PVDF (DIN)					PP, PVDF (IPS)				PP, PVDF					
		ANSI SCH 80/40					DIN 16962									DIN 3442		PP	PVDF		
INCHES	mm	d1	d2	l	L	H1	d1	d2	l	L	H1	d1	l	L	H1	d1	l	t	t	L	H1
1/2	15	0.848	0.836	0.875	4.45	3.08	0.768	0.760	0.57	3.90	2.80	0.83	0.87	4.45	3.09	0.787	0.728	0.098	0.075	4.88	3.27
3/4	20	1.058	1.046	1.000	5.08	3.56	0.965	0.957	0.63	4.49	3.27	1.03	1.00	5.08	3.61	0.984	0.866	0.106	0.075	5.67	3.90
1	25	1.325	1.310	1.125	5.75	4.32	1.240	1.232	0.71	4.84	3.94	1.30	1.13	5.75	4.37	1.260	0.886	0.118	0.094	6.06	4.53
1-1/2	40	1.912	1.894	1.375	7.24	5.71	1.947	1.937	0.93	5.83	5.16	1.89	1.37	7.24	5.85	1.969	1.260	0.181	0.118	6.85	6.02
2	50	2.387	2.369	1.500	8.23	6.66	2.461	2.445	1.08	6.93	6.06	2.36	1.50	8.23	6.76	2.480	1.417	0.228	0.118	8.82	7.01
3	80	3.516	3.492	1.875	11.10	9.59	3.512	3.498	1.4	9.88	8.82	3.48	1.87	11.10	11.10	3.543	1.496	0.323	0.169	11.61	9.69
4	100	4.518	4.491	2.000	13.90	11.58	4.293	4.278	1.63	12.20	10.98	4.48	2.25	14.37	14.37	4.331	1.752	0.394	0.209	12.72	11.85

Type-23

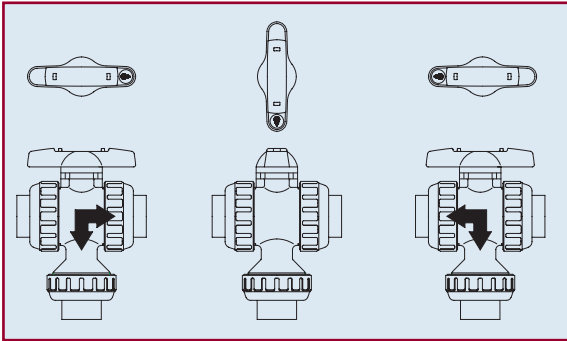
Multiport® Ball Valves

Pressure vs. Temperature (psi. water. non-shock)

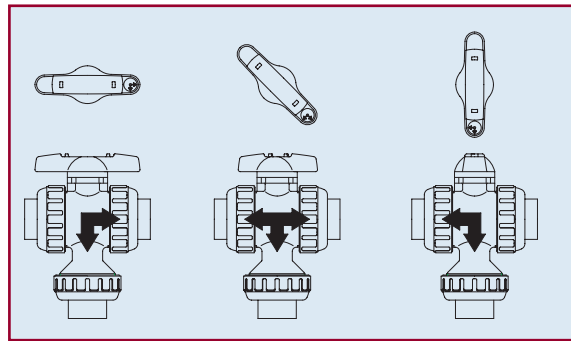
NOMINAL SIZE		PVC			CPVC				PP			PVDF			
		30° F 70° F	71° F 105° F	106° F 120° F	30° F 120° F	121° F 140° F	141° F 175° F	176° F 195° F	- 5° F 85° F	86° F 140° F	141° F 175° F	- 5° F 140° F	141° F 175° F	176° F 195° F	196° F 210° F
INCHES	mm														
1/2 - 2	15-50	150	150	150	150	120	85	55	150	90	60	150	120	110	85
3-4	80-100	150	150	150	150	85	55	45	150	75	45	150	100	85	70

Available Flow Patterns

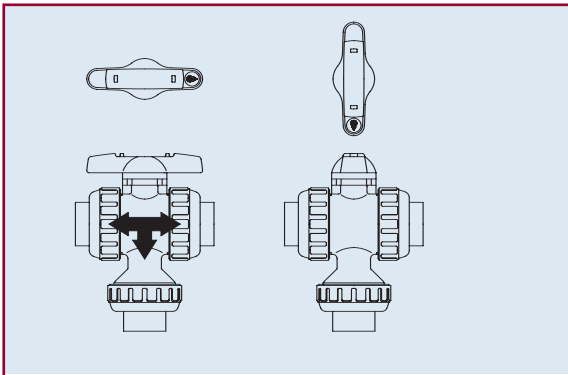
L-Port



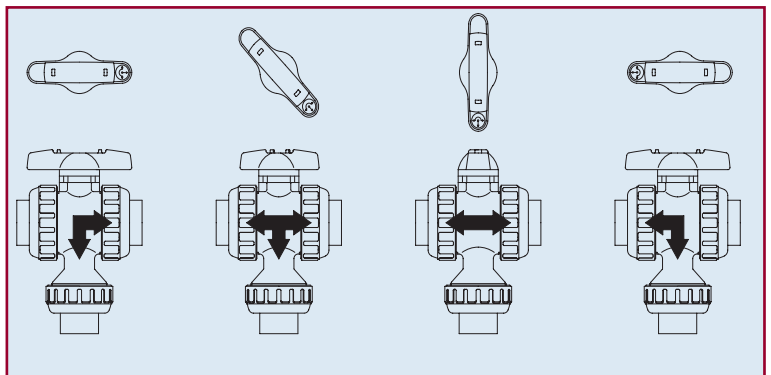
Double L-Port



T-Port



Cross Port (1/2" - 2" only)



Automation

For Pneumatic Actuation:

Double L port ball is supplied as a standard feature. Other configurations available as options.

Pneumatic actuators are two-position, 90 degree rotation.

For Electric Actuation:

L port ball is supplied as a standard feature. All other ball configurations are available as options.

Electric actuators are two-position, 180-degree rotation with the option for a third "center" position.

Sample Specification

All Type-23 Multiport® ball valves shall be of molded thermoplastic construction with union ends on all three ports. Carriers must thread into the body in order to provide blocking capabilities in off position. Stem shall have double O-Rings and be of blow-out proof design. The valve handle shall double as carrier removal and/or tightening tool. ISO mounting pad shall be integrally molded to valve body. PVC conforming to ASTM D1784 Cell Classification 12454A, CPVC conforming to ASTM D1784 Cell Classification 23567-A, PP conforming to ASTM D4101 Cell Classification PPO210B67272 and PVDF conforming to ASTM D3222 Cell Classification Type II. The valves shall be rated to 150psi at 70° F. PTFE seats must have elastomeric backing cushion of the same material as the valve seals, as manufactured by Asahi/America, Inc.

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.
- Watch out for trapped fluid in valve.
- Only L port and T port valves are closed when handle is positioned perpendicular (90 degrees).
- Even if handle is perpendicular, valve is not closed if the ball is in the following positions, based upon the following porting configurations:
 - (a.) Double L port – Flow is to right or left
 - (b.) Cross-port – Flow is horizontal as in regular ball valve.

Troubleshooting

What if the fluid still flows when valve is closed?

1. Carrier is not properly tightened. Tighten it firmly.
2. PTFE seat is damaged or worn. Replace seat.
3. Foreign material is caught between ball and PTFE seat. Remove material and clean.
4. Ball is damaged or worn. Change ball.

What if fluid leaks between body and nuts?

1. Carrier or face O-ring is damaged, worn, or missing. Replace O-ring.

What if stem leaks?

1. Stem is damaged. Replace stem.
2. O-ring is damaged. Replace O-ring.

What if handle does not rotate smoothly?

1. Foreign material has formed on the ball or seat. Clean both.
2. Internal part(s) chemically attacked or swollen. Refer to Asahi/America Chemical Resistance Chart for compatibility. Replace part(s) as required.
3. Carrier overtightened. Tighten properly.

What if handle rotates too freely?

1. Stem is damaged. Replace stem.
2. Handle is not engaged with stem. Disassemble and reengage. Inspect.

Cv Values

NOMINAL SIZE		Cv	
INCHES	mm	L-PORT	DBL-L
1/2	15	7.4	6.3
3/4	20	10	8.5
1	25	23	20
1-1/2	40	43	36
2	50	59	45
3	80	130	99
4	100	260	200

Weight (lbs.)

NOMINAL SIZE		SOCKET THREADED	FLANGED
INCHES	mm		
1/2	15	0.66	1.76
3/4	20	1.10	2.42
1	25	1.76	3.52
1-1/2	40	4.18	6.36
2	50	5.73	8.59
3	80	15.43	18.95
4	100	35.27	39.90



Omni® T-27 Ball Valve

Standard Features (Sizes 3/8" – 2")

- 2-way blocking valve
- Compact, Low profile
- Unibody sealed carrier construction
- Short face to face dimension
- 2-Stem O-rings
- PTFE seats with elastomeric backing
- Ergonomic handle design
- Full vacuum service rating
- Full port opening
- Accepts molded ISO top flange for actuation mounting

Options

- Electrically actuated Series 83
120, 220, 12/24 VAC, 12/24 VDC



Specifications

Sizes: 3/8" – 2"
Models: Socket and Threaded
Bodies: PVC, CPVC
Seats: PTFE backed with EPDM
Seals: EPDM

**Sizes 3/8" - 2" PVC/EPDM Models
 NSF-61 Certified**

Parts List (Sizes 3/8"– 2")

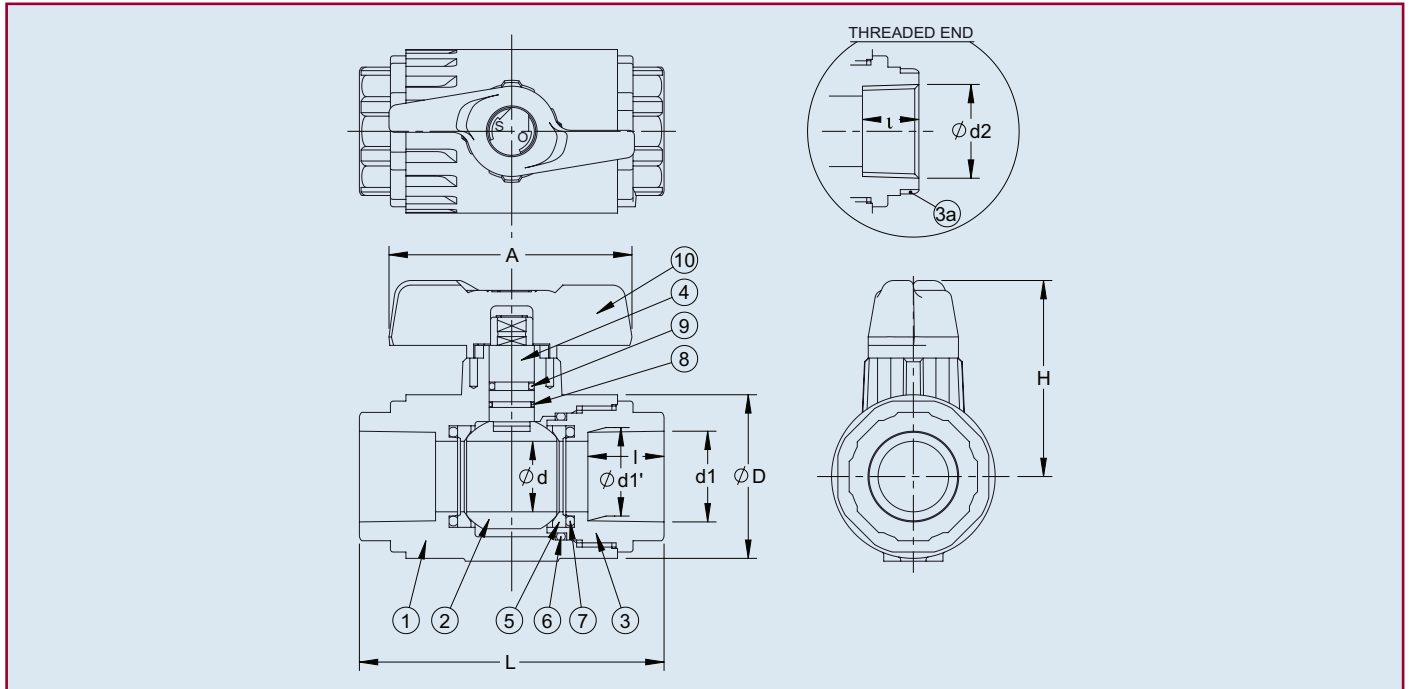
PARTS		
NO.	DESCRIPTION	MATERIAL
1	Body	PVC, CPVC
2	Ball	PVC, CPVC
3	End Carrier	PVC, CPVC
4	Stem	PVC, CPVC
5	Seat	PTFE
6	O-Ring (B)	EPDM
7	O-Ring (C)	EPDM
8	O-Ring (D)	EPDM
9	O-Ring (E)	EPDM
10	Handle	ABS
3A	Ring*	304SS

* Used for CPVC body threaded end 3/8"-1"

Sample Specification

Omni® T-27 ball valves shall be PVC or CPVC body with EPDM seals and PTFE seats. Valves shall be 1 piece construction, have 2-way blocking capability, and have elastomeric backing cushions behind the PTFE seats for low stem torque, and to compensate for wear. End connections shall be either socket or threaded. Valve stems shall feature 2 stem o-rings. Valves shall accept the installation of a molded ISO top mounting flange for actuation mounting. PVC conforming to ASTM D1784 CC 12454A, and CPVC ASTM D1784 CC 23567A. Valves shall be rated 150psi at 70°F as manufactured by Asahi/America Inc.

Omni® T-27 Ball Valve



Dimensions (Sizes 3/8" – 2") (in.)

NOMINAL SIZE	SOCKET			THREADED		L	d	A	D	H	
	ASTM SCH 40										
INCHES	mm	d1	d1*	l	d2	l					
3/8	13	0.687	0.671	0.59	3/8 - 18 NPT	0.59	2.72	0.59	2.95	1.57	2.07
1/2	15	0.848	0.836	0.69	1/2 - 14 NPT	0.59	3.11	0.59	2.95	1.57	2.07
3/4	20	1.058	1.046	0.72	3/4 - 14 NPT	0.67	3.70	0.79	3.43	1.93	2.46
1	25	1.325	1.310	0.87	1 - 11 1/2 NPT	0.79	4.25	0.98	3.43	2.28	2.74
1-1/4	32	1.670	1.655	0.94	1 1/4 - 11 1/2 NPT	0.87	4.76	1.22	4.13	2.68	3.21
1-1/2	40	1.912	1.894	1.09	1 1/2 - 11 1/2 NPT	0.98	5.75	1.57	5.31	3.25	3.78
2	50	2.387	2.369	1.16	2 - 11 1/2 NPT	1.10	6.86	2.01	5.31	4.09	4.23

Note: The shape and appearance of assembly differ a little with nominal size compared to this drawing.

Weight (lbs.)

Cv Values

Pressure vs. Temperature (psi, water, non-shock)

NOMINAL SIZE		SOCKET		THREADED		NOMINAL SIZE		Cv
INCHES	mm	PVC	CPVC	PVC	CPVC	INCHES	mm	
3/8	13	0.26	0.27	0.27	0.28	3/8	13	7.7
1/2	15	0.27	0.28	0.28	0.30	1/2	15	14
3/4	20	0.43	0.46	0.45	0.48	3/4	20	29
1	25	0.64	0.68	0.67	0.71	1	25	47
1-1/4	32	0.94	1.00	0.99	1.05	1-1/4	32	72
1-1/2	40	1.53	1.64	1.60	1.71	1-1/2	40	155
2	50	2.62	2.78	2.71	2.87	2	50	190

NOMINAL SIZE		PVC		CPVC		
INCHES	mm	30° F 120° F	30° F 120° F	121° F 140° F	141° F 175° F	176° F 195° F
3/8-2	13-50	150	150	120	90	60



Specifications

Size: 1/4"
Bodies: PVC
Seats: EPDM
Seals: EPDM
Models: Male Thread x Male Thread
 Male Thread x Hose (ID 3/8")
 Male Thread x Female Thread
 Hose x Hose / Male Thread x Hose
 Female Thread x Female Thread
 Male Thread x Elbow (OD .63")

Sizes 1/4" PVC/EPDM Models
NSF-61 Certified

Standard Features (Size 1/4")

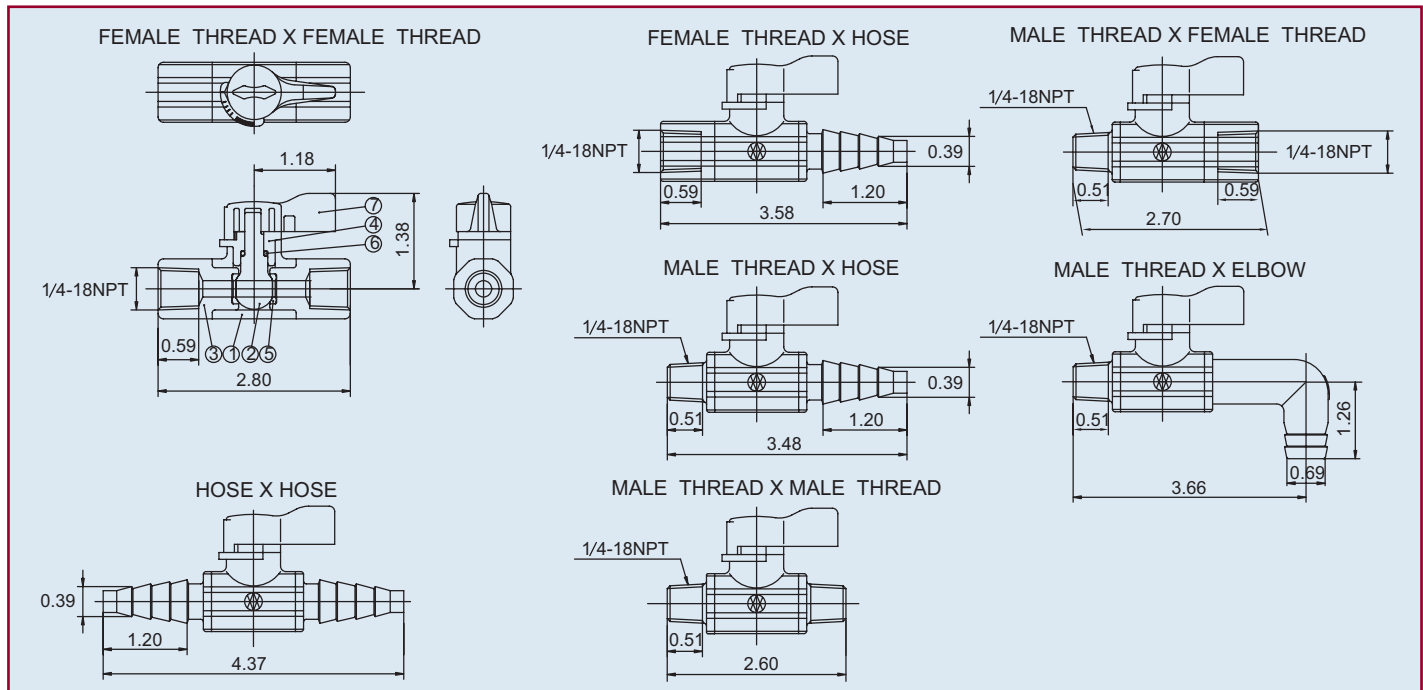
- Pressure rated at 150psi at 120° F (water)
- Precise fingertip control
- Calibrated flow indicator
- Rugged unibody construction, sturdy stem
- Full vacuum rated, 29.9" Hg
- 90 degree turn operation with lever handle
- Cv = 1.6

Sample Specification

All Labcock® valves shall be of compact, unibody construction having a lever handle, calibrated flow indicator and male threads, female threads, hose ends or elbow as part of the valves' integral construction. Valves shall be constructed of PVC conforming to ASTM D1784 Cell Classification 12454A. All O-rings shall be EPDM. Labcock® valves are rated to 150psi at 70° F, as manufactured by Asahi/America, Inc.

Parts List (Size 1/4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
2	Ball and Stem	1	PVC
3	End Connector	2	PVC
4	Gland	1	PVC
5	Seat	2	EPDM, Others
6	O-Ring	1	EPDM, Others
7	Handle	1	ABS





Series 83 - Electromni® T-27

Standard Features (Sizes 1/2" – 2")

- PVC or CPVC Omni® Type-27 valve
(all materials Type-21 or Type-23 ball valves up to 2")
- Standard models are 115 VAC thermally protected with single limit switch cam/coupling activated
- Sealed weatherproof enclosure includes:
 - Flanged cover and base Type 4X rated enclosure with Nitrile flat gasket seal
 - Nitrile O-ring or gasket valve to actuator base seal
 - Nitrile motor mounting bolt seals
 - NPT threaded to base 90° elbow provides 1/2" NPT conduit entry with 6" color coded wire leads
- Interated ISO mounting pattern baseplates
- Direct mounted valves - No mounting bracket required
- Sealed 90° cable entry elbow
- Captivated stainless steel hex head slotted cover screws
- Quarter-turn five second cycle time unidirectional (115 and 220 VAC) motors
- Quarter-turn five second cycle time for low voltage reversing motors (12/24 VAC, 12/24 VDC)
- Compact and low profile, ideal for OEM type installations

Options

- Voltages: 220 VAC, 12/24 VAC, 12/24 VDC
- Two-wire control relay for retrofitting solenoid (requires constant power and SPST dry contact switching)
- One additional limit switch for open/close position indication
- Amber/green position indicating lights

Specifications

Motor Type: Unidirectional, Single phase

Size: A83 1/2" - 2" valves

Torque: 110VAC

Voltage: 115 VAC, 50/60 Hz

Amp Draw: 2.1 Amps

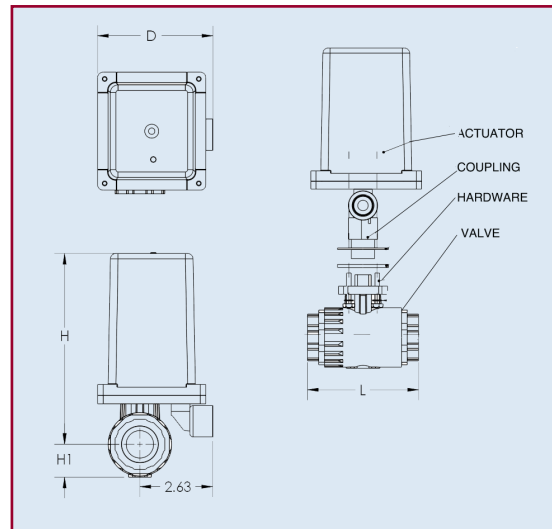
Temp: Ambient Temp to 150° F

Switches: One single pole, Double throw (15 Amp rating)

Enclosures: Corrosion/Weather proof -Type 4X

Sample Specification

All open/close electrically actuated ball valves, sizes 1/2" through 2", shall have direct mounted unidirectional quarter-turn actuators (110 VAC and 220 VAC, 12/24 VAC/VDC shall be reversing). Actuator shall be rated Type 4X design with gasket cover to base seal, captive cover screws, (1) 1/2" NPT conduit fitting with wires protruding 6" for customer hook-up and O-ring or gasket to valve seal. A green wire lead shall be provided for grounding purposes. The actuators shall be factory equipped with Omni® Type-27, Type-21 or Type-23 ball valves, as manufactured by Asahi/America, Inc.

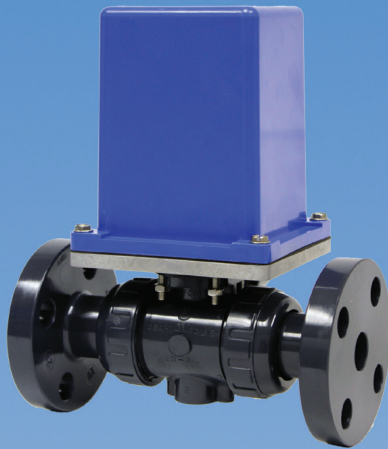


Wt. (lbs.)/Dimensions (in.) Voltage

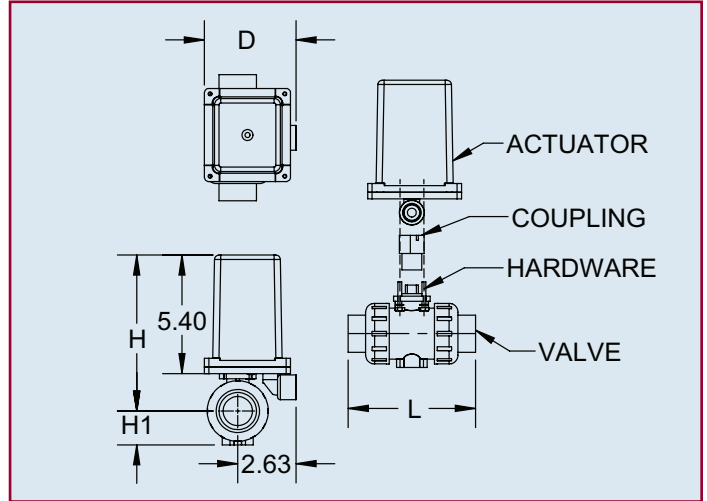
NOMINAL SIZE	WT. (LBS.)					Voltage	Current Draw (amps)	Cycle Time (sec)	Duty Cycle (%)	
		H	H1	L	D					
1/2	15	1.75	6.68	.81	3.11	4.14	115 VAC	2.10	5	25
3/4	20	2.00	6.96	1.00	3.70	4.14	220 VAC	.60	5	25
1	25	2.50	7.23	1.18	4.25	4.14	12 VAC	2.25	5	75
1-1/4	30	2.75	7.59	1.38	4.76	4.14	24 VAC	4.00	5	75
1-1/2	40	3.00	7.92	1.66	5.75	4.14	12 VDC	2.00	5	75
2	50	4.00	8.37	2.09	6.86	4.37	24 VDC	3.50	5	75

Duty cycle show for ambient temp. (73° F)

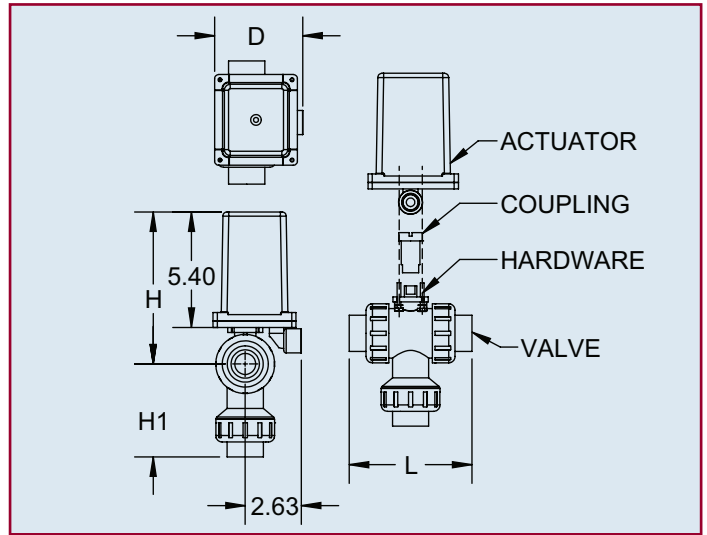
Electrically Actuated Ball Valves



Series 83 on Type-21 Ball Valve



Series 83 on Type-23 Ball Valve



Dimensions (in.)
Series 83 on
Type-21 (1/2"-2")

NOMINAL SIZE					
	INCHES	mm	H	H1	L
1/2	15	6.58	1.14	4.45	4.14
3/4	20	6.83	1.38	5.08	4.14
1	25	7.1	1.54	5.75	4.14
1-1/2	40	7.79	2.17	7.24	4.60
2	50	8.25	2.60	8.23	4.90

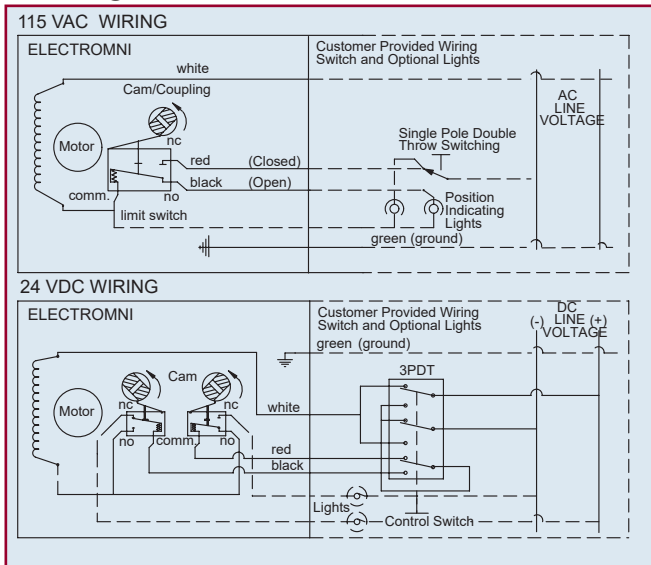
*PVC/CPVC Socket End
FOR FEATURES OF SERIES 83
ACTUATOR, SEE PAGE xx.

Dimensions (in.)
Series 83 on
Type-23 (1/2"-2")

NOMINAL SIZE					
	INCHES	mm	H	H1	L
1/2	15	6.58	3.05	4.45	4.14
3/4	20	6.83	3.56	5.08	4.14
1	25	7.11	4.34	5.75	4.14
1-1/2	40	7.80	6.09	7.24	4.59
2	50	8.25	6.87	8.23	5.10

*PVC/CPVC Socket End
FOR FEATURES OF SERIES 83
ACTUATOR, SEE PAGE xx.

Wiring

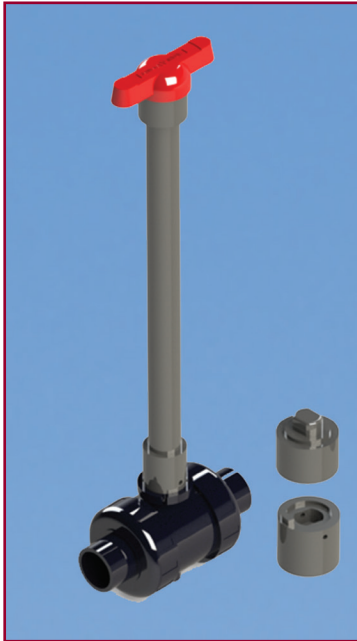


White - Neutral
Black - Hot Open
Red - Hot Closed

To Close: Neg. to White To Open: Pos. to White

20 Pos. to Black Neg. to Red

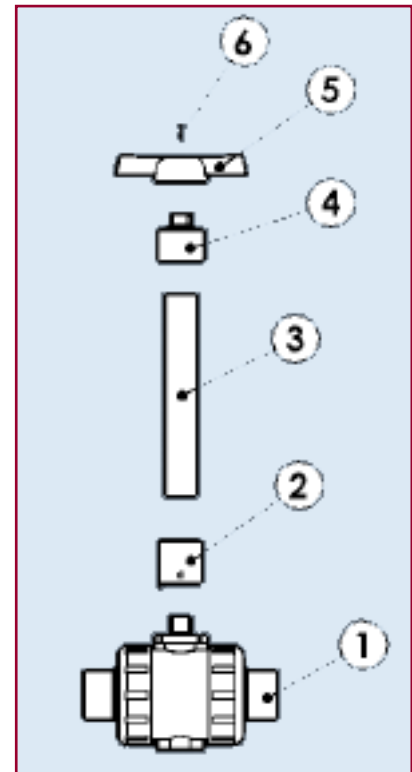
Type-21 Ball Valve Stem Extension Kit



The Type-21 ball valve stem extension kits are the ideal solution for accessing valves that are installed in out of reach locations. Machined from PVC bar stock to exact specifications, for a factory fit and finish. Available for valves 1/2" – 2", extension kits are supplied ready to be assembled and installed using your existing or a new Type-21 ball valve, and Schedule 40/80 PVC pipe. Cut your pipe to the desired length, solvent cement to the extension couplings, and install on the valve for a simple and effective stem extension.

Parts List (Sizes 1/2" – 2")

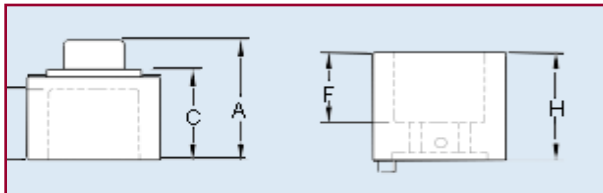
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Type-21 Ball valve	1	PVC,CPVC,PP,PVDF
2	Lower Coupling	1	PVC
3	Schedule 40/80 PVC Pipe	1	PVC (not supplied)
4	Upper Coupling	1	PVC
5	Type-21 Handle	1	ABS
6	SS Cap Screw	1	304SS



Standard Features (Sizes 1/2" – 2")

- Designed to fit PVC, CPVC, PP & PVDF T-21 manual valves
- Machined from solid PVC stock - ASTM D1784 Cell Class 12454
- For use with Schedule 40/80 PVC pipe
- 2-piece kits for field assembly using PVC solvent cement
- 4 unique kits cover 1/2" thru 2" size range
- Tight tolerances provides factory fit and finish
- Torque tested & approved for handle extensions up to 6' long
- Not intended for actuator use

Dimensions (in.)

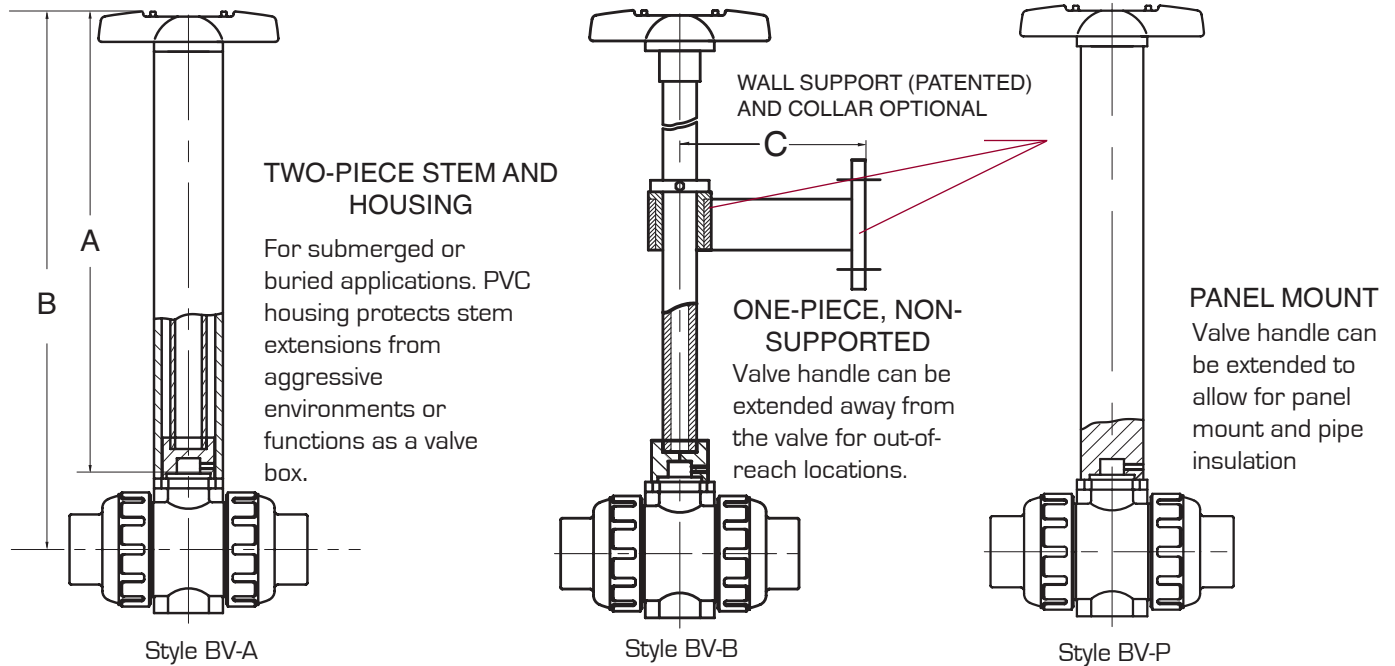


NOMINAL SIZE		Pipe Size*	A	B	C	D	F
INCHES	mm						
1/2	15	1" Sch 40/80	1.895	1.760	1.330	1.125	1.125
3/4-1	20-25	1" Sch 40/80	1.970	1.760	1.330	1.125	1.125
1-1/4	32	1" Sch 40/80	2.010	1.760	1.330	1.125	1.125
1-1/2-2	40-50	1" Sch 40/80	2.150	1.760	1.330	1.125	1.125

*Schedule 40 or 80 PVC pipe can be used, for maximum strength Schedule 80 is recommended.

Ball Valve Stem Extensions and Options

Stem Extensions

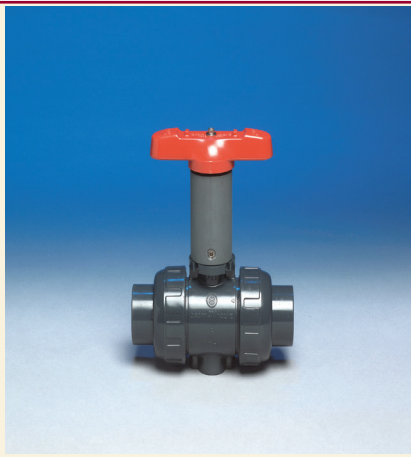


All stem extension tolerances +/- 1 inch

Please use Stem Extension Work Sheet on Page 23 when ordering any stem extension

Panel Mount

VALVE HANDLE IS EXTENDED FOR PANEL MOUNT (STYLE BV-P) APPLICATION. PLEASE SPECIFY LENGTH OF EXTENSION
1/2"-2" MIN LENGTH IS 2"
2-1/2"-3" MIN LENGTH IS 4"
12" MAX. LENGTH.



P-Series Manual Limit Switch

COMPACT TYPE 4X LIMIT SWITCH FOR REMOTE POSITION INDICATION OF MANUAL VALVES. INCLUDES 2-SPDT MECHANICAL SWITCHES, TERMINAL STRIP, VISUAL BEACON, ENCLOSURE, FACTORY MOUNT AND TESTING.



Remote Operating Nuts

2" SQUARE OPERATING NUTS OR "T" OPERATING NUTS MAY BE INSTALLED ON ANY BALL VALVE. THEY ARE USED FOR REMOTE OPERATION OF A VALVE WITH AN EXTENDED WRENCH.



Westlock Manual Limit Switch

TYPE 4X OR 7 LIMIT SWITCH FOR REMOTE POSITION INDICATION OF MANUAL VALVES INCLUDES 2-SPDT MECHANICAL SWITCHES, TERMINAL STRIP, VISUAL BEACON, ENCLOSURE, FACTORY MOUNTING & TESTING.



Stem Extensions Data Sheet

Stem Extension Work Sheet

Please copy this sheet and send it to us at 800-787-6861 with every stem extension order.

1. Customer Name _____ Order No. _____
2. Valve Size _____

Ball Valves Type-21 Type-23

Butterfly Valves Type-57 Type-56 Type-75
 Lever or Gear

Diaphragm Valves Type-14 Type-15 Type G

Gate Valves

3. Extension Style Letter _____
4. Extension Length _____ft. _____ in.
 Dimension A or B
5. Special Instructions

No Stem Extension Orders will be processed without completed Stem Extension Work Sheet.

Note: All actuator extensions will be measured from the bottom of the actuator for Dimension A or Dimension B.

All stem extensions except Panel Mount extensions are +/- 1" on overall length.
Panel Mount extensions are +/- 1/4"



Specifications

Motor Type: Reversing, 1/4 turn single phase

Sizes: S92, A92 for sizes 1/2" - 4" ball valves

Torque: 400 to 700 in-lbs.

Voltage: 120 VAC, 50/60 Hz

Amp Draw: For S92: .50 Amps
For A92: .80 Amps

Max Ambient Temp: 150° F

Switches: Two single pole, double throw (15 Amp rating)

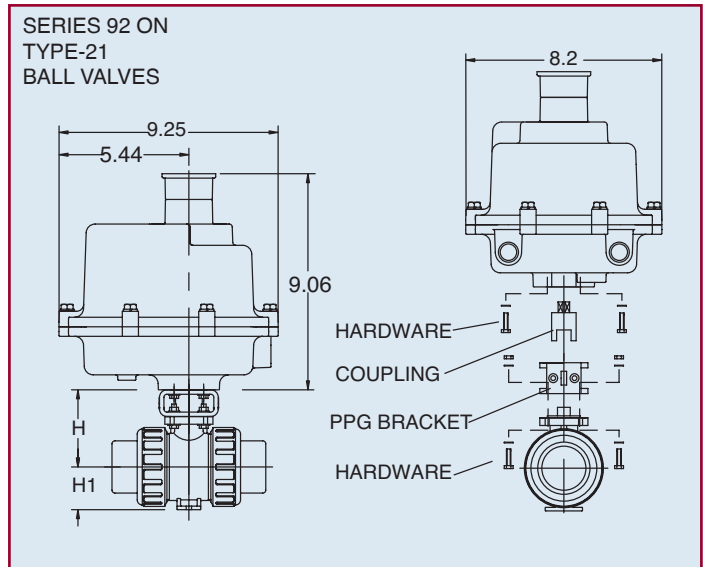
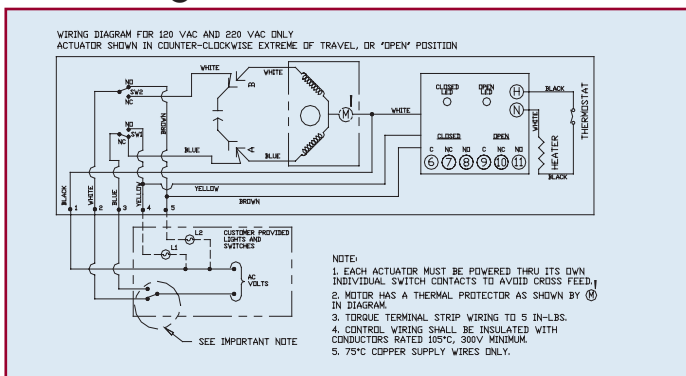
Standard Features (Sizes 1/2" - 4")

- Brushless, capacitor-run motors (AC models)
- Integral thermal overload protection with auto-reset (AC models)
- Permanently lubricated gear train
- High duty cycle motor for high cycle applications
- Weatherproof enclosure rated Type 4X has a thermally bonded powder coat finish with SS trim
- ISO mounting
- Two 1/2" NPT conduit ports prevent interference between control and power signals
- Declutchable manual override
- Standard travel stop limit switches can simultaneously be used for indicator lights
- Highly visible position indicator
- Captivated SS hex head slotted cover screws
- RHM module (consists of 2-SPDT 8A relays/dry connects) and heater and thermostat (see page 26)

Options

- Fail safe battery pack
- Feedback potentiometer
- Positioner: 4-20 mA or 0-10 VDC input
- 4-20 mA output position transmitter
- Voltages: 220 VAC, 24 VAC, 12 VAC, 24 VDC, 12 VDC
- Mechanical brake (eliminates seating oscillation)
- Explosion-proof enclosure (UL1203)

AC Wiring (For 120 VAC and 220 VAC only)



Engineering Data

Actuator Model	Torque (in-lbs.)	Duty Cycle	Cycle Time* (sec)	Weight (lbs.)	Amp Draw					
					120 VAC	220 VAC	24 VAC	12 VAC	24 VDC	12 VDC
S92	400	100	15	15.3	0.5	0.4	3.0	2.0	4.0	2.0
A92	700	75	15	15.3	0.8	0.6	3.0	2.0	4.0	2.0

Cycle times are approximate.

Duty cycle show for ambient temp. (73° F)

Dimensions (in.)

NOMINAL SIZE		H	H1
INCHES	mm		
1/2	15	2.76	1.14
3/4	20	3.01	1.38
1	25	3.29	1.54
1-1/4	30	3.64	1.85
1-1/2	40	3.98	2.17
2	50	4.43	2.60
2-1/2	65	5.12	2.83
3	80	5.47	3.35
4	100	6.97	4.33

NOTE TO WIRING DIAGRAM:

1. EACH ACTUATOR MUST BE POWERED THROUGH ITS OWN INDIVIDUAL SWITCH CONTACTS TO AVOID CROSS FEED.
2. WIRING AS SHOWN IS FOR S92 AND A92 MODELS.
3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM. (120 AND 220 VAC MODEL).
4. IF 120 & 220 VAC MODELS ARE PLC DRIVEN, OUTPUT CONTACTS OF PLC SHOULD BE RATED AT A MINIMUM OF 1.5 TIMES REQUIRED INPUT VOLTAGE OF ACTUATOR.



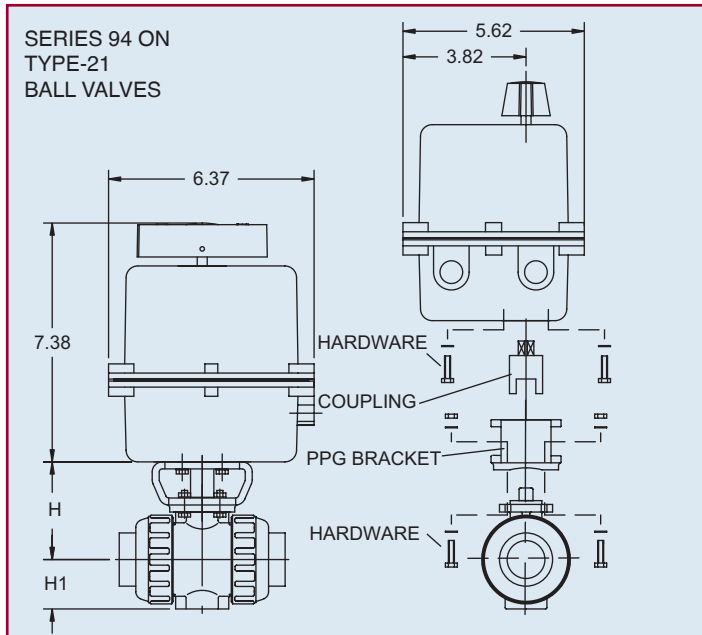
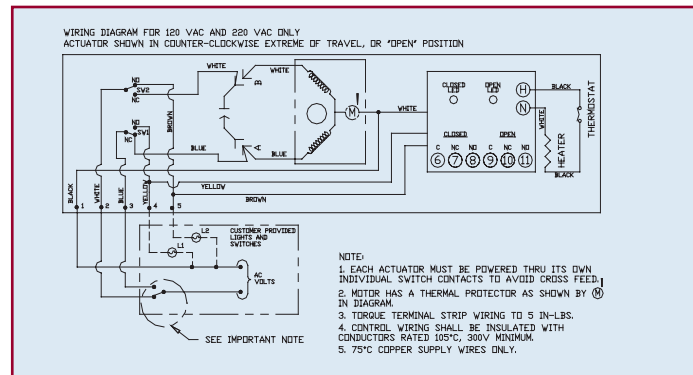
Specifications

Motor Type: Reversing, 1/4 turn, single phase
Sizes: A94, B94 for sizes 1/2" - 3" ball valves
Torque: 150 to 300 in-lbs.
Voltage: 120 VAC, 50/60 Hz
Amp Draw: For A94: .50 Amps
 For B94: .80 Amps
Max Ambient Temp: 150° F
Switches: Two single pole, double throw (15 Amp rating)

- ### Standard Features (Sizes 1/2" - 3")
- Brushless, capacitor-run motors (AC models)
 - Integral thermal overload protection with auto-reset (AC models)
 - Permanently lubricated gear train
 - High duty cycle motor for high cycle applications
 - Corrosion-proof/weatherproof rated Type 4X engineered resin housing with stainless steel trim
 - ISO mounting
 - Two 1/2" NPT conduit ports prevent interference between control and power signals
 - Compact design
 - Declutchable manual override
 - Standard travel stop limit switches can simultaneously be used for indicator lights
 - Visible position indicator
 - Captivated SS hex head slotted cover screws

- ### Options
- Fail safe battery pack
 - Extra limit switches
 - Heater and thermostat (to -40° F)
 - RHM module consists of 2-SPDT 8A relays/dry contacts and heater and thermostat (see page 26)
 - Feedback potentiometer
 - Positioner: 4-20 mA or 0-10 VDC input
 - 4-20 mA output position transmitter
 - Voltages: 220 VAC, 24 VAC, 12 VAC, 24 VDC, 12 VDC
 - Mechanical brake (eliminates seating oscillation)

AC Wiring (For 120 VAC and 220 VAC only)



Engineering Data

Actuator Model	Torque (in-lbs.)	Duty Cycle	Cycle Time* (sec)	Weight (lbs.)	Amp Draw					
					120 VAC	220 VAC	24 VAC	12 VAC	24 VDC	12 VDC
A94	150	100	5	3.5	0.5	0.4	4.0	2.0	4.0	2.0
B94	300	75	5	3.5	0.8	0.6	4.0	2.0	4.0	2.0

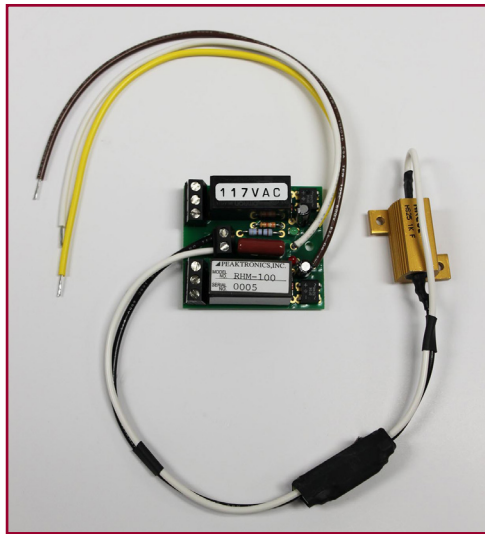
Cycle times are approximate.

Duty cycle show for ambient temp. (73° F)

- NOTE TO WIRING DIAGRAM:**
1. EACH ACTUATOR MUST BE POWERED THROUGH ITS OWN INDIVIDUAL SWITCH CONTACTS TO AVOID CROSS FEED.
 2. WIRING AS SHOWN IS FOR A94 AND B94 MODELS.
 3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY Ⓜ IN DIAGRAM. (120 AND 220 VAC MODEL).
 4. IF 120 & 220 VAC MODELS ARE PLC DRIVEN, OUTPUT CONTACTS OF PLC SHOULD BE RATED AT A MINIMUM OF 1.5 TIMES REQUIRED INPUT VOLTAGE OF ACTUATOR.

Dimensions (in.)

NOMINAL SIZE		H	H1
INCHES	mm		
1/2	15	2.76	1.14
3/4	20	3.01	1.38
1	25	3.29	1.54
1-1/4	30	3.64	1.85
1-1/2	40	3.98	2.17
2	50	4.43	2.60
2-1/2	65	5.12	2.83
3	80	5.47	3.35



Specifications

Standard Operating Voltage: 120 VAC
Optional Voltages: 220 VAC, 12 VAC, 24 VAC, 12 VDC, 24 VDC
Operating Current: 42mA @ 120 VAC
 39mA @ 220 VAC
 89mA @ 12 VAC
 43mA @ 24 VAC
 37mA @ 12 VDC
 23mA @ 24 VDC

Relay Outputs (Form C): 8A
Operating Temperature: -40 to 85 C

Approved for UL508 & UL1203 Actuators

Series 92/Series 94 Optional RHM (Relay Heater Module)

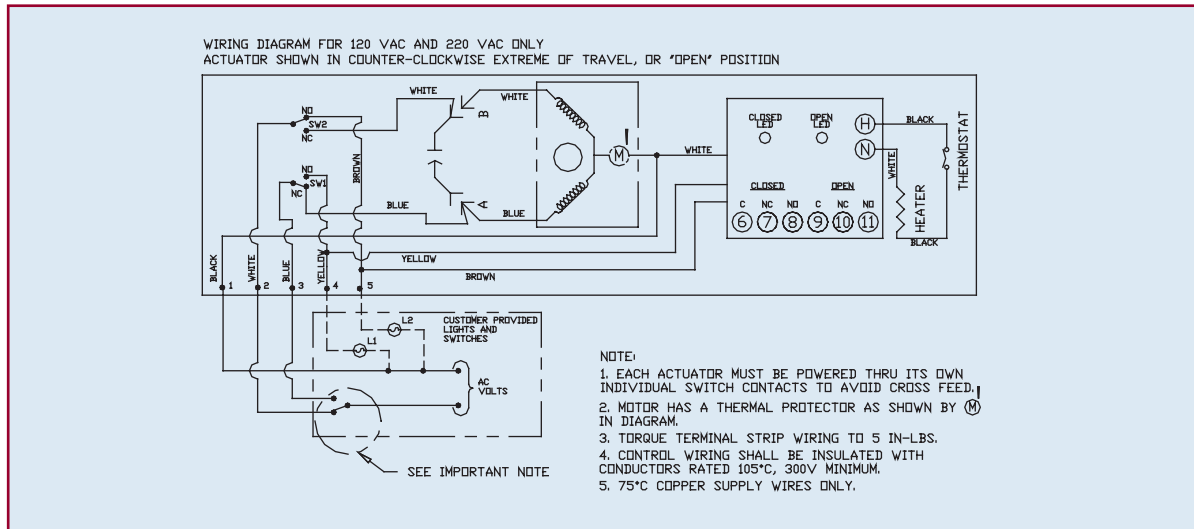
The RHM (Relay Heater Module) is a means of powering an optional heater and thermostat without requiring an additional constant power source or wiring. These modules also provide open and close Form C dry contacts that replace auxiliary switches. A 2-pin terminal block provides wiring connection of the heater and thermostat, while two 3-pin terminal blocks provide easy connection to the relays by the user.

When the actuator is powered to open, the motor runs until the open limit switch is tripped, then sends power to the RHM open connection. At that time power is provided to the heater and thermostat, the open relay coil, and to the on board Red LED. This provides contact closure at the end of the open cycle and confirms that power is provided to the heater and thermostat.

When the actuator is powered to close, the motor runs until the close limit switch is tripped, then sends power to the RHM close connection. At that time power is provided to the heater and thermostat, the close relay coil, and to the on board Green LED. This provides contact closure at the end of the close cycle and confirms that power is provided to the heater and thermostat.

*Power must be maintained at the end of travel for power to be applied to heater and thermostat. Also note that no power is provided to heater and thermostat when the actuator is in mid travel.

AC Wiring (For 120 VAC and 220 VAC only)



Electrically Actuated Type-23



Series 92 on Type-23 Ball Valve



Series 94 on Type-23 Ball Valve

L port ball configuration supplied as a standard for 180 degree rotation.

Dimensions (in.)

Series 92 on Type-23 (1/2"-4")

NOMINAL SIZE		H	H1*
INCHES	mm		
1/2	15	2.76	3.08
3/4	20	3.01	3.56
1	25	3.29	4.32
1-1/2	40	3.98	5.71
2	50	4.43	6.66
3	80	5.47	9.59
4	100	6.97	11.58

*PVC/CPVC Socket End

FOR FEATURES OF SERIES 92 ACTUATOR, SEE PAGE 24.

Dimensions (in.)

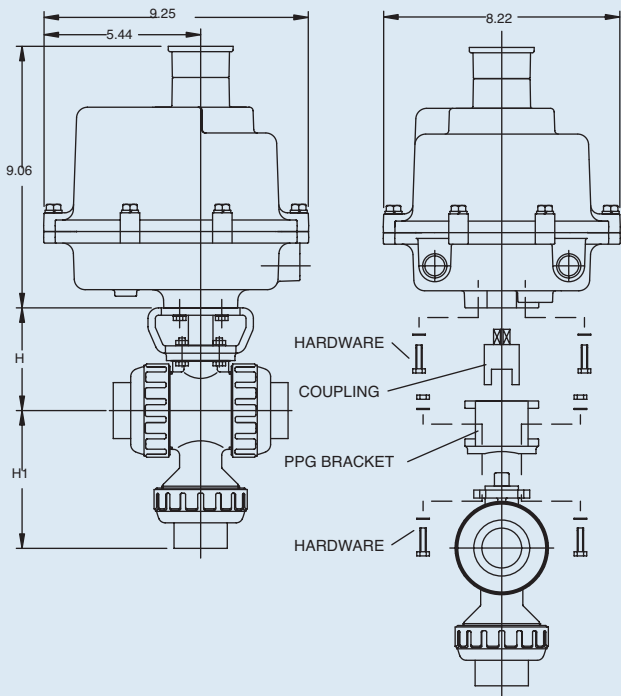
Series 94 on Type-23(1/2"-3")

NOMINAL SIZE		H	H1*
INCHES	mm		
1/2	15	2.76	3.08
3/4	20	3.01	3.56
1	25	3.29	4.32
1-1/2	40	3.98	5.71
2	50	4.43	6.66
3	80	5.47	9.59

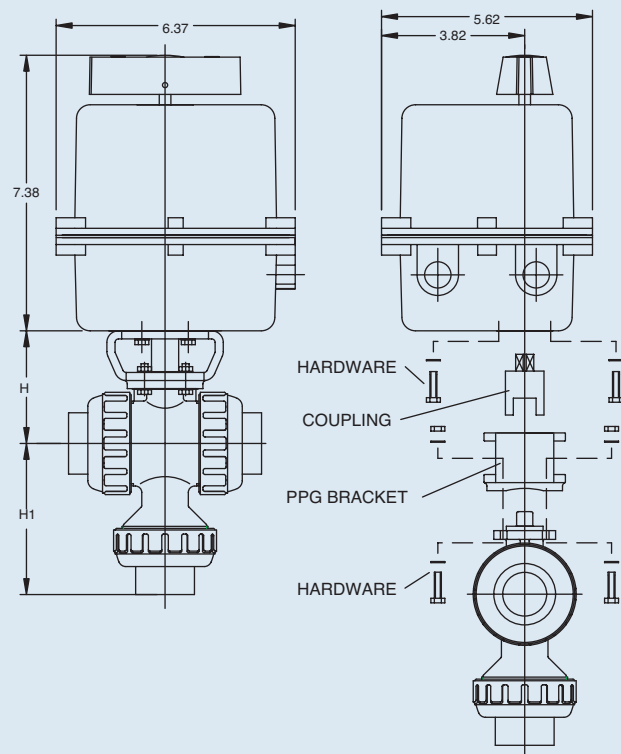
*PVC/CPVC Socket End

FOR FEATURES OF SERIES 94 ACTUATOR, SEE PAGE 25

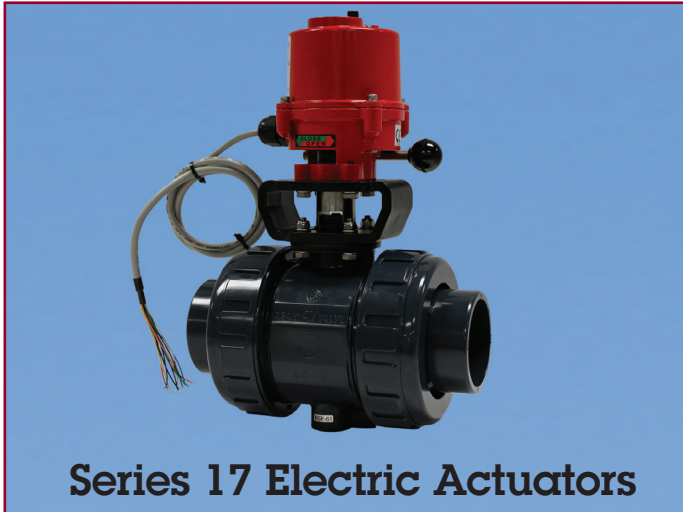
SERIES 92 ON TYPE-23 BALL VALVES SIZES 1/2" - 4"



SERIES 94 ON TYPE-23 BALL VALVES SIZES 1/2" - 3"



Series 17 Electric Actuator



Specifications

- Torque:** 350 in/lbs.
- Voltage:** 85-265 VAC single phase, 24 VDC
- Amp Draw:** 0.45
- Wiring:** 1.2M flying leads
- Max Ambient Temperature:** 150°
- Limit Switches:** Two (2) SPDT end of travel switches
Two (2) SPDT dry contact switches rated 5A@250 VAC
- Heater:** 0.5W
- Cycle Time per 90°:** 12 seconds

Standard Features

- **Size:** Compact, lightweight
- **Motor:** Low current, reversing DC motor
- **Multi-voltage:** 85-265VAC single-phase, 24VDC
- **Overload Protection:** Electric motor cuts out at 2 Amps
- **Gear Train:** Permanently lubricated solid gearing
- **Corrosion Resistant Enclosure:** Thermally bonded powder coat finish
- **Position Indication:** Mechanical dial indication
- **LED's:** Open and close LED position indication [red/open, green/closed]
- **De-clutchable Manual Override:** Push down override button and use provided lever to manually position in the event of no power
- **Auxiliary Limit Switches:** Dry contact switches for open and close positions
- **Enclosure:** Combination NEMA Type 4X and 6 enclosure with captive cover screws
- **Electrical Connections:** Sealed cable gland with 1.2M flying leads
- **Space Heater:** Standard equipment
- **ISO Mounting:** FO3, FO4, FO5 X 14mm star

Engineering Data

Torque (in./lbs.)	110 VAC		220 VAC		24 VDC		Cycle Time per 90 Degrees (Seconds) *	Weight (lbs)
	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
350	0.12	70%	0.06	70%	0.46	70%	12	2.7

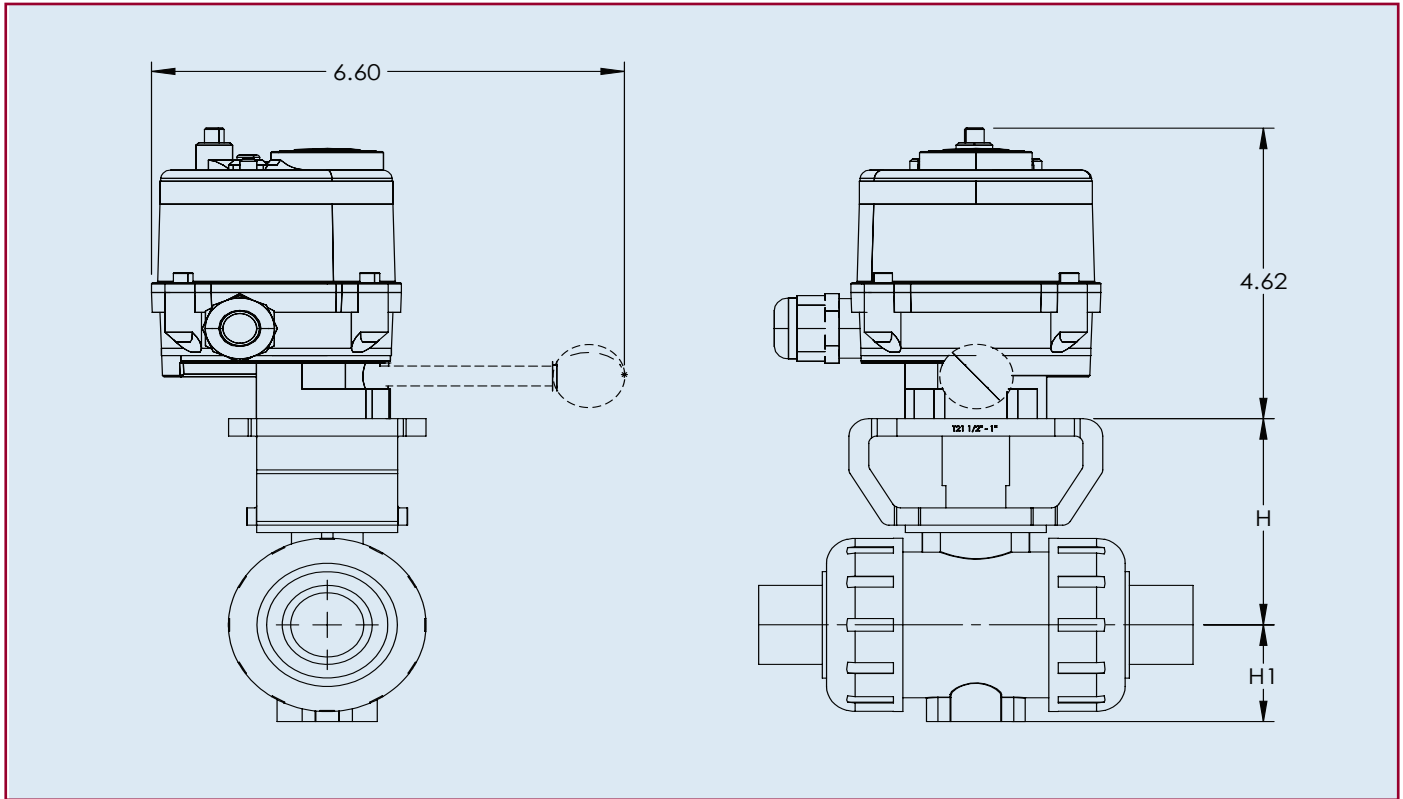
*Cycle times are approximate
AMP rating is considered running.

Duty cycles are for ambient temperature (73° F).

Sample Specifications

All Series 17 electric actuators shall have a bidirectional (reversing type) motor, with a permanently lubricated gear train. Actuator shall have a die cast aluminum housing anodized inside and outside, with an external polyester powder coat finish, rated Type 4X and 6. Each actuator shall have a manual override, visual position indication, two auxiliary limit switches, two position indicating lights and a space heater, as supplied by Asahi/America, Inc.

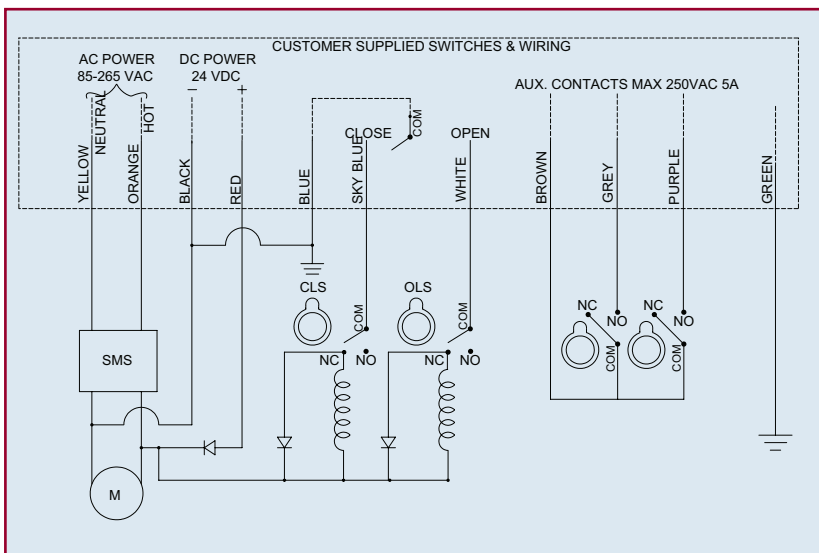
Series 17 Electric Actuator



Dimensions (in.)

INCHES	mm	H	H1
1/2	15	2.76	1.14
3/4	20	3.01	1.38
1	25	3.29	1.54
1-1/4	32	3.64	1.85
1-1/2	40	3.98	2.17
2	50	4.43	2.60

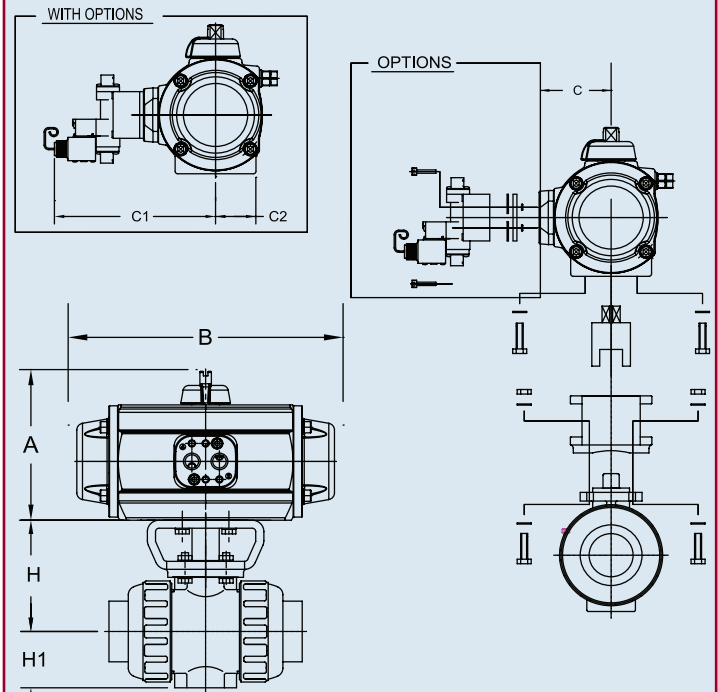
Wiring Diagram



Pneumatically Actuated Type-21



Type 79P on Type-21 Ball Valve



Dimensions (Sizes 1/2" – 4") (in.)

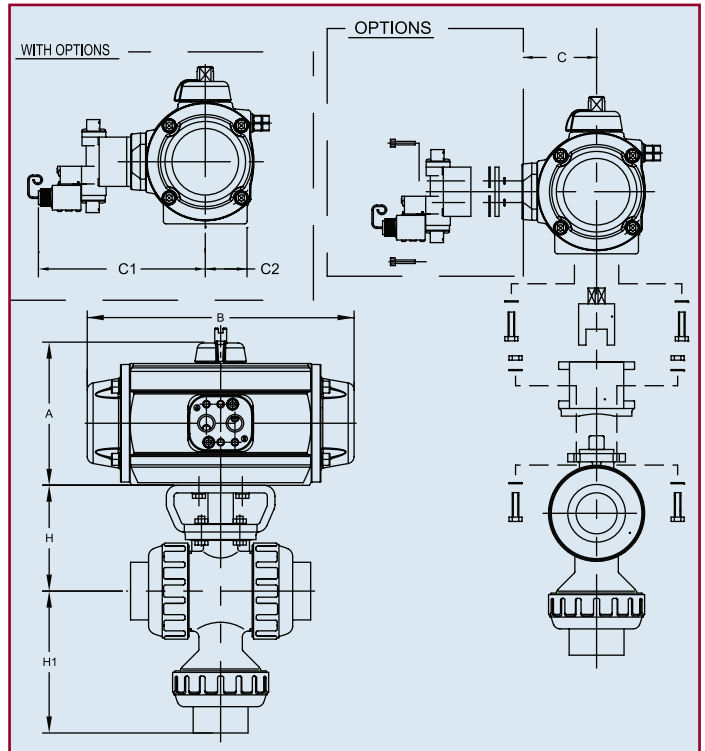
NOMINAL SIZE		Model No. Air-Air	Model No. Air-Spring	H	H1*	A		B		C		C1		C2	
INCHES	mm					A-A	A-S	A-A	A-S	A-A	A-S	A-A	A-S	A-A	A-S
1/2	15	AP79PN	AP79PSN	2.76	1.14	3.50	3.50	5.51	5.51	1.47	1.47	5.41	5.41	1.21	1.21
3/4	20	AP79PN	AP79PSN	3.01	1.38	3.50	3.50	5.51	5.51	1.47	1.47	5.41	5.41	1.21	1.21
1	25	AP79PN	AP79PSN	3.29	1.54	3.50	3.50	5.51	5.51	1.47	1.47	5.41	5.41	1.21	1.21
1-1/4	32	AP79PN	BP79PSN	3.64	1.85	3.50	4.00	5.51	6.22	1.47	1.47	5.41	5.41	1.21	1.21
1-1/2	40	AP79PN	BP79PSN	3.98	2.17	3.50	4.00	5.51	6.22	1.47	1.73	5.41	5.41	1.21	1.41
2	50	AP79PN	CP79PSN	4.43	2.60	3.50	4.84	5.51	9.05	1.47	1.97	5.41	5.41	1.21	1.85
2-1/2	65	CP79PN	CP79PSN	5.12	2.83	4.84	4.84	9.05	9.05	1.97	1.97	5.89	5.89	1.85	1.85
3	80	CP79PN	DP79PSN	5.47	3.35	4.84	5.76	9.05	12.32	1.97	2.56	5.89	5.89	1.85	2.36
4	100	CP79PN	DP79PSN	6.97	4.33	4.84	5.76	9.05	12.32	2.56	2.56	6.48	6.48	2.36	2.36

* Reflects PVC socket for others see valve on page 13

Pneumatically Actuated Type-23



Series 79P on Type 23 Valve



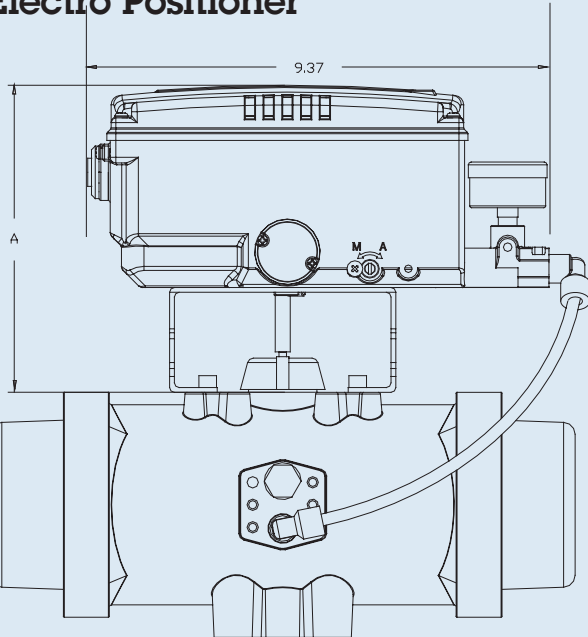
Dimensions (Sizes 1/2" – 4") (in.)

NOMINAL SIZE		Model No. Air-Air	Modes No. Air-Spring	H	H1	A		B		C		C1		C2	
INCHES	mm					A-A	A-S	A-A	A-S	A-A	A-S	A-A	A-S	A-A	A-S
1/2	15	AP79PN	AP79PSN	2.76	3.70	3.50	3.50	5.51	5.51	1.47	1.47	5.41	5.41	1.21	1.21
3/4	20	AP79PN	AP79PSN	3.01	4.50	3.50	3.50	5.51	5.51	1.47	1.47	5.41	5.41	1.21	1.21
1	25	AP79PN	AP79PSN	3.29	5.24	3.50	3.50	5.51	5.51	1.47	1.47	5.41	5.41	1.21	1.21
1-1/2	40	AP79PN	BP79PSN	3.98	6.50	3.50	4.00	5.51	6.22	1.47	1.73	5.41	5.66	1.21	1.41
2	50	AP79PN	CP79PSN	4.43	7.34	3.50	4.84	5.51	9.05	1.47	1.97	5.41	5.89	1.21	1.85
3	80	CP79PN	DP79PSN	5.47	10.06	4.84	5.76	9.05	12.32	1.97	2.56	5.89	6.48	1.85	2.36
4	100	CP79PN	DP79PSN	6.97	12.01	4.84	5.76	9.05	12.32	2.56	2.56	6.48	6.48	2.36	2.36

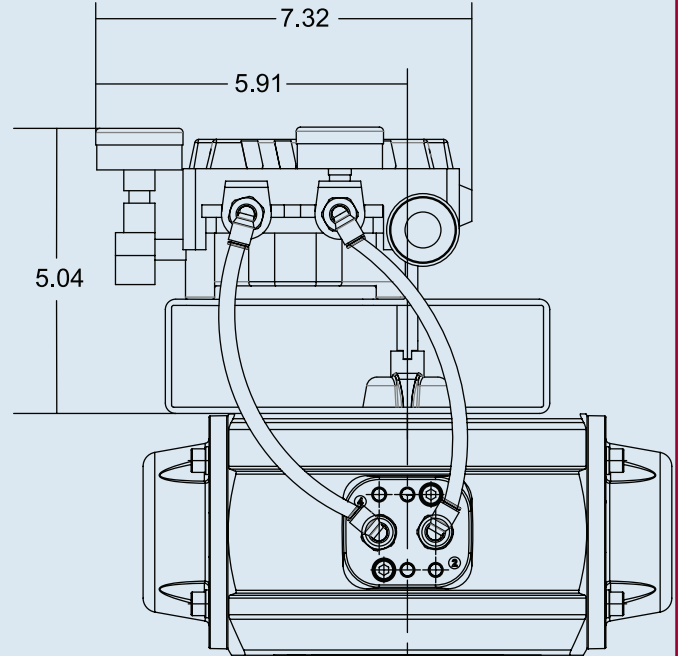
Double L port ball configuration supplied as a standard for 90 degree rotation.

Pneumatic Actuator and Options

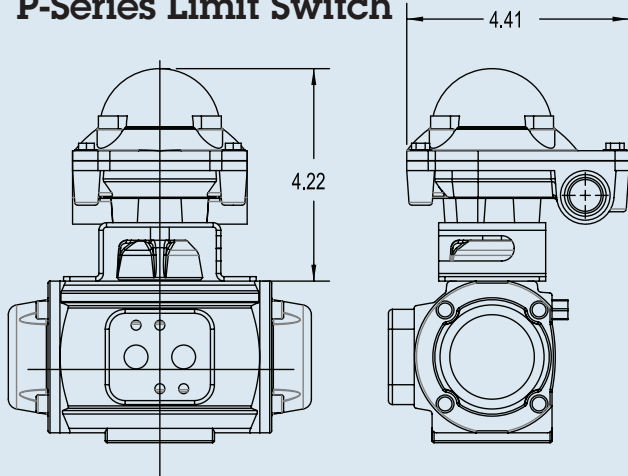
**PST-202A
Electro Positioner**



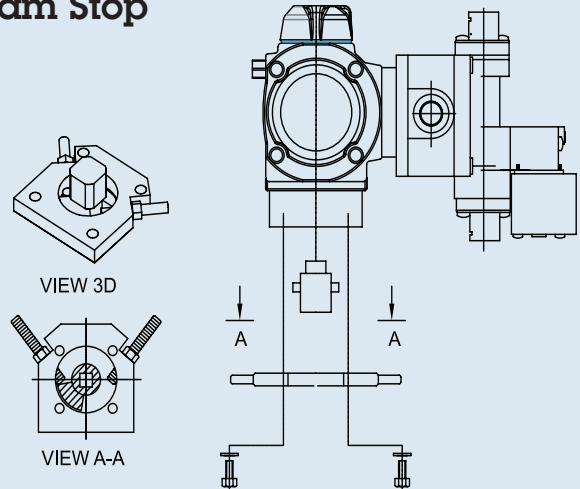
**PST-101
Pneumatic Positioner**



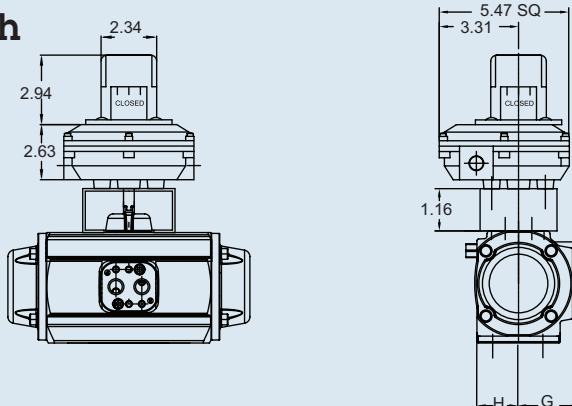
P-Series Limit Switch



Cam Stop



Westlock Limit Switch





New Design Features

- Redesigned degressed position indication plate for Lever type valves
- Molded valve body tag holes
- Increased internal sealing performance

Standard Features (Sizes 1-1/2" – 14")

- 316SS Stem with full disc engagement
- Full seat design eliminates gaskets
- Seat overtightening prevention
- Lockout-Tagout – lever handle molded padlock provision and 2-molded valve body tag holes
- Highly visible 0° to 90° position indicator with 19 fine adjustment locking positions
- ISO 5211 F07 – F14 bolt circle on top flange
- Polypropylene stem retainer
- Spherical disc design
- Non-wetted stem and body - Isolated from the media
- Plasgear™ operator

Options

- Pneumatically and electrically actuated with accessories
- 2" square operating nuts
- Stem extensions
- Chain operators
- Manual limit switches
- Speed Handle™ - For Plasgear™ operator

Specifications

Sizes:	Lever: 1-1/2" – 8" Gear: 1-1/2" – 14"
Models:	Wafer Style
Operators:	Lever and Gear
Bodies:	PVC, CPVC PP and PVDF
Discs:	PVC, CPVC PP and PVDF
Seats:	EPDM, FKM, and Nitrile
Seals:	Same as seating material
Stems:	316 stainless steel, Titanium, Hastelloy C® ‡

**PVC/PP/EPDM Models
NSF-61 Certified**

‡ Trademark of Cabot Corporation

Parts List (Lever: Sizes 1-1/2" – 8")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Disc	1	PVC, CPVC, PP, PVDF
183	Seat bush (A)	1	PVC, PP, PVDF*
184	Seat bush (B)	1	PVC, PP, PVDF*
3	Seat	1	EPDM, FKM, NBR
6	O-ring (C)	1	EPDM, FKM, NBR
185	O-ring (I)	4	EPDM, FKM, NBR
7	Stem	1	Stainless Steel 316
8	Stem Retainer	1	PP
157	Screw (F)	4	Stainless Steel 304
16	Handle	1	PP
16A	Metal Handle Insert	1	Stainless Steel 316L
17	Handle Lever	1	PPG
18	Pin	1	PPG
19	Spring	1	Stainless Steel 304
20	Washer (A)	1	Stainless Steel 304
21	Bolt (B)	1	Stainless Steel 304
22	Locking Plate	1	PPG
23	Screw (B)	4	Stainless Steel 304
24	Cap (A)	1	PP

* Used for CPVC and PVDF

Parts List (Gear: Sizes 1-1/2" – 14")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Disc	1	PVC, CPVC, PP, PVDF
183	Seat bush (A)	1	PVC, PP, PVDF*
184	Seat bush (B)	1	PVC, PP, PVDF*
3	Seat	1	EPDM, FKM, NBR
6	O-ring (C)	1	EPDM, FKM, NBR
185	O-ring (I)	4	EPDM, FKM, NBR
7	Stem	1	Stainless Steel 316
8	Stem Retainer	1	PP
157	Screw (F)	4	Stainless Steel 304
25	Gearbox	1	Plasgear™
28	Bolt (C)	4	Stainless Steel 304
158	Gasket	1	EPDM

* Used for CPVC and PVDF

Cv Values

Nominal Size		CV values at various opening degrees		
Inches	mm	30°	60°	90°
1-1/2"	40	4	43	71
2"	50	7	73	120
2-1/2"	65	15	153	250
3"	80	18	183	300
4"	100	28	287	470
5"	125	49	506	830
6"	150	66	671	1100
8"	200	150	1525	2500
10"	150	232	2355	3860
12"	300	342	3477	5700
14"	350	386	3928	6440

Wt. (lbs.)

Nominal Size		PVC		CPVC		PP		PVDF	
Inches	mm	Lever	Gear	Lever	Gear	Lever	Gear	Lever	Gear
1-1/2"	40	2.9	7.5	-	-	2.4	6.8	3	7.7
2"	50	3.3	7.7	3.3	7.8	2.6	7.3	3.7	8.4
2-1/2"	65	3.8	8.4	-	-	3	7.5	4.2	8.8
3"	80	4.2	8.6	4.2	8.6	3.5	8	4.9	9.3
4"	100	5.5	10	5.5	10	4.4	8.8	6.4	10.8
5"	125	10.8	14.3	-	-	8.8	12.3	12.6	16.1
6"	150	12.8	16.3	13	16.5	10.1	13.7	15.2	18.7
8"	200	20.5	23.6	20.5	24	16.3	19.6	24.3	27.6
10"	250	-	32.4	-	-	-	27	-	41
12"	300	-	61.7	-	-	-	53	-	76
14"	350	-	67	-	-	-	58	-	81

Vacuum Service-Lever Vacuum Service-Gear

Nominal Size		Inches of Mercury
Inches	mm	
1-1/2"	40	-29.92
2"	50	-29.92
2-1/2"	65	-29.92
3"	80	-29.92
4"	100	-29.92
5"	125	-29.92
6"	150	-29.92
8"	200	-29.92

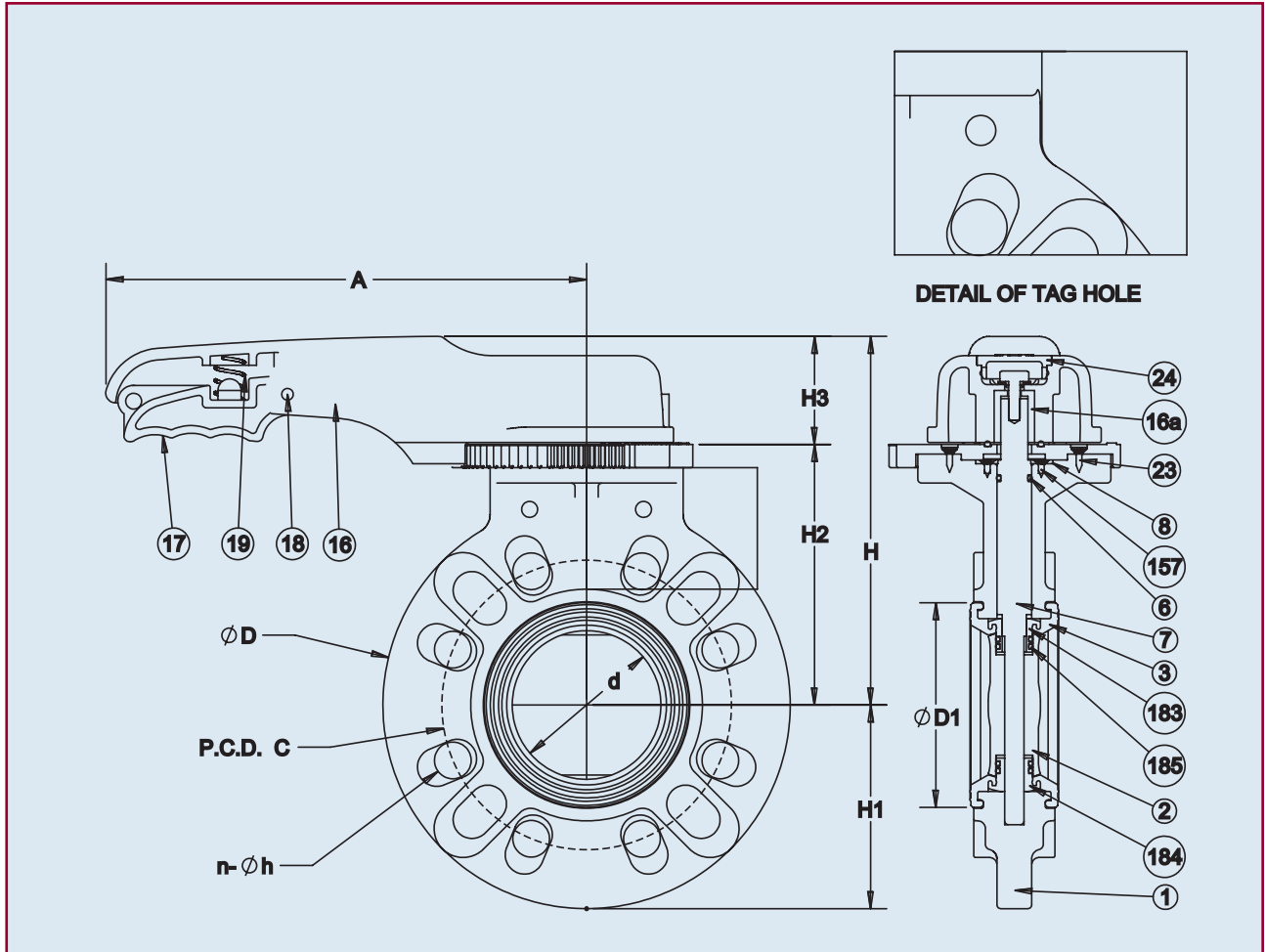
Nominal Size		Inches of Mercury
Inches	mm	
1-1/2"	40	-29.92
2"	50	-29.92
2-1/2"	65	-29.92
3"	80	-29.92
4"	100	-29.92
5"	125	-29.92
6"	150	-29.92
8"	200	-29.92
10"	250	-29.92
12"	300	-23.62
14"	350	-23.62

Pressure vs. Temperature (psi, water, non-shock)*

Body		PVC	PVC PP,PVDF		CPVC CPVC				PP PP,PVDF		PVDF PVDF			
Disc		PVC	30°F	121°F	30°F	141°F	161°F	177°F	-5°F	141°F	-5°F	141°F	176°F	211°F
Nominal Size		30°F	120°F	140°F	140°F	160°F	176°F	195°F	140°F	175°F	140°F	175°F	210°F	250°F
Inches	mm													
1-1/2"	40	150	150	70	-	-	-	-	150	100	150	100	85	75
2"	50	150	150	70	150	120	100	55	150	100	150	100	85	75
2-1/2"	65	150	150	70	-	-	-	-	150	100	150	100	85	75
3"	80	150	150	70	150	120	100	55	150	100	150	100	85	75
4"	100	150	150	45	150	120	100	55	150	100	150	100	85	75
5"	125	150	150	45	-	-	-	-	150	100	150	100	85	75
6"	150	150	150	45	150	120	100	55	150	100	150	100	85	75
8"	200	150	150	40	150	120	100	55	150	85	150	85	75	60
10"	250	150	150	40	-	-	-	-	150	85	150	85	75	60
12"	300	100	100	30	-	-	-	-	100	60	100	60	45	30
14"	350	100	100	30	-	-	-	-	100	45	100	45	30	15

*FKM seat butterfly valves have a low temperature limit of 23°F, regardless of body/disc material.

** For Lug style data consult factory



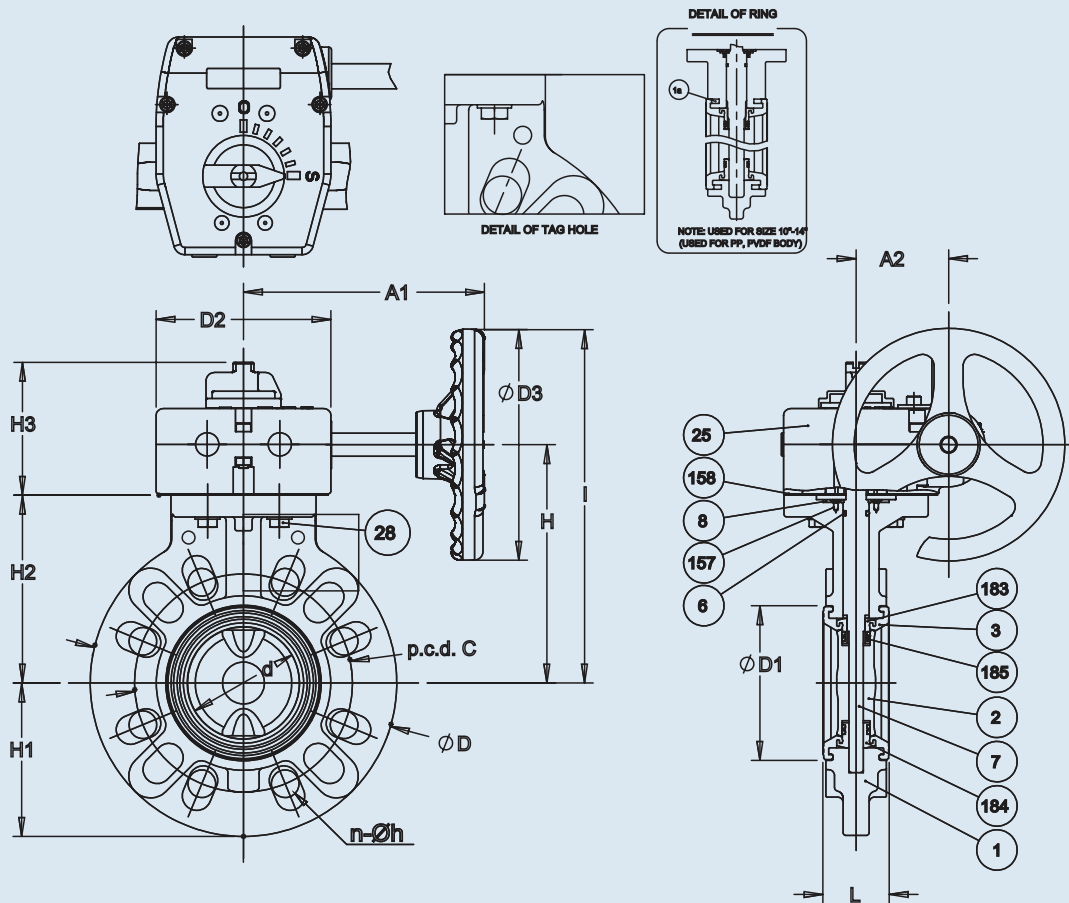
Dimensions (Sizes 1-1/2" – 8") (in.)

Nominal Size		d	ANSI Class 150			D	D1	L	H	H1	H2	H3	A
Inches	mm		C	n	h								
1-1/2"	40mm	1.77	3.88	4	0.62	5.91	2.83	1.54	6.14	2.95	3.94	2.20	8.66
2"	50mm	2.20	4.75	4	0.75	6.50	3.23	1.65	6.54	3.25	4.33	2.20	8.66
2-1/2"	65mm	2.72	5.50	4	0.75	7.28	3.78	1.81	6.93	3.64	4.72	2.20	8.66
3"	80mm	3.03	6.00	4	0.75	8.31	4.17	1.81	7.52	4.15	5.31	2.20	9.84
4"	100mm	4.02	7.50	8	0.75	9.37	5.31	2.20	8.11	4.69	5.91	2.20	9.84
5"	125mm	5.08	8.50	8	0.88	10.39	6.69	2.60	9.33	5.20	6.61	2.72	12.60
6"	150mm	5.91	9.50	8	0.88	11.22	7.52	2.80	9.92	5.61	7.20	2.72	12.60
8"	200mm	7.68	11.75	8	0.88	13.39	9.53	3.43	11.14	6.69	8.43	2.72	15.75

Note: The shape and appearance of assembly differ a little with nominal size compared to the drawing

Type-57P – Gear

Butterfly Valves



Dimensions (Sizes 1-1/2" – 14") (in.)

Nominal Size		d	ANSI Class 150			D	D1	D2	D3	L	H	H1	H2	H3	I	A1	A2	Number of handle rotations	Gear Box Type
Inches	mm		C	n	h														
1-1/2"	40mm	1.77	3.88	4	0.62	5.91	2.83	4.80	6.30	1.54	5.12	2.95	3.74	3.54	8.27	6.57	2.52	9.5	Type 241
2"	50mm	2.20	4.75	4	0.75	6.50	3.23	4.80	6.30	1.65	5.51	3.25	4.13	3.54	8.66	6.57	2.52		
2-1/2"	65mm	2.72	5.50	4	0.75	7.28	3.78	4.80	6.30	1.81	5.91	3.64	4.53	3.54	9.06	6.57	2.52		
3"	80mm	3.03	6.00	4	0.75	8.31	4.17	4.80	6.30	1.81	6.50	4.15	5.12	3.54	9.65	6.57	2.52		
4"	100mm	4.02	7.50	8	0.75	9.37	5.31	4.80	6.30	2.20	7.09	4.69	5.71	3.54	10.24	6.57	2.52		
5"	125mm	5.08	8.50	8	0.88	10.39	6.69	4.80	6.30	2.60	7.68	5.20	6.30	3.54	10.83	6.57	2.52		
6"	150mm	5.91	9.50	8	0.88	11.22	7.52	4.80	6.30	2.80	8.27	5.61	6.89	3.54	11.42	6.57	2.52		
8"	200mm	7.68	11.75	8	0.88	13.39	9.53	4.80	6.30	3.43	9.49	6.69	8.11	3.54	12.64	6.57	2.52		
10"	250mm	9.84	14.25	12	1.00	16.57	11.89	4.80	6.30	4.33	10.87	8.31	9.49	3.62	14.02	6.57	2.52		
12"	300mm	11.93	17.00	12	1.00	19.21	14.17	7.40	11.81	5.08	13.39	9.61	11.73	4.25	19.29	10.71	3.90	Type 243	
14"	350mm	13.82	18.75	12	1.12	21.22	15.47	7.40	11.81	5.08	14.45	10.63	12.80	4.25	20.35	10.71	3.90		

Note: The shape and appearance of assembly differ a little with nominal size compared to the drawing



Position Indication Closed - 0° to Open - 90° in 10° increments

Sample Specification

Butterfly valves shall be Type-57P PVC, CPVC, PP or PVDF body with PVC, CPVC, PP or PVDF disc and either EPDM, Nitrile or FKM seat & seals. The liner shall be full seat design fully molded around the body where as only the disc and seat are wetted parts, feature raised convex rings on the face and is intended to be utilized as the mating flange gaskets. Valve shall have a spherical disc design with disc bushings with double O-ring seals for a high cycle life and ultimate sealing. Valve body shall have integral molded body stops and seat relief area to prevent over-tightening of the mating flanges from influencing valve operating torque. Valves shall accept flat faced flanges in accordance with ANSI B16.5 bolt pattern for 150 lb flanges. Valve stem shall be 316 SS, have PP stem retainer for valve stem retention, be non-wetted, and have engagement over the full length of the spherically designed disc. Valves shall be equipped with either Lever handle or Plasgear™ operator for manual operation. For lockout applications, the valve lever handle (sizes 1/1/2" – 8") shall have a molded provision for a padlock. The valve body shall feature 2 molded tag holes for the user. Valves sizes 1-1/2" – 14" shall feature a molded ISO 5211 bolt pattern for accessory mounting. PVC shall conform to ASTM D1784, Cell Classification 12454A, CPVC to ASTM D1784, Cell Classification 23567A, PP to ASTM D4101 Cell Classification PPO210B67272, and PVDF to ASTM D3222-91A, Cell Classification Type II.



Type-57IL Isolator Lug Butterfly Valves

Standard Features (Sizes 3" – 12")

- Standard model (3" - 12") has PVC body and PP disc for superior chemical resistance and elevated temperature capabilities
- Our 316 stainless steel stem has full engagement over the entire length of the disc and is a non-wetted part, totally isolated from the media
- Only solid and abrasion resistant plastic disc and elastomeric liner are wetted parts
- ISO bolt circle on top flange - No body or stem modifications required for accessories
- Stem retainer - PP retainer to prevent stem removal
- Seat overtightening protection molded body stops and seat stress relief area
- Spherical disc design offers increased Cv, ultimate sealing and high cycle life
- Over molded 316 stainless steel factory lug that allows bidirectional installation
- Plasgear™ gear operators for 3" - 12" standard

Options

- Pneumatically and electrically actuated with accessories
- Alternate discs:
 - (I) PVC: 3" - 12"
 - (II) PVDF: 3" - 12"
- Stems in titanium or Hastelloy C[‡]
- 2" square nut on stem (3" - 8" only)
- 2" square nut on gear operator (all sizes)
- Stem extensions (single stem and two-piece stem)
- Locking devices (gear type - standard on lever)
- Chain operators
- Manual limit switch - Asahi P-Series
- Tandem arrangements (Patented by A/A, Inc.)

Specifications

Sizes: Lever: 3" – 8"
Gear: 3" – 12"

Models: Lug Style

Operators: Lever and Gear

Body: PVC

Discs: PVC, PP, and PVDF

Seats: EPDM, FKM and Nitrile

Seals: Same as seating material

Stems: 316 stainless steel, Titanium, Hastelloy C[‡]

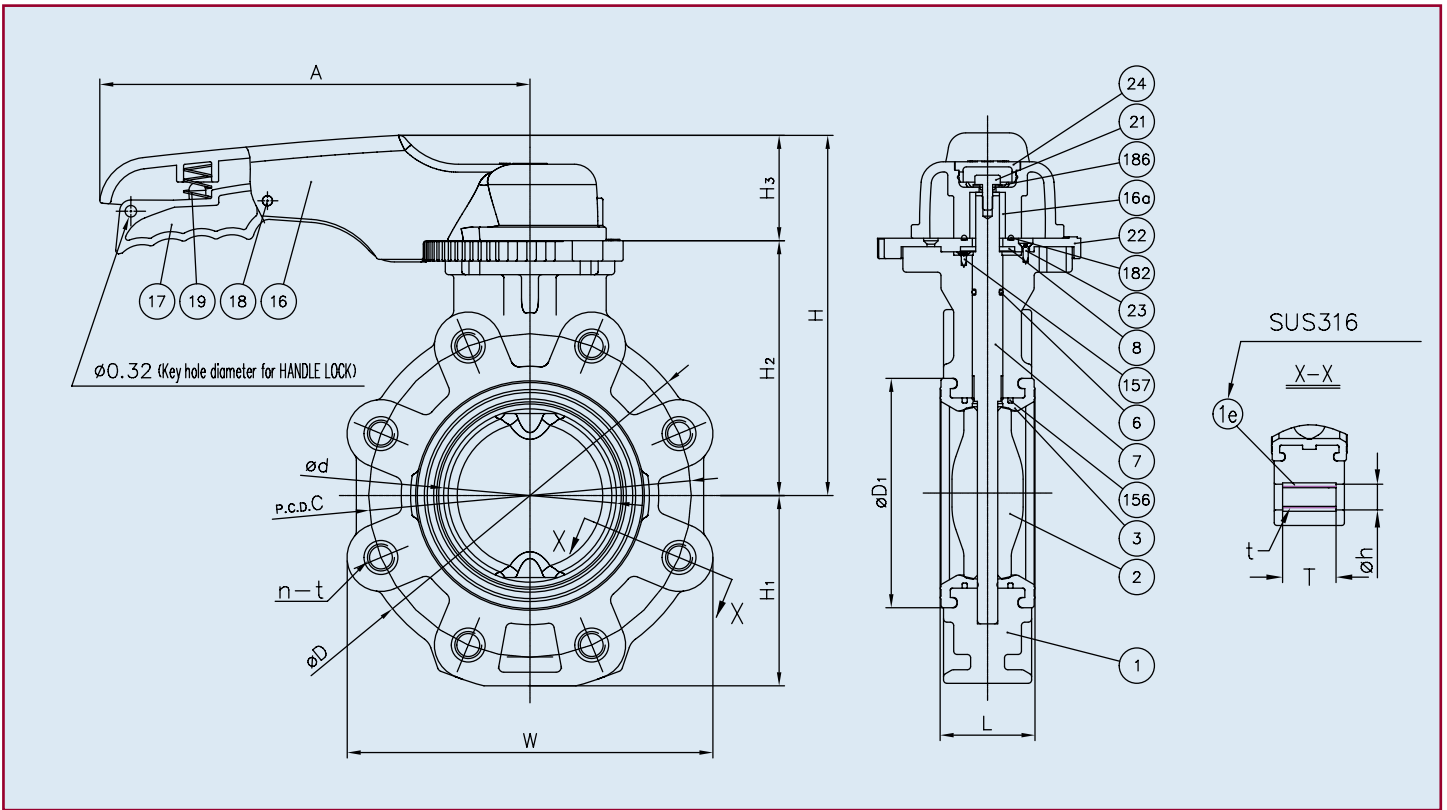
‡ Trademark of Cabot Corporation

Parts List (Lever: Sizes 3" – 8")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
1e	Lug	-	Stainless Steel 316
2	Disc	1	PVC, PP, PVDF
3	Seat	1	EPDM, FKM, NBR
6	O-Ring (C)	1	EPDM, FKM, NBR
7	Stem	1	Stainless Steel 316
8	Stem Retainer	1	PP
16	Handle	1	PP
16a	Metal Insert in Handle	1	Stainless Steel 316L
17	Handle Lever	1	PPG
18	Pin	1	PPG
19	Spring	1	Stainless Steel 304
20	Washer (A)	1	Stainless Steel 304
21	Bolt (B)	1	Stainless Steel 304
22	Locking Plate	1	PPG
23	Screw (B)	4	Stainless Steel 304
24	Cap (A)	1	PP
156	Stabilization Ring	2	Stainless Steel (SCS13)
157	Screw (F)	4	Stainless Steel 304



Type-57IL Isolator Lug Lever Butterfly Valve



Dimensions (Lever: Sizes 3" - 8") (in.)

NOMINAL SIZE		ANSI CLASS 150																
INCHES	mm	d	C	n	h	D	D1	L	H	H1	H2	H3	A	W	T	t		
3	80	3.03	6.00	4	0.75	7.28	4.13	1.81	7.52	3.82	5.31	2.20	9.84	7.09	1.26	5/8-11 UNC		
4	100	4.02	7.50	8	0.75	8.27	5.28	2.20	8.11	4.41	5.91	2.20	9.84	8.50	1.52	5/8-11 UNC		
6	150	5.91	9.50	8	0.87	10.63	7.48	2.80	9.92	5.55	7.2	2.72	12.60	10.67	1.97	3/4-10 UNC		
8	200	7.68	11.75	8	0.87	12.6	9.53	3.43	11.14	6.61	8.43	2.72	15.75	12.76	2.26	3/4-10 UNC		

Pressure vs. Temp.

BODY		PVC		
DISC		PP		
NOMINAL SIZE		30° F	121° F	141° F
INCHES	mm	120° F	140° F	175° F
3	80	150	70	30
4	100	150	45	30
6	150	150	45	30
8	200	150	40	20

Vacuum

NOMINAL SIZE		VACUUM SERVICE (INCHES OF MERCURY)
INCHES	mm	
3	80	-29.92
4	100	-29.92
6	150	-29.92
8	200	-29.92
10	250	-29.92
12	300	-24.37

Cv Values

NOMINAL SIZE		Cv (at various opening degrees)		
INCHES	mm	30°	60°	90°
3	80	18	183	300
4	100	28	287	470
6	150	66	671	1100
8	200	150	1525	2500
10	250	232	2355	3860
12	300	342	3477	5700

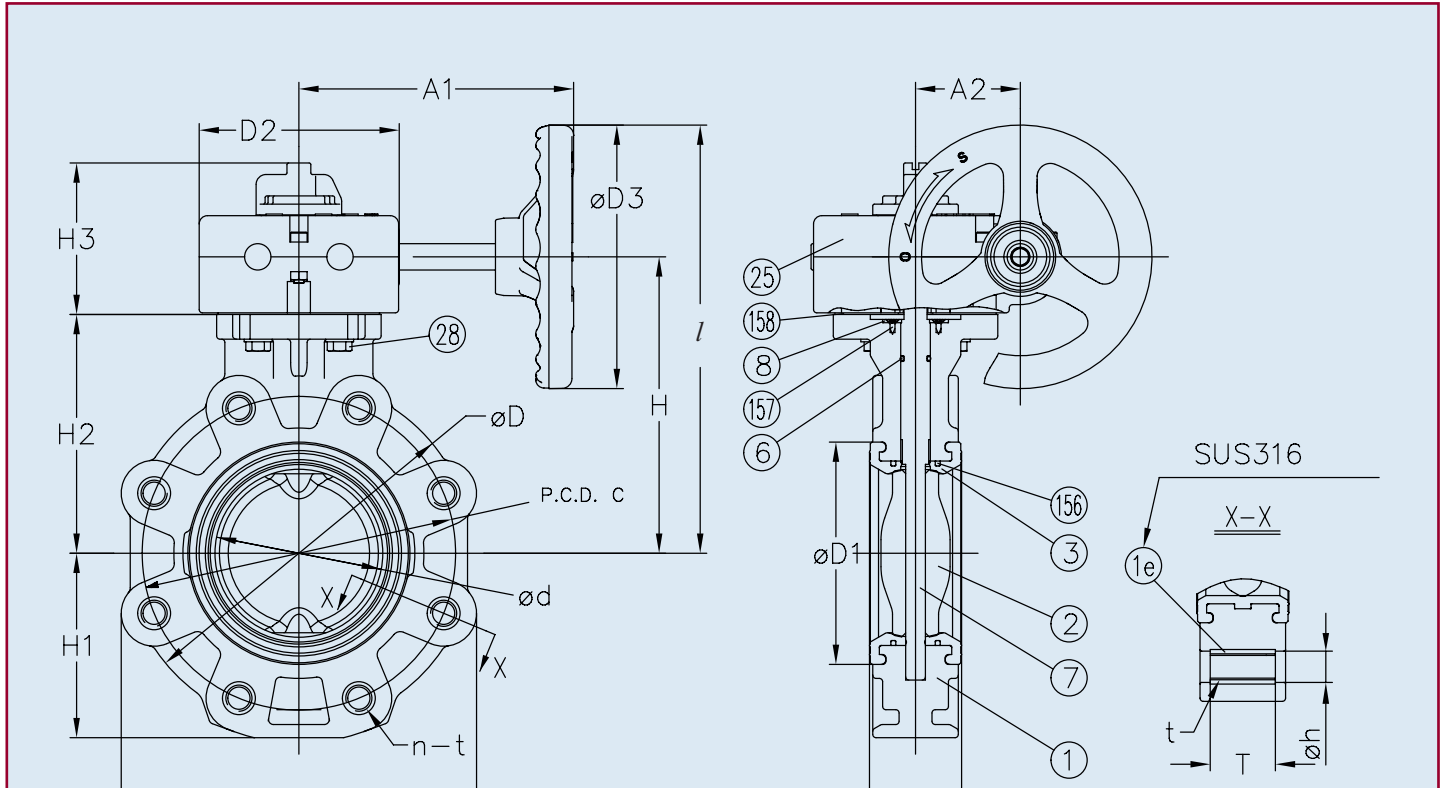
Wt (lbs.)

NOMINAL SIZE		LEVER OPERATED	GEAR OPERATED
INCHES	mm		
3	80	10	15
4	100	15	20
6	150	23	28
8	200	34	39
10	250	n/a	50
12	300	n/a	85

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Type-57IL Isolator Lug Gear Butterfly Valve



Dimensions (Gear: Sizes 3" - 12") (in.)

NOMINAL SIZE	INCHES	mm	ANSI CLASS 150				D	D1	D2	D3	L	H	H1	H2	H3	l	A1	A2	W	T	t	Wheel Cycles	Gear box model
			d	C	n	h																	
3	80	3.03	6.00	4	0.75	7.28	4.13	4.80	6.30	1.81	6.50	3.82	5.12	3.62	9.65	6.57	2.52	7.09	1.37	5/8-11 UNC	9.5	241	
4	100	4.02	7.50	8	0.75	8.27	5.28	4.80	6.30	2.20	7.09	4.41	5.71	3.62	10.24	6.57	2.52	8.50	1.37	5/8-11 UNC	9.5		
6	150	5.91	9.50	8	0.87	10.63	7.48	4.80	6.30	2.80	8.27	5.55	6.89	3.62	11.42	6.57	2.52	10.67	2.15	3/4-10 UNC	9.5		
8	200	7.68	11.75	8	0.87	12.6	9.53	4.80	6.30	3.43	9.49	6.61	8.11	3.62	12.64	6.57	2.52	12.76	2.15	3/4-10 UNC	9.5		
10	250	9.84	14.25	12	0.98	15.75	11.89	4.80	6.30	4.41	10.87	7.95	9.49	3.62	14.01	6.57	2.52	15.91	3.14	7/8-9 UNC	9.5		
12	300	11.93	17.01	12	0.98	18.31	14.17	7.40	11.81	5.08	13.39	9.29	11.73	4.25	19.29	10.71	3.90	18.54	3.14	7/8-9 UNC	9.5		

Parts List (Gear)

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
1e	Lug	-	Stainless Steel 316
2	Disc	1	PVC, PP, PVDF
3	Seat	1	EPDM, FKM, NBR
6	O-Ring (C)	1	EPDM, FKM, NBR
7	Stem	1	Stainless Steel 316
8	Stem Retainer	1	PP
25	Gear Box	1	Plasgear™
28	Bolt (C)	4	Stainless Steel 304
156	Stabilization Ring	2	Stainless Steel (SCS13)
157	Screw (F)	4	Stainless Steel 304
158	Gasket (L)	1	EPDM

Pressure vs. Temperature

BODY		PVC		
DISC		PP		
NOMINAL SIZE		30° F	121° F	141° F
INCHES	mm	120° F	140° F	175° F
8	200	150	40	20
10	250	150	40	20
12	300	100	30	15

Type-57IL Isolator Lug Butterfly Valve

Troubleshooting

What if fluid still flows when valve is closed?

1. Make sure lever or gear is in a fully closed position (gear type may require travel stop adjustment).
2. Liner is damaged or worn. Replace liner.
3. Disc is damaged or abraded. Change disc.
4. Foreign material is caught between seat and disc. Remove the substance.
5. Mating flange bolts either overtightened or unevenly tightened. Retighten properly.

What if fluid leaks outside between seat and mating flange?

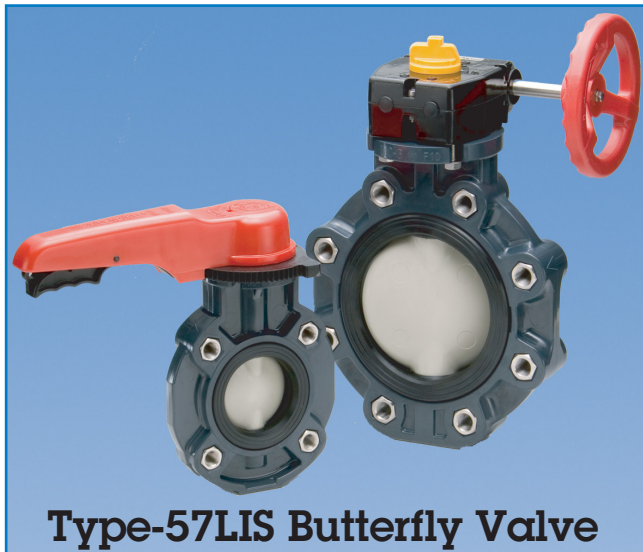
1. Seat damage. Change seat.
2. Mating flange bolts not tightened with proper torque or unevenly tightened. Retighten to the appropriate torque.

What if valve does not operate smoothly?

1. Foreign material is caught between disc and seat. Remove the material and clean.
2. Lever or gearbox is damaged. Replace.
3. Mating flange bolts overtightened. Retighten.

Sample Specification

All solid thermoplastic butterfly valves sizes 3" through 12" shall be of the Type-57IL (isolator lug) PVC lined body design and bubble-tight seal (meeting or exceeding Class VI as defined by American National Standard Institute) with only the liner and disc as wetted parts. The lever handle (sizes 3" through 8") shall have a molded provision for a padlock. Gear operators shall be worm gear design, self-locking Plasgear™. The spherical disc design for higher Cv values shall be of solid abrasion resistant plastic. Liner shall be molded and formed around the body, functioning as gasket seals with convex ring design on each side of the valve for lower bolt tightening torque and valve body shall have molded body stops and seat relief area to prevent overtightening of mating flanges. Valves shall be molded to accept 316 stainless steel A/A factory molded lugs. Valve shall be capable of having flange removed while maintaining full line pressure on upstream side for end of line service. Stem shall be of 316 stainless steel, non-wetted and have engagement over the full length of the disc. Valves shall have a molded ISO bolt pattern on top flange for actuator mount. PVC shall conform to ASTM D1784 Cell Classification 12454A, PP conforming to ASTM D4101 Cell Classification PPO210B67272. All (3" through 10") valves shall be rated to 150psi and 12" rated to 100psi. Butterfly valves shall be lug style, as manufactured by Asahi/America, Inc.



Type-57LIS Butterfly Valve

Standard Features (Sizes 3" – 8")

- Direct replacement for metal valves conforming to ISO 5752 short face-to-face dimensions
- Standard model has PVC body with PP disc for superior chemical and corrosion resistance as well as elevated temperature capabilities
- Non-wetted 316 stainless steel stem has full engagement over the entire length of the disc and is totally isolated from the media
- Full seat design isolates the body and stem from the media and acts as mating flange gaskets
- Integral body stops in valve body to prevent overtightening of mating flanges
- Spherical disc design for improved Cv's and superior durability
- Plasgear™ operator – Industry first composite enclosure gear operator
- Integral ISO-5211 top mounting pad for actuation mounting
- Polypropylene stem retainer

Options

- 316 stainless steel lug inserts
- Pneumatic and electric actuators with accessories
- Alternate disc materials
 - (I) PVC
 - (II) PVDF
- Alternate stem materials
 - (I) Titanium
 - (II) Hastelloy C®‡

Specifications

- Sizes:** Lever: 3" – 8"
Gear: 3" – 8"
- Models:** Wafer Style or Lug Style with 316SS lug inserts
- Operators:** Lever and Plasgear
- Bodies:** PVC
- Discs:** PVC, CPVC, PP and PVDF
- Seats:** EPDM, FKM, or Nitrile
- Seals:** Same as seating material
- Stems:** 316 stainless steel, Titanium, Hastelloy C® ‡

‡ Trademark of Cabot Corporation

Parts List (Lever: Sizes 3" – 8")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
1e	Lug*	-	Stainless Steel 316
2	Disc	1	PVC, PP, PVDF
3	Seat	1	EPDM, FKM, NBR
6	O-Ring (C)	1	EPDM, FKM, NBR
7	Stem	1	Stainless Steel 316
8	Stem Retainer	1	PP
16	Handle	1	PP
16a	Metal Insert in Handle	1	Stainless Steel 316L
17	Handle Lever	1	PPG
18	Pin	1	PPG
19	Spring	1	Stainless Steel 304
20	Washer (A)	1	Stainless Steel 304
21	Bolt (B)	1	Stainless Steel 304
22	Locking Plate	1	PPG
23	Screw (B)	4	Stainless Steel 304
24	Cap (A)	1	PP
156	Stabilization Ring	2	Stainless Steel (SCS13)
157	Screw (F)	4	Stainless Steel 304

*Supplied installed with lug style valves only.

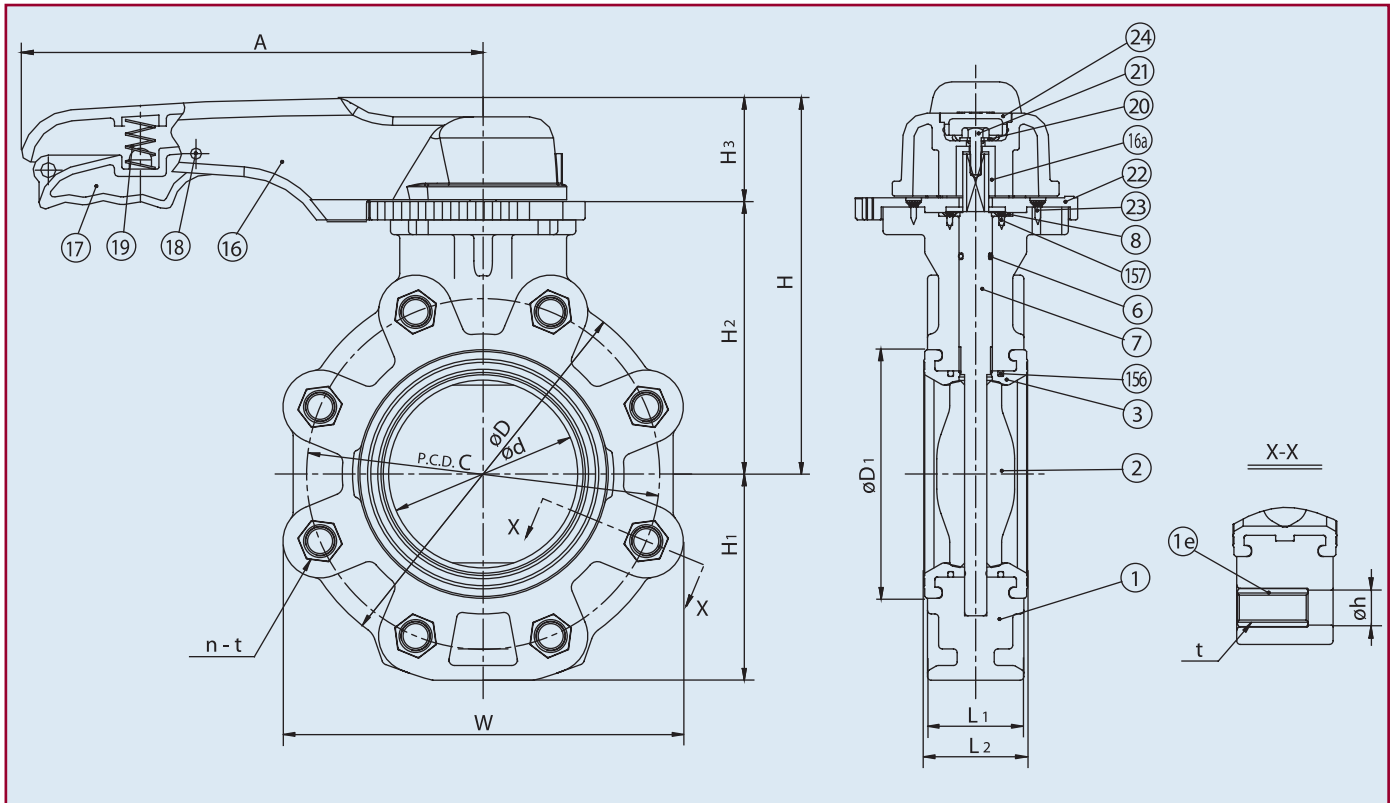
(Options continued)

- 2" square operating nuts on valve stem or gear operator shaft
- Stem extensions for above ground or buried applications
- Chain operators
- Manual limit switches

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Type-57LIS Lever Butterfly Valves



Dimensions (Lever: Sizes 3" – 8") (in.)

NOMINAL SIZE		ANSI CLASS 150															
		d	C	n	h	D	D1	L1	L2	H	H1	H2	H3	A	W	T	t
INCHES	mm																
3	80	3.03	6.00	4	0.75	7.28	4.13	1.73	1.81	7.52	3.82	5.31	2.20	9.84	7.09	1.26	5/8-11 UNC
4	100	4.02	7.50	8	0.75	8.27	5.28	2.05	2.20	8.11	4.41	5.91	2.20	9.84	8.50	1.52	5/8-11 UNC
6	150	5.91	9.50	8	0.87	10.63	7.48	2.20	2.40	9.92	5.55	7.20	2.72	12.60	10.67	1.57	3/4-10 UNC
8	200	7.68	11.75	8	0.87	12.60	9.53	2.36	2.66	11.14	6.61	8.43	2.72	15.75	12.76	1.57	3/4-10 UNC

Pressure vs. Temp. Cv Values

BODY		PVC		
DISC		PP		
NOMINAL SIZE		30° F	121° F	141° F
INCHES	mm	120° F	140° F	175° F
3	80	150	70	30
4	100	150	45	30
6	150	150	45	30
8	200	150	40	20

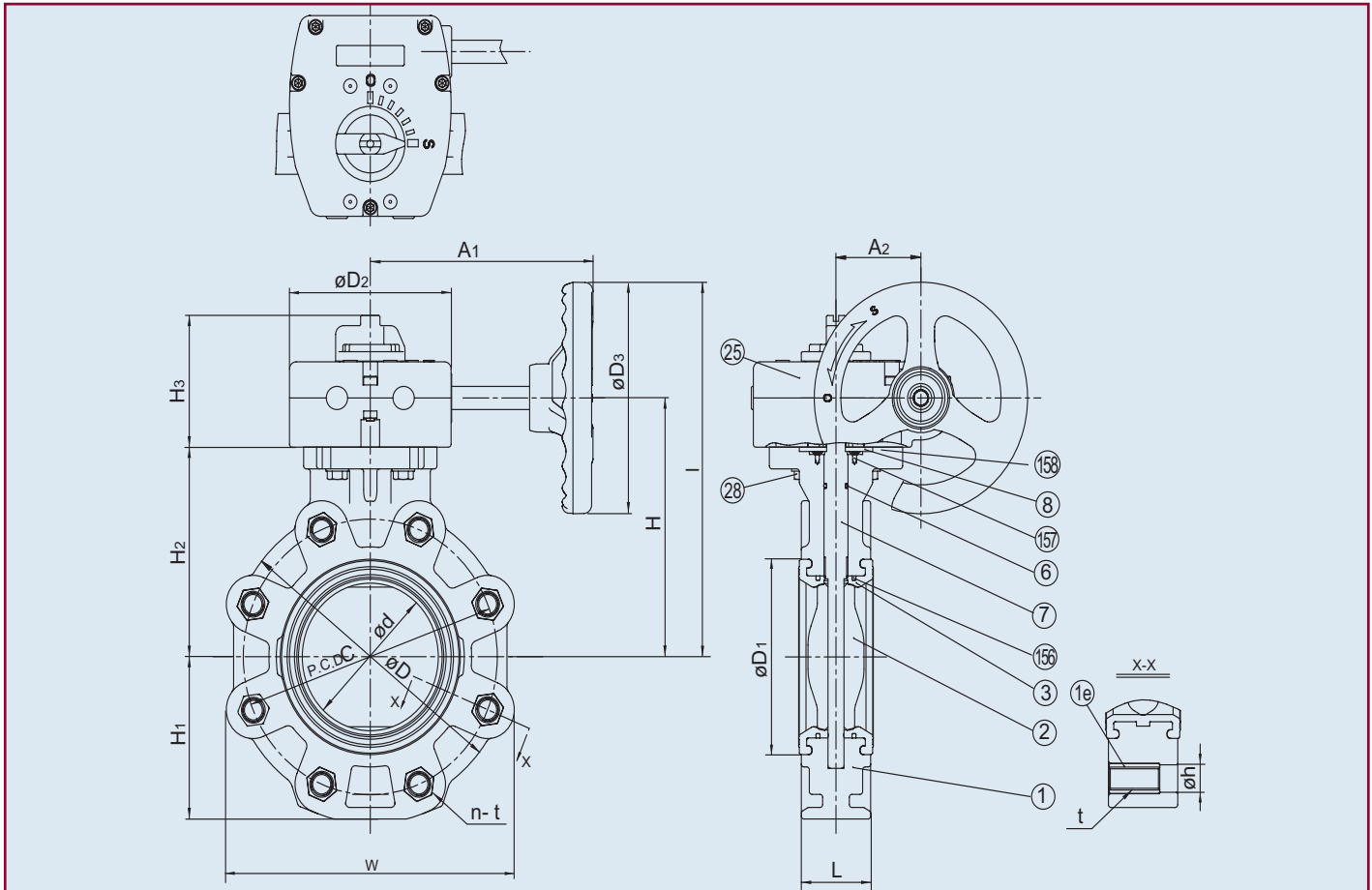
NOMINAL SIZE		Cv (at various opening degrees)		
INCHES	mm	30°	60°	90°
3	80	18	183	300
4	100	28	287	470
6	150	66	671	1100
8	200	150	1525	2500

Vacuum Service Wt. (lbs.)

NOMINAL SIZE		VACUUM SERVICE (INCHES OF MERCURY)
INCHES	mm	
3	80	-29.92
4	100	-29.92
6	150	-29.92
8	200	-29.92

NOMINAL SIZE		LEVER OPERATED	GEAR OPERATED
INCHES	mm		
3	80	10	15
4	100	15	20
6	150	23	28
8	200	34	39

Type-57LIS – Gear Operated Butterfly Valve



Dimensions (Gear: Sizes 3"-8") (in.)

NOMINAL SIZE		ANSI CLASS 150																				Wheel Cycles
INCHES	mm	d	C	n	h	D	D1	D2	D3	L1	L2	H	H1	H2	H3	I	A1	A2	W	T	t	
3	80	3.03	6.00	4	0.75	7.28	4.13	4.80	6.30	1.73	1.81	6.50	3.82	5.12	3.62	9.65	6.57	2.52	7.09	1.26	5/8-11 UNC	9.5
4	100	4.02	7.50	8	0.75	8.27	5.28	4.80	6.30	2.05	2.20	7.09	4.41	5.71	3.62	10.24	6.57	2.52	8.50	1.52	5/8-11 UNC	9.5
6	150	5.91	9.50	8	0.87	10.63	7.48	4.80	6.30	2.20	2.40	8.27	5.55	6.89	3.62	11.42	6.57	2.52	10.67	1.57	3/4-10 UNC	9.5
8	200	7.68	11.75	8	0.87	12.60	9.53	4.80	6.30	2.36	2.66	9.49	6.61	8.11	3.62	12.64	6.57	2.52	12.76	1.57	3/4-10 UNC	9.5

Parts List (Gear: 3" – 8")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
1e	Lug	-	Stainless Steel 304, 316
2	Disc	1	PVC, PP, PVDF
3	Seat	1	EPDM, FKM, NBR
6	O-Ring (C)	1	EPDM, FKM, NBR
7	Stem	1	Stainless Steel 316
8	Stem Retainer	1	PP
25	Gear Box	1	Plasgear™
28	Bolt (C)	4	Stainless Steel 304
156	Liner Stabilization Ring	2	Stainless Steel (SCS13)
157	Screw (F)	4	Stainless Steel 304
158	Gasket	1	EPDM

* Supplied installed with Lug Style Valves only

Sample Specification

All Type-57LIS butterfly valves shall be of solid thermoplastic lined body design with only the disc and seat as wetted parts. The face-to-face dimension shall be in accordance to ISO-5752 short face-to-face dimensions. All valves shall meet Class 6 bubble-tight shut-off standards. Operators shall be either molded PP lever handles with PPG trigger and 21-position throttle plate or Plasgear™ plastic enclosure gear operators. The lever handle shall feature a molded provision for padlocking. Valves shall feature spherical design discs for improved Cv's and lower seating torque. Seats or liners shall be molded and formed around the valve body and provide a gasket face for mating flanges. The valve body shall include molded body stops to prevent mating flange overtightening. Valves shall be molded wafer style and accept 316 stainless steel factory installed lug inserts. Lug style valves shall be capable of having the downstream flange removed while maintaining full line pressure on the upstream side. Valve stems shall be 316 stainless steel and have full engagement over the entire length of the disc. Valves shall feature molded ISO-5211 top flange bolt patterns for actuation mounting. PVC shall conform to ASTM D1784 Cell Classification (CC) 12454-A, PP to ASTM D41101 CC 0210B67272, and PVDF to ASTM D3222-91A CC Type II. All Type 57LIS butterfly valves shall be rated to 150psi at 70° F and be wafer or drop in lug style, as manufactured by Asahi/America, Inc.



Type-56 Butterfly Valve

Specifications

Sizes: Gear: 16"
Models: Wafer or Lug Style
Operators: Gear
Bodies: PP and PVDF
Discs: PP and PVDF
Seats: EPDM or FKM, also Nitrile,
Seals: Same as seating material
Stems: 403 and 316 stainless steel, Titanium, Hastelloy C® ‡

‡ Trademark of Cabot Corporation

Standard Features (Sizes 16")

- Standard model 16" has PP body and PP disc as standard
- Our 403 stainless steel shaft has full engagement over the entire length of the disc and is a non-wetted part, totally isolated from the media
- Only solid and abrasion resistant plastic disc and elastomeric liner are wetted parts
- ISO bolt circle on top flange - No body or stem modifications required for accessories or activation

Options

- Pneumatically and electrically actuated with accessories
- Alternate disc: PVDF
- Lug style (stainless steel 304 or 316) as blocking and end of line applications
- Stems in 316 stainless steel, titanium, Hastelloy C® ‡
- 2" square nut on gear operator
- Stem extensions (single stem and two-piece stem)
- Locking devices
- Chain operators
- Manual limit switch - Asahi P-Series

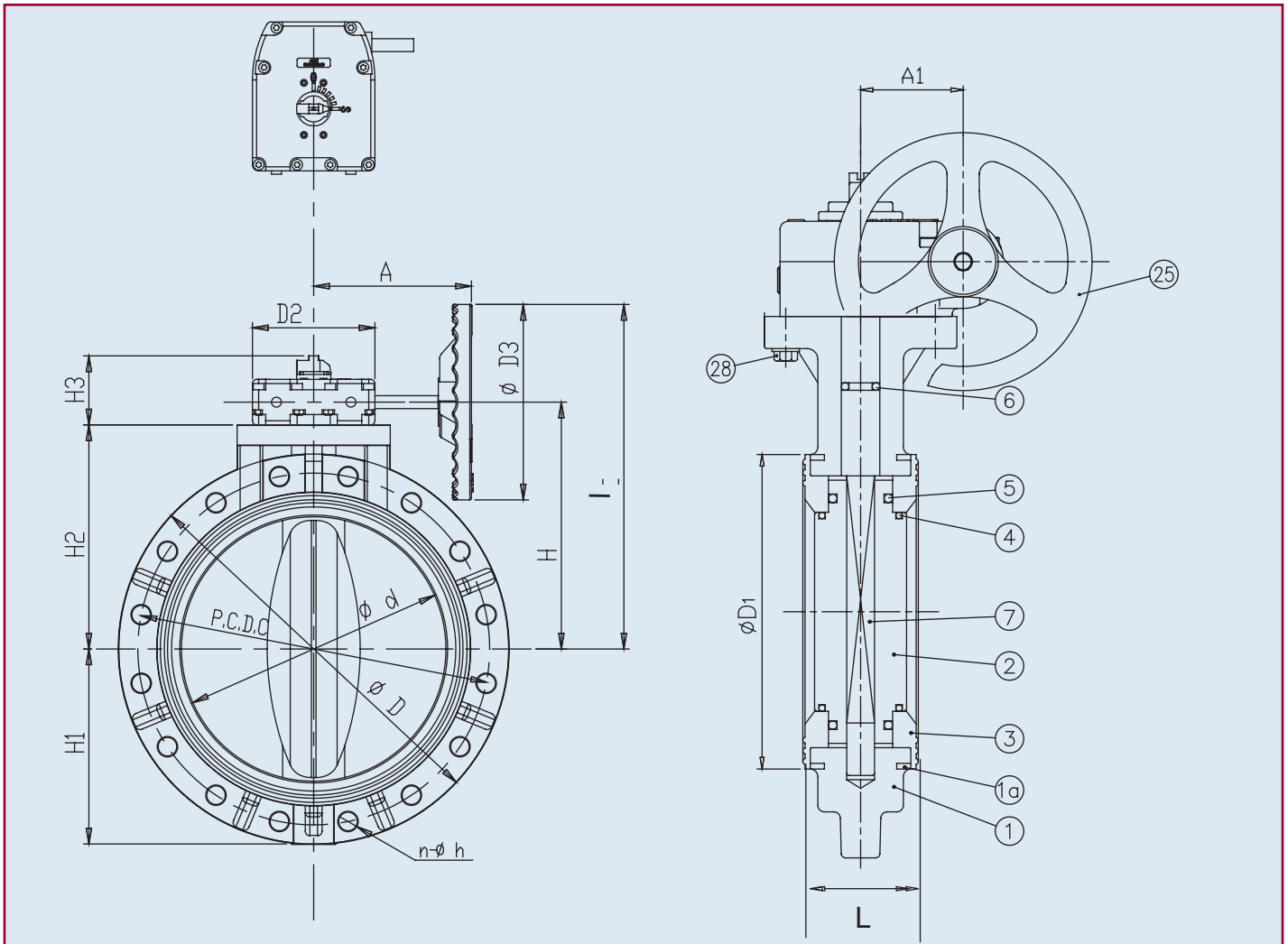
Parts List (Gear: Sizes 16")

PARTS			
No.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PP, PVDF
2	Disc	1	PP, PVDF
3	Seat	1	EPDM, FKM, NBR
4	O-Ring (A)	2	EPDM, FKM, NBR
5	O-Ring (B)	2	EPDM, FKM, NBR
6	O-Ring (C)	1	EPDM, FKM, NBR
7	Stem	1	Stainless Steel 403
25	Gear Box	1	Plasgear™
28	Bolt (C)	4	Stainless Steel 304
1a	Ring	2	Steel

Sample Specification

All solid thermoplastic butterfly valves sizes 16" shall be of lined body design and bubble-tight seal (meeting or exceeding Class VI as defined by American National Standard Institute) with only the liner and disc as wetted parts. Gear operators shall be worm gear design, self locking Plasgear™. The disc shall be of solid, abrasion resistant plastic, have double O-ring seals on top and bottom trunnions of the same material as the valve liner. Liner shall be molded and formed around the body, functioning as gasket seals with convex ring design on each side of the valve for lower bolt tightening torque. Stem shall be of 403 stainless steel, non-wetted and have engagement over the full length of the disc. Valves shall have a molded ISO bolt pattern conforming to 5211 on top flange for actuator mount. PP conforming to ASTM D4101 Cell Classification PPO210B67272, and PVDF conforming to ASTM D 3222 Cell Classification Type II. PP and PVDF body Valves shall be rated 85psi size 16" at 70° F. Butterfly valves shall be wafer or lug style, as manufactured by Asahi/America, Inc.

Type-56 – Gear Operated Butterfly Valves



Dimensions (Sizes 16") (in.)

NOMINAL SIZE		ANSI CLASS 150																	Gear Box Model No.
INCHES	mm	d	C	n	h	D	D1	D2	D3	L	H	H1	H2	H3	l	A	A1		
16	400	15.98	21.25	16	1.12	23.62	18.5	7.4	11.81	6.65	14.92	11.81	13.54	4.25	20.82	10.71	3.9	243	

Type-56 – Gear Operated Butterfly Valves

Troubleshooting

What if fluid still flows when valve is closed?

1. Make sure gear is in a fully closed position (may require travel stop adjustment).
2. Liner is damaged or worn. Replace liner.
3. Disc is damaged or abraded. Change disc.
4. Foreign material is caught between seat and disc. Remove the substance.
5. Mating flange bolts either overtightened or unevenly tightened. Retighten properly.

What if fluid leaks outside between seat and mating flange?

1. Seat damage. Change seat.
2. Mating flange bolts not tightened with proper torque or unevenly tightened. Retighten to the appropriate torque.

What if valve does not operate smoothly?

1. Foreign material is caught between disc and seat. Remove the material and clean.
2. Gearbox is damaged. Replace.
3. Mating flange bolts overtightened. Retighten.

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Pressure vs. Temperature (psi, water, non-shock)*

BODY		PP		PVDF			
DISC		PP		PVDF			
NOMINAL SIZE		-5° F	141° F	-5° F	141° F	176° F	211° F
INCHES	mm	140° F	175° F	140° F	175° F	210° F	250° F
16	400	85	45	85	45	30	15

* For lug style data consult factory.

* FKM seat butterfly valves have a lower temperature limit of 23° F

Wt. (lbs.)

NOMINAL SIZE		GEAR OPERATED
INCHES	mm	
16	400	79.4

Vacuum Service

NOMINAL SIZE		VACUUM SERVICE (INCHES OF MERCURY)
INCHES	mm	
16	400	-23.62

Cv Values

NOMINAL SIZE		Cv [at various opening degrees]		
INCHES	mm	30°	60°	90°
16	400	750	3760	8340



Type-56D/75D Butterfly Valve

Standard Features (Sizes 16" - 24")

- Standard model 16" - 24" has PDCPD body with PP disc
- 403 stainless steel shaft has full engagement over the entire length of the disc and is a non-wetted part, totally isolated from the media
- Higher pressure rating than standard 56 or 75
110psi at 70° F - All sizes 16" - 24"
- Seat overtightening protection
- Disc and seat only wetted parts
- Bubble-tight sealing
- ISO bolt circle on top flange - No body or stem modifications required for accessories

Options

- Pneumatically and electrically actuated with accessories
- Alternate disc: PVDF
- Stems in 316 stainless steel, titanium, Hastelloy C[®] †
- 2" square nut on gear operator
- Stem extensions (single stem and two-piece stem)
- Locking devices
- Chain operators
- Manual limit switch - Asahi P-Series

Specifications

Sizes:	Gear: 16" - 24"
Models:	Wafer Style
Operators:	Gear
Bodies:	PDCPD
Discs:	PP and PVDF
Seats:	EPDM or FKM, also Nitrile,
Seals:	Same as seating material
Stems:	403 and 316 stainless steel, Titanium, Hastelloy C [®] †

† Trademark of Cabot Corporation

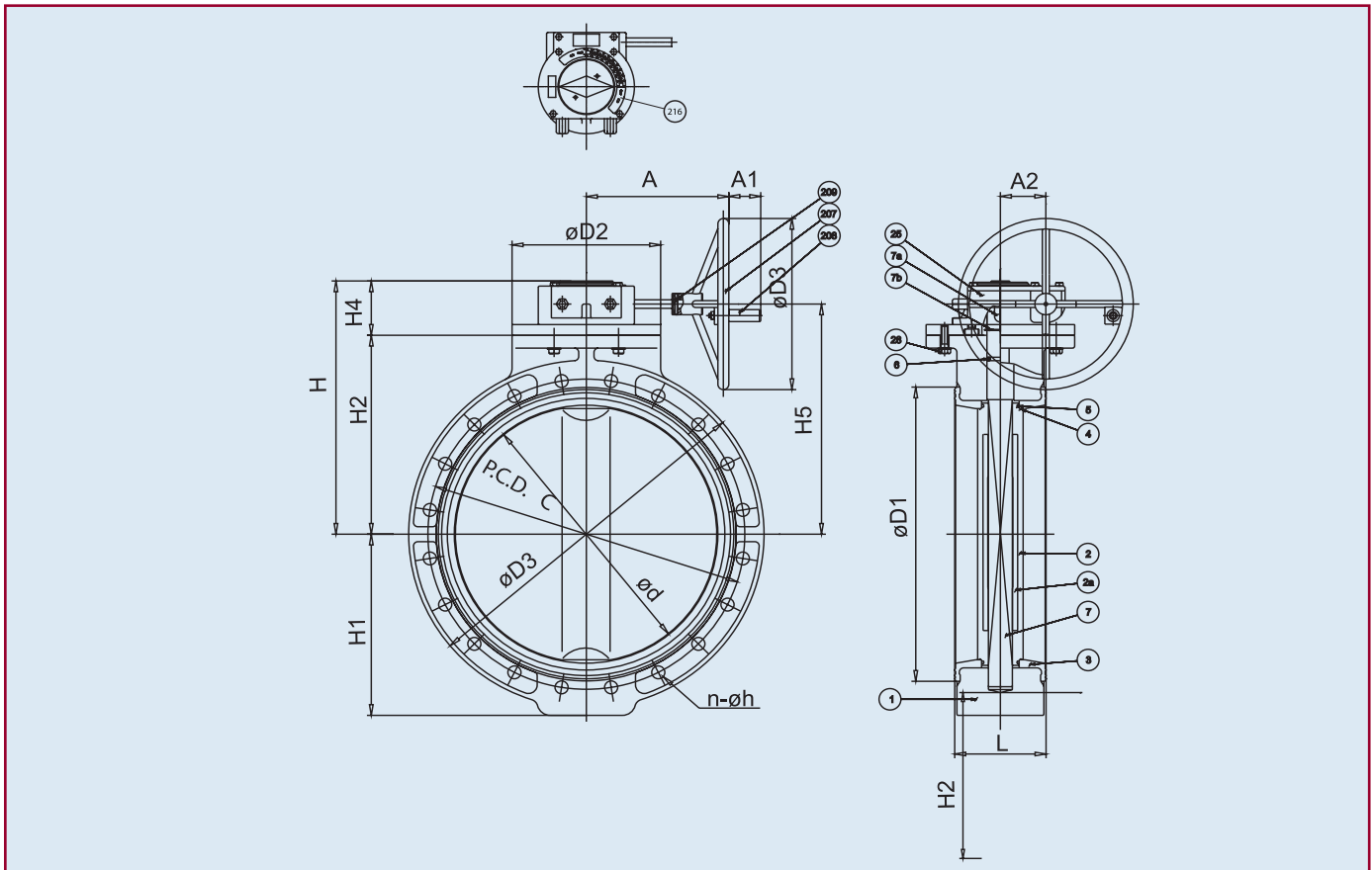
Parts List

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PP, PVDF
2	Disc	1	PP, PVDF
2a	Disc Insert	1	AC4C
3	Seat	1	EPDM, FKM, Others
4	O-Ring [A]	2	EPDM, FKM, Others
5	O-Ring [B]	2	EPDM, FKM, Others
6	O-Ring [C]	1	EPDM, FKM, Others
7	Stem	1	Stainless Steel, (SUS 403)
7a	Key [A]	1	Carbon Steel (S45C)
7b	Snap Ring	1	Stainless Steel (SUS 304)
25	Gear Box	1	16" - Plasgear™
			18" - 24" Cast Iron (FC250)
26	Gasket [A]	1	EPDM
28	Bolt [C]	4	Stainless Steel (SUS 304)
207	Handle [C]	1	Cast Iron (FC250)
208	Handle Grip	1	Nylon, Etc.
209	Spring Pin	1	Stainless Steel (SUS 304)
216	Scale Plate	1	Stainless Steel (SUS 304)

All solid thermoplastic butterfly valves size 16" - 24" shall be of the lined body design and bubble-tight seal (meeting or exceeding Class VI as defined by American National Standard Institute) with only the liner and disc as wetted parts. Gear operators shall be worm gear design, self-locking Plasgear™ 16", or cast iron with corrosion resistant finish sizes 18", 20" and 24". The disc shall be of solid, abrasion resistant plastic 16", or metal reinforced 18" - 24", have double O-ring seals on top and bottom trunnions of the same material as the valve liner. Liner shall be molded and formed around the body, functioning as gasket seals with convex ring design on each side of the valve for lower bolt tightening torque. Stem shall be of 403 stainless steel, non-wetted and have engagement over the full length of the disc. Valves shall have a molded ISO bolt pattern on top flange for actuator mount. PP conforming to ASTM D4101 Cell Classification PPO210B67272, and PVDF conforming to ASTM D 3222 Cell Classification Type II. All PDCPD body valves shall be rated to 110psi size at 70° F. Butterfly valves shall be wafer style, as manufactured by Asahi/America, Inc.

Type-56D/75D – Gear

Butterfly Valves



Dimensions (Sizes 16" - 24") Note: Gear operated valve is standard 16" - 24" sizes

NOMINAL SIZE		ANSI CLASS 150																	Gear Box Model
INCHES	mm	d	C	n	h	D	D1	D2	D3	L	H	H1	H2	H4	H5	A	A1	A2	
16	400	15.98	21.26	16	1.12	24.41	18.50	9.25	11.81	6.65	18.03	12.40	13.78	4.25	-	10.71	-	3.91	BRF-243
18	450	17.80	22.75	16	1.25	26.18	20.67	13.39	15.75	7.05	19.57	13.19	14.57	5.00	17.44	12.83	2.97	4.11	AB1250N
20	500	19.76	25.00	20	1.25	28.35	22.64	13.39	15.75	7.48	20.76	14.37	15.75	5.00	18.62	12.83	2.97	4.11	
24	600	23.74	29.50	20	1.38	32.01	27.01	13.39	15.75	8.23	23.31	16.69	18.31	5.00	21.18	12.83	2.97	4.11	

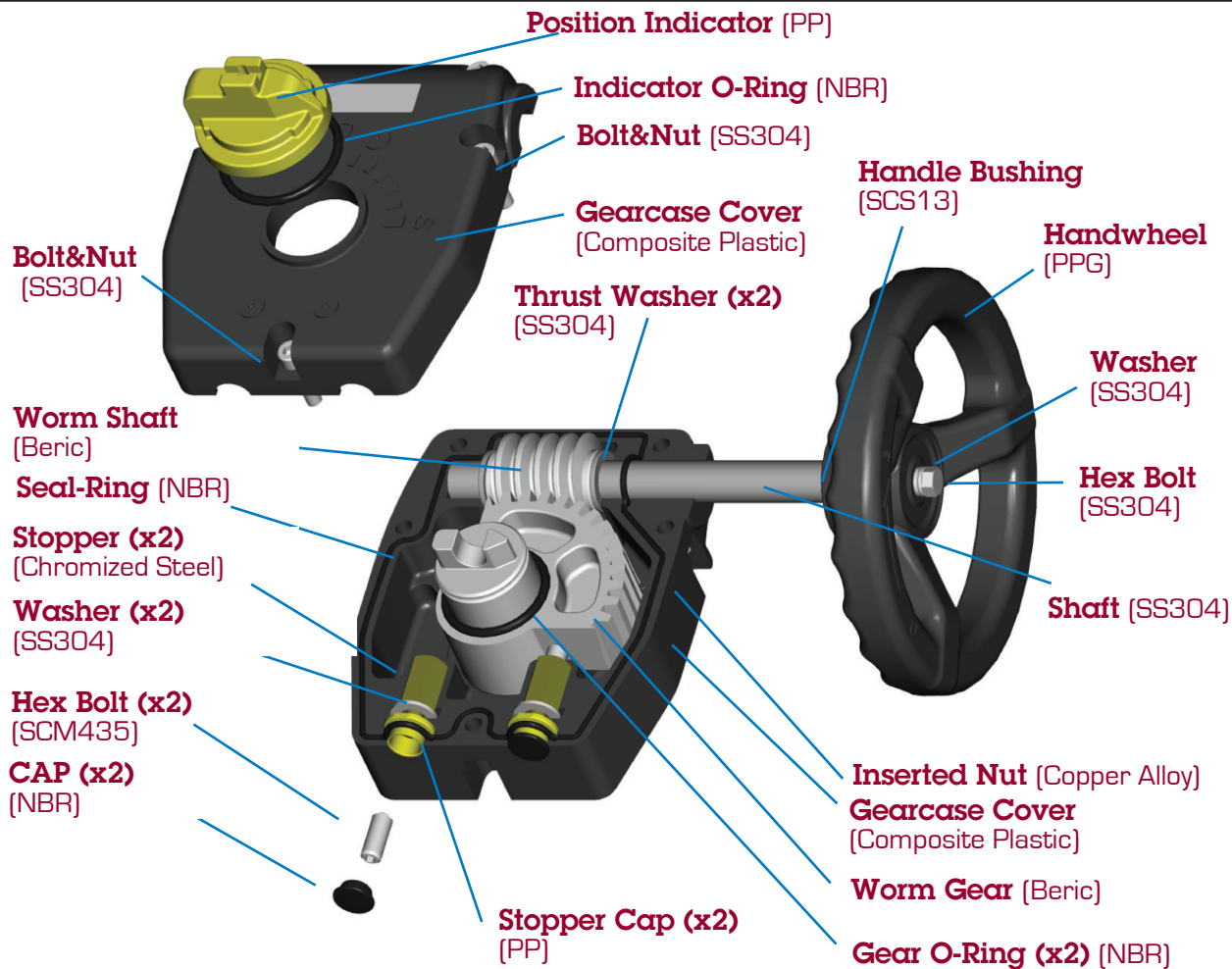
The size and shape may differ slightly from this assembly

Pressure vs. Temperature (psi, water, non-shock)*

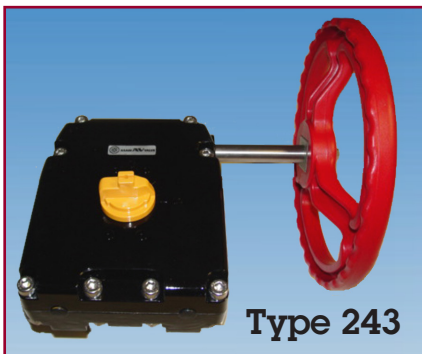
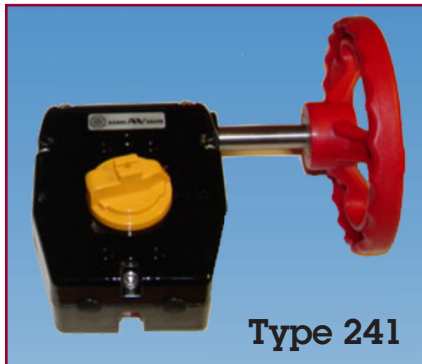
MODEL	BODY		PDCPD				PDCPD			
	DISC		PP				PVDF			
	NOMINAL SIZE		30° F	78° F	141° F	176° F	30° F	78° F	141° F	176° F
	INCHES	mm	77° F	140° F	175° F	194° F	77° F	140° F	175° F	210° F
	16	400	110	90	45	15	110	90	45	30
	18-24	450-600	110	90	45	15	110	90	45	30

EPDM: Up to 194° F, Others: Up to 210° F.

Plasgear™ - Plastic Gear Operator



Specifications



Type	Series 241	Series 243
Max Output Torque	300 N-m (2,700 in-lbs.)	900 N-m (8,000 in-lbs.)
Mechanical Advantage	12	15
Max Input Torque	25 N-m (220 in-lbs.)	60 N-m (530 in-lbs.)
Max Input Handwheel Force	300 N (70 lbf)	400 N (90 lbf)
Gear Ratio	38 : 1	38 : 1
Gear Efficiency	32%	39%
Turns to Close	9.5	9.5
Adjustable Travel	90+5°, -5°	90+5°, -5°
Valve Mounting Flange (ISO 5211)	F07, F10	F14
Weight	5 lbs.	18 lbs.
Weather Resistance	IP67	IP67
Enclosure	0.2 barg (3 psig) Submersible	0.2 barg (3 psig) Submersible
Temperature	-20 to 120°C (-5 to 250°F)	-20 to 120°C (-5 to 250°F)
Rated Cycle Life	100,000 cycles	100,000 cycles

Valve Mounting Flange

Valve Mounting Flange	Series 241		Series 243
Type	F07	F10	F14
ISO	2.756	4.016	5.512
P.C.D	M8	M10	M16
Threaded Size	4	4	4
Number of Bolts	4	4	4



Type-75 Butterfly Valve

Standard Features (Sizes 18" – 24")

- Standard model (18" - 24") has polypropylene body, disc and EPDM seat
- 403 stainless steel stem has full engagement over the entire length of the disc and is a non-wetted part totally isolated from the media
- Bubble-tight seating
- Only abrasion resistant, solid plastic disc and elastomeric liner are wetted parts
- Rotork gear operator

Options:

- Pneumatically and electrically actuated with accessories
- Lug style (stainless steel 304 and 316) as blocking and end of line applications
- Stems in 316 stainless steel, titanium, Hastelloy C[®] ‡
- 2" square nut on gear
- Stem extensions (single stem and two-piece stem)
- Locking device
- Chain operators
- Manual limit switch

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

FOR TROUBLESHOOTING, REFER TO PAGE 47.

Specifications

- Sizes:** 18" – 24"
- Models:** Wafer or Lug Style
- Operators:** Gear
- Bodies:** PP and PVDF
- Discs:** PP and PVDF
- Seats:** EPDM, FKM and Nitrile
- Seals:** Same as seating material
- Stems:** 403 and 316 stainless steel, Titanium, Hastelloy C[®] ‡

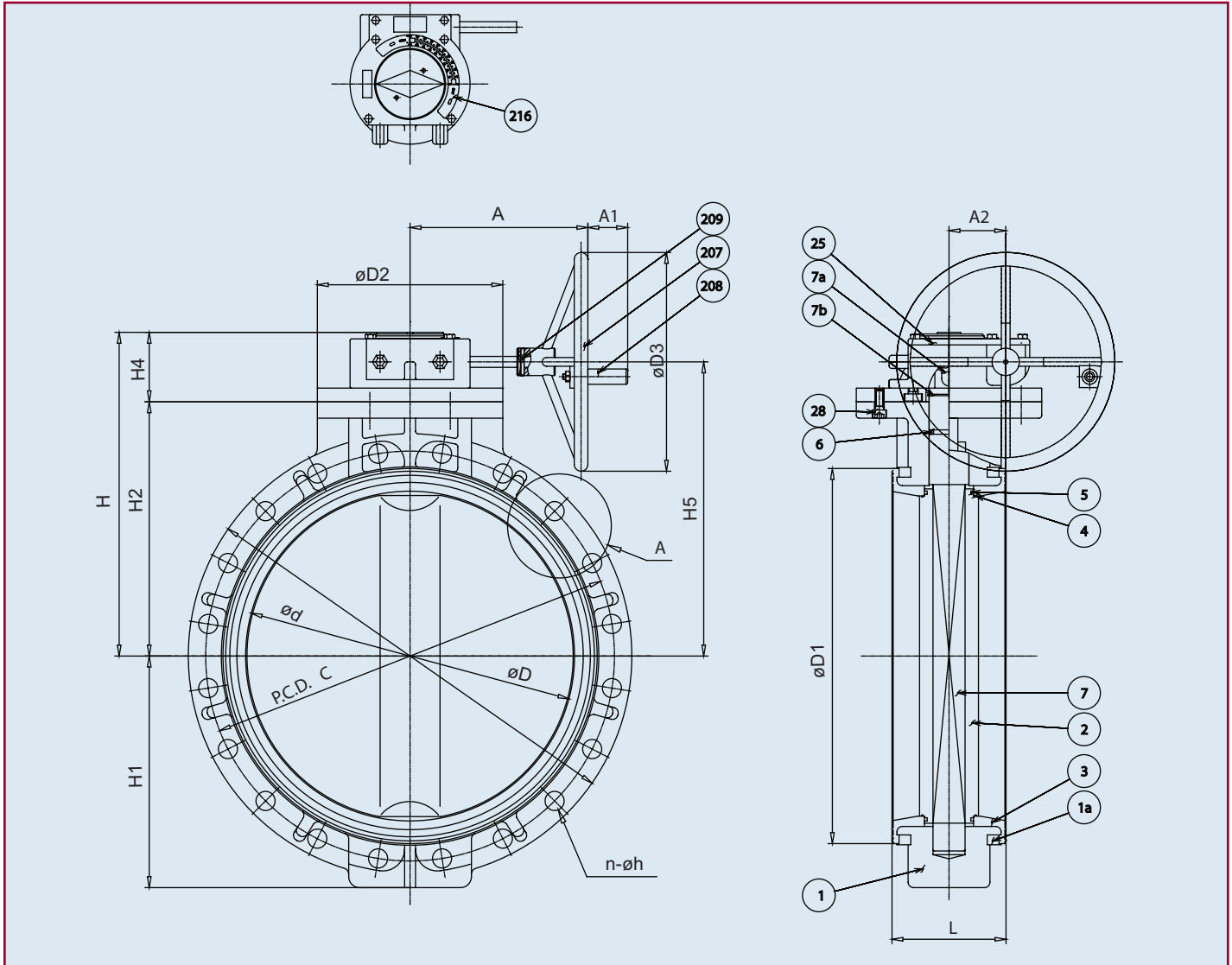
‡ Trademark of Cabot Corporation

Parts List (Sizes 18" – 24")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PP, PVDF
2	Disc	1	PP, PVDF
3	Seat	1	EPDM, FKM, Others
4	O-Ring [A]	2	EPDM, FKM, Others
5	O-Ring [B]	2	EPDM, FKM, Others
6	O-Ring [C]	1	EPDM, FKM, Others
7	Stem	1	Stainless Steel, [SUS 403]
7a	Key [A]	1	Carbon Steel [S45C]
7b	Snap Ring	1	Stainless Steel [SUS 304]
25	Gear Box	1	Cast Iron [FC250] Etc.
28	Bolt [C]	4	Stainless Steel [SUS 304]
207	Handle [C]	1	Cast Iron [FC250]
208	Handle Grip	1	Nylon, Etc.
209	Spring Pin	1	Stainless Steel [SUS 304]
216	Scale Plate	1	Stainless Steel [SUS 304]
1a	Ring	2	Chromized Steel [SS400] with Epoxy Powdercoat

Sample Specification

All solid thermoplastic Type-75 butterfly valves (18" through 24") shall be of the lined body design and bubble-tight seal (meeting or exceeding Class VI as defined by American National Standard Institute) with only the liner and disc as wetted parts. The disc shall be of solid, abrasion resistant plastic, have double O-ring seals on top and bottom trunnions of the same material as the valve liner. Liner shall be molded and formed around the body, functioning as a gasket seal with convex ring design on each side of the valve for lower bolt tightening torque. Stem shall be of 403 stainless steel, non-wetted and have engagement over the full length of the disc. PP shall conform to ASTM D4101 Cell Classification PPO210B67272 and PVDF conforming to ASTM D3222 Cell Classification Type II. PP and PVDF bodies shall be rated to 75psi, size 18", and 50psi, sizes 20" and 24" at 70° F. Butterfly valves shall be wafer or lug style, as manufactured by Asahi/America, Inc.



Dimensions (Sizes 18" - 24") (in.)

NOMINAL SIZE		ANSI CLASS 150					D													Gear Box Type
INCHES	mm	d	C	n	h	PP	PVDF	D1	D2	D3	L	H	H1	H2	H3	A	A1	A2		
18	450	17.80	22.75	16	1.25	24.92	24.80	20.67	13.39	15.75	7.05	12.40	12.40	14.57	5.00	12.83	2.97	4.11	AB1250N	
20	500	19.76	25.00	20	1.25	26.89	26.77	22.64	13.39	15.75	7.48	13.78	13.78	15.75	5.00	12.83	2.97	4.11		
24	600	23.74	29.50	20	1.38	31.22	31.10	27.01	13.39	15.75	8.23	16.69	16.69	18.31	5.00	12.83	2.97	4.11		

Cv Values Wt.(lbs.)/Vacuum Service/ Pressure vs. Temperature (psi, water)*

NOMINAL SIZE		Cv (at various opening degrees)			NOMINAL SIZE		Gear	NOMINAL SIZE		VACUUM SERVICE (INCHES OF MERCURY)	BODY		PP		PVDF			
INCHES	mm	30°	60°	90°	INCHES	mm		INCHES	mm		DISC	PP	PVDF					
NOMINAL SIZE		-5° F		141° F		-5° F		141° F		176° F		211° F						
INCHES	mm	140° F	175° F	140° F	175° F	210° F	250° F											
18	450	1100	5020	10890	18	450	195	18	450	-19.69	75	45	75	45	30	15		
20	500	1448	6620	14060	20	500	232	20	500	-19.69	50	30	50	30	25	15		
24	600	2130	9180	18500	24	600	285	24	600	-19.69	50	30	50	30	25	15		
20-24		500-600		50		30		50		30		25		15				

* For lug style data consult factory.

* FKM seat butterfly valves have a lower temperature limit of 23° F



Type-55 IS Butterfly Valve

Standard Features

- Face to face dimension conforms to ISO 5752 short pattern for metal valves
- Powdercoated cast ductile iron body for corrosion resistance
- Highly corrosion resistant PTFE disc and PTFE seat are the only parts in contact with the process media
- Stainless steel stem is non-wetted, isolated from the media, and has full engagement thru the entire length of the valve body and disc
- High CV value achieved with strong, thin disc
- Class VI bubble tight shut-off
- Lever handle features 19 position throttling plate and factory padlock provision
- Plasgear™ engineered resin enclosure gear-operator with stainless steel trim
- Top flange conforms to ISO 5211 for actuation mounting

Options

- Pneumatic or electric actuation with accessories
- 2" square nut on valve stem or Plasgear™ operator handwheel shaft
- Stem extensions
- Chain operators (Plasgear™ type only)
- Manual limit switch (Lever or Plasgear™ types)
- Speed Handle™ for Plasgear™ operator

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Specifications

- Sizes:** 2" – 16"
- Models:** Wafer Style
- Operators:** Lever: 2" – 5"
Gear: 2" – 16"
- Bodies:** Powdercoat finish Ductile Cast Iron (FCD-S)
- Discs:** PTFE
- Seats:** PTFE backed with Neoprene®† backing
- Stems:** Stainless steel 304

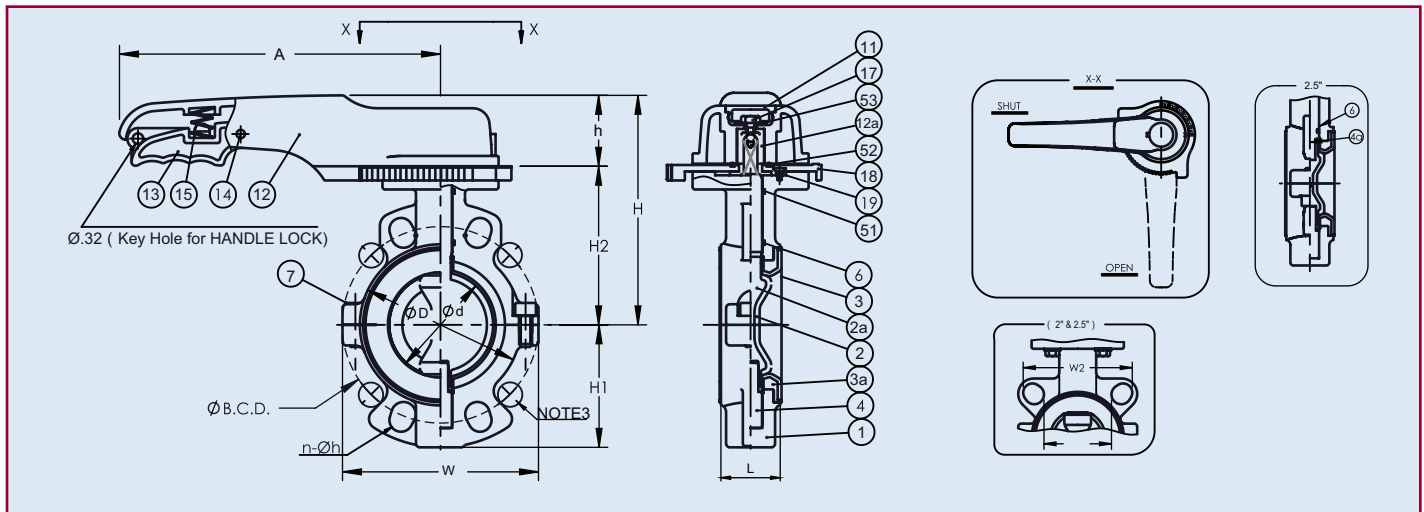
† Trademarks of E. I. du Pont de Nemours and Company

Parts List (Lever: Sizes 2" – 5")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	Ductile Cast Iron (FCD-S)*
2	Disc	1	PTFE
2a	Inserted Metal of Disc	1	Stainless Steel (SUS304)
3	Seat	1	PTFE
3a	Seat Cushion	1	CR
4a	Stem (A)	1	Stainless Steel (SUS304)
4b	Stem (B)	1	Stainless Steel (SUS304)
6	O-Ring (A)	1	EPDM
7	Bolt (A)	2	Stainless Steel (SUS304)
11	Cap	1	PP
12	Handle	1	PP
12a	Handle Insert Metal	1	Stainless Steel (SUS316)
13	Handle Lever	1	PPG
14	Pin	1	PPG
15	Spring	1	Stainless Steel (SUS304)
17	Bolt (C)	1	Stainless Steel (SUS304)
18	Locking Plate	1	PPG
19	Screw (A)	4	Stainless Steel (SUS304)
51	O-Ring (B)	1	EPDM
52	O-Ring (C)	1	EPDM
53	Rubber + Washer	1	Stainless Steel (SUS304) + EPDM

*With powdercoat finish.





Dimensions (Sizes 2" – 5") (in.)

Nominal Size		d	ANSI Class 150			D	L	H	H1	H2	H3	W	W1	W2	A
			C	n	h										
2"	50mm	2.17	[4.75]	2 (4)	[0.75]	3.54	1.69	6.34	2.40	4.13	2.20	4.57	2.60	4.17	8.66
2-1/2"	65mm	2.56	[5.50]	2 (4)	[0.75]	0.43	1.81	6.93	3.15	4.72	2.20	5.75	3.07	4.76	8.66
3"	80mm	3.15	[6.00]	- (4)	[0.75]	4.92	1.81	7.09	3.74	4.88	2.20	5.98	-	-	9.84
4"	100mm	3.94	7.50	4 (8)	0.75	6.06	2.05	7.72	4.06	5.51	2.20	6.85	-	-	9.84
5"	125mm	4.92	8.50	4 (8)	0.88	7.13	2.20	9.25	4.72	6.54	2.72	8.11	-	-	12.60

Note 1: Dimensions "L" is equivalent to ISO-5752 Short Pattern Face to Face deimsnion for metal valves.

Note 2: The shape and appearance of assembly differ a little with nominal size compared to this drawing.

Note 3: These show the bolt hole position for 3" (80mm)

Cv Values

Nominal Size		CV values
Inches	mm	
2"	50	100
2-1/2"	65	230
3"	80	285
4"	100	600
5"	125	940
6"	150	1500
8"	200	2500
10"	250	4200
12"	300	7800
14"	350	9200
16"	400	12800

Weight (lbs,)

Nominal Size		Lever	Gear
Inches	mm		
2"	50	6.61	11.02
2-1/2"	65	8.82	13.23
3"	80	9.92	14.33
4"	100	13.23	17.64
5"	125	23.15	25.35
6"	150	-	31.97
8"	200	-	50.71
10"	150	-	73.85
12"	300	-	101.41
14"	350	-	125.66
16"	400	-	169.76

Vacuum Service Pressure vs. Temp.

Nominal Size		Inches of Mercury
Inches	mm	
2"	50	-29.92
2-1/2"	65	-29.92
3"	80	-29.92
4"	100	-29.92
5"	125	-29.92
6"	150	-29.92
8"	200	-29.92
10"	250	-29.92
12"	300	-29.92
14"	350	-29.92
16"	400	-29.92

Nominal Size		psi
Inches	mm	
2" - 12"	50 - 200	150
14" - 16"	350 - 400	100

Troubleshooting

What if fluid still flows when valve is closed?

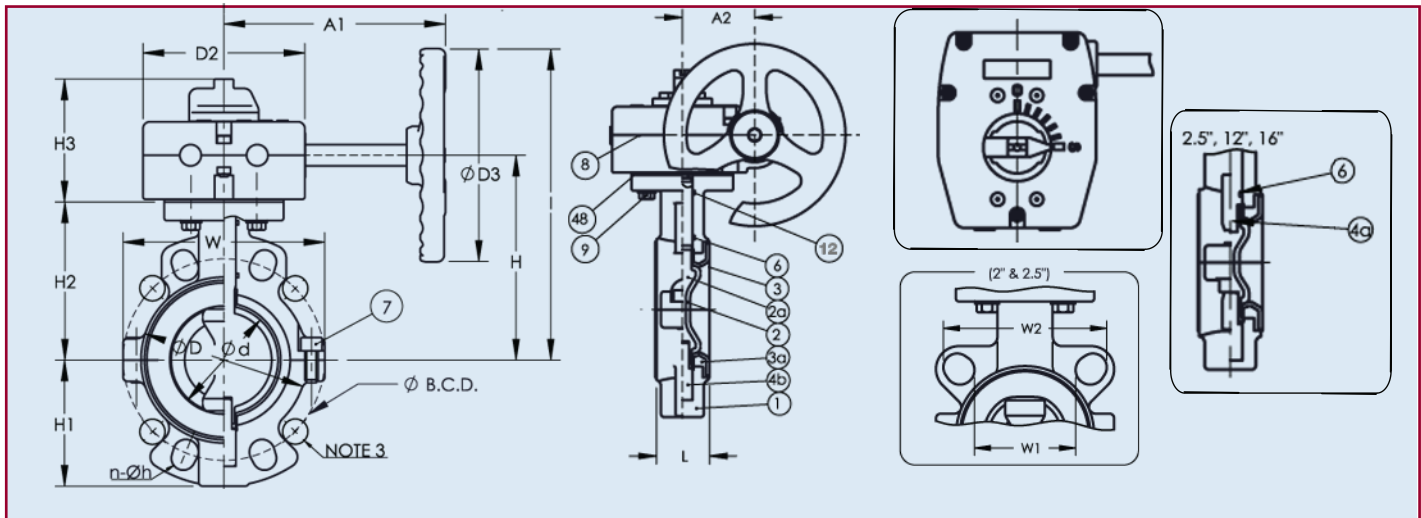
1. Make sure lever or gear is in a fully closed position (gear type may require travel stop adjustment).
2. Liner is damaged or worn. Replace liner.
3. Disc is damaged or abraded. Change disc.
4. Foreign material is caught between seat and disc. Remove the substance.
5. Mating flange bolts either overtightened or unevenly tightened. Retighten properly.

What if fluid leaks outside between seat and mating flange?

1. Seat damage. Change seat.
2. Mating flange bolts not tightened to proper torque or unevenly tightened. Retighten to the appropriate torque.

What if valve does not operate smoothly?

1. Foreign material is caught between disc and seat. Remove the material and clean.
2. Lever or gearbox is damaged. Replace.
3. Mating flange bolts overtightened. Retighten.



Dimensions (Sizes 2" – 16") (in.)

Nominal Size	ANSI Class 150				D	D2	D3	L	H	H1	H2	H3	I	W	W1	W2	A1	A2	
	d	C	n	h															
2"	50mm	2.17	[4.75]	2 [4]	[0.75]	3.54	4.80	6.30	1.69	5.31	2.40	3.94	3.62	8.46	4.57	2.60	4.17	6.57	2.52
2-1/2"	65mm	2.56	[5.50]	2 [4]	[0.75]	4.33	4.80	6.30	1.81	5.91	3.15	4.53	3.62	9.06	5.75	3.07	4.41	6.57	2.52
3"	80mm	3.15	[6.00]	- [4]	[0.75]	4.92	4.80	6.30	1.81	6.06	3.74	4.69	3.62	9.21	5.98	-	-	6.57	2.52
4"	100mm	3.94	7.50	4 [8]	0.75	6.06	4.80	6.30	2.05	6.69	4.06	5.31	3.62	9.84	6.85	-	-	6.57	2.52
5"	125mm	4.92	8.50	4 [8]	0.88	7.13	4.80	6.30	2.20	7.60	4.73	6.22	3.62	10.75	8.11	-	-	6.57	2.52
6"	150mm	5.91	[9.50]	4 [8]	[0.88]	8.31	4.80	6.30	2.20	8.27	5.39	6.89	3.62	11.42	9.29	-	-	6.57	2.52
8"	200mm	7.52	11.75	4 [8]	0.88	9.96	4.80	6.30	2.36	9.45	6.42	8.07	3.62	12.60	11.42	-	-	6.57	2.52
10"	250mm	9.65	14.25	4 [12]	1.00	12.60	4.80	6.30	2.68	10.83	7.87	9.45	3.62	16.73	13.39	-	-	6.57	2.52
12"	300mm	11.02	17	4 [12]	1.00	14.61	7.40	11.81	3.07	13.27	9.06	11.61	4.25	19.17	16.14	-	-	10.71	3.90
14"	350mm	12.99	18.75	4 [12]	1.12	16.38	7.40	11.81	3.62	14.25	10.04	12.60	4.25	20.16	18.11	-	-	10.71	3.90
16"	400mm	14.96	[21.25]	4 [16]	[1.12]	18.74	7.40	11.81	4.02	15.43	11.42	13.78	4.25	21.34	20.94	-	-	10.71	3.90

Note 1: Dimensions "L" is equivalent to ISO-5752 Short Pattern Face to Face dimension for metal valves.

Note 2: The shape and appearance of assembly differ a little with nominal size compared to this drawing.

Note 3: These show the bolt hole position for 3" (80mm)

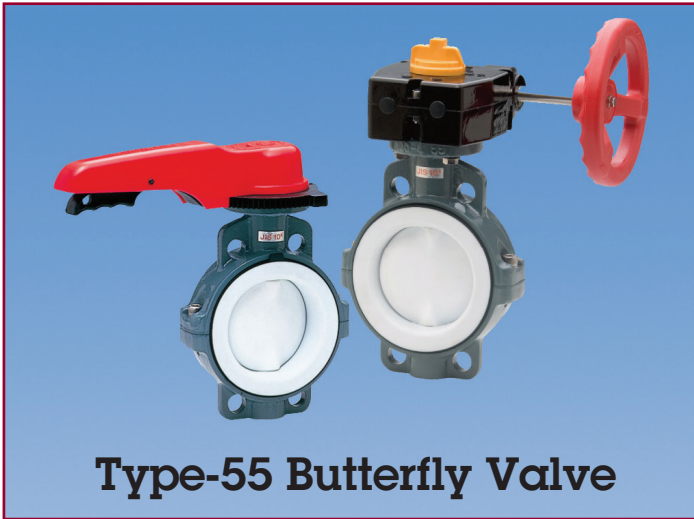
Parts List (Gear: Sizes 2" – 16")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	Ductile Cast Iron (FCD-S)*
2	Disc	1	PTFE
2a	Inserted Metal of Disc	1	Stainless Steel (SUS304)
3	Seat	1	PTFE
3a	Seat Cushion	1	CR
4a	Stem (A)	1	Stainless Steel (SUS304)
4b	Stem (B)	1	Stainless Steel (SUS304)
6	O-Ring (A)	1	EPDM
7	Bolt (A)	-	Stainless Steel (SUS304) 2" - 5" (2), 6" - 16" (4)
8	Gear Box	1	PLASGEAR™
9	Bolt (B)	4	Stainless Steel (SUS304)
48	Gasket (C)	1	EPDM
51	O-Ring (B)	1	EPDM

*With powdercoat finish.

Sample Specification

Type-55 IS Butterfly valves shall feature a powder coat finish cast ductile iron body with PTFE disc and seat. The PTFE seat shall be Neoprene backed for chemical resistance and flexibility over a wide range of temperatures. The face to face dimensions of the valve shall conform to ISO 5752 short pattern wafer style. Valves shall feature a 304 SS stem with full engagement thru the valve body and disc. Valves 2" – 5" shall feature a lever handle with 19 position throttling plate and trigger padlock provision. Valves 2" – 16" feature gear operators which shall be worm gear design, self-locking Plasgear™ as manufactured by Asahi/America Inc. Valves shall be rated to 150 psi from -5°F thru 210°F sizes 2" – 12" and 100psi from -5°F thru 210°F sizes 14" and 16", as manufactured by Asahi/America Inc.



Type-55 Butterfly Valve

Standard Features

- Highly corrosion resistant PTFE disc and seat
- Epoxy powder coated ductile iron body for corrosive atmosphere or environments
- Strong but thin disc with high Cv value
- Stainless steel stem has full engagement over the entire length of the disc and is a non-wetted part, totally isolated from the media
- Only PTFE disc and PTFE seat are wetted parts
- Bubble-tight shut-off
- Rated for full vacuum service
- Locking device
- 21-position throttle plate for lever handle style

Options

- Pneumatically or electrically actuated with accessories
- Gear operators for 2" - 5"
- 2" square nut on valve stem
- 2" square nut on gear
- Stem extensions (single stem and two-piece stem)
- Chain operators
- Manual limit switch

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Specifications

- Sizes:** 2" - 10"
- Models:** Wafer Style
- Operators:** Lever: 2" - 5"
Gear: 2" - 10"
- Bodies:** Epoxy powder coated ductile cast iron
- Discs:** PTFE
- Seats:** PTFE backed with Neoprene^{®†}
- Seals:** Same as seating material
- Stems:** Stainless steel 304

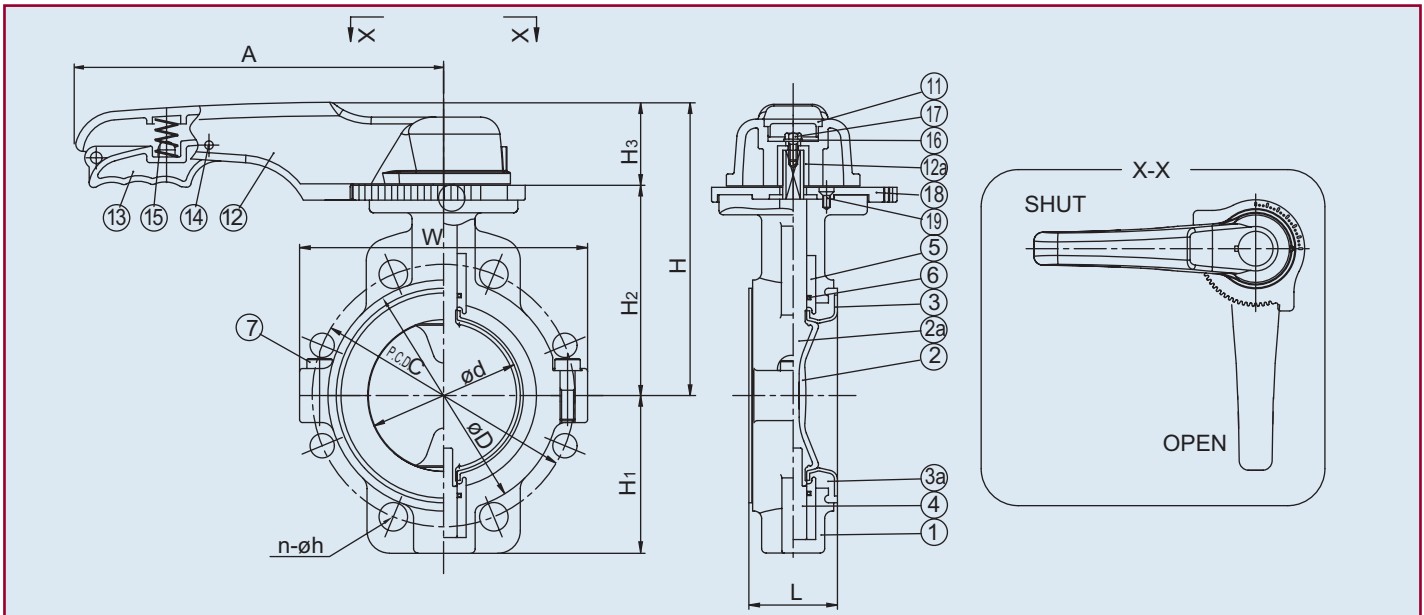
† Trademarks of E. I. du Pont de Nemours and Company

Parts List (Lever: Sizes 2" - 5")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	Ductile Cast Iron*
2	Disc	1	PTFE
2a	Disc Insert	1	Stainless Steel 304
3	Seat	1	PTFE
3a	Cushion Rubber	1	CR
4	Stem	1	Stainless Steel 304
5	Bush	2	Stainless Steel 304
6	O-Ring	2	EPDM
7	Bolt (A)	-	Stainless Steel 304
11	Cap	1	PP
12	Handle	1	PP
12a	Handle Metal Insert	1	Stainless Steel 316
13	Handle Lever	1	PPG
14	Pin	1	PPG
15	Spring	1	Stainless Steel 304
16	Washer	1	Stainless Steel 304
17	Bolt (C)	1	Stainless Steel 304
18	Locking Plate	1	PPG
19	Screw	4	Stainless Steel 304

*With epoxy powder coating.





Dimensions (Sizes 2" – 5") (in.)

NOMINAL SIZE		ANSI CLASS 150				D	L	H	H1	H2	H3	W	A
INCHES	mm	d	C	n	h								
2	50	2.17	4.75	2(4)	0.75	3.54	1.73	6.34	2.40	4.13	2.20	4.57	8.66
3	80	3.15	6.00	4(4)	0.75	4.92	2.13	7.09	3.74	4.88	2.20	5.98	9.84
4	100	3.94	7.50	4(8)	0.75	6.06	2.32	7.72	3.90	5.51	2.20	6.85	9.84
5	125	4.92	8.50	4(8)	0.88	7.13	2.52	9.25	4.72	6.54	2.72	8.11	12.60

Note: The shape and appearance of assembly differ a little with nominal size compared to this drawing.

Cv Values

NOMINAL Size		Cv
INCHES	mm	
2	50	100
3	80	285
4	100	600
5	125	940
6	150	1500
8	200	2500
10	250	4200

Weight (lbs.)

NOMINAL SIZE		LEVER	GEAR
INCHES	mm		
2	50	6.61	11.02
3	80	9.92	14.33
4	100	13.23	17.64
5	125	23.15	25.35
6	150	-	31.97
8	200	-	50.71
10	250	-	73.85

Pressure vs Temperature

NOMINAL Size		- 5° F
INCHES	mm	210° F
2	50	150
3	80	150
4	100	150
5	125	150
6	150	150
8	200	150
10	250	150

Troubleshooting

What if fluid still flows when valve is closed?

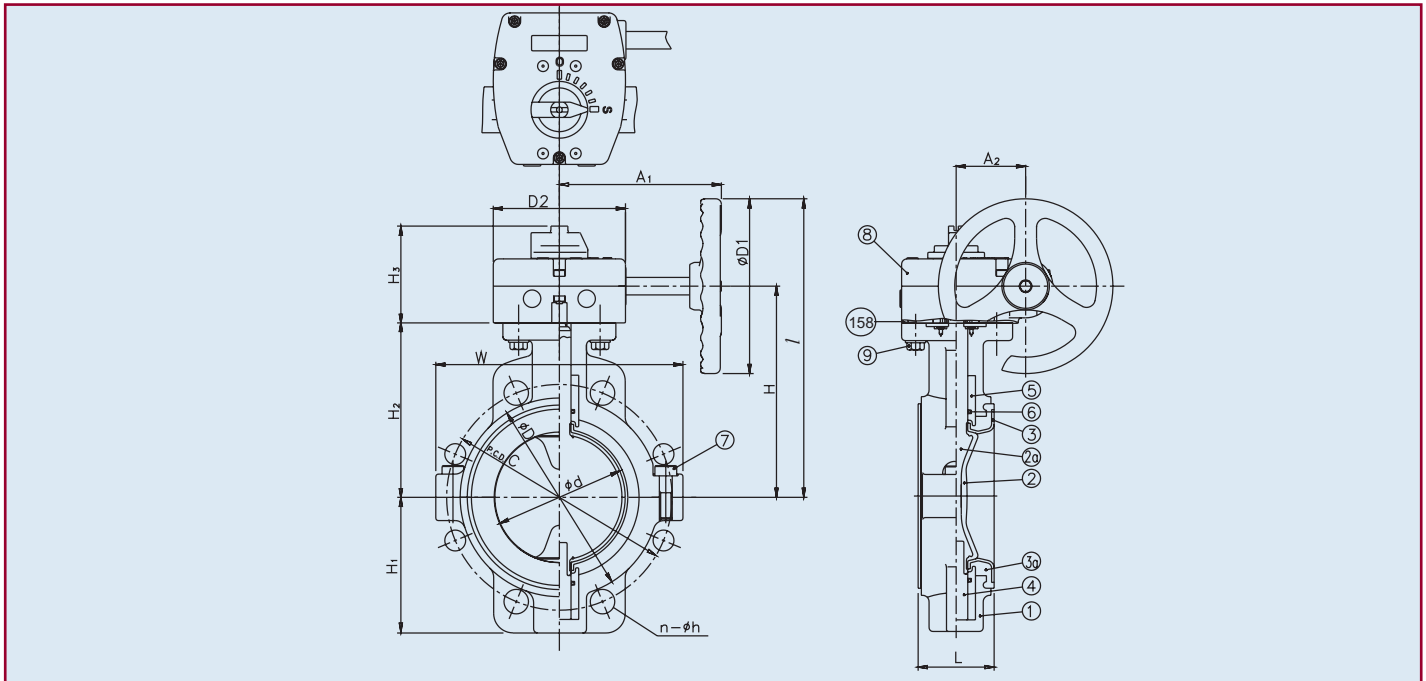
1. Make sure lever or gear is in a fully closed position (gear type may require travel stop adjustment).
2. Liner is damaged or worn. Replace liner.
3. Disc is damaged or abraded. Change disc.
4. Foreign material is caught between seat and disc. Remove the substance.
5. Mating flange bolts either overtightened or unevenly tightened. Retighten properly.

What if fluid leaks outside between seat and mating flange?

1. Seat damage. Change seat.
2. Mating flange bolts not tightened to proper torque or unevenly tightened. Retighten to the appropriate torque.

What if valve does not operate smoothly?

1. Foreign material is caught between disc and seat. Remove the material and clean.
2. Lever or gearbox is damaged. Replace.
3. Mating flange bolts overtightened. Retighten.



Dimensions (Sizes 2" – 10") (in.)

NOMINAL SIZE		ANSI CLASS 150																
INCHES	mm	d	C	n	h	D	D1	D2	L	H	H1	H2	H3	l	W	A1	A2	
2	50	2.17	4.75	2(4)	0.75	3.54	6.30	4.80	1.73	5.29	2.40	3.94	3.54	8.49	4.57	6.57	2.52	
3	80	3.15	6.00	-(4)	0.75	4.92	6.30	4.80	2.13	6.04	3.74	4.69	3.54	9.24	5.98	6.57	2.52	
4	100	3.94	7.50	4(8)	0.75	6.06	6.30	4.80	2.32	6.66	3.90	5.31	3.54	9.86	6.85	6.57	2.52	
5	125	4.92	8.50	4(8)	0.88	7.13	6.30	4.80	2.52	7.57	4.72	6.22	3.54	10.77	8.11	6.57	2.52	
6	150	5.91	9.50	4(8)	0.88	8.31	6.30	4.80	2.95	8.24	5.39	6.89	3.54	11.44	9.29	6.57	2.52	
8	200	7.52	11.75	4(8)	0.88	10.43	6.30	4.80	3.35	9.42	6.42	8.07	3.54	12.62	11.10	6.57	2.52	
10	250	9.65	14.25	4(12)	1.00	12.80	6.30	4.80	3.78	10.80	7.87	9.45	3.54	14.00	13.43	6.57	2.52	

Note: The shape and appearance of assembly differ a little with nominal size compared to this drawing

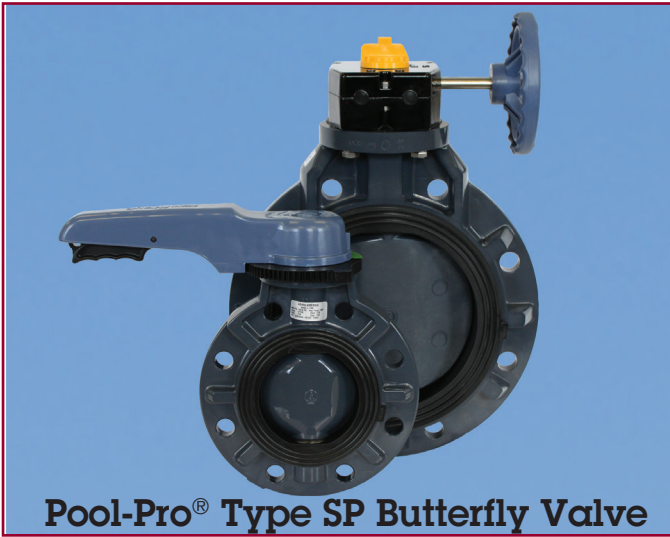
Parts List (Gear: Sizes 2" – 10")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	Ductile Cast Iron*
2	Disc	1	PTFE
2a	Disc Insert	1	Stainless Steel 304
3	Seat	1	PTFE
3a	Cushion Rubber	1	CR
4	Stem	1	Stainless Steel 304
5	Bush	2	Stainless Steel 304
6	O-Ring	2	EPDM
7	Bolt [A]	-	Stainless Steel 304
8	Gear Box	1	Plasgear™
9	Bolt [B]	4	Stainless Steel 304
158	Gasket	1	EPDM

*With epoxy powder coating

Sample Specification

All Type-55 butterfly valves shall be of epoxy powder coated ductile cast iron body design and bubble-tight seal (meeting or exceeding Class VI as defined by American National Standard Institute) with only the liner and disc as wetted parts. The lever handle (sizes 2" through 5") shall have a molded provision for a padlock. Gear operators shall be worm gear design, self-locking, with Plasgear™ plastic gear box. Valves shall have a molded ISO bolt pattern conforming to 5211/1 on top flange for actuator mount. The disc shall be of PTFE. Liner shall be of PTFE with Neoprene® backing cushion. Stem shall be of stainless steel, non-wetted and have engagement over the full length of the disc. The butterfly valves shall be wafer style. Valves shall be rated to 150psi from -5° F to +210° F, as manufactured by Asahi/America, Inc.



Specifications

Sizes: 1-1/2" - 12"
Models: Wafer Style
Operators: Lever and Gear
Bodies: PVC
Discs: PVC
Seats: EPDM
Seals: EPDM
Stems: Stainless steel

Standard Features (Sizes 1-1/2" - 12")

- **Submersible**
Material of construction allows complete submersion of valve body as all components are compatible with chlorinated water
- **PVC/PVC/EPDM Construction**
Ideal for chlorinated water applications
- **Blue Handle Design**
Blue handle designates the proper valve is in place for chlorinated water applications
- **Stainless Steel Stem**
Stem does not come in contact with the media but is still compatible if in direct contact
- **Thermoplastic Material**
Lightweight construction allows for easy installation
- **ISO Mounting Pad**
Allows for field mounting of accessories including stem extensions, gear operators and automation
- **18-position throttle plate**
For lever handle style

Parts List (Sizes 1-1/2" - 12")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
2	Disc	1	PVC
3	Seat	1	EPDM
4	O-Ring (A)	2	EPDM
5	O-Ring (B)	2	EPDM
6	O-Ring (C)	1	EPDM
7	Stem	1	Stainless Steel
8	Stem Holder	1	Stainless Steel 304
16	Handle	1	PP
16a	Metal Insert in Handle	1	Stainless Steel 316L
17	Handle Lever	1	PPG
18	Pin	1	PPG
19	Spring	1	Stainless Steel 304
20	Washer (A)	1	Stainless Steel 304
21	Bolt (B)	1	Stainless Steel 304
22	Locking Plate	1	PPG
23	Screw (B)	4	Stainless Steel 304
24	Cap (A)	1	PP
25	Gear Box	1	Plasgear™
26	Bolt (C)	4	Stainless Steel 304
158	Gasket	1	EPDM

Sample Specifications

All Pool-Pro® Type SP butterfly valves, sizes 1-1/2"-12", shall be of a PVC body, PVC disc and EPDM construction suitable for chlorinated water applications. Stem shall be of stainless steel and non-wetted. Valves shall be a self-gasketing design with a convex sealing arrangement. All Pool-Pro® Type SP (1-1/2"-10") valves shall be rated to 150psi and size (12") 100psi at 70° F, as manufactured by Asahi/America, Inc.

Press. vs Temp. Weight (lbs.)

NOMINAL		30° F
INCHES	mm	120° F
1-1/2	40	150
2	50	150
2-1/2	65	150
3	80	150
4	100	150
6	150	150
8	200	150
10	250	150
12	300	100

NOMINAL		Lever/Gear Operated (lbs.)
INCHES	mm	
1-1/2 (L)	40	2.7
2 (L)	50	3.1
2-1/2 (L)	65	3.5
3 (L)	80	4.0
4 (L)	100	5.5
6 (L)	150	13.3
8 (L)	200	19.9
8 (G)	200	24.3
10 (G)	250	41.0
12 (G)	300	58.4

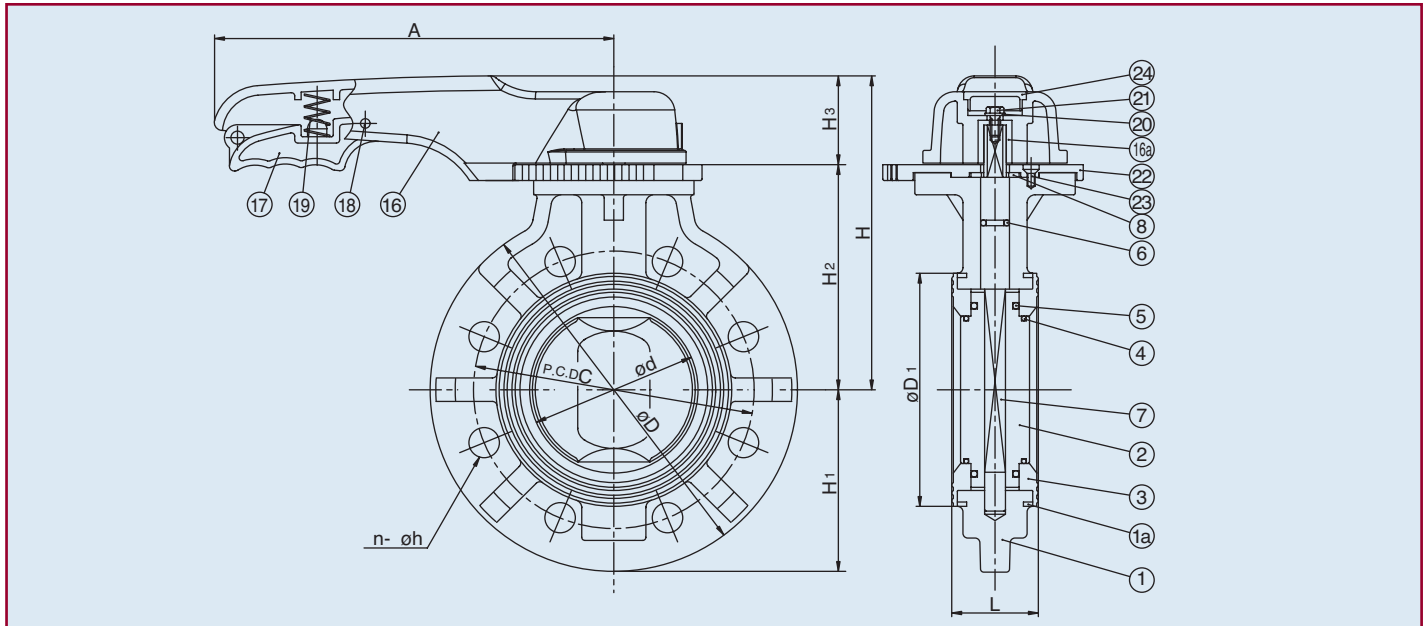
CV Values

NOMINAL		Cv (at various opening degrees)		
INCHES	mm	30°	60°	90°
1-1/2	40	2.9	43.3	71
2	50	3.9	56.1	92
2-1/2	65	5.9	85.4	140
3	80	9.3	134	220
4	100	15.1	231	380
6	150	46.6	671	1100
8	200	106	1425	2500
10	250	270	1476	3600
12	300	408	2140	5160

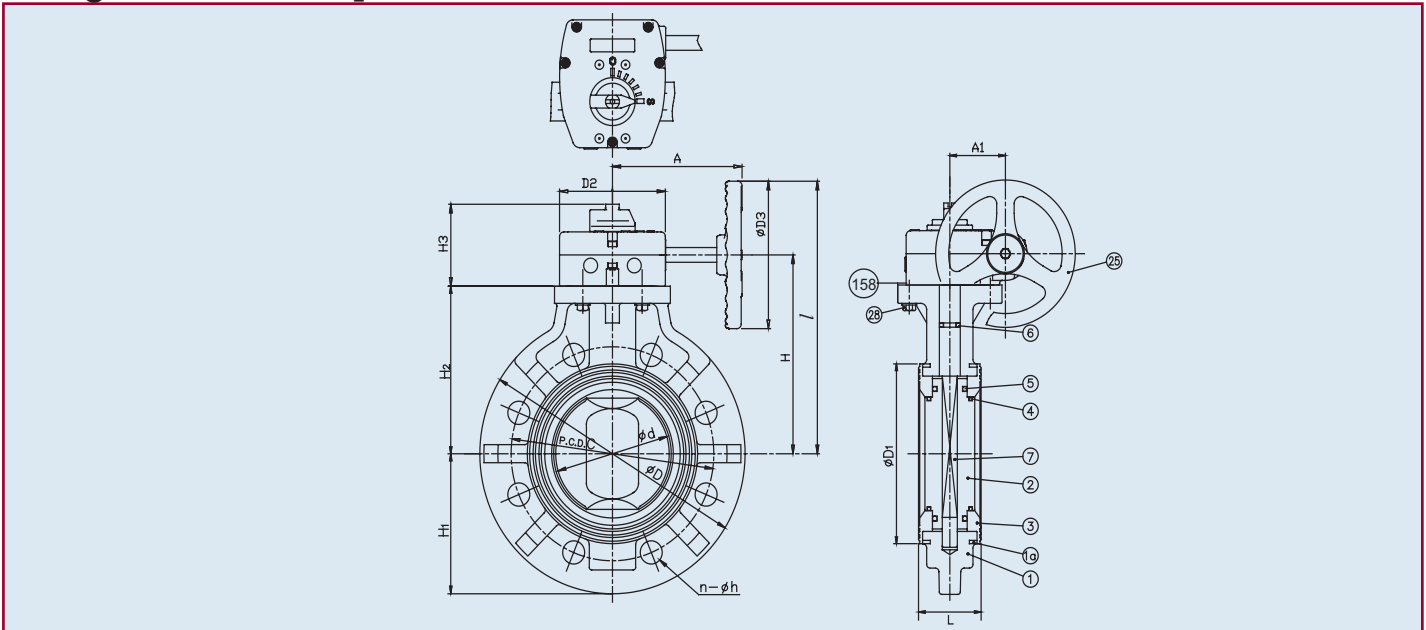
Pool-Pro® Type SP

Butterfly Valves

Lever Style



Plasgear™ Gear Style

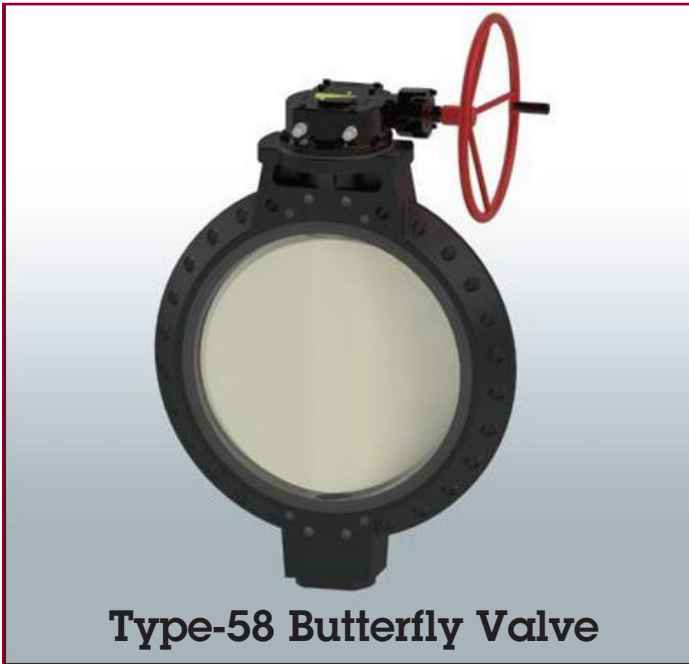


Dimensions (in.)

NOMINAL SIZE		ANSI CLASS 150										Gear Style						Lever Style			
INCHES	mm	d	C	n	h	D	D1	D2	D3	L	H1	H	H2	H3	/	A	A1	H	H2	H3	A
1-1/2	40	1.85	3.88	4	0.62	5.91	3.23	4.80	6.30	1.54	2.95	5.12	3.74	3.74	8.27	6.57	2.52	6.14	3.94	2.20	8.66
2	50	2.24	4.75	4	0.75	6.50	3.43	4.80	6.30	1.65	3.27	5.36	3.98	3.74	8.51	6.57	2.52	6.37	4.17	2.20	8.66
2-1/2	65	2.80	5.50	4	0.75	7.28	4.41	4.80	6.30	1.81	3.66	5.79	4.41	3.74	8.94	6.57	2.52	6.81	4.61	2.20	8.66
3	80	3.15	6.00	4	0.75	7.87	4.84	4.80	6.30	1.81	3.94	6.07	4.69	3.74	9.22	6.57	2.52	7.08	4.88	2.20	9.84
4	100	4.13	7.50	8	0.75	9.02	5.79	4.80	6.30	2.20	4.53	6.77	5.39	3.74	9.92	6.57	2.52	7.79	5.59	2.20	9.84
6	150	6.06	9.50	8	0.88	11.22	8.27	4.80	6.30	2.80	5.63	8.35	6.97	3.74	11.50	6.57	2.52	10.00	7.28	2.72	12.60
8	200	8.03	11.75	8	0.88	13.39	10.12	4.80	6.30	3.43	6.69	9.61	8.23	3.74	12.76	6.57	2.52	11.26	8.54	2.72	15.75
10	250	10.08	14.25	12	1.00	15.98	12.44	4.80	6.30	4.33	7.99	10.87	9.49	3.74	14.02	6.57	2.52	-	-	-	-
12	300	12.60	17.00	12	1.00	19.02	14.57	7.40	11.81	5.08	9.53	13.39	11.73	4.25	19.29	10.71	3.90	-	-	-	-

Type-58

Butterfly Valves



Type-58 Butterfly Valve

The 28" Type-58 butterfly valve has been re-engineered using the latest technology and production methods. This ensures a quality product from design through production resulting in high performance and shortened delivery times.

Standard Features (Sizes 28")

- Injection molded PDCPD body with ANSI Class 150 machined bolt pattern
- Polypropylene or PVDF Disc
- EPDM or FKM full boot liner
- Face to face dimension meets ISO 5752 Short Pattern
- Non-Wetted Stainless Steel stem
- Rotork Gear-operator

Pressure vs Temperature

NOMINAL Size		30° F	121° F	141° F	161° F
INCHES	mm	120° F	140° F	160° F	176° F
28	700	100	90	80	75

Specifications

- Sizes:** 28"
- Models:** Wafer Style
- Operators:** Gear
- Bodies:** PDCPD
- Discs:** PP or PVDF
- Seats:** EPDM or FKM
- Seals:** Same as seating material
- Stems:** 403 and 316 stainless steel, Titanium, Hastelloy C[†]

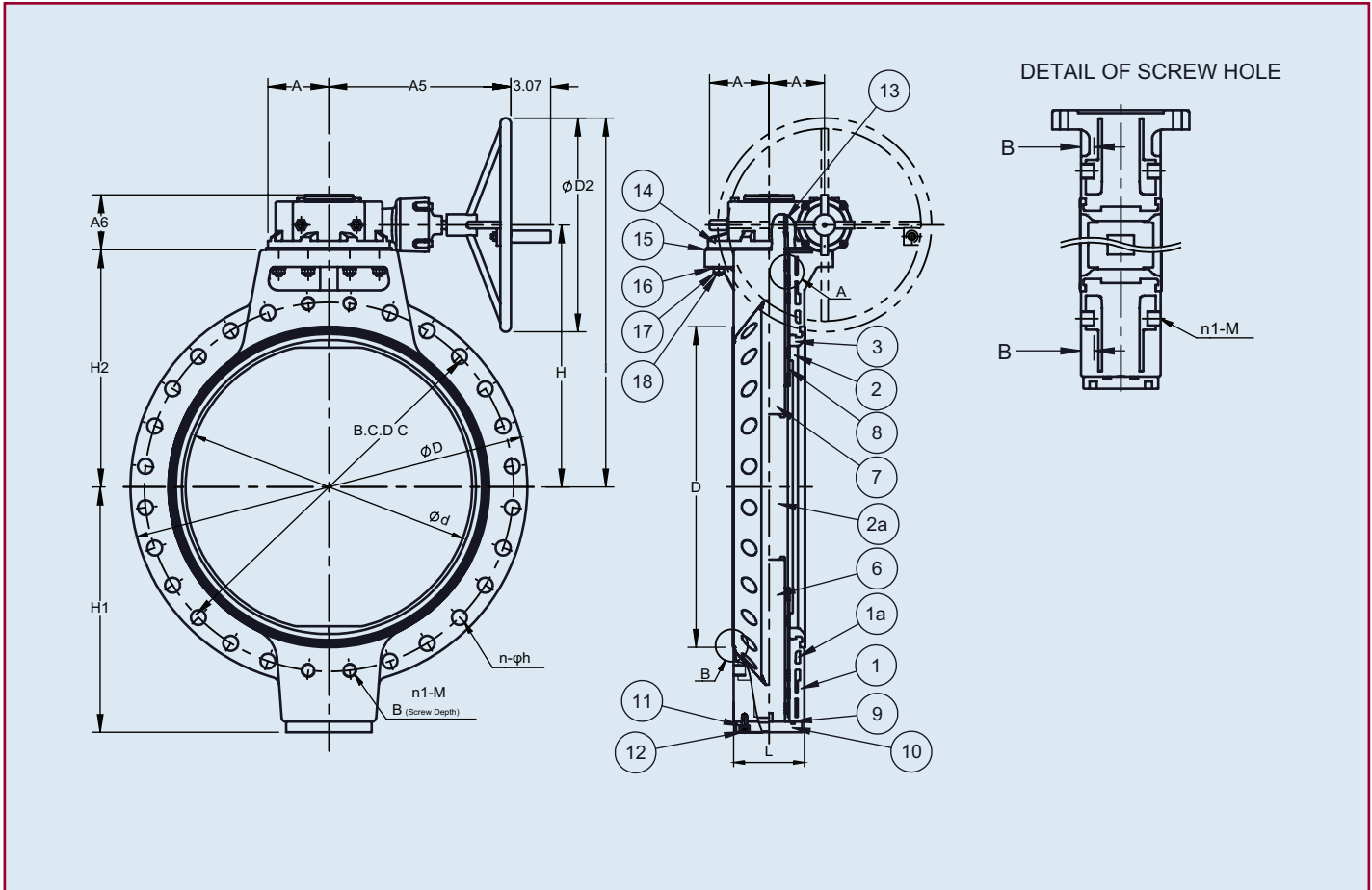
† Trademark of Cabot Corporation

Parts List (Sizes 28")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PDCPD
1a	INSERT METAL OF BODY	2	SCS13
2	Disc I	1	PP,PVDF
2a	INSERT METAL OF DISC	1	AC4C
3	SEAT	1	EPDM,FKM
4	O-RING (A)	16	EPDM,FKM
5	O-RING (B)	4	EPDM,FKM
9	O-RING (C)	1	EPDM,FKM
15	GASKET	1	EPDM
6	STEM (B)	1	403SS,316SS,OTHER
7	STEM (A)	1	403SS,316SS,OTHER
8	BUSH	2	PP,PVDF
10	STEM HOLDER	1	ABS
11	WASHER (A)	4	STAINLESS STEEL,304
12	BOLT (A)	4	STAINLESS STEEL,304
13	KEY	1	CAST IRON (FC250)
14	GEAR BOX	1	ROTORK
16	WASHER (B)	8	STAINLESS STEEL,304
17	NUT	8	STAINLESS STEEL,304
18	BOLT (B)	8	STAINLESS STEEL,304

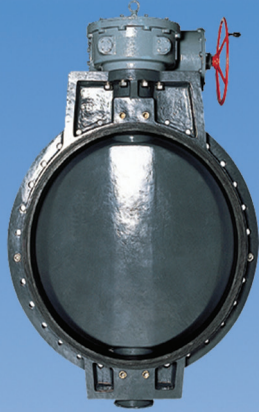
Type-58

Butterfly Valves



Dimensions (in.)

INCHES	mm	ANSI CLASS 150											D	D1	D2	L	H	I	H1	H2	A	A2	A4	A5	A6	Gear Box Model
		d	C	h	N	n	/side	/total	M	B																
28	700	26.38	34.00	1.38	28	24	4	8	1-1/4	1.06	36.54	29.53	19.69	6.50	24.13	33.98	22.60	21.85	5.61	5.12	5.47	16.76	5.08	AB1950N		



PDCPD Large Diameter Butterfly Valve (32" - 48")

Standard Features

- High corrosion resistance PDCPD body
- Lightweight – Considerably lighter than metallic valves of same size
- Wafer style body design
- Full seat liner design
 - Eliminates mating flange gaskets
- Spherical disc design
 - For maximum flow characteristics
- Non-wetted metal parts
 - No metal to media contact
- ISO 5211 F-series top flange
- 304 stainless steel stem
- Durable cast iron epoxy coated gear operator
- Class 6 bubble-tight shut-off

Options

- 2" square operating nut on gear operator

Sample Specification

All PDCPD butterfly valves sizes 32" – 48" shall be of the lined body design and feature a Class 6 bubble-tight seal, with only the liner and disc as wetted parts. Gear operators shall be self-locking worm gear design, with cast iron body and corrosion resistant epoxy finish. The disc shall be spherical design for long life. Liner shall be convex ring face design for lower bolt torque and be molded and formed around the body doubling as mating flange gaskets. Stem shall be 403 stainless steel, non-wetted and of two-piece design. Valves shall have ISO 5211 molded bolt pattern on top flange. All valves shall be rated to a maximum of 110psi at 70° F, as manufactured by Asahi/America, Inc.

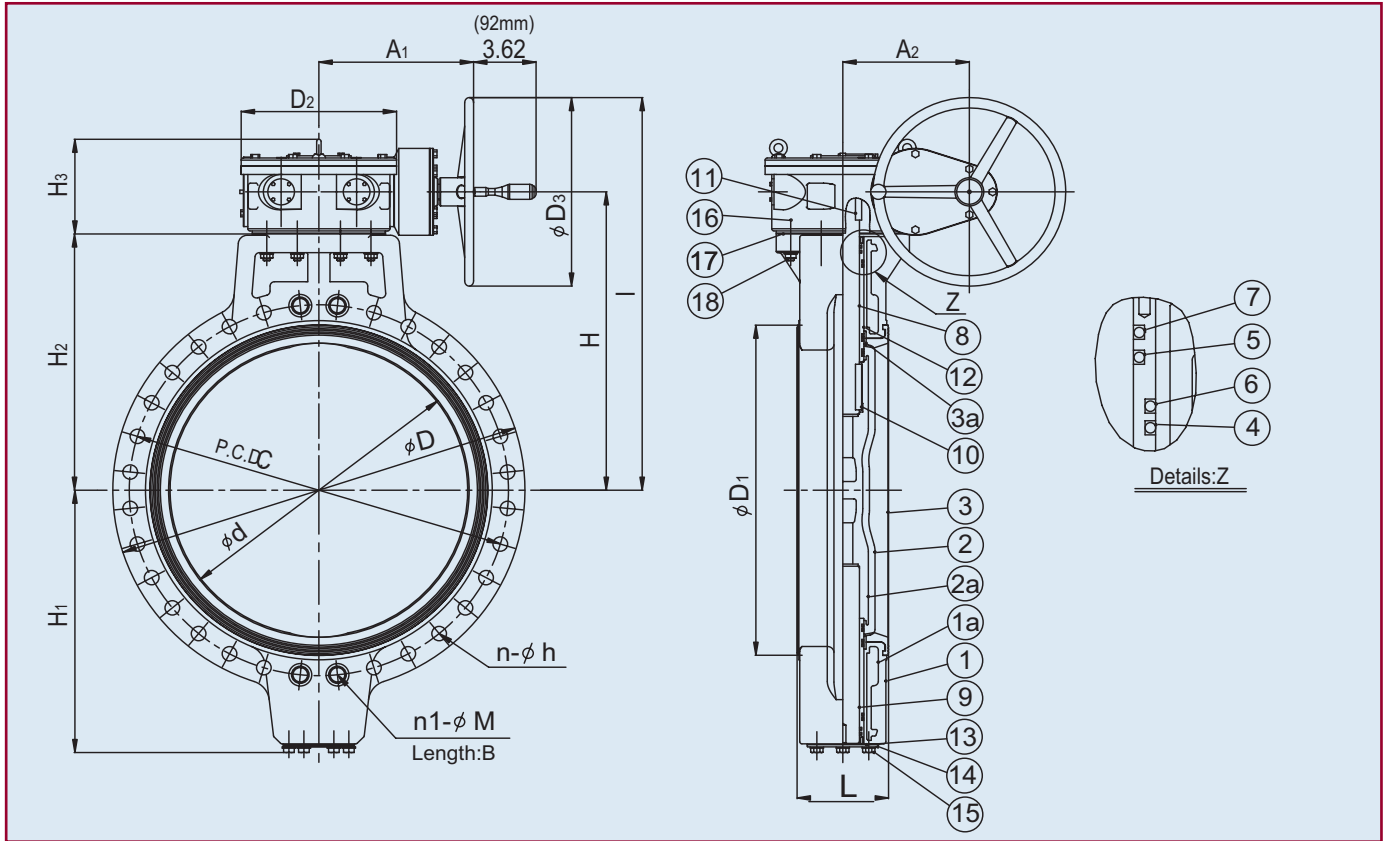
Specifications

Sizes: 32" – 48"
Models: Wafer Style
Operators: Gear
Bodies: PDCPD
Discs: PDCPD
Seats: EPDM, FKM
Stems: 403 Stainless steel
Max Working Press: 110psi
Max Working Temp: 175°F

Parts List

PARTS			
No.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PDCPD
2	Disc	1	PDCPD
3	Seat	1	FKM, EPDM
4	O-Ring (A)	11	FKM, EPDM
5	O-Ring (B)	3	FKM, EPDM
6	O-Ring (C)	1	NBR
7	O-Ring (D)	1	NBR
8	Stem (A)	1	Stainless Steel 403
9	Stem (B)	1	Stainless Steel 403
10	Key (A)	1	Carbon Steel
11	Key (B)	4	Carbon Steel
12	Bush	2	Bronze Casting (For EPDM Liner) PVDF (For FKM Liner)
13	Gasket (A)	1	Nonas Sheet
14	Stem Holder	1	Stainless Steel 304
15	Bolt (A)	6	Stainless Steel 304
16	Gear Box	1	Cast Iron (FC200 With Epoxy Coat)
17	Thrust Ring (A)	1	UHMWPE
18	Bolt (B)	8	Stainless Steel 304
3a	Stabilization Ring (A)	2	Stainless Steel 304
1a	Inserted Metal of Body	1	Carbon Steel (FCD450)
1b	Inserted Metal of Disc	1	Carbon Steel (FCD450)

PDCPD Large Diameter Butterfly Valve



Dimensions (in.)

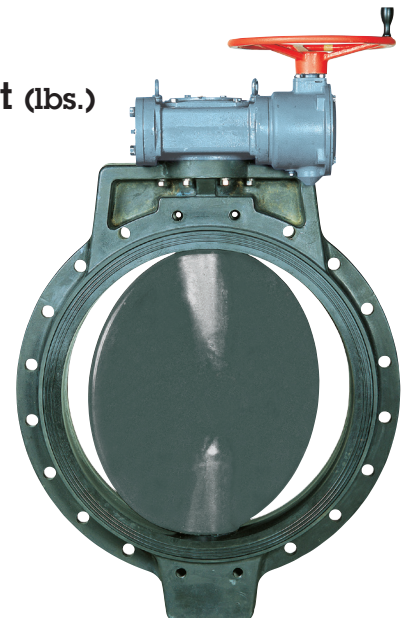
INCHES	mm	d	C	n	h	h1	M	B	D	D1	D2	D3	L	A1	A2	H1	H2	H3	H	/	Gear Box Model
32	800	30.31	38.50	24	1.62	4	1-1/2	1.38	41.34	34.25	13.78	17.13	9.45	15.83	11.22	24.37	24.41	9.76	28.15	36.50	BRF10
36	900	34.25	42.75	28	1.62	4	1-1/2	1.38	45.98	38.50	13.78	25.00	9.45	15.83	11.22	27.72	27.76	9.76	31.50	44.00	BRF10
40	1000	38.19	42.75	32	1.62	4	1-1/2	1.65	50.00	42.52	18.11	25.00	11.81	22.20	9.53	29.49	29.52	10.39	33.27	45.55	BRF10
44	1100	42.52	51.75	36	1.62	8	1-1/2	1.77	54.33	47.05	-	25.00	11.81	22.24	9.02	30.71	33.07	12.72	39.84	52.36	BRF10
48	1200	46.06	56.00	40	1.62	8	1-1/2	1.77	58.58	51.18	-	25.00	13.78	22.24	9.02	33.46	35.04	12.72	41.81	54.33	BRF10

Cv Values

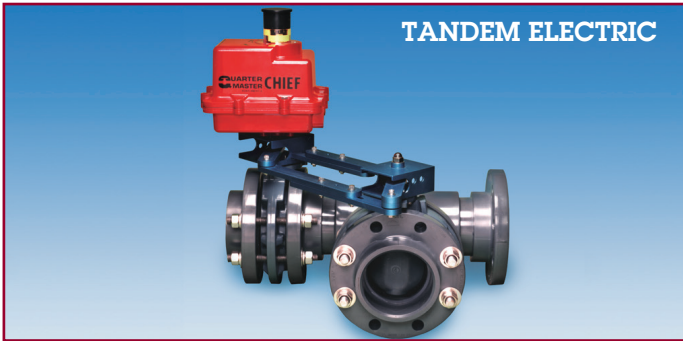
NOMINAL		Cv		
INCHES	mm	30°	60°	90°
32	800	4,200	17,000	43,000
36	900	5,600	22,000	55,000
40	1000	7,000	26,000	70,000
44	1200	6,450	36,550	86,000
48	1400	7,500	42,500	100,000

Press. vs. Temp (non-shock)/Weight (lbs.)

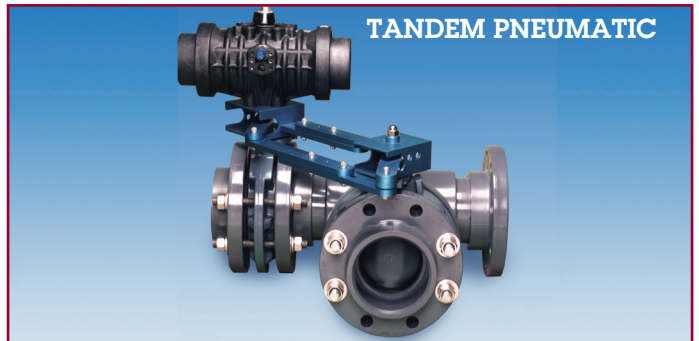
NOMINAL SIZE		Press. Vs. Temp.		Weight (Lbs)
INCHES	mm	30-120° F	121-175° F	
32	800	110psi	70psi	1015
36	900	110psi	70psi	1215
40	1000	110psi	70psi	1830
44	1200	110psi	97.5psi	2205
48	1400	110psi	97.5psi	2426



Tandem Butterfly Valves



TANDEM ELECTRIC



TANDEM PNEUMATIC

Standard Features

- Series 92 or Series 10P electric actuator
- Declutchable manual override
- Two end of travel limit switches supplied as a standard
- Weatherproof enclosure rated Type 4X
- RHM (see page 71)
- Visual position indication
- 304 stainless steel linkage and fasteners
- Zinc plated valve flanging hardware
- PVC flanged tee sizes 1-1/2" - 6", with valve mating flanges installed
- Polypro flanged Tee sizes 8" - 12" (mating flanges not included)
- Standard arrangement permits flow straight through the run of the tee when actuator is open and shuts off flow out the branch
- Special "on the run" configuration permits L port flow design where the branch acts as the inlet and flow is diverted out the left or right ports when actuator is cycled
- Mechanical brake supplied as standard sizes 4" - 12"
- Accepts positioners
- Local/remote operating station available as an option
- Offered as a complete drop-in actuated valve and tee assembly

Size	Actuator Model
1-1/2	S92RHMW
2	S92RHMW
2-1/2	S92RHMW
3	S92RHMW
4	S92BRRHMW
6	B92BRRHMW
8	C92BRRHMW
10	10-50P
12	10-50P

Standard Features

- Series 79P air-to-air (A-A) or air-to-spring (A-S) pneumatic actuator
- Air-to-spring design allows for fail closed position of one valve
- Durable molded GF polyamide or extruded aluminum rack and pinion design actuator
- Visual position indication
- 304 stainless steel linkage and fasteners
- Zinc plated valve flanging hardware
- PVC flanged tee sizes 1-1/2" - 6", with valve mating flanges installed
- Polypro flanged tee sizes 8" - 12" (mating flanges not included)
- Standard arrangement permits flow straight through the run of the tee when actuator is open and shuts off flow out the branch
- Special on the run configuration permits L port flow design where the branch acts as the inlet and flow is diverted out the left or right ports when actuator is cycled
- Accepts optional limit switches, solenoids and positioners
- Offered as a complete drop-in actuated valve and tee assembly

Size	A-A Actuator Model	A-S Actuator Model (Fail Closed)
1-1/2	BP79PN	CP79PN
2	BP79PN	CP79PN
2-1/2	BP79PN	CP79PN
3	CP79PN	DP79PN
4	CP79PN	DP79PN
6	DP79PN	E79PAN
8	E79PAN	F79PSN
10	E79PAN	F79PSN
12	F79PN	G79PASN

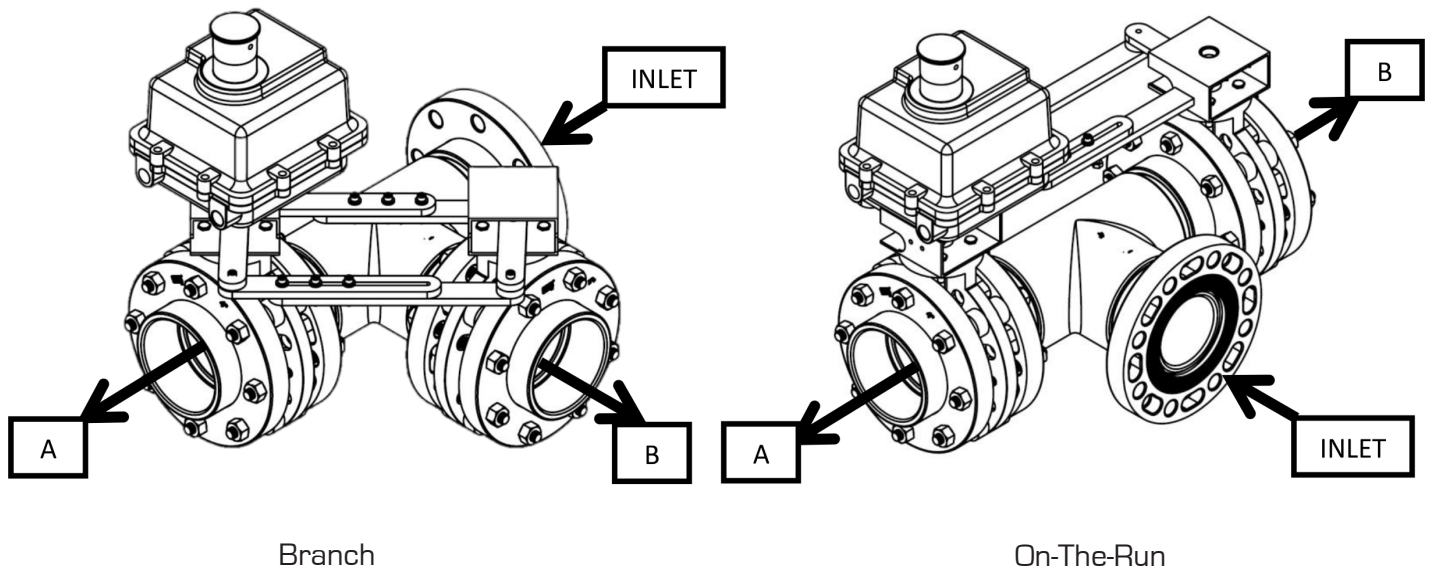
Tandem Butterfly Valves

TANDEM ASSEMBLY WORK SHEET

1. Customer Name:
2. Order Number:
3. Valve Size:
4. Actuator: [Choose one]

<input type="checkbox"/>	Series 92	<input type="checkbox"/>	Series 79 A-S
<input type="checkbox"/>	Series 10P	<input type="checkbox"/>	Series 79 A-A

5. Flow Arrangement [Choose one]



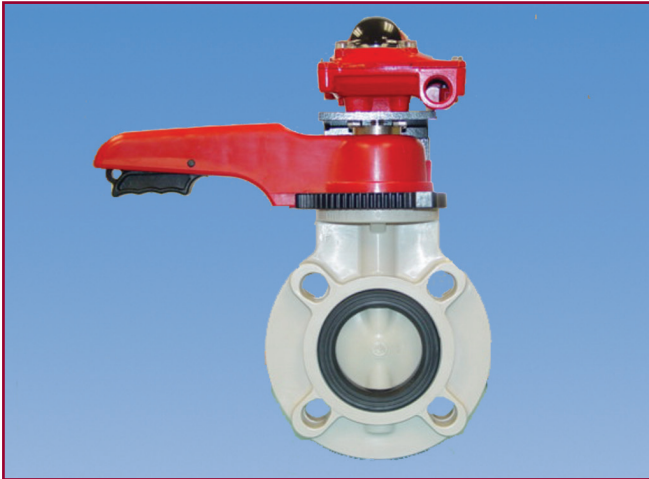
Note: While port A is open Port B is closed. While Port B is open, Port A is closed.

6. Notes:

LIMIT SWITCHES

Limit switches are used for remote position indication with the use of lights or for sequencing of other equipment.

P-Series Limit Switch (Lever Type)



Westlock Limit Switch (Gear Type)

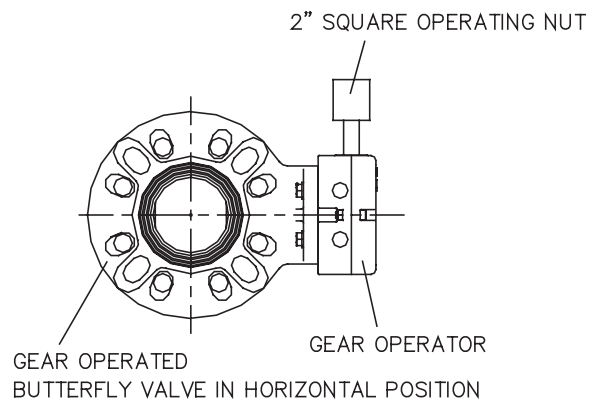
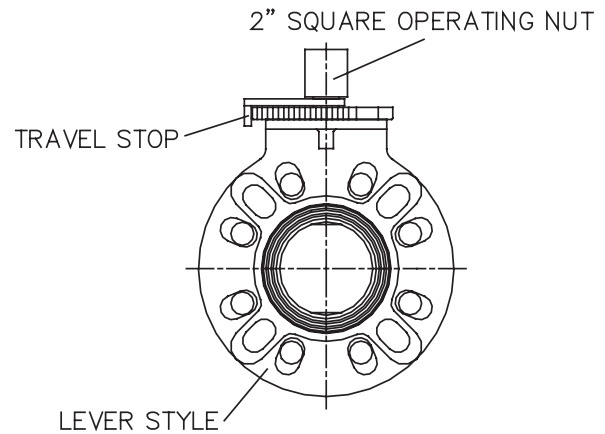


Plasgear™ Locking Device



OPERATING NUTS

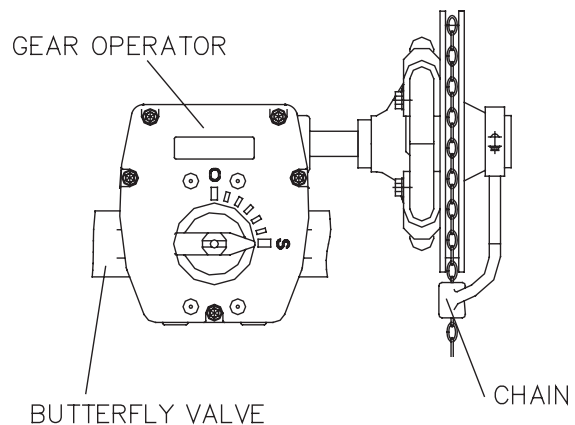
Operating nuts are available in 2" square configuration. They are used for remote operation of a valve with an extended wrench.



NOTE. The shape and appearance of assembly differ a little with nominal size compared to this drawing.

CHAIN OPERATORS

These operators are used for valves in overhead locations. They can only be used with gear operated valves.





The Speed Handle™ is an accessory adder to the Plasgear™ gear-operator for butterfly valves. The revolving grip permits faster, single handed revolutions of the hand wheel for quicker valve actuation.

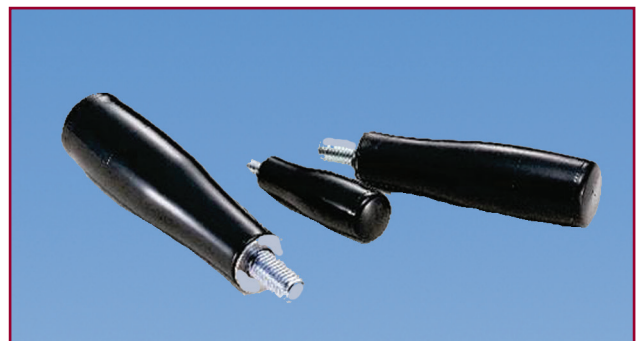
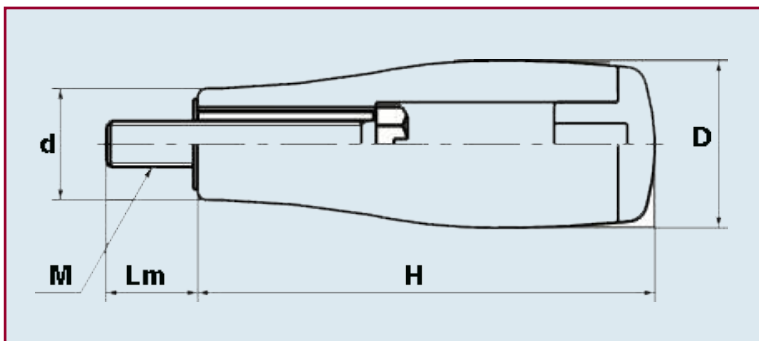
Standard Features

- Designed to fit Plasgear™ operated butterfly valves
- Butterfly valves sizes 1-1/2" – 16"
- Sold in "Kit" form consisting of Plasgear™ hand wheel and grip
- Available in both red and blue for Type-241 and Type-243 Plasgear™
- PPG hand wheel, nylon 6 (black) grip, SS400 chromate treated M10 bolt and SS M10 hex nut
- Available as a field installable kit or as an accessory adder to a current valve order.

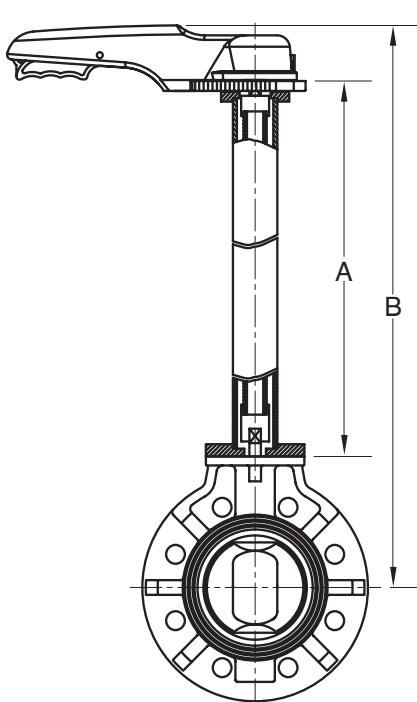
Ideal Applications

- Hard to reach locations
- Aquariums
- Landfills
- Chemical processing
- Mining

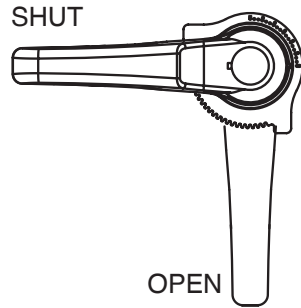
Speed Handle™ Grip Dimensions (in.)



Description	D	M	Lm	d	H	Weight
Speed Handle Grip	1.10	M10	0.787	0.787	3.75	3.03 oz



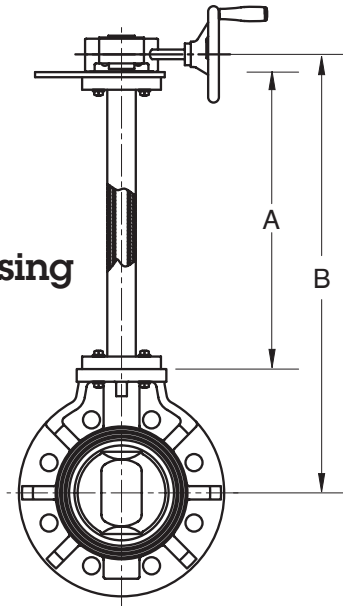
STYLE LBF-A
(TWO PIECE, STEM & HOUSING)



Two-Piece Stem and Housing

For submerged or buried applications. PVC housing protects stem extensions from aggressive environments. Epoxy coated carbon steel housing is also available, which is designed to meet landfill specifications.

Note:
Landfill style stem extensions are gear operated type only.

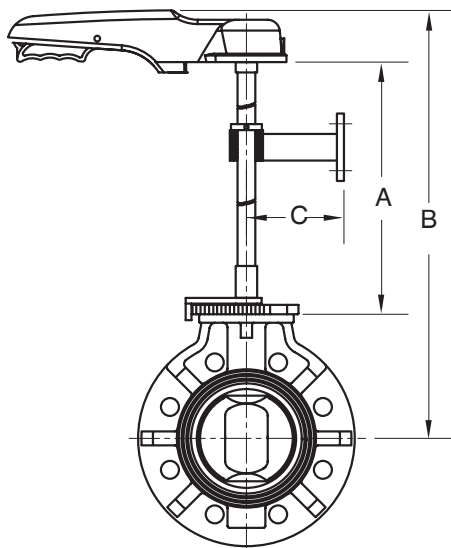


STYLE GBF-A
(TWO PIECE, STEM & HOUSING)

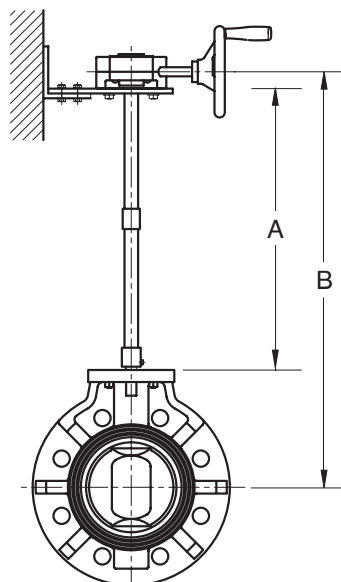
Single Stem Extensions

Valve handle can be extended away from the valve for out-of-reach locations.

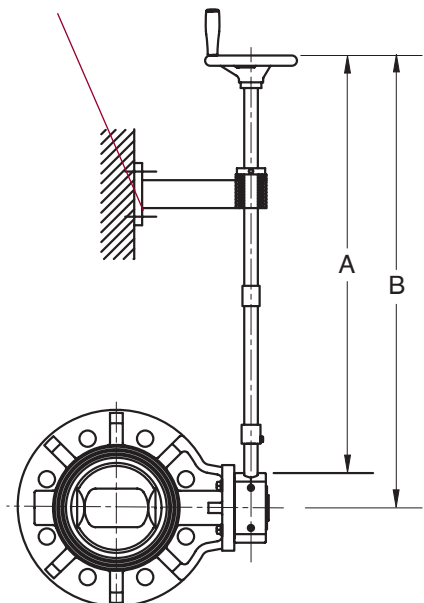
PATENTED WALL SUPPORT



STYLE LBF-B
(ONE PIECE, NON-SUPPORTED)



STYLE GBF-B
(ONE PIECE, NON-SUPPORTED)



STYLE GBF-C
(ONE PIECE, NON-SUPPORTED)

All stem extension tolerances +/- 1 inch

Please use Stem Extension Work Sheet on Page 23 when ordering any stem extension.



UL-508
Listed

Series 92 Electric Actuators

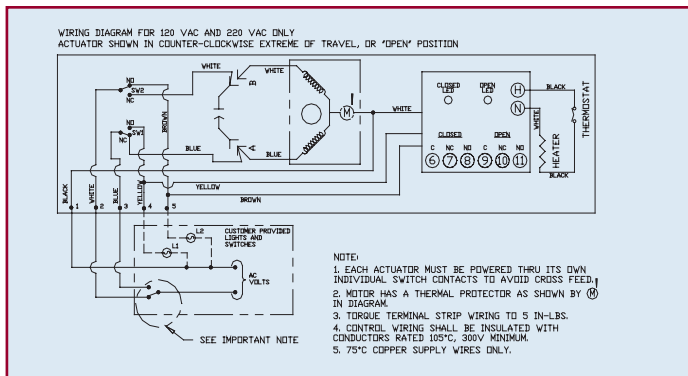
Standard Features (Sizes 1-1/2" – 8")

- Brushless, capacitor-run motors (AC models)
- Integral thermal overload protection with auto-reset (AC models)
- Permanently lubricated gear train
- High duty cycle motor for high cycle applications
- Weatherproof enclosure rated Type 4X has a thermally bonded powder coat finish with SS trim
- ISO mounting
- Two 1/2" NPT conduit ports prevent interference between control and power signals
- Declutchable manual override
- Standard travel stop limit switches can simultaneously be used for indicator lights
- Highly visible position indicator
- Captivated SS hex head slotted cover screws
- RHM module (consists of 2-SPDT 8A relays/dry connects) and heater and thermostat (see page 71)

Options

- Fail safe battery pack
- Feedback potentiometer
- Positioner: 4–20 mA or 0–10 VDC input
- 4–20 mA output position transmitter
- Voltages: 220 VAC, 24 VAC, 12 VAC, 24 VDC, 12 VDC
- Mechanical brake eliminates seating oscillation
- Explosion-proof enclosure (UL1203)

AC Wiring (For 120 VAC and 220 VAC only)



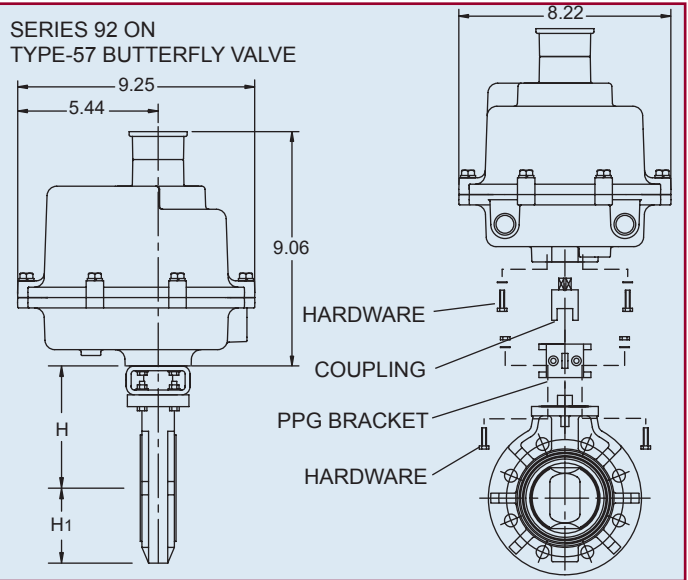
Specifications

Motor Type: Reversing, 1/4 turn
single phase
Sizes: S92, A92 B92, C92 for
1-1/2" – 8" butterfly valves
Torque: 400 to 2000 in-lbs
Voltage: 120 VAC, 50/60 Hz

Max Ambient Temp: 150° F

Switches: Two single pole, double
throw (15 Amp rating)

SERIES 92 ON
TYPE-57 BUTTERFLY VALVE



Engineering Data

Actuator Model	Torque (in-lbs.)	Duty Cycle	Cycle Time* (sec)	Weight (lbs.)	Amp Draw					
					120 VAC	220 VAC	24 VAC	12 VAC	24 VDC	12 VDC
S92	400	100	15	15.3	0.5	0.4	3.0	2.0	4.0	2.0
A92	700	75	15	15.3	0.8	0.6	3.0	2.0	4.0	2.0
B92	1100	100	32	15.3	0.5	0.4	3.0	2.0	4.0	2.0
C92	2000	50	32	18.3	1.0	0.6	3.0	2.0	4.0	2.0

*Cycle times are approximate.

Duty cycle shown is for 120 VAC at ambient temperature. (73° F)

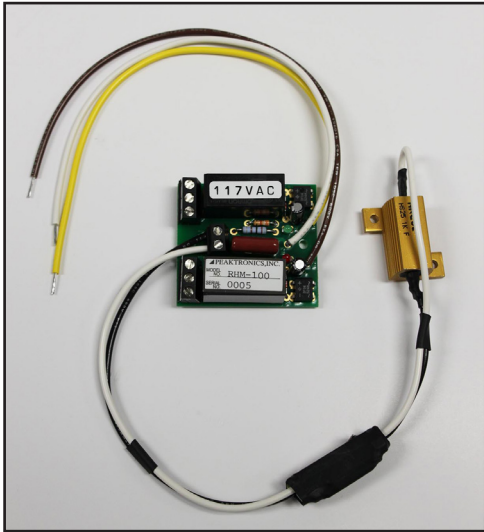
NOTE TO WIRING DIAGRAM:

1. EACH ACTUATOR MUST BE POWERED THROUGH ITS OWN INDIVIDUAL SWITCH CONTACTS TO AVOID CROSS FEED.
2. WIRING AS SHOWN IS FOR S92 AND A92 MODELS.
3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM. (120 AND 220 VAC MODEL).
4. IF 120 & 220 VAC MODELS ARE PLC DRIVEN, OUTPUT CONTACTS OF PLC SHOULD BE RATED AT A MINIMUM OF 1.5 TIMES REQUIRED INPUT VOLTAGE OF ACTUATOR.

Dimensions (in.)

NOMINAL SIZE		MODEL	H	H1
INCHES	mm			
1-1/2	40	S92	5.51	2.95
2	50	S92	5.75	3.27
2-1/2	65	S92	6.18	3.66
3	80	S92	6.46	3.94
4	100	S92	7.16	4.53
5	125	A92	8.46	5.00
6	150	B92	8.97	5.63
8	200	C92	11.25	6.70

(For sizes above 8" see page 76)



Specifications

Standard Operating Voltage: 120 VAC
Optional Voltages: 220 VAC, 12 VAC, 24 VAC, 12 VDC, 24 VDC
Operating Current: 42mA @ 120 VAC
 39mA @ 220 VAC
 89mA @ 12 VAC
 43mA @ 24 VAC
 37mA @ 12 VDC
 23mA @ 24 VDC

Relay Outputs (Form C): 8A
Operating Temperature: -40 to 85 C
Approved for UL508 & UL1203 Actuators

Series 92/Series 94 Optional RHM (Relay Heater Module)

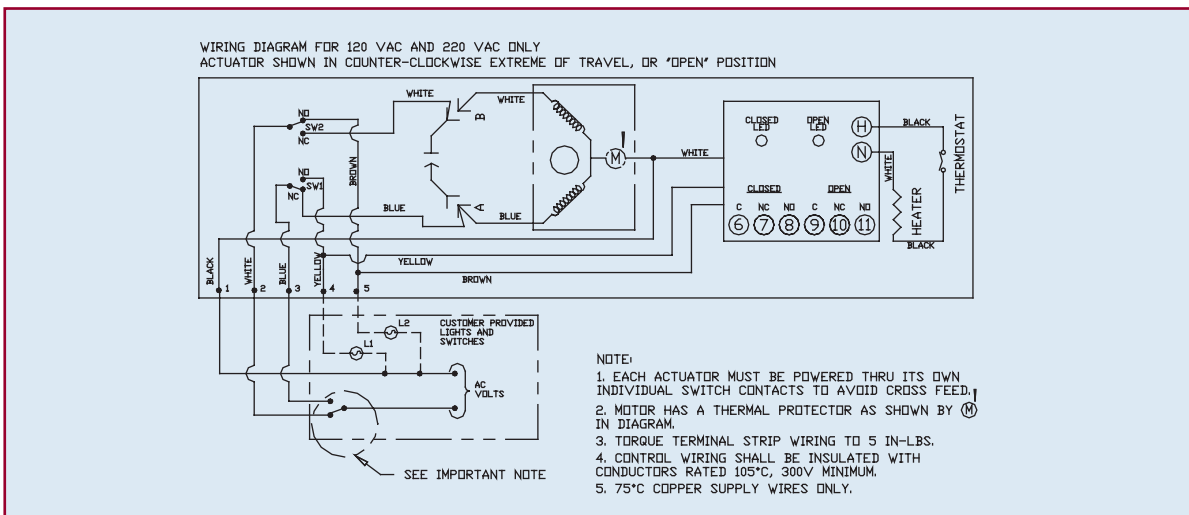
The RHM (Relay Heater Module) is a means of powering an optional heater and thermostat without requiring an additional constant power source or wiring. These modules also provide open and close Form C dry contacts that replace auxiliary switches. A 2-pin terminal block provides wiring connection of the heater and thermostat, while two 3-pin terminal blocks provide easy connection to the relays by the user.

When the actuator is powered to open, the motor runs until the open limit switch is tripped, then sends power to the RHM open connection. At that time power is provided to the heater and thermostat, the open relay coil, and to the on board red LED. This provides contact closure at the end of the open cycle and confirms that power is provided to the heater and thermostat.

When the actuator is powered to close, the motor runs until the close limit switch is tripped, then sends power to the RHM close connection. At that time power is provided to the heater and thermostat, the close relay coil, and to the on board green LED. This provides contact closure at the end of the close cycle and confirms that power is provided to the heater and thermostat.

*Power must be maintained at the end of travel for power to be applied to heater and thermostat. Also note that no power is provided to heater and thermostat when the actuator is in mid travel.

AC Wiring (For 120 VAC and 220 VAC only)





Specifications

Motor Type: Reversing, 1/4 turn, single phase
Sizes: A94, B94 for sizes 1/2" - 3" butterfly valves
Torque: 150 to 300 in-lbs.
Voltage: 120 VAC, 50/60 Hz
Amp Draw: For A94: .50 Amps
 For B94: .80 Amps
Max Ambient Temp: 150° F
Switches: Two single pole, double throw (15 Amp rating)

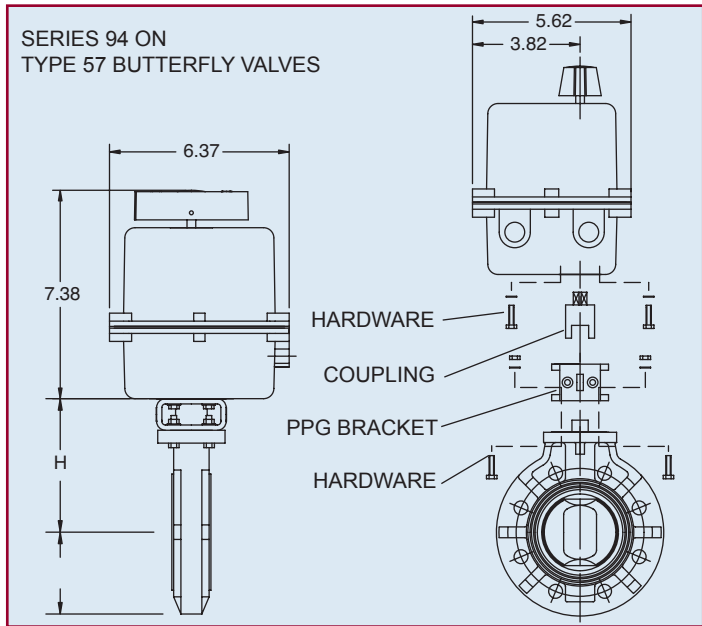
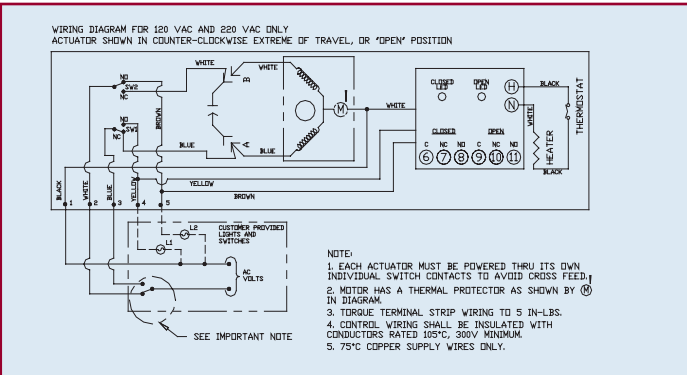
Standard Features (Sizes 1-1/2" - 4")

- Brushless, capacitor-run motors (AC models)
- Integral thermal overload protection with auto-reset (AC models)
- Permanently lubricated gear train
- High duty cycle motor for high cycle applications
- Corrosion-proof/weatherproof rated Type 4X thermoplastic housing with stainless steel trim
- ISO mounting
- Two 1/2" NPT conduit ports prevent interference between control and power signals
- Compact design
- Declutchable manual override
- Standard travel stop limit switches can simultaneously be used for indicator lights
- Visible position indicator
- Captivated SS hex head slotted cover screws

Options

- Fail safe battery pack
- Extra limit switches
- Heater and thermostat (to -40° F)
- RHM module (consists of 2-SPDT 8A relays/dry contacts and heater and thermostat) (see page 73)
- Feedback potentiometer
- Positioner: 4-20 mA or 0-10 VDC input
- 4-20 mA output position transmitter
- Voltages: 220 VAC, 24 VAC, 12 VAC, 24 VDC, 12 VDC
- Mechanical brake eliminates seating oscillation

AC Wiring (For 120 VAC and 220 VAC only)



Engineering Data

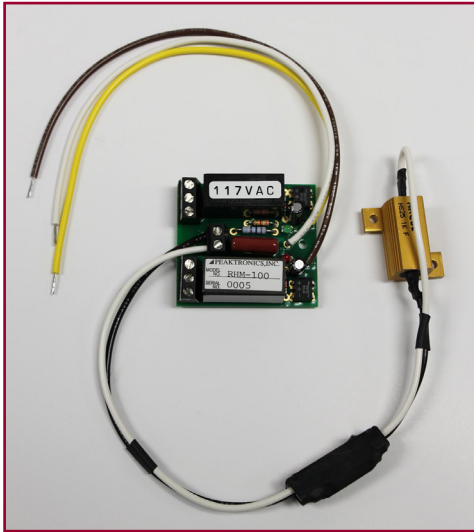
Actuator Model	Torque (in-lbs.)	Duty Cycle	Cycle Time* (sec)	Weight (lbs.)	Amp Draw					
					120 VAC	220 VAC	24 VAC	12 VAC	24 VDC	12 VDC
A94	150	100	5	3.5	0.5	0.4	4.0	2.0	4.0	2.0
B94	300	75	5	3.5	0.8	0.6	4.0	2.0	4.0	2.0

*Cycle times are approximate.
 Duty cycle shown is for 120 VAC at ambient temperature. (73° F)

Dimensions (in.)

NOMINAL SIZE		MODEL	H	H1
INCHES	mm			
1-1/2	40	A94	5.51	2.95
2	50	A94	5.75	3.27
2-1/2	65	B94	6.18	3.66
3	80	B94	6.46	3.94
4	100	B94	7.16	4.53

- NOTE TO WIRING DIAGRAM:**
1. EACH ACTUATOR MUST BE POWERED THROUGH ITS OWN INDIVIDUAL SWITCH CONTACTS TO AVOID CROSS FEED.
 2. WIRING AS SHOWN IS FOR A94 AND B94 MODELS.
 3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM. (120 AND 220 VAC MODEL).
 4. IF 120 & 220 VAC MODELS ARE PLC DRIVEN, OUTPUT CONTACTS OF PLC SHOULD BE RATED AT A MINIMUM OF 1.5 TIMES REQUIRED INPUT VOLTAGE OF ACTUATOR.



Specifications

Standard Operating Voltage: 120Vac
 Optional Voltages: 220Vac, 12Vac, 24Vac,
 12Vdc, 24Vdc
 Operating Current: 42mA @ 120Vac
 39mA @ 220Vac
 89mA @ 12Vac
 43mA @ 24Vac
 37mA @ 12Vdc
 23mA @ 24Vdc

Relay Outputs (Form C): 8A
 Operating Temperature: -40 to 85 C

Approved for UL508 & UL1203 Actuators

Series 92/Series 94 Optional RHM (Relay Heater Module)

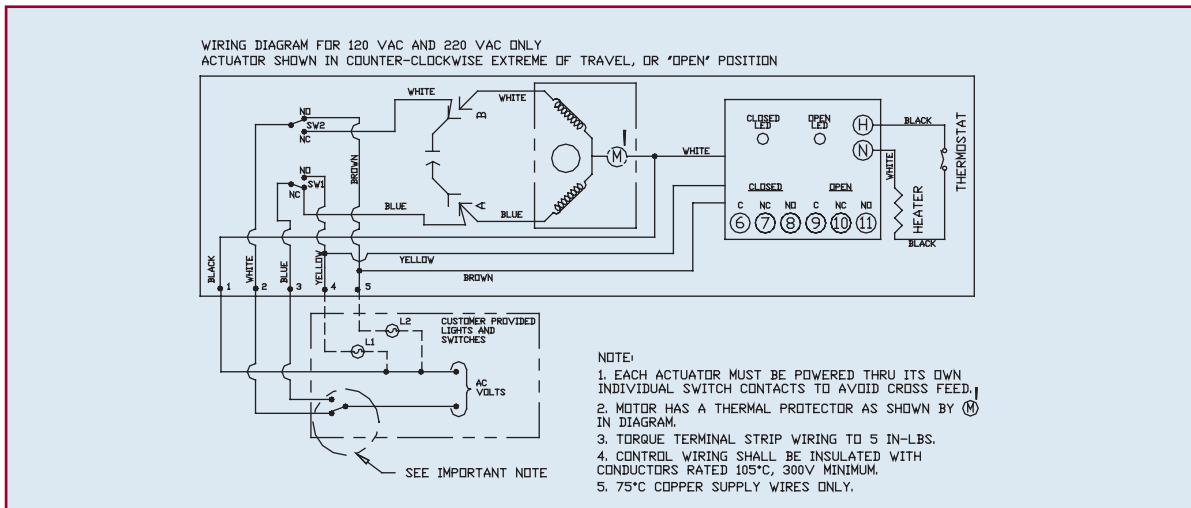
The RHM (Relay Heater Module) is a means of powering an optional heater and thermostat without requiring an additional constant power source or wiring. These modules also provide open and close Form C dry contacts that replace auxiliary switches. A 2-pin terminal block provides wiring connection of the heater and thermostat, while two 3-pin terminal blocks provide easy connection to the relays by the user.

When the actuator is powered to open, the motor runs until the open limit switch is tripped, then sends power to the RHM open connection. At that time power is provided to the heater and thermostat, the open relay coil, and to the on board red LED. This provides contact closure at the end of the open cycle and confirms that power is provided to the heater and thermostat.

When the actuator is powered to close, the motor runs until the close limit switch is tripped, then sends power to the RHM close connection. At that time power is provided to the heater and thermostat, the close relay coil, and to the on board green LED. This provides contact closure at the end of the close cycle and confirms that power is provided to the heater and thermostat.

*Power must be maintained at the end of travel for power to be applied to Heater and Thermostat. Also note that no power is provided to Heater and Thermostat when the actuator is in mid travel.

AC Wiring (For 120 VAC and 220 VAC only)



Series 10P Electric Actuator with Butterfly Valve



Standard Features

- **Motor:** Reversing, squirrel cage induction motor, 110 VAC 50/60 Hz, single phase
- **Overload protection:** Integral thermal overload protection for motor windings with automatic reset
- **Gear train:** Permanently lubricated
- **Conduit:** Two 3/4" FNPT conduit entries to eliminate cross feed between control and power signals
- **Declutchable manual override:** Lockable declutching lever with handwheel
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **Auxiliary (Additional) limit switches:** Each electric actuator is provided as a standard with Two SPDT auxiliary limit switches
- **Torque Switches:** Two SPDT torque switches
- **Mechanical Stops:** Two plus/minus 10 percent mechanical travel stops
- **Enclosure:** Weatherproof rated Type 4X & 6
- **AWWA C542:** Conforms to AWWA C542
- **Self-Locking:** Self-locking worm gear design eliminates the need for a mechanical brake
- **Space Heater:** A space heater is provided as standard equipment
- **Output torque:** Series 10P electric actuators have an output torque range from 1,320 in./lbs. to 26,040 in./lbs.
- **Corrosion resistant mounting:** Mounting is with stainless steel bracket, stainless steel coupling, and stainless steel hardware
- **Captivated SS socket cap cover screws**

Specifications

- Torque:** 1320-26,040 in./lbs.
- Voltage:** 110 VAC 1Ph 50/60 Hz
- Amp Draw:** 1.65 – 4.10
- Conduit Entry:** Two (2) 3/4" FNPT
- Max Ambient Temperature:** 150° F
- Limit Switches:** Four (4) single pole, double throw (4-SPDT) 10 amp rated
- Torque Switches:** Two (2) single pole, double throw (4-SPDT) 10 Amp rated
- Cycle Time per 90°:** 21– 31 seconds

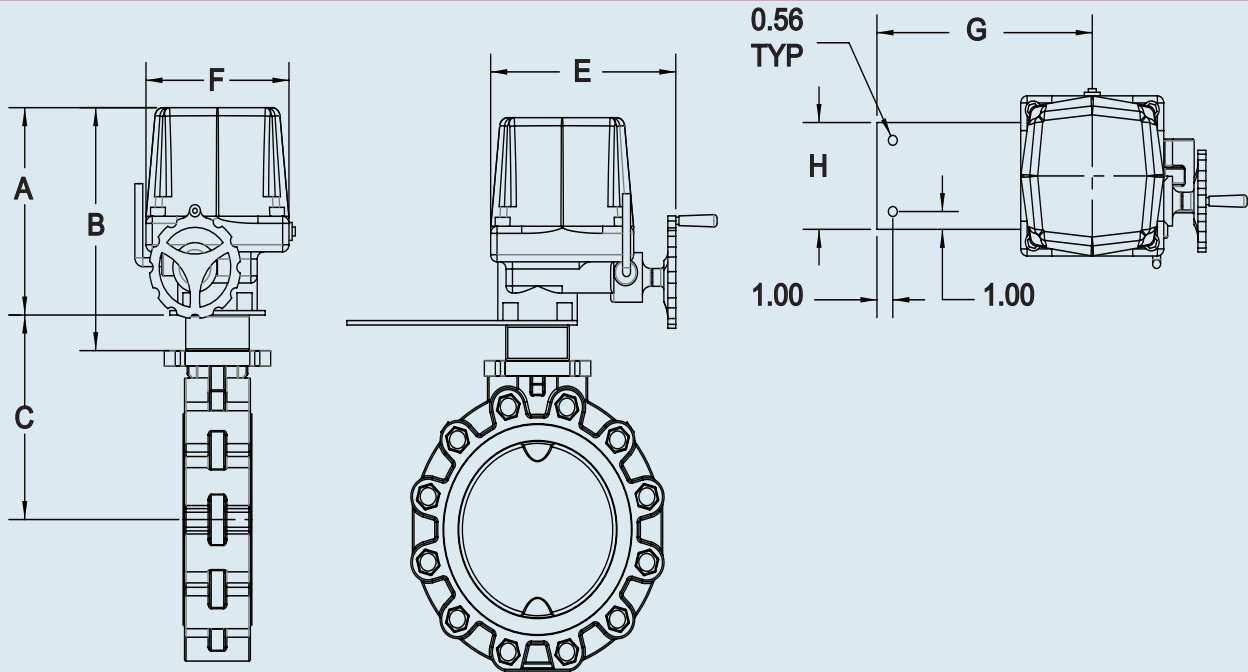
Sample Specifications

All Series 10P electric actuators shall have a thermally protected, bi-directional (reversing type), squirrel cage induction motor with a permanently lubricated gear train. Actuator shall have self-locking worm gearing encompassed in a die cast aluminum housing anodized inside and outside, with an external polyester powder coat finish, rated Type 4X & 6. Each actuator shall have a lockable manual override, visual position indication, two auxiliary limit switches, two torque switches and a space heater, as supplied by Asahi/America, Inc.

Options

- Positioner: 4-20 mA or 0-10 VDC input
- 4-20 mA output transmitter
- Two-wire control
- Voltages: 220/1, 380/3, 460/3, 24 VDC
- ModBus
- ATEX enclosure
- Local remote station

Series 10P Electric Actuator with Butterfly Valve



Dimensions (in.)

SIZE	MODEL NUMBER	A	B	C	E	F	G	H
1-1/2	10-15P	10.49	12.49	5.74	10.75	9.02	12.0	6.0
2	10-15P	10.49	12.49	6.13	10.75	9.02	12.0	6.0
2-1/2	10-15P	10.49	12.49	6.53	10.75	9.02	12.0	6.0
3	10-15P	10.49	12.49	7.12	10.75	9.02	12.0	6.0
4	10-15P	10.49	12.49	7.71	10.75	9.02	12.0	6.0
5	10-15P	10.49	12.49	8.30	10.75	9.02	12.0	6.0
6	10-15P	10.49	12.49	8.89	10.75	9.02	12.0	6.0
8	10-30P	11.65	13.65	10.11	11.93	10.20	12.0	6.0
10	10-50P	11.65	13.65	11.49	11.93	10.20	12.0	6.0
12	10-50P	11.65	15.65	15.73	11.93	10.20	12.0	7.0
14	10-80P	12.65	16.65	16.80	13.58	11.69	12.0	7.0
16	10-120P	12.65	16.65	17.54	13.58	11.69	12.0	7.0
18	10-120P	12.65	16.65	18.57	13.58	11.69	16.0	7.0
20	10-120P	12.65	16.65	19.75	13.58	12.56	16.0	7.0
24	10-300P	21.82	25.82	22.31	13.58	12.56	16.0	7.0

Engineering Data

Model	Torque (in./lbs.)	110/1 VAC		220/1 VAC		380/3 VAC		460/3 VAC		24 VDC		Cycle Time per 90 Degrees (Seconds)*	Weight
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
10-15P	1320	1.65	70	0.88	70	0.31	70	0.30	70	2.20	70	21	37
10-20P	1740	1.67	70	0.89	70	0.31	70	0.30	70	2.50	70	21	37
10-30P	2580	1.85	70	0.92	70	0.35	70	0.34	70	2.90	70	26	49
10-50P	4320	3.60	70	1.55	70	0.59	70	0.58	70	N/A	N/A	26	51
10-60P	5220	3.65	70	1.60	70	0.60	70	0.59	70	N/A	N/A	26	51
10-80P	6960	4.10	70	2.15	70	0.85	70	0.79	70	N/A	N/A	31	64
10-120P	10,440	4.20	70	2.35	70	0.87	70	0.81	70	N/A	N/A	31	64
10-200P	17,400	4.10	70	2.15	70	0.85	70	0.79	70	N/A	N/A	93	166
10-300P	26,040	4.20	70	2.35	70	0.87	70	0.81	70	N/A	N/A	93	166

*Cycle times are approximate. Duty cycle shown for ambient temp. (73° F)

Series 17 Electric Actuator



Series 17 Electric Actuators

Standard Features

- **Size:** Compact, lightweight
- **Motor:** Low current, reversing DC motor
- **Multi-voltage:** 85-265VAC single-phase, 24VDC
- **Overload Protection:** Electric motor cuts out at 2 Amps
- **Gear Train:** Permanently lubricated solid gearing
- **Corrosion Resistant Enclosure:** Thermally bonded powder coat finish
- **Position Indication:** Mechanical dial indication
- **LED's:** Open and close LED position indication (red/open, green/closed)
- **De-clutchable Manual Override:** Push down override button and use provided lever to manually position in the event of no power
- **Auxiliary Limit Switches:** Dry contact switches for open and close positions
- **Enclosure:** Combination NEMA Type 4X and 6 enclosure with captive cover screws
- **Electrical Connections:** Sealed cable gland with 1.2M flying leads
- **Space Heater:** Standard equipment
- **ISO Mounting:** FO3, FO4, FO5 X 14mm star

Engineering Data

Torque (in./lbs.)	110 VAC		220 VAC		24 VDC		Cycle Time per 90 Degrees (Seconds)*	Weight (lbs)
	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
350	0.12	70%	0.06	70%	0.46	70%	12	2.7

*Cycle times are approximate
AMP rating is considered running.

Duty cycles are for ambient temperature. (73^o F)

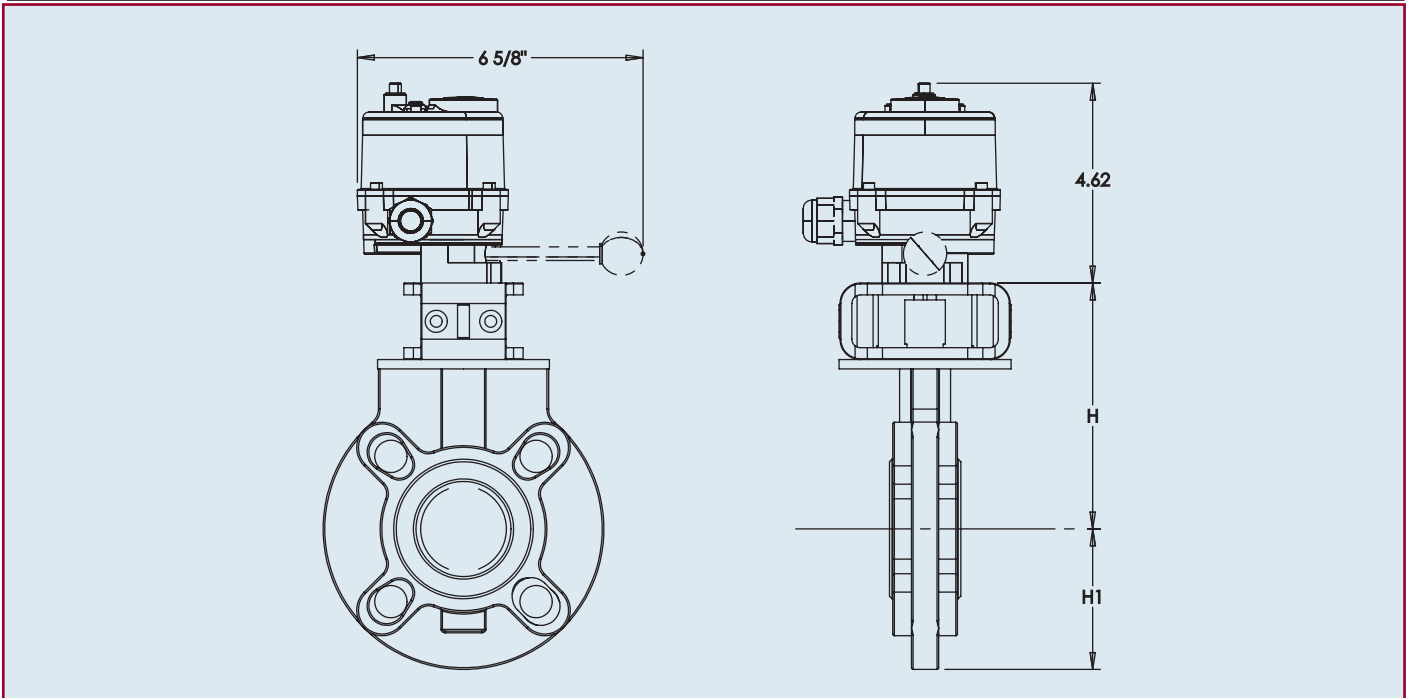
Specifications

- Torque:** 350 in/lbs.
- Voltage:** 85-265 VAC single phase, 24 VDC
- Amp Draw:** 0.45
- Wiring:** 1.2M flying leads
- Max Ambient Temperature:** 150^o
- Limit Switches:** Two (2) SPDT end of travel switches
Two (2) SPDT dry contact switches rated 5A@250 VAC
- Heater:** 0.5W
- Cycle Time per 90°:** 12 seconds

Sample Specifications

All Series 17 electric actuators shall have a bidirectional (reversing type) motor, with a permanently lubricated gear train. Actuator shall have a die cast aluminum housing anodized inside and outside, with an external polyester powder coat finish, rated Type 4X and 6. Each actuator shall have a manual override, visual position indication, two auxiliary limit switches, two position indicating lights and a space heater, as supplied by Asahi/America, Inc.

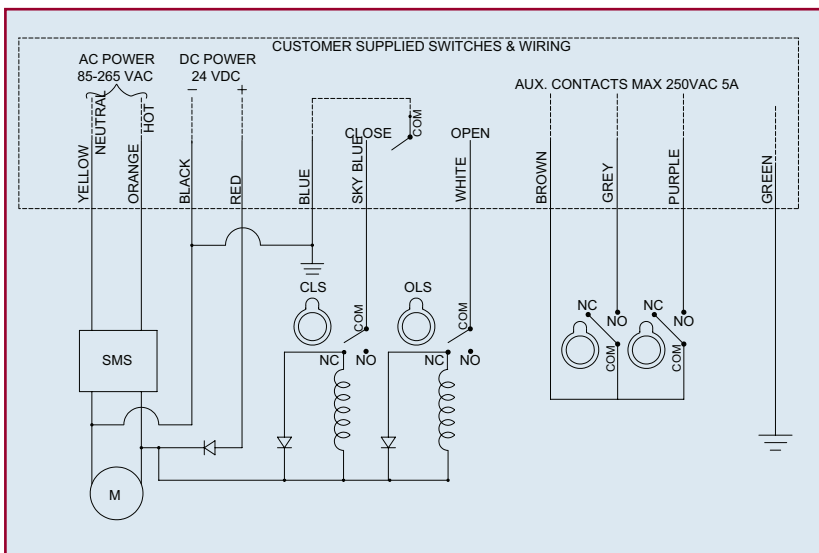
Series 17 Electric Actuator



Dimensions (in.)

INCHES	mm	H	H1
1/2	15	2.76	1.14
3/4	20	3.01	1.38
1	25	3.29	1.54
1-1/4	32	3.64	1.85
1-1/2	40	3.98	2.17
2	50	4.43	2.60

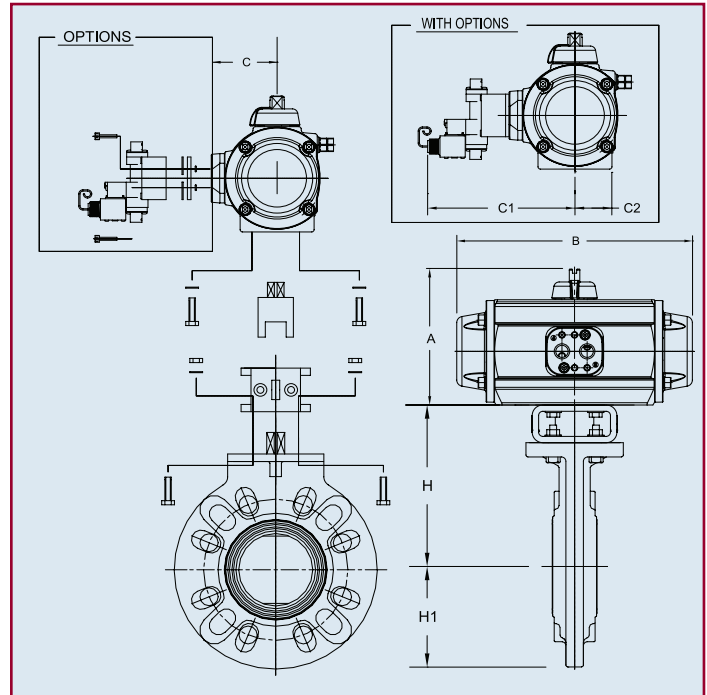
Wiring Diagram



Pneumatically Actuated Butterfly Valves

Standard Features (Sizes 1-1/2" – 24")

- Recommended air supply pressure: 80psi (filtered air)
maximum air supply pressure 120psi
- Double piston, double rack and pinion design
(polyamid-nylon 66)
- Air-to-air (double acting) or air-to-spring (spring return fail safe) models
- Position indication through highly visible indicator knob
- Manual override easily employed by inserting wrench onto flats of stem. A declutchable gear operator is required on air-to-air sizes 8" and above and on all air-to-spring sizes
- Actuator shaft 303 stainless steel or cathaphoresis coated steel
- Air-to-air actuators up to 6" and air-to-spring actuators up to 4" have PAG (polyamide glass-filled) plastic bodies. Larger sizes feature aluminum bodies with cathaphoresis and Rilsan coating inside and outside
- Preloaded spring cartridges allow for safe removal of end caps
- ISO and NAMUR mounting dimensions allow for valve accessory mounting
- All models are corrosion resistant to handle the most aggressive applications



Options

- Solenoids in Type 4 and Type 7 ratings
- Double limit switches in Type 4 and 7 enclosures
- Positioner for modulating service: 4–20 mA or 3 – 15psi control signal (requiring no solenoid)
- 316 stainless steel actuator body
- Bus systems

Dimensions (Sizes 1-1/2" – 24")

NOMINAL SIZE		Model No. Air-Air	Modes No. Air-Spring			A		B		C		C1		C2	
INCHES	mm			H	H1	A-A	A-S	A-A	A-S	A-A	A-S	A-A	A-S	A-A	A-S
1-1/2	40	BP79PN	CP79PSN	5.51	2.95	4.00	4.84	6.22	9.05	1.73	2.17	5.66	5.89	1.41	1.85
2	50	BP79PN	CP79PSN	5.75	3.25	4.00	4.84	6.22	9.05	1.73	2.17	5.66	5.89	1.41	1.85
2-1/2	65	BP79PN	CP79PSN	6.18	3.66	4.00	4.84	6.22	9.05	1.73	2.17	5.66	5.89	1.41	1.85
3	80	CP79PN	DP79PSN	6.46	3.94	4.84	5.76	9.05	12.32	2.17	2.64	5.89	6.48	1.85	2.36
4	100	CP79PN	DP79PSN	7.16	4.53	4.84	5.76	9.05	12.32	2.17	2.64	5.89	6.48	1.85	2.36
5	125	CP79PN	E79PASN	8.46	5.00	4.84	7.90	9.05	16.83	2.17	3.70	5.89	7.55	1.85	3.27
6	150	DP79PN	E79PASN	8.97	5.63	5.76	7.90	12.32	16.83	2.64	3.70	6.48	7.55	2.36	3.27
8	200	E79PAN	F79PSN	11.27	6.69	7.90	10.71	16.83	23.54	3.70	3.70	7.55	7.55	3.27	3.27
10	250	E79PAN	F79PSN	12.46	7.99	7.90	10.71	16.83	23.54	3.70	4.72	7.55	8.57	4.18	4.18
12	300	F79PN	G79PASN	14.69	9.53	10.71	12.32	17.48	27.32	4.72	5.20	8.57	9.17	4.82	4.82
14	350	G79PAN	M79PSN	14.81	10.24	12.32	16.85	20.63	29.23	5.32	8.50	9.17	12.35	4.82	7.35
16	400	G79PAN	M79PSN	16.78	11.81	12.32	16.85	20.63	29.23	5.32	8.50	9.17	12.35	4.82	7.35
18	450	G79PAN	M79PSN	17.57	12.40	12.32	16.85	20.63	29.23	5.32	8.50	9.17	12.35	4.82	7.35
20	500	G79PAN	M79PSN	18.75	13.78	12.32	16.85	20.63	29.23	5.32	8.50	9.17	12.35	4.82	7.35
24	600	G79PN	M79PSN	21.31	16.02	12.32	16.85	20.63	29.23	5.32	8.50	9.17	12.35	4.82	7.35

QM Remote Cycle™ Battery Timer Remote Actuator

**QM REMOTE
CYCLE**
Quarter Master



**QM Remote Cycle™ w/ Series 94
Actuator & Type-21 Ball Valve**

**Self-powered Series 94
electric actuator with open/close
timer**

Standard Features

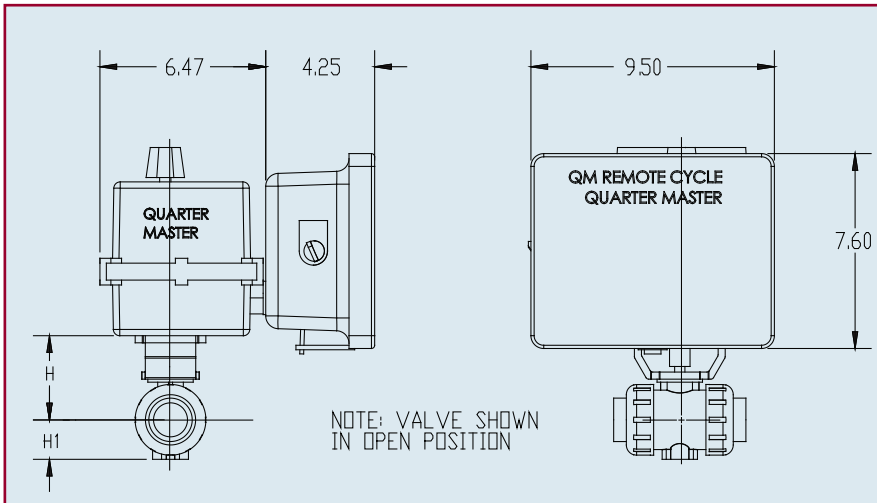
- Engineered resin enclosures rated Type 4X with stainless steel trim
- On/off switch
- 12 VDC rechargeable battery
- Adjustable open and interval time via dip switches
- Visual position indication
- Manual override
- 1,100 cycles from a fully charged battery*
- Perfect for remote areas

*70 Degrees F



**QM Remote Cycle™ w/ Series 94
Actuator & Type-57 Butterfly Valve**

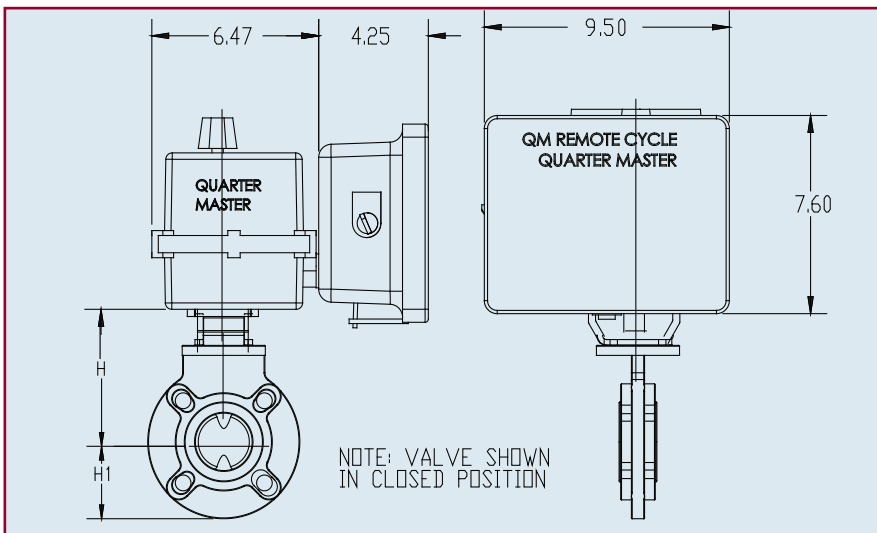
QM Remote Cycle™ Battery Timer Remote Actuator



QM Remote Cycle™
Series 94 Electric Actuator
on Type-21 Ball Valve

Dimensions (in.)

Size	H	H1
1/2	2.76	1.14
3/4	3.01	1.38
1	3.29	1.54
1-1/4	3.64	1.85
1-1/2	3.98	2.17
2	4.43	2.60



QM Remote Cycle™
Series 94 Electric Actuator
on Type-57P Butterfly Valve

Dimensions (in.)

Size	H	H1
1-1/2	5.51	2.95
2	5.75	3.27
2-1/2	6.18	3.66
3	6.46	3.94
4	7.16	4.53

Fast Pack - Valve/Actuator Packages

- Nine different styles
- Ships within **24 hours** from time of order!
- Electric or pneumatic actuators
- Ball or butterfly valve

Electric Fast Packs

Type-21 Ball Valves



Series 83



Series 94



Series 92



Series 94



Series 92

Pneumatic Fast Packs

Type-21 Ball Valves



Series 79 A-A



Series 79 A-S



Series 79 A-A



Series 79 A-S

Fast Pack - Valve/Actuator Packages

**SHIPS IN
24 HRS !**



Series 83/Type-21 Ball Valve

Standard Features (Sizes 1/2" - 2")

- PVC or CPVC Type-21 ball valve up to 2"
- 110 VAC thermally protected with single limit switch cam coupling activated
- Sealed weatherproof enclosure includes:
 - Flanged cover and base Type 4X rated enclosure with nitrile flat gasket seal
 - Nitrile O-ring or gasket valve to actuator base seal
 - Nitrile motor mounting bolt seals
 - NPT threaded to base 90° elbow provides 1/2" NPT conduit entry with 6" color coded wire leads
- Direct mounted valves - No mounting bracket required
- Sealed 90° cable entry elbow
- Captivated stainless steel hex head slotted cover screws
- Compact and low profile, ideal for OEM type installations

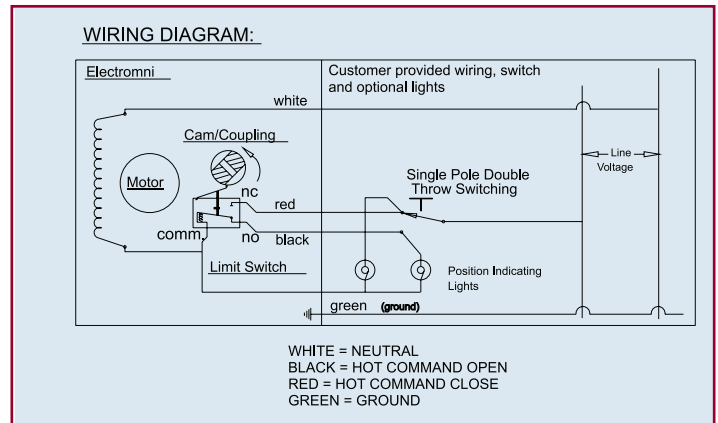
Engineering Data

Model	Torque (in./lbs.)	115 VAC		Cycle Time per 90 Degrees (Seconds)
		Amp	Duty	
		Draw	Cycle	
A83	120	2.1	25%	5

Note:

Amp rating is considered locked rotor
Duty cycle is for ambient temperature (73° F)

Wiring



Valve Type	Size	Actuation Model
Type-21 PVC/EPDM	1/2	A83
Type-21 PVC/EPDM	3/4	A83
Type-21 PVC/EPDM	1	A83
Type-21 PVC/EPDM	1-1/4	A83
Type-21 PVC/EPDM	1-1/2	A83
Type-21 PVC/EPDM	2	A83
	-	
Type-21 PVC/FKM	1/2	A83
Type-21 PVC/FKM	3/4	A83
Type-21 PVC/FKM	1	A83
Type-21 PVC/FKM	1-1/4	A83
Type-21 PVC/FKM	1-1/2	A83
Type-21 PVC/FKM	2	A83

Valve Type	Size	Actuation Model
Type-21 CPVC/EPDM	1/2	A83
Type-21 CPVC/EPDM	3/4	A83
Type-21 CPVC/EPDM	1	A83
Type-21 CPVC/EPDM	1-1/4	A83
Type-21 CPVC/EPDM	1-1/2	A83
Type-21 CPVC/EPDM	2	A83
	-	
Type-21 CPVC/FKM	1/2	A83
Type-21 CPVC/FKM	3/4	A83
Type-21 CPVC/FKM	1	A83
Type-21 CPVC/FKM	1-1/4	A83
Type-21 CPVC/FKM	1-1/2	A83
Type-21 CPVC/FKM	2	A83

Fast Pack - Valve/Actuator Packages

**SHIPS IN
24 HRS !**



Series 94/Type-57P Butterfly Valve

Standard Features (Sizes 1-1/2" - 4")

- UL-508 listed electric actuator
- Type-57P PVC body, PP disc, EDPM or FKM seals, wafer style
- 120 VAC capacitor-run reversing type motor
- Thermal overload protection with auto reset
- Declutchable manual override
- Visual position indicator
- Five second cycle time*
- Mechanical brake supplied as standard for 4" Type-57P butterfly valves
- Type 4X engineered resin enclosure
- RHM module [consists of 2-SPDT 8A relays/dry connects and heater and thermostat] [see page 71]
- Complete factory assembled and tested actuated valve package

**SHIPS IN
24 HRS !**



Series 94/Type-21 Ball Valve

Standard Features (Sizes 1/2" - 4")

- UL-508 listed electric actuator
- Type-21 PVC with EPDM or FKM seals, true union ball valve
- Type-21 1/2" - 2" supplied with both socket and threaded ends, 2-1/2" - 3" socket only
- 120 VAC capacitor-run reversing type motor
- Thermal overload protection with auto reset
- Declutchable manual override
- Visual position indicator
- Five second cycle time*
- Type 4X engineered resin enclosure
- RHM module consists of 2-SPDT 8A relays/dry connects and heater and thermostat [see page 71]
- Complete factory assembled and tested actuated valve package

Valve Type	Size	Actuation Model	Input Voltage	L.R. Amps	Duty Cycle
Type-21	1/2 - 2	A94RHMW	120 VAC	0.5	100%
Type-21	2-1/2 - 3	B94RHMW	120 VAC	0.8	75%
Type-57P	1-1/2 - 2	A94RHMW	120 VAC	0.5	100%
Type-57P	2-1/2 - 3	B94RHMW	120 VAC	0.8	75%
Type-57P	4	B94BRHMW	120 VAC	0.8	75%

*Cycle times approximate. Duty cycle shown for ambient temp. (73° F)

Fast Pack - Valve/Actuator Packages

**SHIPS IN
24 HRS !**



Series 92/Type-57P Butterfly Valve

Standard Features (Sizes 1-1/2" - 8")

- UL-508 listed electric actuator
- Type-57P PVC body, PP disc, EDPM or FKM seals, wafer style
- 120 VAC capacitor-run reversing type motor
- Thermal overload protection with auto reset
- Declutchable manual override
- Visual beacon position indicator
- 15 second cycle time* 1-1/2" - 4", 32 second cycle time 6" and 8" Type-57
- Mechanical brake supplied as standard for 6" and 8" Type-57P
- Weatherproof enclosure rated Type 4X. with thermally bonded powder coat finish and stainless steel trim
- RHM module [consists of 2-SPDT 8A relays/dry connects and heater and thermostat] [see page 71]
- PPG mounting bracket with 304 stainless steel coupling and hardware, 304 stainless steel mounting bracket, coupling and hardware sizes 6" and 8"
- Complete factory assembled and tested actuated valve package

**SHIPS IN
24 HRS !**



Series 92/Type-21 Ball Valve

Standard Features (Sizes 1/2" - 4")

- UL-508 listed electric actuator
- Type-21 PVC with EPDM or FKM seals, true union ball valve
- Type-21 1/2" - 2" supplied with both socket and threaded ends, 2-1/2" - 4" socket only
- 120 VAC capacitor-run reversing type motor
- Thermal overload protection with auto reset
- Declutchable manual override
- Visual beacon position indicator
- 15 second cycle time*
- Weatherproof enclosure rated Type 4X. with thermally bonded powder coat finish and stainless steel trim
- RHM module [consists of 2-SPDT 8A relays/dry connects and heater and thermostat] [see page 71]
- PPG mounting bracket with 304 stainless steel coupling and hardware
- Complete factory assembled and tested actuated valve package

Valve Type	Size	Actuation Model	Input Voltage	L.R. Amps	Duty Cycle
Type-21	1/2 - 3	S92RHMW	120 VAC	0.5	100%
Type-21	4	A92RHMW	120 VAC	0.8	75%
Type-57P	1-1/2 - 4	S92RHMW	120 VAC	0.5	100%
Type-57P	6	B92BRRHMW	120 VAC	0.8	100%
Type-57P	8	C92BRRHMW	120 VAC	1.0	50%

*Cycle times approximate. Dury cycle shown for ambient temp. [73° F]

Fast Pack - Valve/Actuator Packages

**SHIPS IN
24 HRS !**



Series 79 A-A/Type-57 Butterfly

**SHIPS IN
24 HRS !**



Series 79 A-A/Type-21 Ball Valve

Standard Features (Sizes 1-1/2" - 8")

- Type-57P PVC body, PP disc, EPDM or FKM seals, wafer style
- Glass-filled polyamide actuator body with stainless steel trim 1-1/2" - 6" butterfly valves
- Aluminum body with three-stage coating size 8"
- Rack and pinion with dual opposed piston design
- Double-acting - air-to-open/air-to-close
- Namur mount design for solenoid and limit switch mounting
- 80psi supply air requirement
- Visual position indicator
- PPG mounting bracket with 304 stainless steel coupling and hardware
- 304 stainless steel mounting bracket, coupling and hardware butterfly valves size 8"
- Complete factory assembled and tested actuated valve package

Standard Features (Sizes 1-1/2" - 8")

- Type-21 PVC with EPDM or FKM seals true union ball valve
- Type-21 1/2" - 2" supplied with both socket and threaded ends, 2-1/2" - 4" socket only
- Glass-filled polyamide actuator body with stainless steel trim
- Rack and pinion with dual opposed piston design
- Double-acting - air-to-open/air-to-close
- Namur mount design for solenoid and limit switch mounting
- 80psi supply air requirement
- Visual position indicator
- PPG mounting bracket with 304 stainless steel coupling and hardware
- Complete factory assembled and tested actuated valve package

Valve Type	Size	Actuation Model
Type-21	1/2 - 2	AP79PN
Type-21	2-1/2 - 4	CP79PN
Type-57P	1-1/2 - 2-1/2	BP79PN
Type-57P	3 - 4	CP79PN
Type-57P	6	DP79PN
Type-57P	8	E79PAN

Fast Pack - Valve/Actuator Packages

**SHIPS IN
24 HRS !**



Series 79 A-S/Type-57P Butterfly Standard Features (Sizes 1-1/2" - 8")

- Type-57P PVC body, PP disc, EPDM or FKM seals wafer style
- All actuators supplied spring return air-to-open/ spring-to-close
- Glass-filled polyamide actuator body with stainless steel trim
1-1/2" - 4" butterfly valves
- Aluminum body with three-stage coating 6" and 8"
- Rack and pinion with dual opposed piston design
- Namur mount design for solenoid and limit switch mounting
- 80psi supply air requirement
- Visual position indicator
- PPG mounting bracket with 304 stainless steel coupling and hardware
- 304 stainless steel mounting bracket, coupling and hardware butterfly valves sizes 6" and 8"
- Complete factory assembled and tested actuated valve package

**SHIPS IN
24 HRS !**



Series 79 A-S/Type-21 Ball Valve Standard Features (Sizes 1/2" - 4")

- Type-21 PVC with EPDM or FKM seals, true union ball valve
- Type-21 1/2" - 2" supplied with both socket and threaded ends, 2-1/2" - 4" socket only
- All actuators supplied spring return air-to-open/ spring-to-close
- Glass-filled polyamide actuator body with stainless steel trim
- Rack and pinion with dual opposed piston design
- Namur mount design for solenoid and limit switch mounting
- 80psi supply air requirement
- Visual position indicator
- PPG mounting bracket with 304 stainless steel coupling and hardware
- Complete factory assembled & tested actuated valve package

Valve Type	Size	Actuation Model
Type-21	1/2 - 1	AP79PSN
Type-21	1-1/4 - 1-1/2	BP79PSN
Type-21	2 - 2-1/2	CP79PSN
Type-21	3 - 4	DP79PSN
Type-57P	1-1/2 - 2-1/2	CP79PSN
Type-57P	3 - 4	DP79PSN
Type-57P	6	E79PASN
Type-57P	8	F79PSN



Type-G Flanged Diaphragm

Specifications

Sizes:	8" - 10"
Body Materials:	PVC, PP and PVDF
Bonnet Materials:	PVC, PP, PPG and PVDF
Model:	Flanged (ANSI)
Diaphragms:	EPDM and 3-Layer EPDM/PVDF/PTFE Also available in Nitrile
End Connection:	Flanged
Operator:	Handwheel

Standard Features (Sizes 8" - 10")

- Rugged body and bonnet of solid thermoplastic for maximum corrosion resistance
- Weir design for excellent throttling
- Bubble-tight sealing, even in applications such as slurries or suspended particles
- Bonnet seals to protect internals from corrosive environments
- Built-in travel stop to prevent diaphragm from being overtightened
- Indicator at the top for valve position
- PVDF gas barrier, which protects backing cushion from gas permeation, is standard for all valves with PTFE diaphragm

Options

- 2" square nut
- Stem extensions (single stem or two-piece stem)
- Chain operators
- Locking device for tamper-proofing
- Manual limit switches for remote position indication by lights or for sequencing of other equipment

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Parts Type-G Flanged (Sizes 8" - 10")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, PP, PVDF
2	Bonnet	1	PVC, PPG, PP, PVDF
3	Diaphragm	1	EPDM, PTFE, Others
3a	Diaphragm Metal Insert	1	Stainless Steel 304
4	Cushion*	1	EPDM
4a	PVDF Gas Barrier*	1	PVDF
5	Compressor	1	PVDF
7	Pin	1	Stainless Steel 304
8	Stem	1	Copper Alloy
9	Sleeve	1	Copper Alloy
10	Thrust Bearing (A)	1	High Carbon Chromium Bearing
11	O-Ring	1	NBR
12	Grease Nipple	1	Copper Alloy
13	Hand Wheel	1	PP
14	Name Plate	1	PVC
15	Cap	1	PP
16	Sheet Gasket	1	EPDM
17	Sheet Ring	1	Stainless Steel 304
18	Stopper	1	Chromized Steel
20	Nut	1	Stainless Steel 304
21	Gauge Cover	1	PC
23	Stud Bolt, Nut	-	Stainless Steel 304, Others
24	Bolt, Nut, Washer	-	Stainless Steel 304, Others
25	Conical Spring Washer	-	Stainless Steel 304, Others ¹
26	Upper Bonnet Liner	1 Set	Stainless Steel 304, Others ²
27	Body Liner	1 Set	Stainless Steel 304, Others ²
1a	Inserted Nut	4	Stainless Steel 304 ¹
			Copper Alloy ³

* Used for PTFE diaphragm

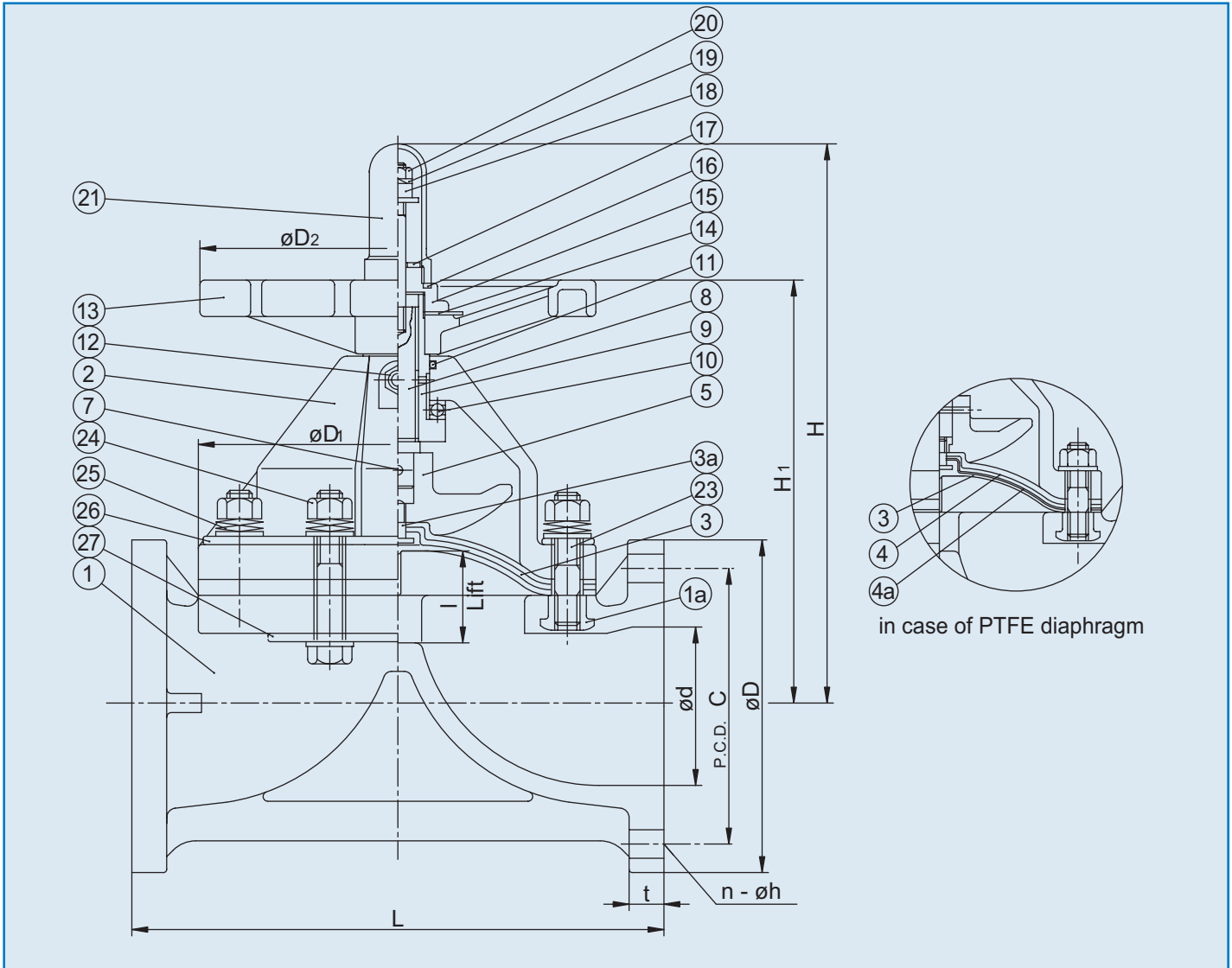
¹ Used for PVDF body

² Used for PP and PVDF bodies

³ Used for PVC, and PP bodies

Type-G Flanged

Diaphragm Valves



Dimensions Type-G (Sizes 8" – 10") (in.)

Cv Values/Weight

NOMINAL SIZE		ANSI CLASS 150						t						
INCHES	mm	d	D	C	n	h	L	PVC	PP, PVDF	D1	D2	l	H	H1
8	200	7.72	13.50	11.75	8	0.88	22.24	1.10	1.26	16.93	16.14	3.74	24.69	16.50
10	250	9.72	16.00	14.25	12	0.98	26.77	1.18	1.46	21.26	22.05	5.04	30.63	20.08

NOMINAL SIZE		Cv	WT (lbs.)
INCHES	mm		
8	200	700	140
10	250	1000	242

Pressure vs. Temperature (psi, water, non-shock)

NOMINAL SIZE		PVC				PP						PVDF				
		ELASTOMERS		PTFE		ELASTOMERS			PTFE			ELASTOMERS		PTFE		
		30° F 105° F	106° F 140° F	30° F 105° F	106° F 140° F	- 5° F 105° F	106° F 140° F	141° F 195° F	- 5° F 105° F	106° F 140° F	141° F 195° F	- 40° F 105° F	106° F 140° F	141° F 250° F	- 40° F 140° F	141° F 250° F
INCHES	mm															
8	200	75	60	60	45	75	55	50	60	45	45	75	55	50	60	45
10	250	65	50	60	45	65	50	50	60	45	45	65	50	50	60	45



Type-14 Flanged Diaphragm

Standard Features (Sizes 1/2" - 2")

- Flanged (ANSI) face-to-face dimensions are equivalent to most commonly used metallic valves
- Rugged body and bonnet are of solid thermoplastic for maximum corrosion resistance
- Uniquely designed body and bonnet together with diaphragms of new sealing designs by computer dynamic analysis for superior sealing
- Weir design for excellent throttling
- Bubble-tight sealing, even in applications such as slurries or suspended particles
- Bonnet seals to protect internal from corrosive environments
- Built-in travel stop to prevent overtightening or compressive strain on diaphragm
- Integrally molded bottom stand for simple yet firm panel mounting
- Indicator at the top for indication of valve position and prevention of overtightening
- PVDF gas barrier, which protects EPDM backing from gas permeation, is standard for all valves with PTFE diaphragm
- Low profile
- Bayonet structure to connect compressor and diaphragm - Easy diaphragm replacement

Options

- 2" square nut
- Stem extensions (single and two-piece design)
- Locking device for tamper proofing
- Chainwheel operator

Specifications

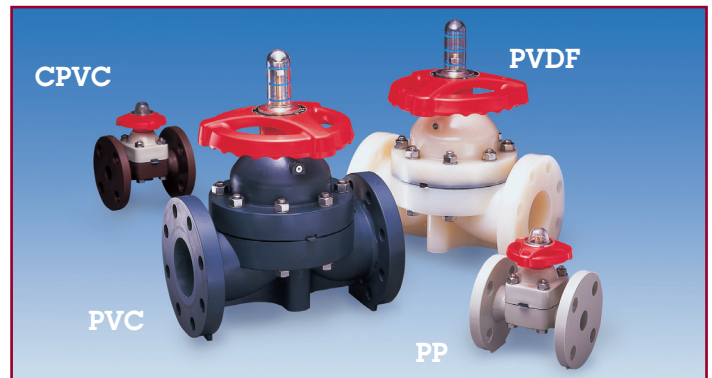
Sizes: 1/2" - 4"
Body Materials: PVC, CPVC, PP and PVDF
Bonnet Materials: PVC, PP, PPG and PVDF
Diaphragms: EPDM and 3-Layer EPDM/PVDF/PTFE
 Also available in Nitrile and FKM

End Connection: Flanged
Operator: Handwheel

Parts Type-14 Flanged (Sizes 1/2" - 2")

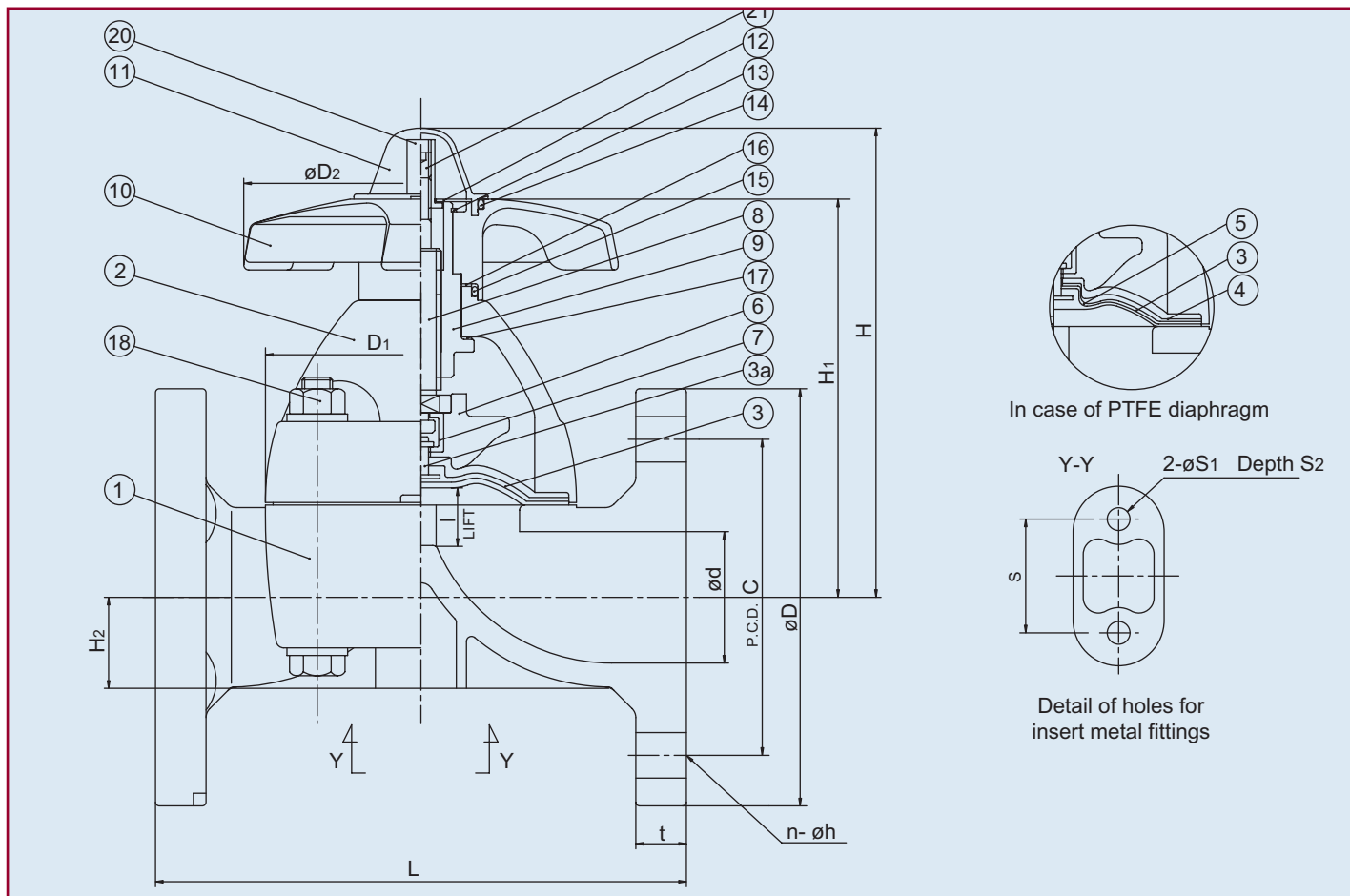
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Bonnet	1	PVC, PPG, PP, PVDF
3	Diaphragm	1	EPDM, PTFE, Others
3a	Diaphragm Metal Insert	1	Stainless Steel 304
4	Cushion*	1	EPDM
5	PVDF Gas Barrier*	1	PVDF
6	Compressor	1	PVDF
7	Joint	1	Stainless Steel 304
8	Stem	1	Copper Alloy
9	Sleeve	1	Copper Alloy
10	Hand Wheel	1	PP
11	Gauge Cover	1	PC
12	Name Plate	1	PVC
13	Retaining Ring C Type	1	Stainless Steel 304
14	O-Ring [A]	1	EPDM
15	O-Ring [B]	1	EPDM
16	Thrust Ring [A]	1	UHMWPE
17	Thrust Ring [B]	1	UHMWPE
18	Bolt, Nut, Washer	4 Sets	Stainless Steel 304
20	Stopper [A]	1	Copper Alloy
21	Screw	1	Stainless Steel 304

* Used on PTFE diaphragm.



Type-14 Flanged

Diaphragm Valves



Dimensions Type-14 Flanged (Sizes 1/2" – 2") (in.)

NOMINAL SIZE		ANSI CLASS 150															
INCHES	mm	d	C	D	n	h	D1	D2	l	L	t	H	H1	H2	S	S1	S2
1/2	15	0.63	2.38	3.50	4	0.62	2.13 × 2.60	3.46	0.39	4.25	0.43	4.09	3.39	0.49	0.98	0.28	0.51
3/4	20	0.79	2.75	3.88	4	0.62	2.13 × 2.60	3.46	0.39	5.88	0.51	4.17	3.46	0.57	0.98	0.28	0.51
1	25	0.98	3.12	4.25	4	0.62	2.64 × 3.15	3.46	0.47	5.88	0.59	4.37	3.66	0.73	0.98	0.28	0.51
1-1/4	32	1.26	3.50	4.62	4	0.62	2.64 × 3.15	3.46	0.47	6.38	0.63	4.57	3.82	0.89	0.98	0.28	0.51
1-1/2	40	1.57	3.88	5.00	4	0.62	4.25 × 4.25	6.14	0.83	6.94	0.63	6.97	5.67	1.08	1.77	0.35	0.59
2	50	2.05	4.75	6.00	4	0.75	4.84 × 4.84	6.14	0.98	7.94	0.79	7.52	6.22	1.42	1.77	0.35	0.59

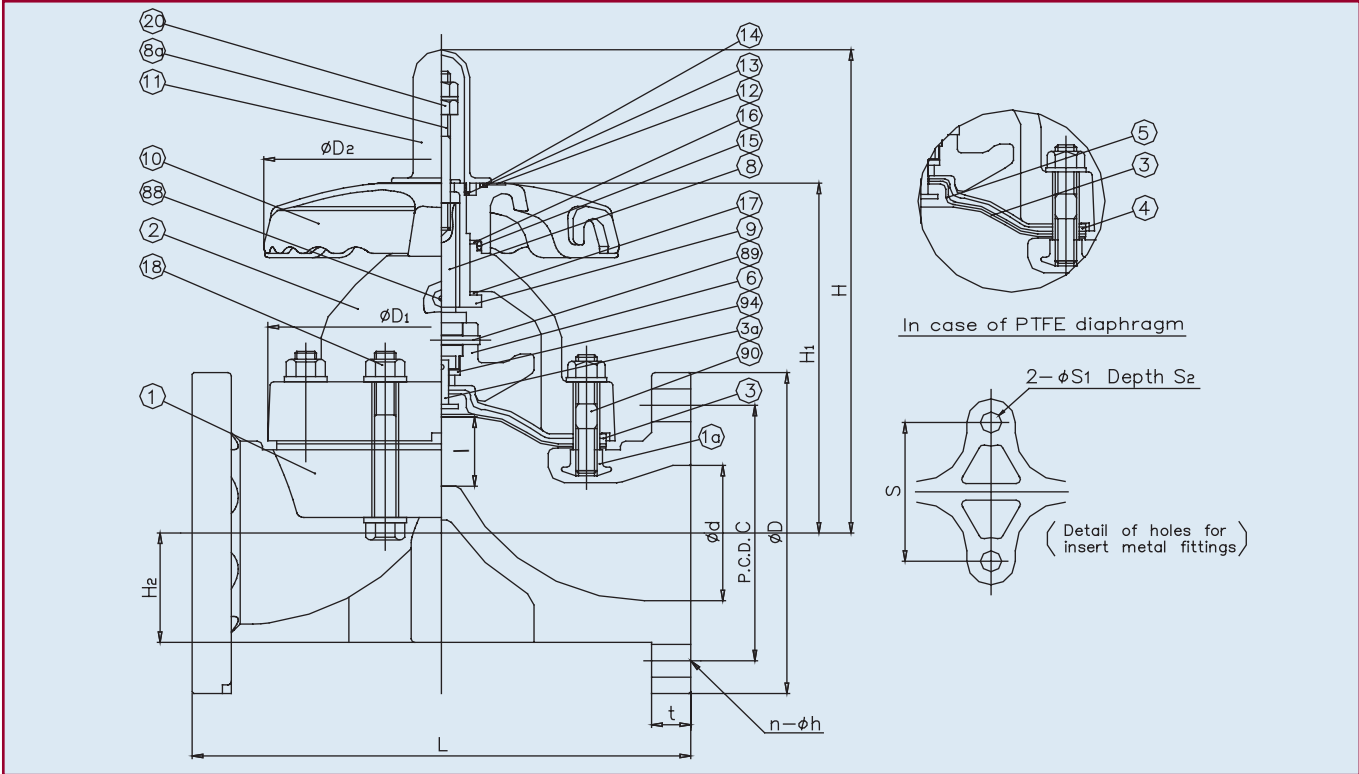
Pressure vs. Temperature psi, water, non-shock

Cv Values/Wt.

NOMINAL SIZE		PVC		CPVC				PP				PVDF				NOMINAL SIZE		Cv	WT. FLG. (lbs)
		ALL DIAPHRAGMS		ALL DIAPHRAGMS				ALL DIAPHRAGMS				PTFE DIAPHRAGM							
		30° F 105° F	106° F 140° F	30° F 105° F	106° F 140° F	141° F 175° F	176° F 195° F	- 5° F 105° F	106° F 140° F	141° F 175° F	176° F 195° F	- 40° F 140° F	141° F 175° F	176° F 210° F	211° F 250° F				
INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm		
1/2	15	150	100	150	115	85	40	150	115	85	70	150	120	95	70	1/2	15	4.8	1.50
3/4	20	150	100	150	115	85	40	150	115	85	70	150	120	95	70	3/4	20	5.3	1.80
1	25	150	100	150	115	85	40	150	115	85	70	150	120	95	70	1	25	8.5	2.40
1-1/4	32	150	100	150	115	85	40	150	115	85	70	150	120	95	70	1-1/4	32	11	3.10
1-1/2	40	150	100	150	115	85	40	150	115	85	70	150	120	95	70	1-1/2	40	26	6.20
2	50	150	100	150	115	85	40	150	115	85	70	150	120	95	70	2	50	43	8.00

Type-14 Flanged

Diaphragm Valves



Dimensions Type-14 Flanged (Sizes 2-1/2" - 4") (in.)

NOMINAL SIZE		ANSI CLASS 150						t										
INCHES	mm	d	C	D	n	h	D1	D2	l	L	PVC CPVC	PP PVDF	H	H1	H2	S	S1	S2
2-1/2	65	2.64	5.50	7.00	4	0.75	6.89	8.66	1.34	9.84	0.87	0.91	10.47	7.40	2.40	3.35	0.43	0.79
3	80	3.07	6.00	7.50	4	0.75	7.91	8.66	1.65	10.38	0.87	0.91	11.02	7.95	2.48	3.94	0.59	1.10
4	100	3.94	7.50	9.00	8	0.75	9.49	10.12	1.97	12.94	0.87	0.94	12.95	9.49	3.07	4.72	0.59	1.10

Pressure vs. Temperature psi, water, non-shock

Cv Values/Wt.

NOMINAL SIZE		PVC		CPVC				PP				PVDF				NOMINAL SIZE	Cv	WT. FLG. (lbs)	
		ALL DIAPHRAGMS		ALL DIAPHRAGMS				ALL DIAPHRAGMS				PTFE DIAPHRAGM							
INCHES	mm	30° F 105° F	106° F 140° F	30° F 105° F	106° F 140° F	141° F 175° F	176° F 195° F	- 5° F 105° F	106° F 140° F	141° F 175° F	176° F 195° F	- 40° F 140° F	141° F 175° F	176° F 210° F	211° F 250° F	INCHES	mm		
2-1/2	65	150	115	150	120	95	85	150	120	95	85	150	115	85	70	2-1/2	65	85	14.33
3	80	150	115	150	120	95	85	150	120	95	85	150	115	85	70	3	80	115	17.64
4	100	150	115	150	120	95	85	150	120	95	85	150	115	85	70	4	100	185	25.80

Caution

- After replacing diaphragm, do not tighten bolts for bonnet and body with diaphragm in the closed position. Excessive force could damage bonnet or body.
- Full vacuum rated 1/2" through 2 - 1/2".
- Vacuum Rating

	(1) Rubber Diaphragms	(2) PTFE Diaphragm
3"	-25.59"	-9.84"
4"	-19.69"	-3.94"
- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Type 14 Flanged

Diaphragm Valves

Parts Type 14 Flanged (2-1/2" – 4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Bonnet	1	PVC, PPG, PP, PVDF
3	Diaphragm	1	EPDM, PTFE, Others
3a	Diaphragm Metal Insert	1	Stainless Steel 304
4	Cushion*	1	EPDM
5	PVDF Gas Barrier*	1	PVDF
6	Compressor	1	PVDF
8	Stem	1	Copper Alloy
8a	Indicating Rod	1	Stainless Steel 304
9	Sleeve	1	Copper Alloy
10	Hand Wheel	1	PP
11	Gauge Cover	1	PC
12	Name Plate	1	PVC
13	Retaining Ring C Type	1	Stainless Steel 304
14	O-Ring (A)	1	EPDM
15	O-Ring (B)	1	EPDM
16	Thrust Ring (A)	1	UHMWPE
17	Thrust Ring (B)	1	UHMWPE
18	Bolt, Nut, Washer	4 Sets	Stainless Steel 304
20	Stopper (A)	1	Copper Alloy
88	Grease Nipple	1	Copper Alloy
89	Compressor Pin	1	Stainless Steel 304
90	Stud Bolt, Nut	4 Sets	Stainless Steel 304, Others
94	Metal of Compressor	1	Stainless Steel 304 ¹
1a	Inserted Nut	4	Copper Alloy ²

* Used on PTFE diaphragm

¹ Used for PVDF body

² Used for PVC, CPVC, PP bodies

Troubleshooting

What if fluid leaks when valve is fully closed?

1. Travel stop not set correctly. Adjust it per the Asahi Operation and Maintenance manual.
2. Solids built up inside valve. Clean inside, including weir and diaphragm.
3. Diaphragm and/or weir are worn or damaged. Change the part(s).

What if valve cannot be fully opened?

1. Diaphragm is not properly engaged with compressor. Check engagement per Operation and Maintenance manual.

What if fluid leaks to atmosphere?

1. Bonnet bolts not properly torqued. Re-torque according to Operation and Maintenance manual.
2. Line pressure exceeds maximum recommended line pressure. Check or reduce system line pressure.
3. Diaphragm has ruptured or has been chemically attacked. Replace diaphragm.

Sample Specification

All Type-14 flanged diaphragm valves shall be of solid thermoplastic construction for body and bonnet with molded flanged ends. The valves shall come standard with a position indicator, travel stop (to prevent overtightening) and bonnet O-ring sealing arrangement. The valve shall be weir type with a square bonnet body sealing design and bayonet connection diaphragm (1/2"- 2") or round bonnet body sealing design (2-1/2"- 4"). All PTFE diaphragms shall be supplied with a PVDF gas barrier between the layers of EPDM and PTFE for aggressive chemical service. The face-to-face dimensions shall conform to Type G. PVC conforming to ASTM D1784 Cell Classification 12454-A, CPVC conforming to ASTM D1784 Cell Classification 23567A, PP conforming to ASTM D4101 Cell Classification PPO210B67272, PPG (bonnet only) conforming to ASTM D4101 Cell Classification PPO110M20A21130, and PVDF conforming to ASTM D3222 Cell Classification Type II. PVC, CPVC, PP and PVDF shall be rated to 150psi for elastomeric and PTFE diaphragms at 70° F., as manufactured by Asahi/America, Inc.



Type-14 True Union Diaphragm

Standard Features (Sizes 1/2" - 2")

- True union design permits installation or repairs without expanding pipeline
- Rugged square body and bonnet are of solid thermoplastic for maximum corrosion resistance
- Uniquely designed body and bonnet together with diaphragms of new sealing designs by the state-of-the-art computer aided analysis for superior sealing
- Weir design for excellent throttling
- Full vacuum rated
- Bubble-tight sealing, even in applications such as slurries or suspended particles
- Bonnet seals to protect internals from corrosive environments
- Adjustable travel stop to prevent diaphragm from being overtightened
- Bayonet structure to connect compressor and diaphragm for quick maintenance
- Integrally molded bottom stand for simple yet firm panel mounting
- Indicator at the top for valve position
- PVDF gas barrier, which protects EPDM backing cushion from gas permeation, is standard for all valves with PTFE diaphragm
- Low profile

Options

- 2" square operating nut for remote operation
- Stem extensions
- Locking device for tamper proofing
- PTFE encapsulated FKM or FKM end connector O-ring seals
- Pneumatic or electric actuation

Specifications

Sizes: 1/2" - 2"

Body Materials: PVC, CPVC, PP and PVDF

Bonnet Materials: PVC, PP, PPG and PVDF

End Connectors: PVC, CPVC: IPS Soc. or Thr'd
PP, PVDF: IPS & Metric(DIN)
Socket, Threaded, Butt

Diaphragms: EPDM and
3-Layer EPDM/PVDF/PTFE
Also available in Nitrile and
FKM.

Operator: Handwheel

Parts Type-14 True Union (1/2" - 2")

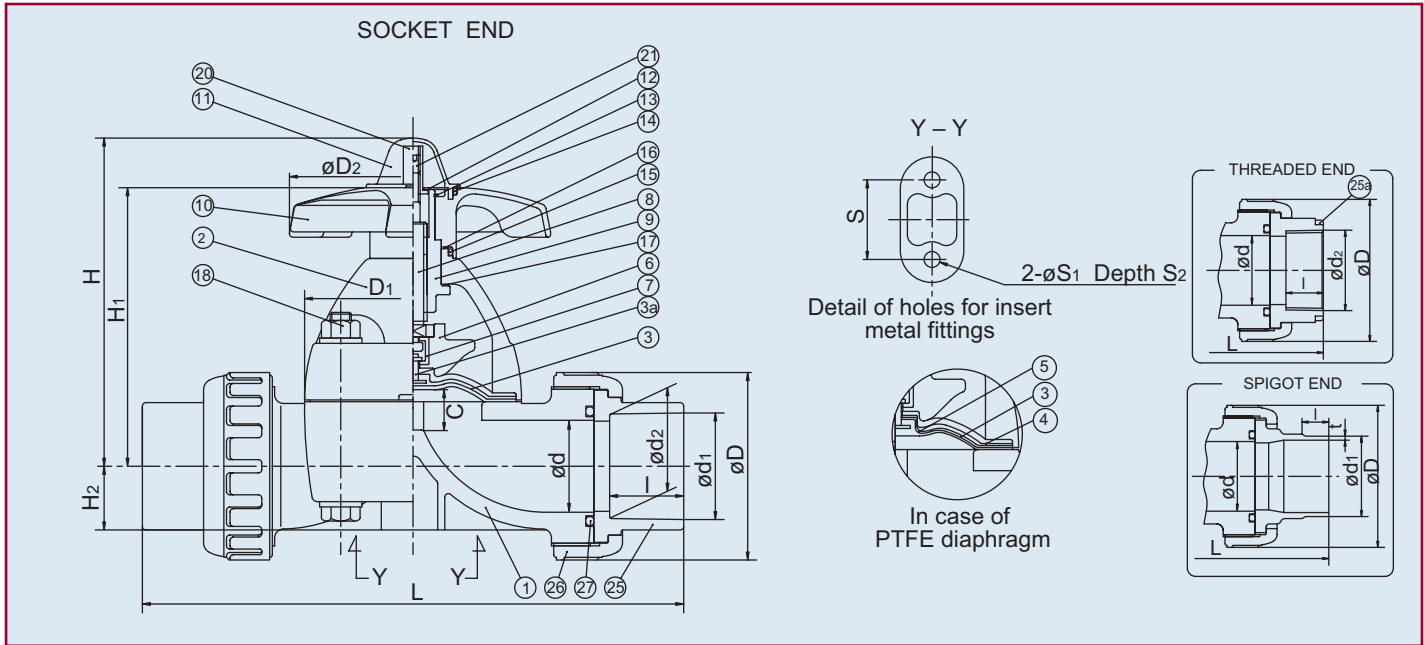
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Bonnet	1	PVC, PPG, PP, PVDF
25	End Connector	2	PVC,CPVC,PP,PVDF
26	Union Nut	2	PVC,CPVC,PP,PVDF
3	Diaphragm	1	EPDM, PTFE, Others
3a	Diaphragm Metal Insert	1	Stainless Steel 304
4	Cushion*	1	EPDM
5	PVDF Gas Barrier*	1	PVDF
6	Compressor	1	PVDF
7	Joint	1	Stainless Steel 304
8	Stem	1	Copper Alloy
9	Sleeve	1	Copper Alloy
10	Hand Wheel	1	PP
11	Gauge Cover	1	PC
12	Name Plate	1	PVC
13	Retaining Ring C Type	1	Stainless Steel 304
14	O-Ring (A)	1	EPDM
15	O-Ring (B)	1	EPDM
16	Thrust Ring (A)	1	UHMWPE
17	Thrust Ring (B)	1	UHMWPE
18	Bolt, Nut, Washer	4 Sets	Stainless Steel 304
20	Stopper (A)	1	Copper Alloy
21	Screw	1	Stainless Steel 304
27	O-Ring (C)	2	EPDM, FKM, Others
25a	RING*	2	Stainless Steel 304

* Used for PTFE diaphragm.

** Used for CPVC body, threaded end, 1/2" through 1".

Type-14 True Union

Diaphragm Valves



Dimensions Type-14 True Union (Sizes 1/2" – 2") (in.)

NOMINAL SIZE		SOCKET											THREADED				
		PVC, CPVC					PP, PVDF (DIN)				PP, PVDF (IPS)		d1	/	L		
		ASTM SCH 80					d1	d2	/	L	d1	/			L	PVC CPVC	PP PVDF
INCHES	mm	d	d1	d2	/	L							d1	d2			
1/2	15	0.63	0.848	0.848	0.875	5.47	0.768	0.760	0.57	4.92	0.83	0.87	5.43	1/2 14NPT	0.59	5.04	5.04
3/4	20	0.79	1.058	1.046	1.000	6.18	0.965	0.957	0.63	5.55	1.03	1.00	6.09	3/4 14NPT	0.67	5.83	5.83
1	25	0.98	1.325	1.310	1.125	7.32	1.240	1.232	0.71	6.46	1.30	1.13	7.24	1 - 11-1/2NPT	0.79	6.77	6.77
1-1/4	32	1.26	1.670	1.655	1.250	7.95	1.553	1.543	0.81	6.97	1.65	1.25	7.80	1 1/4 - 11-1/2NPT	0.87	7.40	7.40
1-1/2	40	1.57	1.912	1.894	1.375	10.47	1.947	1.937	0.93	9.09	1.89	1.37	10.28	1 1/2 - 11-1/2NPT	0.98	9.65	9.65
2	50	2.05	2.387	2.369	1.500	11.54	2.461	2.445	1.08	10.79	2.36	1.50	11.54	2 - 11-1/2NPT	1.10	11.06	10.95

NOMINAL SIZE		SPIGOT (BUTT END)					D	D1	D2	C (LIFT)	H	H1	S	S1	S2
		PP, PVDF													
		DIN 3442		PP	PVDF	L									
d1	/	t	t												
INCHES	mm	d1	/	t	t	L	D	D1	D2	C (LIFT)	H	H1	S	S1	S2
1/2	15	0.787	0.728	0.098	0.075	5.906	1.89	2.13 × 2.60	3.46	0.39	4.09	3.39	0.98	0.28	0.51
3/4	20	0.984	0.866	0.106	0.075	6.772	2.36	2.13 × 2.60	3.46	0.39	4.17	3.46	0.98	0.28	0.51
1	25	1.260	0.886	0.118	0.094	7.677	2.76	2.64 × 3.15	3.46	0.47	4.37	3.66	0.98	0.28	0.51
1-1/4	32	1.575	1.024	0.146	0.094	8.346	3.23	2.64 × 3.16	3.46	0.47	4.57	3.82	0.98	0.28	0.51
1-1/2	40	1.969	1.260	0.181	0.118	10.866	3.94	4.25 × 4.25	6.14	0.83	6.97	5.67	1.77	0.35	0.59
2	50	2.480	1.417	0.228	0.118	12.087	4.17	4.84 × 4.84	6.14	0.98	7.52	6.22	1.77	0.35	0.59

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Type-14 True Union

Diaphragm Valves

Pressure vs. Temperature (psi, water, non-shock)

Cv Values/Wt.(lbs.)

NOMINAL SIZE		PVC		CPVC				PP			PVDF			NOMINAL SIZE		Cv	WT. SOC (lbs)
		ALL DIAPHRAGMS		ALL DIAPHRAGMS				ALL DIAPHRAGMS			PTFE DIAPHRAGM						
INCHES	mm	30° F 105° F	106° F 140° F	30° F 105° F	106° F 140° F	141° F 175° F	176° F 195° F	- 5° F 105° F	106° F 140° F	141° F 175° F	- 40° F 140° F	141° F 175° F	176° F 210° F	INCHES	mm		
		1/2	15	150	130	150	115	85	40	150	115	85	150				
3/4	20	150	130	150	115	85	40	150	115	85	150	120	95	3/4	20	5.3	1.3
1	25	150	130	150	115	85	40	150	115	85	150	120	95	1	25	8.5	2.0
1-1/4	32	150	130	150	115	85	40	150	115	85	150	120	95	1-1/4	32	11	2.4
1-1/2	40	150	130	150	115	85	40	150	115	85	150	120	95	1-1/2	40	26	5.8
2	50	150	130	150	115	85	40	150	115	85	150	120	95	2	50	43	6.4

Note:

Working temperature is different from flanged version.

Troubleshooting

What if fluid leaks when valve is fully closed?

1. Travel stop not set correctly. Adjust it per the Asahi Operation and Maintenance manual.
2. Solids build up inside valve. Clean inside, including weir and diaphragm.
3. Diaphragm and/or weir are worn or damaged. Change the part(s).

What if valve cannot be fully opened?

1. Diaphragm is not properly engaged with compressor. Check engagement per Operation and Maintenance manual.

What if fluid leaks to atmosphere?

1. Bonnet bolts not properly torqued. Re-torque according to Operation and Maintenance manual.
2. Line pressure exceeds maximum recommended line pressure. Check or reduce system line pressure.
3. Diaphragm has ruptured or has been chemically attacked. Replace diaphragm.

Sample Specification

All Type-14 true union diaphragm valves shall be of solid thermoplastic construction for body and bonnet with socket, threaded or butt end connectors. The valves shall come standard with a position indicator, travel stop and bonnet O-ring sealing arrangement. The valve shall be weir type with a square bonnet body sealing design and bayonet connection diaphragm. All PTFE diaphragms shall be supplied with a PVDF gas barrier between the layers of EPDM and PTFE for aggressive chemical service. PVC conforming to ASTM D1784 Cell Classification 12454A, CPVC conforming to ASTM D1784 Cell Classification 23567A, PP conforming to ASTM D4101 Cell Classification PPO210B67272, PPG (bonnet only) conforming to ASTM D4101 Cell Classification PPO110M20A21130, and PVDF conforming to ASTM D3222 Cell Classification Type II. PVC, CPVC, PP and PVDF shall be rated to 150psi for elastomeric and PTFE diaphragms at 70° F, as manufactured by Asahi/America, Inc.

Type-14/15 Diaphragm Valves for use with Sodium Hypochlorite



3-Layer Diaphragm



PTFE Diaphragm



PVDF Gas Barrier



EPDM Backing Cushion

The Type-14/15 diaphragm valves can be equipped with a three-layer PTFE diaphragm.

When a diaphragm valve is used in sodium hypochlorite service, PTFE is typically the diaphragm material of choice. The Type-14/15 PTFE diaphragm consists of three un-bonded layers. The primary or wetted layer is PTFE, the middle layer is a PVDF gas barrier, and the top cushion is EPDM. The PVDF gas barrier prevents the migration of gas, which permeates the PTFE wetted layer. This added protection provides for longer valve life.

Standard Features

- PVC or CPVC construction valve
- Three-layer PTFE/PVDF/EPDM diaphragm
- Flanged configuration eliminates all cemented joints
- Alternately, the true union valve can be equipped with Chem Proline® end connectors for use in Asahi/America's piping material of choice for sodium hypochlorite service – Consult Sales or Engineering to learn more about Chem Proline® piping systems
- Supported up to a 20% concentration of sodium hypochlorite

Sample Specification

All Type-14/15 diaphragm valves for use with sodium hypochlorite up to 20% concentration shall be of solid thermoplastic construction (PVC or CPVC) for body and bonnet with molded flanged ends or true union ends. The molded flanged or Chem Proline® ends provide for no cemented joints. The valves shall come standard with a position indicator, travel stop (to prevent overtightening) and bonnet O-ring sealing arrangement. The valve shall be weir type with a square bonnet body sealing design and bayonet connection diaphragm (1/2" - 2") or round bonnet body sealing design and threaded stud diaphragm connection (2-1/2" - 6"). All PTFE diaphragms shall be supplied with a PVDF gas barrier between the layers of EPDM and PTFE. The PVDF gas barrier prevents against the migration of gas through the PTFE membrane and attacking the EPDM backing cushion. All hardware shall be 304 stainless steel type and non-wetted. The face-to-face dimensions shall conform to Type G. PVC conforming to ASTM D1784 Cell Classification 12454A, CPVC conforming to ASTM D1784 Cell Classification 23567A and PVDF conforming to ASTM D3222 Cell Classification Type II. Valves shall be rated to 150psi sizes 1/2" through 4", 100psi size 5", and 70psi size 6" for PTFE diaphragms at 70° F, as manufactured by Asahi/America, Inc.



Type-14 Pneumatic Diaphragm

Standard Features (Sizes 1/2" - 2")

- Rugged solid thermoplastic construction for maximum corrosion resistance
- Uniquely designed body and bonnet together with diaphragms of new sealing designs by the state-of-the-art computer aided analysis for superior sealing
- Weir design for excellent throttling
- NAMUR pad mount for easy installation of solenoid valves
- Full vacuum rated
- Bubble-tight sealing, even in applications such as slurries or those with suspended particles
- Bonnet seals to protect internals from corrosive environments
- Adjustable travel stop to prevent diaphragm from being overtightened
- Bayonet structure to connect compressor and diaphragm for quick maintenance
- Integrally molded bottom stand for simple yet firm panel mounting
- Indicator at the top for valve position
- PVDF gas barrier, which protects EPDM backing cushion from gas permeation, is a standard for all valves with PTFE diaphragm
- Low profile

Options

- Solenoid valves in all electrical type ratings and voltages
- Limit switches for interface with computers and other equipment
- Positioners: 3-15 mA and 4-20 mA inputs for throttling applications
- 4-20 mA output for interface with computers and other equipment
- Manual override for air-to-spring

Specifications

- Sizes:** 1/2" - 2"
- Body Materials:** PVC, CPVC, PP and PVDF
- Bonnet Materials:** PPG
- End Connectors:** See Valve Materials
- Diaphragms:** See Valve Materials
- Actuator Housing:** PPG
- Type:** Air-to-Air; Air-to-Spring
- Air Supply:** 60psi (Recommended)
90psi (Maximum)

2" PVDF TYPE-14 AIR-TO-AIR FLANGED DIAPHRAGM VALVE



1" PP TYPE-14 AIR-TO-AIR TRUE UNION DIAPHRAGM VALVE

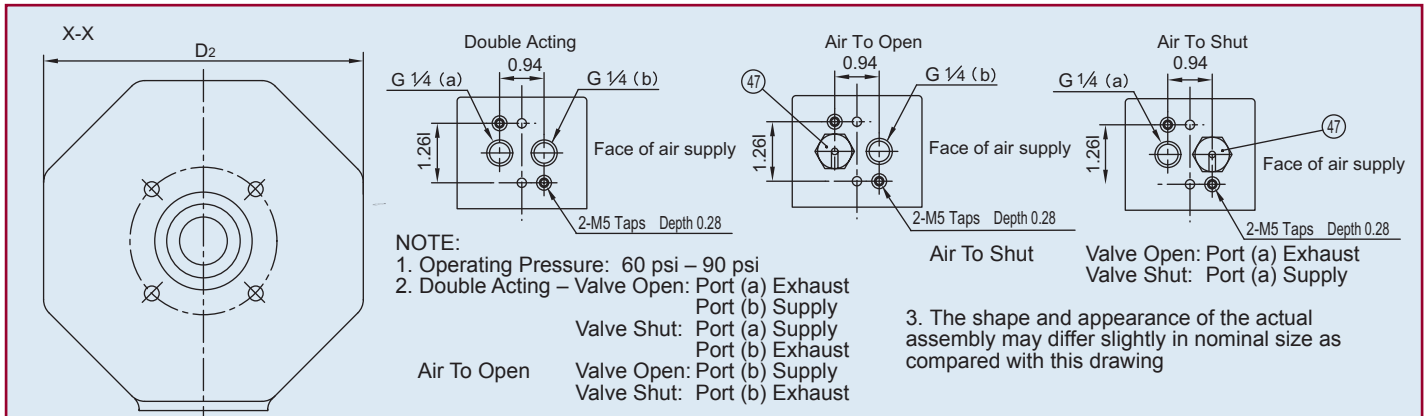
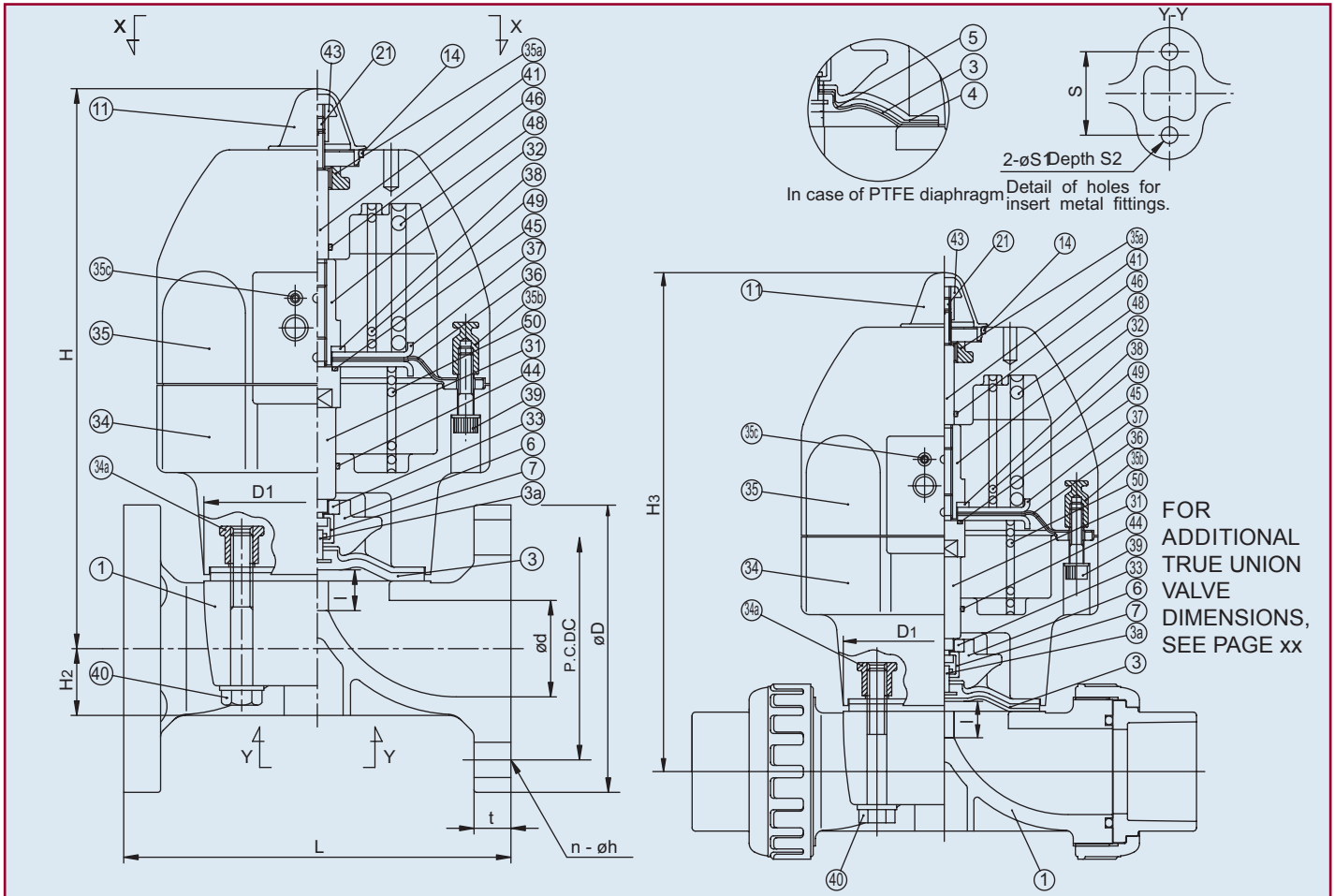


2" CPVC TYPE-14 AIR-TO-SPRING TRUE UNION DIAPHRAGM VALVE WITH NEMA IV DOUBLE LIMIT SWITCH



Type-14 Pneumatic

Diaphragm Valves



Dimensions Type-14 Pneumatic Flanged (Sizes 1/2" - 2") (in.)

Weight/Cv

NOMINAL SIZE		ANSI CLASS 150						TRUE UNION										WT. [LBS]		
INCHES	mm	d	C	D	n	h	D1	D2	/	L	t	H	H2	H3	S	S1	S2	A-A	A-S	Cv
1/2	15	0.63	2.38	3.50	4	0.62	2.13 × 2.60	5.12	0.39	4.25	0.43	7.32	0.49	7.32	0.98	0.28	0.51	4.80	5.12	4.8
3/4	20	0.79	2.75	3.88	4	0.62	2.13 × 2.60	5.12	0.39	5.88	0.51	7.40	0.57	7.40	0.98	0.28	0.51	5.11	5.78	5.3
1	25	0.98	3.12	4.25	4	0.62	2.64 × 3.15	5.12	0.47	5.88	0.59	7.60	0.73	7.60	0.98	0.28	0.51	6.00	6.50	8.5
1-1/4	32	1.26	3.50	4.62	4	0.62	2.64 × 3.15	5.12	0.47	6.38	0.63	7.76	0.89	7.76	0.98	0.28	0.51	6.50	7.00	11
1-1/2	40	1.57	3.88	5.00	4	0.62	4.25 × 4.25	6.85	0.83	6.94	0.63	11.54	1.08	11.54	1.77	0.35	0.59	12.82	14.29	26
2	50	2.05	4.75	6.00	4	0.75	4.84 × 4.84	6.85	0.98	7.94	0.79	11.89	1.42	11.89	1.77	0.35	0.59	13.00	14.50	43

Type-14 PST-A202DN SMART (Electro-Pneumatic)



Standard Features

- Simple calibration of positioner with Autocal push-buttons located inside of positioner housing
- Transmitter
- NEMA Type 4X enclosure
- Corrosion resistant polyester powder coated enclosure
- SS trim
- LCD visual position indication shown in percentage
- Pressure gauges
- 1/2" conduit entry
- 1/4" NPT air connection
- Split range capability
- Reverse acting capability
- Temperature limit of 185 F
- High vibration environments

Options

- Two SPDT mechanical switches
- Two SPST proximity switches
- Hart capability
- 316SS enclosure
- ATEX Ex ia IIC T5/T6 enclosure

Specifications

Input Current: 4 to 20mA

Supply Air Pressure: 60 to 90psi

Resolution: 0.2% of span

Linearity: 0.51% of Span

Hysteresis: 0.5% of Span

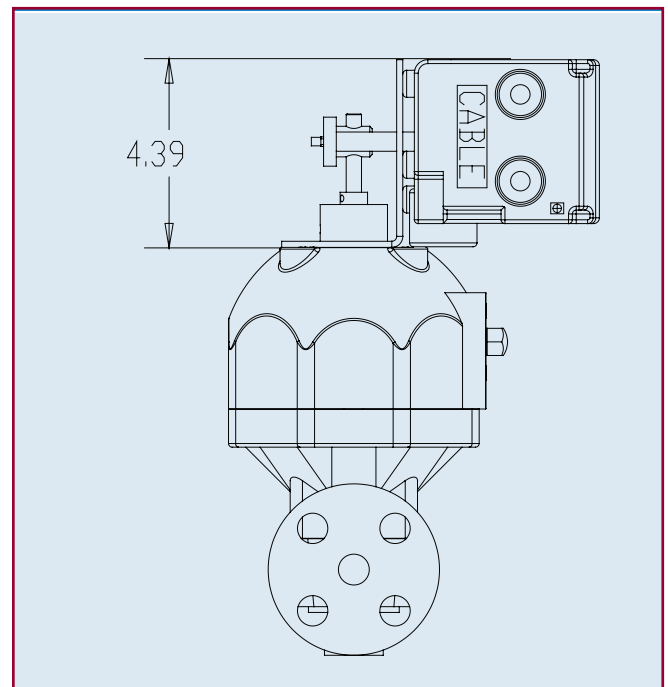
Repeatability: 0.2% of Span

Air Connections: 1/4" NPT

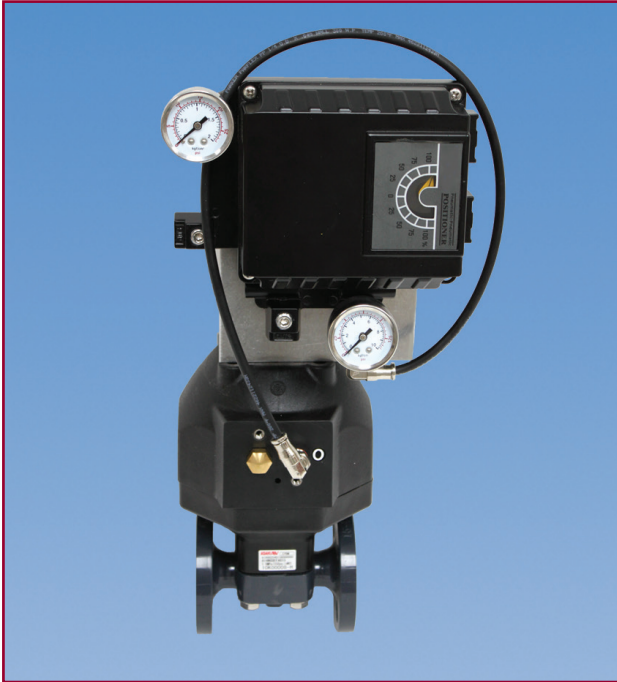
Conduit Entry: 1/2" NPT

Sample Specification

All PST-A202DN I/P modulating valves shall be equipped with the PST-A202D SMART (ElectroPneumatic) Positioner. Positioner housing shall be polyester powder coated meeting NEMA Type 4X, with SS shaft and hardware, and visual position indication (LCD). Positioner shall be Autocal design, equipped with pressure gauges, and a transmitter as supplied by Asahi America, Inc



Type-14 PST-101 Pneumatic Positioner



Specifications

- Input Signal:** 3-15psi
- Supply Air Pressure:** 60 to 100psi
- Air Consumption:** 0.4 CFM @ 60psi
- Linearity:** 1% of Span
- Hysteresis:** 0.75% of Span
- Repeatability:** 0.3% of Span
- Air Connections:** 1/4" NPT

Sample Specification

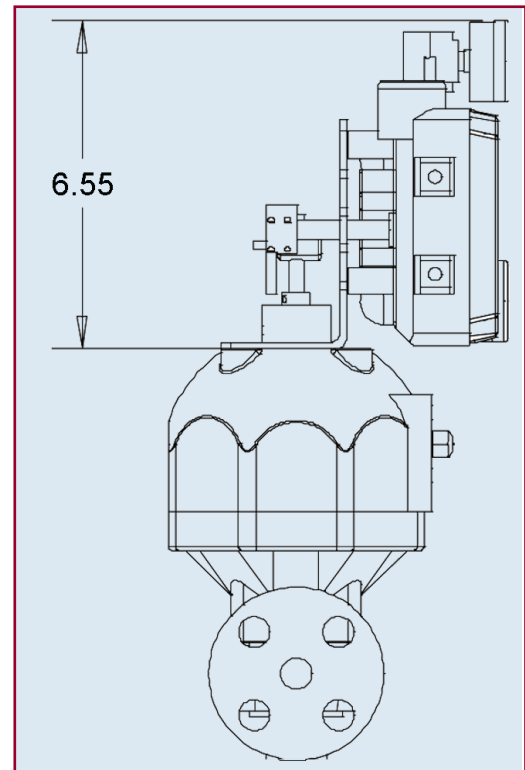
All PST-101 modulating valves shall be equipped with the PST-101 pneumatic positioner. Positioner housing shall be polyester powder coated rated Type 4X, with stainless steel shaft and hardware, and visual position indication. Positioner shall be capable of operating in high vibration environments with short and precise response time, equipped with pressure gauges, and be a low air consumption unit, as supplied by Asahi/America, Inc.

Standard Features

- Simple calibration of positioner with independent zero and span
- Short and precise response time
- Type 4X rated enclosure
- Corrosion resistant polyester powder coated enclosure
- Stainless steel trim
- Low air consumption
- Pressure gauges
- 1/4" NPT air connection
- Can operate in high vibration environments
- Reverse acting capability
- Temperature limit of 185° F

Options

- Two SPDT mechanical switches
- Two SPST inductive switches
- Hart capability
- 4-20 mA transmitter



Parts Type-14 Pneumatic (1/2" – 2")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
3	Diaphragm	1	EPDM, PTFE, Others
3a	Diaphragm Metal Insert	1	Stainless Steel 304
4	Cushion*	1	EPDM
5	PVDF Gas Barrier**	1	PVDF
6	Compressor	1	PVDF
7	Joint	1	Stainless Steel 304
11	Gauge Cover	1	PC
14	O-Ring (A)	1	EPDM
21	Screw	1	Stainless Steel 304
31	Stem (A)	1	Copper Alloy
32	Stem (B)	1	Copper Alloy
33	Compressor Push Plate	1	Copper Alloy
34	Cylinder Body	1	PPG
34a	Metal Insert for Above	4	Copper Alloy
35	Cylinder Bonnet	1	PPG
35a	Metal Insert for Above	1	Stainless Steel 304
35b	Metal Insert for Above	8	Copper Alloy
35c	Threaded Insert for #35	2	Stainless Steel 304
36	Cylinder Diaphragm	1	NBR
37	Cylinder Diaphragm Plate	2	Stainless Steel 304
38	Conical Spring Washer (B)	1	Stainless Steel 304
39	Bolt (A)	8	Stainless Steel 304
40	Bolt (B)	4	Stainless Steel 304
41	Indicating Rod	1	Stainless Steel 304
43	Stopper	1	Stainless Steel 304
44	O-Ring (D)	1	NBR
45	O-Ring (E)	1	NBR
46	O-Ring (F)	1	NBR
47	Nipple	1	Copper Alloy
48	Spring (A)	1	Spring Steel
49	Spring (B)	1	Spring Steel
50	Spring (C)	1	Spring Steel

* Used for PTFE diaphragm.

** Used for PTFE diaphragm.

Troubleshooting

What if valve does not open or close?

1. Air pressure is too low. Adjust the pressure.
2. Power source of solenoid valve is off. Check the connection.
3. Solenoid wiring is disconnected. Connect.
4. Solenoid voltage is low or incorrect. Check voltage with tester and reset.

5. Air not supplied to solenoid valve.
6. Bypass valve is open. Close it.
7. Speed control on solenoid set incorrectly. Adjust.

What if fluid flows even when closed?

1. Operating pressure is too low (air-to-air only). Adjust. Air not exhausted (air-to-spring only). Exhaust air.
2. Diaphragm is damaged or worn. Replace.
3. Body may be damaged. Inspect and replace.
4. Foreign material is caught between weir and diaphragm. Disassemble and clean.

What if valve leaks to atmosphere?

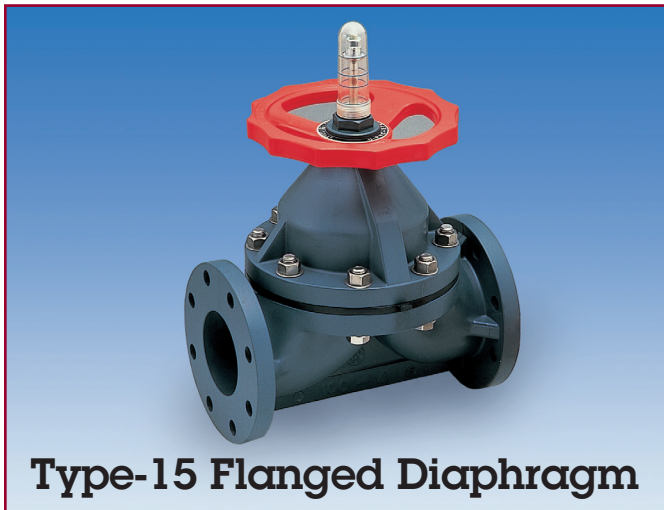
1. Bolts for body and actuator improperly tightened. Tighten as specified in Operation and Maintenance manual.
2. True union style: (a) union nut(s) not tightened properly. Tighten; (b) O-ring between end connector and body is damaged. Replace.

Valve cannot be opened or closed, even though actuator works.

1. Diaphragm is damaged or its compressor joint is broken. Replace part(s).

Sample Specification

All Type-14 actuated diaphragm valves shall be of solid thermoplastic construction for body (molded flanged or true union socket, threaded or butt end connectors) and bonnet with the actuator housing of glass-filled polypropylene. The actuator shall come standard with an "at a glance" position indicator and pad mount according to NAMUR for solenoid mounting. Air supply shall be 60-90psi. The valve body shall have a panel mount feature for support. Actuator to body mount shall be of square design, diaphragm shall be bayonet type connection. Face-to-face dimensions of flanged version shall conform to Type-G. PVC conforming to ASTM D1784 Cell Classification 12454A, CPVC conforming to ASTM D1784 Cell Classification 23567A, PP conforming to ASTM D4101 Cell Classification PP0210B67272, PPG (Bonnet Only) conforming to ASTM D4101 Cell Classification PP0110M20A21130, and PVDF conforming to ASTM D3222 Cell Classification Type II. PVC, CPVC, PP and PVDF shall be rated to 150psi for elastomeric and PTFE diaphragms at 70° F, as manufactured by Asahi/America, Inc.



Type-15 Flanged Diaphragm

Standard Features (Sizes 5"-6")

- Flanged face-to-face dimensions are equivalent to those of Type-G diaphragm valve
- Rugged body and bonnet are of solid thermoplastic for maximum corrosion resistance
- Bubble-tight sealing, even in applications such as slurries or suspended particles
- Weir design for excellent throttling
- Uniquely designed body and bonnet together with diaphragms of new sealing designs by state-of-the-art computer aided analysis for superior sealing
- Bonnet seals to protect internals from corrosive environments
- Built-in travel stop to prevent diaphragm from being overtightened
- Indicator at the top for valve position and prevention of overtightening
- PVDF gas barrier, which protects EPDM backing cushion from gas permeation, is standard for all valves with PTFE diaphragm

Options

- 2" square operating nut
- Stem extensions (single stem or two-piece stem)
- Chain operators
- Locking device for tamper proofing

Sample Specification

All Type-15 flanged diaphragm valves shall be of solid thermoplastic construction for body and bonnet with molded flanged ends. The valves shall come standard with a position indicator, travel stop (to prevent overtightening) and bonnet O-ring sealing arrangement. The valve shall be weir type with a round bonnet body sealing design and threaded stud diaphragm connection. All PTFE diaphragms shall be supplied with a PVDF gas barrier between the layers of EPDM and PTFE for aggressive chemical service. The face-to-face dimensions

Specifications

- Sizes:** 5" – 6"
Body Materials: PVC, PP and PVDF
Bonnet Materials: PVC, PP, PPG and PVDF
Diaphragms: EPDM and
 3-Layer EPDM/PVDF/PTFE
 Also available in Nitrile
End Connection: Flanged
Operator: Handwheel

Parts List (Sizes 5" – 6")

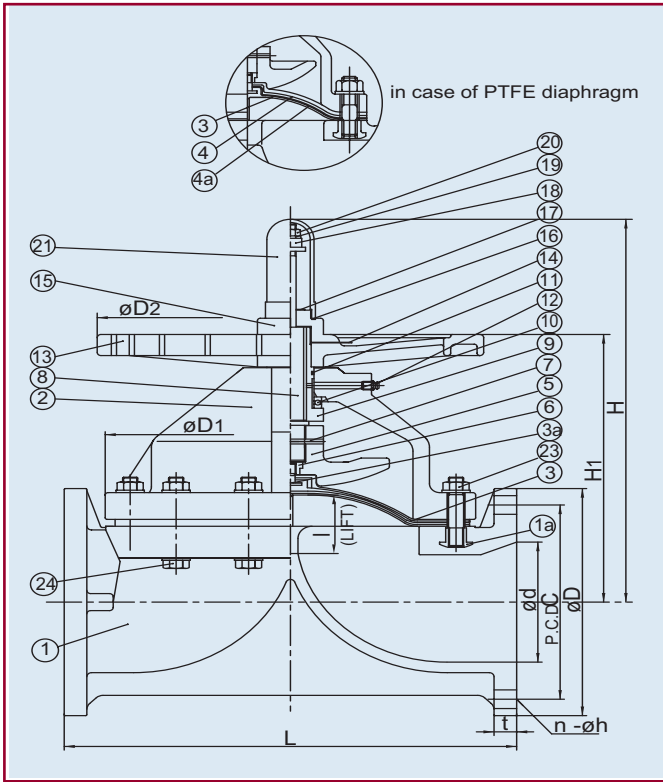
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, PP, PVDF
2	Bonnet	1	PVC, PPG, PP, PVDF
3	Diaphragm	1	EPDM, PTFE, Others
3a	Diaphragm Metal Insert	1	Stainless Steel 304
4	Cushion*	1	EPDM
4a	PVDF Gas Barrier*	1	PVDF
5	Compressor	1	PVDF
6	Compressor Nut	1	Copper Alloy
7	Compressor Pin	1	Stainless Steel 304
8	Stem	1	Copper Alloy
9	Sleeve [A]	1	Copper Alloy
10	Thrust Bearing [A]	1	High Carbon Chromium Bearing
11	O-Ring [A]	1	NBR
12	Grease Nipple	1	Copper Alloy
13	Hand Wheel	1	PP
14	Name Plate	1	PVC
15	Cap	1	PP
16	Sheet Gasket [A]	1	EPDM
17	Sheet Ring	1	Stainless Steel 304
18	Stopper	1	Chromized Steel
20	Nut	1	Stainless Steel 304
21	Gauge Cover	1	PC
23	Stud Bolt, Nut	4 Sets	Stainless Steel 304, Others
24	Bolt, Nut, Washer	-	Stainless Steel 304
1a	Inserted Nut	4	Stainless Steel 304 ¹ Copper Alloy ²

* Used for PTFE diaphragm ¹ Used for PVDF body ² Used for PVC, PP, bodies

shall conform to Type-G. PVC conforming to ASTM D1784 Cell Classification 12454A, PP conforming to ASTM D4101 Cell Classification PPO210B67272, PPG (bonnet only) conforming to ASTM D4101 Cell Classification PPO110M20A21130, and PVDF conforming to ASTM D3222 Cell Classification Type II. PVC, and PP shall be rated to 115psi for elastomeric diaphragms at 70° F. PVC, PP and PVDF shall be rated to 100psi 5" and 70psi 6" for PTFE diaphragms at 70° F, as manufactured by Asahi/America, Inc.

Type-15 Flanged

Diaphragm Valves



Troubleshooting

What if fluid leaks when valve is fully closed?

1. Travel stop not set correctly. Adjust it per the Asahi Operation and Maintenance manual.
2. Solids build up inside valve. Clean inside, including weir and diaphragm.
3. Diaphragm and/or weir are worn or damaged. Change the part(s).

What if valve cannot be fully opened?

1. Diaphragm is not properly engaged with compressor. Check engagement per Operation and Maintenance manual.

What if fluid leaks to atmosphere?

1. Bonnet bolts not properly torqued. Re-torque according to Operation and Maintenance manual.
2. Line pressure exceeds maximum recommended line pressure. Check or reduce system line pressure.
3. Diaphragm has ruptured or has been chemically attacked. Replace diaphragm.

Dimensions Type 15 Flanged (Sizes 5" – 6")

Cv Values/Weight

NOMINAL SIZE		ANSI CLASS 150						t						
INCHES	mm	d	C	D	n	h	L	PVC	PP, PVDF	D1	D2	I	H	H1
5	125	4.92	8.50	10.00	8	0.88	16.14	0.87	0.94	12.60	11.81	2.36	16.54	12.13
6	150	5.83	9.50	11.00	8	0.88	18.90	0.94	1.06	15.16	16.14	2.76	18.74	13.15

NOMINAL SIZE		Cv	WT. (lbs)
INCHES	mm		
5	125	300	58.00
6	150	400	89.00

Pressure vs. Temperature psi, water, non-stock

NOMINAL SIZE		PVC				PP						PVDF							
		ELASTOMERS		PTFE		ELASTOMERS			PTFE			ELASTOMERS			PTFE				
		30° F 105° F	106° F 140° F	30° F 105° F	106° F 140° F	5° F 105° F	106° F 140° F	141° F 195° F	5° F 105° F	106° F 140° F	141° F 195° F	40° F 140° F	141° F 175° F	176° F 210° F	211° F 250° F	40° F 140° F	141° F 175° F	176° F 210° F	211° F 250° F
5	125	115	100	100	80	115	95	70	100	80	55	115	100	85	70	100	85	70	55
6	150	115	70	70	55	115	90	55	70	60	40	115	95	75	55	70	60	50	40



Type-G Flanged Diaphragm

Specifications

Sizes:	8" - 10"
Body Materials:	PVC, PP and PVDF
Bonnet Materials:	PVC, PP, PPG and PVDF
Model:	Flanged (ANSI)
Diaphragms:	EPDM and 3-Layer EPDM/PVDF/PTFE Also available in Nitrile
End Connection:	Flanged
Operator:	Handwheel

Standard Features (Sizes 8" - 10")

- Rugged body and bonnet of solid thermoplastic for maximum corrosion resistance
- Weir design for excellent throttling
- Bubble-tight sealing, even in applications such as slurries or suspended particles
- Bonnet seals to protect internals from corrosive environments
- Built-in travel stop to prevent diaphragm from being overtightened
- Indicator at the top for valve position
- PVDF gas barrier, which protects backing cushion from gas permeation, is standard for all valves with PTFE diaphragm

Options

- 2" square nut
- Stem extensions (single stem or two-piece stem)
- Chain operators
- Locking device for tamper-proofing

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Parts Type-G Flanged (Sizes 8" - 10")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, PP, PVDF
2	Bonnet	1	PVC, PPG, PP, PVDF
3	Diaphragm	1	EPDM, PTFE, Others
3a	Diaphragm Metal Insert	1	Stainless Steel 304
4	Cushion*	1	EPDM
4a	PVDF Gas Barrier*	1	PVDF
5	Compressor	1	PVDF
7	Pin	1	Stainless Steel 304
8	Stem	1	Copper Alloy
9	Sleeve	1	Copper Alloy
10	Thrust Bearing (A)	1	High Carbon Chromium Bearing
11	O-Ring	1	NBR
12	Grease Nipple	1	Copper Alloy
13	Hand Wheel	1	PP
14	Name Plate	1	PVC
15	Cap	1	PP
16	Sheet Gasket	1	EPDM
17	Sheet Ring	1	Stainless Steel 304
18	Stopper	1	Chromized Steel
20	Nut	1	Stainless Steel 304
21	Gauge Cover	1	PC
23	Stud Bolt, Nut	-	Stainless Steel 304, Others
24	Bolt, Nut, Washer	-	Stainless Steel 304, Others
25	Conical Spring Washer	-	Stainless Steel 304, Others ¹
26	Upper Bonnet Liner	1 Set	Stainless Steel 304, Others ²
27	Body Liner	1 Set	Stainless Steel 304, Others ²
1a	Inserted Nut	4	Stainless Steel 304 ¹ Copper Alloy ³

* Used for PTFE diaphragm

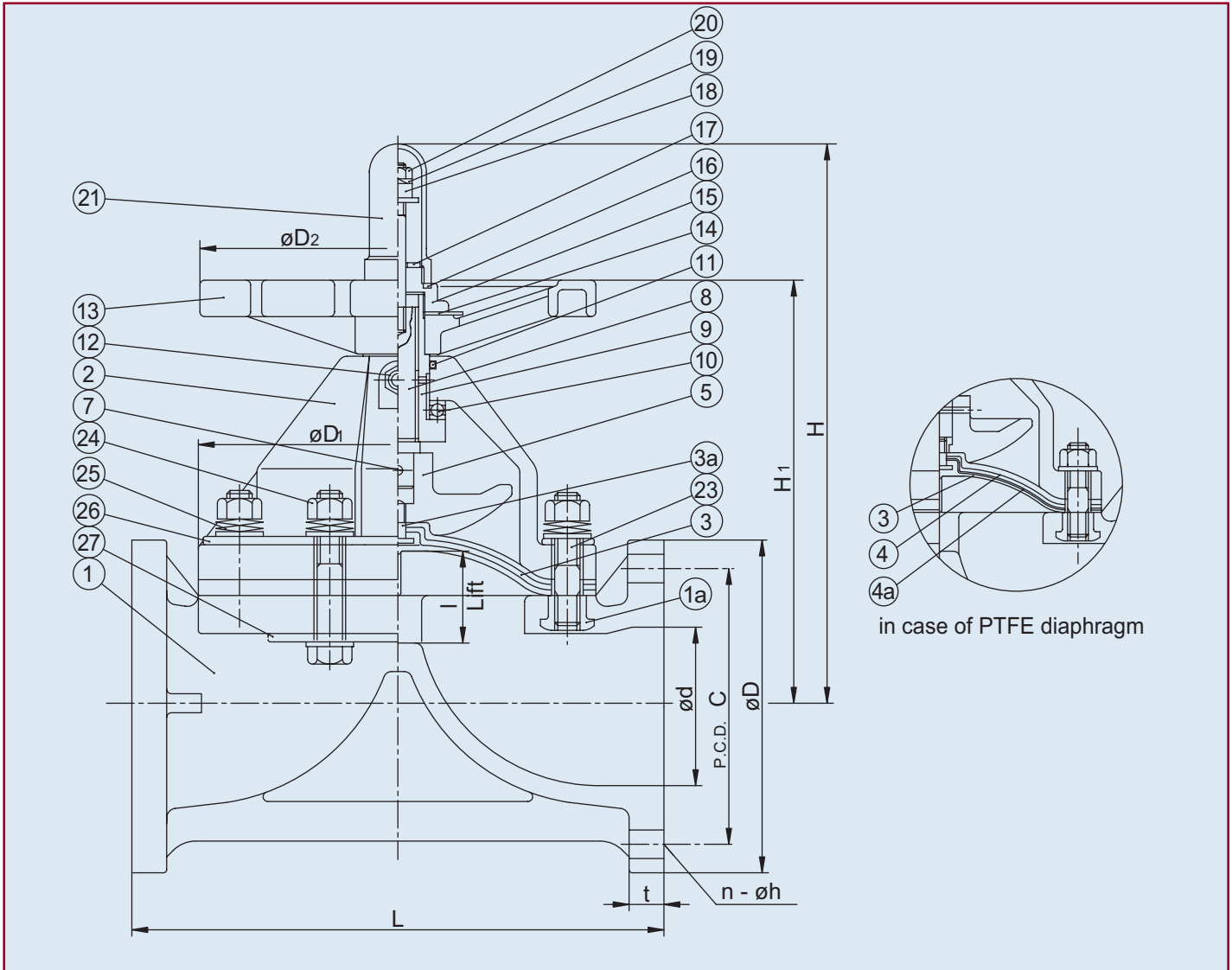
¹ Used for PVDF body

² Used for PP and PVDF bodies

³ Used for PVC, and PP bodies

Type-G Flanged

Diaphragm Valves



Dimensions Type-G (Sizes 8" – 10") (in.)

Cv Values/Weight

NOMINAL SIZE		ANSI CLASS 150						t						
INCHES	mm	d	D	C	n	h	L	PVC	PP, PVDF	D1	D2	l	H	H1
8	200	7.72	13.50	11.75	8	0.88	22.24	1.10	1.26	16.93	16.14	3.74	24.69	16.50
10	250	9.72	16.00	14.25	12	0.98	26.77	1.18	1.46	21.26	22.05	5.04	30.63	20.08

NOMINAL SIZE		Cv	WT (lbs.)
INCHES	mm		
8	200	700	140
10	250	1000	242

Pressure vs. Temperature (psi, water, non-shock)

NOMINAL SIZE		PVC				PP						PVDF				
		ELASTOMERS		PTFE		ELASTOMERS			PTFE			ELASTOMERS		PTFE		
		30° F 105° F	106° F 140° F	30° F 105° F	106° F 140° F	- 5° F 105° F	106° F 140° F	141° F 195° F	- 5° F 105° F	106° F 140° F	141° F 195° F	- 40° F 105° F	106° F 140° F	141° F 250° F	- 40° F 140° F	141° F 250° F
INCHES	mm															
8	200	75	60	60	45	75	55	50	60	45	45	75	55	50	60	45
10	250	65	50	60	45	65	50	50	60	45	45	65	50	50	60	45

Troubleshooting

What if fluid leaks when valve is fully closed?

1. Travel stop not set correctly. Adjust it per the Asahi Operation and Maintenance manual.
2. Solids build up inside valve. Clean inside, including weir and diaphragm.
3. Diaphragm and/or weir are worn or damaged. Change the part(s).

What if valve cannot be fully opened?

1. Diaphragm is not properly engaged with compressor. Check engagement per Operation and Maintenance manual.

What if fluid leaks to atmosphere?

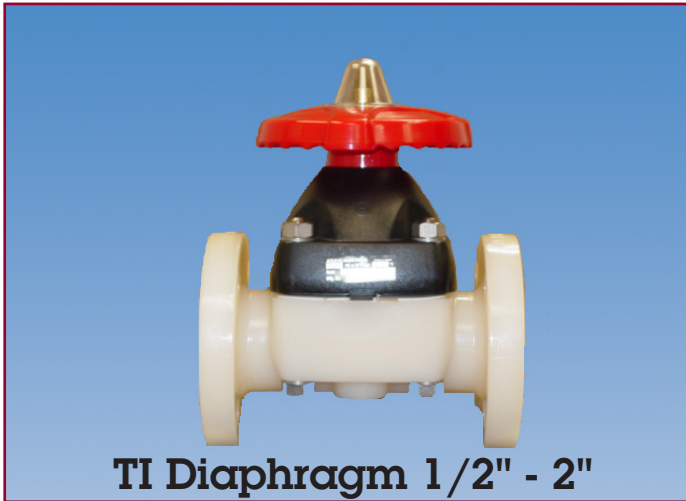
1. Bonnet bolts not properly torqued. Re-torque according to Operation and Maintenance manual.
2. Line pressure exceeds maximum recommended line pressure. Check or reduce system line pressure.
3. Diaphragm has ruptured or has been chemically attacked. Replace diaphragm.

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Sample Specification

All Type-G flanged diaphragm valves shall be of solid thermoplastic construction for body and bonnet with molded flanged ends. The valves shall come standard with a position indicator, travel stop (to prevent overtightening) and bonnet O-ring sealing arrangement. The valve shall be weir type with a round bonnet body sealing design and threaded stud diaphragm connection. All PTFE diaphragms shall be supplied with a PVDF gas barrier between the layers of EPDM and PTFE for aggressive chemical service. The face-to-face dimensions shall conform to Type-G. PVC conforming to ASTM D1784 Cell Classification 12454A, PP conforming to ASTM D4101 Cell Classification PPO210B67272, PPG (bonnet only) conforming to ASTM D4101 Cell Classification PPO110M20A21130, and PVDF conforming to ASTM D3222 Cell Classification Type II. PVC and PP shall be rated to 75psi size 8" and 65psi size 10" for elastomeric diaphragms at 70° F. PVC, PP and PVDF shall be rated to 60psi for PTFE diaphragms at 70° F, as manufactured by Asahi/America, Inc.



TI Diaphragm 1/2" - 2"

Specifications

Sizes: 1/2" - 2"
Body Material: PVDF
Bonnet Material: PPG
Diaphragm: 3-Layer EPDM/PVDF/
 PTFE with Palladium
 Titanium Insert
Compressor Pin: Palladium Titanium
Compressor Insert: Palladium Titanium
Fasteners: Titanium
End Connection: Flanged
Operator: Handwheel

Parts List (Sizes 1/2" - 2")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVDF
2	Bonnet	1	PPG
3	Diaphragm	1	PTFE
3a	Diaphragm Metal Insert	1	PALLADIUM TITANIUM
4	Cushion*	1	EPDM
5	PVDF Gas Barrier*	1	PVDF
6	Compressor	1	PVDF
7	Joint	1	PALLADIUM TITANIUM
8	Stem	1	Copper Alloy (3604)
9	Sleeve	1	Copper Alloy (3604)
10	Hand Wheel	1	PP
11	Gauge Cover	1	POLYCARBONATE
12	Name Plate	1	PVC
13	Retaining Ring C Type	1	Stainless Steel 304
14	O-Ring (A)	1	EPDM
15	O-Ring (B)	1	EPDM
16	Thrust Ring (A)	1	UHMWPE
17	Thrust Ring (B)	1	UHMWPE
18	Bolt, Nut, Washer	4 Sets	TITANIUM
20	Stopper (A)	1	Copper Alloy (3604)
21	Screw	1	Stainless Steel 304

For exploded view drawings refer to page 88.

Standard Features (Sizes 1/2" - 2")

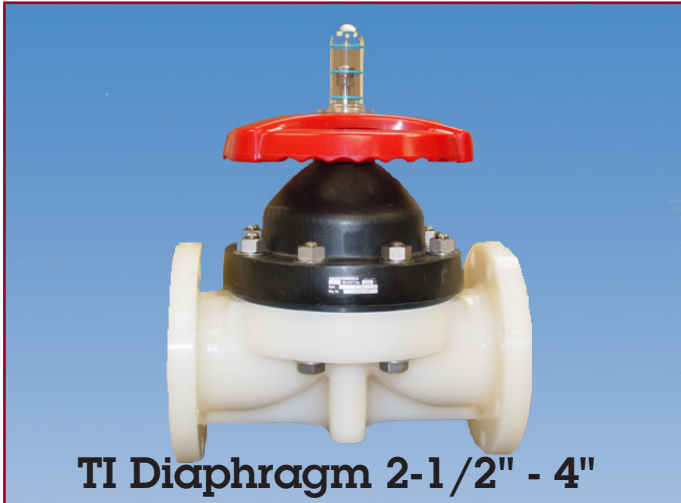
- Durable corrosion resistant PPG bonnet
- Solid molded PVDF flanged body
- Three-layer EPDM/PVDF/PTFE diaphragm
- All titanium body to bonnet fasteners
- Palladium titanium compressor joint and diaphragm insert

Sample Specification (1/2"- 2")

All TI Type-14 diaphragm valves shall be of solid molded PVDF flanged body and PPG bonnet, weir type with square body to bonnet sealing design. Valves shall be supplied standard with three-layer EPDM cushion/PVDF gas barrier/PTFE diaphragm, titanium body to bonnet bolts, nuts, and washers. Diaphragms shall feature palladium titanium threaded connection stud that shall connect to compressor via palladium titanium connection joint. Face-to-face dimensions shall conform to Type-G. PVDF conforming to ASTM D3222 Cell Classification Type II. Valves shall be rated to 150psi at 70° F, as manufactured by Asahi/America, Inc.

TI 2-1/2" - 4"

Diaphragm Valves



TI Diaphragm 2-1/2" - 4"

Specifications

Sizes:	2-1/2" - 4"
Body Material:	PVDF
Bonnet Material:	PPG
Diaphragm:	3-Layer EPDM/PVDF/ PTFE with Palladium Titanium Insert
Compressor Pin:	Palladium Titanium
Compressor Insert:	Palladium Titanium
Fasteners:	Titanium
End Connection:	Flanged
Operator:	Handwheel

Parts List (Sizes 2-1/2" - 4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVDF
2	Bonnet	1	PPG
3	Diaphragm	1	PTFE
3a	Diaphragm Metal Insert	1	PALLADIUM TITANIUM
4	Cushion*	1	EPDM
5	PVDF Gas Barrier*	1	PVDF
6	Compressor	1	PVDF
8	Stem	1	Copper Alloy [3604]
8a	Indicating Rod	1	304 SS
9	Sleeve	1	Copper Alloy [3604]
10	Hand Wheel	1	PP
11	Gauge Cover	1	POLYCARBONATE
12	Name Plate	1	PVC
13	Retaining Ring C Type	1	Stainless Steel 304
14	O-Ring (A)	1	EPDM
15	O-Ring (B)	1	EPDM
16	Thrust Ring (A)	1	UHMWPE
17	Thrust Ring (B)	1	UHMWPE
18	Bolt, Nut, Washer	4 Sets	TITANIUM
20	Stopper (A)	1	Copper Alloy [3604]
88	Bonnet Plug	1	TITANIUM
89	Compressor Pin	1	PALLADIUM TITANIUM
90	Stud Bolt, Nut, Washer	4 Sets	TITANIUM
94	Metal Compressor Insert	1	PALLADIUM TITANIUM
1a	Body Insert Nut	4	TITANIUM

For exploded view drawings refer to page 89.

Standard Features (Sizes 2-1/2" - 4")

- Durable corrosion resistant PPG bonnet
- Solid molded PVDF flanged body
- Three-layer EPDM/PVDF/PTFE diaphragm
- All titanium body-to-bonnet fasteners
- Palladium titanium compressor joint and diaphragm insert

Sample Specification (2-1/2" - 4")

All TI Type-14 diaphragm valves shall be of solid molded PVDF flanged body and PPG bonnet, weir type with round body to bonnet sealing design. Valves shall be supplied standard with three-layer EPDM cushion/PVDF gas barrier/PTFE diaphragm, titanium body to bonnet bolts, studs, molded in body inserts, nuts, and washers. Diaphragms shall feature palladium titanium threaded connection stud that shall connect to the PVDF compressor via palladium Titanium metal insert. Compressor pin shall be palladium titanium. Face-to-face dimensions shall conform to Type-G. PVDF conforming to ASTM D3222 Cell Classification Type II. Valves shall be rated to 150psi at 70° F, as manufactured by Asahi/America, Inc.



Specifications

Sizes:	6"
Body Material:	PVDF
Bonnet Material:	PPG
Diaphragm:	3-Layer EPDM/PVDF/ PTFE with Palladium Titanium Insert
Compressor Pin:	Palladium Titanium
Compressor Insert:	Palladium Titanium
End Connection:	Flanged
Operator:	Handwheel

Parts List (Size 6")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVDF
2	Bonnet	1	PPG
3	Diaphragm	1	PTFE
3A	Diaphragm Metal Insert	1	PALLADIUM TITANIUM
4	Cushion	1	EPDM
5	PVDF Gas Barrier	1	PVDF
6	Compressor Nut	1	PVDF
7	Compressor Pin	1	PALLADIUM TITANIUM
8	Stem	1	Copper Alloy (3604)
9	Sleeve (A)	1	Copper Alloy (3604)
10	Thrust Bearing (A)	1	HIGH CARBON CHROMIUM (SUJ 2)
11	O-Ring (A)	1	NBR
12	Bonnet Plug	1	TITANIUM
13	Hand Wheel	1	PP
14	Name Plate	1	PVC
15	Cap Nut	1	PP
16	Sheet Gasket (A)	1	EPDM
17	Sheet Ring	1	Chromized Steel (400)
18	Stopper	1	TITANIUM
19	Spring Washer	1	304 SS
20	Nut	1	304 SS
21	Gauge Cover	1	POLYCARBONATE
23	Stud Bolt, Nut, Washer	4 Sets	TITANIUM
24	Bolt, Nut, Washer	8 Sets	TITANIUM
1a	Body Insert Nut	4	TITANIUM

For exploded view drawings refer to page 101.

Standard Features (Size 6")

- Durable corrosion resistant PPG bonnet
- Solid molded PVDF flanged body
- Three-layer EPDM/PVDF/PTFE diaphragm
- All titanium body to bonnet fasteners
- Palladium titanium compressor pin, compressor insert and diaphragm insert

Sample Specification (6")

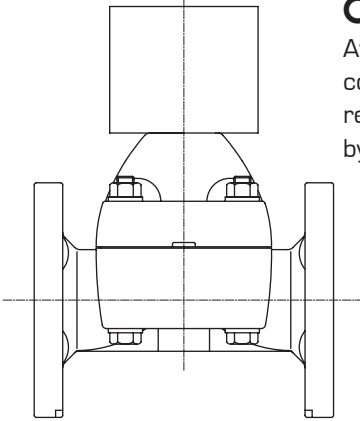
All TI Type-15 diaphragm valves shall be of solid molded PVDF flanged body and PPG bonnet, weir type with round body to bonnet sealing design. Valves shall be supplied standard with three-layer EPDM cushion/PVDF gas barrier/PTFE diaphragm, titanium body to bonnet bolts, studs, molded in body inserts, nuts, and washers. Diaphragms shall feature palladium titanium threaded connection stud that shall connect to the PVDF compressor via palladium titanium compressor nut. Compressor pin shall be palladium titanium. Face-to-face dimensions shall conform to Type-G. PVDF conforming to ASTM D3222 Cell Classification Type II. Valves shall be rated to 70psi at 70° F, as manufactured by Asahi/America, Inc.

Options

Diaphragm Valves

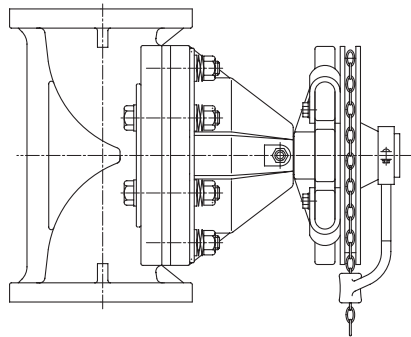
Operating Nuts

Available in 2" square configuration. Used for remote operation of a valve by a wrench.



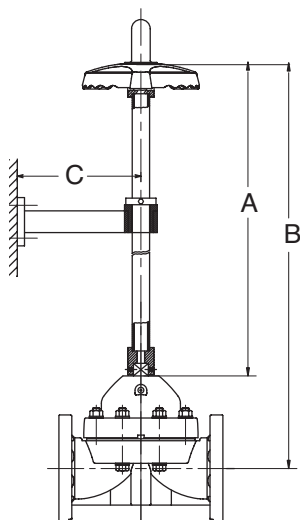
Locking Handles

To prevent unauthorized operation, the valve handwheel can be pad-locked in the open or closed position.



Chain Operators

Installed on the round handwheel of a valve in overhead, out-of-reach locations. The valve is operated by pulling on the chain.

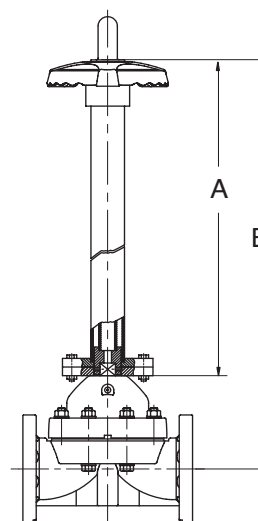


Single Stem Extensions

The valve handwheel can be extended from the valve for out-of-reach locations by a single extension. Support is required under the handwheel to prevent side movement.

PATENTED WALL SUPPORT

Style
DV-B



Two-Piece Stem and Housing

For buried or submerged applications. A PVC housing surrounds the extended stem for protection from an aggressive environment, or to function as a box.

Style
DV-A

All stem extension tolerances +/- 1 inch

Please use Stem Extension Work Sheet on Page 23 when ordering any stem extension

Actuator Options

Diaphragm Valves



UL-508
Listed

Series 92 Electric Actuators

Standard Features (Sizes 1/2" - 4")

- Reversing, capacitor run 120 VAC 50/60 Hz, motor
- Integral thermal overload protection with automatic reset
- Permanently lubricated, Rockwell hardened gearing
- Thermally bonded polyester powder coat finish
- Weather proof enclosure with SS trim
- Two 1/2" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- Highly visible Beacon position indicator
- Standard end of travel limit switches can be used for light indication (not to be used with PLC for position confirmation)
- Declutchable manual override
- RHM Module (consisting of a heater and thermostat, and 2-SPDT 8A dry contact relays for PLC position confirmation.) See page 71.
- Captivated SS hexhead slotted enclosure screws
- Mounting is with SS bracket, coupling and fasteners

Options

- Feedback Potentiometer
- Positioner (modulating PCB)
- Transmitter
- Explosion Proof Enclosure (UL1203)
- Voltages
- HMI/LRS Control Station

Dimensions (in.)

Weight (lbs.)

Cycle Times

NOMINAL SIZE		H	H1	L
INCHES	mm			
1/2	15	1.75	3.55	4.25
3/4	20	1.94	3.61	5.88
1	25	2.13	3.77	5.88
1-1/2	40	2.50	6.50	6.94
2	50	3.00	7.02	7.94
2-1/2	65	3.50	9.52	9.84
3	80	3.75	10.25	10.38
4	100	4.50	11.00	12.94

NOMINAL SIZE		WT. (LBS.)
INCHES	mm	
1/2	15	16.80
3/4	20	17.10
1	25	17.70
1-1/2	40	21.50
2	50	23.30
2-1/2	65	29.60
3	80	32.94
4	100	41.10

NOMINAL SIZE		TIME (SEC)
INCHES	mm	
1/2	15	195
3/4	20	195
1	25	195
1-1/2	40	255
2	50	315
2-1/2	65	375
3	80	375
4	100	375

Specifications

Motor Type: Reversing, 120VAC
single phase

Sizes: S92 for 1/2" - 2-1/2"

A92 for 3" - 4"

Torque: S92, 400 in/lbs

A92 700 in/lbs.

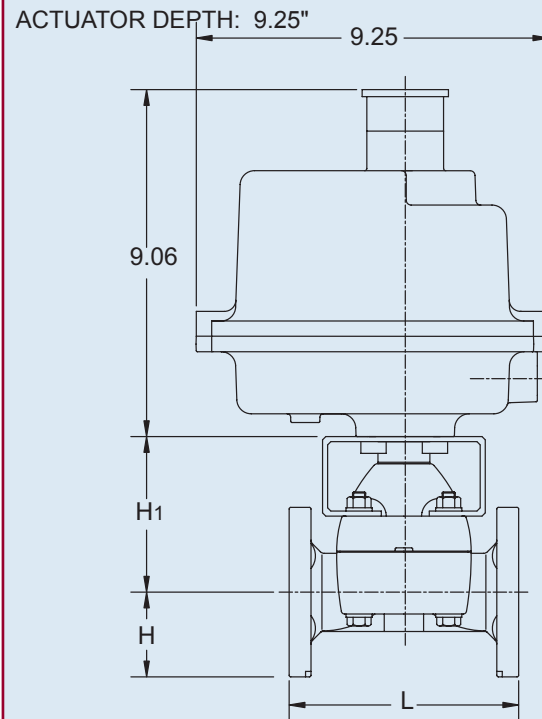
Voltage: 120 VAC, Single Phase

Amp Draw: S92: .50 Amps A92: .80 Amps

Max Ambient Temp: 150° F

Switches: 2-SPDT

RHM Module: 15 Watt heater & 2-SPDT 8A
dry contact relays



NOTE: CONSULT FACTORY FOR SIZES GREATER THAN 4"
FOR TRUE UNION "L" DIMENSIONS SEE PAGE 90.

AD-16

Compact Diaphragm Valves



AD-16 Compact Diaphragm Valve

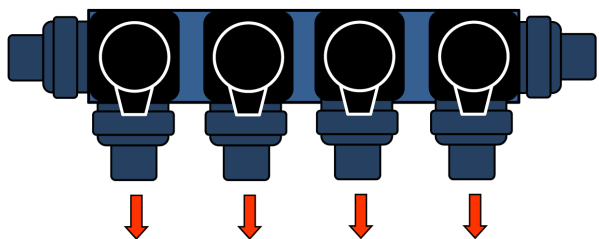
Specifications
 Size: 1/2" to 2"
 Body Material: PVC
 Bonnet Material: PVC
 Diaphragm: PTFE (Stock), EPDM (Special Order)
 Connections: IPS Socket, Female NPT, Flanged
 (All True Union)
 Operation: Air-to-Spring Closed, Air-to-Air
 Pilot Port: 1/8" FNPT

Dymatrix™

Standard Features (Sizes 1/2" – 2")

- Compact design for tight installations
- Robust design for high cycle life
- Ideal for OEM equipment and skids
- Highly configurable option

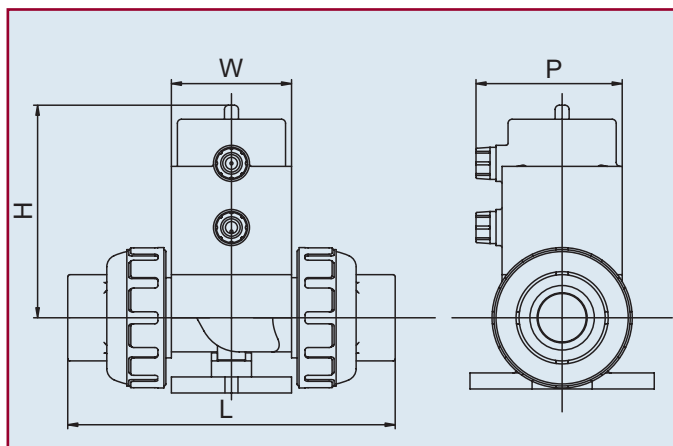
Options



Manifolds



Travel Stop



Dimensions (in.)

Size	Flanged	Threaded	Socket	H	W	P
	L	L	L			
1/2	6.22	4.61	4.65	3.11	1.97	2.48
3/4	7.52	5.47	5.43	4.25	2.36	2.87
1	8.09	5.87	5.89	4.29	2.36	2.87
1-1/2	10.39	8.46	8.50	6.36	3.74	4.23
2	11.69	10.24	10.24	7.42	4.53	5.04





Swing Check Valve

Specifications

Sizes: 3/4" - 8"

Models: Flanged (ANSI) Connection Only
Lever and Weight or Spring Assist
Option

Bodies: HI-PVC, PP and PVDF

Seats: EPDM, FKM, PTFE

Seal: EPDM, FKM, PTFE

Standard Features (Sizes 3/4" - 8")

- Minimum flow resistance - Low pressure drop
- Horizontal or vertical installation
- All sizes rated for full vacuum service
- Minimum back pressure to seat disc tightly
- Top access cover facilitates maintenance without body removal from pipeline
- All thermoplastic body
- All PVC parts made of high impact PVC
- PVC and PP valves come with EPDM seals (part numbers 5j, 5k, 6 and 7) as standard
- PVDF valves, part numbers 5j and 7 of PTFE and 8 of PTFE PFA
- 3/4" PP valves supplied with Ring 1 a

Options:

- External lever and weight to assist disc in closing faster
- External spring to assist disc in closing faster
- PTFE or FKM seat and O-Rings



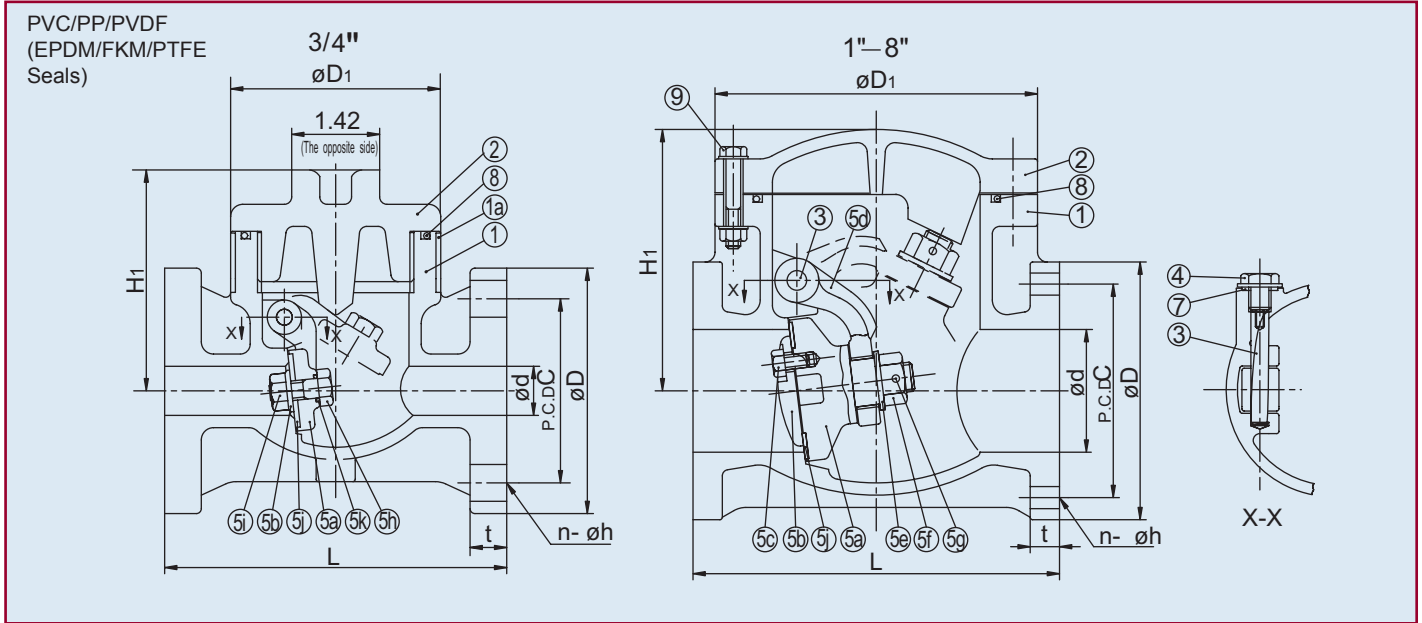
Parts List (Sizes 3/4" - 8")

Parts			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	HI-PVC, PP, PVDF
2	Bonnet	1	HI-PVC, PP, PVDF
3	Shaft	1	HI-PVC, PP, PVDF
4	Bolt	1	HI-PVC, PP, PVDF
5a	Disc	1	HI-PVC, PVDF
5b	Seat Holder	1	HI-PVC, PP, PVDF
5c	Bolt (A)	-	HI-PVC, PP, PVDF
5d	Arm	1	HI-PVC, PP, PVDF
5e	Washer	1	HI-PVC, PP, PVDF
5f	Nut (A)	1	HI-PVC, PVDF
5g	Pin	1	HI-PVC, PVDF
5h	Bolt (B)	1	HI-PVC, PP, PVDF
5i	Nut (B)	1	HI-PVC, PP, PVDF
5j	Seat	1	EPDM, PTFE, FKM
5k	O-Ring A)	1	EPDM, PTFE, FKM
6	Gasket (A)	1	EPDM, PTFE, FKM
7	Gasket (B)	1	EPDM, PTFE, FKM
8	O-Ring (B)	Set	EPDM, PTFE, FKM
9	Bolt, Nut, Washer	Set	Stainless Steel 304
1a	Ring	1	Stainless Steel 304

Parts List (Lever and Weight)

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Fitting	1	PVC, PP, PVDF
2	Nut	1	PVC, PP, PVDF
3	Shaft	1	Stainless Steel 316
4	Counter Weight	1	PVC
5	Spacer	1	PVC, PP, PVDF
6	O-Ring	1	EPDM, FKM
7	Hex Cap Bolt	Set	Stainless Steel 316
8	Set Screw	1	Stainless Steel 316

Swing Check Valves



Dimensions (Sizes 3/4" – 8") (in.)

NOMINAL SIZE		ANSI CLASS 150							t			
INCHES	mm	d	C	D	h	n	D1	L	PVC	PP, PVDF	H1	H
3/4	20	0.79	2.75	3.88	0.62	4	3.39	5.51	0.59	0.59	3.43	3.54
1	25	0.98	3.12	4.25	0.62	4	5.12	6.30	0.63	0.63	4.61	4.72
1-1/2	40	1.57	3.88	5.00	0.62	4	5.71	7.09	0.71	0.71	5.31	5.43
2	50	1.97	4.75	6.00	0.75	4	7.09	7.87	0.79	0.83	6.34	6.46
2-1/2	65	2.56	5.50	7.00	0.75	4	7.87	9.45	0.87	0.91	6.50	6.61
3	80	3.15	6.00	7.50	0.75	4	8.07	10.24	0.87	0.98	6.61	6.73
4	100	3.94	7.50	9.00	0.75	8	10.43	11.81	0.94	1.02	8.27	8.39
5	125	4.92	8.50	10.00	0.88	8	12.99	13.78	0.94	1.06	9.65	9.76
6	150	5.91	9.50	11.00	0.88	8	14.57	15.75	0.98	1.06	11.02	11.14
8	200	7.87	11.75	13.50	0.88	8	16.73	19.69	1.18	1.34	13.11	13.23



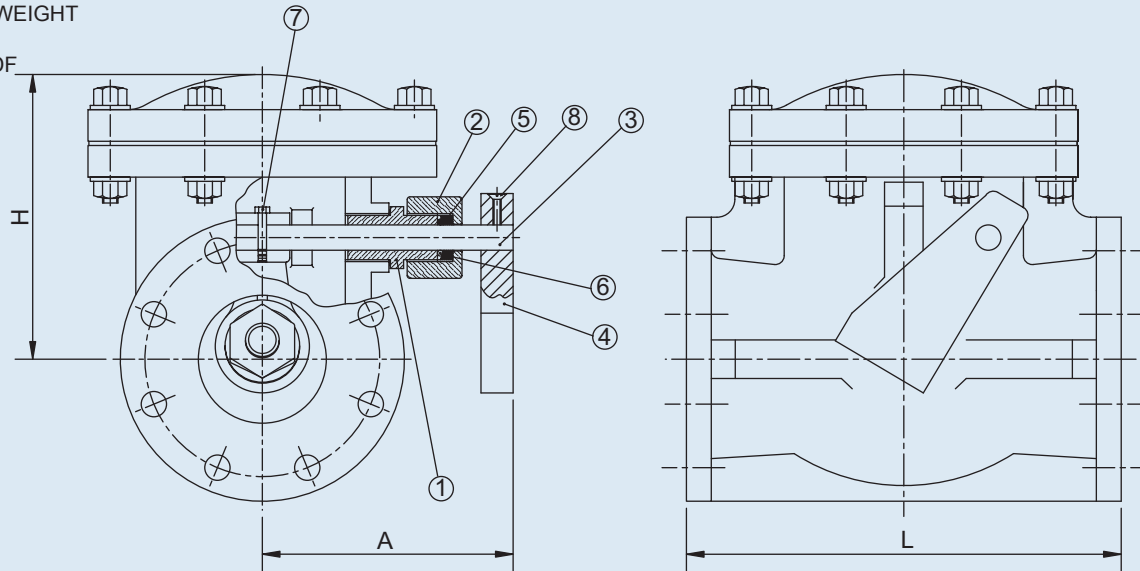
EL-PVDF Swing Check Valve for Chlor-Alkali Applications

Standard Features (Sizes 2", 3", 4")

- Body (1), Bonnet (2), Disc (5a), Seat Holder (5b), and Arm (5d) in EL-PVDF material
- Better performance to prevent blistering due to high temperature brine, sodium hypochlorite, hydrofluoric acid, Cl_2 gas, etc.
- 2 to 5 times longer life vs PVDF

Swing Check Valves

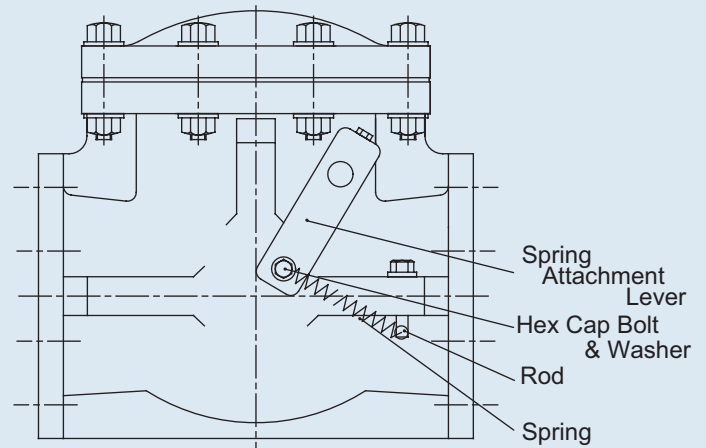
LEVER AND WEIGHT
(OPTION)
PVC, PP, PVDF



Dimensions (Lever & Weight/External Spring) (in.)

NOMINAL SIZE		A	H	
INCHES	mm		PVC, PP	PVDF
3/4	20	4.0	3.43	3.54
1	25	4.5	4.72	4.72
1-1/2	40	5.0	5.43	5.43
2	50	5.5	6.46	6.46
2-1/2	65	6.0	6.61	6.61
3	80	6.5	6.73	6.73
4	100	8.0	8.39	8.39
5	125	10.0	9.76	9.76
6	150	10.5	11.14	11.14
8	200	12.0	13.23	13.23

SPRING ASSIST
(OPTION)
PVC, PP, PVDF



Sample Specification

All swing check valves shall be of solid thermoplastic construction, having no metal that comes in contact with media, [except when lever & weight or stainless steel spring option is installed]. Valves shall incorporate a single disc design suitable for either horizontal or vertical installations. Valves shall be of top entry bonnet design for maintenance purposes with O-ring top bonnet seal. PVC shall conform to ASTM D1784 Cell Classification 12454A, PP conforming to ASTM D4101 Cell Classification PPO210B67272 and PVDF conforming to ASTM D3222 Cell Classification Type II. Valves shall be rated to 150psi sizes 3/4" through 3", 100psi sizes 4" through 6", and 70psi size 8" at 70° F, as manufactured by Asahi/America, Inc.

Swing Check Valves

Pressure vs. Temperature (psi, water, non-shock)

NOMINAL SIZE		PVC	PP	PVDF
		EPDM/FKM/PTFE	EPDM/FKM/PTFE	EPDM/FKM/PTFE
INCHES	mm	30° F 120° F	-5° F 175° F	- 5° F 210° F
3/4	20	150	150	150
1	25	150	150	150
1-1/2	40	150	150	150
2	50	150	150	150
2-1/2	65	150	150	150
3	80	150	150	150
4	100	100	100	100
5	125	100	100	100
6	150	100	100	100
8	200	70	70	70

Minimum Back Pressure to Close Valve (psi)

NOMINAL SIZE		SEAT	
INCHES	mm	ELASTOMERS	PTFE
3/4	20	2.8	5.0
1	25	5.0	8.5
1-1/2	40	5.0	8.5
2	50	5.0	8.5
2-1/2	65	5.0	8.5
3	80	5.7	8.5
4	100	5.7	9.2
5	125	5.7	9.2
6	150	6.4	10.0
8	200	6.4	10.0

Weight (lbs.)

NOMINAL SIZE		WT (LBS.)
INCHES	mm	
3/4	20	2.20
1	25	4.40
1-1/2	40	6.61
2	50	10.14
2-1/2	65	14.33
3	80	16.53
4	100	26.45
5	125	44.00
6	150	59.52
8	200	92.59

Cv Values

NOMINAL SIZE		Cv
INCHES	mm	
3/4	20	14
1	25	24
1-1/2	40	81
2	50	140
2-1/2	65	250
3	80	280
4	100	510
5	125	750
6	150	1100
8	200	1900

Troubleshooting

What if valve leaks through the seat?

1. Sediment build-up around disc and seat. Clean disc and seat.
2. Disc or seat broken or damaged. Replace disc or seat.
3. Insufficient back pressure. Check the pressure.

What if valve leaks between bonnet and body?

1. Bolts not tightened properly. Tighten firmly per specified torque.
2. Seal chemically attacked or worn. Replace seal.
3. Exceeds maximum allowable pressure rating.



Specifications

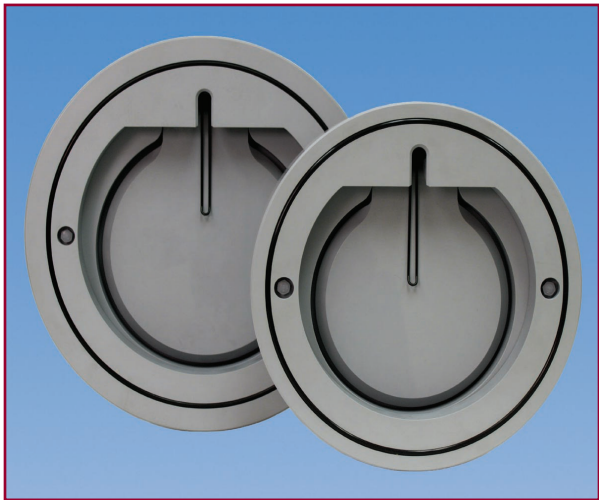
Size Range: 3" - 12"
Models: Wafer Style ANSI
Bodies: PVC
Seals: EPDM or FKM

Standard Features (Sizes 3" - 12")

- PVC body with EPDM or FKM seals
- Slim profile permits easy installation
- Wafer style fits between two mating flanges
- Face-to-face meets ASME/ANSI B16.10
- No spacer required
- No pipe interference with disc
- Vertical or horizontal installation
- No external shaft
- Excellent chemical resistance
- Max pressure: 150psi 3"-8"
 85psi 10" and 12"
- Max temperature: 120°F

Options

- SWP-B (stainless steel) spring ETFE coated
- DIN or JIS bolt pattern



Parts List (Sizes 3" - 12")

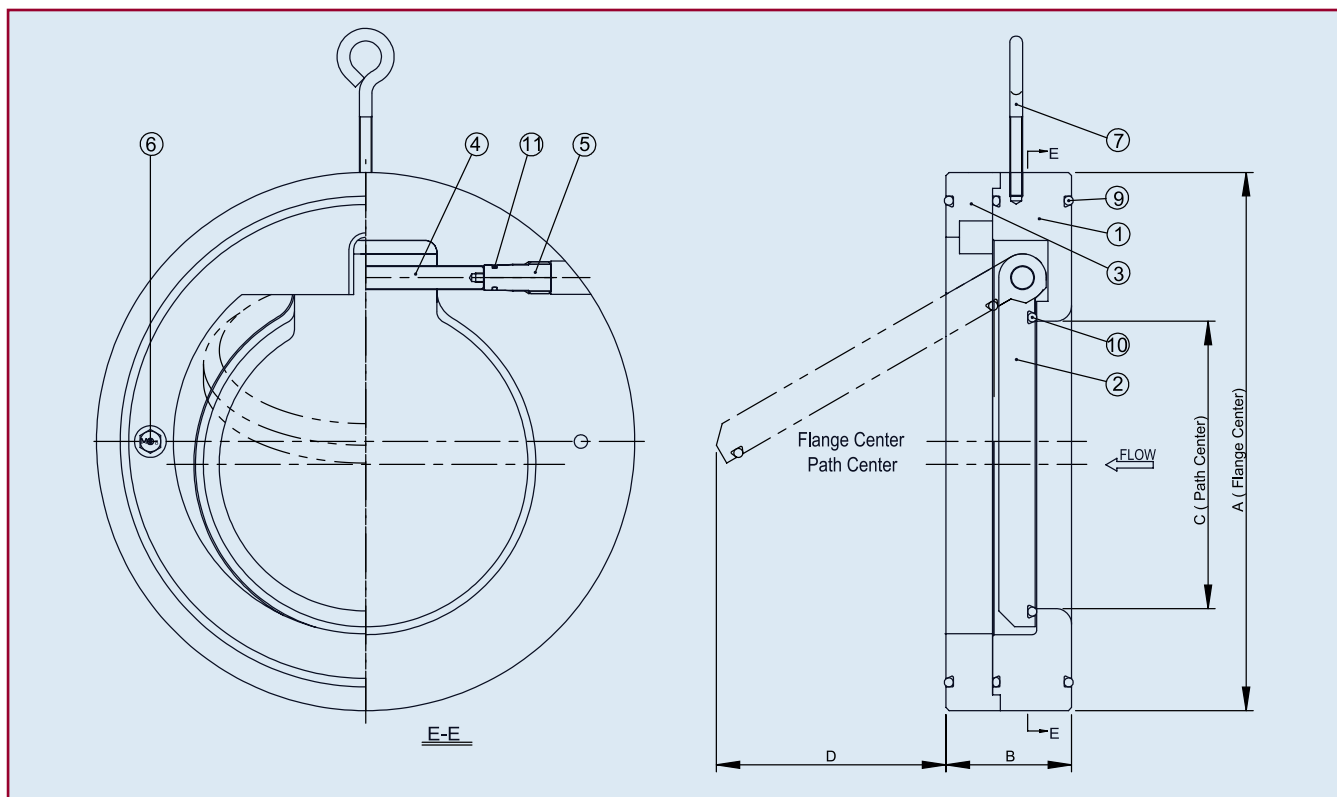
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
2	Disc	1	PVC
3	Stopper	1	PVC
4	Shaft	1	PVC
5	Shaft Plug	1	PVC
6	AV Bolt	2	PVC
7	I Bolt	1	SS400
8*	Spring	1	SWP-B W/ETFE Coating
9	O-Ring (A)	3	EPDM/FKM
10	O-Ring (B)	1	EPDM/FKM
11	O-Ring (C)	1	EPDM/FKM

* Item # 8 used on spring type valve only.

Sample Specification

All wafer check valves shall be of solid thermoplastic construction, having no metal that comes in contact with the media. Valves shall incorporate a single disc design suitable for either horizontal or vertical installations. Valves shall be wafer style conforming to ASME/ANSI B16.1 face-to-face dimensions for 150 lb. flanges. Valves shall be round body design with all O-ring seals of either EPDM or FKM and accept as an option an SWP-B ETFE coated spring for use in vertical applications. PVC shall conform to ASTM D1784 Cell Classification 12454. Valves shall be rated to 150psi (3"- 8") and 85psi (10" and 12") at 70° F, as manufactured by Asahi/America, Inc.

Wafer Check Valve



Dimensions (in.)

NOMINAL SIZE		Wafer ANSI Class 150			
INCH	mm	A	B	C	D
3	80	5.67	2.00	1.85	1.37
4	100	6.89	2.24	2.05	1.89
6	150	8.74	2.76	3.62	3.02
8	200	10.98	2.87	5.20	4.80
10	250	13.39	3.12	6.97	6.45
12	300	16.14	3.38	8.54	7.67

Pressure vs. Temperature (psi. water. non-shock)

NOMINAL SIZE		PVC EPDM/FKM 30 F - 120 F
INCH	mm	
3	80	150
4	100	150
6	150	150
8	200	150
10	250	85
12	300	85

Weights (lbs.)

NOMINAL SIZE		WT (LBS.)
INCH	mm	
3	80	2
4	100	4
6	150	6
8	200	10
10	250	16
12	300	25

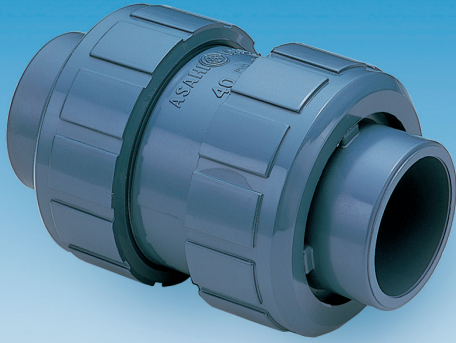
Note: Dimensions are identical for spring type.

Minimum Opening Pressures Minimum Sealing Pressures Cv Values

NOMINAL SIZE		Minimum Opening Pressures (PSI)			
		Without Spring		With Spring	
INCH	MM	Horizontal	Vertical	Horizontal	Vertical
3	80	0.01	0.1	0.01	0.2
4	100	0.01	0.1	0.01	0.2
6	150	0.01	0.1	0.01	0.2
8	200	0.01	0.1	0.01	0.2
10	250	0.01	0.1	0.01	0.2
12	300	0.01	0.1	0.01	0.2

NOMINAL SIZE		Minimum Sealing Pressures (PSI)			
		Without Spring		With Spring	
INCH	MM	Horizontal	Vertical	Horizontal	Vertical
3	80	3.0	3.0	3.0	3.0
4	100	1.0	1.0	1.0	1.0
6	150	1.0	1.0	1.0	1.0
8	200	1.0	1.0	1.0	1.0
10	250	1.0	1.0	1.0	1.0
12	300	1.0	1.0	1.0	1.0

NOMINAL SIZE		Cv
INCH	mm	
3	80	137
4	100	200
6	150	663
8	200	1225
10	250	1750
12	300	2620



True Union Ball Check Valve

Specifications

- Sizes:** True Union : 1/2" - 2"
Single Union: 3" - 4"
- Models:** Socket, Threaded, Flanged (ANSI), Butt End
- Bodies:** PVC, CPVC, PP and PVDF
- Seats:** EPDM, FKM, PTFE
- Seals:** EPDM, FKM, PTFE
- Option:** Foot Valve

Sizes 1/2" - 4" PVC/EPDM/FKM Models
NSF-61 Certified

Standard Features (Sizes 1/2" - 2")

- Uniseat/seal of EPDM or FKM
- Ball is the only moving part. It unseats to permit flow in one direction but seals against seat to prevent back flow
- May be used vertically or horizontally
- Minimum shut-off of 5psi
- All sizes rated for full vacuum service
- Solid thermoplastic ball

Options:

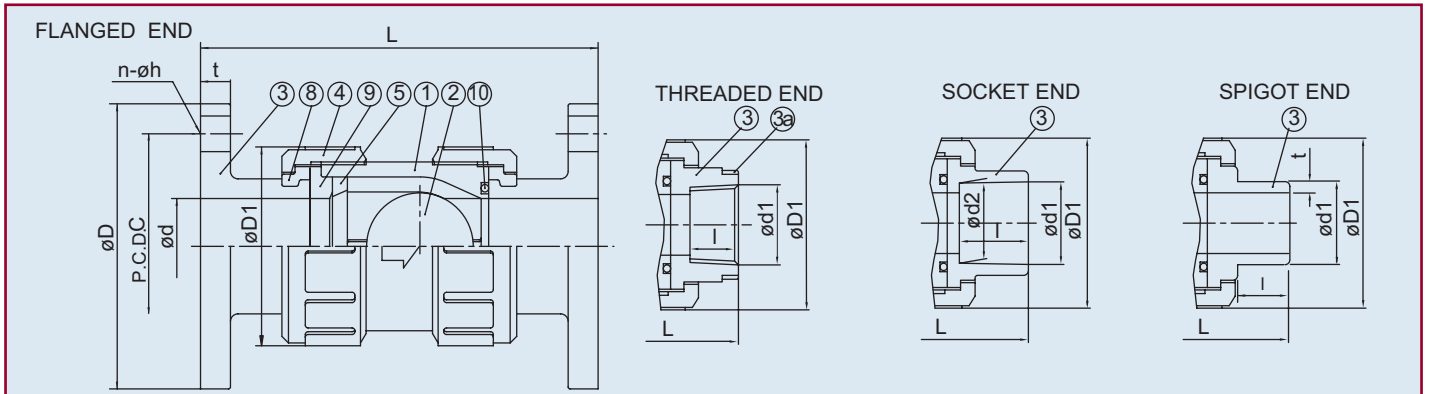
- PTFE coated FKM uniseat/seal
- Spring-loaded ball to assist ball in seating faster

Parts List – True Union (Sizes 1/2" - 2")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Ball	1	PVC, CPVC, PP, PVDF
3	End Connector	2	PVC, CPVC, PP, PVDF
4	Union Nut	2	PVC, CPVC, PP, PVDF
5	Stop Ring (A)	1	PVC, CPVC, PP, PVDF
8	Stop Ring (B)*	1	PVDF
9	Seat	1	EPDM, FKM, PTFE
10	O-Ring	1	EPDM, FKM, PTFE
3a	Ring**	1	Stainless Steel 304

* Used for flanged end.

** Used for CPVC body, threaded end; 1/2" - 1".



Dimensions (Sizes 1/2" - 2") (in.)

NOMINAL SIZE	FLANGED							THREADED					SOCKET										SPIGOT (BUTT END)					
	ANSI CLASS 150							d1	/	L	d	D1	PVC, CPVC					PP, PVDF (DIN)			PP, PVDF (IPS)		PP, PVDF					
	D	C	n	h	L	t	d1						d1	d2	/	L	d1	d2	/	L	d1	/	L	d1	/	t	t	L
1/2	15	3.50	2.38	4	0.62	5.12	0.47	1/2 - 14NPT	0.59	3.39	0.59	1.89	0.848	0.836	0.688	3.43	0.768	0.760	0.57	3.19	0.83	0.87	3.31	0.787	0.728	0.098	0.075	4.00
3/4	20	3.88	2.75	4	0.62	6.10	0.55	3/4 - 14NPT	0.67	4.06	0.79	2.36	1.058	1.046	0.719	3.86	0.965	0.957	0.63	3.70	1.03	1.00	4.43	0.984	0.866	0.106	0.075	4.35
1	25	4.25	3.12	4	0.62	6.50	0.55	1 - 11-1/2NPT	0.79	4.45	0.98	2.76	1.325	1.310	0.875	4.37	1.240	1.232	0.71	4.13	1.30	1.13	4.35	1.260	0.866	0.118	0.094	4.75
1-1/4	32	-	-	-	-	-	-	1-1/4 - 11-1/2NPT	0.87	5.00	1.22	3.78	1.670	1.655	0.938	4.92	-	-	-	-	-	-	-	-	-	-	-	-
1-1/2	40	5.00	3.88	4	0.62	7.56	0.63	1-1/2 - 11-1/2NPT	0.98	5.94	1.57	3.78	1.912	1.894	1.094	5.94	1.947	1.937	0.93	5.62	1.89	1.37	5.57	1.969	1.260	0.181	0.118	5.75
2	50	6.00	4.75	4	0.75	8.43	0.63	2 - 11-1/2NPT	1.10	6.97	2.01	4.17	2.387	2.369	1.156	6.77	2.461	2.445	1.08	6.69	2.36	1.50	6.49	2.480	1.417	0.228	0.118	6.50

Ball Check

Single Union



Parts List – Single Union (Sizes 3" – 4")

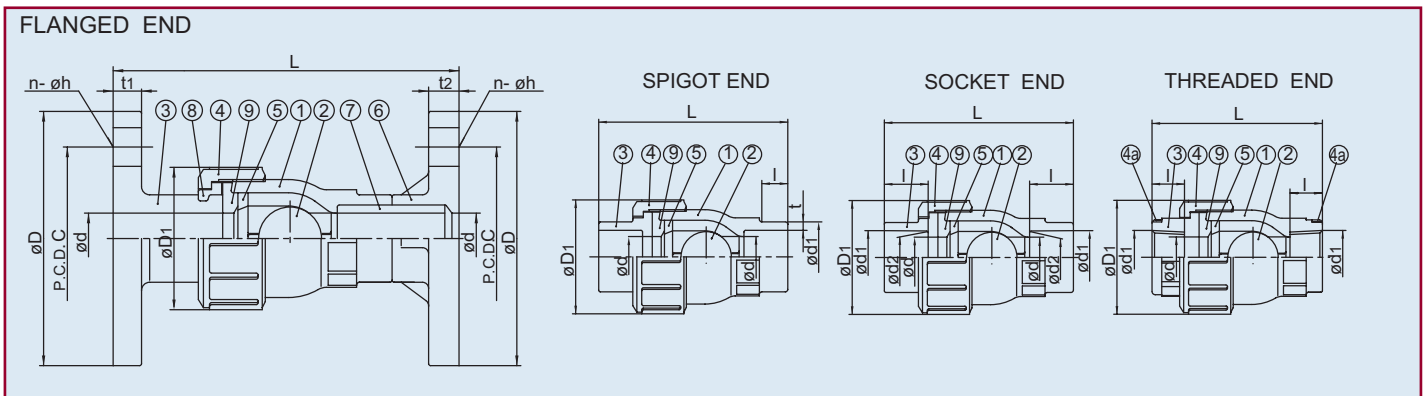
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Ball	1	PVC, CPVC, PP, PVDF
3	End Connector	1	PVC, CPVC, PP, PVDF
4	Union Nut	1	PVC, CPVC, PP, PVDF
5	Stop Ring [A]	1	PVC, CPVC, PP, PVDF
8	Flange	1	PVC, CPVC, PVDF
9	Stub	1	PVC, CPVC, PVDF
10	Stop Ring [B]*	1	PVDF
3a	Seat	1	EPDM, FKM, PTFE

* Used for flanged end

Single Union Ball Check Valves

Dimensions (Sizes 3" – 4") (in.)

NOMINAL SIZE	INCHES	mm	FLANGED									SOCKET									THREADED			SPIGOT (BUTT END)					
			ANSI CLASS 150									PVC, CPVC			PP, PVDF (DIN)			PP, PVDF (IPS)			PP, PVDF								
												ASTM SCH40			DIN 16962						DIN 3442								
			D	C	n	h	L	t1	t2	d1	d2	L	d1	d2	L	d1	L	d1	L	d1	L	t	t	L					
3	80	3.07	5.98	7.50	6.00	4	0.75	12.2	0.71	0.87	3.516	3.492	1.875	9.57	3.51	3.50	1.40	8.46	3.480	1.874	9.55	4-8 NPT	1.38	8.74	3.54	1.49	0.32	0.17	11.67
4	100	3.94	8.27	9.00	7.50	8	0.75	15.63	0.71	0.87	4.518	4.491	2.000	12.20	4.29	4.28	1.63	11.46	4.480	2.252	12.60	3-8 NPT	1.77	12.09	4.33	1.75	0.39	0.21	13.93



True Union, Single Union, and Foot Valve Weight (lbs.)

NOMINAL SIZE		SOCKET	FLANGED
INCHES	mm		
1/2	15	0.22	0.66
3/4	20	0.44	1.10
1	25	0.66	1.54
1-1/2	40	1.54	2.20
2	50	2.20	3.31
3	80	6.17	9.92
4	100	14.99	24.25

Cv Values

NOMINAL SIZE		Cv
INCHES	mm	
1/2	15	6.5
3/4	20	17
1	25	25
1-1/2	40	86
2	50	130
3	80	280
4	100	500

Sample Specification

All ball check valves and foot valves shall be of solid thermoplastic construction, and shall be designed with an elastomeric uniseat/seal for tight shut-off under pressure. Sizes 1/2" through 2" shall be of true union design, while 3" & 4" shall be single union design. The same seal shall function as both the ball seat and the union seal. PVC shall conform to ASTM D1784 Cell Classification 12454A, CPVC shall conform to ASTM D1784 Cell Classification 23567A, PP shall conform to ASTM D4101 Cell Classification PPO210B67272 and PVDF shall conform to ASTM D3222 Cell Classification Type II. Ball check valves and foot valves sizes 1/2"- 2" shall be rated 150psi at 70° F, 3" and 4" rated 100psi at 70° F, as manufactured by Asahi/America, Inc.

Ball Check

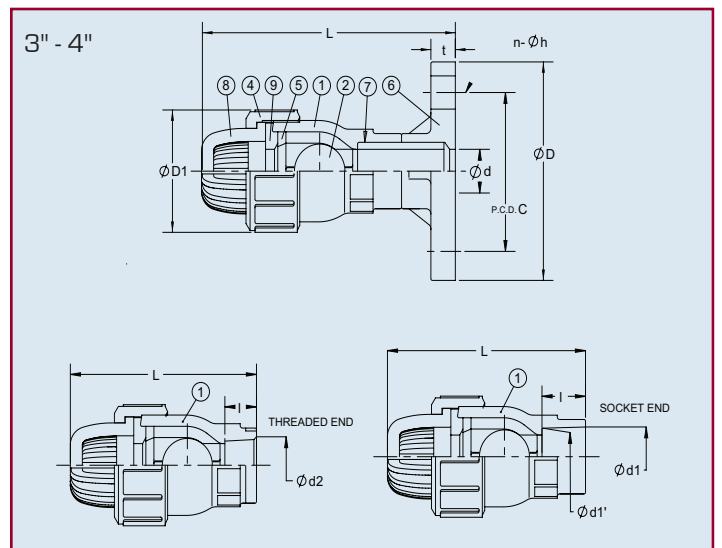
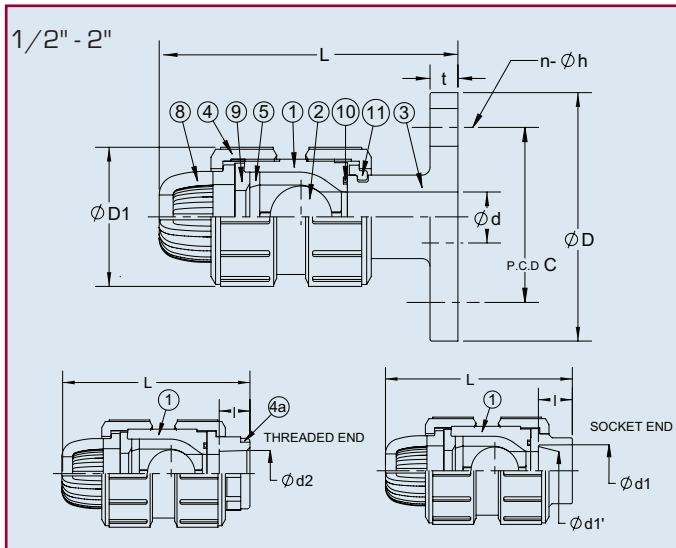
Foot Valve Option

Parts List Foot Valve (Sizes 1/2" – 2")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Ball	1	PVC, CPVC, PP, PVDF
3	End Connector	1	PVC, CPVC, PP, PVDF
4	Union Nut	2	PVC, CPVC, PP, PVDF
5	Stop Ring [A]	1	PVC, CPVC, PP, PVDF
7	Flange	1	EPDM, FKM, PTFE
8	Screen	1	PVC, CPVC, PP, PVDF
9	Seat	1	EPDM, FKM, PTFE
10	O-Ring	2	EPDM, FKM, PTFE
11	Stop Ring [B]*	1	PVDF
4a	Ring	1	304SS

Parts List Foot Valve (Sizes 3" – 4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Ball	1	PVC, CPVC, PP, PVDF
3	End Connector	1	PVC, CPVC, PP, PVDF
4	Union Nut	2	PVC, CPVC, PP, PVDF
5	Stop Ring [A]	1	PVC, CPVC, PP, PVDF
6	Stub [2]	1	PVC, CPVC, PP, PVDF
7	Flange	1	PVC, CPVC, PP, PVDF
8	Screen	1	PVC, CPVC, PP, PVDF
9	Seat	1	EPDM, FKM, PTFE
4a	Ring	1	304SS



Pressure vs. Temperature - BALL CHECK AND FOOT VALVES (psi, water, non-shock)

NOMINAL SIZE		PVC	CPVC					PP			PVDF			
		30° F 120° F	30° F 120° F	121° F 140° F	141° F 175° F	176° F 195° F	- 5° F 85° F	86° F 140° F	141° F 175° F	- 30° F 140° F	141° F 175° F	176° F 195° F	196° F 210° F	
INCHES	mm													
1/2 - 2	15-50	150	150	120	90	60	150	90	60	150	125	110	90	
3 - 4	80-100	100	100	90	60	45	75	60	45	100	90	60	45	

Dimensions (1/2"– 4") (in.)

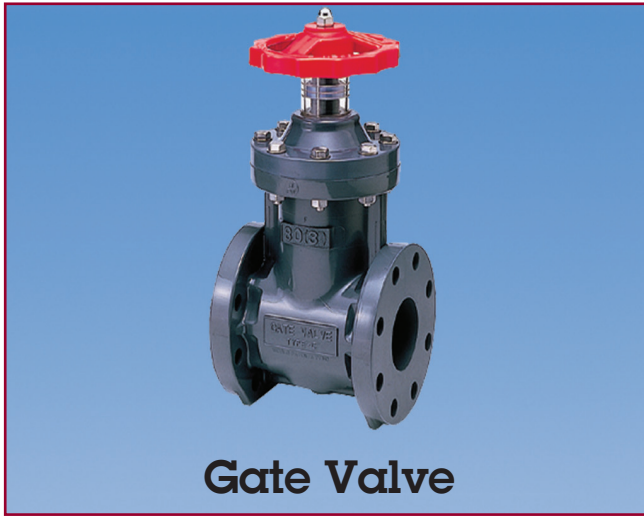
NOMINAL SIZE		SOC.	THR'D		FLG.		
			PVC	PVDF	PVC	PVDF	
INCHES	mm	D1	L	L	L	L	
1/2	15	1.89	3.74	3.74	3.62	4.61	4.53
3/4	20	2.36	4.25	4.33	4.21	5.39	5.31
1	25	2.76	4.80	4.84	4.72	5.87	5.79
1-1/2	40	3.78	7.17	7.17	7.05	7.99	7.91
2	50	4.17	7.72	7.83	7.72	8.58	8.50
3	80	5.98	12.09	11.57	11.34	16.1	13.23
4	100	8.27	14.96	14.72	14.41	20.41	16.34

Foot Valve Wt. (lbs.)

NOMINAL SIZE		SOCKET	FLANGED
INCHES	mm		
1/2	15	0.22	0.66
3/4	20	0.44	0.88
1	25	0.66	1.32
1-1/2	40	1.54	3.31
2	50	2.20	3.31
3	80	7.71	11.02
4	100	15.43	23.14

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.



Gate Valve

Standard Features (Sizes 1-1/2" - 14")

- Straight through flow with minimal pressure drop
- Unique sliding cylindrical plug design provides larger seating area than conventional gate valves
- Made of durable, corrosion resistant plastic
- No metal to media contact anywhere in valve
- Clean-out (drain) plug in bottom area of valve body
- Rated for full vacuum service
- Lightweight for easier and economical installation
- Positive bubble-tight shut-off
- Visual position indicator

Options

- 2" square operating nut
- Stem extensions
- Locking handles
- Electric actuation, up to 3"
- FKM seals

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Specifications
Sizes: 1-1/2" - 14"
Body: High Impact PVC
Models: Flanged (ANSI)

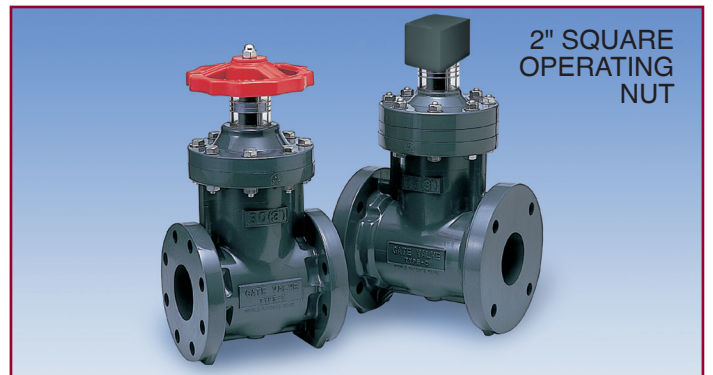
Types/Sizes: "P" Type: PP, 1-1/2" - 14"
Seals: EPDM, FKM(Optional)

Sizes 1-1/2" - 14" PVC/PP/EPDM/FKM
NSF-61 Certified

Type P Parts (Sizes 1-1/2" - 6")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	HI-PVC
2	Gate (Plug)	1	PP
3	Stem	1	HI-PVC
4	Bonnet (A)	1	HI-PVC
5	Bonnet (B)*	1	HI-PVC
6	Thrust Bearing	1 Set	PP
7	Bolt, Nut, Washer	1	Stainless Steel 304
8	Hand Wheel	1	PP
9	Indicating Cover	1	PC
10	Indicating Ring	1	PVC
11	Guide Pin	1	Stainless Steel 304
12	Guide Pin Holder	1	PVC
13	Gasket	1	EPDM
14	O-Ring (A)	1	EPDM
15	Washer	1	PVC
16	Nut	1	Stainless Steel 304
17	O-Ring (B)	1	EPDM, FKM
18	O-Ring (C)	2	EPDM, FKM
23	Sheet Gasket	1	EPDM, FKM
24	Plug	1	PVC

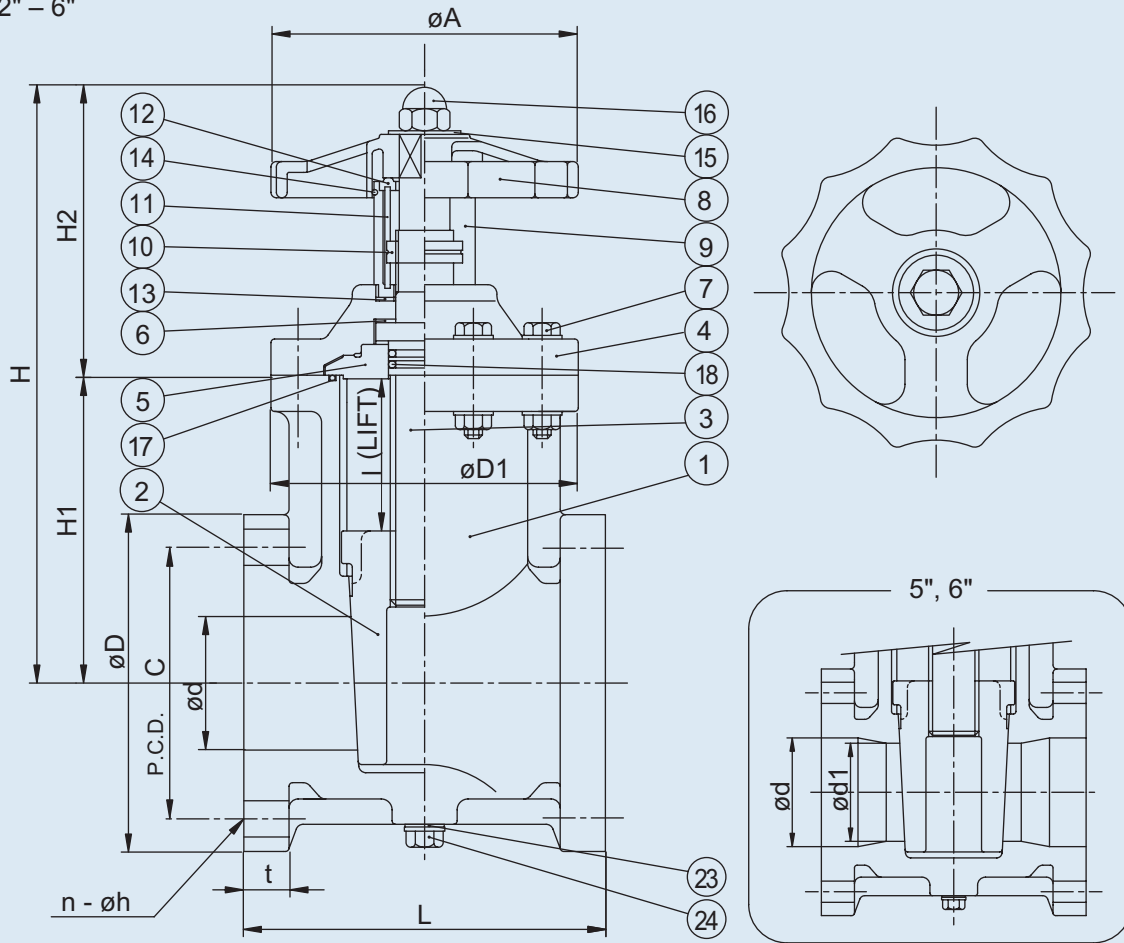
* Stem holder



Type P

Gate Valves

Sizes 1-1/2" – 6"



Troubleshooting

What if fluid still flows when fully closed?

1. Body or plug is worn or damaged. Replace valve.
2. Seat is worn or damaged. Replace.
3. Foreign material caught at the bottom of body. Needs cleaning.

What if handle does not engage with stem?

1. Stem damaged or broken. Replace valve..

2. Engaging part of stem and/or plug damaged or broken. Replace valve.

What if there are leaks between bonnet and body?

1. Bolts are not tightened properly. Tighten diagonally and evenly.
2. O-ring between body and bonnet damaged or worn. Change O-ring.

Dimensions (Sizes 1-1/2" – 6") (in.)

NOMINAL SIZE	ANSI CLASS 150														
	INCHES	mm	d	d1	D	C	n	h	L	t	D1	A	I	H1	H2
1-1/2	40	1.57	-	5.00	3.88	4	0.62	6.5	0.87	4.72	4.72	1.93	4.21	5.20	9.41
2	50	1.97	-	6.00	4.75	4	0.75	7.01	0.91	5.12	5.12	2.36	5.28	5.35	10.63
2-1/2	65	2.56	-	7.00	5.50	4	0.75	7.48	0.94	6.10	6.10	2.95	5.98	5.91	11.89
3	80	2.95	-	7.50	6.00	4	0.75	7.99	0.98	6.69	6.69	3.35	6.69	6.10	12.79
4	100	3.94	-	9.00	7.50	8	0.75	9.02	1.06	7.68	7.68	4.33	8.15	6.42	14.57
5	125	4.92	4.33	10.00	8.50	8	0.88	10.24	1.06	9.25	9.25	4.61	8.94	7.09	16.03
6	150	5.91	5.12	11.00	9.50	8	0.88	10.51	1.06	10.63	10.63	5.43	10.35	7.17	17.52

Pressure vs. Temp. (psi, water, non-shock)

NOMINAL SIZE		30° F 120° F
INCHES	mm	
1-1/2 - 8	40-200	150
10	250	110
12 - 14	300-350	75

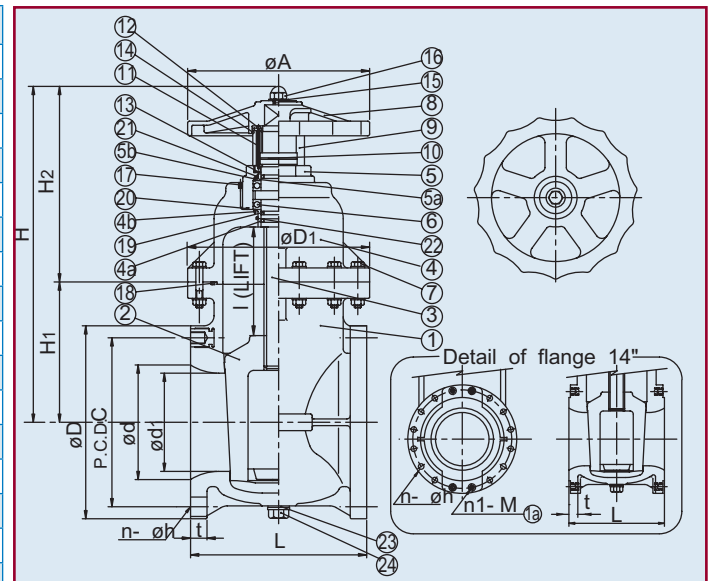
Gate Valves

Type P

Type P Parts (Sizes 8" – 14")

Sizes: 8" – 14"

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	HI-PVC
2	Gate (Plug)	1	PP
3	Stem	1	HI-PVC
4	Bonnet (A)	1	HI-PVC
4a	Bush (A)	1	PP
4b	Knock Pin (A)	1	PP
5	Bonnet (B)*	1	HI-PVC
5a	Bush (B)	1	PP
5b	Knock Pin (B)	1	PP
6	Thrust Bearing	1 Set	PP
7	Bolt, Nut, Washer	-	Stainless Steel 304
8	Hand Wheel	1	PP
9	Indicating Cover	1	PC
10	Indicating Ring	1	PVC
11	Guide Pin	1	Stainless Steel 304
12	Guide Pin Holder	1	PVC
13	Gasket	1	EPDM
14	O-Ring (A)	1	EPDM
15	Washer	1	PVC
16	Nut	1	Stainless Steel 304
17	Screw	1	Stainless Steel 304
18	O-Ring (B)	1	EPDM, FKM
19	O-Ring (C)	3	EPDM, FKM
20	O-Ring (D)	1	EPDM, FKM
21	O-Ring (E)	1	EPDM, FKM
22	O-Ring (F)	1	EPDM, FKM
23	Sheet Gasket	1	EPDM, FKM
24	Plug	1	PVC
1a	Body Metal Inserts**	-	Copper Alloy



* Stem holder
 ** 8" and 12" sizes: 4 inserts; 14" size: 8 inserts

Sample Specification

All gate valves shall be constructed of high impact PVC and have no metal to media contact. The gate shall be a tapered cylindrical plug design PVC shall conform to ASTM D1784 Cell Classification 12454-A, and PP to ASTM D4101 Cell Classification

PPO210B67272. Valves shall have a pressure rating of 150psi at 70° F sizes 1-1/2" through 8", 110psi at 70° F size 10", and 75psi at 70° F sizes 12" and 14". The valve shall have a non-rising stem, come standard with sealed position indicator, clean-out plug and EPDM or FKM seals, as manufactured by Asahi/America, Inc.

Dimensions (Sizes: 8" – 14") (in.)

NOMINAL SIZE		ANSI CLASS 150															
INCHES	mm	d	d1	D	C	n	h	n1 - M	L	t	D1	A	I	H1	H2	H	
																	8
10	250	9.72	8.27	16.00	14.25	12	0.98	-	14.96	1.18	14.17	14.17	8.90	10.63	16.54	27.17	
12	300	11.73	10.04	19.00	17.00	10	0.98	2 - 7/8 UNC	15.75	1.22	16.14	16.14	10.75	12.60	18.90	31.50	
14	350	13.70	11.69	21.00	18.75	8	1.14	4 - 1 UNC	16.93	1.26	17.32	17.91	12.56	12.20	23.62	35.83	

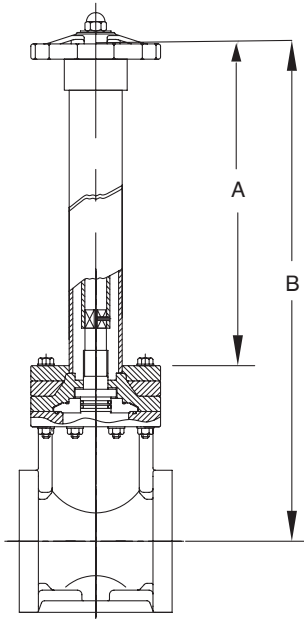
Cv Values

NOMINAL SIZE		Cv
INCHES	mm	
1-1/2	40	130
2	50	180
2-1/2	65	415
3	80	470
4	100	690
5	125	1000
6	150	1400
8	200	2900
10	250	3700
12	300	5200
14	350	7000

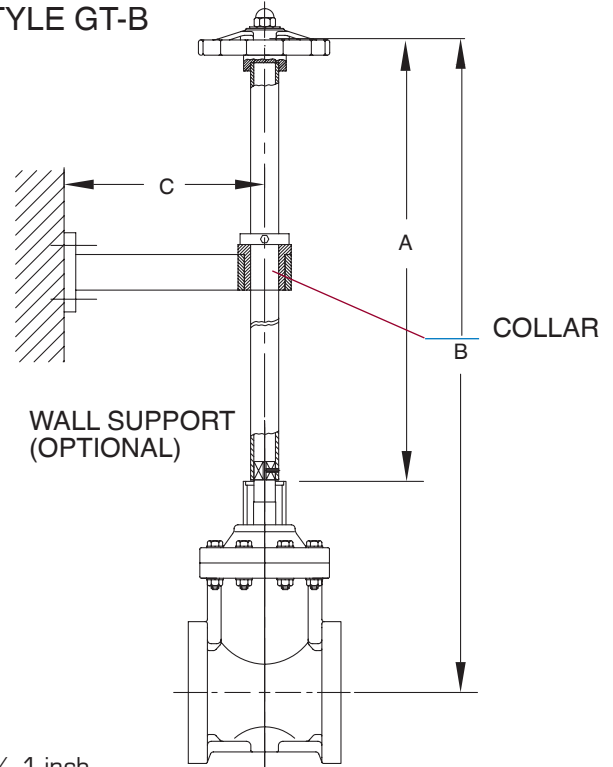
Weight (lbs.)

NOMINAL SIZE		WT (LBS.)
INCHES	mm	
1-1/2	40	7.50
2	50	10.20
2-1/2	65	13.00
3	80	16.60
4	100	22.00
5	125	29.00
6	150	42.00
8	200	68.50
10	250	95.00
12	300	150.00
14	350	188.00

STYLE GT-A



STYLE GT-B



All stem extension tolerances +/- 1 inch

Please use **Stem Extension Work Sheet** on **Page 23** when ordering any stem extension

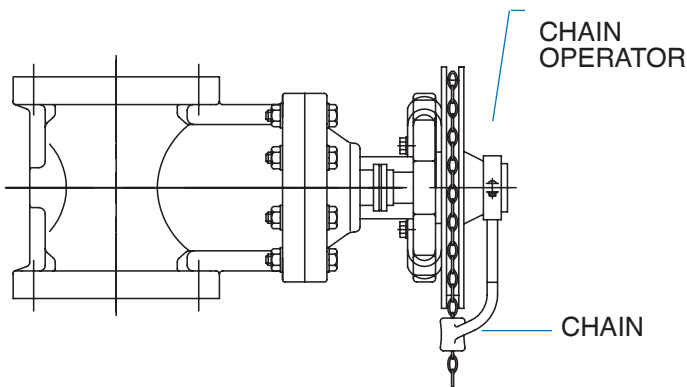
Two-piece Stem Housing

For submerged or buried applications. PVC housing protects stem extensions from aggressive environments. Stems are available in carbon steel with baked powder epoxy coating, stainless steel (303 and 316, etc.)

Single Stem Extensions (Non-supported)

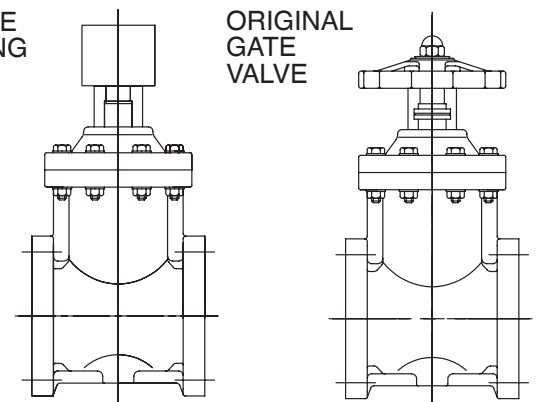
Valve handle can be extended away from the valve for out-of-reach locations. Stems come in carbon steel with baked powder epoxy coating, stainless steel (303 and 316, etc.)

Option: Wall-support (patented) and collar



2" SQUARE OPERATING NUT

ORIGINAL GATE VALVE



Chain Operator

For overhead, out-of-reach locations. The valve is operated by pulling on the chain installed on round handwheel.

Remote Operating Nuts

2" square configuration on valve stem, replacing the handwheel. Used for remote operation of a valve by an extended wrench.

Material: 6061 aluminum, anodized finish

Locking Mechanism

Prevents unauthorized cycling of a valve. Designed to be secured with a padlock. Two designs.



Specifications

Motor Type: Reversing, 120VAC
single phase

Sizes: S92 for 1-1/2" – 3"

Torque: S92, 400 in/lbs

Voltage: 120 VAC, Single Phase

Amp Draw: S92: .50 Amps

Max Ambient Temp: 150° F

Switches: 2-SPDT

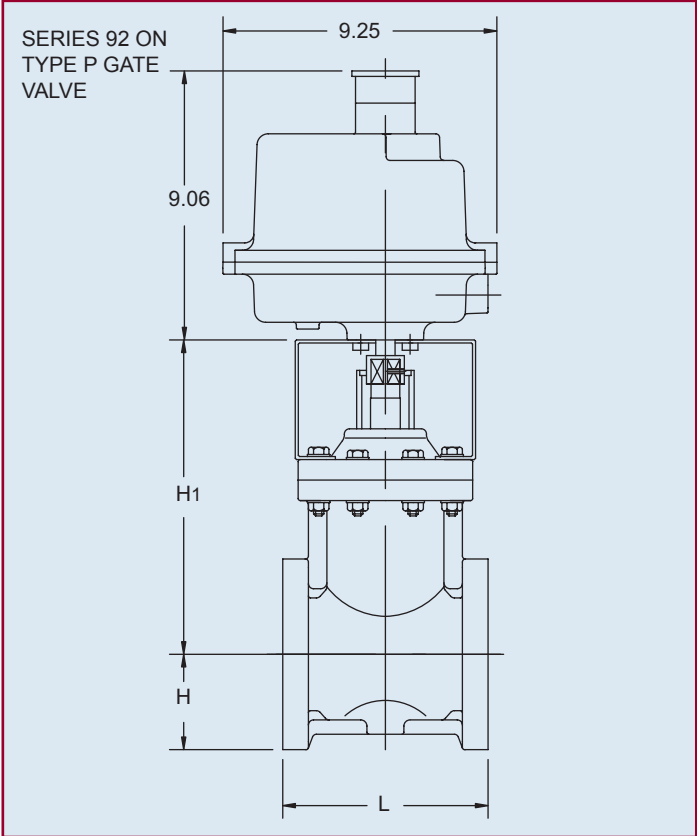
RHM Module: 15 Watt heater & 2-SPDT 8A dry contact relays

Standard Features (Sizes 1-1/2" – 3")

- Reversing, capacitor run 120 VAC 50/60 Hz, motor
- Integral thermal overload protection with automatic reset
- Permanently lubricated, Rockwell hardened gearing
- Thermally bonded polyester powder coat finish
- Weather proof enclosure with SS trim
- Two 1/2" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- Highly visible Beacon position indicator
- Standard end of travel limit switches can be used for light indication [not to be used with PLC for position confirmation]
- Declutchable manual override
- RHM Module (consisting of a heater and thermostat, and 2-SPDT 8A dry contact relays for PLC position confirmation). See page 71.
- Captivated SS hexhead slotted enclosure screws
- Mounting is with SS bracket, ss coupling and ss fasteners

Options

- Feedback Potentiometer
- Positioner (modulating PCB)
- Transmitter
- Explosion Proof Enclosure [UL1203]
- Voltages
- HMI/LRS Control Station

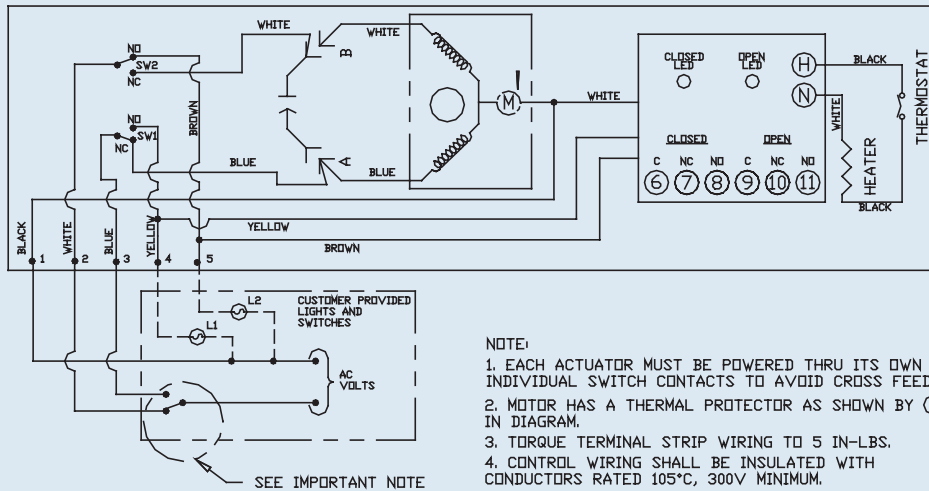


Dimensions (in.)

NOMINAL SIZE		H	H1	L
INCHES	mm			
1 -1/2	40	2.50	9.00	6.50
2	50	3.00	10.46	7.01
3	80	3.75	14.06	7.99

AC Wiring (For 120 VAC only)

WIRING DIAGRAM FOR 120 VAC AND 220 VAC ONLY
ACTUATOR SHOWN IN COUNTER-CLOCKWISE EXTREME OF TRAVEL, OR 'OPEN' POSITION



NOTE TO WIRING DIAGRAM:

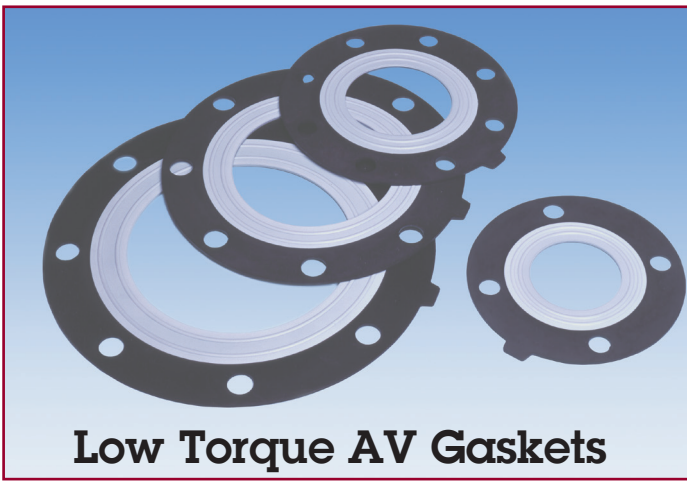
1. EACH ACTUATOR MUST BE POWERED THROUGH ITS OWN INDIVIDUAL SWITCH CONTACTS TO AVOID CROSS FEED.
2. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM.

3. IF 120 VAC MODELS ARE PLC DRIVEN, OUTPUT CONTACTS OF PLC SHOULD BE RATED AT A MINIMUM OF 1.5 TIMES REQUIRED INPUT VOLTAGE OF ACTUATOR.

Engineering Data

Valve Size	Ac-tuator Model	Torque (in/lbs)	Duty Cycle	Cycle Time (Sec)	Amp Draw						Weight (Lbs)
					120 VAC	220 VAC	12 VDC	24 VDC	12 VAC	24 VAC	
1 1/2"	S92	400	25%	315	0.5	0.4	2.0	4.0	2.0	3.0	26.8
2"	S92	400	25%	315	0.5	0.4	2.0	4.0	2.0	3.0	29.5
3"	S92	400	25%	315	0.8	0.6	2.0	4.0	2.0	3.0	33.3

Duty cycle shown are for ambient temp. (73° F)
Cycle times are approximate.



Low Torque AV Gaskets

Standard Features (Sizes 1/2" - 12")

- PTFE or PVDF-bonded EPDM for maximum corrosion resistance
- Perfect sealing at low bolt tightening torque ratings, longer gasket life
- Ideal for plastic piping systems, as well as metal or plastic-lined metal systems
- Sulfur cured
- Durometer:

1) EPDM:	65 - 70
2) PTFE-bonded:	95 - 100
3) PVDF-bonded:	83 - 85
- Working temperature:

1) EPDM:	-40° - 195° F
2) PTFE-bonded:	-40° - 250° F
3) PVDF-bonded:	-40° - 250° F
- Approximately a one-third bolt tightening torque rating as compared with flat or envelope type gasket.
- Thickness of bonded materials

PTFE: All Sizes:	0.016" (0.4mm)
PVDF: Sizes 1/2" - 2":	0.016" (0.4mm)
PVDF: Sizes 3" - 10":	0.020" (0.5mm)
- PTFE-bonded gasket excellent for most corrosive chemicals
- PVDF-bonded gasket is ideal for the following:
 - 1) Semiconductor industry, because of its purity
 - 2) Aggressive chemicals (strong acids, bases, halogens, etc.)
 - 3) Media that generates any volatile gas (PVDF gas permeation is only 1/50 of PTFE)
- Both the PTFE and PVDF-bonded gaskets employ a proprietary laminating process for bonding to EPDM, providing the greater elasticity required for lower sealing torques

Sample Specification

All AV gaskets shall be of low torque, full face to ANSI B16.5 dimensions and shall have two concentric, convex, molded rings between center hole and bolt hole circle in EPDM, PTFE-bonded EPDM or PVDF-bonded EPDM, as manufactured by Asahi/America, Inc.

Specifications

- Materials/Sizes:**
- 1) EPDM: 1/2" - 12"
 - 2) PTFE-bonded EPDM: 1/2" - 12"
 - 3) PVDF-bonded EPDM: 1/2" - 10"
- (Except 1-1/4" and 2-1/2")

Dimensions (Sizes 1/2" - 12") (in.)

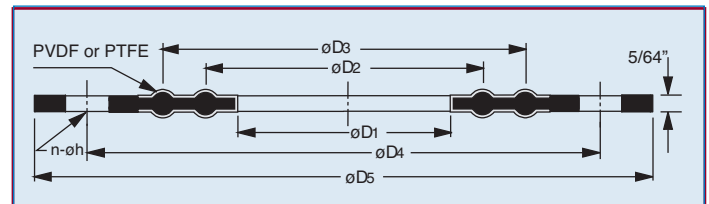
NOMINAL SIZE								
INCHES	mm	D1	D2	D3	D4	D5	h	n
1/2	15	0.7	1.0	1.6	2.4	3.4	0.6	4
3/4	20	0.9	1.3	1.9	2.4	3.8	0.6	4
1	25	1.2	1.5	2.1	3.1	4.2	0.6	4
1-1/4	32	1.5	2.0	2.6	3.5	4.5	0.6	4
1-1/2	40	1.7	2.1	2.7	3.9	4.9	0.6	4
2	50	2.1	2.7	3.3	4.7	5.9	0.8	4
2-1/2	65	2.7	3.4	4.0	5.5	6.9	0.8	4
3	80	3.2	3.9	4.4	6.0	7.4	0.8	4
4	100	4.0	4.7	5.4	7.5	8.9	0.8	8
5	125	5.0	5.7	6.5	8.5	9.9	0.9	8
6	150	5.9	6.6	7.5	9.5	10.9	0.9	8
8	200	7.8	8.5	9.7	11.8	13.4	0.9	8
10	250	9.8	10.6	12.1	14.3	15.9	1.0	12
12	300	11.1	12.8	13.9	17.0	18.9	1.0	12

Recommended Bolt Torque*

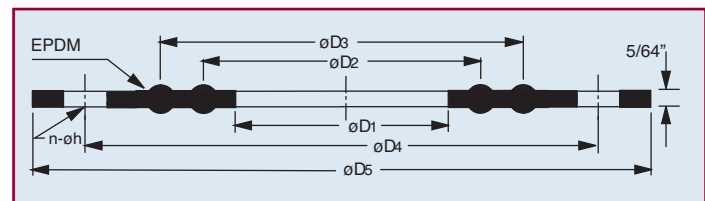
NOMINAL SIZE		PTFE PVDF	EPDM
INCHES	mm		
1/2	15	174	157
3/4	20	174	157
1	25	174	157
1-1/4	32	191	165
1-1/2	40	217	174
2	50	217	174
2-1/2	65	304	217
3	80	304	217
4	100	304	217
5	125	348	260
6	150	348	260
8	200	435	304
10	250	435	304
12	300	522	435

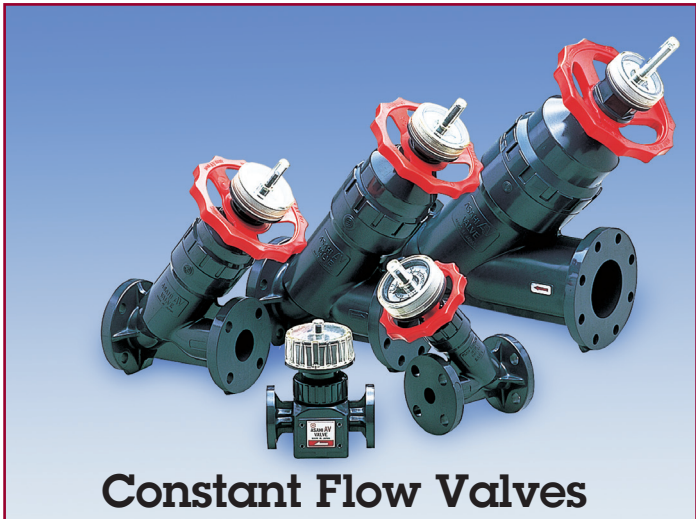
* Expressed in INCH-POUNDS

PVDF or PTFE-Bonded Gasket



EPDM Gasket





Constant Flow Valves

Specifications

Sizes: PVC: 1/2", 3/4", 1", 2", 3", 4"
Body: PVC
Bonnet: PVC
Models: Flanged ANSI
Seals: EPDM
Springs: Stainless Steel 304 with PCTFE Coating
Temperature: 30° - 120° F

Standard Features (Sizes 1/2" - 4")

- Body and bonnet are of solid PVC
- All wetted parts are of thermoplastic and elastomeric materials for superior corrosion resistance
- A preset constant flow rate is maintained by automatically regulating orifice opening area, responding to changes of pressure differentials across the valve - see "Principles of Operation " on the following page
- Vertical or horizontal installations
- Flow rate accuracy: Plus or minus six percent of full scale flow rate (water at ambient temperature)
- Flow rate rangeability: 20 : 1 maximum
- Handwheel permits on/off opening and closing
- Handwheel serves as a mechanism by which the flow rate setting may be adjusted without shutting down the pipeline
- Springs of stainless steel 304 with PCTFE coating tested for long cycle life
- Prescribed flow setting is clearly visible on the indicator at the top

Sample Specification

All constant flow valves shall be of solid thermoplastic flanged construction, and all wetted parts shall be of non-metallic materials. Size 1/2" and 3/4" shall be of inline design, while 1" - 4" shall be a "Y" type design. PVC shall conform to ASTM D1784 Cell Classification 12454-A. Spring construction shall be 304 stainless steel with PCTFE coating. All constant flow valves shall have a calibrated flow dial and position indicator. Valve accuracy shall be plus or minus six percent of full scale. Constant flow valve sizes 1/2" - 3" shall have a maximum upstream pressure range of 150psi at 120° F and size 4" 70psi at 120° F, as manufactured by Asahi/America, Inc.

*Consult factory

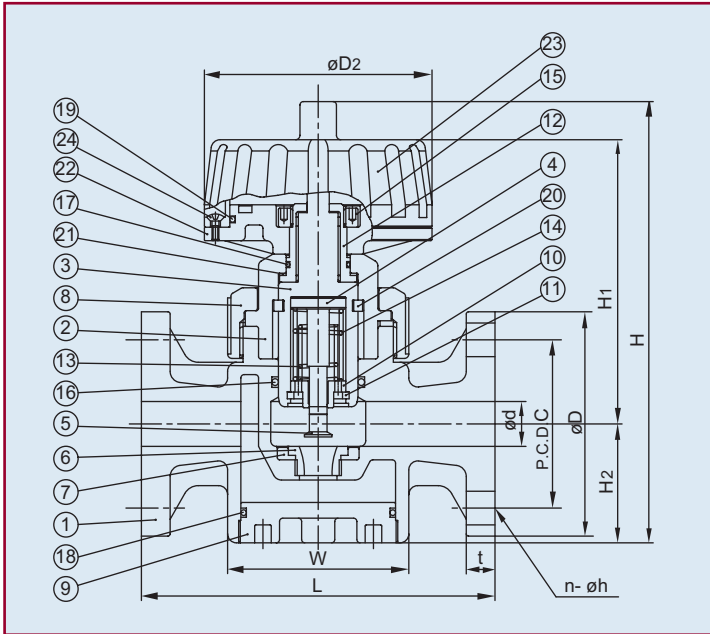
TYPE	SIZES	CHARACTERISTICS
A	1", 2" 3"	Fluid flows through the valve
B	1/2", 3/4", 1", 2", 3" ,	Flow rate setting range is large (small to large flow rate)
C	1/2", 3/4", 1", 2", 3", 4"	Lines with large pressure differentials (upstream vs. downstream)
D	3", 4"	High flow rate

TYPE A (1" - 3")

FLOW →

TYPE B (1/2" - 3")
 TYPE C (1/2" - 4")
 TYPE D (3" - 4")

← FLOW



Parts List (Sizes 1/2" – 3/4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
2	Bonnet	1	PVC
3	Cylinder	1	PVC
4	Piston	1	PVC
5	Plug	1	PVC
6	Orifice	1	PVC
7	Seat	1	EPDM
8	Cap Nut	1	PVC
9	Cap	1	PVC
10	Spring Base	1	PVC
11	Stop Ring	1	PVDF
12	Sleeve	1	Copper Alloy
13	Spring [A]	1	Stainless Steel 304
14	Spring [B]	1	Stainless Steel 304
15	Nut	1	PVC
16	O-Ring [A]	1	EPDM
17	O-Ring [B]	1	EPDM
18	O-Ring [C]	1	EPDM
19	O-Ring [D]	1	EPDM
20	Key	2	PP
21	Thrust Ring	1	PP
22	Handle Base	1	PVC
23	Handle Cover	1	PVC
24	Screw	4	Stainless Steel 304

* With PCTFE coating

Principles of Operation

1. When the upstream fluid pressure, P1, is introduced at the flow control orifice, it exerts a responding pressure on the upper surface of the flange on the piston type valve plug.
2. Likewise, the downstream pressure, P2, exerts a corresponding pressure to the lower surface of the valve plug flange.
3. Thus, when a differential exists between the fluid upstream and downstream of the orifice, the corresponding differential pressure acting on the surfaces of the flange moves the valve plug piston either downward against the force of the spring cartridge or upward by the force of the spring, depending upon the direction of the force induced by the existing differential pressure.
4. This upward or downward movement of the valve plug piston causes the flow orifice to be widened or narrowed accordingly, thus the flow rate of the fluid passing across the orifice is automatically adjusted. For example, if the differential pressure, (P1 – P2) created between the upstream and downstream sides of the orifice increases, the valve plug piston moves downward to narrow the area of the orifice opening and automatically adjusts to the preset flow rate value. The reverse is also true when the differential pressure decreases, piston moves upward increasing the orifice opening area and allowing the fluid flow rate to increase to the preset value.

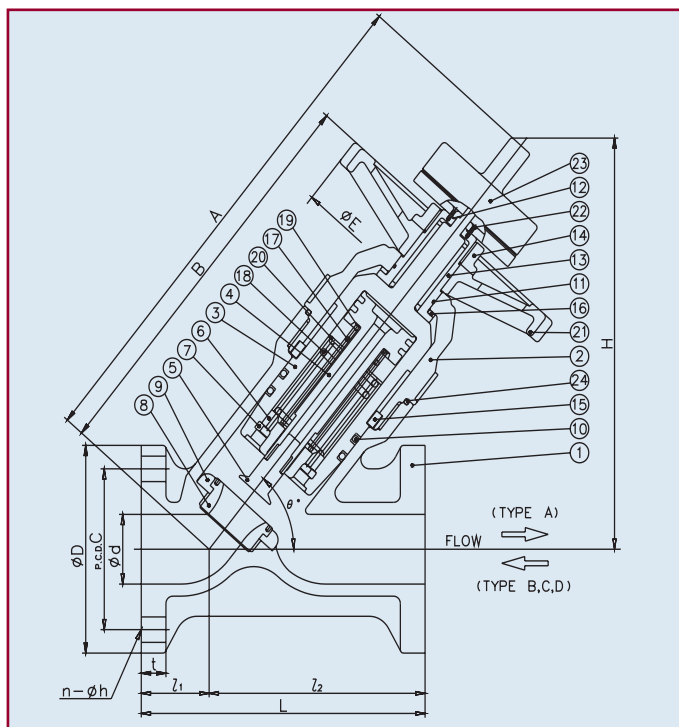
Dimensions (Sizes 1/2" – 3/4") (in.)

NOMINAL SIZE		d	D	c	n	h	L	t
INCHES	mm							
1/2	15	0.63	3.50	2.38	4	0.62	6.30	0.47
3/4	20	0.79	3.88	2.75	4	0.62	6.30	0.51

NOMINAL SIZE		W	D2	H	H1	H
INCHES	mm					
1/2	15	3.23 X 3.23	4.06	7.76	5.08	2.01
3/4	20	3.23 X 3.23	4.06	7.76	5.00	2.09

NOTE: THE PISTON FOR TYPE B, C AND D DOES NOT HAVE INLET FLUID PASSAGE. THE PRESSURE DIFFERENTIAL,

(P1 – P2), EXERTS DIRECTLY ON THE PLUG SURFACE.



Preset Flow Rates (AND WORKING DIFFERENTIAL PRESSURE)

NOMINAL SIZE		TYPE	FLOW RATE	RANGEABILITY	WORKING DIFFERENTIAL PRESSURE
INCHES	mm		GAL./MIN.		PSI
1/2	15	B	0.176 - 3.52	20:1	2.85 - 14.22
		C	0.35 - 3.52	10:1	4.27 - 28.45
3/4	20	B	0.26 - 5.28	20:1	2.85 - 14.22
		C	0.53 - 5.28	10:1	4.27 - 28.45
1	25	A	2.20 - 8.81	4:1	2.85 - 14.22
		B	0.441 - 8.81	20:1	2.85 - 14.22
		C	0.881 - 8.81	10:1	4.27 - 28.45
2	50	A	8.81 - 35.22	4:1	2.85 - 14.22
		B	1.76 - 35.22	20:1	2.85 - 14.22
		C	3.52 - 35.22	10:1	4.27 - 28.45
3	80	A	22.02 - 88.07	4:1	4.85 - 14.22
		B	4.403 - 88.07	20:1	2.85 - 14.22
		C	8.81 - 88.07	10:1	4.27 - 28.45
		D	66.04 - 132.10	2:1	4.27 - 21.33
4	100	C	44.03 - 264.20	6:1	4.27 - 28.45
		D	132.10 - 264.20	2:1	2.85 - 21.33

Parts List (Sizes 1" - 4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
2	Bonnet	1	PVC
3	Cylinder	1	PVC
4	Piston	1	PVC
5	Plug	1	PVC
6	Spring Base	1	PVC
7	Stop Ring	1	PVDF
8	Orifice	1	PVC
9	Seat	1	EPDM
10	O-Ring (A)	1	EPDM
11	O-Ring (B)	1	EPDM
12	O-Ring (C)	1	EPDM
13	Sleeve	1	Copper Alloy
14	Cap	1	PVC
15	Key	1	PVC
16	Thrust Ring	1	PP
17	Spring (A)	1	Stainless Steel 304*
18	Spring (B)	1	Stainless Steel 304*
19	Washer (A)	1	PVC
20	Washer (B)	2	PVC
21	Handle Wheel	1	PP
22	Screw	1	Copper Alloy
23	Lift Indicator	1	PVC
24	O-Ring (D)	1	EPDM

* With PCTFE coating

Weight (lbs.)

NOMINAL SIZE		WT (Lbs.)
INCHES	mm	
1/2	15	3.31
3/4	20	3.31
1	25	3.31
2	50	11.02
3	80	18.74
4	100	36.38

Constant Flow Valves

Dimensions (Sizes 1" – 4") (in.)

NOMINAL SIZE		ANSI CLASS 150					/1	/2	L	t	A	B	H	E	Degree
INCHES	mm	d	D	C	n	h									
1	25	0.98	4.25	3.12	4	0.62	1.57	4.72	6.30	0.55	10.71	7.91	8.58	5.91	50
2	50	2.05	6.00	4.75	4	0.75	2.17	6.89	9.06	0.79	15.35	12.17	12.09	8.27	50
3	80	3.07	7.50	6.00	4	0.75	2.76	8.27	11.02	0.87	19.06	15.24	14.84	8.27	50

NOMINAL SIZE		ANSI CLASS 150					/1	/2	L	t	A	B	H	E	Degree
INCHES	mm	d	D	C	n	h									
4	100	3.94	8.66	7.50	8	0.75	3.35	12.4	15.75	0.87	24.53	19.02	17.56	9.84	50

Caution

- Constant flow valves are intended for "clean fluid" services. Should the possibility of foreign matters exist in the media, a sediment strainer of 60 mesh is to be installed in the upstream of the valve. For added protection, avoid installing valves with bonnet facing downward, regardless of vertical or horizontal installation.
- For the utmost functional accuracy, the following conditions apply:
 1. Media specific gravity: Sizes 1/2" - 3" up to 1.4, sizes 4" up to 1.1
 2. Media viscosity: Maximum 30 cp
 3. Working pressures are grouped into four that correlate to working temperatures per the format below.
- For size 4", maximum upstream working pressure is 70psi.
- Make sure the "flow direction" is clearly marked on the valve body before installation.
- Note that flow direction of Type A is different from that of Type B, C and D.
- The valve can be installed either vertically or horizontally, as long as fluid always fills the valve fluid passage.
- Never operate the valves when indicator is out of the gauge range.
- Never attempt to disassemble indicator unit at the top (preset by the factory).
- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Tips On Constant Flow Valve

- Keep constant flow rate without power or labor.
- To operate, simply rotate handle clockwise to bring indicator to the designated position.
- Rotate handle clockwise to decrease the flow and counterclockwise to increase.
- To fully close the valve, rotate handle clockwise to bring the indicator to "0" (zero) position.
- To properly set a new flow rate, rotate handle counterclockwise until the indicator goes beyond the intended new rate. Then, reverse (rotate clockwise) to the new rate.
- Indicator must be positioned at "0" (zero) of the gauge, if bonnet is to be disassembled.

The valves are ideal for:

1. Any constant media supply
2. Well-balanced fluid supply in parallel piping systems
3. Simultaneous and even fluid supply to multi-pipelines, multi-tanks, large and small pools

Constant Flow Valves

Available Upstream Pressure Range

(Size 1/2" - 4", Type-A,B,C,D)

BODY MATERIAL		PVC		
TEMPERATURE		35 - 85 F	86 - 105 F	106 - 120 F
UPSTREAM PRESSURE RANGE	0-35psi			
	35-70psi			
	70-110psi			

Max. Allowable Upstream Pressure

- PVC 1/2" - 3"; 0 - 150psi
- PVC 4"; 0 - 70psi

Troubleshooting

What if fluid flows even when valve is fully closed?

1. Either seat or plug is damaged. Replace body or cylinder.
2. Foreign material caught between plug and orifice. Clean seat and plug.

What if valve cannot be closed?

1. Foreign material trapped or built up between plug and orifice. Disassemble and clean.

What if fluid leaks outside?

1. O-ring is chemically attacked or damaged. Replace O-ring.

What if flow is extraordinarily small?

1. Insufficient differential pressure. Adjust differential pressure.
2. Foreign material caught between plug and orifice. Clean.

What if flow rate exceeds the preset range?

1. Differential pressure exceeded the range. Adjust differential pressure.
2. Damaged or worn plug and/or orifice. Consult factory.
3. Foreign material caught between plug and orifice.

Ordering Information

Service Conditions

1. Media: _____ Conc: _____ %
2. Specific Gravity _____ Viscosity _____
3. Line Temperature: Max. _____ (i F)
Line Temperature: Min. _____ (i F)
4. Flow Req'd: Max _____ (gpm)
Min _____ (gpm)
5. Max Line Pressure: Upstream _____ (psi)
Downstream _____ (psi)
6. Min Line Pressure: Upstream _____ (psi)
Downstream _____ (psi)

Valve Specifications

1. Line Size: _____
2. Type: _____
3. Temp. Range: _____
4. Pres. Range: _____
5. Seal Material: _____
6. Connection: _____

NOTE: CONSTANT FLOW VALVES ARE SPECIAL ORDERED FROM JAPAN AND CAN NOT BE ORDERED WITHOUT CUSTOMER PROVIDED SERVICE CONDITIONS



Sediment Strainers

Standard Features (Sizes 1/2" - 4")

- True union design facilitates installation or repair without expanding the pipeline
- Large filtration capacities and low pressure drops
- Transparent PVC strainer body permits easy evaluation of filter screen's condition
- Complete thermoplastic construction
- Pressure rating: 1/2" - 2", 150psi; 3" and 4", 85psi
- Sizes 1/2" - 2" supplied with two sets of end connectors (socket and threaded)

Options

- FKM seals for corrosive media
- Stainless steel 316 screens available in 20, 40 and 60 mesh
- In line cleaning (clean out valve)

Tips on Sediment Strainers

- Clean screen regularly.
- Union nut of screening section can be removed for quick and easy maintenance (no need to remove body from pipeline).
- Sediment strainers protect pipeline's important and costly components, such as pumps and meters, by removing suspended particles and impurities.
- Filtering section must face downward when installed.
- You must identify flow direction, shown by molded arrow on the body, before installation.

Specifications

Sizes: 1/2" - 4"
Models: Socket, Threaded, Flanged (ANSI)
Body: PVC
Screens: Standard: 20 mesh PVC
 Optional: PVC - 30 and 40 mesh
 Stainless Steel - 20, 40 and 60 mesh

Seals: EPDM, FKM

**Sizes 1/2" - 4" PVC/EPDM/FKM
 Models NSF-61 Certified**

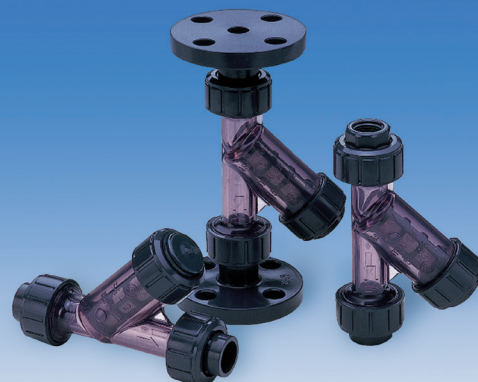
Parts List (Sizes 1/2" - 4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
2	Filter Screen	1	PVC, Stainless Steel 316
3	Screen Support	1	PVC
4	End Connector	2	PVC
5	Union Nut	3	PVC
6	Retaining Ring	1	PVC
7	Split Ring	1	PVC
8	O-Ring (A)	1	EPDM, FKM, Others
9	O-Ring (B)	2	EPDM, FKM, Others
10	Stop Ring	2	PVDF **

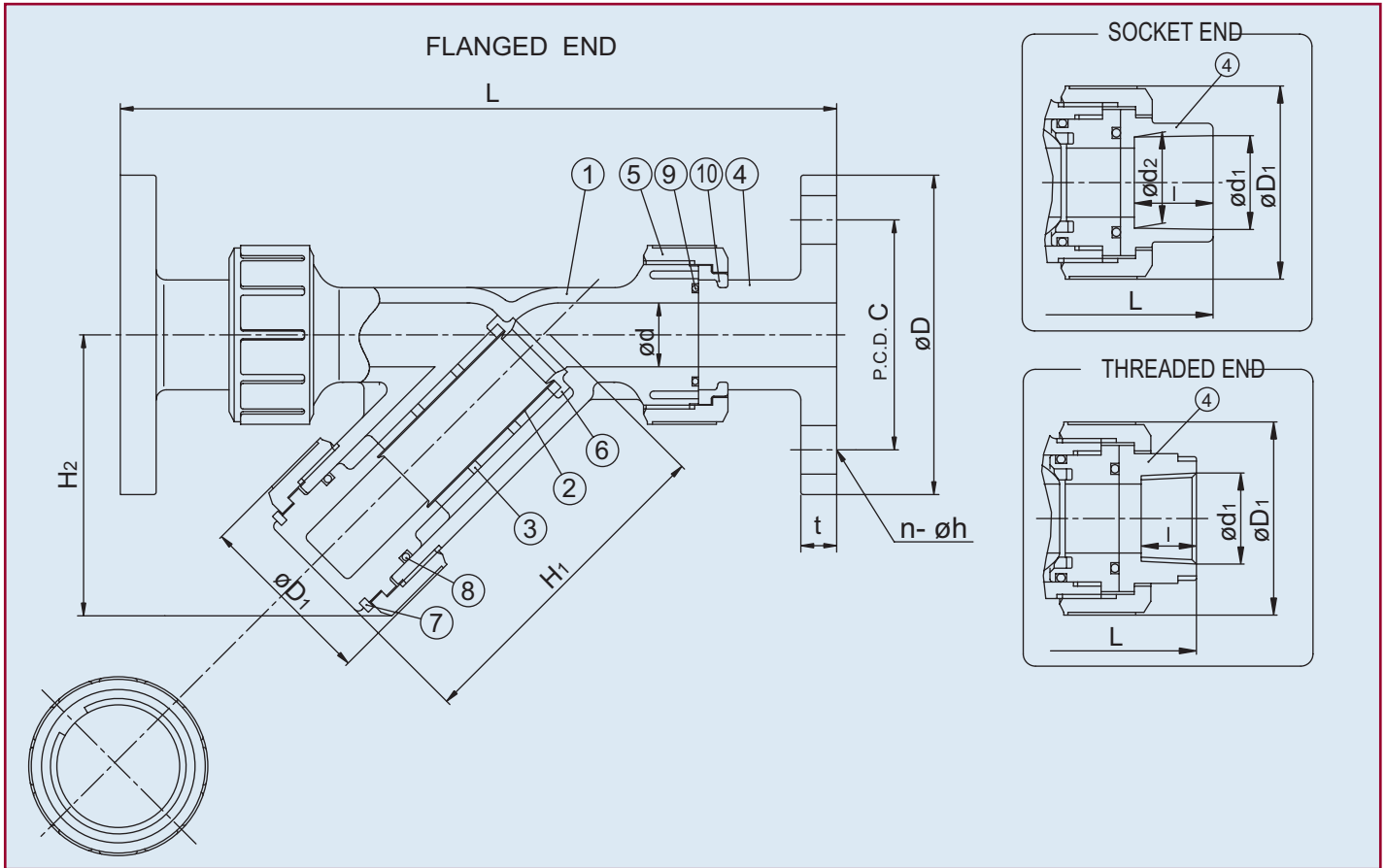
** Used for flanged end

Sample Specification

All true union sediment strainers, sizes 1/2" - 4", shall be of true union design and shall be constructed of transparent PVC. All O-rings shall be EPDM or FKM. Screens shall be 20, 30 and 40 mesh PVC or 20, 40 and 60 mesh 316 stainless steel. Filter maintenance is achieved without removing strainer from the pipeline. PVC shall conform to ASTM D1784 Cell Classification 12454-A. Valves shall be rated to 150psi sizes 1/2" through 2" and 85psi sizes 3" and 4" at 70° F, as manufactured by Asahi/America, Inc.



Sediment Strainers



Dimensions (Sizes 1/2" - 4") (in.)

NOMINAL SIZE		FLANGED						SOCKET				THREADED			d	D1	H1	H2
		ANSI CLASS 150						ASTM CLASS 40				d1	l	L				
INCHES	mm	D	C	n	h	L	t	d1	d2	l	L							
1/2	15	3.50	2.38	1	0.62	8.11	0.47	0.848	0.836	0.87	6.93	1/2 - 14 NPT	0.59	6.50	0.59	1.89	3.82	3.07
3/4	20	3.88	2.75	1	0.62	10.00	0.55	1.058	1.046	1.00	8.30	3/4 - 14 NPT	0.67	7.95	0.79	2.36	4.72	3.86
1	25	4.25	3.12	1	0.62	11.02	0.55	1.325	1.310	1.12	9.37	1 - 11-1/2 NPT	0.79	8.82	0.98	2.76	5.24	4.37
1-1/4	32	-	-	-	-	-	-	1.670	1.655	0.94	11.28	1 1/4 - 11-1/2 NPT	0.87	11.30	1.57	3.94	6.97	5.87
1-1/2	40	5.00	3.88	1	0.62	13.23	0.63	1.912	1.894	1.38	12.13	1 1/2 - 11-1/2 NPT	0.98	11.30	1.57	3.94	6.97	5.87
2	50	6.00	4.75	1	0.75	14.20	0.63	2.387	2.369	1.50	13.31	2 - 11-1/2 NPT	1.10	12.76	2.07	4.17	7.48	6.29
3	80	7.50	6.00	1	0.75	18.78	0.71	3.516	3.492	1.87	17.83	3 - 8 NPT	1.38	17.17	3.07	5.98	10.67	9.21
4	100	9.00	7.50	8	0.75	23.94	0.71	4.518	4.491	2.25	23.54	4 - 8 NPT	1.77	23.47	3.94	8.27	14.21	12.44

Weight (lbs.)

NOMINAL SIZE		SOCKET THREADED	FLANGED
INCHES	mm		
1/2	15	0.66	1.10
3/4	20	1.32	2.20
1	25	1.76	3.31
1-1/2	40	4.41	5.51
2	50	5.51	8.82
3	80	15.43	18.74
4	100	40.78	45.19

Cv Values

NOMINAL SIZE		Cv
INCHES	mm	
1/2	15	5.2
3/4	20	7.5
1	25	14
1-1/2	40	34
2	50	50
3	80	110
4	100	165

Filter Screen Sizes*

MESH (HOLES PER LINEAR INCH)	20	30	40
MAXIMUM PARTICLE SIZE (INCH)	.033	.023	.011
MICRON PARTICLE SIZE (10-30 μ)	840	595	420

* For 60 mesh consult factory

Caution

- Never remove strainer from pipeline under pressure.
- Always wear protective gloves and goggles.

Sediment Strainer Drainer Kit



Strainer Drain Kit

Asahi/America Inc., introduces Sediment Strainer Drain Socket kits complete with Omni® Type-27 ball valves for quick and easy cleaning of sediment strainer screens without removing the screen support assembly. The ball valve can be opened to purge the screen area of waste and debris. Valve is supplied loose for piping waste pipe to desired location.

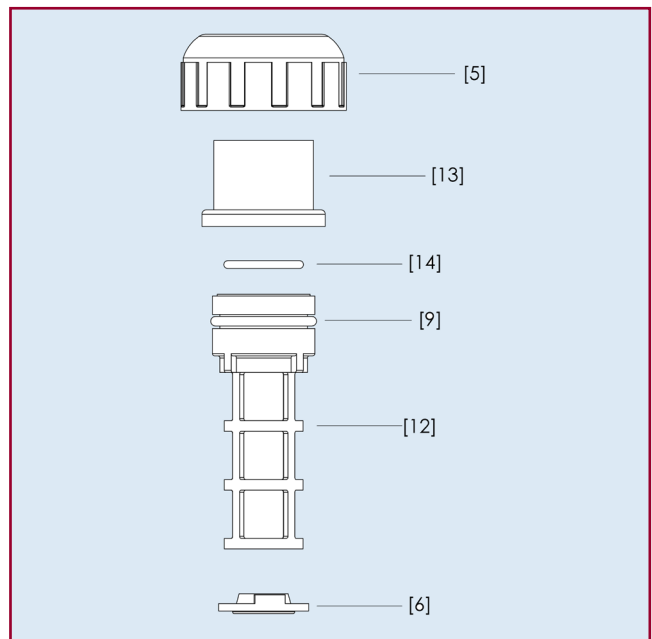
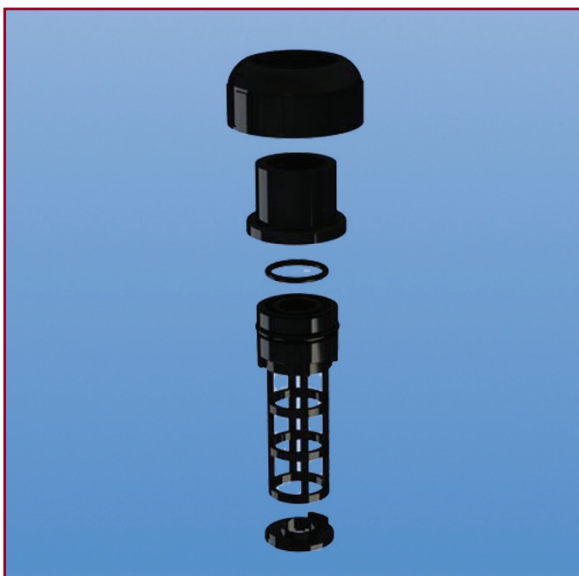
Standard Features (Sizes 1/2" - 4")

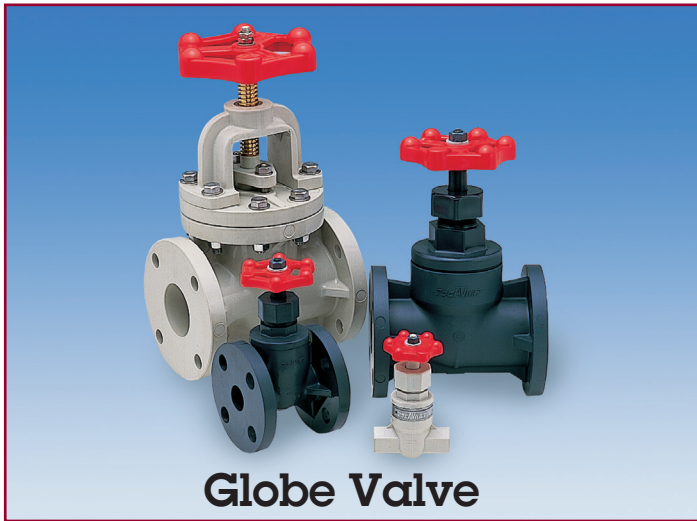
- Kits available for 1/2" - 2" PVC Sediment Strainers
- 1/2" & 3/4" strainers use 1/2" socket Omni® Type-27
- 1" - 2" strainers use 1" socket Omni® Type-27
- Supplied as a kit, includes new screen support housing, split ring, union nut, end connector and PVC EPDM socket Omni® Type-27 ball valve
- PVC SCH80 pipe not supplied

Parts List (Sizes 1/2" - 4")

PARTS	
NO.	DESCRIPTION
5	Union Nut
6	Retaining ring
9	O-ring (B)
12	Screen Support Type Drain
13	Drain Socket
14	O-Ring (D)

Sediment Strainer sold separately





Globe Valve

Standard Features (Sizes 1/2"– 4")

- Used for efficient throttling of flow
- Positive shut-off
- Displays excellent flow regulating characteristics throughout the entire lift of the disc
- All sizes rated for full vacuum service
- EPDM seals. FKM optional

Parts List/Thd-Soc (Sizes 1/2"– 2")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, PP
2	Bonnet	1	PVC, PP
3	Stem	1	PVC, PP
4	Gland	1	PVC, PP
5	Gland Nut	1	PVC, PP
6	Sheet Gasket	1	EPDM, Others
7	Gland Packing	2	EPDM, Others
8	Disc	1	PP
9	Stem Holder	1	PP
13	Ring	1	Stainless Steel 304
14	Hand Wheel	1	PP
15	Nut	1	PVC
16	Washer	1	PVC

Sample Specification

All globe valves shall be of a thermoplastic construction and have no metal part that comes in contact with media. Sizes 1/2" through 2" shall be of union bonnet design, 2-1/2" through 4" shall be of outside stem and yoke type. PVC shall conform to ASTM D1784 Cell Classification 12454-A and PP conforming to ASTM D4101 Cell Classification PP0210B67272. PVC valves shall be rated to 150psi at 70° F sizes 1/2" through 2" 110psi at 70° F sizes 2-1/2" through 4". PP rated to 110psi at 70° F sizes 1/2" through 4", as manufactured by Asahi/America, Inc.

Specifications

Sizes:	1/2" – 4"
Bodies:	PVC and PP
Models:	Flanged ANSI 1/2" – 4"*
	Socket PVC 1/2" – 2"
	PP** 1/2" – 1"
	Thread PVC 1/2" – 2"
	PP 1/2" – 1"
Plug:	PP
Seals:	EPDM or FKM

* 2-1/2" – 4": Outside stem and yoke type
 ** DIN Socket also available

Parts List/Flanged (Sizes 1/2" – 4")

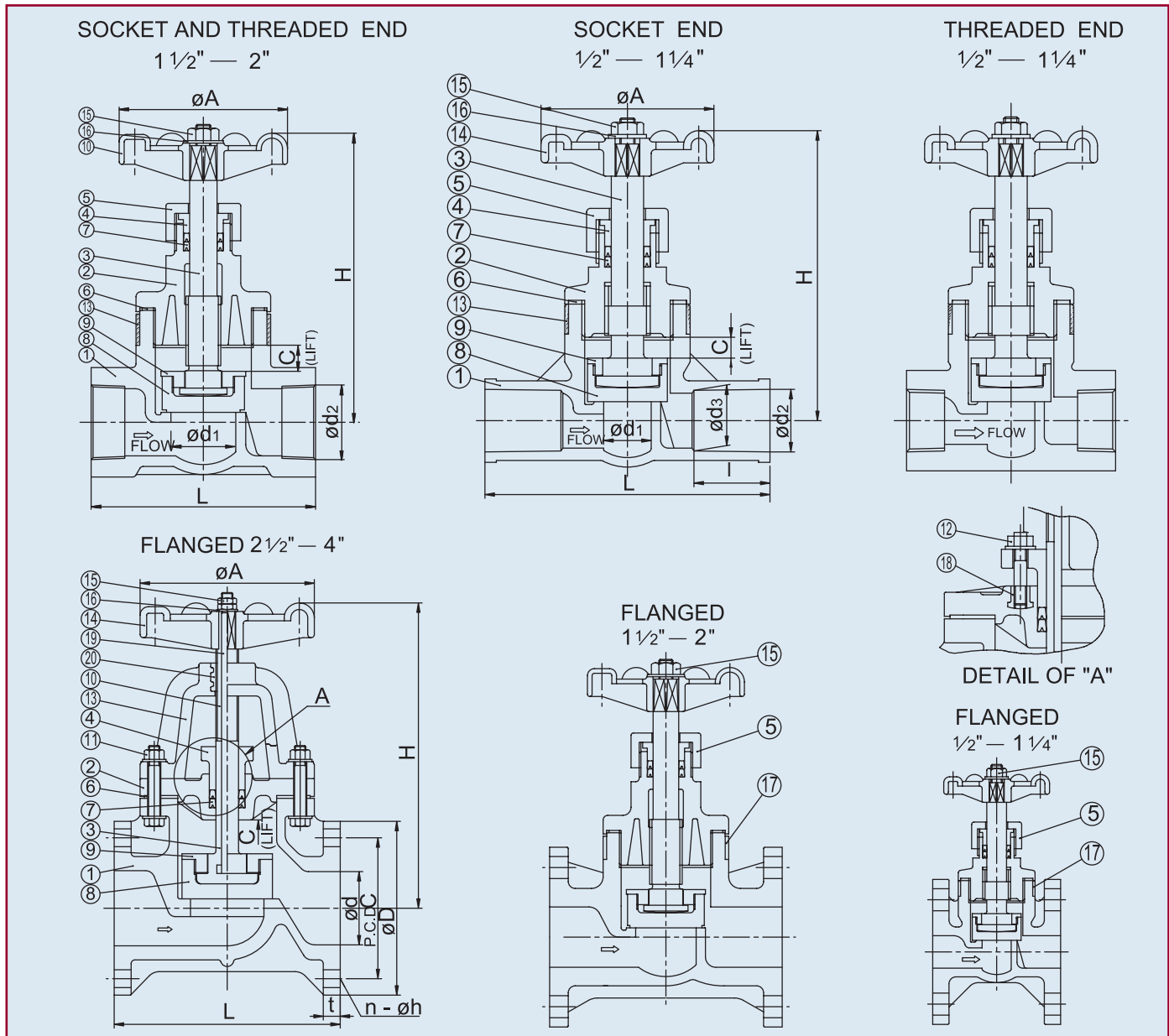
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, PP
2	Bonnet	1	PVC, PP
3	Stem	1	PVC, PP
4	Gland	1	PVC, PP
5	Gland Nut	1	PVC, PP
6	Gland Gasket	1	EPDM, FKM
7	Gland Packing	1	EPDM, FKM
8	Disc	1	PP
9	Stem Holder	1	PVC, PP
10	Stem with Trapezoid Screw Seat	1	Copper Alloy
11	Bolt, Nut, Washer	8	Stainless Steel 304
12	Stud Bolt, Nut	2	Stainless Steel 304
13	Stem Support	1	PP
14	Hand Wheel	1	PP
15	Nut [A]	1	PVC (1/2" - 2")
		2	Stainless Steel 304
16	Washer	1	PVC (1/2" - 2")
		1	Stainless Steel 304
17	Reinforcing Ring	1	Stainless Steel 304
18	Inserted Nut	1	Copper Alloy
19	Stem Metal Insert	1	Steel
20	Inserted Metal	1	Bronze

* PVC nut and washer on sizes 1/2" through 2"

Pressure vs. Temperature (psi. water. non-shock)

NOMINAL SIZE		PVC			PP		
		30° F 70° F	71° F 105° F	106° F 120° F	- 5° F 70° F	71° F 120° F	121° F 175° F
INCHES	mm						
1/2 -1-1/2	15-40	150	150	110	110	95	65
2	50	150	150	95	110	75	45
2-1/2 -3	65-80	110	110	95	110	60	35
4	100	110	80	65	110	60	35

Globe Valves



Dimensions (in.)

Cv Values

NOMINAL SIZE		FLANGED									SOCKET AND THREADED									Cv					
		WT. (LBS)	d	C	D	L	t	LIFT	C	H (open)	WT. (LBS)	THREADED			SOCKET			LIFT	C		d1	H (open)			
INCHES	mm																								
1/2	15	0.88	0.71	2.38	3.50	3.35	0.47	0.31	5.20	0.66	NPT 1/2	3.35	0.85	4.33	1.18	0.32	0.59	5.20	4.1						
3/4	20	1.10	0.94	2.75	3.88	3.74	0.55	0.31	5.51	1.10	NPT 3/4	3.74	1.06	5.12	1.38	0.32	0.71	5.51	6.4						
1	25	2.20	1.10	3.12	4.25	4.33	0.55	0.43	6.34	1.10	NPT 1	4.33	1.33	5.91	1.58	0.43	0.98	6.34	9.7						
1-1/4	32	2.90	1.46	3.50	4.62	5.31	0.63	0.51	6.57	1.30	NPT 1-1/4	5.32	1.67	5.32	0.98	0.51	1.38	6.58	18.0						
1-1/2	40	4.41	1.61	3.88	5.00	7.48	0.63	0.79	9.06	2.70	NPT 1-1/2	5.51	1.91	5.51	0.98	0.79	1.61	9.06	22.0						
2	50	5.30	2.05	4.75	6.00	7.87	0.63	0.94	9.92	3.50	NPT 2	7.09	2.38	7.09	1.06	0.95	2.05	9.92	29.0						
2-1/2	65	13.25	2.64	5.50	7.00	8.66	0.71	1.38	13.58	-	-	-	-	-	-	-	-	-	57.0						
3	80	15.00	3.07	6.00	7.50	9.45	0.71	1.38	14.13	-	-	-	-	-	-	-	-	-	78.0						
4	100	22.00	3.94	7.50	9.00	11.42	0.71	1.57	16.50	-	-	-	-	-	-	-	-	-	115.0						



Electric Globe Control Valve

Specifications

- Sizes:** 1/2" - 4"
Materials: PVC, PP, PVDF and PTFE
Model: Flanged (ANSI)
Stem Seal: PTFE Bellows
Valve Seal: FKM, EPDM, PTFE encapsulated FKM
Flow Char.: Linear or equal percentage"
Temp. Range: PVC 32 - 140° F, PP -5 - 175° F
 PVDF -5 - 265° F, PTFE -5 - 300° F

Standard Features (Sizes 1/2" - 4")

- Precise flow control
- Solid thermoplastic valve body provides excellent corrosion resistance
- PTFE bellows stem seal eliminates old style packing glands and minimizes maintenance
- Positive bubble-tight shut-off
- Plug and seat can be changed to accommodate a variety of valve coefficients (Cv)
- Plug (trim) can be characterized (linear or equal percentage) per requirements. (See below)
- No metal to media contact
- Extremely corrosion resistant actuator constructed of glass-filled polyester (PEG) with stainless steel trim
- 120 VAC/1ph supply voltage
- On/off or modulation
- 4-20 mA positioner and 4-20 mA output signal transmitter

Options

- Supply voltages
- Extra (auxiliary) limit switches

Parts List (Sizes 1/2" - 4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Electric Actuator	1	PEG
2	Manual Override	1	PEG
4	Actuator Valve Stem	1	Stainless Steel
6	Actuator Standoffs	2	Stainless Steel
7	Position Indicator	1	Stainless Steel
8	Bellows Seal O-Ring	1	EPDM, FKM, PTFE Encapsulated FKM
9	Bellows Housing	1	PVC, PP, PVDF, PTFE
10	Body O-Ring	1	EPDM, FKM, PTFE Encapsulated FKM
11	Bellows	1	PTFE
12	Seat O-Ring	1	EPDM, FKM, PTFE Encapsulated FKM
13	Valve Seat	1	PVC, PP, PVDF, PTFE
14	Valve Plug	1	PVC, PP, PVDF, PTFE
15	Valve Body	1	PVC, PP, PVDF, PTFE

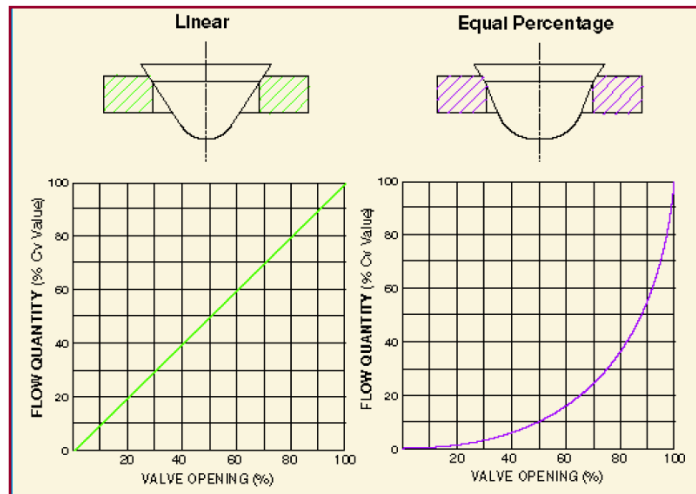
Sample Specification

All thermoplastic modulating control valves shall be of the globe valve design. Valves shall have interchangeable seat and plugs to accommodate various flow coefficients (Cv) and flow characteristics shall be either linear or equal percentage. Stem seal shall be PTFE and of the bellows design. Electric actuator shall be constructed of glass-filled polyester (PEG) with stainless steel trim. Actuator shall operate with 120 VAC/1ph supply voltage, have a visual position indicator and be capable of on/off or modulating operation. PVC shall conform to ASTM D1784 Cell Classification 12454-A, PP conforming to ASTM D4101 Cell Classification PPO210B67272, and PVDF conforming to ASTM D3222 Cell Classification Type II, and PTFE shall conform to PTFE TFE 1600, as manufactured by Asahi/America, Inc.

ASAHI/AMERICA RECOMMENDS THE USE OF AV GASKETS FOR THIS PRODUCT LINE

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.



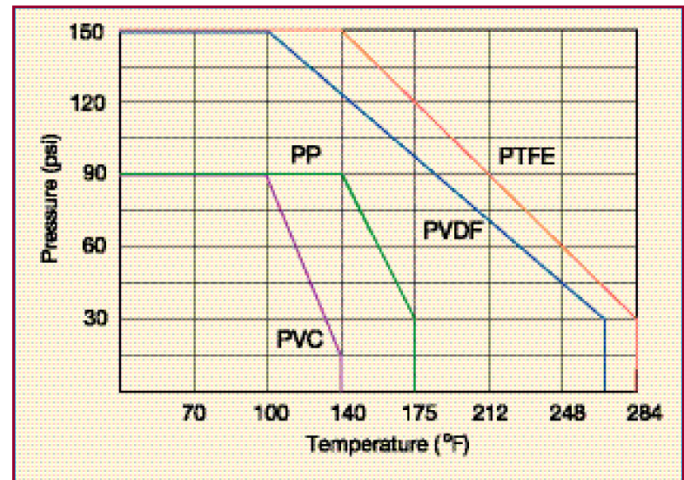
Globe Control Valves

Dimensions (in.)

NOMINAL SIZE		PVC, PP		PVDF, PTFE	
INCHES	mm	L	H	L	H
1/2	15	3.35	21.57	5.12	22.52
3/4	20	3.74	21.65	5.91	22.80
1	25	4.33	21.69	6.30	22.80
1-1/4	32	5.31	21.93	7.09	22.91
1-1/2	40	7.48	21.81	7.87	23.11
2	50	7.87	21.81	9.06	23.39
2-1/2	65	8.66	24.41	11.42	25.87
3	80	9.45	24.37	12.20	26.18
4	100	11.42	24.72	13.78	26.18

* PP Not Available

Operating Pressure vs. Temperature (psi, water, non-shock)



Troubleshooting

What if fluid flows even when fully closed?

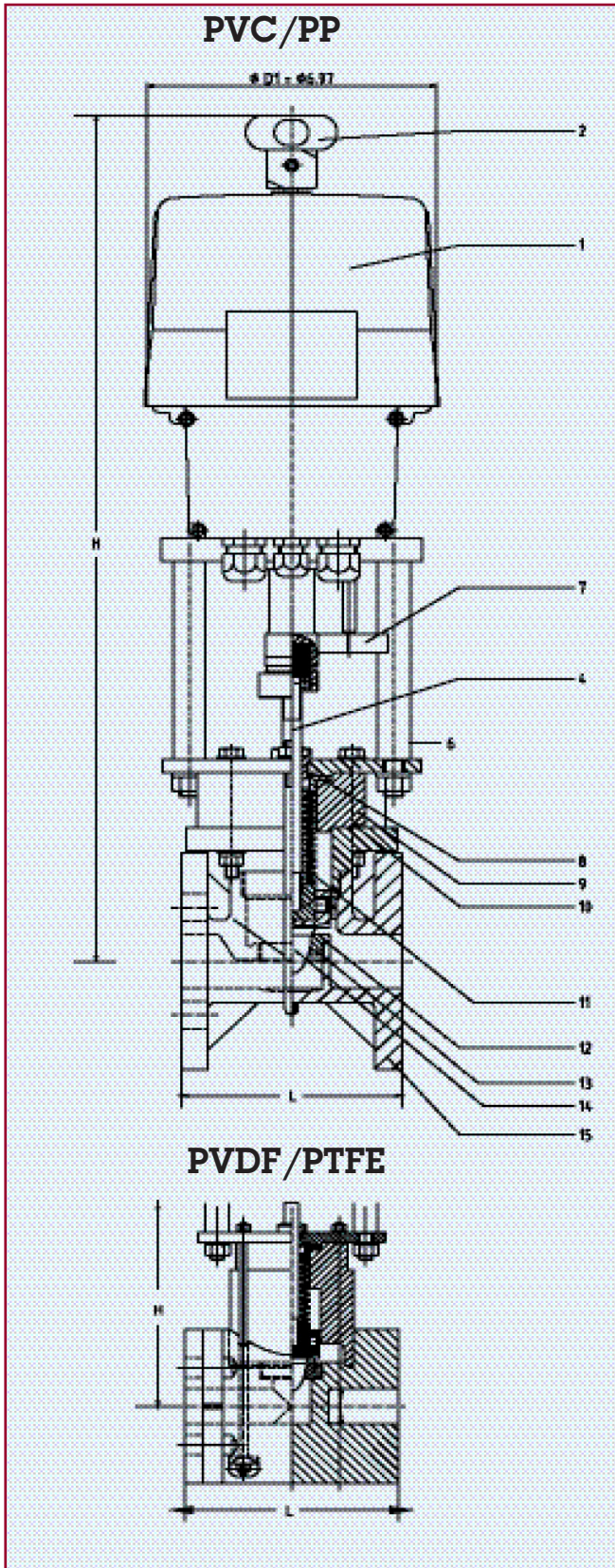
1. Plug or seat is damaged.
2. Foreign matter caught or formed at plug and seat.

What if it does not open?

1. No supply voltage.
2. No instrument signal.
3. Blown fuse in supply voltage line.

What if fluid leaks from body?

1. Bolts for bellows housing are not tight.
2. O-ring(s) chemically attacked.





Pneumatic Globe Control

Specifications

Sizes:	1/2" - 4"
Materials:	PVC, PP, PVDF and PTFE
Model:	Flanged (ANSI)
Stem Seal:	PTFE Bellows
Valve Seal:	FKM, EPDM, PTFE encapsulated FKM
Flow Char.:	Linear or equal percentage
Rangeability:	1: 50 for 1/2" - 3", 1: 30 for 4"
Temp. Range:	PVC 32 - 140° F, PP -5 - 175° F PVDF -5 - 265° F, PTFE -5 - 284° F

Standard Features (Sizes 1/2" - 4")

- Precise flow control
- Solid thermoplastic valve body provides excellent corrosion resistance
- PTFE bellows stem seal eliminates old style packing glands and minimizes maintenance
- Positive bubble-tight shut-off
- Plug and seat can be changed to accommodate a variety of valve coefficients (Cv)
- Plug (trim) can be characterized (linear or equal percentage) per requirements. (See below)
- No metal to media contact
- Extremely corrosion resistant actuator constructed of glass-filled polyester (PEG) with stainless steel trim
- Maximum required air pressure is 90psi
- 3-15psi direct acting for sizes up to 1"

Options

- 3-15psi pneumatic positioner
- 4-20 mA electro-pneumatic positioner
- 4-20 mA output transmitter
- Extra (auxiliary) limit switches

Parts List (Sizes 1/2" - 4")

PARTS			
NO.	Description	PCS.	MATERIAL
1	Pneumatic Actuator	1	Polyester Glass Filled (PEG)
2	Actuator Spring	1	Coated Steel
3	Diaphragm	1	BUNA-N (Nitrile)
4	Actuator Valve Stem	1	316 Stainless Steel
5	Air Connection	1	1/4" FNPT
6	Actuator Standoffs	2	316 Stainless Steel
7	Position Indicator	1	Nylon Coated Steel
8	Bellows Seal O-Ring	1	EPDM, FKM, PTFE Encapsulated FKM
9	Bellows Housing	1	EPDM, FKM, PTFE Encapsulated FKM
10	Body O-Ring	1	EPDM, FKM, PTFE Encapsulated FKM
11	Bellows	1	PTFE
12	Seat O-Ring	1	EPDM, FKM, PTFE Encapsulated FKM
13	Valve Seat	1	PVC, PP, PVDF, PTFE
14	Valve Plug	1	PVC, PP, PVDF, PTFE
15	Valve Body	1	PVC, PP, PVDF, PTFE

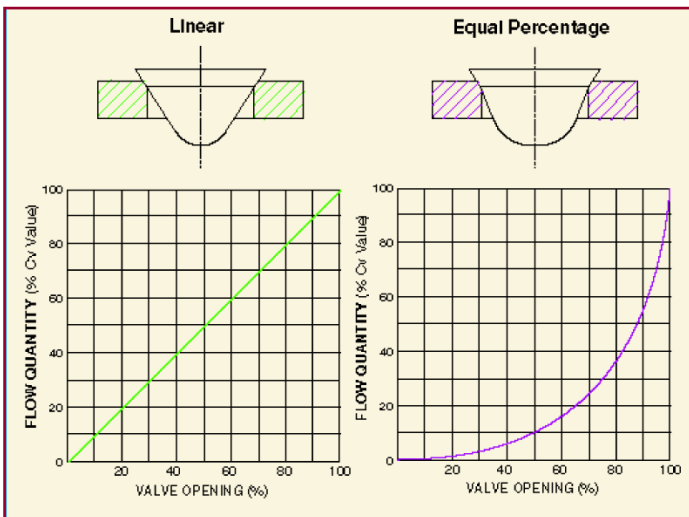
Sample Specification

All thermoplastic modulating control valves shall be of the globe valve design. Valves shall have interchangeable seat and plugs to accommodate various flow coefficients (Cv) and flow characteristics shall be either linear or equal percentage. Stem seal shall be PTFE and of the bellows design. Pneumatic actuator shall be constructed of glass-filled polyester (PEG) with stainless steel trim. Actuator shall have 1/4" FNPT air connections and a visual position indicator. PVC shall conform to ASTM D1784 Cell Classification 12454-A, PP conforming to ASTM D4101 Cell Classification PPO210B67272, and PVDF conforming to ASTM D3222 Cell Classification Type II, and PTFE shall conform to PTFE TFE 1600, as manufactured by Asahi/America, Inc.

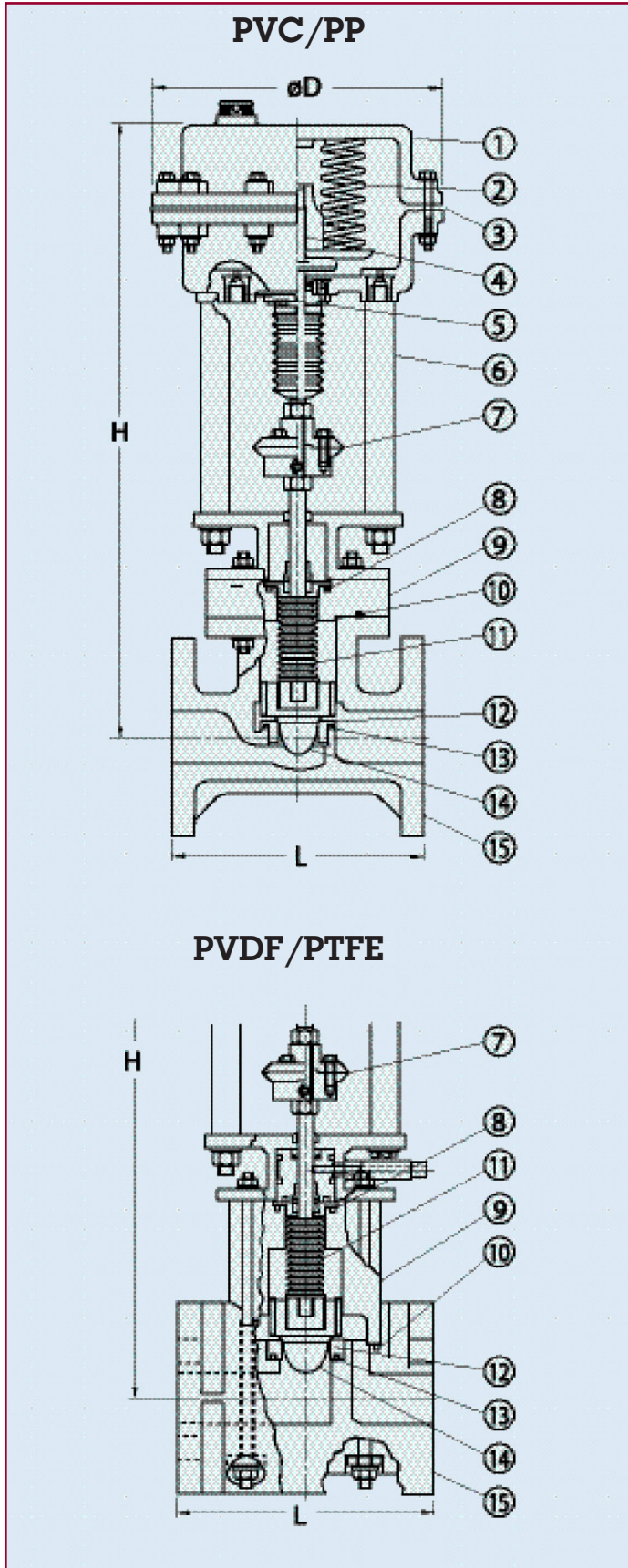
ASAHI/AMERICA RECOMMENDS THE USE OF AV GASKETS FOR THIS PRODUCT LINE

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.



Globe Control Valves

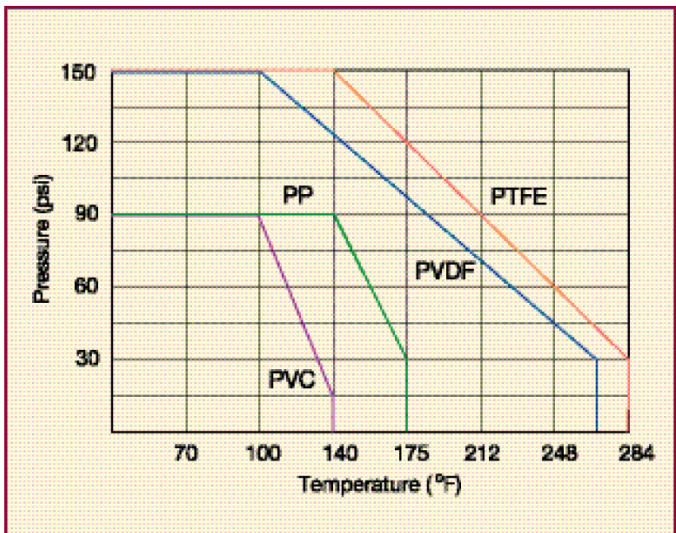


Dimensions (in.)

NOMINAL SIZE		PVC, PP			PVDF, PTFE		
INCHES	mm	L	H	D	L	H	D
1/2	15	3.35	16.54	8.66	5.12	17.71	8.66
3/4	20	3.74	16.54	8.66	5.91	17.91	8.66
1	25	4.33	16.73	8.66	6.30	17.91	8.66
1-1/4	32	5.31	16.93	8.66	7.09	18.11	8.66
1-1/2	40	7.48	17.13	8.66	7.87	18.31	8.66
2	50	7.87	18.51	8.66	9.06	18.50	8.66
2-1/2	65	8.66	18.70	8.66	11.42	18.70	8.66
3	80	9.45	20.08	8.66	12.20	19.88	8.66
4	100	11.42	20.28	8.66	13.78	20.37	8.66

* PP Not Available

Operating Pressure vs. Temperature (psi, water, non-shock)



Troubleshooting

What if fluid flows even when fully closed?

1. Plug or seat is damaged. Change plug or seat.
2. Foreign matter caught or formed at plug and seat.
3. Air not completely exhausted.

What if it does not open?

1. Actuator diaphragm is damaged or worn. Replace.
2. Operating air pressure is low.

What if fluid leaks from body?

1. Bolts for bellows housing and body are loose. Retighten
2. O-ring(s) chemically attacked.

Globe Control Valves

Cv Values for PVC and PP

SEAT DIA. INCHES	VALVE SIZE (INCHES)								
	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
.106	.23	-	-	-	-	-	-	-	-
.149	.46	-	-	-	-	-	-	-	-
.185	.70	-	-	-	-	-	-	-	-
.236	1.20	-	-	-	-	-	-	-	-
.299	1.75	1.75	-	-	-	-	-	-	-
.374	2.60	2.60	2.6	-	-	-	-	-	-
.404	-	4.00	4.0	4.0	-	-	-	-	-
.578	-	6.10	6.1	6.1	6.1	-	-	-	-
.748	-	-	-	9.5	9.5	9.5	-	-	-
.944	-	-	-	10.5	10.5	10.5	10.5	-	-
1.181	-	-	-	-	16.0	16.0	16.0	16.0	-
1.496	-	-	-	-	-	25.0	25.0	25.0	25.0
1.909	-	-	-	-	-	-	40.0	40.0	40.0
2.047	-	-	-	-	-	-	46.0	46.0	46.0
2.244	-	-	-	-	-	-	-	64.0	64.0
2.696	-	-	-	-	-	-	-	-	81.0
2.897	-	-	-	-	-	-	-	-	93.0

Cv Values for PVDF and PTFE

SEAT DIA. INCHES	VALVE SIZE (INCHES)								
	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
.106	.23	-	-	-	-	-	-	-	-
.149	.46	-	-	-	-	-	-	-	-
.185	.70	-	-	-	-	-	-	-	-
.236	1.20	-	-	-	-	-	-	-	-
.299	1.75	1.75	-	-	-	-	-	-	-
.374	2.60	2.60	2.6	-	-	-	-	-	-
.404	-	4.00	4.0	4.0	-	-	-	-	-
.578	-	6.10	6.1	6.1	6.1	-	-	-	-
.748	-	-	-	10.5	10.5	10.5	10.5	-	-
.944	-	-	-	-	14.0	14.0	14.0	14.0	-
1.181	-	-	-	-	18.0	18.0	18.0	16.0	16.0
1.496	-	-	-	-	-	29.0	29.0	29.0	29.0
1.909	-	-	-	-	-	-	40.0	40.0	40.0
2.047	-	-	-	-	-	-	-	52.0	52.0
2.244	-	-	-	-	-	-	-	-	70.0
2.696	-	-	-	-	-	-	-	-	93.0
2.897	-	-	-	-	-	-	-	-	105.0

Required Data for Control Valve Sizing

SERVICE CONDITIONS			
1. Media			Concentration %
2. Temperature	°F	or	°C Specify
3. Flow Required (gpm):	Max.:	Normal	Min.
4. Line Pressure (psi):	Upstream:	Downstream:	(Max. Flow)
5	Upstream:	Downstream:	(Norm. Flow)
6	Upstream:	Downstream:	(Min. Flow)
VALVE SPECS			
7. Line Size:			
8. Valve Characteristics	Equal % or Linear:		Specify
9. Valve Material:			Valve Seals:
10. Cv Value Required	Max.:	Norm.:	Min.:
ACTUATOR SPECS			
11. Actuator Type:	Electric or Pneumatic		Specify
12. Supply Voltage for Electric:			Specify
13. Electric Control Signal:		mA or Volts	
14. Pneumatic Control Signal:		PSI	
15. Position Feedback:			Specify

AS-i Bus System



Series 79P Pneumatic Actuator

Specifications

Mounting:	ISO/NAMUR
Connection:	M12 SS
AS-i Current Draw:	.16 AMP
Electrical Design:	2-input/2-output
Voltage Range:	26.5-31.6 VDC
Sensor/relay supply:	AS-i
Air Connection:	1/4" FNPT
Solenoid coil:	Epoxy encapsulated
Solenoid protection:	Type 4x Reverse polarity protected

A group of European automation companies had a vision for a simple, cost effective networking system. These companies worked together for a common goal, and in 1993 the AS-i (actuator sensor interface) network was formed.

AS-i offers many of the benefits of more complex and costly bus systems, but does it at a substantially lower cost and with greater simplicity. The AS-i is ideally suited for controlling valves, actuators and many other field devices in your processing application.

This interface can be used for stand-alone process control, or it can be used together with a higher level bus control system.

AS-i does not compete with higher level bus systems; it should be seen as a complimentary system that offers low cost, reliable device control for binary and analog devices.

Reliability, simplicity and interoperability make AS-i a cost effective connection/control solution, particularly where low installation costs are imperative.

A single pair of wires, which handles power and communications, is used to control the network by means of "chaining" the actuators with the PLC. Each actuator (or device) will then have its own unique address within the system and only that device with the proper address will respond to system commands.

AS-i is best known for its yellow flat cable, which is pierced by insulation displacement connectors so that the expense of tees and complex connectors is avoided. Devices are simply clamped onto the cable.

Digital signals are encoded on this cable in a sinusoidal signal, which has a very narrow frequency bandwidth. Filtering, which is distributed through the network, rejects all extraneous frequencies, and in this way AS-i can be operated in electrically noisy environments without experiencing transmission errors.

The yellow flat cable carries low current (30 VDC) for input devices such as solenoids, relays, etc., as well as the AS-i signal. If power for outputs (such as electric actuators) is required, an additional black flat cable is available.



**Series 79P Pneumatic Actuator
and T-21 Ball Valve**

Standard Features

- Low profile, compact package for ease in mounting where space limitations are an issue
- Actuators and accessories meet ISO and NAMUR standards, therefore, no special training is required for field installation/conversion
- M12 stainless steel connection utilized for network interfacing - Type 4X rated
- No moving parts with proximity sensor triggered by a target puck
- Sealed proximity switch so open cavity condensation is not an issue
- Each actuator has visual indication and proximity feedback to the PLC
- Each component meets Type 4X
- Low power consumption allows power and data communications via the same two-wire cable
- A system of 31 valves requires less than 5 amps of AS-i power
- Expandability with gateway and/or insulation displacement connector
- 5 ms reaction time from PLC to cycling of unit
- Conformance to AS-i Certificate ZU15101

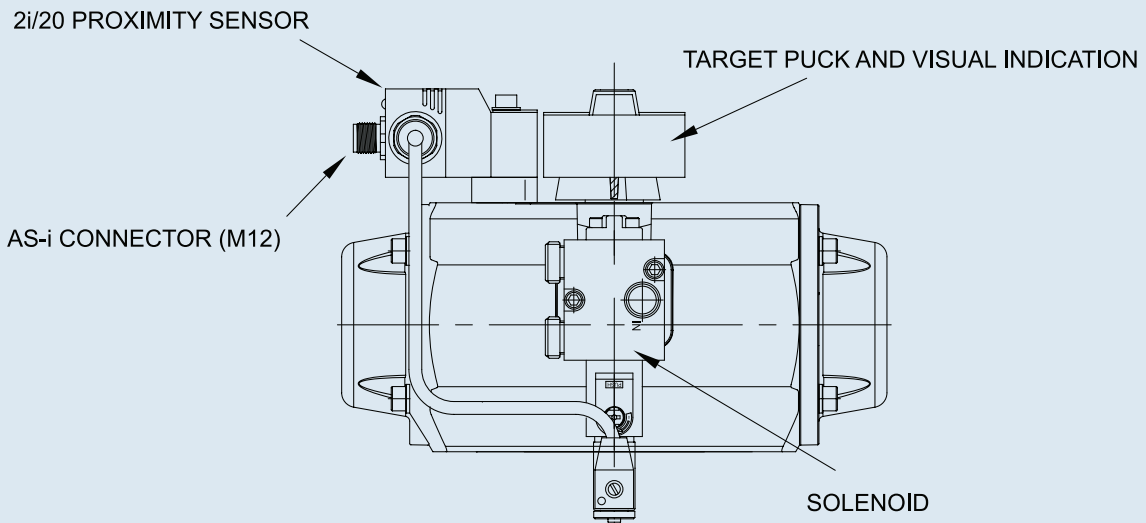
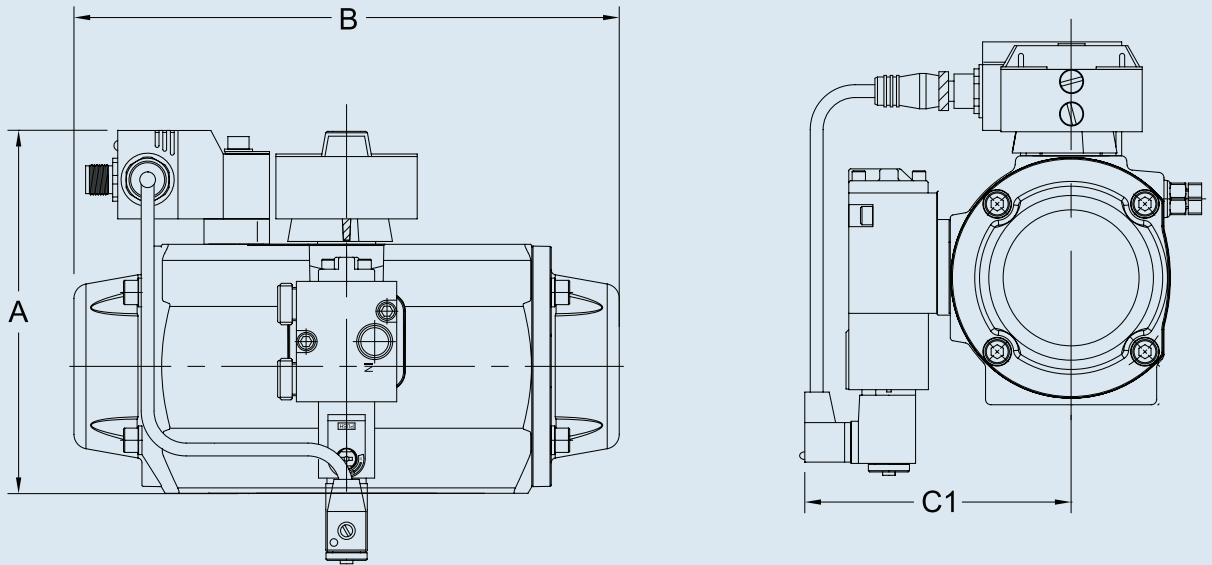


**Series 79P Pneumatic Actuator
and T-57P Butterfly Valve**

Sample Specification

All pneumatically actuated AS-i systems shall have a two-input/two-output proximity sensor and a solenoid directly mounted to a Series 79P actuator. The sensor shall be constructed of Pocan® thermoplastic polyester, Type 4X protection, operation and function LED's, voltage range of 20-30 VDC, and a stainless steel M12 socket connection to the network. The solenoid shall have an anodized aluminum body with a 1/4" NPT air inlet, manual override, and NEMA 4X protection. Spool/piston shall be synthetic resin with NBR and FKM O-rings, and fitted with an epoxy-encapsulated coil directly coupled to the proximity sensor, as supplied by Asahi/America, Inc.

AS-i Bus System



Dimensions (in.)

Series	A	B	C1
A79PN	4.90	5.52	3.52
A79PSN	4.90	5.52	3.52
B79PN	5.76	6.00	3.78
B79PSN	5.76	6.00	3.78
B579PN	6.06	7.91	4.14
B579PSN	6.06	7.91	4.14
C79PN	6.23	8.83	4.22
C79PSN	6.23	8.83	4.22
C579PN	6.84	10.40	4.41
C579PSN	6.84	10.40	4.41

Dimensions (in.)

Series	A	B	C1
D79PN	7.53	12.19	4.69
D79PSN	7.53	12.19	4.69
D579PN	8.64	14.02	5.12
D579PSN	8.64	14.02	5.12
E79PN	9.29	16.83	5.75
E79PSN	9.29	16.83	5.75
F79PN	12.48	17.48	6.77
F79PSN	12.48	23.54	6.77
G79PN	14.09	20.63	7.36
G79PSN	14.09	27.32	7.36

Technical Data and Standards

Physical Properties of Thermoplastics Used In Asahi Valves*

Properties	Unit	PVC	HI-PVC	CPVC	PP	PVDF	Test Method
Specific Gravity	-	1.43	1.40	1.54	0.92	1.76	ASTM D792
Tensile Strength	psi	7690 - 8700	7110 - 7540	8410 - 9280	4210 - 4930	7980 - 8700	ASTM D638
Elongation	%	60 - 120	60 - 180	30 - 80	200 - 400	30 - 60	ASTM D638
Tensile Modulus	10 ³ psi	421 - 479	392 - 421	479 - 508	116 - 174	174 - 203	ASTM D638
Flexural Strength	psi	11310 - 15660	11310 - 12760	14210 - 15660	7830 - 9280	13490 - 14940	ASTM D790
Flexural Modulus	10 ³ psi	377 - 406	290 - 334	421 - 450	203 - 232	218 - 261	ASTM D790
Compressive Strength	psi	12760 - 14210	8410 - 11310	14210 - 15660	8410 - 10010	12760 - 14210	ASTM D695
Compressive Modulus	10 ³ psi	232 - 261	189 - 218	247 - 290	131 - 160	145 - 203	ASTM D695
Poisson's Ratio	-	0.37	NA	0.35	0.44	0.28	ASTM D638/D790
Hardness (Rockwell R)	degrees	114 - 116	112 - 116	117	95	110	ASTM D785
Impact Strength [Izod] with V-Notch	kJ/m ²	3 - 5	10 - 15	4 - 6	4 - 7	8 - 10	ASTM D256
Heat resistance	°F	32 - 140	23 - 140	32 - 194	- 4 ~ 194	- 40 ~ 248	-
Deflection Temperature (at 66psi)	°F	163 - 167	162 - 165	250	230 - 244	302	ASTM D648
Thermal Expansion	10 ² mm/mm/°C	6 - 8	7 - 8	6 - 8	11 - 12	11 - 12	ASTM D696
Thermal Conductivity	Kcal/mh°F	0.15	0.11	0.14	0.09	0.11	ASTM C177
Dielectric Strength	kV/inch	0.90	NA	0.90	1.02	1.18	ASTM D149
Volume Resistivity	ohm-inch	2.17 · 10 ¹⁶	NA	2.28 · 10 ¹⁶	1.93 · 10 ¹⁶	1.97 · 10 ¹⁶	ASTM D257
Dielectric Constant	-	-	-	-	-	-	ASTM D150
10 Hz	-	2.8 - 3.0	NA	NA	NA	NA	
60 Hz	-	3.15	NA	2.93	2.42	9.8	
10 ³ Hz	-	3.14	NA	2.92	2.41	9.5	
10 ⁶ Hz	-	2.85	NA	2.69	2.41	7.5	
Dissipation Factor	-	-	NA	-	-	-	ASTM D150
60 Hz	10 ²	1.18	NA	1.09	NA	0.05	
10 ³ Hz	10 ²	1.91	NA	1.10	0.044	0.048	
10 ⁶ Hz	10 ²	1.72	NA	0.92	0.063	0.160	
Water absorption 24 hr. 1/8 inch thickness	%	0.07	NA	0.15	0.01	0.03	ASTM D570

* This data for reference only.

Standards

ANSI B1.20.1 (Was B2.1)

(American National Standards Institute)

This specification details the dimensions and tolerance for tapered pipe threads. This standard is referenced in the ASTM standard for threaded fittings mentioned above.

ASTM STANDARD D-1784 A

(American Society for Testing and Materials)

This standard covers PVC and CPVC compounds used in the manufacture of plastic pipe, valves, and fittings. It provides a means for selecting and identifying compounds on the basis of a number of physical and chemical criteria. Conformance to a particular material classification in this standard requires meeting a number of minimum physical and chemical properties.

ANSI B16.5

This specification sets forth standards for bolt holes, bolt circles, and overall dimensions for steel 150 lbs. flanges.

ASTM STANDARD D-3222

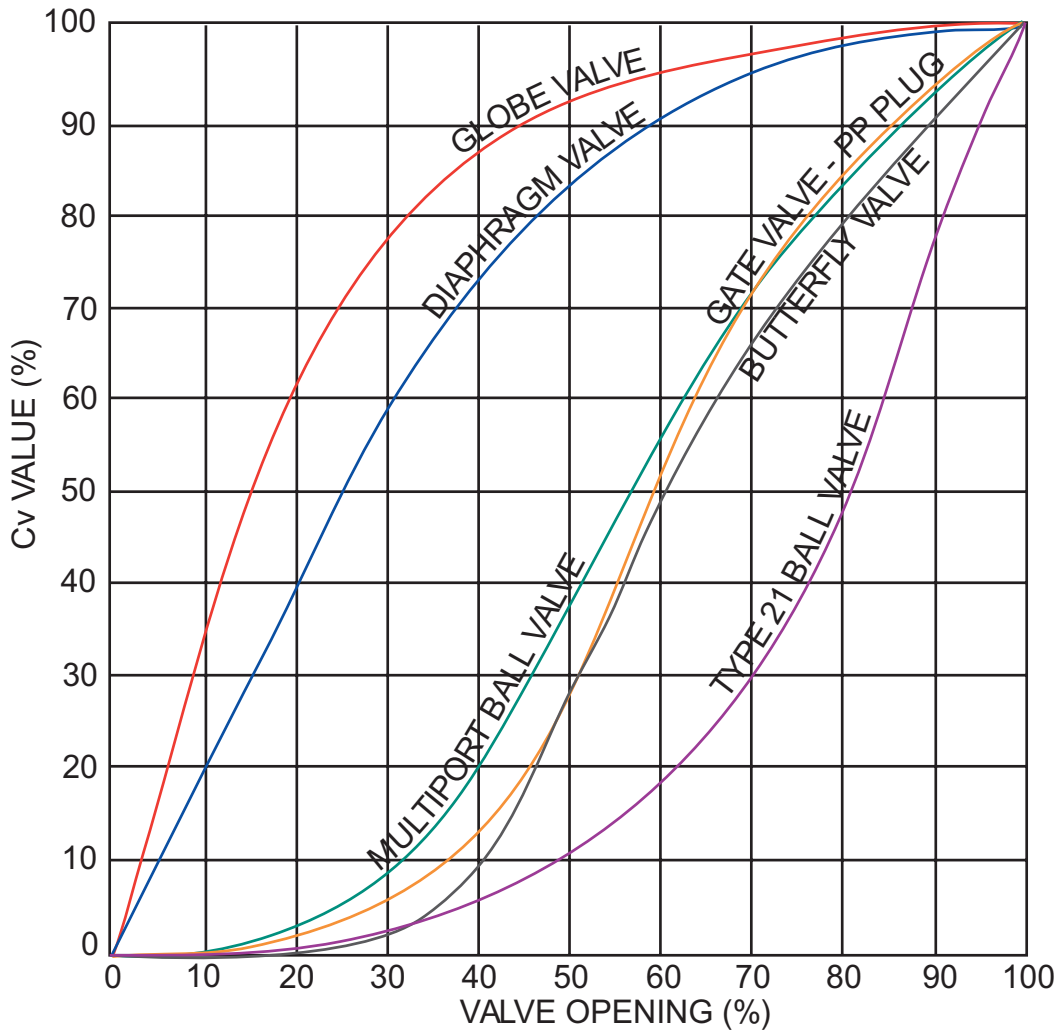
This standard covers the polymerization method and physical properties of PVDF (polyvinylidene fluoride) fluoroplastic materials for molding and extrusion.

ASTM STANDARD D-4101 (FORMERLY D-2146)

This standard covers the polymeric content and physical characteristics of PP (polypropylene) plastic materials for injection molding and extrusion.

Flow Characteristics

Flow Characteristics



This table shows the relationship between valve opening and Cv values. Each curve is the representative average of all sizes for a particular type of valve. Cv value is the percentage of the full open Cv. The Cv value can be found in the appropriate section of this catalog.

Using the Cv value to calculate the differential pressure or flow rate through a valve:

Cv is the flow rate through a valve which will produce a differential pressure of 1 psi.

Whenever a fluid passes through a valve, there will be a drop in pressure. The upstream pressure less the downstream pressure is known as the differential pressure, or:

$$\Delta P = [Q/Cv]^2 \text{ s.g.}$$

$$Q = Cv\sqrt{\Delta P/\text{s.g.}}$$

$$Cv = Q\sqrt{\text{s.g.}/\Delta P}$$

where,

$$P_1 - P_2 = \Delta P$$

where,

P_1 = upstream pressure
 P_2 = downstream pressure
 ΔP = differential pressure

ΔP = differential pressure (psi)
 s.g. = specific gravity
 Q = flow rate (gpm)

For further technical information consult factory.

Part Numbers

All part numbers for Asahi/America products are seen digits long. In general, the first four digits specify the product and the last three digits specify the size. In this catalog, part numbers will be referenced with the first four digits followed by "***", signifying that the size code should follow. The Part Numbers table below defines the three digit code for various valve sizes.

Nominal Size (inches)	Asahi/America Part Number	Nominal Size (inches)	Asahi/America Part Number
3/8	****003	5	****050
1/2	****005	6	****060
3/4	****007	8	****080
1	****010	10	****100
1-1/4	****012	12	****120
1-1/2	****015	14	****140
2	****020	16	****160
2-1/2	****025	18	****180
3	****030	20	****200
4	****040	24	****240

Type-21/21A Ball Valves

Body	Elastomer	Connection	1/2" - 2"	2-1/2" - 6"
PVC	EPDM	Soc	1601***	1602***
PVC	EPDM	Thd	1601***	1603***
PVC	EPDM	Flg	1604***	1604***
PVC	FKM	Soc	1605***	1606***
PVC	FKM	Thd	1605***	1607***
PVC	FKM	Flg	1608***	1608***
CPVC	EPDM	Soc	1609***	1610***
CPVC	EPDM	Thd	1609***	1611***
CPVC	EPDM	Flg	1612***	1612***
CPVC	FKM	Soc	1613***	1614***
CPVC	FKM	Thd	1613***	1615***
CPVC	FKM	Flg	1616***	1616***
PP	EPDM	DIN Soc	1638***	1638***
PP	EPDM	IPS Soc	1618***	1618***
PP	EPDM	Thd	1619***	1619***
PP	EPDM	Butt	1620***	1620***
PP	EPDM	Flg	1621***	1621***
PP	FKM	DIN Soc	1652***	1652***
PP	FKM	IPS Soc	1622***	1622***
PP	FKM	Thd	1623***	1623***
PP	FKM	Butt	1624***	1624***
PP	FKM	Flg	1625***	1625***
PVDF	FKM	DIN Soc	1666***	1666***
PVDF	FKM	IPS Soc	1626***	1626***
PVDF	FKM	Thd	1627***	1627***
PVDF	FKM	Butt	1628***	1628***
PVDF	FKM	Flg	1629***	1629***

Type-23 Multiport® Ball Valves

Body	Elastomer	Connection	1/2" - 4"
PVC	EPDM	Soc	2510***
PVC	EPDM	Thd	2511***
PVC	EPDM	Flg	2512***
PVC	FKM	Soc	2513***
PVC	FKM	Thd	2514***
PVC	FKM	Flg	2515***
CPVC	EPDM	Soc	2516***
CPVC	EPDM	Thd	2517***
CPVC	EPDM	Flg	2518***
CPVC	FKM	Soc	2519***
CPVC	FKM	Thd	2520***
CPVC	FKM	Flg	2521***
PP	EPDM	DIN Soc	2522***
PP	EPDM	IPS Soc	2523***
PP	EPDM	Thd	2524***
PP	EPDM	Butt	2525***
PP	EPDM	Flg	2526***
PP	FKM	DIN Soc	2527***
PP	FKM	IPS Soc	2528***
PP	FKM	Thd	2529***
PP	FKM	Butt	2530***
PP	FKM	Flg	2531***
PVDF	FKM	DIN Soc	2532***
PVDF	FKM	IPS Soc	2533***
PVDF	FKM	Thd	2534***
PVDF	FKM	Butt	2535***
PVDF	FKM	Flg	2536***

Labcock® Ball Valves

Body	Elastomer	Connection	1/4"
PVC	EPDM	FT x MT	1076002
PVC	EPDM	MT x MT	1077002
PVC	EPDM	MT x H	1078002
PVC	EPDM	H x H	1079002
PVC	EPDM	FT x MT	1080002
PVC	EPDM	FT x H	1082002
PVC	EPDM	MT x EL	1089002

Omni® Type-27 Ball Valves

Body	Elastomer	Connection	3/8" - 3"
PVC	EPDM	Soc	161070***
PVC	EPDM	Thd	161071***
PVC	FKM	Soc	161084***
PVC	FKM	Thd	161085***
CPVC	EPDM	Soc	161072***
CPVC	EPDM	Thd	161073***
CPVC	FKM	Soc	161086***
CPVC	FKM	Thd	161087***

Electromni® Type-27 Valves

Body	Elastomer	Connection	3/8" - 2"
PVC	EPDM	Soc	172015***
PVC	EPDM	Thd	172016***
CPVC	EPDM	Soc	172017***
CPVC	EPDM	Thd	172018***

Ball Valve Actuators

Electric	Series 92	2001***
	Series 94	2085***
	Series 83	2002***
Pneumatic Series 79P	Air-to-Air	2301***
	Air-to-Spring	2302***

AS-i Bus System

Pneumatic Series 79P	(2-way) A79-E79	2407010
	Air-to-Air	
	Air-to-Spring	
Pneumatic Series 79P	(2-way) F79-G79	2407040
	Air-to-Air	
	Air-to-Spring	
Pneumatic Series 79P	(3-way) A79-E79	2407011
	Air-to-Air	
	Air-to-Spring	

Note:

Not all ball or butterfly actuators can be used with all valve types and sizes. Consult price list.

Gate Valves

Body	Gate	Elastomer	Connection	1-1/2" - 14"
PVC	PP	EPDM	Flg	1251***

Constant Flow Valves

Body	Elastomer	Connection	1" - 4"
PVC	EPDM	Flg	1307***

Trademarks

Air-Pro, Asahitec, Chem Proline, Chem Prolok, Duo-Pro, Electromni, Fluid-Lok, Labcock, Multiport, Omni, Plasgear, Poly-Flo, PolyPure, Pool-Pro, Proline, Pro-Vent, PP-Pure, Purad, Quater Master, Speed Handle, Super Proline, and Ultra Proline are registered trademarks of Asahi/America, Inc.

AFLAS is a registered trademark of Asahi Glass Co., Ltd.

Halar is a registered trademark of Ausimont.

Part Numbers

Type-57P Lever Butterfly Valves

Body	Disc	Elastomer	1-1/2" - 8"
PVC	PP	EPDM	173730***
PVC	PP	FKM	173731***
PVC	PP	Nitrile	173732***
PVC	PVC	EPDM	173722***
PVC	PVC	FKM	173724***
PVC	PVDF	EPDM	173733***
PVC	PVDF	FKM	173734***
PP	PP	EPDM	173752***
PP	PP	FKM	173753***
PP	PVDF	EPDM	173740***
PP	PVDF	FKM	173741***
PVDF	PVDF	EPDM	173744***
PVDF	PVDF	FKM	173745***
CPVC	CPVC	EPDM	173881***
CPVC	CPVC	FKM	173882***

Type-57P Gear Butterfly Valves

Body	Disc	Elastomer	1-1/2" - 14"	12" - 14"	12" - 24"
PVC	PP	EPDM	173719***	173786***	
PVC	PP	FKM	173720***	173787***	
PVC	PP	Nitrile	173721***	173789***	
PVC	PVC	EPDM	173723***	173789***	
PVC	PVC	FKM	173725***	173790***	
PVC	PVDF	EPDM	173717***	173791***	
PVC	PVDF	FKM	173718***	173792***	
PP	PP	EPDM	173726***		3801***
PP	PP	FKM	173727***		3802***
PP	PP	Nitrile	173735***		3803***
PP	PVDF	EPDM	173736***		3804***
PP	PVDF	FKM	173737***		3805***
PVDF	PVDF	EPDM	173728***		3806***
PVDF	PVDF	FKM	173729***		3807***
CPVC	CPVC	EPDM	173883***		
CPVC	CPVC	FKM	173884***		

Actuators for Type-57P Butterfly Valves

Electric	Series 92	1792***
	Series 94	1793***
	Series 10P	2109***
Pneumatic Series 79P	Air-to-Air	1794***
	Air-to-Spring	1795***

Type-75 Butterfly Valves

Body	Disc	Elastomer	18" - 24"
PP	PP	EPDM	3801***
PP	PP	FKM	3803***
PP	PP	Nitrile	3802***
PVDF	PVDF	EPDM	3806***
PVDF	PVDF	FKM	3807***

Type-75 Actuators

Electric	Series 10P	2109***
Pneumatic	Air-to-Air	2315***
Series 79P	Air-to-Spring	2316***

Type-55 and Type-55 IS Butterfly Valves

Body	Disc	Seat	Lever	Gear
			2" - 5"	2" - 10"
Epoxy Coated Ductile Iron	PTFE	PTFE	1717***	1719***

Type SP Pool-Pro® Butterfly Valves

Body	Disc	Seat	Lever	Gear
			1-1/2" - 8"	1-1/2" - 12"
PVC	PVC	EPDM	1728***	3793***

PDCPD Butterfly Valves

Body & Disc	Seat	Oper	32"	36"	40"	44"	48"
PDCPD	EPDM 1721***	Gear	320	360	400	440	480
PDCPD	FKM 1723***	Gear	320	360	400	440	480

PDCPD Type-58 Butterfly Valves

Body & Disc	Seat	Oper	28"
PDCPD	EPDM 1721***	Gear	320

Type-56D/75D Butterfly Valves

Body	Disc	Elastomer	16" - 24"
PDCPD	PP	EPDM	3876***
PDCPD	PP	Nitrile	3877***
PDCPD	PP	FKM	3878***
PDCPD	PVDF	EPDM	3879***
PDCPD	PVDF	FKM	3880***

Type-57 Lug Lever Butterfly Valves

Body	Disc	Elastomer	Lugs	1-1/2" - 8"
PVC	PP	EPDM	316 SS	113772***
PVC	PP	NITRILE	316 SS	113873***
PVC	PP	FKM	316 SS	113776***
PVC	PVC	EPDM	316 SS	113780***
PVC	PVC	NITRILE	316 SS	113775***
PVC	PVC	FKM	316 SS	113784***
PVC	PVDF	EPDM	316 SS	113857***
PVC	PVDF	FKM	316 SS	113759***
PP	PP	EPDM	316 SS	3861***
PP	PP	FKM	316 SS	3863***
PP	PVDF	EPDM	316 SS	3865***
PP	PVDF	FKM	316 SS	3867***
PVDF	PVDF	EPDM	316 SS	3869***
PVDF	PVDF	FKM	316 SS	3871***

Type-57 Lug Gear Butterfly Valves

Body	Disc	Elastomer	Lugs	1-1/2" - 16" Plasgear	12" - 24" Metal Gear
PVC	PP	EPDM	316 SS	113773***	-
PVC	PP	NITRILE	316 SS	113825***	-
PVC	PP	FKM	316 SS	113777***	-
PVC	PVC	EPDM	316 SS	113781***	-
PVC	PVC	NITRILE	316 SS	113782***	-
PVC	PVC	FKM	316 SS	113785***	-
PVC	PVDF	EPDM	316 SS	113817***	-
PVC	PVDF	FKM	316 SS	113719***	-
PP	PP	EPDM	316 SS	3833***	3841***
PP	PP	FKM	316 SS	3835***	3843***
PP	PVDF	EPDM	316 SS	3837***	3845***
PP	PVDF	FKM	316 SS	3839***	3847***
PVDF	PVDF	EPDM	316 SS	3849***	3853***
PVDF	PVDF	FKM	316 SS	3851***	3855***

Type-57LIS Lever Butterfly Valves

Body	Disc	Elastomer	Lugs/Wafer	3" - 8"
PVC	PP	EPDM	316 SS	3972***
PVC	PP	Nitrile	316 SS	3986***
PVC	PP	FKM	316 SS	3976***
PVC	PP	EPDM	Wafer	3930***
PVC	PP	Nitrile	Wafer	3932***
PVC	PP	FKM	Wafer	3931***
PVC	PVC	EPDM	316 SS	3980***
PVC	PVC	Nitrile	316 SS	3927***
PVC	PVC	FKM	316 SS	3928***
PVC	PVC	EPDM	Wafer	3922***
PVC	PVC	Nitrile	Wafer	3926***
PVC	PVC	FKM	Wafer	3924***
PVC	CPVC	EPDM	316 SS	3935***
PVC	CPVC	Nitrile	316 SS	3937***
PVC	CPVC	FKM	316 SS	3938***
PVC	CPVC	EPDM	Wafer	3987***
PVC	CPVC	Nitrile	Wafer	3936***
PVC	CPVC	FKM	Wafer	3982***
PP	PVDF	EPDM	316 SS	3957***
PVC	PVDF	Nitrile	316 SS	3940***
PVC	PVDF	FKM	316 SS	3959***
PVC	PVDF	EPDM	Wafer	3933***
PVC	PVDF	Nitrile	Wafer	3939***
PVC	PVDF	FKM	Wafer	3934***

Type-57LIS Gear Butterfly Valves

Body	Disc	Elastomer	Lugs/Wafer	3" - 8"
PVC	PP	EPDM	316 SS	3973***
PVC	PP	Nitrile	316 SS	3941***
PVC	PP	FKM	316 SS	3977***
PVC	PP	EPDM	Wafer	3919***
PVC	PP	Nitrile	Wafer	3921***
PVC	PP	FKM	Wafer	3920***
PVC	PVC	EPDM	316 SS	3981***
PVC	PVC	Nitrile	316 SS	3929***
PVC	PVC	FKM	316 SS	3985***
PVC	PVC	EPDM	Wafer	3923***
PVC	PVC	Nitrile	Wafer	3942***
PVC	PVC	FKM	Wafer	3925***
PVC	CPVC	EPDM	316 SS	3943***
PVC	CPVC	Nitrile	316 SS	3945***
PVC	CPVC	FKM	316 SS	3946***
PVC	CPVC	EPDM	Wafer	3983***
PVC	CPVC	Nitrile	Wafer	3944***
PVC	CPVC	FKM	Wafer	3984***
PP	PVDF	EPDM	316 SS	3947***
PVC	PVDF	Nitrile	316 SS	3949***
PVC	PVDF	FKM	316 SS	3950***
PVC	PVDF	EPDM	Wafer	3917***
PVC	PVDF	Nitrile	Wafer	3948***
PVC	PVDF	FKM	Wafer	3918***

Part Numbers

Type-14 TU Manual Diaphragm Valves

Body	Bonnet	Elastomer	Connection	1/2" - 2"
PVC	PVC	EPDM	Soc	1526***
PVC	PVC	EPDM	Thd	1527***
PVC	PVC	PTFE	Soc	1528***
PVC	PVC	PTFE	Thd	1529***
CPVC	PP	EPDM	Soc	1530***
CPVC	PP	EPDM	Thd	1531***
CPVC	PP	PTFE	Soc	1532***
CPVC	PP	PTFE	Thd	1533***
PP	PP	EPDM	DIN Soc	1535***
PP	PP	EPDM	IPS Soc	1534***
PP	PP	EPDM	Thd	1537***
PP	PP	EPDM	Butt	1536***
PP	PP	PTFE	DIN Soc	1539***
PP	PP	PTFE	IPS Soc	1538***
PP	PP	PTFE	Thd	1541***
PP	PP	PTFE	Butt	1540***
PVDF	PPG	PTFE	DIN Soc	1543***
PVDF	PPG	PTFE	IPS Soc	1542***
PVDF	PPG	PTFE	Thd	1545***
PVDF	PPG	PTFE	Butt	1544***
PVDF	PVDF	PTFE	DIN Soc	1547***
PVDF	PVDF	PTFE	IPS Soc	1546***
PVDF	PVDF	PTFE	Thd	1549***
PVDF	PVDF	PTFE	Butt	1548***

Type G Flange Manual Diaphragm Valves

Body	Bonnet	Diaphragm	8" - 10"
PVC	PVC	EPDM	1126***
PVC	PVC	PTFE	1127***
CPVC	PP	EPDM	N/A
CPVC	PP	PTFE	N/A
PP	PP	EPDM	1132***
PP	PP	PTFE	1133***
PVDF	PPG	PTFE	1136***

Type TI Diaphragm Valves

Body	Bonnet	Diaphragm	1/2" - 6"
PVDF	PPG	PTFE	1457***

Type-14 Flanged Manual Diaphragm Valves

Body	Bonnet	Diaphragm	1/2" - 4"
PVC	PVC	EPDM	1461***
PVC	PVC	PTFE	1462***
CPVC	PP	EPDM	1463***
CPVC	PP	PTFE	1464***
PP	PP	EPDM	1465***
PP	PP	PTFE	1466***
PVDF	PPG	PTFE	1468***
PVDF	PVDF	PTFE	1467***

Type-15 Flanged Manual Diaphragm Valves

Body	Bonnet	Diaphragm	5" - 6"
PVC	PVC	EPDM	1461***
PVC	PVC	PTFE	1462***
CPVC	PP	EPDM	N/A
CPVC	PP	PTFE	N/A
PP	PP	EPDM	1465***
PP	PP	PTFE	1466***
PVDF	PPG	PTFE	1468***
PVDF	PVDF	PTFE	1467***

Type-14 Pneumatic Air-to-Spring Diaphragm

Body	Bonnet	Elastomer	Connection	1/2" - 2"
PVC	PPG	EPDM	Soc	1589***
PVC	PPG	EPDM	Thd	1591***
PVC	PPG	EPDM	Flg	1423***
PVC	PPG	PTFE	Soc	1588***
PVC	PPG	PTFE	Thd	1590***
PVC	PPG	PTFE	Flg	1424***
CPVC	PPG	EPDM	Soc	1597***
CPVC	PPG	EPDM	Thd	1599***
CPVC	PPG	EPDM	Flg	1425***
CPVC	PPG	PTFE	Soc	1596***
CPVC	PPG	PTFE	Thd	1598***
CPVC	PPG	PTFE	Flg	1426***
PP	PPG	EPDM	DIN Soc	1844***
PP	PPG	EPDM	IPS Soc	1865***
PP	PPG	EPDM	Thd	1842***
PP	PPG	EPDM	Butt	1867***
PP	PPG	EPDM	Flg	1427***
PP	PPG	PTFE	DIN Soc	1843***
PP	PPG	PTFE	IPS Soc	1866***
PP	PPG	PTFE	Thd	1841***
PP	PPG	PTFE	Butt	1868***
PP	PPG	PTFE	Flg	14288***
PVDF	PPG	EPDM	DIN Soc	1884***
PVDF	PPG	EPDM	IPS Soc	1887***
PVDF	PPG	EPDM	Thd	1885***
PVDF	PPG	EPDM	Butt	1886***
PVDF	PPG	EPDM	Flg	1422*
PVDF	PPG	PTFE	DIN Soc	1834***
PVDF	PPG	PTFE	IPS Soc	1869***
PVDF	PPG	PTFE	Thd	1833***
PVDF	PPG	PTFE	Butt	1870***
PVDF	PPG	PTFE	Flg	1429***

Type-14 Pneumatic Air-to-Air Diaphragm

Body	Bonnet	Elastomer	Connection	1/2" - 2"
PVC	PPG	EPDM	Soc	1577***
PVC	PPG	EPDM	Thd	1576***
PVC	PPG	EPDM	Flg	1413***
PVC	PPG	PTFE	Soc	1579***
PVC	PPG	PTFE	Thd	1578***
PVC	PPG	PTFE	Flg	1414***
CPVC	PPG	EPDM	Soc	1581***
CPVC	PPG	EPDM	Thd	1580***
CPVC	PPG	EPDM	Flg	1415***
CPVC	PPG	PTFE	Soc	1583***
CPVC	PPG	PTFE	Thd	1582***
CPVC	PPG	PTFE	Flg	1416***
PP	PPG	EPDM	DIN Soc	1847***
PP	PPG	EPDM	IPS Soc	1860***
PP	PPG	EPDM	Thd	1848***
PP	PPG	EPDM	Butt	1861***
PP	PPG	EPDM	Flg	1417***
PP	PPG	PTFE	DIN Soc	1849***
PP	PPG	PTFE	IPS Soc	1859***
PP	PPG	PTFE	Thd	1850***
PP	PPG	PTFE	Butt	1862***
PP	PPG	PTFE	Flg	1418***
PVDF	PPG	EPDM	DIN Soc	1892***
PVDF	PPG	EPDM	IPS Soc	1895***
PVDF	PPG	EPDM	Thd	1893***
PVDF	PPG	EPDM	Butt	1894***
PVDF	PPG	EPDM	Flg	1421***
PVDF	PPG	PTFE	DIN Soc	1846***
PVDF	PPG	PTFE	IPS Soc	1863***
PVDF	PPG	PTFE	Thd	1845***
PVDF	PPG	PTFE	Butt	1864***
PVDF	PPG	PTFE	Flg	1419***

AV Gaskets

Material	1/2" - 12"
EPDM	3113***
PTFE-Bonded	3114***
PVDF-Bonded	3115***

Sediment Strainers

Body	Elastomer	Connection	1/2" - 2"	3" - 4"
PVC	EPDM	Soc	1257***	1256***
PVC	EPDM	Thd	1257***	1257***
PVC	EPDM	Flg	1258***	1258***

Part Numbers

Ball Check Valves

Body	Elastomer	Connection	1/2" - 2"	3" - 4"
PVC	EPDM	Soc	1210***	1210***
PVC	EPDM	Thd	1210***	1211***
PVC	EPDM	Flg	1212***	1212***
PVC	FKM	Soc	1213***	1213***
PVC	FKM	Thd	1213***	1214***
PVC	FKM	Flg	1215***	1215***
CPVC	EPDM	Soc	1216***	1216***
CPVC	EPDM	Thd	1216***	1217***
CPVC	EPDM	Flg	1218***	1218***
CPVC	FKM	Soc	1219***	1219***
CPVC	FKM	Thd	1219***	1220***
CPVC	FKM	Flg	1221***	1221***
PP	FKM	DIN Soc	1276***	1276***
PP	FKM	IPS Soc	1226***	1226***
PP	FKM	Thd	1227***	1227***
PP	FKM	Butt	1228***	1228***
PP	FKM	Flg	1229***	1229***
PVDF	FKM	DIN Soc	1290***	1290***
PVDF	FKM	IPS Soc	1230***	1230***
PVDF	FKM	Thd	1231***	1231***
PVDF	FKM	Butt	1232***	1232***
PVDF	FKM	Flg	1233***	1233***

Swing Check Valves

Body	Seat	Connection	3/4" - 8"
PVC	EPDM	Flg	1201***
PP	EPDM	Flg	1202***
PVDF	Teflon	Flg	1203***

Wafer Check Valves

Body	Connection	4" - 12"
PVC	with out spring	111201***
PVC	with spring	111206***

Ball Foot Valves

Body	Elastomer	Connection	1/2" - 2"
PVC	EPDM	Soc	1235***
PVC	EPDM	Thd	1236***
PVC	EPDM	Flg	1237***
PVC	FKM	Soc	1238***
PVC	FKM	Thd	1239***
PVC	FKM	Flg	1240***

Globe Valves

Body	Elastomer	Connection	1/2" - 4"
PVC	EPDM	Soc	1260***
PVC	EPDM	Thd	1261***
PVC	EPDM	Flg	1262***
PP	EPDM	DIN Soc	1264***
PP	EPDM	IPS Soc	1267***
PP	EPDM	Thd	1265***
PP	EPDM	Flg	1266***

Globe Control Valves

Body	Elastomer	Actuated	1/2" - 4"
PVC	Flg	Pneumatic	2501***
PVC	Flg	Electric	2201***
PP	Flg	Pneumatic	2502***
PP	Flg	Electric	2202***
PTFE	Flg	Pneumatic	2503***
PTFE	Flg	Electric	2203***
PVDF	Flg	Pneumatic	2504***
PVDF	Flg	Electric	2204***

Gate Valves

Body	Elastomer	Connection	1/2" - 4"
PVC	EPDM	Soc	1260***
PVC	EPDM	Thd	1261***
PVC	EPDM	Flg	1262***
PP	EPDM	DIN Soc	1264***
PP	EPDM	IPS Soc	1267***
PP	EPDM	Thd	1265***
PP	EPDM	Flg	1266***

Fast Pack - Valve/Actuator Packages Electric

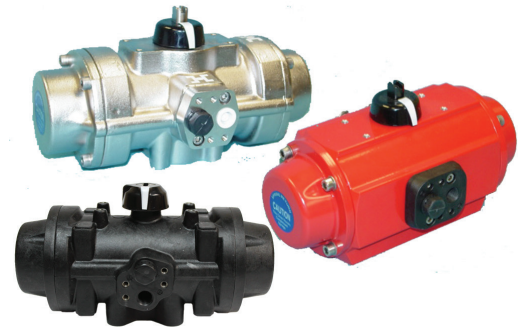
Actuator	Valve	Material	Size	Part Number
Series 94	T-21 Ball Valve	PVC/EPDM	1/2" - 3"	2901***
Series 94	T-21 Ball Valve	PVC/FKM	1/2" - 3"	2905***
Series 94	T-57P Butterfly Valve	PVC/EPDM	1-1/2" - 4"	2909***
Series 94	T-57P Butterfly Valve	PVC/FKM	1-1/2" - 4"	2913***
Series 92	T-21 Ball Valve	PVC/EPDM	1/2" - 4"	2902***
Series 92	T-21 Ball Valve	PVC/FKM	1/2" - 4"	2906***
Series 92	T-21 Ball Valve	PVC/EPDM	1-1/2" - 8"	2910***
Series 92	T-57P Butterfly Valve	PVC/FKM	1-1/2" - 8"	2914***
Series 83	T-21 Ball Valve	PVC/EPDM	1/2" - 2"	2926***
Series 83	T-21 Ball Valve	PVC/FKM	1/2" - 2"	2928***
Series 83	T-21 Ball Valve	CPVC/EPDM	1/2" - 2"	2925***
Series 83	T-21 Ball Valve	CPVC/FKM	1/2" - 2"	2927***

Fast Pack - Valve/Actuator Packages Pneumatic

Actuator	Valve	Material	Size	Part Number
Series 79P A-A	T-21 Ball Valve	PVC/EPDM	1/2" - 4"	2904***
Series 79P A-A	T-21 Ball Valve	PVC/FKM	1/2" - 4"	2908***
Series 79P A-A	T-57P Butterfly Valve	PVC/EPDM	1-1/2" - 8"	2912***
Series 79P A-A	T-57P Butterfly Valve	PVC/FKM	1-1/2" - 8"	2916***
Series 79P A-S	T-21 Ball Valve	PVC/EPDM	1/2" - 4"	2903***
Series 79P A-S	T-21 Ball Valve	PVC/FKM	1/2" - 4"	2907***
Series 79P A-S	T-21 Ball Valve	PVC/EPDM	1-1/2" - 8"	2911***
Series 79P A-S	T-57P Butterfly Valve	PVC/FKM	1-1/2" - 8"	2915***

Notes

Actuation & Controls



Pneumatic Actuators ■ Electric Actuators
PLC ■ AS-i-Bus Systems ■ Positioners



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Actuators, Positioners & Accessories



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Asahi/America's Series 79P pneumatic actuators for quarter-turn ball and butterfly valves provide accurate and dependable control, especially in corrosive applications.

The units are compact, yet extremely durable and available in output torques from 59 to 40,710 inch-pounds based on an 80psi air supply. Series 79P can be cycled using air, water, or non-combustable gas.

Three standard actuator materials are offered: glass-reinforced polyamide, cataphoresis and Rilsan® coated cast aluminum alloy, and 316 stainless steel; all of which incorporate ISO and NAMUR mounting configurations for simple installation of valves and accessories. These material choices provide excellent protection from adverse environments and corrosive process materials.

Two versions of this actuator are offered: single acting (air-to-spring or fail safe) and double acting (air-to-air), both versions utilize a double piston, double rack and pinion design.

Dual Stage Corrosion Resistance: Internal and external **Cataphoresis** and **Rilsan®** coating

Cataphoresis is an electro-chemical process of uniformly applying 20 microns of epoxy resin to the internal and external surfaces. Once this resin is applied, the next step is curing in a 400 degree oven (very similar to a powder coating process). This process provides high corrosion resistance

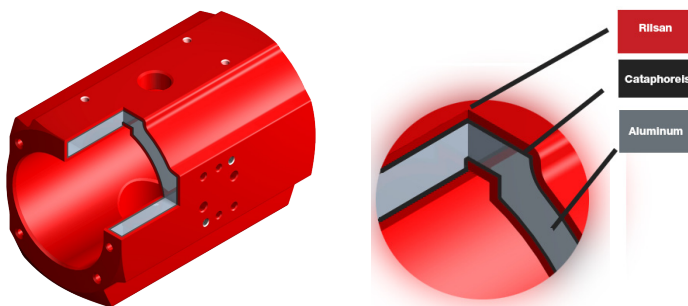
Rilsan® is a Nylon 11 that is uniformly applied to the internal and external surfaces to a thickness of 250 microns. This process offers high corrosion resistance, high resistance to wearing, and is also impact resistant

Engineering Specifications

- Body and End Cap Material: Cast aluminum body (cataphoresis and Rilsan coated inside and outside), glass-filled polyamide, 316 SS
- Shaft: 303 SS or cataphoresis coated with double O-ring seal on top and bottom
- Temperature Range: -25°F to 195°F
- O-ring Material: Self-lubricating BUNA-N
- Output Torque Range: 59 in./lbs. to 40,710 in./lbs.
- Supply Air: 60psi minimum, 120psi maximum
- Air Connections: 1/4" FNPT
- Mounting Dimensions: ISO and NAMUR standards
- Springs: Captive design
- Travel Stops: End adjustment
- End Caps: Bolt design

Sample Specification

All Series 79 pneumatic actuators shall be double piston, double rack and pinion design with body and end cap materials cast aluminum cataphoresis and Rilsan® coated inside and outside, glass-filled polyamide, or 316 stainless steel. Shaft shall be 303 stainless steel or cataphoresis coated steel with double O-ring seals on top and bottom. Actuators shall have 1/4" FNPT air connections, end adjustment travel stops, and visual position indicator. Single acting versions (spring return) shall have captive springs. All actuators shall have ISO bolt circle and NAMUR mounting dimensions for the installation of valve and optional accessories, as manufactured by Asahi/America, Inc.



Pneumatic Actuator Sales Questionnaire

The following questions need to be asked to make a proper recommendation:

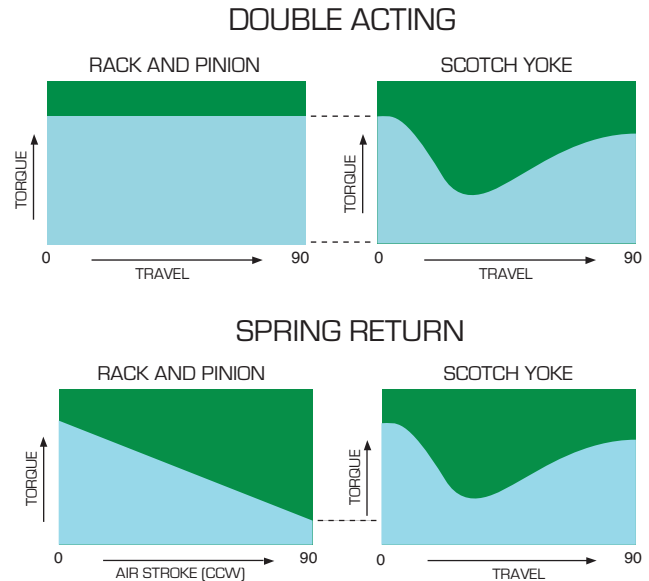
- Air-to-air or Air-to-spring?
- Supply air available?
- On/off or modulating?
- Modulating 3-15psi or 4-20 mA [Analogue or digital?]
- Solenoid Nema Type rating? 4 or 7?
- Environment ? Temp, corrosion resistance?
- Feedback? Switches Type 4 or Type 7?

Torque output for single acting (spring return) models varies according to the compression rate of the springs. Output torque decreases on the air stroke as the springs are compressed, and decreases in the spring stroke as the springs relax and extend. Reference the torque charts on pages xxx - xxx and use it to determine the correct number of springs required for your application.

Torque and Air Pressure

Two pieces of information are required for proper selection of a pneumatic actuator:

First is valve breakaway torque. This is the amount of torque required to “break” the ball, plug or disc away from the seat. It is calculated from the differential pressure, type of media, contact area between sealing members, etc. Once this is determined, it is multiplied by a safety factor to take into account unknowns such as the amount of time a valve has been in the closed position (some sealing members may take a set, making them difficult to separate), and corrosion buildup.



Second is the air supply, to which a conservative approach is required. If an actuator is located adjacent to the compressor, it will most likely see the full 80psi. But if the actuator is located 100 yards away with leaky air fittings, then the actuator may see only a fraction of the 80psi that the compressor is producing. So, if an actuator is sized for a supply of 80psi, and the actuator sees 60psi because of leaky fittings, there will not be enough output torque from the actuator to cycle the valve.

If the required torque of a valve (including the safety factor) equals or exceeds the output torque of the actuator, then the next size actuator should be selected.

Example of Pneumatic Actuator Selection

Select the proper actuator for the following application:

Single Acting (Spring Return) Fail Close

SPECS: Valve torque = 225 in./lbs.

Air supply pressure = 60psi

FIND: Required valve torque 281 in./lbs.

Spring end torque (362)

Air start torque at 60psi (307)

ANSWER: C579PASN with 5 springs per side

Pneumatic Actuator Options

- **Solenoid:** The solenoid is a means of supplying and exhausting the compressed air required to the cycle the actuator. Every pneumatic actuator requires a solenoid.
- **Voltages:** There are solenoid voltage options available to meet a variety of customer needs: 230 VAC, 12 VDC, 24 VDC, 12VAC, 24 VAC
- **Double limit switches:** Double (additional) limit switches are typically used as valve position confirmation (end of travel) with a PLC, DCS, etc. Other applications are for interlocking with other equipment or valves. These switches are SPDT with a 15 amp rating, and dry contact.
- **Feedback potentiometer:** This option is typically installed within a double limit switch enclosure. A 1000-ohm, 1 watt feedback potentiometer provides position feedback to a PLC, DCS, etc. This varies from the auxiliary limit switches, as the feedback potentiometer provides a varying degree opening percentage from 0-1000 ohms.
- **Electro-Pneumatic Positioner:** A smart positioner can be installed on top of the actuator for precise modulating control. The positioner accepts a 4-20mA control signal.
- **Transmitter:** A 4-20mA transmitter, which is standard equipment for our Smart positioner, will provide precise valve position (position feedback) to a PLC, DCS, etc. This feedback is output from the actuator NOT a control signal to the actuator.
- **Pneumatic Positioner:** A pneumatic positioner that operates via a 3-15 psi control signal can be installed on top of the actuator for precise modulating control. This positioner can be provided with an optional transmitter or limit switches.
- **De-Clutchable Manual Override:** This option is essentially a gear operator that allows for the automated valve to be cycled manually when compressed air is not present.



Series 79P (Aluminum)

Specifications - Series 79P

Type: Double Piston, Double Rack

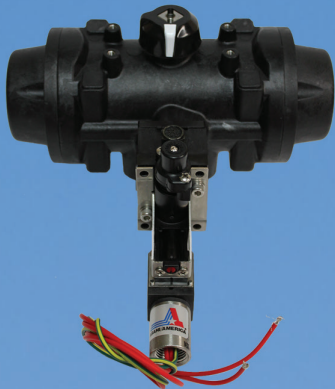
Bodies: and Pinion

Torque: Aluminum, Glass-filled
Polyamide, and 316 ss
59 to 40,710 in-lbs.
Models- Air-Spring

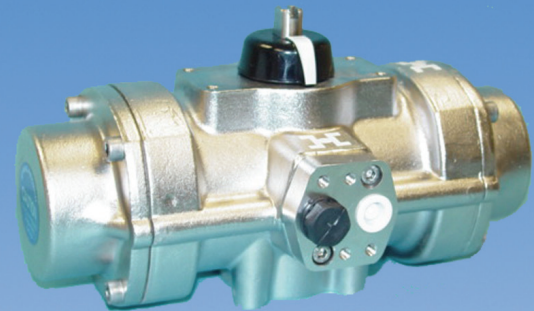
Air Supply: Spring Return (Fail Open)

Air Connections: Spring Return (Fail Closed)

Mounting Dim.: 60psi - 120psi
1/4" NPT
ISO and NAMUR



**Series 79P (Glass-filled Polyamide)
with solenoid valve**



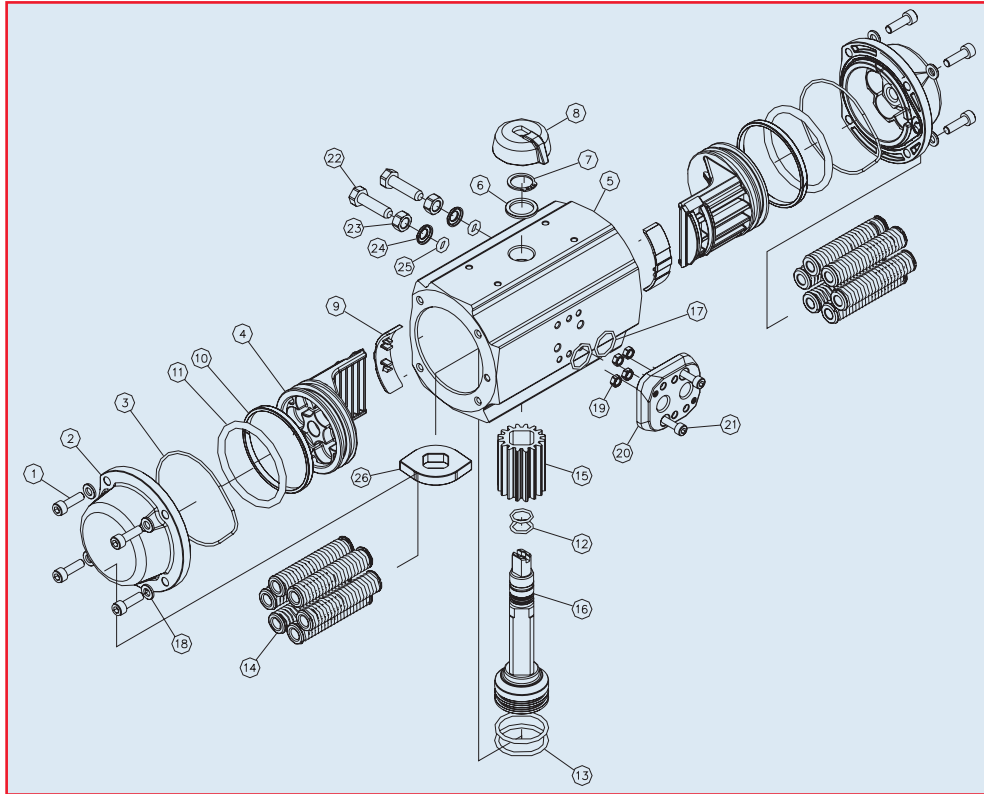
Series 79P (316 Stainless Steel)

Standard Features

- Actuator body and end caps constructed of glass-filled polyamide (PAG), aluminum encompassed in a two-part cathaphoresis and Rilsan finish, or 316 stainless steel
- Double piston, double rack and pinion
- ISO valve mounting pattern
- ISO Female star output drive
- NAMUR accessory mounting pattern
- 80psi (recommended) to 120psi (maximum) filtered air supply range
- Can be cycled with air, water or non-combustable gas
- Spring return models have cathaphoresis coating, or chromium passivation for spring protection
- Available in air-to-air (double acting) and air-to-spring (single acting, or spring return fail safe) models
- Position indication through visible indicator knob
- Actuator shaft constructed of cathaphoresis coated steel or stainless steel with double O-ring seals top and bottom
- End position adjustable travel stops (aluminum and 316 stainless steel models only)
- Polyacetal or PTFE/bronze piston guides
- Self-lubricating BUNA-N O-ring seals
- -25° F - 195° F temperature range
- 1/4" NPT air connections

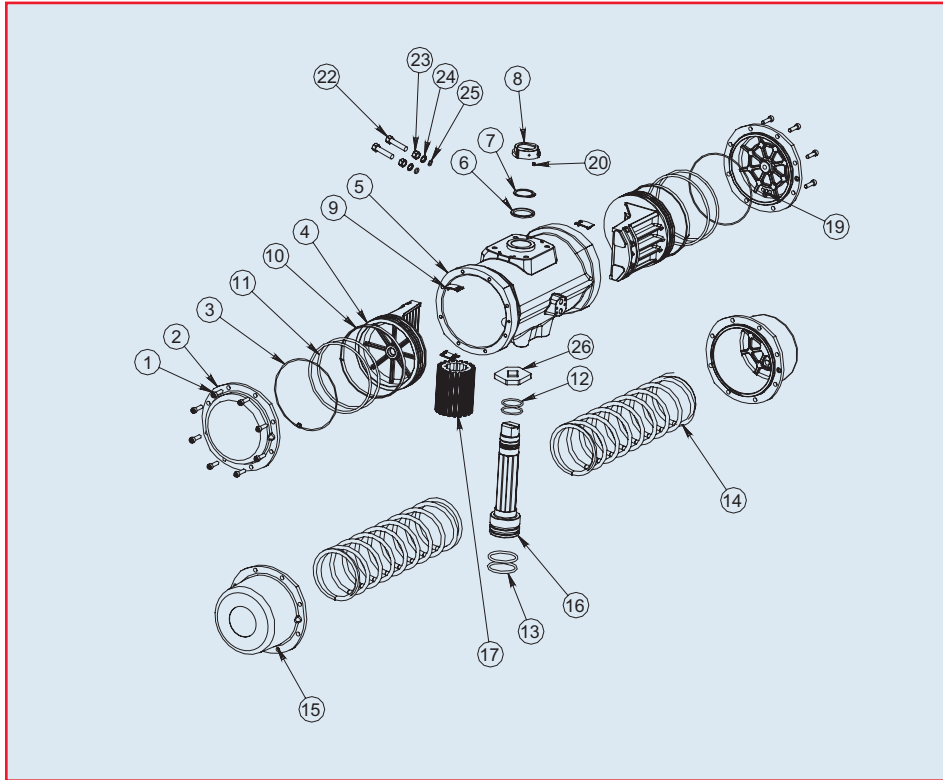
Options

- Sizing for low air supply pressure (60psi)
- Direct mount NAMUR solenoids in various type and voltage ratings (solenoids piped in a closed loop design)
- NAMUR double limit switches in various type and voltage ratings
- NAMUR pneumatic positioners (3-15psi)
- NAMUR electro-pneumatic positioners (4-20mA)
- Limit switch or transmitter available for positioners
- Bus systems



Parts List (Typical PA Series Actuator)

PARTS		
NO.	DESCRIPTION	MATERIAL
1	End Cap Bolt	304 Stainless Steel
2	End Cap	(PU or PA) Cataphoresis Coated Aluminum Alloy
3	End Cap O-Ring	NBR
4	Piston	Cataphoresis Coated Aluminum Alloy or Polyarylamide
5	Actuator Body	PA Cataphoresis Coated Aluminum Alloy
6	Washer	Polyacetal or Polyamide 6
7	Shaft Retaining Ring	Steel
8	Position Indicator	Polyamide or Polyacetal
9	Piston Guide	Polyacetal or Teflon & Bronze or Nylon
10	Guide Ring	Polyacetal or Teflon & Bronze
11	Piston O-Ring	NBR
12	Upper Shaft O-Ring	NBR
13	Lower Shaft O-Ring	NBR
14	Spring Set	DIN 17223 - C With Chromium Passivation or Cataphoresis
15	Pinion Gear	Ball Burnished Aluminum Alloy
16	Shaft	Cataphoresis Coated Steel or Polyamide
17	Air Connection Plate O-Ring	NBR
18	End Cap Washer	304 Stainless Steel
19	Nut for Air Connection Plate	304 Stainless Steel
20	Air Connection Plate	Polyamide or CF8M Stainless Steel
21	Bolt for Air Connection Plate	304 Stainless Steel
22	Adjustment Bolt	304 Stainless Steel or Hardened Steel
23	Adjustment Locknut	304 Stainless Steel
24	Bushing	Stainless Steel (303, 304, or 316)
25	Travel Stop O-Ring	NBR
26	Travel Stop Cam	Cataphoresis Coated Steel



Parts List (Typical P Series Actuator)

PARTS		
NO.	DESCRIPTION	MATERIAL
1	End Cap Bolt	304 Stainless Steel
2	Double Acting End Cap	PA Cataphoresis Coated Aluminum Alloy
3	End Cap O-Ring	NBR
4	Piston	Cataphoresis Coated Aluminum Alloy
5	Actuator Body	PA Cataphoresis Coated Aluminum Alloy
6	Washer	Polyamide 6
7	Shaft Retaining Ring	Steel
8	Position Indicator	Polyamide
9	Piston Guide	Polyacetal
10	Guide Ring	Teflon & Bronze
11	Piston O-Ring	NBR
12	Upper Shaft O-Ring	NBR
13	Lower Shaft O-Ring	NBR
14	Spring Set	DIN 17223 - C With Cataphoresis
15	Spring Return End Cap	Aluminum Alloy
16	Shaft	Cataphoresis Coated Steel
17	Pinion Gear	Ball Burnished Aluminum Alloy
19	End Cap Gasket	NBR
22	Adjustment Bolt*	Steel
23	Adjustment Locknut*	304 Stainless Steel
24	Bushing*	304 Stainless Steel
25	Travel Stop O-Ring*	NBR
26	Cam*	Cataphoresis Coated Steel

*Optional at time of order.

Torque Air-to-Air (Inch-Pounds)

Model	Supply Pressure (psi)				
	40	60	80	100	120
A79PA	70	100	137	175	203
B79PA	117	162	230	297	342
B579PA	208	286	401	517	594
C79PA	291	404	575	741	853
C579PA	489	669	940	1,212	1,393
D79PA	688	947	1,336	1,724	1,982
D579PA	1,240	1,682	2,344	3,008	3,486
E79PA	2,005	2,720	3,794	4,868	5,584
F79P	5,155	6,917	9,558	12,204	13,965
G79PA	8,832	11,983	16,718	21,452	24,603
L79PA	14,496	19,868	27,922	35,975	41,347
M79PA	21,143	28,966	40,710	52,454	60,286

Cycle Time (Seconds)

Model	Air to Air		Air to Spring	
	Open Port A	Open Port B	Open Port A	Open Port B
A79PA	0.10	0.10	0.15	0.15
B79PA	0.15	0.15	0.20	0.20
B579PA	0.20	0.20	0.25	0.25
C79PA	0.25	0.25	0.30	0.30
C579PA	0.30	0.30	0.40	0.40
D79PA	0.40	0.40	0.50	0.50
D579PA	0.50	0.50	0.80	0.80
E79PA	0.60	0.60	1.20	1.20
F79P	1.20	1.20	2.00	2.00
G79PA	3.00	2.50	4.00	3.00
L79PA	3.00	3.00	6.00	5.00
M79PA	4.00	4.00	8.00	6.00

Air Consumption (Cubic Inches)

Model	Air to Air		Air to Spring	
	Open Port A	Closed Port B	Open Port A	Closed Port B
A79PA	4.58	6.71	4.58	-
B79PA	9.15	10.98	9.15	-
B579PA	17.09	22.58	17.09	-
C79PA	21.36	27.46	21.36	-
C579PA	39.66	50.04	39.66	-
D79PA	48.82	70.17	48.82	-
D579PA	91.53	123.26	91.53	-
E79PA	125.09	183.06	125.09	-
F79P	323.41	323.41	323.41	-
G79PA	640.71	427.14	640.71	-
L79PA	1,189.89	1,263.11	1,189.89	-
M79PA	1,891.62	1,830.60	1,891.62	-

Weight (lbs.)

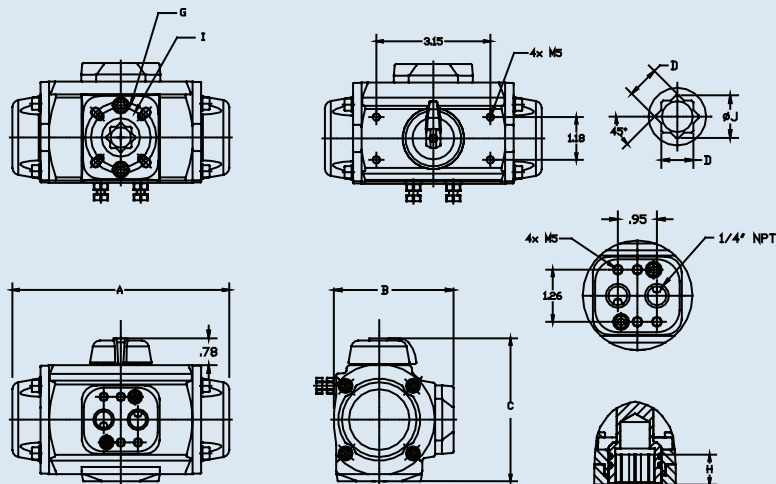
Model	Air to Air	Air to Spring
A79PA	2.03	2.20
B79PA	3.09	3.53
B579PA	5.66	6.48
C79PA	6.79	7.67
C579PA	9.26	11.11
D79PA	12.36	14.61
D579PA	20.50	24.91
E79PA	25.57	33.72
F79P	38.79	80.23
G79PA	67.66	128.71
L79PA	106.45	183.37
M79PA	171.69	260.51

Pneumatic Actuators

P/PA Series

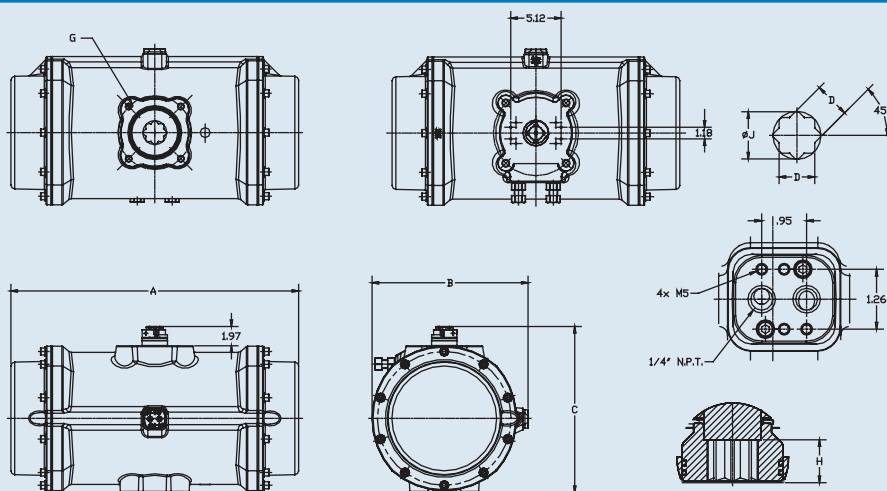
Torque Air-to-Spring (Inch-Pounds)

Model	Spring Set	40 psi		60 psi		80 psi		100 psi		120 psi		Spring Torque	
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
A79PAS	2	49	35	79	65	116	102	-	-	-	-	35	21
	3	38	21	68	51	105	89	143	127	-	-	49	32
	4	29	8	59	38	96	75	135	113	162	141	62	41
	5	-	-	49	25	86	62	124	100	151	127	75	51
	6*	-	-	-	-	78	49	116	87	143	114	89	59
B79PAS	2	81	60	126	104	194	172	261	239	306	284	58	36
	3	59	32	103	76	172	144	239	212	284	257	86	59
	4	-	-	85	50	153	119	220	186	266	231	112	77
	5	-	-	67	22	135	90	203	158	248	203	140	95
	6*	-	-	-	-	118	64	185	131	230	176	166	112
B579PAS	2	139	100	217	178	332	293	-	-	-	-	108	69
	3	108	46	186	124	301	239	417	355	-	-	162	100
	4	85	15	163	93	278	208	394	324	471	401	193	123
	5	-	-	132	47	247	162	363	278	440	355	239	154
	6*	-	-	-	-	216	123	332	239	409	316	278	185
C79PAS	2	200	157	312	269	484	441	-	-	-	-	135	91
	3	155	89	267	202	439	373	604	539	-	-	202	136
	4	110	22	222	135	394	306	559	472	672	584	269	181
	5	-	-	176	67	348	239	513	404	626	517	336	227
	6*	-	-	-	-	303	172	468	337	581	450	404	273
C579PAS	2	344	278	525	458	796	729	-	-	-	-	211	144
	3	272	173	452	353	723	624	995	896	-	-	316	217
	4	199	66	380	247	650	518	922	789	1,104	971	422	289
	5	-	-	307	142	578	412	850	684	1,031	866	527	362
	6*	-	-	-	-	506	307	778	579	959	760	633	434
D79PAS	2	494	379	753	638	1,143	1,027	-	-	-	-	309	194
	3	396	225	656	484	1,045	873	1,433	1,261	-	-	463	291
	4	299	71	558	329	948	719	1,335	1,106	1,594	1,365	618	389
	5	-	-	462	175	851	565	1,239	952	1,497	1,211	772	485
	6*	-	-	-	-	754	410	1,142	797	1,400	1,056	927	582
D579PAS	2	888	704	1,330	1,146	1,992	1,808	-	-	-	-	536	352
	3	712	435	1,154	878	1,816	1,540	2,480	2,204	-	-	804	528
	4	535	167	978	610	1,640	1,272	2,304	1,935	2,782	2,413	1,073	704
	5	-	-	802	342	1,464	1,004	2,128	1,667	2,605	2,145	1,341	881
	6*	-	-	-	-	1,288	735	1,951	1,399	2,429	1,877	1,609	1,057
E79PAS	2	1,427	1,147	2,142	1,863	3,216	2,937	-	-	-	-	856	577
	3	1,138	719	1,854	1,435	2,927	2,509	4,001	3,582	-	-	1,285	866
	4	849	291	1,565	1,007	2,639	2,080	3,712	3,154	4,428	3,870	1,713	1,155
	5	-	-	1,276	579	2,350	1,652	3,423	2,726	4,139	3,441	2,141	1,443
	6	-	-	-	-	2,062	1,225	3,137	2,299	3,853	3,015	2,569	1,732
F79PS	1	3,589	2,719	5,351	4,481	7,995	7,125	-	-	-	-	2,436	1,566
	2	2,371	913	4,133	2,914	6,776	5,559	9,420	8,202	-	-	4,003	2,784
	3	-	-	3,089	1,348	5,732	3,992	8,376	6,636	10,139	8,398	5,569	3,829
	4*	-	-	-	-	4,945	2,774	7,853	5,417	9,616	7,180	6,787	4,351
GP79PAS	2	5,335	2,750	8,485	5,900	13,220	10,635	17,955	15,370	21,105	18,520	6,083	3,498
	3	4,363	1,533	7,786	4,683	12,521	9,418	17,256	14,153	20,406	17,304	7,299	4,197
	4	-	-	6,949	3,224	11,681	7,959	16,416	12,694	19,566	15,844	8,759	5,037
	5	-	-	5,939	1,472	10,674	6,207	15,409	10,941	18,559	14,092	10,511	6,044
	6*	-	-	-	-	9,465	4,104	14,200	8,838	17,350	11,989	12,614	7,253
L79PAS	2	10,416	8,368	15,788	13,744	23,842	21,798	-	-	-	-	6,124	4,089
	3	8,372	5,315	13,744	10,682	21,798	18,735	29,851	26,789	-	-	9,177	6,124
	4	6,337	2,255	11,700	7,624	19,753	15,682	27,816	23,736	33,179	29,099	12,240	8,160
	5	-	-	9,664	4,564	17,718	12,620	25,771	20,674	31,143	26,037	15,302	10,204
	6*	-	-	-	-	15,682	9,558	23,736	17,612	29,099	22,983	18,364	12,240
M79PAS	2	15,921	10,700	23,753	18,532	35,497	30,276	-	-	-	-	10,443	5,222
	3	13,310	5,478	21,143	13,310	32,887	25,054	44,631	36,798	-	-	15,656	7,832
	4	-	-	18,532	8,089	30,276	19,833	42,020	31,577	49,843	39,409	20,877	10,443
	5	-	-	-	-	27,665	14,611	39,409	26,355	47,241	34,188	26,099	13,054
	6*	-	-	-	-	25,054	9,399	36,798	21,143	44,631	28,966	31,320	15,656



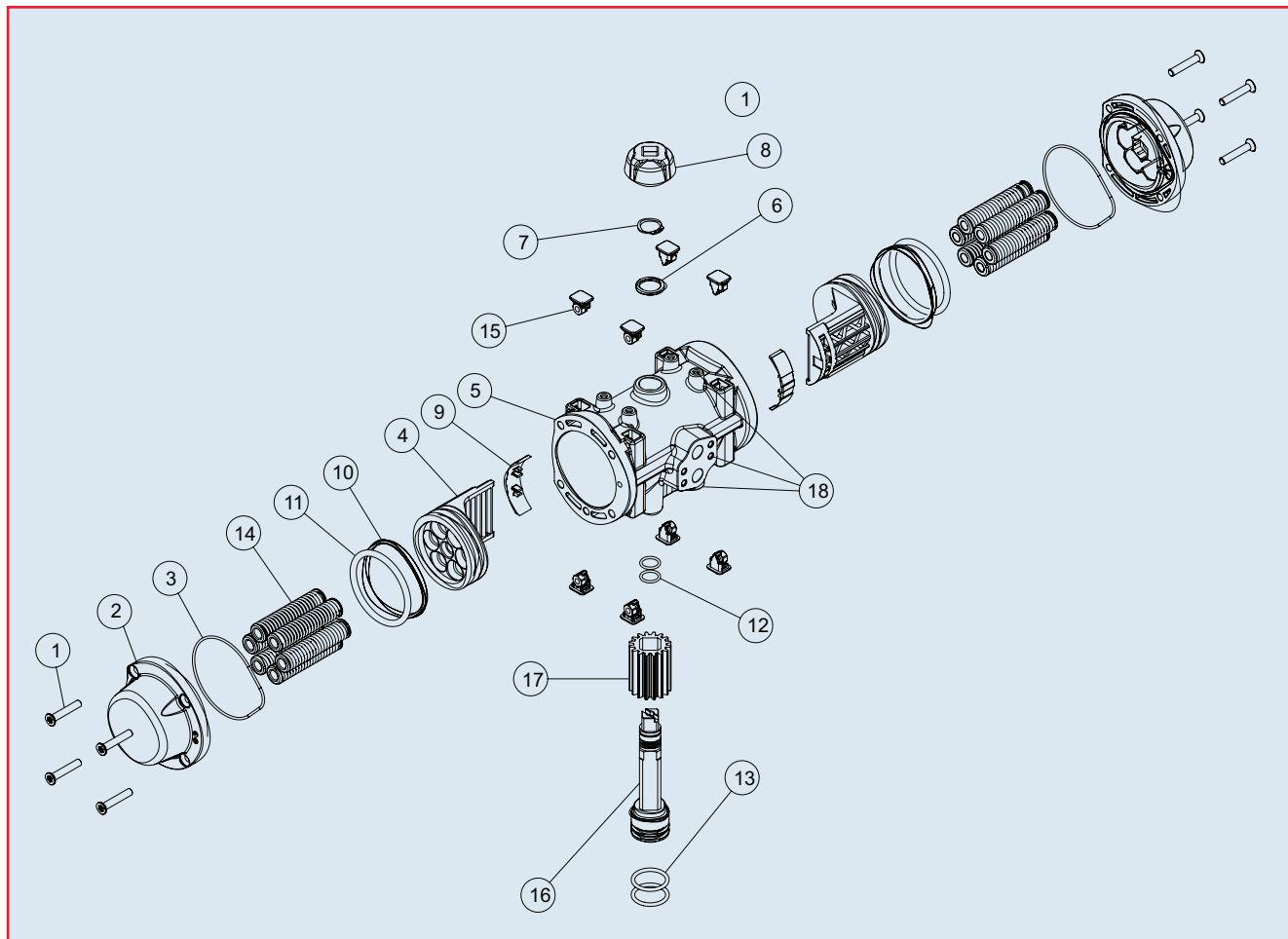
Conforming to standards: ISO 5211, DIN 3337, VDE 3845, NAMUR

Model	A		B	C	D	G	H	I	J		
	A-S	A-A									
A79PA	5.52		3.00	3.50	0.43	ø1.65	M5 X 8 DEEP	0.63	ø1.42	M5 X 8 DEEP	0.56
B79PA	6.10		3.31	4.02	0.55	ø1.97	M6 X 10 DEEP	0.63	ø1.65	M5 X 10 DEEP	0.75
B579PA	7.91		4.02	4.68	0.67	ø2.76	M8 X 14 DEEP	0.75	ø1.97	M6 X 9 DEEP	0.91
C79PA	8.90		4.08	4.85	0.67	ø2.76	M8 X 14 DEEP	0.75	ø1.97	M6 X 9 DEEP	0.91
C579PA	10.43		4.70	5.47	0.67	ø2.76	M8 X 14 DEEP	0.75	ø1.97	M6 X 9 DEEP	0.91
D79PA	12.28		5.00	5.79	0.87	ø2.76	M8 X 14 DEEP	0.75	ø1.97	M6 X 9 DEEP	1.14
D579PA	14.09		6.02	6.90	1.06	ø2.76	M8 X 14 DEEP	1.14	-	-	1.44
E79PA	16.90		6.65	7.52	1.06	ø4.02	M10 X 15 DEEP	1.14	-	-	1.44
G79PA	27.32		10.57	12.17	1.41	ø5.51	M16 X 25 DEEP	1.54	-	-	1.93
L79PA	26.40		13.57	14.49	1.81	ø6.50	M20 X 25 DEEP	1.89	-	-	2.40
M79PA	29.23		15.85	16.85	1.81	ø6.50	M20 X 25 DEEP	1.89	-	-	2.40



Conforming to standards: ISO 5211, DIN 3337, VDE 3845, NAMUR

Model	A		B	C	D	G	H	J	
	A-S	A-A							
F79P	17.48	23.53	8.90	10.71	1.41	ø4.92	M12 X 18 DEEP	1.50	1.93



Parts List (Typical PAG Series Actuator)

PARTS		
No	Description	Material
1	End Cap Bolt	304 Stainless Steel
2	End Cap	Polyamide
3	End Cap O-Ring	NBR
4	Piston	Polyarilamide
5	Actuator Body	Polyamide
6	Washer	Polyamide 6
7	Shaft Retaining Ring	Stainless Steel
8	Position Indicator	Polyamide
9	Piston Guide	Polyacetal
10	Guide Ring	Polyacetal
11	Piston O-Ring	NBR
12	Upper Shaft O-Ring	NBR
13	Lower Shaft O-Ring	NBR
14	Spring Set	DIN-17223-C with Chromium Passivation
15	Nut Protector	Polyamide
16	Shaft	303 Stainless Steel
17	Pinion Gear	Aluminum Alloy
18	Thread Inserts	304 Stainless Steel

Torque Air to Spring (Inch-Pounds)

Model	Spring Set	40 psi		60 psi		80 psi		100 psi		120 psi		Spring Torque	
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
AP79PAS	2	49	35	79	65	116	102					35	21
	3	38	21	68	51	105	89	143	127			49	32
	4	29	8	59	38	96	75	135	113	162	141	62	41
	5			49	25	86	62	124	100	151	127	75	51
	6*					78	49	116	87	143	114	89	59
BP79PAS	2	81	60	126	104	194	172	261	239	306	284	58	36
	3	59	32	103	76	172	144	239	212	284	257	86	59
	4			85	50	153	119	220	186	266	231	112	77
	5			67	22	135	90	203	158	248	203	140	95
	6*					118	64	185	131	230	176	166	112
CP79PAS	2	200	157	312	269	484	441					135	91
	3	155	89	267	202	439	373	604	539			202	136
	4	110	22	222	135	394	306	559	472	672	584	269	181
	5			176	67	348	239	513	404	626	517	336	227
	6*					303	172	468	337	581	450	404	273
DP79PAS	2	494	379	753	638	1,143	1,027					309	194
	3	396	225	656	484	1,045	873	1,433	1,261			463	291
	4	299	71	558	329	948	719	1,335	1,106	1,594	1,365	618	389
	5			462	175	851	565	1,239	952	1,497	1,211	772	485
	6*					754	410	1,142	797	1,400	1,056	927	582

*Number of springs in standard unit.

Torque Air-to-Air (Inch-Pounds)

Model	Supply Pressure (psi)				
	40	60	80	100	120
AP79P	70	100	137	175	203
BP79P	118	162	230	297	342
CP79P	291	404	575	741	853
DP79P	688	947	1336	1724	1982

Cycle Time (Seconds)

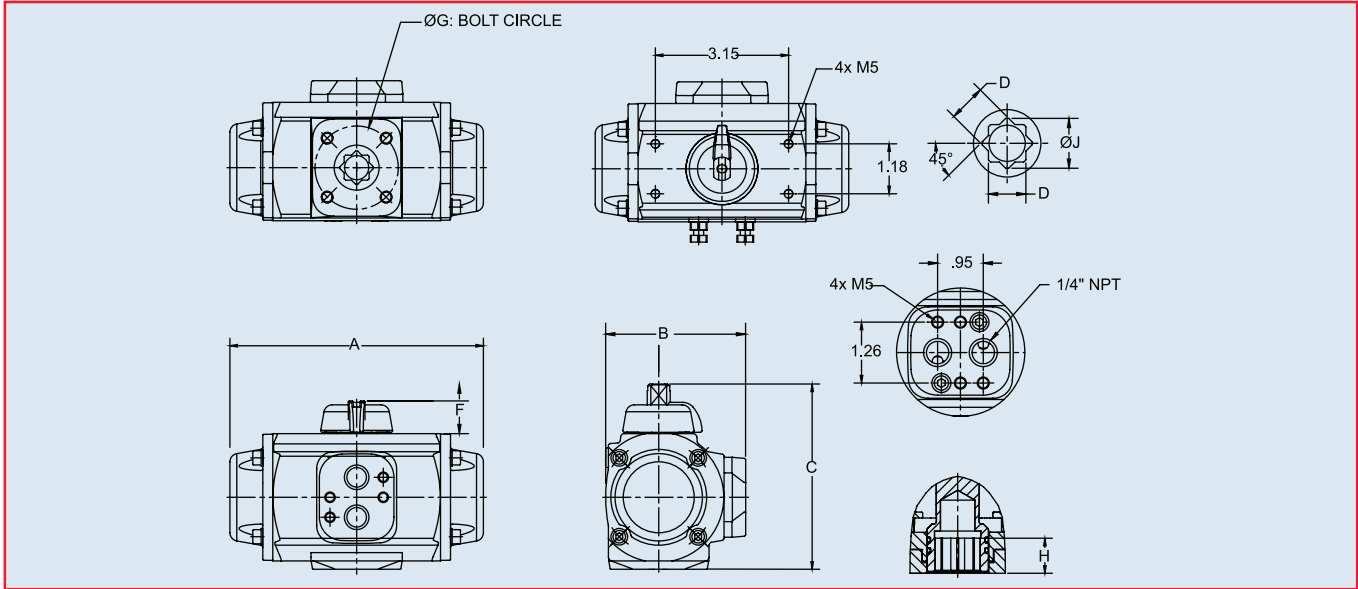
Model	Air-to-Air		Air-to-Spring	
	Open Port A	Closed Port B	Open Port A	Closed Port B
AP79P	0.10	0.10	0.15	0.15
BP79P	0.15	0.15	0.20	0.20
CP79P	0.25	0.25	0.30	0.30
DP79P	0.40	0.40	0.50	0.50

Air Consumption (Cubic Inches)

Model	Air-to-Air		Air-to-Spring	
	Open Port A	Closed Port B	Open Port A	Closed Port B
AP79P	4.58	3.05	4.58	-
BP79P	9.15	10.98	9.15	-
CP79P	21.36	27.46	21.36	-
DP79P	48.82	70.17	48.82	-

Weight (lbs.)

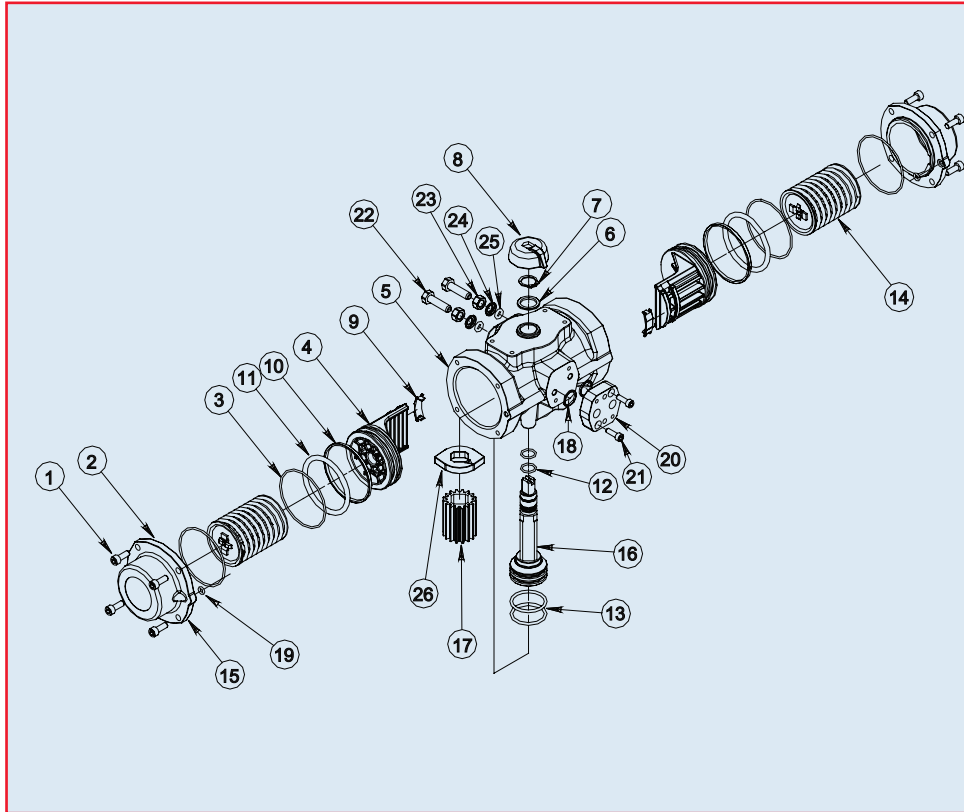
Model	Air-to-Air	Air-to-Spring
AP79PA	1.04	1.21
BP79PA	1.83	2.20
CP79PA	3.64	4.48
DP79PA	7.10	9.30



Conforming to standards: ISO 5211, DIN 3337, VDE 3845, NAMUR

Dimensions (in.)

Model	A	B	C	D	F	G		H	J
AP79PA	5.67	2.76	3.50	0.43	0.78	φ 1.65	M5 X 7 DEEP	0.63	0.56
BP79PA	6.18	3.11	4.02	0.55	0.78	φ 1.97	M6 X 15 DEEP	0.63	0.75
CP79PA	9.05	3.82	4.84	0.67	0.78	φ 2.76	M8 X 18 DEEP	0.75	0.91
DP79PA	12.32	4.80	5.79	0.87	0.78	φ 2.76	M8 X 18 DEEP	0.75	1.41



Parts List (Typical SS Series Actuator)

PARTS		
NO.	DESCRIPTION	MATERIAL
1	End Cap Bolt	316 Stainless Steel
2	End Cap	316 Stainless Steel
3	End Cap O-Ring	NBR
4	Piston	Cataphoresis Coated Aluminum
5	Actuator Body	316 Stainless Steel
6	Washer	Polyamide 6
7	Shaft Retaining Ring	Stainless Steel
8	Position Indicator	Polyamide
9	Piston Guide	Polyacetal
10	Guide Ring	PTFE/Bronze
11	Piston O-Ring	NBR
12	Upper Shaft O-Ring	NBR
13	Lower Shaft O-Ring	NBR
14	Spring Set (Captive)	Cataphoresis Coated DIN-17223-C
16	Shaft	316 Stainless Steel
17	Pinion Gear	Cataphoresis Coated Aluminum
18	Air Connection Plate O-Ring	NBR
19	End Cap Gasket	NBR
20	Air Connection Plate	316 Stainless Steel
21	Bolt for Air Connection Plate	316 Stainless Steel
22	Adjustment Bolt	316 Stainless Steel
23	Adjustment Locknut	316 Stainless Steel
24	Bushing	316 Stainless Steel
25	Travel Stop O-Ring	NBR
26	Cam	304 Stainless Steel

Torque Air-to-Spring (Inch-Pounds)

Model	Spring Set	40 psi		60 psi		80 psi		100 psi		120 psi		Spring Torque	
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
BS79PS	1	60	42	100	81	159	140	-	-	-	-	62	42
	2	37	10	77	50	136	109	196	168	-	-	93	65
	3	-	-	51	27	111	86	170	144	209	184	116	91
	4*	-	-	-	-	102	61	160	119	200	159	141	100
CS79PS	1	176	126	289	238	458	407	-	-	-	-	165	115
	2	-	-	267	157	397	325	566	494	-	-	248	175
	3	-	-	-	-	319	215	488	383	600	496	358	253
	4*	-	-	-	-	287	160	455	328	567	441	412	286
DS79PS	1	466	317	725	577	1113	965	-	-	-	-	371	222
	2	342	95	601	354	989	743	1378	1131	-	-	593	346
	3	-	-	453	132	841	519	1230	908	1489	1167	816	495
	4*	-	-	-	-	767	421	1156	810	1414	1068	914	568
ES79PS	1	1520	1174	2236	1890	3311	2965	-	-	-	-	830	484
	2	1174	689	1890	1405	2965	2478	4038	3553	-	-	1315	830
	3	759	205	1474	921	2549	1996	3622	3069	4,338	3,785	1799	1246
	4*	-	-	1128	298	2203	1373	3276	2446	3,992	3,162	2422	1592
FS79PS	1	3589	2718	5355	4485	7995	7125	-	-	-	-	2436	1566
	2	2370	1152	4136	2918	6776	5558	9420	8202	-	-	4003	2785
	3	-	-	3092	1352	5732	3992	8376	6635	10138	8398	5569	3829
	4*	-	-	-	-	5207	2773	7854	5417	9616	7180	6787	4351

*Number of springs in standard unit

Torque Air-to-Air (Inch-Pounds)

Model	Supply Pressure (psi)				
	40	60	80	100	120
BS79P	103	142	202	261	300
CS79P	291	404	573	741	853
DS79P	688	947	1335	1724	1982
ES79P	2005	2720	3795	4868	5584
FS79P	5155	6917	9560	12204	13967

Cycle Time (Seconds)

Model	Air to Air		Air to Spring	
	Open Port A	Closed Port B	Open Port A	Closed Port B
BS79P	0.15	0.15	0.20	0.20
CS79P	0.25	0.25	0.30	0.30
DS79P	0.40	0.40	0.50	0.50
ES79P	0.60	0.60	1.20	1.20
FS79P	1.20	1.20	2.00	2.00

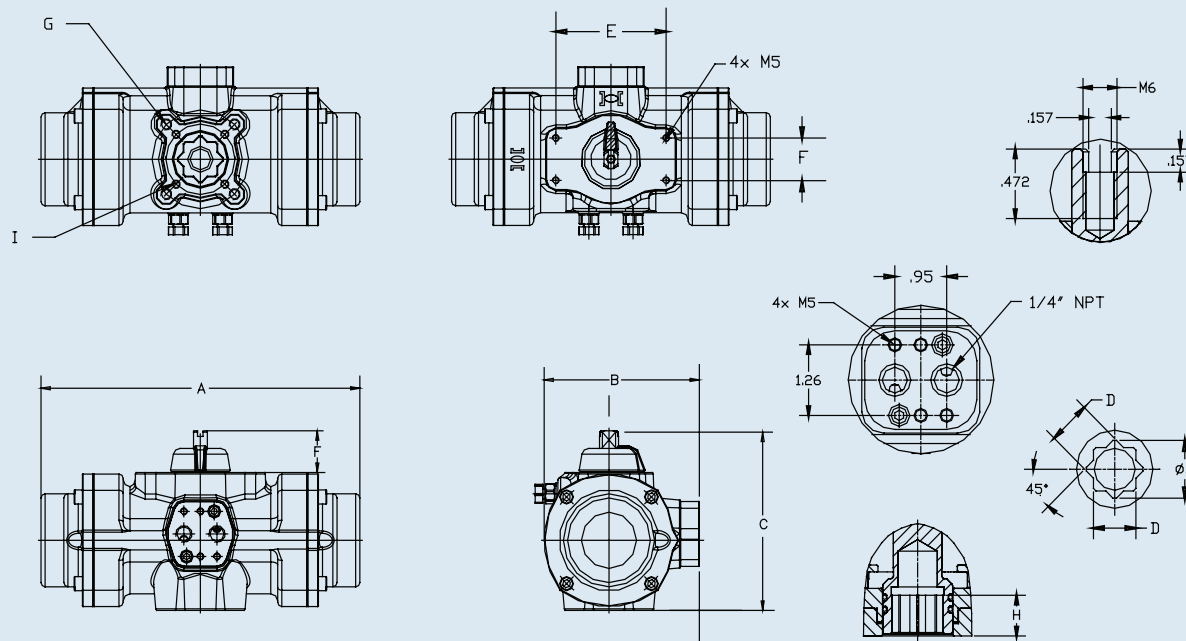
Air Consumption (Cubic Inches)

Model	Air to Air		Air to Spring	
	Open Port A	Closed Port B	Open Port A	Closed Port B
BS79P	9.15	6.10	9.15	-
CS79P	21.36	19.53	21.36	-
DS79P	48.82	42.71	48.82	-
ES79P	125.09	115.94	125.09	-
FS79P	323.41	323.41	323.41	-

Weight (lbs.)

Model	Air to Air	Air to Spring
BS79P	4.85	5.73
CS79P	10.36	12.34
DS79P	13.00	21.82
ES79P	39.45	55.98
FS79P	84.66	127.00

CONFORMING TO STANDARDS: ISO 5211, DIN 3337, VDE-3845, NAMUR



Dimensions (in.)

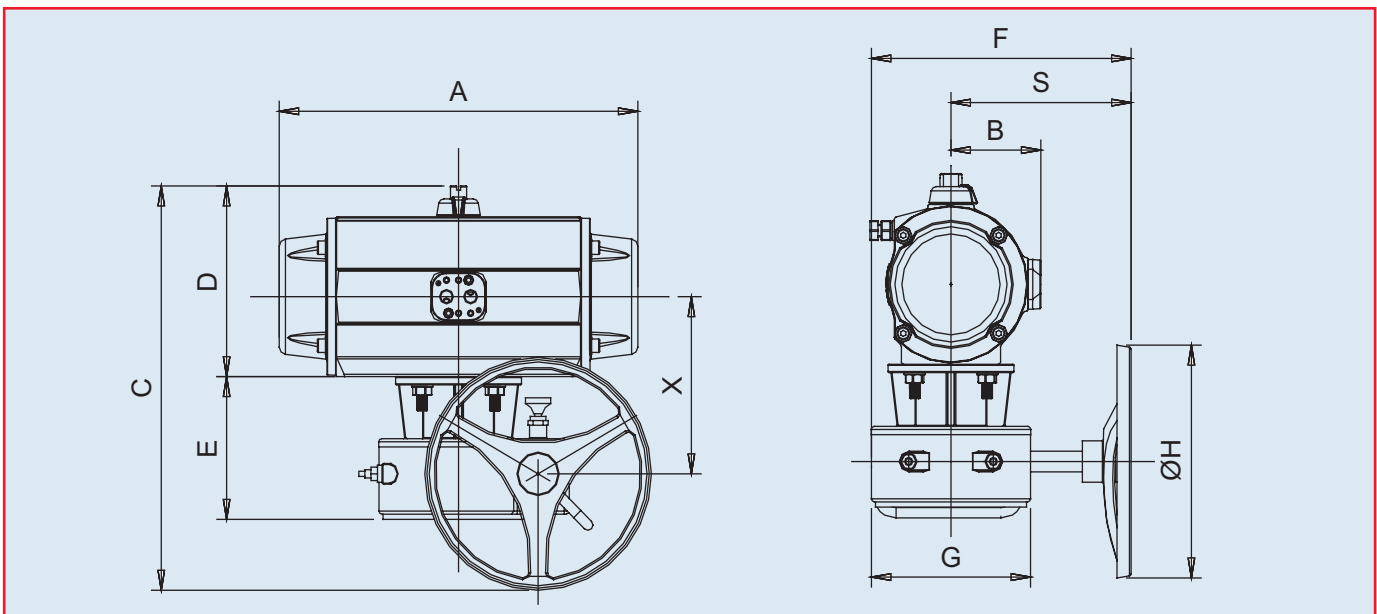
Model	A		B	C	D	E	F	G	H	I	J		
	A-A	A-S											
BS79P	5.47	6.30	3.58	4.38	0.55	3.15	1.18	∅ 1.97	M6 X 10 DEEP	0.63	-	-	0.57
CS79P	7.80	9.10	4.41	4.96	0.67	3.15	1.18	∅ 2.76	M8 X 14 DEEP	0.74	∅ 1.97	M6 X 9 DEEP	0.59
DS79P	10.12	12.13	5.47	6.29	0.87	3.15	1.18	∅ 2.76	M8 X 14 DEEP	0.74	∅ 1.97	M6 X 9 DEEP	0.91
ES79P	13.78	18.82	7.32	8.31	1.06	3.15	1.18	∅ 4.02	M10 X 15 DEEP	1.14	∅ 2.76	M8 X 14 DEEP	1.14
FS79P	23.54		8.78	10.71	1.41	5.12	1.97	∅ 4.92	M12 X 18 DEEP	1.50	∅ 4.02	M10 X 15 DEEP	1.38

Declutchable Manual Override for Series 79P



Standard Features:

- Output torque range of 1,100 in.x lbs. through 65,938 in.x lbs.
- Polyester coating
- End position travel stop
- ISO mounting
- Direct mount



Dimensions (in.)

ACTUATOR	GEARBOX	A		B	C	D	E	F	G	S	H	X
		S.R	D.A									
B79PA	RD-415	5.98		2.05	11.73	4.37	4.65	9.29	4.65	6.97	5.91	6.10
B579PA	RD-415	7.91		2.45	11.42	5.04	4.65	9.29	4.65	6.97	5.91	5.35
C79PA	RD-415	8.82		2.48	11.57	5.20	4.65	9.29	4.65	6.97	5.91	5.47
C579PA	RD-415	10.39		2.80	12.20	5.83	4.65	9.29	4.65	6.97	5.91	5.79
D79PA	RD-420	12.20		2.95	13.66	6.14	4.80	9.49	5.59	6.69	7.87	6.10
D579PA	RD-330	14.02		3.50	16.69	7.24	5.71	14.61	7.67	11.02	11.81	6.57
E79PA	RD-330	16.85		3.82	17.32	7.91	5.71	14.61	7.67	11.02	11.81	6.93
F79P	RD-345	23.54	17.48	4.72	22.48	10.71	6.42	15.56	8.74	11.18	15.75	8.46
G79P	RD-350	27.32	20.63	5.31	28.86	12.32	6.93	19.68	11.06	14.17	23.62	9.96
L79P	RD-360	26.42		6.77	34.41	14.49	7.64	20.28	11.06	14.01	29.53	11.54
M79P	RD-370	29.25		8.50	38.19	16.85	8.62	22.64	13.66	15.31	31.50	13.11

P Series Limit Switch



Specifications

Temperature: -20C to 80C
Limit Switches: 16A mechanical switches

Weight: 1.2 lbs.
Voltages: AC: 20 - 250DC: 10 - 300V
Housing: Aluminum
Shaft: 304SS
Indicator Cover: Polycarbonate
Fasteners: 304SS
Bracket: 304SS

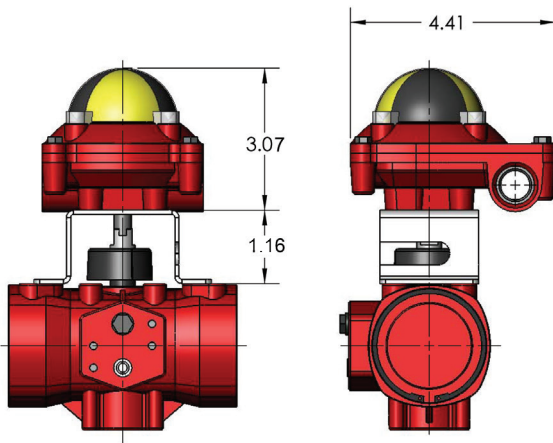
Standard Features

- Low cost valve position indication solution
- Thermally bonded rated powder coat finish Type 4X
- Two SPDT mechanical switches rated at 16 amps
- Indication of open/closed status with highly visible globe
- Easily adjustable cams for simple field calibration. No tools required
- Two 1/2" NPT conduit entries

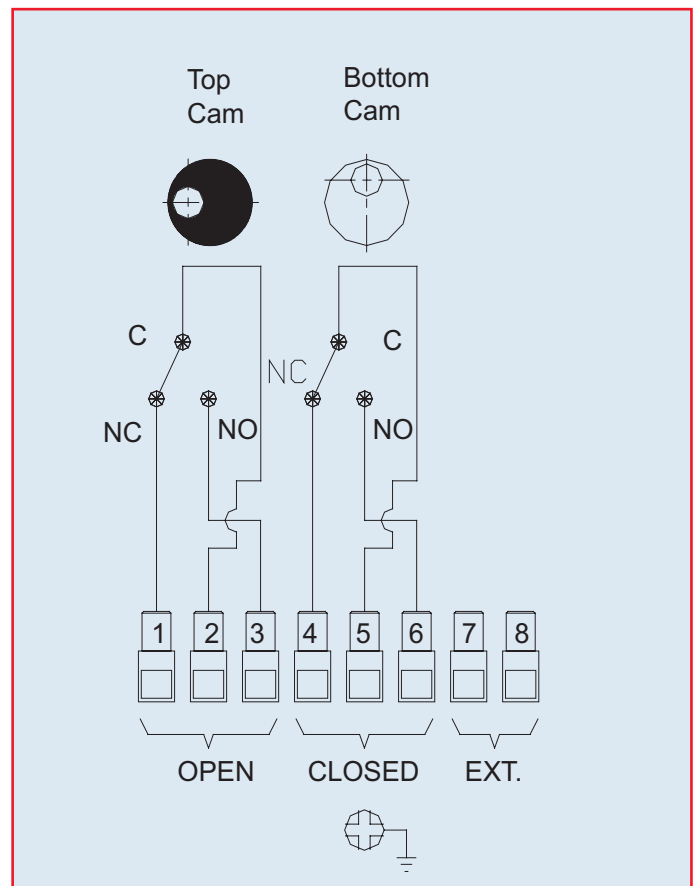
Options

- Inductive limit switches

Dimensions (in.)



Wiring Diagram



Westlock Top-Mounted Switch Box



A limit switch box is mounted on and coupled to the actuator in order to operate position-indicating lights on control panels, to control other equipment such as pumps, compressors and mixers, to sequence other valves, or for feedback and PLC position confirmation. Two single pole, double throw (SPDT) switches are mounted in one enclosure and are activated by individual, adjustable cams.

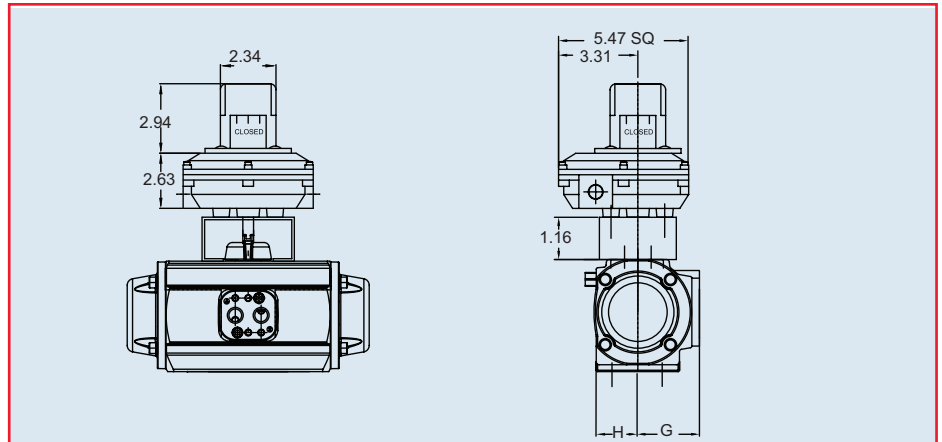
The cams are connected to the cam shaft, which is directly coupled to the actuator shaft. Switches can be set to be activated in fully open or closed positions, or in any position in the quadrant of the actuator's operation.

The limit switch box is available in NEMA Type 4X and Type 7 enclosures, and switches can be supplied in mechanical or proximity models.

The electrical rating of the standard mechanical switches is 15 amps at 250 VAC, which qualifies them for the following voltages: 12 and 24 VDC, 12, 24 and 115 VAC.

Standard Features

- Type 4X engineered resin enclosure
- UL 94H-B flammability rating
- NAMUR shaft
- CSA approved
- Beacon position indication
- Touch set cams
- Stainless steel trim
- Two 1/2" FNPT conduit entries
- Two single pole, double throw (two SPDT) limit switches; 15 amp rated



Options

- Two double pole, double throw (two DPDT) limit switches
- 4-20 mA transmitter
- NEMA 7 powder coated aluminum enclosure
- UL, CSA and FM approved Type 7

Pneumatic Actuators with Solenoid



The solenoid valve used for our pneumatic actuators is a four-way, on/off, electrically controlled valve. An electrical signal to the solenoid's coil switches the compressed air supply to the appropriate actuator ports.

The solenoids are furnished with mufflers and speed controls. The muffler reduces the sound of the exhausting air, and the speed control determines the cycle time of the actuator. The speed controls are manually set needle valves, which can be adjusted. The cycle time can be slowed by restricting the flow of the exhausting air, thus maintaining back pressure on the opposite side of the pressured actuator cavity.

During the absence of electric power, the actuator can be cycled by operating the manual override on the solenoid, providing that supply air is still available

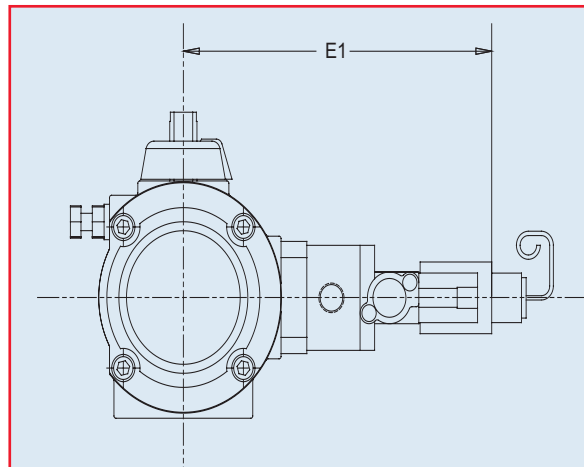
Upon electric failure, actuators will return to the de-energized position. This position can be either actuator position, depending upon how the plumbing is connected from the solenoid block to the air connection of the actuator.

Standard Features

- Engineered resin body
- NEMA Type 4X 120 VAC coil
- NAMUR mount
- Stainless steel trim
- 1/4" FNPT air connection
- Combination three-way/four-way
- 1/2" FNPT stainless steel conduit entry
- Manual override
- Speed controls
- Mufflers

Options

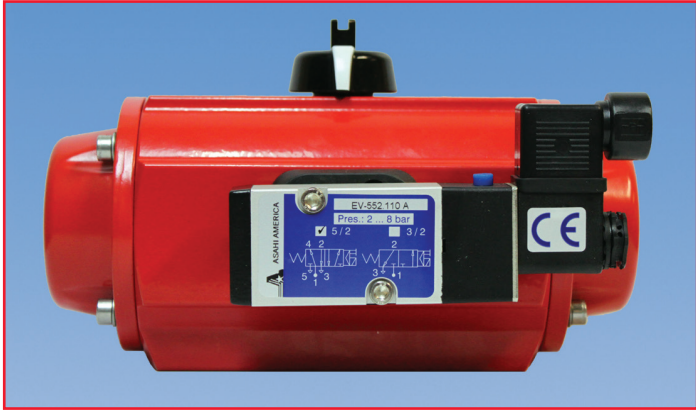
- NEMA 7 coil
- Voltages: 12 or 24 VAC
230 VAC
12 or 24 VDC



Dimensions (in.)

Model No.	E1
A79PA	5.77
B79PA	6.02
B579PA	6.38
C79PA	6.46
C579PA	6.65
D79PA	6.93
D579PA	7.36
E79PA	8.00
F79P	9.01
G79P	9.61
M79PA	12.80

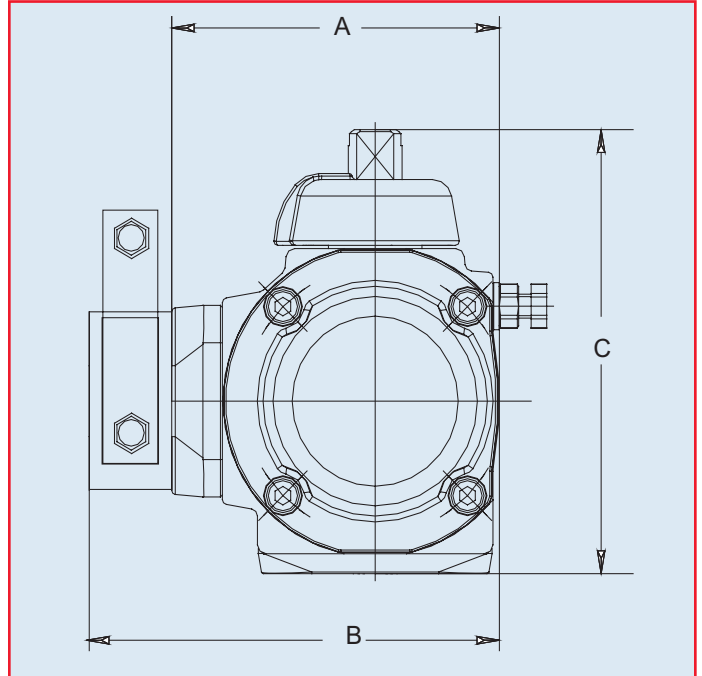
P-Series General Purpose Solenoid



P-Series General Purpose (IP65) NAMUR Mount Solenoid

Standard Features

- Anodized aluminum body
- IP-65 protection
- NAMUR mount
- Stainless steel trim
- 1/4" FNPT air connection
- Combination three-way/four-way
- 1/2" FNPT conduit entry
- Manual override
- Speed controls
- Mufflers



Dimensions (in.)

Model No.	A	B	C
A79PA	3.00	4.18	3.50
B79PA	3.31	4.49	4.02
B579PA	4.02	5.20	4.68
C79PA	4.08	5.26	4.85
C579PA	4.70	5.88	5.47
D79PA	5.00	6.18	5.79
D579PA	6.02	7.20	6.90
E79PA	6.65	7.83	7.52
F79P	8.90	10.67	10.71
G79P	10.14	11.91	12.32
L79PA	13.57	15.34	14.49
M79PA	15.85	17.62	16.85

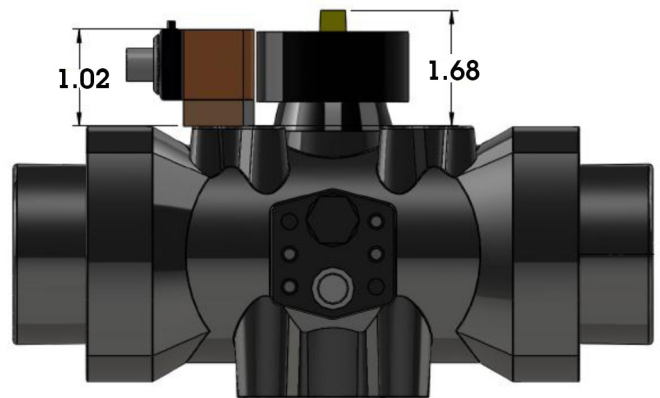
Inductive Switches



Inductive Sensor	2 x NO Contacts
Operating Voltage	10 - 36 VDC
Current Rating (mA)	250
Reverse Polarity Protection	Yes
Overload Protection	Yes
Voltage Drop	< 2.5
Current Consumption (mA)	< 15 [24V]
Temperature [F]	-13 ^o F - 175 ^o F
Protection	IP 67 (Type 6)
Materials	PBT/SS
Status Indicators	2 x Yellow LED
Connection	M12 Connection

Standard Features

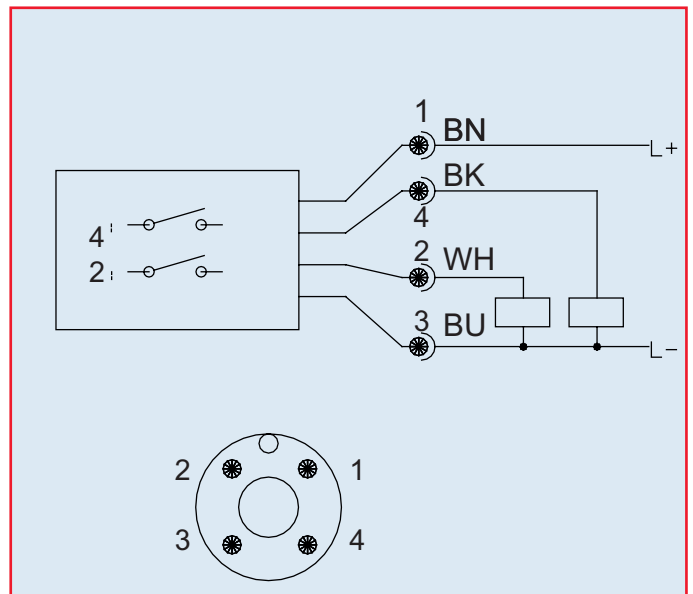
- Low profile
- Engineered resin with stainless steel trim
- Two SPST N/O (PNP) hermetically sealed inductive switches
- M12 connection
- Visual position indication
- Low current consumption
- Temperature limit of 175° F



Options

- Patch cable (M12F x M12M)
 - Industrial - General purpose
 - Sanitary - Wash down
 - .3M, 6M, 1M, 2M , 5M lengths
 - Straight or angled
- Cord set (M12F x Flying Leads)
 - Industrial - General purpose
 - Sanitary - Wash down
 - 2M, 5M, 10M lengths
 - Straight or angled

Wiring



I-Switch



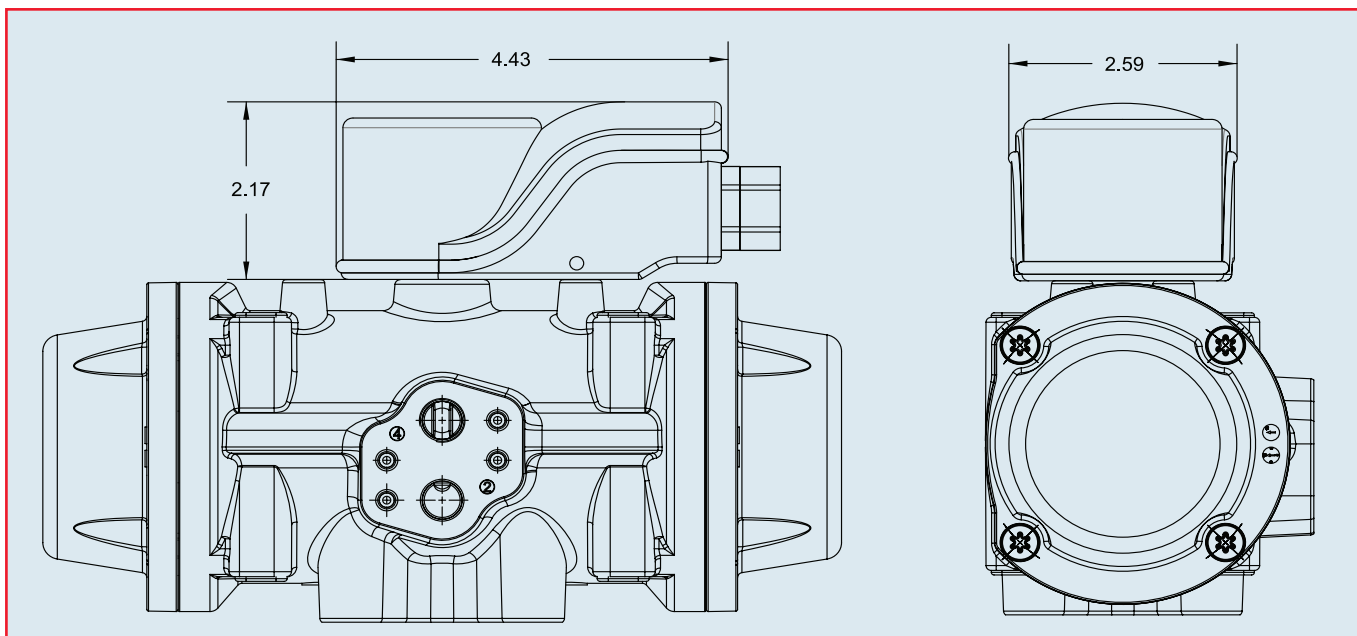
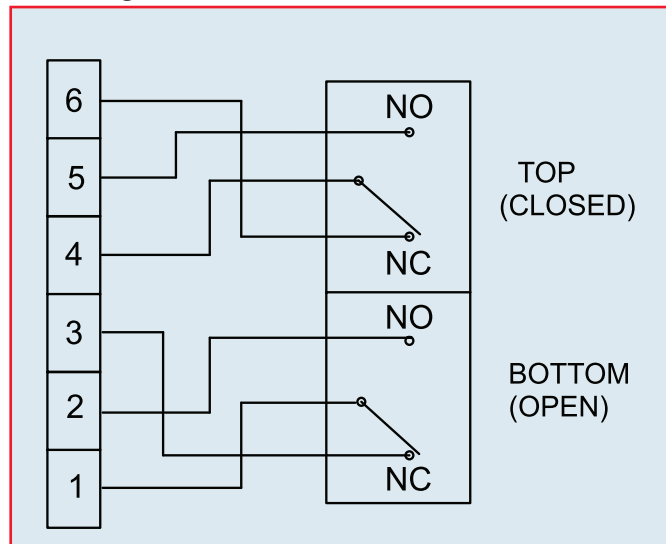
Specifications

Temperature: -25° C to 80° C
Limit Switches: 2-SPDT mechanical
Conduit: 1/2" NPT
Electrical Properties: 10A @ 250VAC
2.5A @ 24VDC
Housing: PAG
Cover: Polycarbonate
Fasteners: SS

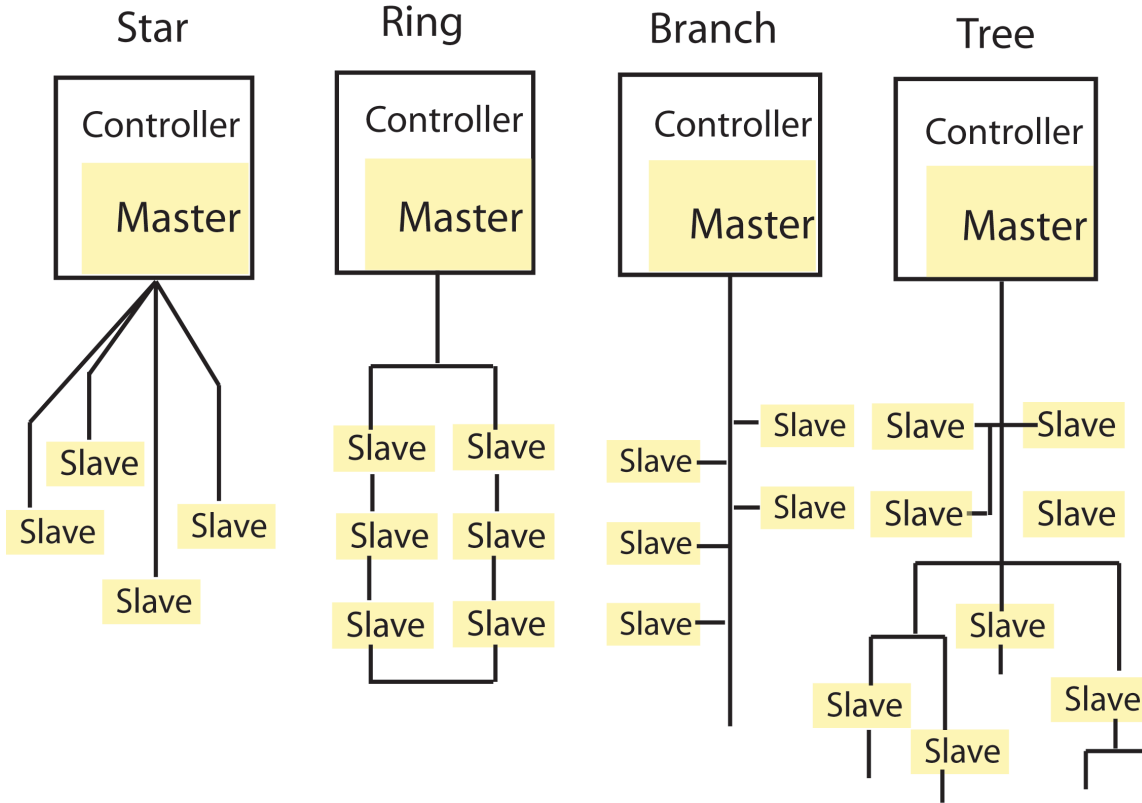
Standard Features

- IP67 PAG/polycarbonate enclosure mounts direct to actuator
- Low profile
- Highly visible position indication
- 1/2" NPT conduit entry
- Two 10A SPDT mechanical switches
- Stainless steel trim

Wiring



AS-i Bus System



AS-i (actuator sensor interface) offers many of the benefits of more complex and costly bus systems, but does it at a substantially lower cost and with greater simplicity. The AS-i is ideally suited for controlling valves, actuators and many other field devices in your processing application. This interface can be used for stand-alone process control, or it can be used together with a higher level bus control system. AS-i does not compete with higher level bus systems; it should be seen as a complimentary system that offers low cost, reliable device control for binary and analog devices. Reliability, simplicity and interoperability make AS-i a cost effective connection/control solution, particularly where low installation costs are imperative. A pair of wires, which handles power and communications, is used to control the network by means of "chaining" the actuators with the PLC. Each actuator (or device) will then have its own unique address within the system and only that device with the proper address will respond to system commands. AS-i is best known for its yellow flat cable, which is pierced by insulation displacement connectors so that the expense of tees and complex connectors is avoided. Devices are simply clamped onto the cable.

Digital signals are encoded on this cable in a sinusoidal signal, which has a very narrow frequency bandwidth. Filtering, which is distributed through the network, rejects all extraneous frequencies, and, in this way, AS-i can be operated in electrically noisy environments without experiencing transmission errors. The yellow flat cable carries low current (30 VDC) for input devices as well as the AS-i signal. If power for outputs (such as energizing relays) is required, an additional black flat cable is available. Standard networking is capable of 62 units with a distance up to 100 meters, and a cycle time of 5 ms. A maximum of 300 meters is achieved by installing repeaters. This system also responds well with products from other manufacturers, by installing a gateway to "translate" the commands of higher level networks. This allows an existing system to be expanded simply by using the AS-i networking system. There are various wiring structures that can be used with this system such as the star, the ring, the branch, and the tree, etc. All are practiced and acceptable, but the loop has a distinguished property; if there were a "break" in the network cable the units would still cycle and the master would detect the loss of a node. This feature is unique to the ring structure.



AS-i Bus System

Specifications

Mounting: ISO/NAMUR
Connection: M12 SS
AS-i Current Draw: .16 AMP
Electrical Design: 2-input/2-output
Voltage Range: 26.5-31.6 VDC
Sensor/Relay Supply: AS-i
Sensor Protection: Type 4X
Air Connection: 1/4" FNPT
Solenoid Coil: Epoxy encapsulated
Solenoid Protection: Type 4X
 Reverse polarity protected

Standard Features

- Low profile, compact package for ease in mounting where space limitations are an issue.
- Actuators and accessories meet ISO and NAMUR standards, therefore no special training is required for field installation/conversion
- M12 stainless steel connection utilized for network interfacing - Type 4X rated
- No moving parts with proximity sensor triggered by a target puck
- Sealed proximity switch so open cavity condensation is not an issue
- Each actuator has visual indication and proximity feedback to the PLC
- Each component meets Type 4X
- Low power consumption allows power and data communications via the same two-wire cable
- A system of 31 valves requires less than 5 amps of AS-i power
- Expandability with gateway and/or insulation displacement connector
- 5 ms reaction time from PLC to cycling of unit
- Conformance to AS-i Certificate ZU15101

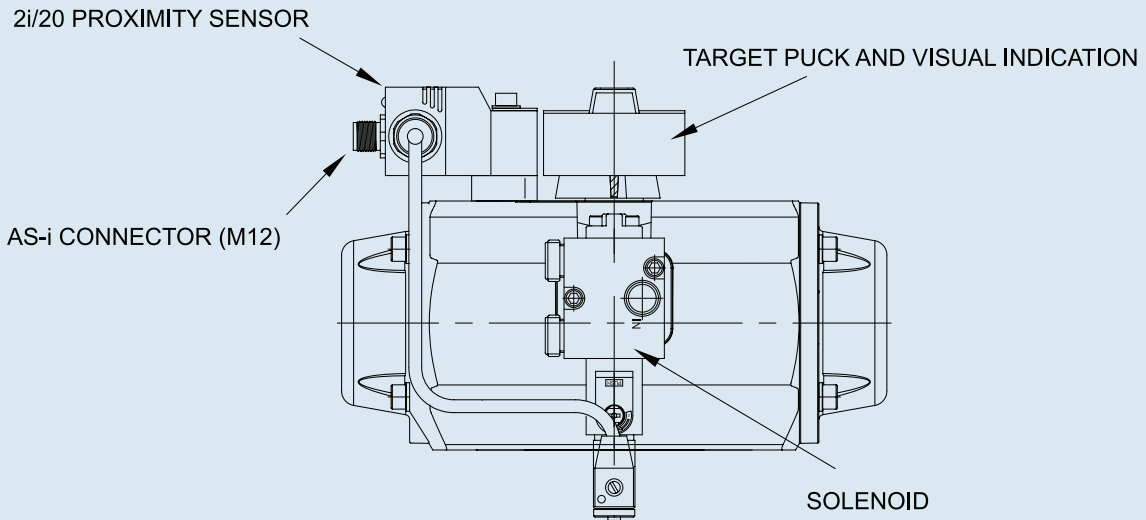
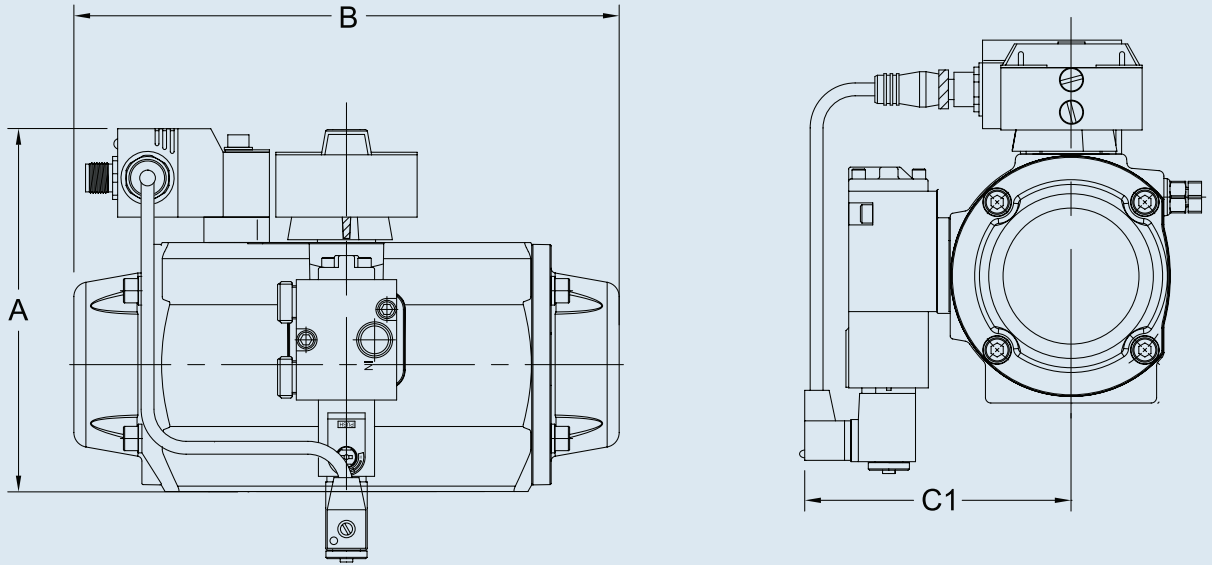
Accessories

- Master/controller - AS-i
- Master/controller - Gateway
- Power supply
- Addressing unit
- Operating software
- Yellow communications cable
- Black power cable
- Displacement connectors
- Displacement splitter
- Cable clip

Sample Specification

All pneumatically actuated AS-i systems shall have a two-input/two-output proximity sensor and a solenoid directly mounted to a Series 79 actuator. The sensor shall be constructed of Pocan® thermoplastic polyester, Type 4X protection, operation and function LEDs, voltage range of 27-30 VDC, and a stainless steel M12 socket connection to the network. The solenoid shall have an anodized aluminum body with a 1/4" NPT air inlet, manual override, and Type4X protection. Spool/piston shall be synthetic resin with NBR and FKM O-rings, and fitted with an epoxy-encapsulated coil directly coupled to the proximity sensor, as supplied by Asahi/America, Inc.

AS-i Bus System



Dimensions (in.)

Series	A	B	C1
A79PA	4.90	5.52	3.52
A79PAS	4.90	5.52	3.52
B79PA	5.76	6.00	3.78
B79PAS	5.76	6.00	3.78
B579PA	6.06	7.91	4.14
B579PAS	6.06	7.91	4.14
C79PA	6.23	8.83	4.22
C79PAS	6.23	8.83	4.22
C579PA	6.84	10.40	4.41
C579PAS	6.84	10.40	4.41

Dimensions (in.)

Series	A	B	C1
D79PA	7.53	12.19	4.69
D79PAS	7.53	12.19	4.69
D579PA	8.64	14.02	5.12
D579PAS	8.64	14.02	5.12
E79PA	9.29	16.83	5.75
E79PAS	9.29	16.83	5.75
F79PA	12.48	17.48	6.77
F79PAS	12.48	23.54	6.77
G79PA	14.09	20.63	7.36
G79PAS	14.09	27.32	7.36

Series 79P PST-A202DN SMART (Electro-Pneumatic)



Standard Features

- Simple calibration of positioner with autocal pushbuttons located inside of positioner housing
- Transmitter
- NEMA Type 4X enclosure
- Corrosion resistant polyester powder coated enclosure
- SS trim
- LCD visual position indication shown in percentage
- Pressure gauges
- 1/2" conduit entry
- 1/4" NPT air connection
- Split range capability
- Reverse acting capability
- Temperature limit of 185 F
- High vibration environments

Options

- 2-SPDT mechanical switches
- 2-SPST proximity switches
- Hart communications
- 316SS enclosure
- ATEX Ex ia IIC T5/T6 enclosure

Specifications

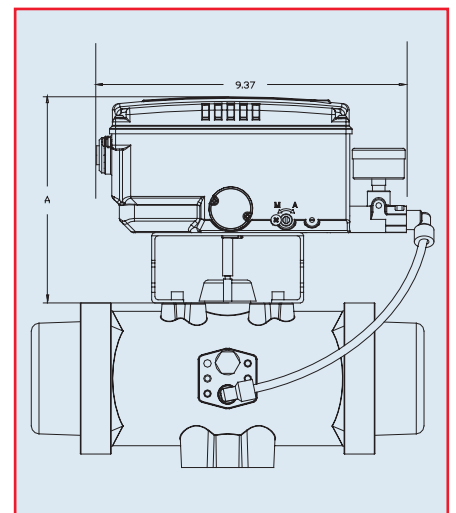
- Input Current:** 4 to 20mA
- Supply Air Pressure:** 60 to 100psi
- Resolution:** 0.2% of Span
- Linearity:** 0.51% of Span
- Hysteresis:** 0.5% of Span
- Repeatability:** 0.2% of Span
- Air Connections:** 1/4" NPT
- Conduit Entry:** 1/2" NPT

Sample Specification

All PST-A202DN I/P modulating valves shall be equipped with the PST-A202D SMART (Electro-Pneumatic) Positioner. Positioner housing shall be polyester powder coated meeting NEMA Type 4X, with SS shaft and hardware, and visual position indication (LCD). Positioner shall be Autocal design, equipped with pressure gauges, and a transmitter as supplied by Asahi America, Inc.

Dimensions (in.)

Actuator	A
A79P	6.40
B79P	6.40
B579P	6.40
C79P	6.40
C579P	6.40
D79P	6.40
D579P	6.40
E79P	6.40
F79P	7.58
G79P	7.58
L79P	7.58
M79P	7.58



Series 79P PST-101 Pneumatic Positioner



Specifications

Input Signal: 3-15psi

Supply Air Pressure: 60 to 100psi

Air Consumption: 0.4 CFM @ 60psi

Linearity: 2% of Span

Hysteresis: 1% of Span

Repeatability: 0.5% of Span

Conduit Entry: 1/2" NPT

Sample Specification

All PST-101 modulating valves shall be equipped with the PST-101 pneumatic positioner. Positioner housing shall be polyester powder coated rated Type 4X, with stainless steel shaft and hardware, and visual position indication. Positioner shall be capable of operating in high vibration environments with short and precise response time, equipped with pressure gauges, and be a low air consumption, unit as supplied by Asahi/America, Inc.

Standard Features

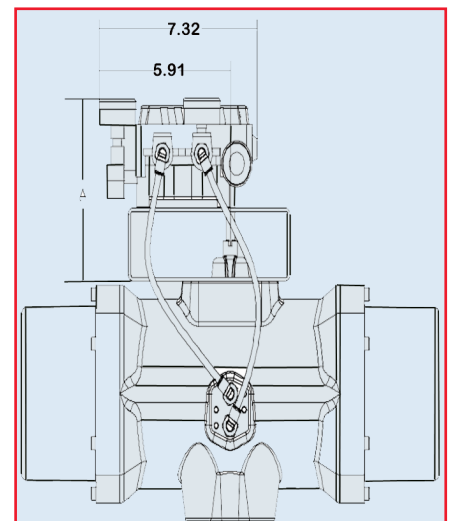
- Simple calibration of positioner with independent zero and span
- Short and precise response time
- Type 4X rated enclosure
- Corrosion resistant polyester powder coated enclosure
- Stainless steel trim
- Low air consumption
- Pressure gauges
- 1/4" NPT air connection
- Can operate in high vibration environments
- Reverse acting capability
- Temperature limit of 185° F

Options

- Two SPDT mechanical switches
- Two SPST inductive switches
- Hart capability
- 4-20 mA transmitter

Dimensions (in.)

Actuator	A
A79PA	5.04
B79PA	5.04
B579PA	5.04
C79PA	5.04
C579PA	5.04
D79PA	5.04
D579PA	5.04
E79PA	5.04
F79P	6.22
G79P	6.22
L79PA	6.22
M79PA	6.22



Basics of Operation

An electric actuator is basically a geared motor. The motor can be of various voltages and is the primary torque-generating component. To prevent heat damage from overwork or excessive current draw, electric actuator motors are usually equipped with a thermal overload sensor embedded in the motor windings. This sensor is wired in series with the power source and opens the circuit should the motor be overheated, then closes the circuit when the motor reaches a safe operating temperature.

An electric motor consists of an armature, an electrical winding, and a gear train. When power is supplied to the winding, a magnetic field is generated causing the armature to rotate. The armature will rotate as long as there is power to the windings when the power is cut, the motor stops. Standard end of travel limit switches, which are a necessity for an electric actuator, handle this task.

Electric actuators rely on a gear train, which is coupled directly from the motor to enhance the motor torque and dictate the output speed of the actuator. The only way to change the output speed is to install a cycle length control module. This module allows an increase in cycle time only. If a decrease in cycle time is required, an alternate actuator with the desired cycle time and proper output torque must be used.

Types of Motors

There are two types of motors used for electric actuators: unidirectional and bidirectional (commonly known as reversing motors).

- Unidirectional motors are motors in which the armature rotates in one direction, causing the valve to rotate in one direction. These actuators are typically used with a ball valve and rotate in 90 or 180 degree increments strictly for an on/off type of service.
- Reversing motors are motors in which there are two sets of windings allowing the armature to rotate in either direction depending on which set of windings is powered. One set of windings controls the clockwise direction for closing a valve, while the other set of windings controls the counter-clockwise direction for opening the valve. A major benefit of a bidirectional actuator is precise flow control, as the actuator is not required to travel the full stroke to begin the reverse stroke.

Electric or Pneumatic?

The pneumatic actuator will probably continue to be the actuator of choice in the process industry however; there are many applications where an electric actuator should be considered.

No Air Supply:

In many remote installations, it may be impractical to run an air supply line and maintain it.

Colder Climate:

Compressed air systems are vulnerable to freezing and clogging of the air lines, or potentially damaging the equipment if located in a climate that frequently sees temperatures below freezing.

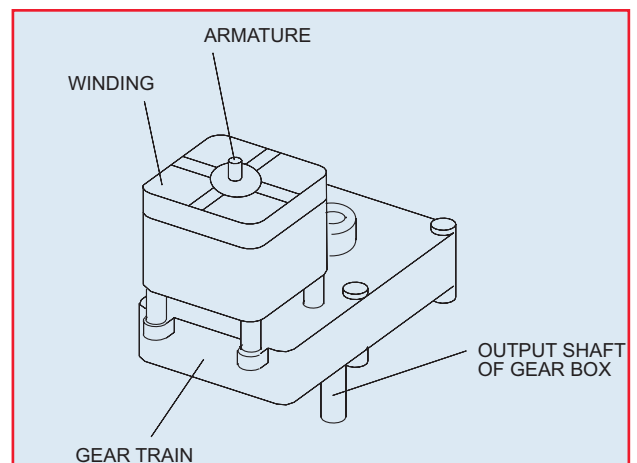
PLC/DCS Controlled Process:

In the past, standard engineering practice called for pneumatically actuated valves even when the rest of the system was electronically controlled. This required a conversion from electric to pneumatic (I/P) that made systems more complicated to start up and maintain. With the increasing popularity of PLC/DCS systems, many process and instrumentation engineers are now specifying fully electronic actuation packages.

Installation Savings:

The cost to prepare a plant for pneumatically actuating a few valves (compressor, regulators, air lines, etc.) far exceeds the cost of using electrically actuated valves.

* Even though pneumatic actuators are used, electricity is still required to energize the solenoid valve coils that cycle the pneumatic actuators.



- **Auxiliary limit switches:** Auxiliary (additional) limit switches are typically used as valve position confirmation (end of travel) with a PLC, DCS, etc. Other applications are for interlocking with other equipment or valves. These switches are SPDT with a 15 amp rating, and dry contact.
- **Heater and thermostat:** A pre-wired heater and thermostat is available for maintaining a constant temperature inside of the actuator housing, eliminating condensation that can form when the temperature fluctuates. It is imperative when the actuator is used in lower operating temperatures. The heater and thermostat is effective to -40 degrees F.
- **RHM Module:** The RHM Module is a combination of a 15Watt heater and thermostat arrangement along with 2-SPDT dry contact 8Amp relays that act as auxiliary limit switches. This module operates via standard control wiring, and is a cost effective solution to separate installs of the heater and thermostat option and the auxiliary limit switch option.
- **Feedback potentiometer:** A 1000-ohm, 1 watt feedback potentiometer with 5% linearity can be installed for position feedback. This varies from the auxiliary limit switches, as the feedback potentiometer provides a varying degree of opening percentage from 0-1000 ohms
- **Modulation/Positioner:** A digital positioner can be installed inside of the actuator for precise modulating control. The positioner accepts a variety of supply voltages and can be calibrated for various control signals (4-20mA, 0-10vdc, 0-5vdc, 1-5vdc, etc.).
- **Transmitter:** A transmitter can be installed in the unit to provide precise valve position (position feedback) to a PLC, DCS, etc. via current or voltage. This feedback is output from the actuator NOT a control signal to the actuator. Certain transmitter models are also equipped with 3-SPST dry relay contacts.
- **Mechanical brake:** This prevents oscillation typically found with rubber seated Butterfly Valves. The brake is installed on top of the motor armature and is electro-mechanical. When power is applied to the actuator, it is also applied to

the brake, which releases the armature and allows the unit to cycle. When the power is lost the springs within the brake lock the armature so that it can no longer rotate, thus eliminating oscillation

- **Cycle length control (CLC):** This option allows the field adjustment of the cycle time up to 10 minutes. The CLC can be configured at the factory for the open cycle only, for the close cycle only, or for the combination of open and close cycles.
- **Two-wire control:** The two-wire control option is a relay installed inside of the actuator for direct wiring to timers, level switches (SPST), etc. A constant power supply and a SPST switch of some sort are required for cycling of the actuator. When the SPDT switch is closed, the valve opens, and vice versa
- **Center off:** This option is used when a 90-degree "off" position is required while using a three-way ball valve. Two limit switches and two cams are installed in the unit (not to be confused with auxiliary limit switches) and allow three positions for a three way valve; 0 degrees or left port open, 180 degrees or right port open, and 90 degrees or both ports closed
- **Failsafe battery back up:** A solid state PCB along with a rechargeable battery pack is installed inside of the actuator. When supply power is lost, the unit will then travel to a pre-determined "fail position". It is imperative that there be constant supply power to the unit to ensure that the battery pack maintain a full charge.
- **Multiturn:** This option allows the actuator to make multiple revolutions that are needed when automating valves such as diaphragm, gate, needle, etc. This option is only available with the Series 92 Electric Actuator.
- **Voltages:** There are five voltage options available to meet a variety of customer needs: 230 VAC, 12 VDC, 24 VDC, 12VAC, 24 VAC

Standard Features

- **Motor:** Reversing, brushless, capacitor-run 120 VAC 50/60 Hz, single phase
- **Overload protection:** Integral thermal overload protection for motor windings with automatic reset
- **Gear train:** Permanently lubricated hardened steel gears
- **Corrosion resistant housing:** Thermally bonded powder coating rated Type 4X with stainless steel trim
- **ISO mounting configuration:** F07/17mm star
- **Conduit:** Two 1/2" NPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible beacon position indicator for positive indication of valve position
- **Declutchable manual override:** Pull up on indicator knob, insert 5/8" wrench onto flats and rotate in the appropriate direction (CCW for open, CW for close). Models with handwheel override do not require a wrench. Simply push down on handwheel until engaged with cam and rotate
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **Enclosure:** Weatherproof enclosure rated Type 4X has a thermally bonded powder coat finish with SS trim
- **Captivated SS hexhead slotted cover screws**
- **Corrosion resistant mounting:** Mounting is with PPG or stainless steel bracket, stainless steel coupling, and stainless steel hardware
- **CE compliant motor:** All 120 VAC and 220 VAC motors are CE compliant and stamped as such
- **Extended duty cycles:** Our extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** Series 92 electric actuators have an output torque range from 400 in./lbs. to 2,000 in./lbs.



Options

- Auxiliary (additional) limit switches
- Heater and thermostat
- RHM (see page 189)
- Feedback potentiometer
- Positioner (modulating PCB)
- Mechanical brake
- Transmitter
- Cycle length control module (CLC)
- Two-wire control
- Failsafe battery back up (Protek)
- Voltages
- Local remote station (UL200)
- UL1203 explosion proof enclosure

Engineering Specifications

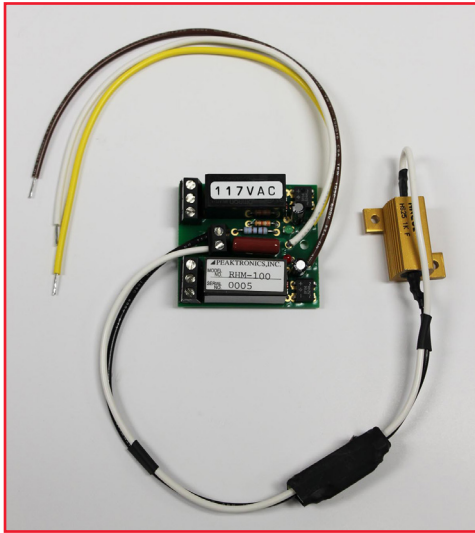
Size: S92, A92, B92, C92
 Torque: 400-2000 in./lbs
 Voltage: 120 VAC 1Ph 50/60 Hz
 Amp Draw: S92, B92 .5A, A92 .8A, C92 1.0A
 Conduit Entry: Two (2) 1/2" NPT
 Max Ambient Temperature: 150° F
 Switches: Two (2) single pole, double throw (2SPDT)
 15 amp rated
 Cycle Time per 90°: S92, A92: 15 seconds* Approx.
 B92, C92: 32 seconds* Approx.

Engineering Data

Model	Torque (in./lbs)	120 VAC		220 VAC		12 VDC		24 VDC		12 VAC		24 VAC		Cycle Time per 90 Degrees (seconds)*	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		
S92	400	0.5	100%	0.4	100%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	15	15.3
A92	700	0.8	75%	0.6	75%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	15	15.3
B92	1100	0.5	100%	0.4	100%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	32	15.3
C92	2000	1.0	50%	0.6	50%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	32	18.3

Note: Amp rating is considered locked rotor. Duty cycles are for ambient temperature (73° F).

* Cycle times are approximate.



Specifications

Standard Operating Voltage: 120 VAC
Optional Voltages: 220 VAC, 12 VAC, 24 VAC, 12 VDC, 24 VDC
Operating Current: 42mA @ 120 VAC
 39mA @ 220 VAC
 89mA @ 12 VAC
 43mA @ 24 VAC
 37mA @ 12 VDC
 23mA @ 24 VDC

Relay Outputs (Form C): 8A
Operating Temperature: -40 to 85 C
 Approved for UL508 & UL1203 Actuators

Series 92/Series 94 Optional RHM (Relay Heater Module)

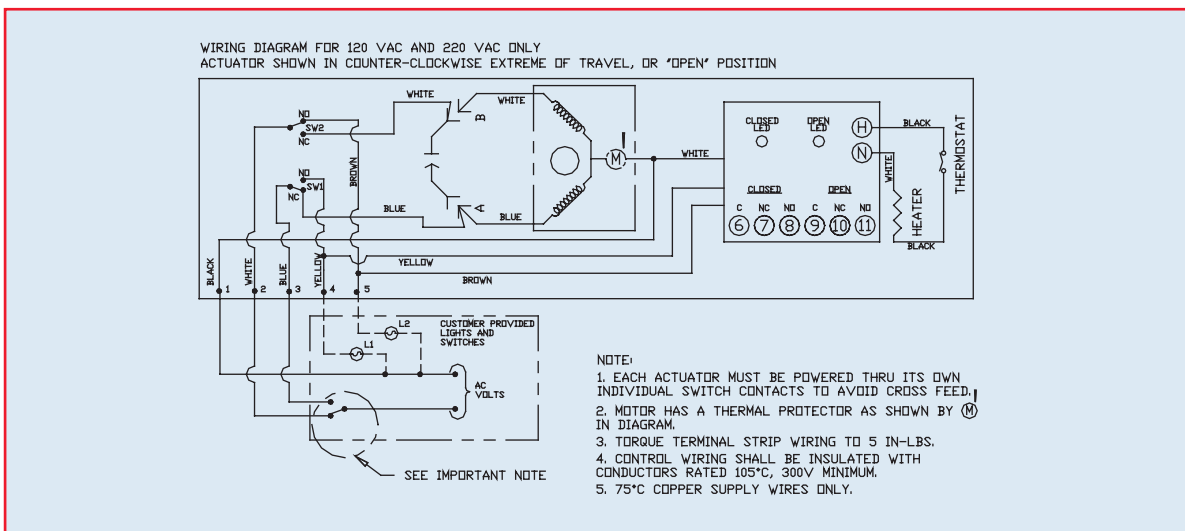
The RHM (Relay Heater Module) is a means of powering an optional heater and thermostat without requiring an additional constant power source or wiring. These modules also provide open and close Form C dry contacts that replace auxiliary switches. A 2-pin terminal block provides wiring connection of the heater and thermostat, while two 3-pin terminal blocks provide easy connection to the relays by the user.

When the actuator is powered to open, the motor runs until the open limit switch is tripped, then sends power to the RHM open connection. At that time power is provided to the heater and thermostat, the open relay coil, and to the on board red LED. This provides contact closure at the end of the open cycle and confirms that power is provided to the heater and thermostat.

When the actuator is powered to close, the motor runs until the close limit switch is tripped, then sends power to the RHM close connection. At that time power is provided to the heater and thermostat, the close relay coil, and to the on board green LED. This provides contact closure at the end of the close cycle and confirms that power is provided to the heater and thermostat.

*Power must be maintained at the end of travel for power to be applied to heater and thermostat. Also note that no power is provided to heater and thermostat when the actuator is in mid travel.

AC Wiring (For 120 VAC and 220 VAC only)



Standard Features

- **Motor:** Reversing, brushless, capacitor run 120 VAC 50/60 Hz, single phase
- **Overload protection:** Integral thermal overload protection for motor windings with automatic reset
- **Gear train:** Permanently lubricated, solid gear that is Rockwell hardened
- **Corrosion Resistant Enclosure:** Thermally bonded polyester powder coat finish with stainless steel trim rated Type 4X
- **ISO mounting configuration:** F07/17mm star
- **Conduit:** Two ½" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible beacon position indicator for positive position of valve, even at a distance
- **Dec clutchable manual override:** Pull up on indicator knob, insert 5/8" wrench on to flats and rotate in the appropriate direction. Models with handwheel override, push down on handwheel until engaged with cam and rotate
- **Limit switches:** Two (2) SPDT end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **RHM Module:** Module consisting of a heater and thermostat, and 2-SPDT 8A dry contact relays for PLC position confirmation, or auxiliary equipment
- **Captivated SS hexhead slotted enclosure screws**
- **Corrosion resistant mounting:** Mounting is with PPG or SS bracket, SS coupling and SS fasteners
- **CE compliant motor:** All 120 VAC and 220 VAC motors are CE compliant stamped as such
- **Extended duty cycles:** Extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** Series 92 Electric Actuators have an output torque range from 400 in/lbs to 2000 in/lbs



Engineering Specifications

Size: S92, A92, B92, C92
 Torque: 400-2000 in/lbs
 Voltage: 120 VAC 1Ph 50/60 Hz
 Amp Draw: S92, B92 .5A, A92 .8A, C92 1.0A
 Conduit Entry: Two (2) ½" FNPT
 Max Ambient Temperature: 150° F
 Switches: Two (2) single pole, double throw (2-SPDT) 15 amp rated
 Cycle Time per 90°: S92, A92: 15 seconds
 B92, C92: 32 seconds
 RHM Module: Heater and thermostat with two (2) SPDT 8A dry contact relays (Auxiliary switches)

Options

- Feedback Potentiometer
- Mechanical brake
- Transmitter
- Cycle Length Control Module (CLC)
- Two-wire Control
- Hand wheel manual override
- Voltages
- HMI/LRS Control Station
- UL 1203 Explosion Proof

Engineering Data

Model	Torque (in/lbs)	120 VAC		220 VAC		12 VDC		24 VDC		12 VAC		24 VAC		Cycle Time per 90 Degrees (seconds)*	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		
S92RHM	400	0.5	100%	0.4	100%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	15	15.3
A92RHM	700	0.8	75%	0.6	75%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	15	15.3
B92RHM	1100	0.5	100%	0.4	100%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	32	15.3
C92RHM	2000	1.0	50%	0.6	50%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	32	18.3

Note: Amp rating is considered locked rotor. Duty cycles are for ambient temperature (73° F).

* Cycle times are approximate.

Series 92 LVLC 12 VDC & 24 VDC Multiturn

Standard Features

- **UL508 for General Locations**
- **Motor:** (LVLC) Low Voltage Low Current reversing dc motor
- **Gear train:** Permanently lubricated, solid gear that is rockwell hardened
- **Corrosion Resistant Enclosure:** Thermally bonded polyester powder coat finish with stainless steel trim
- **ISO** mounting configuration (FO7/17 star)
- **Conduit:** Two 1/2" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible beacon position indicator for positive position of valve, even at a distance
- **Declutchable manual override:** Pull up on indicator knob, insert 5/8" wrench on to flats and rotate in the appropriate direction (CCW for open, CW for close). Models with handwheel override do not require a wrench. Simply push down on handwheel until engaged with cam and rotate
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **Rhm Module:** Module consisting of a heater and thermostat and 2-SPDT 8A dry contact relays for PLC position confirmation or auxiliary equipment
- **UL508 Enclosure:** Weather Proof enclosure for use in general locations
- **Captivated SS hex head slotted enclosure screws**
- **Extended duty cycles:** Our extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** Series 92 Electric Actuators have an output torque range from 400 in/lbs to 2000 in/lbs

Options

- 4-20mA Positioner
- 4-20mA transmitter
- DC control relay
- 12 VDC
- Hand wheel manual override
- No manual override
- Custom wiring configurations
- UI1203 Explosion Proof

Engineering Data

Model	Torque (in/lbs)	12 VDC			24 VDC			Weight (lbs)
		Amp Draw	Duty Cycle	Cycle Time per 90 Degrees (seconds)*	Amp Draw	Duty Cycle	Cycle Time per 90 Degrees (seconds)*	
S92JBMTRHM	400	2.0	75%	15	4.0	75%	8	15.3
A92JBMTRHM	700	2.0	75%	15	4.0	75%	8	15.3
B92JBMTRHM	1100	2.0	75%	38	2.0	75%	15	15.3
C92JBMTRHM	2000	2.0	75%	38	2.0	75%	15	18.3

Note: Amp rating is considered locked rotor.

Duty cycles are for ambient temperature (73° F).

* Cycle times are approximate and will vary depending on load.



Engineering Specifications

Size: S92JBMTRHM, A92JBMTRHM, B92JBMTRHM, C92JBMTRHM

Torque: 400-2000 in/lbs

Voltage: 24 Vdc

Amp Draw: 4.0 Amps

Conduit Entry: Two (2) 1/2" FNPT

Max Ambient Temperature: 150° F

Switches: Two (2) single pole, double throw (2-SPDT) 15 amp rated

Cycle Time per 90°: S92, A92: 8 seconds

B92, C92: 15 seconds

RHM Module: Heater and thermostat with two (2) SPDT 8A dry contact relays (Auxiliary switches)

Series 92 LVLC 5000 in/lb Explosion Proof

Standard Features

- **UL1203 Certified (CL.I, DIV. 1&2)**
- **Motor:** [LVLC] Low Voltage/Low Current reversing dc motor
- **Gear train:** Permanently lubricated, solid gear that is Rockwell hardened
- **Corrosion Resistant Enclosure:** Thermally bonded polyester powder coat finish with stainless steel trim
- **ISO mounting configuration:** (F14/36 star)
- **Conduit:** Two 1/2" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible beacon position indicator for positive position of valve, even at a distance
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **UL1203 Enclosure:** Combination Weather Proof & Explosion Proof (CL.I, Div. 1&2) enclosure for use in various environments
- **Captivated SS hex head slotted enclosure screws**
- **Extended duty cycles:** Our extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** 5000 in/lbs

Options

- Auxiliary limit switches
- Heater and Thermostat
- RHM Module
- 4-20mA Positioner
- 4-20mA transmitter
- DC control relay
- Hand wheel manual override
- TYPE 7 Breather
- Custom wiring configurations

Engineering Data

Model	Torque (in/lbs)	12 VDC		24 VDC		Cycle time Per 90 degrees (Seconds)*	Weight
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
C92GXW	5000	2.0	75%	4.0	75%	53 Sec	117

Amp rating is considered locked rotor

Duty cycles are for ambient temperature (73°F)

*Cycle times are approximate and will vary depending on load



Engineering Specifications

Size: C92G

Torque: 5000 in/lbs

Voltage: 12 Vdc, 24 Vdc

Amp Draw:

2.0 Amps at 12 Vdc

4.0 Amps at 24 Vdc

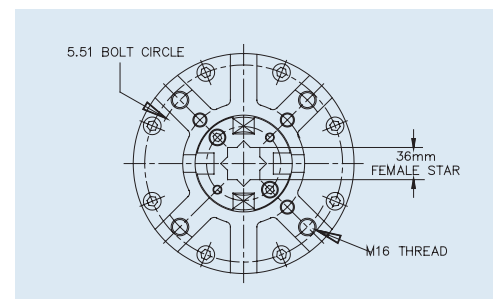
Conduit Entry: Two (2) 1/2" FNPT

Switches: Two (2) single pole, double throw [2-SPDT] 15 amp rated

Cycle Time per 90°: 27 sec

Enclosure: UL1203 CL.I, Div. 1&2

Output



Series 92 LVLC 5000 in/lb Explosion Proof

Standard Features

- **UL1203 Certified (CLI, DIV. 1&2)**
- **Motor:** (LVLC) Low Voltage/Low Current reversing dc motor
- **Gear train:** Permanently lubricated, solid gear that is Rockwell hardened
- **Corrosion Resistant** Enclosure: Thermally bonded polyester powder coat finish with stainless steel trim
- **ISO mounting configuration:** (F14/36 star)
- **Conduit:** Two ½" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible beacon position indicator for positive position of valve, even at a distance
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **UL1203 Enclosure:** Combination Weather Proof & Explosion Proof (CLI, Div. 1&2) enclosure for use in various environments
- **Captivated SS hex head slotted enclosure screws**
- **Extended duty cycles:** Our extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** 5000 in/lbs

Options

- Auxiliary limit switches
- Heater and Thermostat
- RHM Module (see page 189)
- 4-20mA Positioner
- 4-20mA transmitter
- DC control relay
- Hand wheel manual override
- TYPE 7 Breather
- Custom wiring configurations

Engineering Data

Model	Torque (in/lbs)	12 VDC		24 VDC		Cycle time Per 90 degrees (Seconds)*	Weight
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
C92GXW	5000	2.0	75%	4.0	75%	53 Sec	117

Amp rating is considered locked rotor

Duty cycles are for ambient temperature (73°F)

*Cycle times are approximate and will vary depending on load



Engineering Specifications

Size: C92GXW

Torque: 5000 in/lbs

Voltage: 12 Vdc, 24 Vdc

Amp Draw:

2.0 Amps at 12 Vdc

4.0 Amps at 24 Vdc

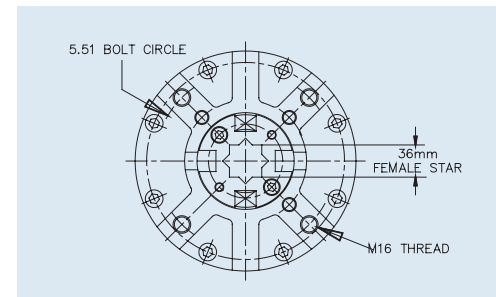
Conduit Entry: Two (2) ½" FNPT

Switches: Two (2) single pole, double throw
(2-SPDT) 15 amp rated

Cycle Time per 90°: 27 sec

Enclosure: UL1203 CLI, Div. 1&2

Output



Series 92 120 VAC & 220 VAC Explosion Proof Electric Actuator

Standard Features

- **UL1203 Certified (CL.I, DIV. 1&2)**
- **Motor:** Reversing, brushless, capacitor run 120 VAC 50/60 Hz, single phase
- **Overload protection:** Integral thermal overload protection for motor windings with automatic reset
- **Gear train:** Permanently lubricated, solid gear that is Rockwell hardened
- **Corrosion Resistant Enclosure:** Thermally bonded polyester powder coat finish with stainless steel trim
- **ISO mounting configuration:** F07/17mm star
- **Conduit:** Two ½" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible beacon position indicator for positive position of valve, even at a distance
- **Dec clutchable manual override:** Pull up on indicator knob, insert 5/8" wrench on to flats and rotate in the appropriate direction (CCW for open, CW for close). Models with handwheel override do not require a wrench. Simply push down on handwheel until engaged with cam and rotate
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **UL1203 Enclosure:** Combination weather proof & explosion proof (CL.I, Div. 1&2) enclosure for use in various environments
- **Captivated SS hexhead slotted enclosure screws**
- **CE compliant motor:** All 120 VAC and 220 VAC motors are CE compliant stamped as such
- **Extended duty cycles:** Our extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** Series 92 Electric Actuators have an output torque range from 400 in/lbs to 2000 in/lbs

Options

- Auxiliary limit switches
- Heater and Thermostat
- RHM (see page 189)
- Mechanical brake
- DC control relay
- 220 VAC
- Hand wheel manual override
- No manual override
- TYPE 7 breather
- Custom wiring configurations



Engineering Specifications

Size: S92, A92, B92, C92
 Torque: 400-2000 in/lbs
 Voltage: 120 VAC 1Ph 50/60 Hz
 Amp Draw: S92, B92 .5A, A92 .8A, C92 1.0A
 Conduit Entry: Two (2) ½" FNPT
 Max Ambient Temperature: 150° F
 Switches: Two (2) single pole, double throw (2-SPDT) 15 amp rated
 Cycle Time per 90°: S92, A92: 15 seconds
 B92, C92: 32 seconds
 Enclosure: UL1203 CL.I, Div. 1&2

Engineering Data

Model	Torque (in/lbs)	120/1 VAC		220/1 VAC		Cycle Time per 90 Degrees (seconds) *	Weight (lbs)
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
S92	400	0.5	100%	0.4	100%	15	15.3
A92	700	0.8	75%	0.6	75%	15	15.3
B92	1100	0.5	100%	0.4	100%	32	15.3
C92	2000	1.0	50%	0.6	50%	32	18.3

Note: Amp rating is considered locked rotor.

Duty cycles are for ambient temperature [73° F].

* Cycle times are approximate and will vary depending on load.

Series 92 LVLC 12 VDC & 24 VDC/DC Explosion Proof

Standard Features

- **UL1203 Certified (CL.I, DIV. 1&2)**
- **Motor:** [LVLC] Low Voltage/Low Current reversing dc motor
- **Gear train:** Permanently lubricated, solid gear that is Rockwell hardened
- **Corrosion Resistant Enclosure:** Thermally bonded polyester powder coat finish with stainless steel trim
- **ISO mounting configuration:** F07/17mm star
- **Conduit:** Two ½" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible beacon position indicator for positive position of valve, even at a distance
- **Declutchable manual override:** Pull up on indicator knob, insert 5/8" wrench on to flats and rotate in the appropriate direction (CCW for open, CW for close). Models with handwheel override do not require a wrench. Simply push down on handwheel until engaged with cam and rotate
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **UL1203 Enclosure:** Combination weather proof & explosion proof (CL.I, Div. 1&2) enclosure for use in various environments
- **Captivated SS hex head slotted enclosure screws**
- **Extended duty cycles:** Our extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** Series 92 Electric Actuators have an output torque range from 400 in/lbs to 2000 in/lbs

Options

- Auxiliary limit switches
- Heater and Thermostat
- RHM (see page 189)
- 4-20mA positioner
- 4-20mA transmitter
- DC control relay
- 24 VDC
- Hand wheel manual override
- No manual override
- TYPE 7 breather
- Custom wiring configurations



Engineering Specifications

Size: S92, A92, B92, C92
 Torque: 400-2000 in/lbs
 Voltage: 12 VDC
 Amp Draw: 2.0 Amps
 Conduit Entry: Two (2) ½" FNPT
 Max Ambient Temperature: 150° F
 Switches: Two (2) single pole, double throw
 (2-SPDT) 15 amp rated
 Cycle Time per 90°: S92, A92: 15 seconds
 B92, C92: 32 seconds
 Enclosure: UL1203 CL.I, Div. 1&2

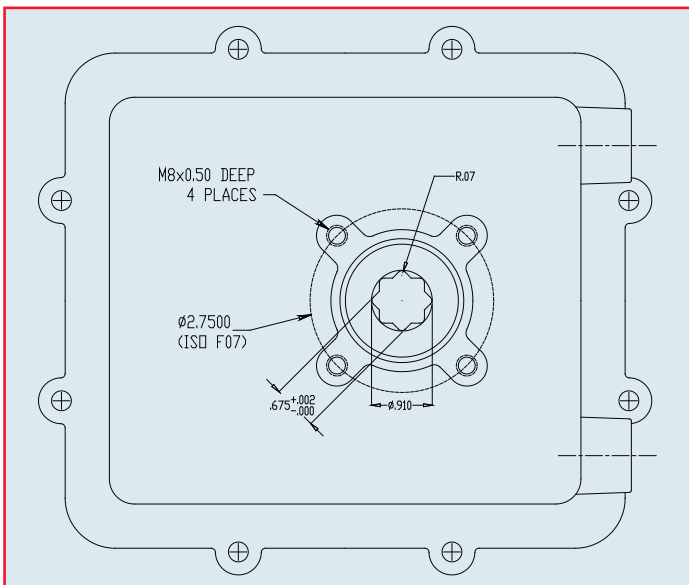
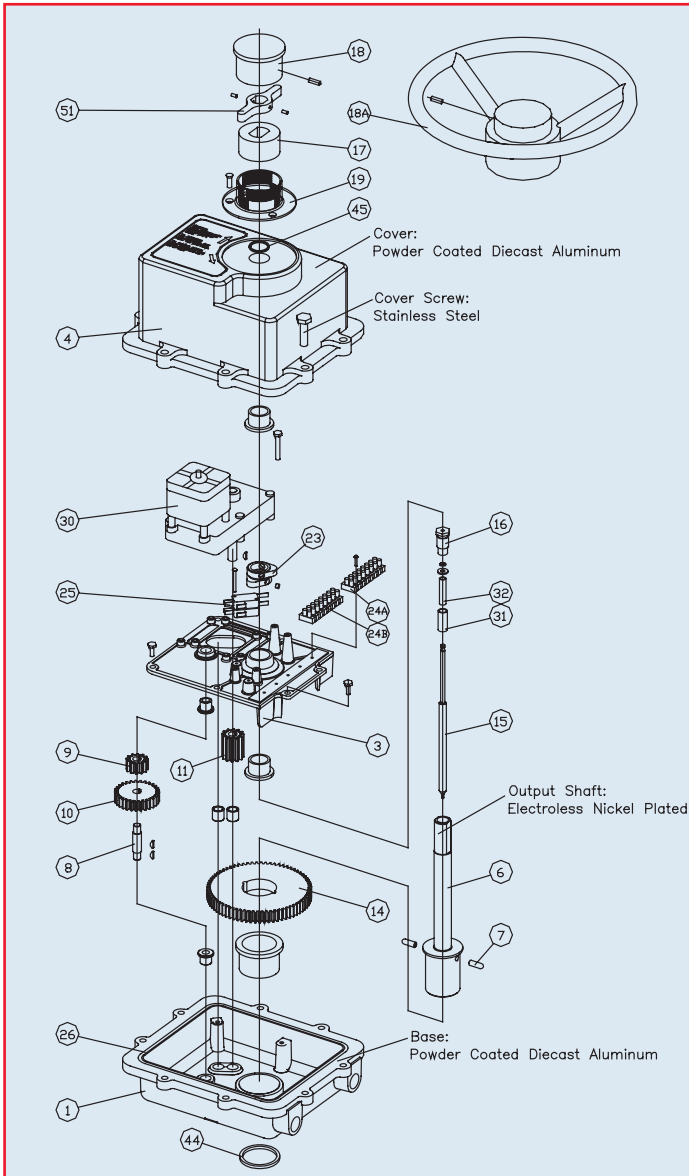
Engineering Data

Model	Torque (in/lbs)	12 VDC		24 VDC		Cycle Time per 90 Degrees (seconds)*	Weight (lbs)
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
S92	400	2.0	75%	4.0	75%	15	15.3
A92	700	2.0	75%	4.0	75%	15	15.3
B92	1100	2.0	75%	4.0	75%	32	15.3
C92	2000	2.0	75%	4.0	75%	32	18.3

Note: Amp rating is considered locked rotor.
 Duty cycles are for ambient temperature (73° F).
 * Cycle times are approximate and will vary depending on load.

Series 92 Parts List

Parts List



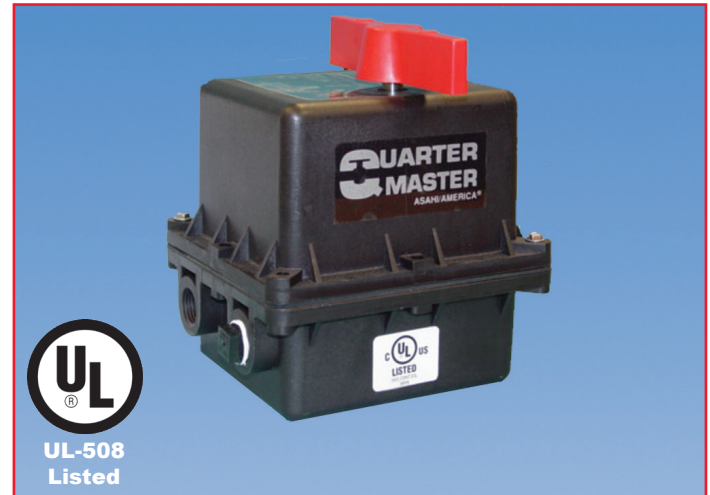
		PARTS LIST				Description
NO.	Part Number	PCS. S92	A92	B92	C92	
1	7401920	1	1	1	1	Base
3	7401060	1	1	1	1	Base Plate
4	7401940	1	1	1	1	Cover
6	7401908	1	1	1		Shaft Main
6A	7401909				1	Shaft Main
7	7401360	2	2	2	2	Pin
8	7401280			1	1	Shaft Stub
9	7402003			1	1	Spur Gear B1
10	7402002			1	1	Spur Gear A1
11	7401400	1	1	1	1	Gear Pinion
14	7401380	1	1	1	1	Gear Main
15	7401200	1	1	1		Shaft Inner
15A	7401210				1	Shaft Inner
16	7401180	1	1	1	1	Shaft Retainer
17	7401300	1	1	1	1	Knob Lower
18	7401320	1	1	1		Knob Upper
18A	7401995				1	Handwheel
19	7401260	1	1	1	1	Collar
23	7401480	2	2	2	2	Cam
24A	7401420	1	1	1	1	Terminal Block 1-8
24B	7401425	1	1	1	1	Terminal Block 9-16
25	7401460	2	2	2	2	Switch
26	7401560	1	1	1	1	O-Ring Base/Cover
27	7401948	1		1		Capacitor 4.2mFD
27A	7402004		1			Capacitor 6.7 mFD
28	7403008				1	Capacitor 7.6mFD
29	7401520	1	1	1	1	Capacitor Bracket
30	7401340	1	1	1	1	Motor[120VAC]
31	7401250	1	1	1	1	Shell
32	7401220	1	1	1		Spring
32A	7401230				1	Spring
35	ACTMSC	3	3	3	3	Collar Screw
36	ACTMSC	8	8	8	8	Cover Screw
38	ACTMSC	1	1	3	3	Key, Woodruff 3/32
39	ACTMSC	1	1	1	1	Knob Set Screw
44	7401040	1	1	1	1	Seal Base
45	7401140	1	1	1	1	Seal Cover
51	7401485				1	Handwheel Cam
52	ACTMSC				2	Cam Set Screw

Sample Specification

All Series 92 electric actuators shall have a thermally protected, bi-directional (reversing type), capacitor-run motor with a permanently lubricated gear train. 115 VAC and 230 VAC motors shall conform to CE and be indicated on motor housing. Actuator shall have solid, heat treated gearing encompassed in a baked powder coated die cast aluminum housing with thermally bonded powder coat finish with stainless steel trim rated Type 4X. Each actuator to have a declutchable manual override, visual position indication, ISO mounting configuration, and be RoHS compliant, as manufactured by Asahi/America, Inc.

Standard Features

- **Motor:** Reversing, brushless, capacitor-run 120 VAC 50/60 Hz, single phase
- **Overload protection:** Integral thermal overload protection for motor windings with automatic reset
- **Gear train:** Permanently lubricated
- **Corrosion resistant housing:** Engineered resin rated NEMA Type 4X with stainless steel trim
- **ISO mounting configuration:** CF05 x 14mm star
- **Conduit:** Two 1/2" NPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible position indicator for positive position of valve
- **Decutchable manual override:** Push down on handle and rotate in the appropriate direction (CCW for open, CW for close)
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **Corrosion resistant mounting:** Mounting is with PPG or stainless steel bracket, stainless steel coupling, and stainless steel hardware
- **CE compliant motor:** All 120 VAC and 220 VAC motors are CE compliant and stamped as such
- **Extended duty cycles:** Our extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** Series 94 electric actuators have an output torque range from 150 in./lbs. to 300 in./lbs.
- **Enclosure:** Corrosion proof weatherproof rated Type 4X
- **Captivated SS hex head slotted cover screws**



Engineering Specifications

- Size: A94, B94
- Torque: 150-300 in./lbs
- Voltage: 120 VAC 1Ph 50/60 Hz
- Amp Draw: A94 .5A, B94 .8A
- Conduit Entry: Two (2) 1/2" NPT
- Max Ambient Temperature: 150° F
- Switches: Two single pole, double throw (Two SPDT) 15 amp rated
- Cycle Time per 90°: A94, B94: 5 seconds

Options

- Auxiliary (additional) limit switches
- Heater and thermostat
- RHM (see page 198)
- Mechanical brake
- Transmitter
- Cycle length control module (CLC)
- Two-wire control
- Center-off
- Failsafe battery back up (Protek)
- Voltages
- Local Remote Station (LL200)

See page 187 for more details regarding options.

Engineering Data

Model	Torque (in./lbs)	120 VAC		220 VAC		12 VDC		24 VDC		12 VDC		24 VAC		Cycle Time per 90 Degrees (seconds) *	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		
A94	150	0.5	100%	0.4	100%	2.0	75%	4.0	75%	2.0	75%	4.0	75%	5	3.5
B94	300	0.8	75%	0.6	75%	2.0	75%	4.0	75%	2.0	75%	4.0	75%	5	3.5

Note: Amp rating is considered locked rotor. Duty cycles are for ambient temperature (73° F).

*Cycle times are approximate.

Standard Features

- **Motor:** Reversing, brushless, capacitor run 120 VAC 50/60 Hz, single phase
- **Overload protection:** Integral thermal overload protection for motor windings with automatic reset
- **Gear train:** Permanently lubricated, solid gear that is Rockwell hardened
- **Corrosion Resistant Enclosure:** Engineered resin rated Type 4X with stainless steel trim
- **ISO mounting configuration:** F05/14mm star
- **Conduit:** Two ½" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible position indicator for positive position of valve
- **Dec clutchable manual override:** Push down on handle and rotate in appropriate direction (CCW for open/CW for close)
- **Limit switches:** Two (2) SPDT end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **RHM Module:** Module consisting of a heater and thermostat, and 2-SPDT 8A dry contact relays for PLC position confirmation, or auxiliary equipment
- **Captivated SS hexhead slotted enclosure screws**
- **Corrosion resistant mounting:** Mounting is with PPG or SS bracket, SS coupling and SS fasteners
- **CE compliant motor:** All 120 VAC and 220 VAC motors are CE compliant stamped as such
- **Extended duty cycles:** Extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** Series 94 Electric Actuators have an output torque range from 150 in/lbs to 300 in/lbs
- **Enclosure:** Corrosion proof weather proof rated Type 4X



Engineering Specifications

Size: A94, B94
 Torque: 150-300 in/lbs
 Voltage: 120 VAC 1Ph 50/60 Hz
 Amp Draw: A94 .5A, B94 .8A
 Conduit Entry: Two (2) ½" FNPT
 Max Ambient Temperature: 150° F
 Switches: Two (2) single pole, double throw [2-SPDT] 15 amp rated
 Cycle Time per 90°: A94, B94: 5 seconds
 RHM Module: Heater and thermostat with two (2) SPDT 8A dry contact relays (Auxiliary switches)

Options

- Feedback Potentiometer
- Positioner (modulating PCB)
- Transmitter
- Mechanical brake
- Cycle Length Control Module (CLC)
- Two-wire Control
- Failsafe Battery Back Up (Protek)
- Voltages
- HMI/LRS Control Station

Engineering Data

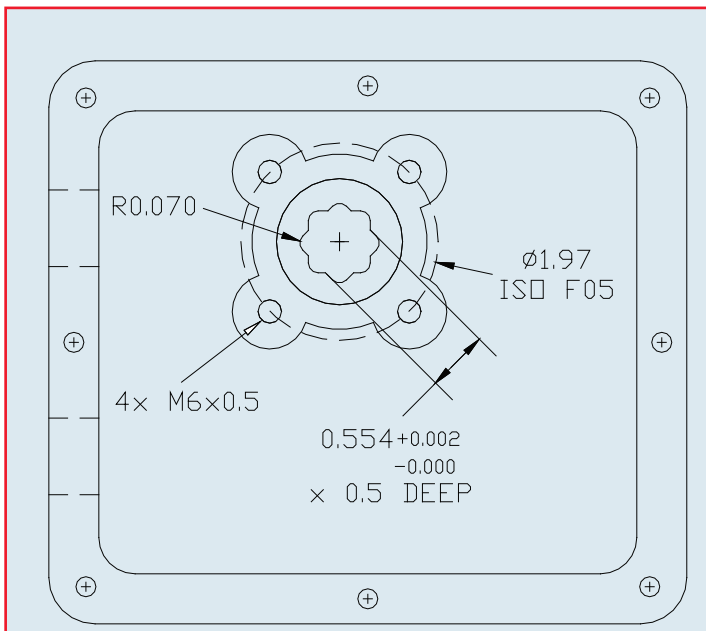
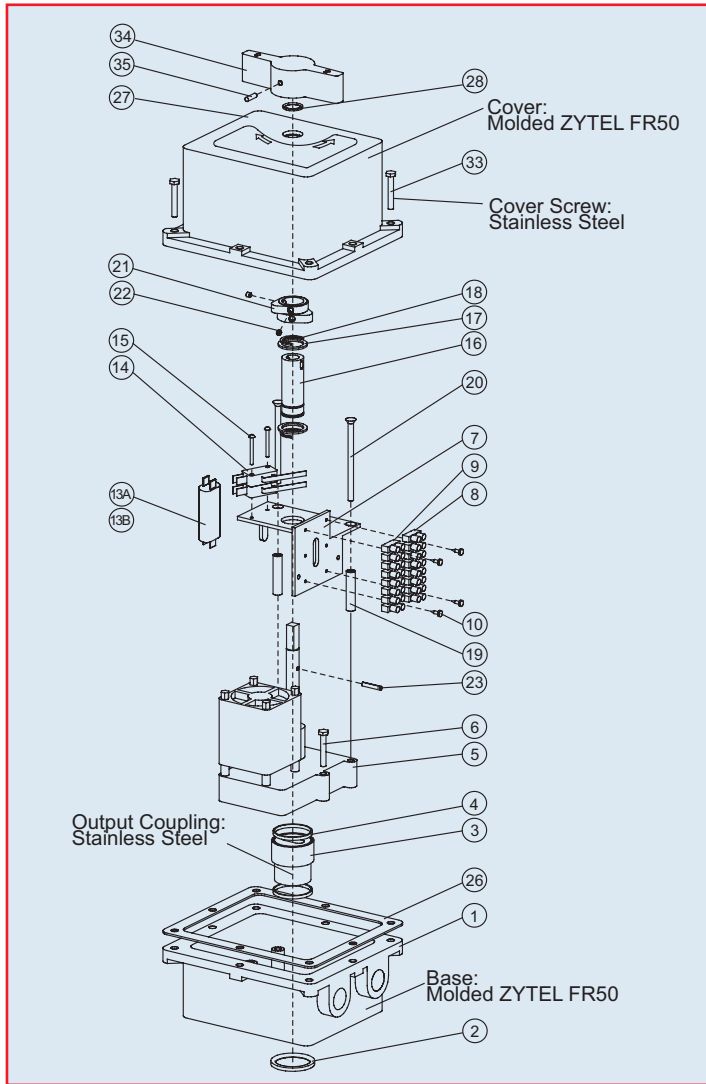
Model	Torque (in/lbs)	120 VAC		220 VAC		12 VDC		24 VDC		12 VDC		24 VAC		Cycle Time per 90 Degrees (seconds)*	Weight (lbs)
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
A94	150	0.5	100%	0.4	100%	2.0	75%	4.0	75%	2.0	75%	4.0	75%	5	3.5
B94	300	0.8	75%	0.6	75%	2.0	75%	4.0	75%	2.0	75%	4.0	75%	5	3.5

Note: Amp rating is considered locked rotor. Duty cycles are for ambient temperature [73° F].

*Cycle times are approximate.

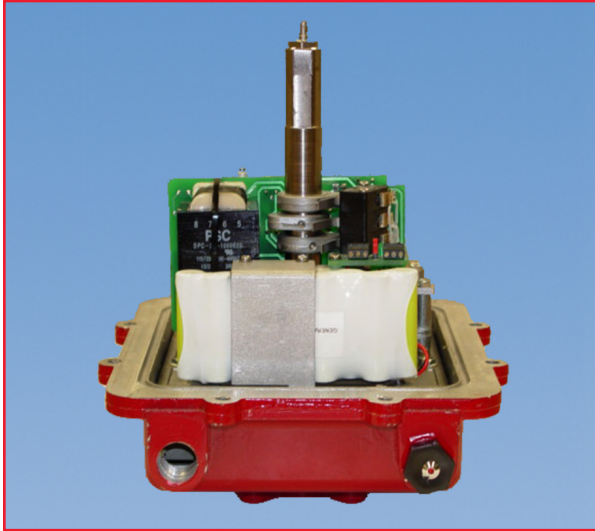
Parts List

PARTS LIST			
NO.	Part Number	Quantity	Description
1	7403002	1	Base
2	7403000	1	Base Seal
3	7403043	1	Output Coupling
4	7403005	2	Coupling Gasket
5	7403004	1	Motor[120VAC]
6	ACTMSC	2	Motor Screw
7	7403011	1	Base Plate
8	7401420	1	Terminal Block 1-8
9	7401425	1	Terminal Block 9-16
10	ACTMSC	4	Terminal Block Screw
13A	7401948	1	4.2 mFD Capacitor-A94
13B	7402004	1	6.7 mFD Capacitor-B94
14	7401460	2	Limit Switch
15	ACTMSC	2	Limit Switch Screw
16	7403016	1	Outer Shaft
17	7403006	2	Outer Shaft Gasket
18	ACTMSC	2	Retaining Ring
19	ACTMSC	2	Standoff
20	ACTMSC	2	Base Plate Screw
21	7401480	2	Cam
22	ACTMSC	4	Cam Set Screw
23	ACTMSC	1	Pin
26	7403007	1	Base Gasket
27	7403001	1	Cover
28	7403020	1	Cover Seal
33	ACTMSC	8	Cover Screw
34	7403003	1	Handle
35	7401700	1	Handle Screw



Sample Specification

All Series 94 electric actuators shall have a thermally protected, bi-directional (reversing type), capacitor run motor with a permanently lubricated gear train. 120 VAC and 220 VAC motors shall conform to CE and be indicated on motor housing. Actuator shall have a Zytel FR50 engineered resin housing with stainless steel trim, rated Type 4X. Each actuator to have a declutchable manual override, visual position indication, ISO mounting configuration, and be RoHS compliant, as manufactured by Asahi/America, Inc.



The Quarter master Protek failsafe electric actuator features a rechargeable battery pack, a built-in trickle charger, a low battery indicator, and an auxiliary limit switch that is calibrated with the fail position. The battery pack is installed inside of the actuator housing, so a separate enclosure to house the battery is not required.

When power is received from the primary power source, it is directed to the actuator motor and switches for normal cycling of the actuator. When the primary power source is interrupted, the battery pack is then connected to the motor and switches, and powers the actuator to the failsafe position. In this failsafe position, the auxiliary limit switch is tripped, and can be wired to an alarm. Once the primary power source is restored, the battery pack is disconnected and normal operation resumes.

Standard Features

- **Compact design:** Rechargeable battery pack is installed inside of actuator housing
- **Battery indicator:** "Low battery charge" indicator light is installed in one of the conduit entries for visual status of battery charge
- **Trickle charger:** Standard unit is equipped with built-in, automatic trickle charger to maintain full charge to battery pack
- **Remote-local switch:** Located inside of housing facilitates start-up and maintenance
- **Fail position:** Calibrated for fail open or fail close
- **Extended duty cycle:** 75 percent duty cycle motor
- **Gear train:** Permanently lubricated, hardened steel gearing
- **Weatherproof enclosure** has a thermally bonded powder coat finish with stainless steel trim
- **ISO mounting configuration:** FO7/17mm star
- **Conduit:** 1/2" FNPT conduit entry
- **Position indication:** Highly visible beacon position indicator for positive position of valve, even at a distance
- **Dec clutchable manual override:** Pull up on indicator knob, insert 5/8" wrench onto flats and rotate in the appropriate direction [CCW for open/CW for close]
- **Manual override** to be used ONLY when there is no supply power and no battery power
- **Models with handwheel override** do not require a wrench. Simply push down on handwheel until engaged with cam and rotate
- **Limit switches:** Unit is standard with two end of travel limit switches, and one auxiliary limit switch that is calibrated with the fail position
- **Corrosion resistant mounting:** Mounting is with PPG or stainless steel bracket, stainless steel coupling, and stainless steel fasteners
- **Output torque:** Series 92 actuators have an output torque range from 400 in./lbs. to 2,000 in./lbs.

Engineering Specifications

Size: S92, A92, B92, C92

Torque: 400 in./lbs. - 2000 in./lbs.

Voltage: 120 VAC, 1-phase, 50/60Hz

Amp Draw: 0.4A

depending on supply voltage

Conduit Entry: one 1/2" FNPT

Maximum Ambient Temperature: 150° F

Switches: three SPDT, 11 amp rated. Two (2) for end of travel, one auxiliary calibrated with fail position.

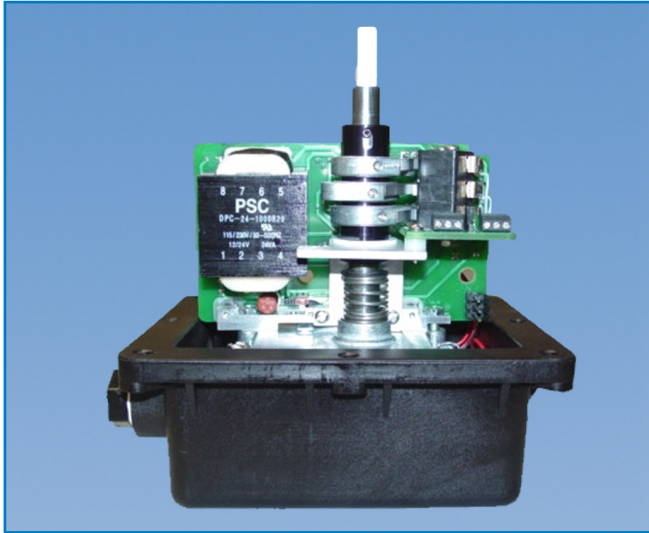
Cycle Time per 90 degree: 15 seconds for S92 & A92 *

32 seconds for B92 & C92 *

*Cycle times are approximate

Options

- Voltages
- Heater and thermostat
- Additional limit switch (Total of four) - 2 - position, 2 dry contact)
- Feedback potentiometer
- Local Remote Station (PK100)



The Quarter Master Protek Failsafe electric actuator features a rechargeable battery pack a built-in trickle charger, a low battery indicator, and an auxiliary limit switch that is calibrated with the fail position. The battery pack is installed inside of the actuator housing, so a separate enclosure to house the battery in not required.

When power is received from the primary power source, it is directed to the actuator motor and switches for normal cycling of the actuator. When the primary power source is interrupted, the battery pack is then connected to the motor and switches, and powers the actuator to the failsafe position. In this failsafe position, the auxiliary limit switch is tripped, and can be wired to an alarm. Once the primary power source is restored, the battery pack is disconnected and normal operation resumes.

Standard Features

- **Compact design:** Rechargeable battery pack is installed inside of actuator housing
- **Battery indicator:** "Low battery charge" indicator light is installed in one of the conduit entries for visual status of battery charge
- **Trickle charger:** Standard unit is equipped with built-in, automatic trickle charger to maintain full charge to battery pack
- **Remote-local switch:** Located inside of housing facilitates start-up and maintenance
- **Fail position:** Calibrated for fail open or fail close
- **Extended duty cycle:** 75 percent duty cycle motor
- **Gear train:** Permanently lubricated
- **Enclosure:** Weatherproof rated NEMA Type 4X
- **Corrosion resistant enclosure:** Engineered resin with stainless steel trim
- **ISO mounting:** FO7/17mm star
- **Conduit: one 1/2" FNPT conduit entry**
- **Position indication:** Highly visible position indicator for positive position of valve
- **Dec clutchable manual override:** Push down on handle and rotate in appropriate direction
- **Manual override** to be used ONLY when there is no supply power and no battery power
- **Limit switches:** Unit is standard with two end of travel limit switches, and one auxiliary limit switch that is calibrated with the fail position
- **Corrosion resistant mounting:** Mounting is with PPG bracket, stainless steel coupling, and stainless steel fasteners
- **Output torque:** Series 94 actuators have an output torque range from 150 in./lbs. to 300 in./lbs.

Engineering Specifications

Size: A94, B94

Torque: 150 in./lbs. - 300 in./lbs.

Voltage: 120 VAC, 1-phase, 50/60Hz

Amp Draw: 0.4

depending on supply voltage

Conduit Entry: one 1/2" FNPT

Maximum Ambient Temperature: 150° F

Switches: three SPDT, 11 Amp rated. two for end of travel, one auxiliary calibrated with fail position.

Cycle Time per 90 degree: 5 seconds.

*Cycle times are approximate

Options

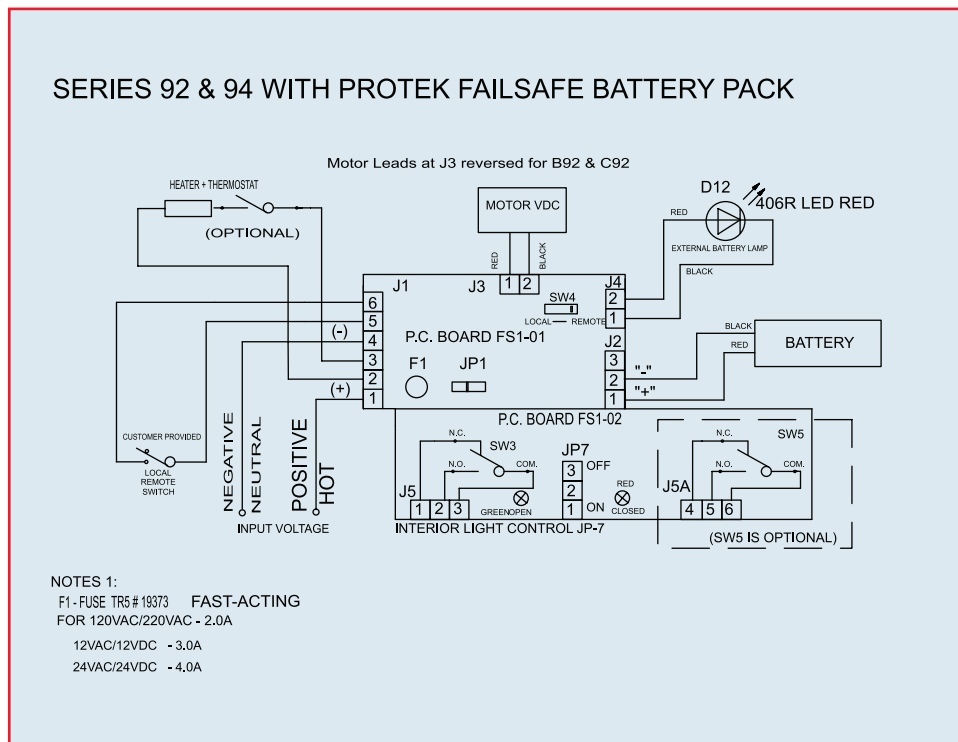
- Voltages
- Heater and thermostat
- Feedback potentiometer
- Local Remote Station (PK100)

Protek Battery Pack

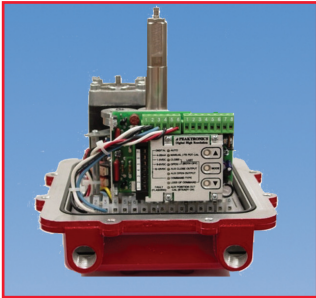
Cycle Time and Wiring Diagram

Size	120 VAC		220 VAC		24 VAC		12 VDC		24 VDC		12 VDC		Cycle Time 90° (SEC)
	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	
A94	0.4	75%	0.2	75%	4.0	75%	2.0	75%	3.3	75%	2.0	75%	5
B94	0.4	75%	0.2	75%	4.0	75%	2.0	75%	3.3	75%	2.0	75%	5
S92	0.4	75%	0.2	75%	4.0	75%	2.0	75%	3.3	75%	2.0	75%	15
A92	0.4	75%	0.2	75%	4.0	75%	2.0	75%	3.3	75%	2.0	75%	15
B92	0.4	75%	0.2	75%	4.0	75%	2.0	75%	3.3	75%	2.0	75%	25
C92	0.4	75%	0.2	75%	4.0	75%	2.0	75%	3.3	75%	2.0	75%	25

*Cycle times are approximate.



With constant power to terminal #'s 1 & 4 (J1) and the dry contact switch is made, the valve will open. When the dry contact switch at terminal #'s 5 and 6 is not made, the valve will close. This task is completed via the supply power and does not affect the battery pack. When the supply power is interrupted, the valve will travel via battery pack power to its predetermined fail position.



The DHC positioner is a high performance, high resolution digital positioner. A simple three-button control is used to configure ALL parameters that the unit needs for a variety of applications, and eliminates the need for special meters and/or tools for calibration. As long as there is supply power, the unit can easily be field calibrated.

This positioner can be calibrated for various command types (such as 4-20 mA, 1-5 VDC, 0-5 VDC, 0-10 VDC or digital) and also the default operation upon loss of command (such as fail open, fail close, or fail as is). The optional transmitter/auxiliary limit switch module is installed into the positioner card via plug and socket. This allows a user defined feedback signal of current or voltage, and provides three SPST relay contacts for open position, closed position and a fault condition.

Series 92 Standard Features

- Reversing, brushless capacitor-run motor (120 VAC and 220 VAC)
- All 120 VAC and 220 VAC motors are CE compliant, and bear the CE mark
- Integral thermal overload protection for motor windings with automatic reset (120 VAC and 220 VAC)
- 50 - 100 percent duty cycle motor
- Permanently lubricated, Rockwell hardened solid alloy steel gearing
- Weatherproof enclosure rated Type 4X has a thermally bonded powder coat finish with SS trim
- ISO mounting configuration FO7/17mm star
- Two 1/2" FNPT conduit entry to eliminate cross feed between control, feedback, and power signals
- Highly visible beacon position indicator for positive position of valve, even at a distance
- Declutchable manual override: Pull up on indicator knob, insert 5/8" wrench onto flats and rotate in the appropriate direction (CCW for open/CW for close). Models with handwheel override do not require a wrench. Simply push down on handwheel until engaged with cam and rotate
- Series 92 actuators have an output torque range from 400 in./lbs. to 2,000 in./lbs.

Positioner Standard Features

- High resolution
- Simple push-button calibration
- Calibrated as standard or reverse acting
- Multi-meter not required for potentiometer calibration
- Control signal not required for calibration
- Options install into positioner via plug and socket
- Selectable fail position for loss of input signal; fail open, fail close, or fail as is
- Selectable input signal; 4-20 mA, 1-5 VDC 0-5 VDC, 0-10 VDC, or digital
- Loss of command and feedback potentiometer fault detection
- Motor stall detection will sense when the motor has reached a stall condition and remove power from the motor

Series 92 Engineering Specifications

Size: S92, A92, B92, C92

Torque: 400 in./lbs. - 2000 in./lbs.

Voltage: 120 VAC, 1-phase, 50/60Hz

Amp Draw: S92 = 0.5A

A92 = 0.8A

B92 = 0.5A

C92 = 1.0A

Duty Cycle: S92 = 100%

A92 = 75%

B92 = 100%

C92 = 50%

Conduit Entry: two 1/2" FNPT

Maximum Ambient Temperature: 150° F

Switches: two single pole, double throw

(Two SPDT), 15 Amp rated

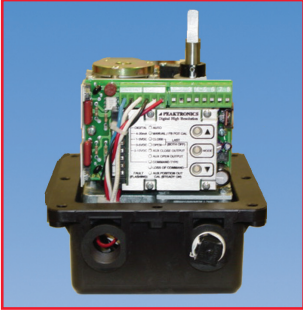
Cycle Time per 90 degree: 15 seconds for S92 & A92

32 seconds for B92 & C9

*Cycle times are approximate.

Actuator/Positioner Options

- Voltages: 230 VAC, and low AC or DC
- Heater and thermostat
- Mechanical brake
- 4-20 mA output transmitter with three SPST relay contacts
- ModBus
- Local Remote Station (PK100)



The DHC positioner is a high performance, high resolution digital positioner. A simple three-button control is used to configure ALL parameters that the unit needs for a variety of applications, and eliminates the need for special meters and/or tools for calibration. As long as there is supply power, the unit can easily be field calibrated.

This positioner can be calibrated for various command types (such as 4-20 mA, 1-5 VDC, 0-5 VDC, 0-10 VDC, or digital) and also the default operation upon loss of command (such as fail open, fail close, or fail as is). The optional transmitter/auxiliary limit switch module is installed into the positioner card via plug and socket. This allows a user-defined feedback signal of current or voltage, and provides 3-SPST relay contacts for open position, closed position and a fault condition.

Series 94 Standard Features

- Reversing, brushless capacitor-run motor (120 VAC and 220 VAC)
- All 120 VAC and 220 VAC motors are CE compliant, and bear the CE mark
- Integral thermal overload protection for motor windings with automatic reset (120 VAC & 220 VAC)
- 75- 100 percent duty cycle motor
- Permanently lubricated gearing
- NEMA Type 4X enclosure
- Engineered resin enclosure
- ISO mounting F05/ 14mm star
- Two 1/2" FNPT conduit entry to eliminate cross feed between control, feedback, and power signals
- Highly visible position indicator for positive position of valve, even at a distance
- Declutchable manual override: Push down on handle and rotate
- Series 94 actuators have an output torque range from 150 in./lbs. to 300 in./lbs.

Positioner Standard Features

- High resolution
- Simple push-button calibration
- Calibrated as standard or reverse acting
- Multi-meter not required for potentiometer calibration
- Control signal not required for calibration
- Options install into positioner via plug and socket
- Selectable fail position for loss of input signal; fail open, fail close, or fail as is
- Selectable input signal; 4-20 mA, 1-5 VDC, 0-5 VDC, 0-10 VDC, or digital
- Loss of command and feedback potentiometer fault detection
- Motor stall detection will sense when the motor has reached a stall condition and remove power from the motor

Series 94 Engineering Specifications

Size: A94, B94

Torque: 150 in./lbs - 300 in./lbs

Voltage: 120 VAC, 1-phase, 50/60Hz

Amp Draw: A94 = 0.5A

B94 = 0.8A

Duty Cycle: A94 = 100%

B94 = 75%

Conduit Entry: two 1/2" FNPT

Maximum Ambient Temperature: 150° F

Switches: two single pole, double throw

(Two SPDT) , 15 amp rated

Cycle Time per 90 degree: A94, B94 5 seconds*

*Cycle times are approximate.

Actuator/Positioner Options

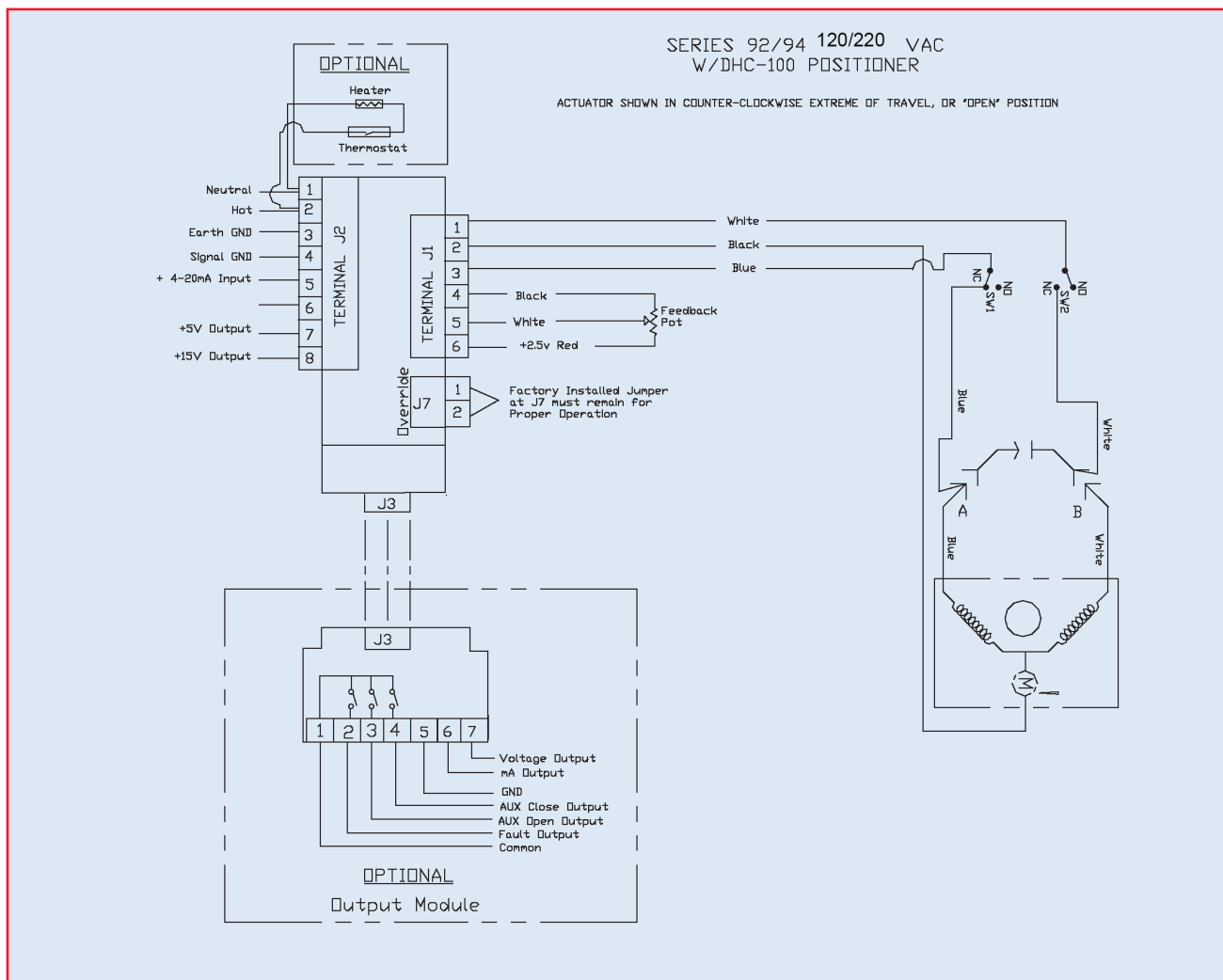
- Voltages: 230 VAC, and low AC or DC
- Heater and thermostat
- Mechanical brake
- 4-20 mA Output transmitter with three SPST relay contacts
- ModBus
- Local Remote Station (PK100)

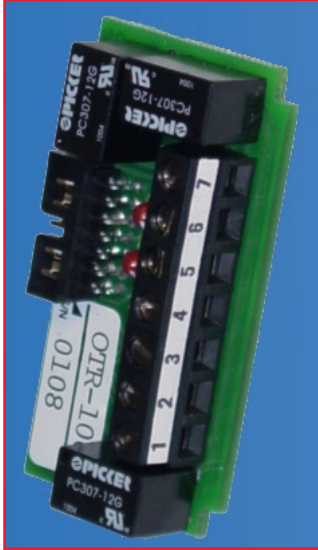
Peaktronics Positioner

Specifications

Size	120 VAC		220 VAC		24 VAC		24 VDC		Cycle Time * 90 (SEC)
	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	
A94	0.5	100%	0.4	100%	4.0	75%	4.0	75%	5
B94	0.8	75%	0.6	75%	4.0	75%	4.0	75%	5
S92	0.5	100%	0.4	100%	3.0	75%	4.0	75%	15
A92	0.8	75%	0.6	75%	3.0	75%	4.0	75%	15
B92	0.5	100%	0.4	100%	3.0	75%	4.0	75%	32
C92	1.0	50%	0.6	50%	3.0	75%	4.0	75%	32

*Cycle times are approximate.





The transmitter/relay module has been specifically designed for use with the DHC positioner via plug and socket installation, and is supplied with its own terminal strip. This module provides a selectable output signal of 0-20 mA as a current output signal, or 0-10 VDC as a voltage output signal. It also provides three SPST relay contact outputs that are typically used as end of travel limit switches (open and closed), and a fault indicator (loss of signal, etc.). These contacts are rated for 1A at 24 VDC / 0.5A at 125 VAC.

Standard Features

- Transmitter/relay plugs directly into DHC-100 positioner card
- Independent terminal strip
- Selectable current (0-20mA), or voltage (0-10 VDC) output signal
- Three SPST independently configurable relay contacts
- Simple calibration via DHC-100 push-buttons
- Control signal not required for calibration

Specifications

Positioner

POWER REQUIREMENTS

DHC-100: 117 VAC $\pm 10\%$, 50/60 Hz
 12 VA typical (not including output load)
 Fuse Type: 6.3A TR5 Slo-Blo (replaceable)

COMMAND SIGNAL INPUT

Input Impedance
 20K ohms (1-5 VDC, 0-5 VDC, 0-10 VDC Input)
 251 ohms $\pm 1\%$ (4-20 mA Input)
 Loss of Command threshold
 < 0.75V or > 5.5V (1-5 VDC input)
 < 3 mA or > 22 mA (4-20 mA input)

FEEDBACK SIGNAL INPUT

Input Voltage: 0 to 2.5 VDC
 External Feedback Potentiometer: 1K ohm

POWER SUPPLY OUTPUTS

+15V OUT (J2-8): 125 mA maximum (not including option module)
 +5V OUT (J2-7): 5 mA maximum

NOTE: Do not connect these outputs to other power supplies.

AC MOTOR OUTPUTS

Off-state Leakage Current: <15 mA
 Maximum Load Current @ 150C: 5A

ENVIRONMENTAL

Operating Temperature Range: 32° F to 150° F
 Storage Temperature Range: -40° F to 185° F
 Relative Humidity Range: 0 to 90 percent (noncondensing)

Transmitter/Relay

CURRENT OUTPUT

0 to 20 mA @ 8 VDC or 400 Ω maximum
 Resolution: 0.0031mA

VOLTAGE OUTPUT

0-10vdc @ 10 mA maximum
 Resolution: 0.0016 VDC

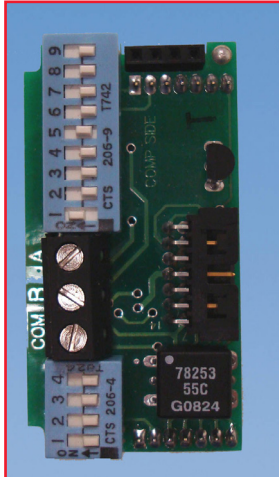
RELAY OUTPUTS

Switch Contact Type: SPST
 Contact Rating (non-inductive):
 1A @ 24 VDC / 0.5A @ 125 VAC

ENVIRONMENTAL

Operating Temperature Range: 32° F to 150° F
 Storage Temperature Range: -40° F to 185° F
 Relative Humidity Range: 0 to 90 percent (non-condensing)

ModBus



The ModBus option module has been specifically designed for use with the DHC positioner via plug and socket installation. This module provides an isolated RS-485 bus connection using the ModBus protocol. The on-board screw terminal strip provides easy connection to the bus (Terminals A, B, & Common). With an input impedance of 96K ohms, up to 256 units can be connected on the bus. On-board dip switches allow configuring the module for various bus settings: mode, baud rate, parity, node address, and line terminating resistor.

Standard Features

- ModBus option module plugs directly into DHC-100 positioner card
- Selectable RTU or ASCII mode
- Selectable Even Parity or No Parity
- Selectable Baud Rate: 9600, 19.2K, 57.6K, 115.2K
- Node Address Setting: 0 - 255
- Selectable line terminating resistor

Specification

BUS CONNECTION

Type: ANSI TIA/EIA RS-485 (electrically isolated up to 1500 Vrms)

Protocol:

ModBus (selectable RTU or ASCII mode)

Logic "1": +Vba

Logic "0": -Vba

Selectable Address: 0 - 255 (1 to 247 usable)

Selectable Line Terminating Resistor (Rba): 150 ohm

Line Polarization: not required

CABLE CHARACTERISTIC IMPEDANCE

A value of 100 ohms or greater may be preferred, especially for 19.2K and higher baud rates.

TRANSMITTER OUTPUT

Differential Output Voltage (Vba):

5V max @ no load

1.5V min @ 54 ohm load

Output Short Circuit Current:

A to B: 95 mA typical

A or B to COM: 113mA typical

TRANSMITTER INPUT

Input Impedance (Rba): 96K ohms min (1/8 node)

Input Logic Threshold Voltage (Vba): 30mV min, 200 mV max

Input Hysteresis: 20mV typical

ENVIRONMENTAL

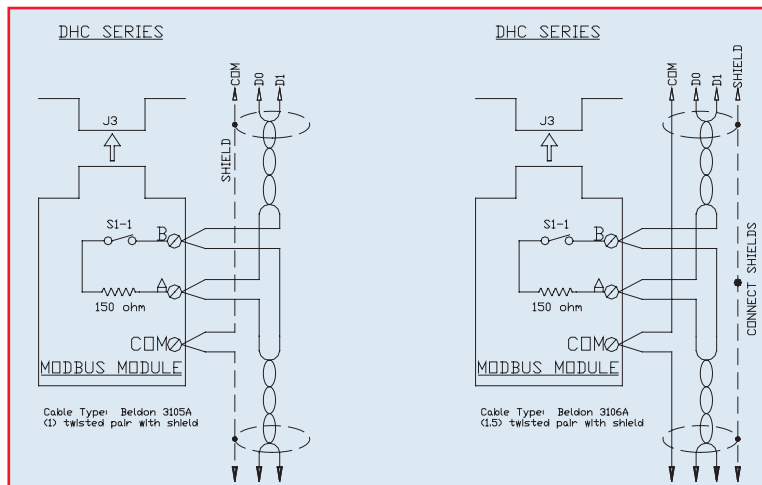
Operating Temperature Range: 0° C to 60° C

Storage Temperature Range: -40° C to 85° C

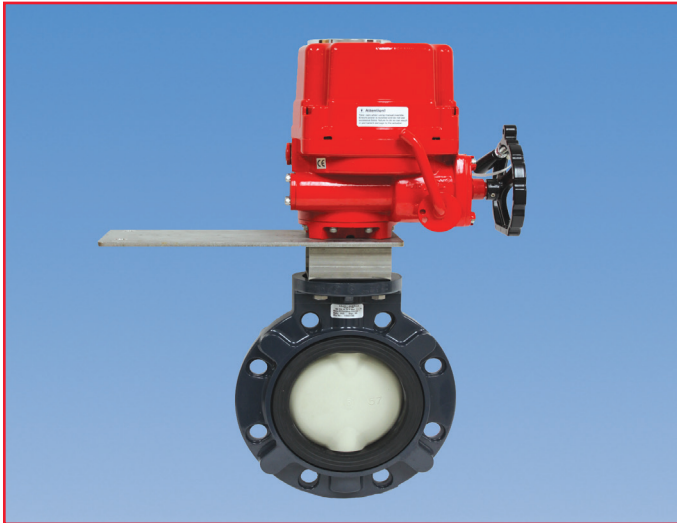
Relative Humidity Range: 0 to 90 percent (noncondensing)

BAUD RATE	RTU MODE CHARACTER PERIODS	
	11.5 [usec]	13. [usec]
9600	1,719	4,010
19.2	859	2,006
57.6K	266	668
115.2K	143	334

Wiring Diagram



Series 10P Electric Actuator



Specifications

Torque: 1,320-26,040 in./lbs.

Voltage: 110 VAC 1Ph 50/60 Hz

Amp Draw: 1.65 – 4.20

Conduit Entry: Two (2) 3/4" FNPT

Max Ambient Temperature: 150° F

Limit Switches: Four (4) single pole,
double throw (4-SPDT)
10 amp rated

Torque Switches: Two (2) single pole,
double throw (4-SPDT)
10 Amp rated

Cycle Time per 90°: 21– 93 seconds

Standard Features

- **Motor:** Reversing, squirrel cage induction motor, 110 VAC 50/60 Hz, single phase
- **Overload protection:** Integral thermal overload protection for motor windings with automatic reset
- **Gear train:** Permanently lubricated
- **Conduit:** Two 3/4" FNPT conduit entries to eliminate cross feed between control and power signals
- **Declutchable manual override:** Lockable de-clutching lever with handwheel
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be used with PLC for position confirmation)
- **Auxiliary (Additional) limit switches:** Each electric actuator is provided as a standard with two SPDT auxiliary limit switches
- **Torque Switches:** two SPDT torque switches
- **Mechanical Stops:** Two +/- 10 percent mechanical travel stops
- **Enclosure:** Weatherproof rated Type 4X and 6
- **AWWA C542:** Conforms to AWWA C542
- **Self-Locking:** Self-locking worm gear design eliminates the need for a mechanical brake
- **Space Heater:** A space heater is provided as standard equipment
- **Output torque:** Series 10P electric actuators have an output torque range from 1,320 in./lbs. to 26,040 in./lbs.
- **Corrosion resistant mounting:** Mounting is with stainless steel bracket, stainless steel coupling, and stainless steel hardware
- **Captivated SS socket cap cover screws**

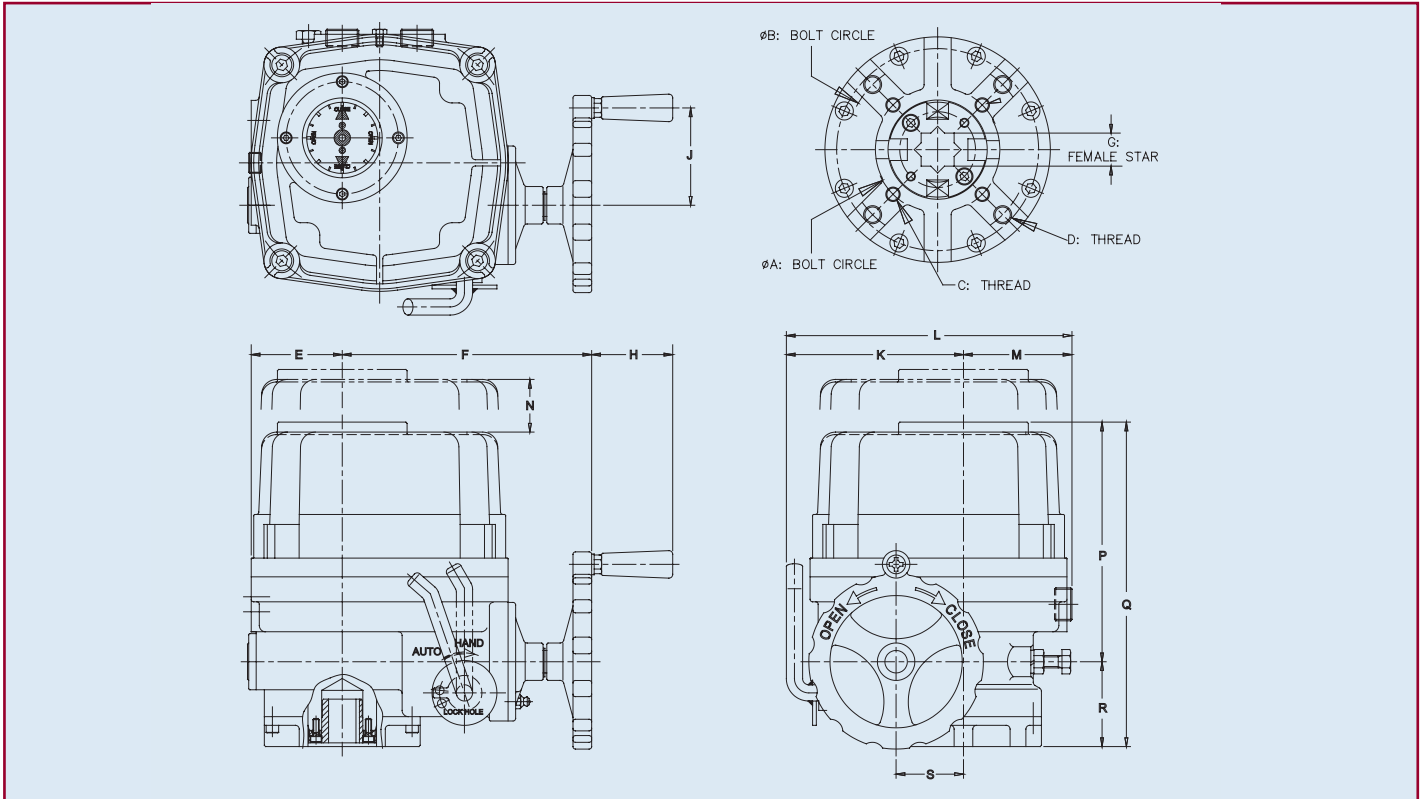
Sample Specifications

All Series 10P electric actuators shall have a thermally protected, bidirectional (reversing type), squirrel cage induction motor with a permanently lubricated gear train. Actuator shall have self-locking worm gearing encompassed in a die cast aluminum housing anodized inside and outside, with an external polyester powder coat finish, rated Type 4X and 6. Each actuator shall have a lockable manual override, visual position indication, two auxiliary limit switches, two torque switches and a space heater, as supplied by Asahi/America, Inc.

Options

- Positioner: 4-20 mA or 0-10 VDC input
- 4-20 mA output transmitter
- Two-wire control
- Voltages: 220/1, 380/3, 460/3, 24 VDC
- ModBus
- ATEX enclosure
- Local remote station (LL 200)

Series 10P Electric Actuator



Dimensions (in.)

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
10-15P	2.76	4.02	M8 X 12 DEEP	M10 X 15 DEEP	2.87	7.87	17MM	2.56	3.07	5.59	9.02	3.43	6.3	7.56	10.24	2.68	2.13
10-20P	2.76	4.02	M8 X 12 DEEP	M10 X 15 DEEP	2.87	7.87	17MM	2.56	3.07	5.59	9.02	3.43	6.3	7.56	10.24	2.68	2.13
10-30P	4.02	4.92	M10 X 15 DEEP	M12 X 18 DEEP	3.23	7.87	27MM	2.56	3.07	6.3	10.2	3.9	7.09	8.7	11.42	2.72	2.56
10-50P	4.02	4.92	M10 X 15 DEEP	M12 X 18 DEEP	3.23	8.7	27MM	2.56	3.07	6.3	10.2	3.9	7.09	8.7	11.42	2.72	2.56
10-60P	4.02	4.92	M10 X 15 DEEP	M12 X 18 DEEP	3.23	8.7	27MM	2.56	3.07	6.3	10.2	3.9	7.09	8.7	11.42	2.72	2.56
10-80P	4.92	5.51	M12 X 18 DEEP	M16 X 25 DEEP	4.06	9.53	36MM	2.56	4.33	7.32	11.69	4.37	8.27	9.49	12.4	2.91	3.07
10-120P	4.92	5.51	M12 X 18 DEEP	M16 X 25 DEEP	4.06	9.53	36MM	2.56	4.33	7.32	11.69	4.37	8.27	9.49	12.4	2.91	3.07
10-200P	6.49	6.49	M20 x 30 DEEP	M20 x 30 DEEP	4.06	9.53	36MM	2.56	4.33	7.32	12.56	5.24	8.27	9.49	21.57	2.91	3.07
10-300P	6.49	6.49	M20 x 30 DEEP	M20 x 30 DEEP	4.06	9.53	46MM	2.56	4.33	7.32	12.56	5.24	8.27	9.49	21.57	2.91	3.07

Engineering Data

Model	Torque (in./lbs.)	110/1 VAC		220/1 VAC		380/3 VAC		460/3 VAC		24 VDC		Cycle Time per 90 Degrees (Seconds)*	Weight
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
10-15P	1320	1.65	70	0.88	70	0.31	70	0.30	70	2.20	70	21	37
10-20P	1740	1.67	70	0.89	70	0.31	70	0.30	70	2.50	70	21	37
10-30P	2580	1.85	70	0.92	70	0.35	70	0.34	70	2.90	70	26	49
10-50P	4320	3.60	70	1.55	70	0.59	70	0.58	70	N/A	N/A	26	51
10-60P	5220	3.65	70	1.60	70	0.60	70	0.59	70	N/A	N/A	26	51
10-80P	6960	4.10	70	2.15	70	0.85	70	0.79	70	N/A	N/A	31	64
10-120P	10,440	4.20	70	2.35	70	0.87	70	0.81	70	N/A	N/A	31	64
10-200P	17,400	4.10	70	2.15	70	0.85	70	0.79	70	N/A	N/A	93	166
10-300P	26,040	4.20	70	2.35	70	0.87	70	0.81	70	N/A	N/A	93	166

Series 92/94 Local Remote Stations



LL-200 is to be used in conjunction with Series 92 or 94, AC powered and on/off actuator.

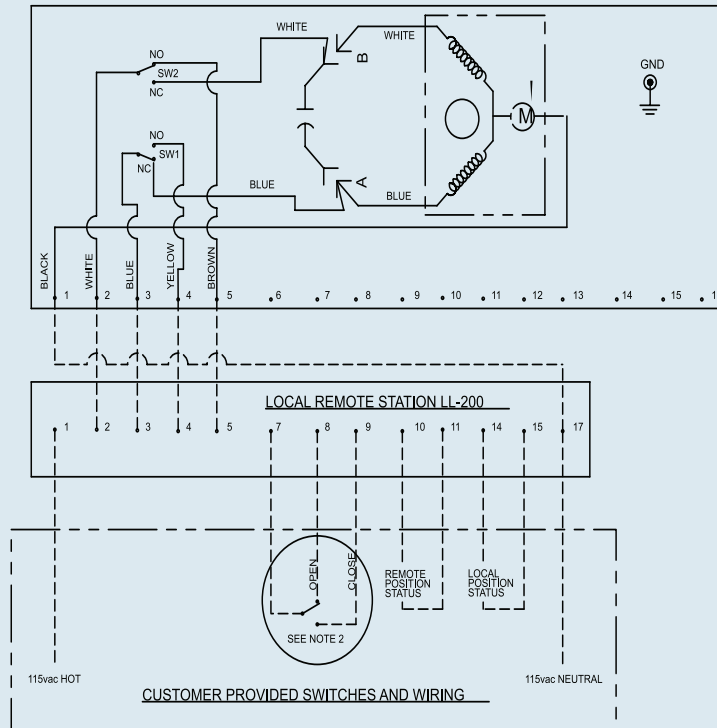
Standard Features

- Visual light indication
- Weatherproof enclosure constructed of fiberglass polyester
- Stainless steel trim
- Captive cover gasket
- Captive cover screws
- Two position selector switch (open and close)
- Three position selector switch (hand, off, auto)
- -40° F - 266° F temperature range

Options

- Explosion proof enclosure
- 316 stainless steel enclosure
- Contact factory for specific applications

SERIES 92 OR SERIES 94 115 VAC ELECTRIC ACTUATOR
ACTUATOR SHOWN IN COUNTER-CLOCKWISE EXTREME OF TRAVEL, OR "OPEN" POSITION



NOTE:

1. LOCAL REMOTE STATION IS NOT CLOSE COUPLED TO ACTUATOR. FIELD WIRING OF LOCAL REMOTE STATION TO ACTUATOR IS TO BE PERFORMED BY OTHERS.

2. CUSTOMER PROVIDED SWITCH INSTALLED AT TERMINALS 7, 8, & 9 IS FOR REMOTE USE ONLY.

Series 92/94 Local Remote Stations



PT-100

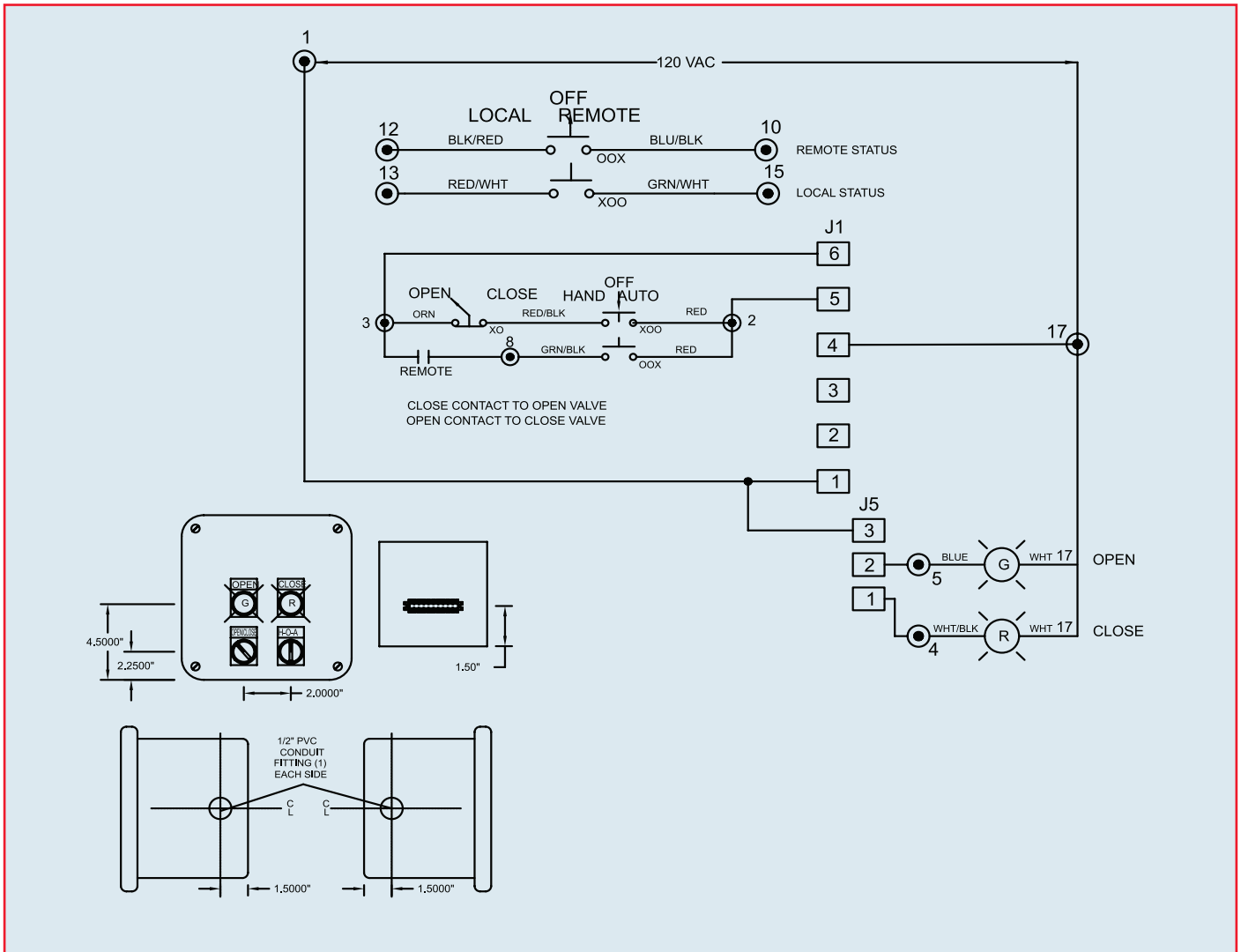
PT-100 is to be used in conjunction with Series 92 or 94 with Protek battery pack.

Standard Features

- Weatherproof enclosure constructed of fiberglass polyester
- Stainless steel trim
- Captive cover gasket
- Captive cover screws
- Two position selector switch (open and close)
- Two position selector switch (local/remote)
- -40° F - 266° F temperature range

Options

- 316 stainless steel enclosure
- Contact factory for specific applications



Series 92/94 Local Remote Stations



PK-100

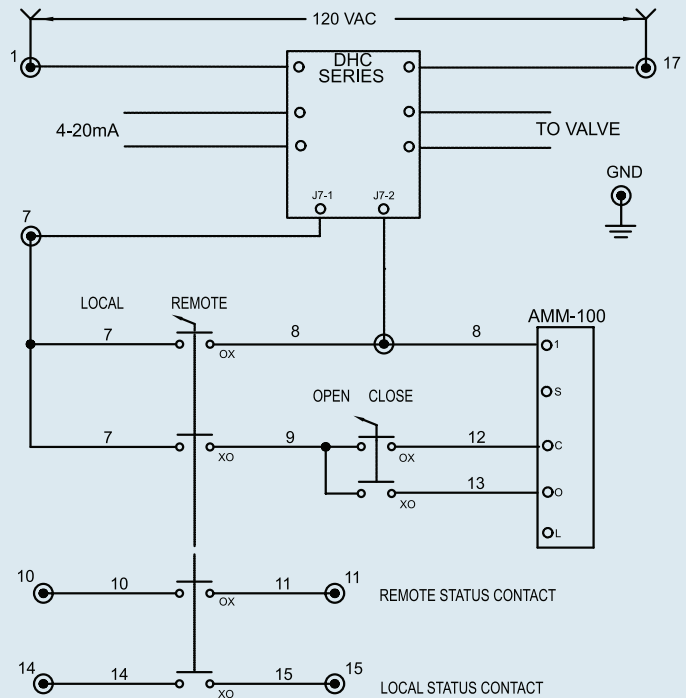
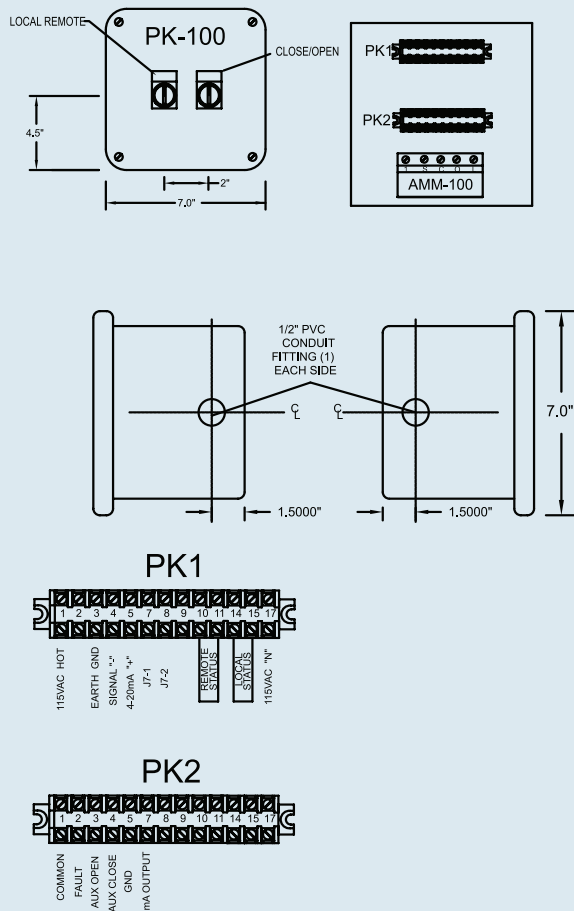
PK-100 is to be used in conjunction with Series 92 or 94, AC powered and DHC-Series positioner card.

Standard Features

- Weatherproof enclosure constructed of fiberglass polyester
- Stainless steel trim
- Captive cover gasket
- Captive cover screws
- Two position selector switch (open and close)
- Two position selector switch (local/remote)
- -40° F - 266° F temperature range

Options

- Explosion proof enclosure
- 316 stainless steel enclosure
- Contact factory for specific applications



Note:

1. Local remote station is not close coupled to actuator. Field wiring of local remote station to actuator is to be performed by others.

Series 10P Local Remote Stations



LL-200 is to be used in conjunction with Series 10, AC powered and on/off actuator.

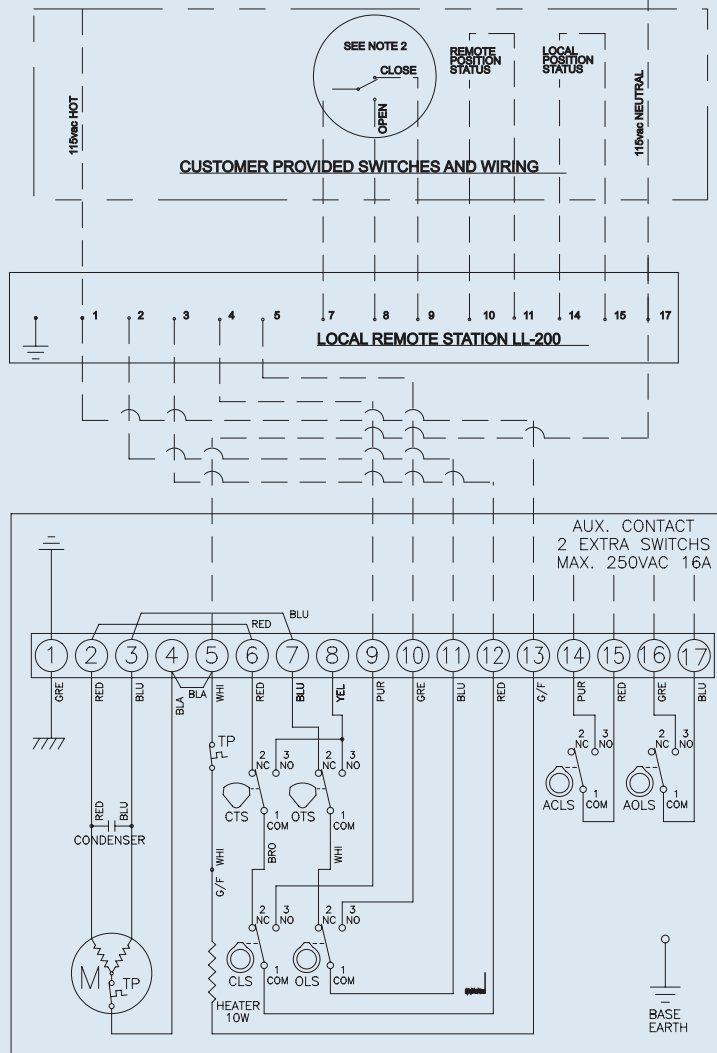
Standard Features

- Visual light indication
- Weatherproof enclosure constructed of fiberglass polyester
- Stainless steel trim
- Captive cover gasket
- Captive cover screws
- Two position selector switch (open and close)
- Three position selector switch (hand, off, auto)
- -40° F - 266° F temperature range

Options

- Explosion proof enclosure
- 316 stainless steel enclosure
- Contact factory for specific applications

- NOTE:**
1. LOCAL REMOTE STATION IS NOT CLOSE COUPLED TO ACTUATOR. FIELD WIRING OF LOCAL REMOTE STATION TO ACTUATOR IS TO BE PERFORMED BY OTHERS.
 2. CUSTOMER PROVIDED SWITCH INSTALLED AT TERMINALS 7, 8, & 9 IS FOR REMOTE USE ONLY.
 3. EACH ACTUATOR MUST BE POWERED THROUGH ITS OWN INDIVIDUAL SWITCH CONTACTS TO AVOID CROSS FEED.



HMI Local Remote Station for Series 92 & 94



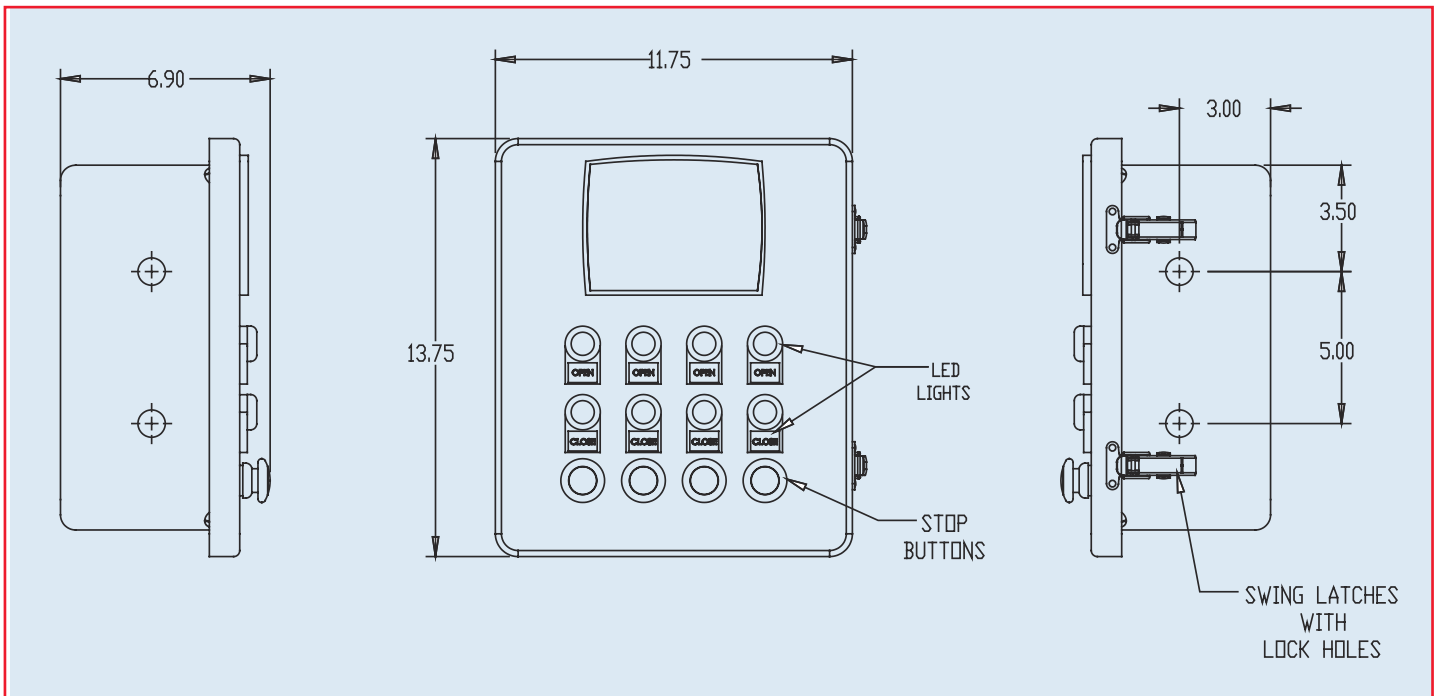
Standard Features

- Controls up to Four (4) Actuators
- Simple Pushbutton Operation
- 2-Lines X 16-Character LCD Display
- NEMA Type 4X Enclosure Constructed of Fiberglass Polyester
- Stainless Steel Trim
- Captive Cover Gasket
- Lockable Latched Cover
- Terminal Blocks for Inputs
- DPDT Relays and Sockets for Outputs
- Local/Remote Status Contacts
- Indicating LED's for Each Actuator (Green Open/Red Close)
- Four Individual STOP Buttons (one for each actuator)
- 32° F - 122° F Temperature Range
- Four (4) Provisions for 1/2" Conduit
- 120 - 240vac Power Supply Required

Options

- SS enclosure
- Contact factory for specific applications

Dimensions



HMI/PLC Control System



Asahi/America's HMI/PLC control system is a custom designed built to order system that allows you to easily control any number of valves or other process control items using a singular system.

Each system includes to a touchscreen monitor or push-button controls, can be programmed quickly via simple ladder logic and is housed in a NEMA 4X enclosure for ultimate safety and security.

Standard Features

- Complete HMI/PLC package
- Push-button operation
- NEMA Type 4X Enclosure constructed of fiberglass polyester
- Stainless steel trim
- Captive cover gasket
- Lockable latched cover
- Four (4) provisions for 1/2" conduit
- 24 VDC power supply included with HMI/PLC package
(100 VAC – 230 VAC supply power required)
- Programming via simple ladder logic
- Basic starter programs available
- No software licensing fees

Ordering Considerations

What type of user interface do you require?

Push button or touchscreen

What are your graphic requirement?

Graphics available with touchscreen option only

What networking connection(s) will you need?

Modbus, profibus, canbus, ethernet

What inputs will you require and how many?

Digital or analog

What outputs will you require and how many?

Digital, analog, relay, transistor or PWM

Do you require data logging?

Do you require graphs?

What other special considerations do you have?

HMI/PLC Control System

General Features

- Color touch screen
- HMI Graphs and trends
- Up to 1024 user designed screens
- Up to 500 images per application
- Real-time clock functions

Communication

- Discrete I/O
- Analog I/O
- Profibus
- Modbus
- Canbus
- Ethernet

Snap-in Expansion Modules

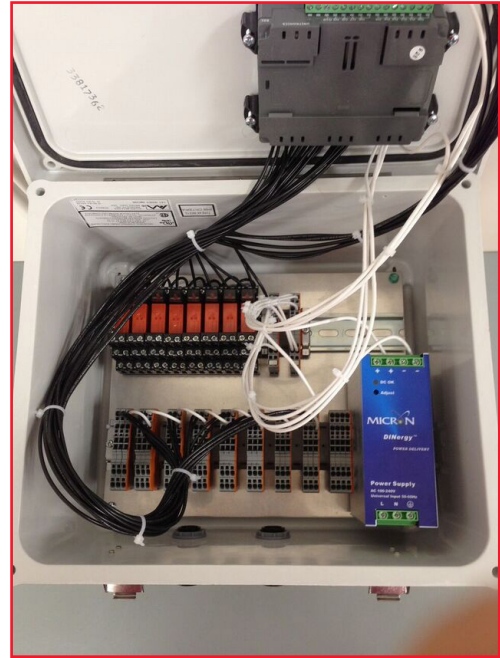
- Data logging
- HMI graphs
- RS232/RS485 ports

Available Inputs and Outputs

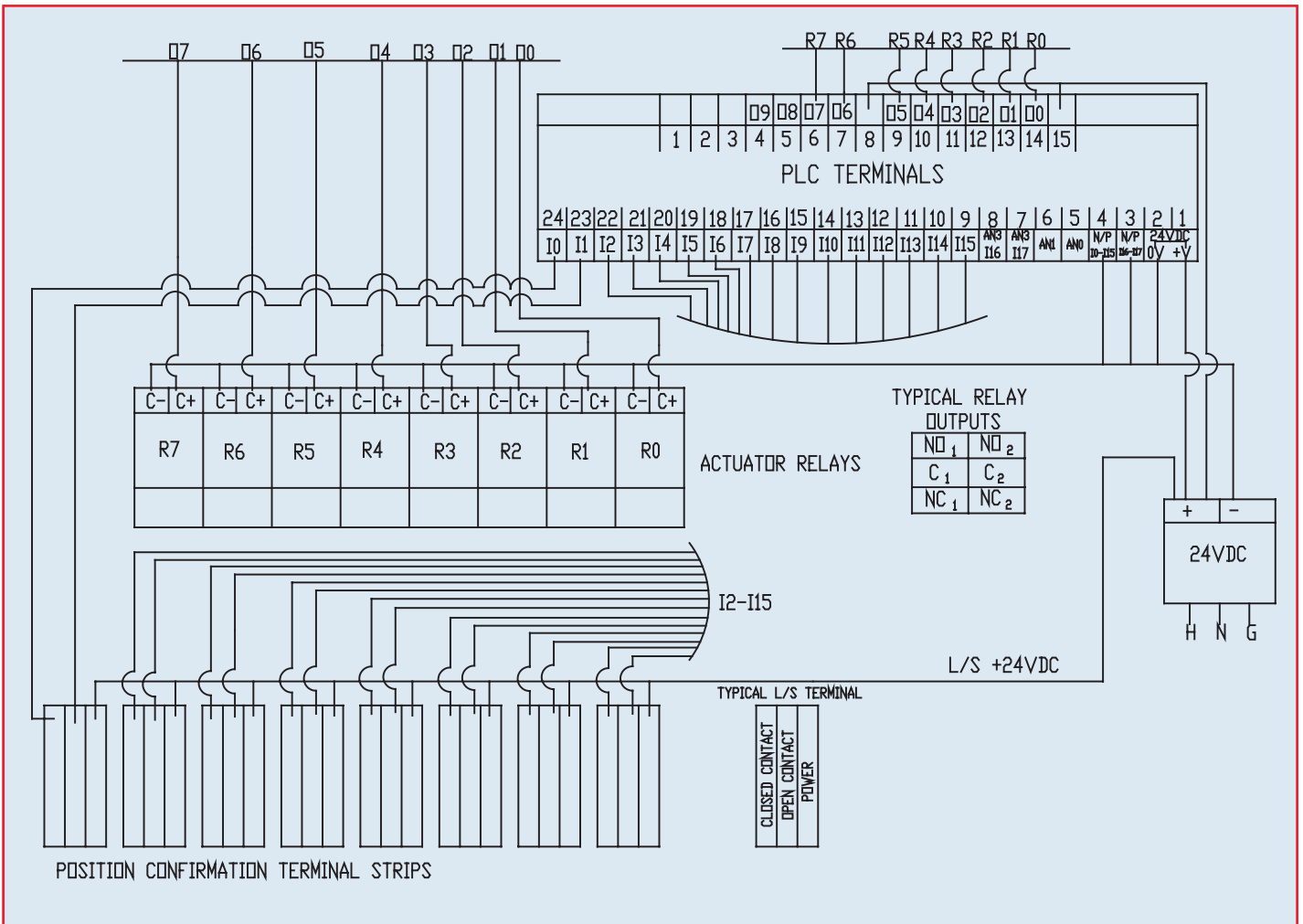
Inputs	Outputs
Digital	Digital
Transistor	Transistor
Relay	Relay
Analog	Analog
Shaft encoder	High-speed/PWM
Temperature measurement	
High-Speed counter	



HMI/PLC Control System

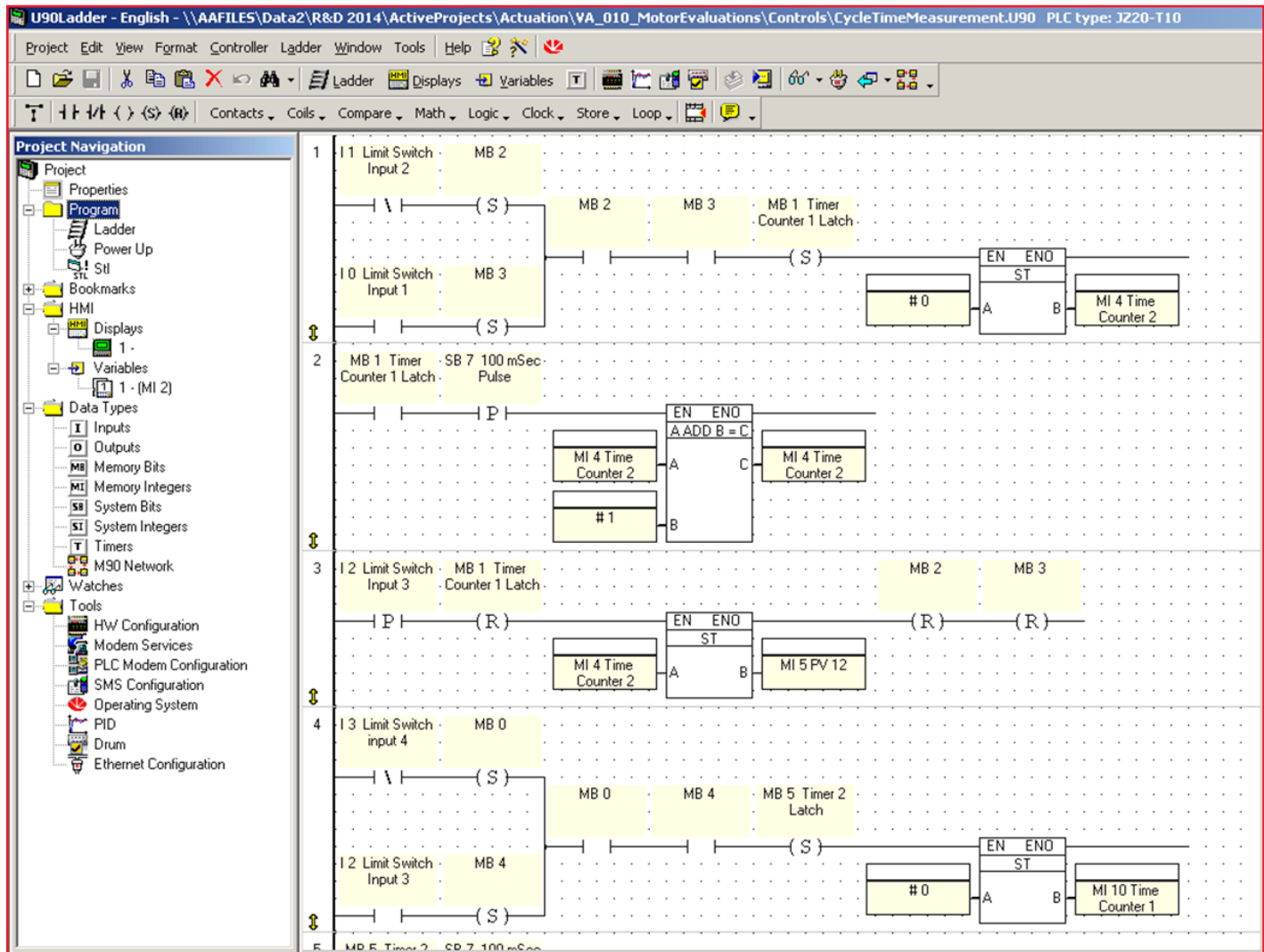


Sample Wiring



HMI/PLC Control System

Screen Shot - Ladder Logic



Programming

- Open platform
- Easy to program
- No software licencing fees

Driver Inserts for Series 79P Actuators

Driver Inserts for all PAG (Engineered Resin) 79 Pneumatic Actuators

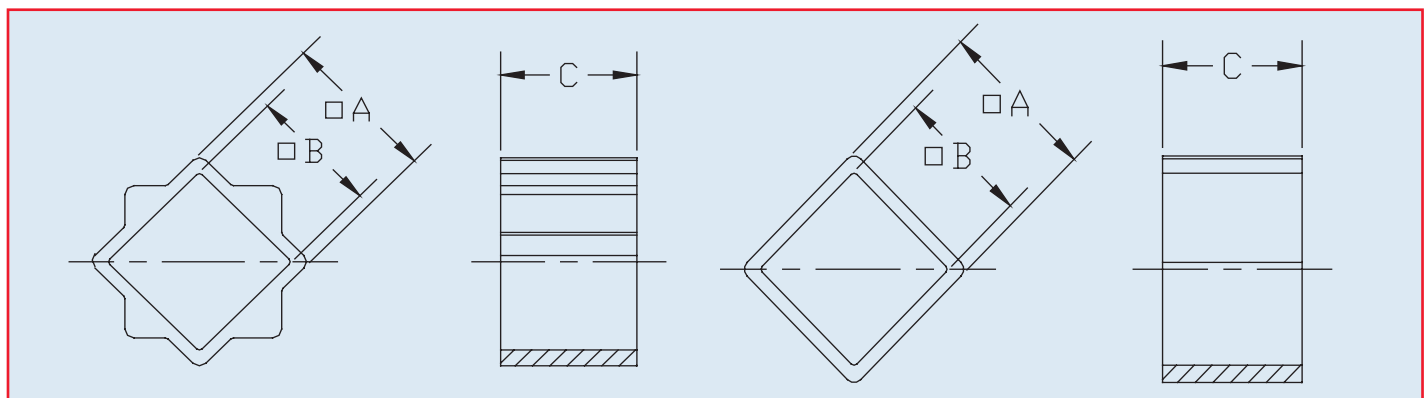
Actuator	Part Number	A	B	C	D
AP79P	PCA1109SQ	11mm	9mm	10mm	Square
	PSA141112ST	14mm	9mm	12.5mm	Star
	PSA1401112ST	14mm	11mm	12.5mm	Star
BP79P	PSA1409ST	14mm	9mm	16mm	Star
	PSA1411ST		11mm	16mm	Star
CP79P	PSA1711ST	17mm	11mm	19mm	Star
	PSA1714ST		14mm	19mm	Star
DP79P	CP221119SQ	22mm	11mm	19mm	Square
	CP221419SQ		14mm	19mm	Square
	CP221719SQ		17mm	19mm	Square

Driver Inserts for all PA (Aluminum) 79P Pneumatic Actuators

Actuator	Part Number	A	B	C	D
A79PA B79PA	PSA1409ST	14mm	9mm	16mm	Star
	PSA1411ST		11mm	16mm	Star
B579PA C79PA C579PA	PSA1711ST	17mm	11mm	19mm	Star
	PSA1714ST		14mm	19mm	Star
	CP221119SQ		22mm	11mm	19mm
CP221419SQ	14mm	19mm		Square	
CP221719SQ	17mm	19mm		Square	
D579PA E79PA	CP2711SQ	27mm	11mm	29mm	Square
	CP2714SQ		14mm	29mm	Square
	CP2717SQ		17mm	29mm	Square
	CP2719SQ		19mm	29mm	Square
	CP2722SQ		22mm	29mm	Square
F79P G79PA	CP417SQ	36mm	17mm	38mm	Square
	CP419SQ		19mm	38mm	Square
	CP422SQ		22mm	38mm	Square
	CP427SQ		27mm	38mm	Square
L79PA M79PN	CP4627SQ	46mm	27mm	48mm	Square

Driver Inserts for all Stainless Steel Series 79P Pneumatic Actuators

Actuator	Part Number	A	B	C?	D
BS79P	PSA140912ST	14mm	9mm	12.5mm	Star
	PSA1411ST	14mm	11mm	12.5mm	Star
CS79P	PSA1711ST	17mm	11mm	19mm	Star
	PSA1714ST		14mm	19mm	Star
DS79P	CP221119SQ	22mm	11mm	19mm	Square
	CP221419SQ		14mm	19mm	Square
	CP221719SQ		22mm	19mm	Square



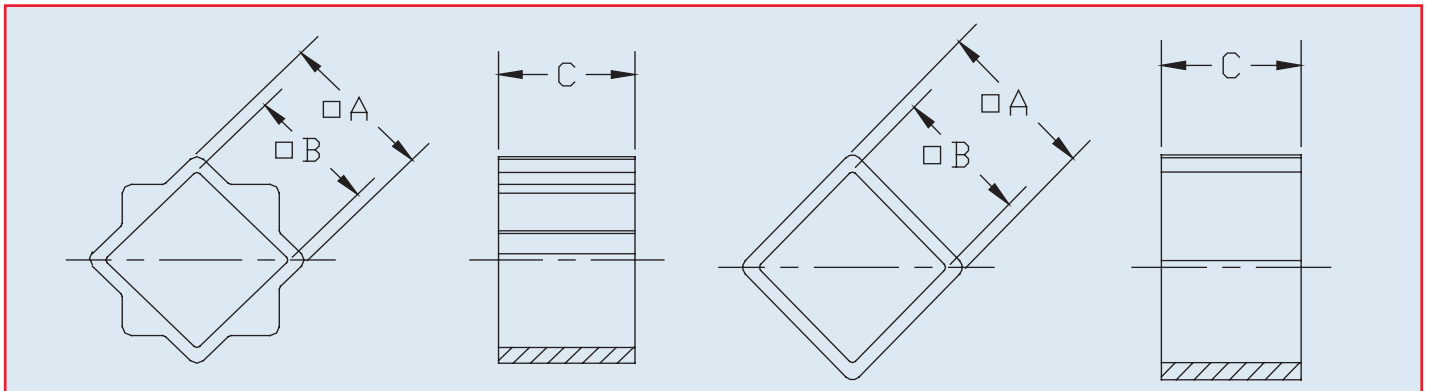
Drive Inserts for Electric Actuators

Driver Inserts for Series 92 Electric Actuators

Actuator	Part Number	A	B	C	D
S92	PSA1711ST PSA1714ST	17mm	11mm	19mm	Star
A92			14mm		Star
B92					
C92					

Driver Inserts for Series 94 Electric Actuators

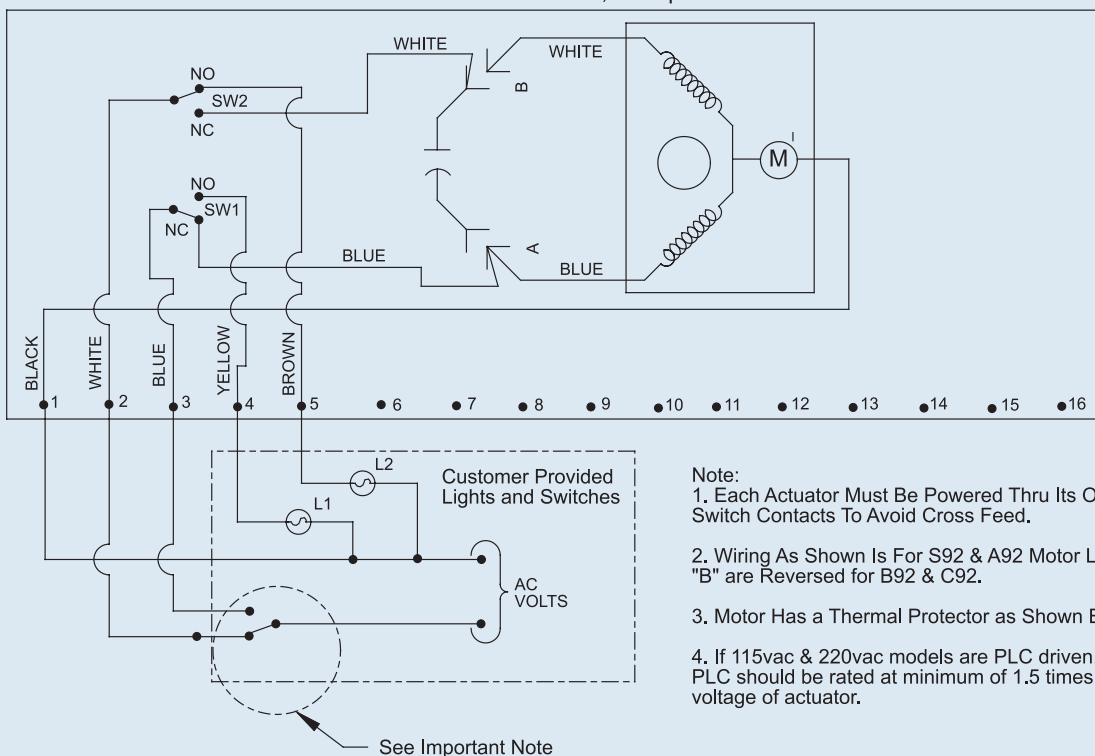
Actuator	Part Number	A	B	C	D
A94	PSA1409ST PSA1411ST	14mm	9mm	12.5mm	Star
B94			11mm		Star



Series 92 & 94 Non-RHM Wiring Schematics

Wiring Diagram for 115 VAC or 230 VAC Units

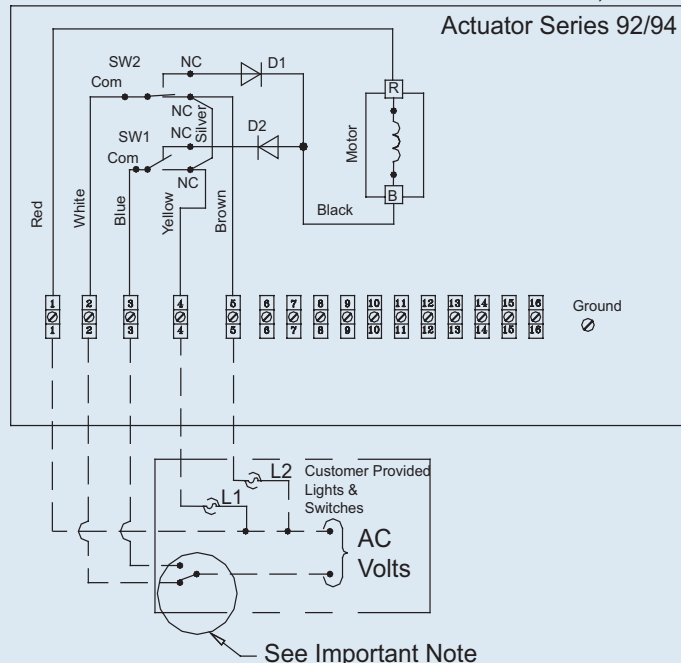
Actuator Shown is Counter-Clockwise Extreme of Travel, or "Open" Position



- Note:
1. Each Actuator Must Be Powered Thru Its Own Individual Switch Contacts To Avoid Cross Feed.
 2. Wiring As Shown Is For S92 & A92 Motor Leads at "A" And "B" are Reversed for B92 & C92.
 3. Motor Has a Thermal Protector as Shown By (M) in Diagram.
 4. If 115vac & 220vac models are PLC driven, output contacts of PLC should be rated at minimum of 1.5 times required input voltage of actuator.

Wiring Diagram for 12 VAC & 24 VAC Units

Actuator shown in counter-clockwise extreme of travel, or "OPEN" Position



- Notes:
1. Each Actuator must be powered thru its own individual switch contact to avoid cross feed
 2. Motor leads are reversed for 1100 & 2000 in/lb actuator

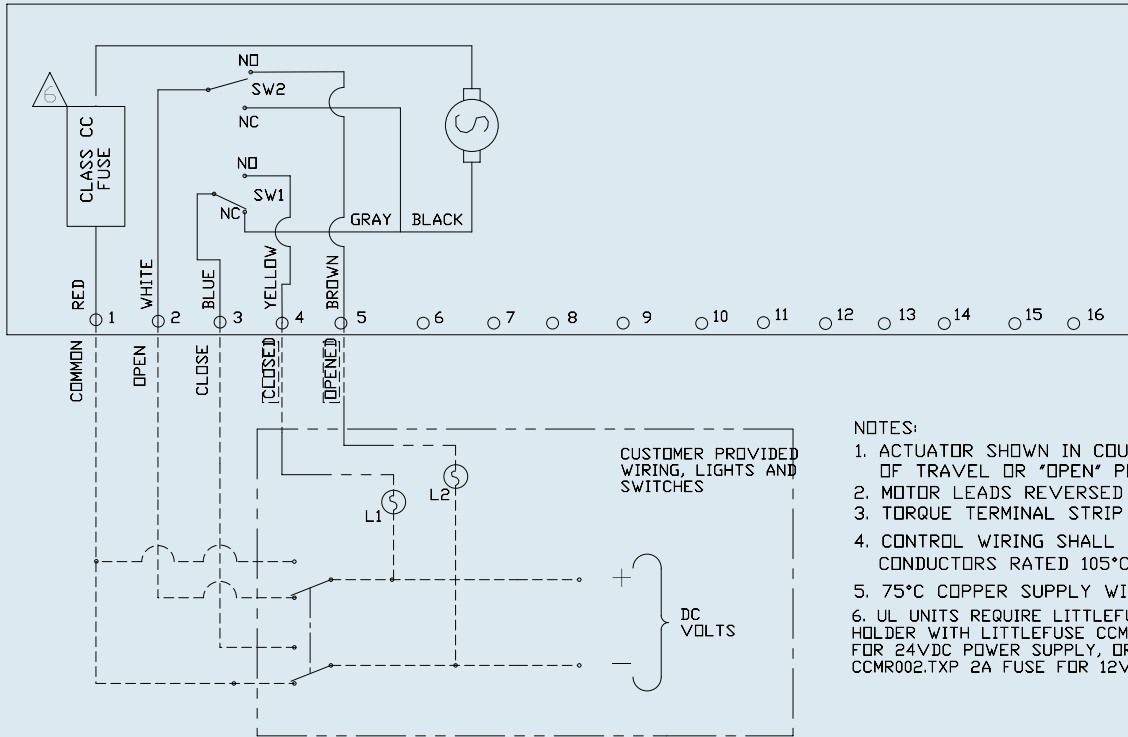
Switch Location Viewed from Terminal Strip Front

- SW-2 - Open
SW-1 - Close

Series 92 & 94 Non-RHM Wiring Schematics

Series 92/94

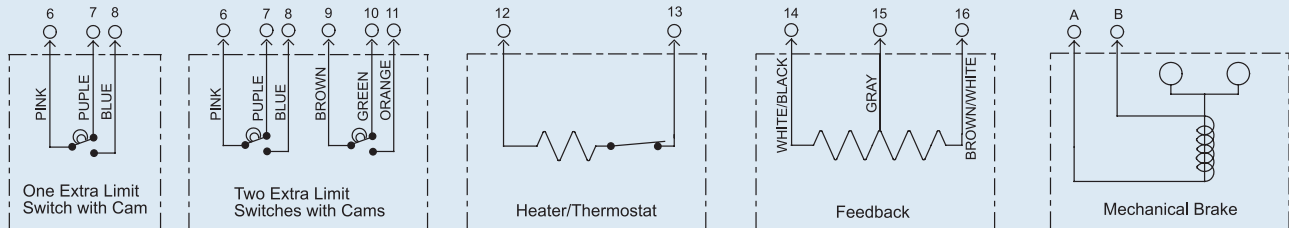
DC WIRING DIAGRAM



NOTES:

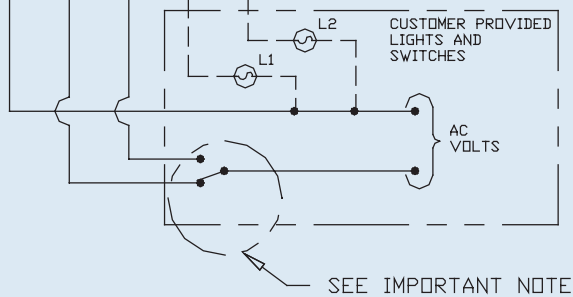
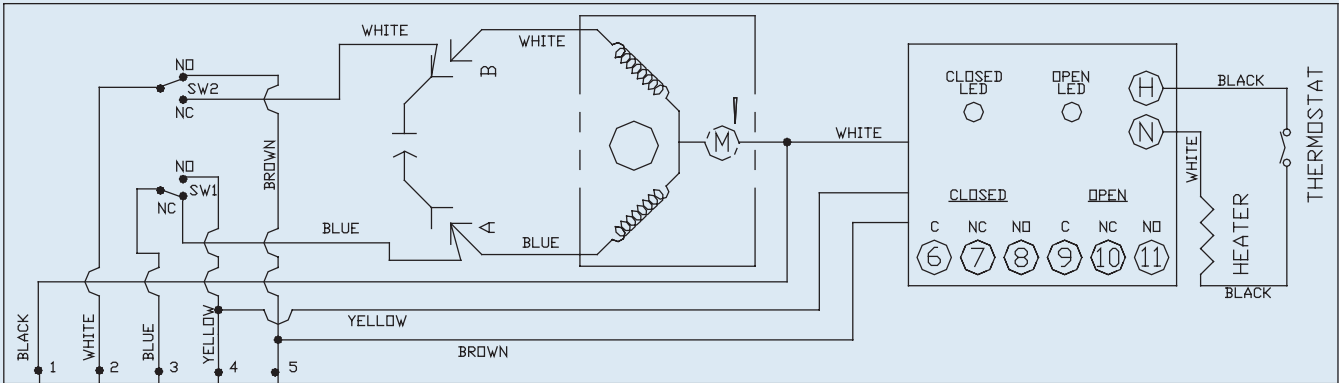
1. ACTUATOR SHOWN IN COUNTER CLOCKWISE EXTREME OF TRAVEL OR "OPEN" POSITION.
2. MOTOR LEADS REVERSED FOR 1100 & 2200 IN-LBS
3. TORQUE TERMINAL STRIP WIRING TO 5 IN-LBS.
4. CONTROL WIRING SHALL BE INSULATED WITH CONDUCTORS RATED 105°C, 300V MINIMUM.
5. 75°C COPPER SUPPLY WIRES ONLY.
6. UL UNITS REQUIRE LITTLEFUSE L60030C1C FUSE HOLDER WITH LITTLEFUSE CCMR004.TXP 4A FUSE FOR 24VDC POWER SUPPLY, OR LITTLEFUSE CCMR002.TXP 2A FUSE FOR 12VDC POWER SUPPLY

Wiring for Optional Equipment



Series 92 & 94 RHM Wiring Schematics

WIRING DIAGRAM FOR 120 VAC AND 220 VAC ONLY
ACTUATOR SHOWN IN COUNTER-CLOCKWISE EXTREME OF TRAVEL, OR "OPEN" POSITION

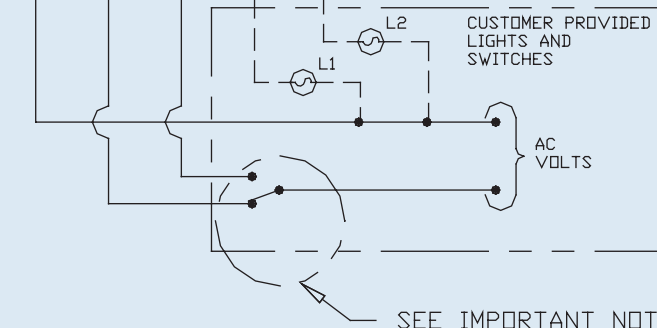
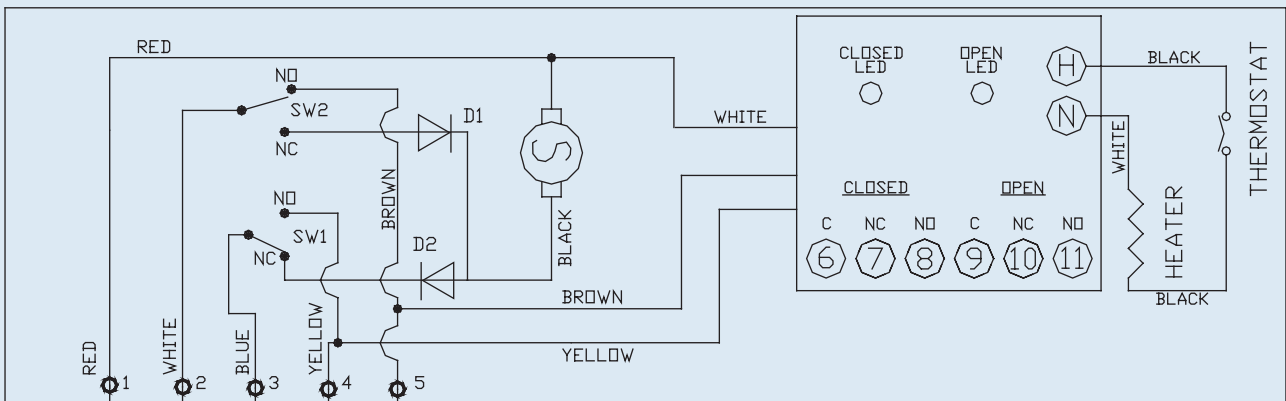


NOTE:

1. EACH ACTUATOR MUST BE POWERED THRU ITS OWN INDIVIDUAL SWITCH CONTACTS TO AVOID CROSS FEED.
2. WIRING AS SHOWN IS FOR S92 & A92 MOTOR LEADS AT "A" AND "B" ARE REVERSED FOR B92 AND C92.
3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM.
4. TORQUE TERMINAL STRIP WIRING TO 5 IN-LBS.
5. CONTROL WIRING SHALL BE INSULATED WITH CONDUCTORS RATED 105°C, 300V MINIMUM.
6. 75°C COPPER SUPPLY WIRES ONLY.

Series 92/94 with RHM 12-24 VAC

AC WIRING DIAGRAM

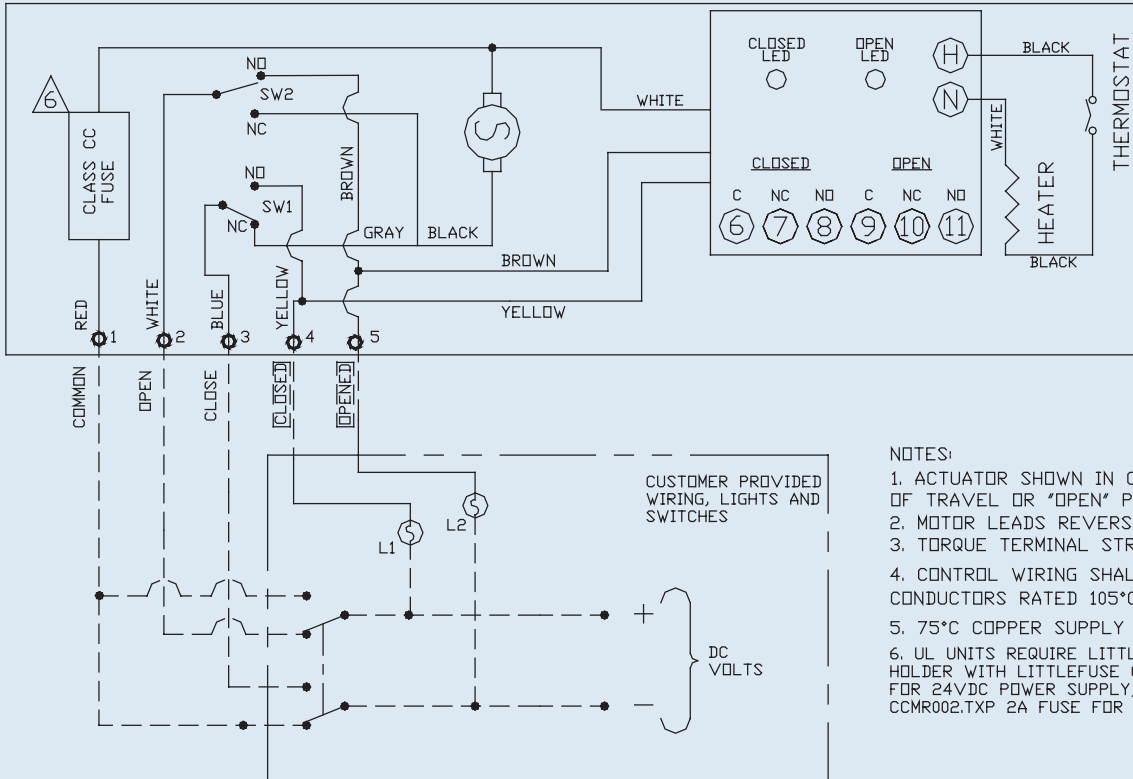


NOTES:

1. ACTUATOR SHOWN IN COUNTER CLOCKWISE EXTREME OF TRAVEL OR "OPEN" POSITION.
2. MOTOR LEADS REVERSED FOR 1100 & 2200 IN-LBS
3. TORQUE TERMINAL STRIP WIRING TO 5 IN-LBS.
4. CONTROL WIRING SHALL BE INSULATED WITH CONDUCTORS RATED 105°C, 300V MINIMUM.
5. 75°C COPPER SUPPLY WIRES ONLY.

Series 92 & 94 RHM Wiring Schematics

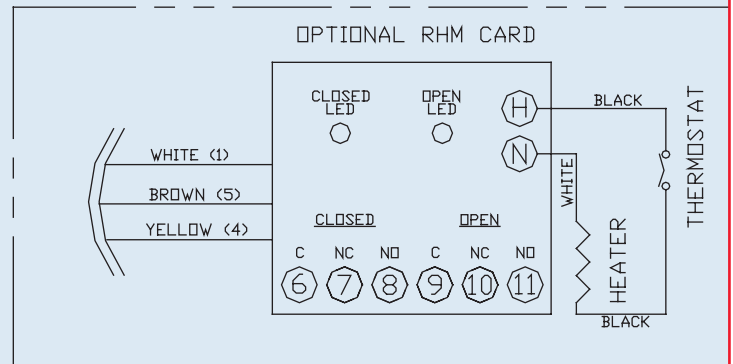
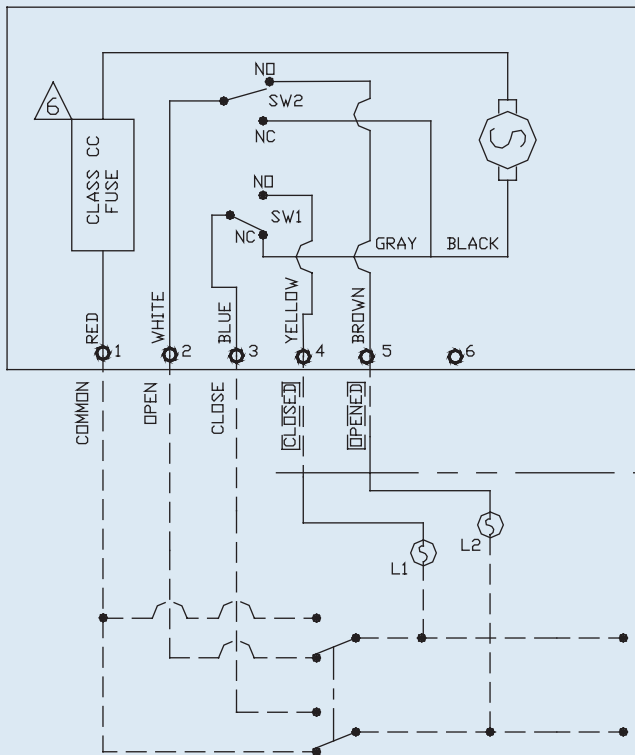
Series 92/94 with RHM 12-24 VDC



NOTES:

1. ACTUATOR SHOWN IN COUNTER CLOCKWISE EXTREME OF TRAVEL OR 'OPEN' POSITION.
2. MOTOR LEADS REVERSED FOR 1100 & 2200 IN-LBS
3. TORQUE TERMINAL STRIP WIRING TO 5 IN-LBS.
4. CONTROL WIRING SHALL BE INSULATED WITH CONDUCTORS RATED 105°C, 300V MINIMUM.
5. 75°C COPPER SUPPLY WIRES ONLY.
6. UL UNITS REQUIRE LITTLEFUSE L60030C1C FUSE HOLDER WITH LITTLEFUSE CCMR004.TXP 4A FUSE FOR 24VDC POWER SUPPLY, OR LITTLEFUSE CCMR002.TXP 2A FUSE FOR 12VDC POWER SUPPLY

DC WIRING DIAGRAM Series C92G



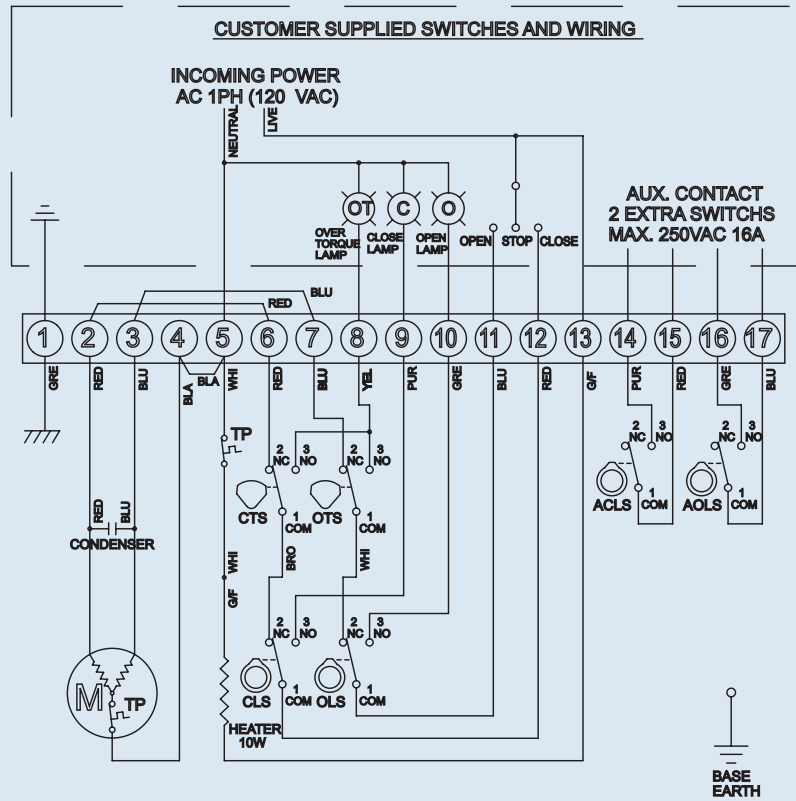
NOTES:

1. ACTUATOR SHOWN IN OPEN POSITION
2. ACTUATOR SHAFT ROTATES CW TO OPEN WHILE FINAL OUTPUT IS CCW TO OPEN
3. TORQUE TERMINAL STRIP WIRING TO 5 IN-LBS.
4. CONTROL WIRING SHALL BE INSULATED WITH CONDUCTORS RATED 105°C, 300V MINIMUM.
5. 75°C COPPER SUPPLY WIRES ONLY.
6. UL UNITS REQUIRE LITTLEFUSE L60030C1C FUSE HOLDER WITH LITTLEFUSE CCMR004.TXP 4A FUSE FOR 24VDC POWER SUPPLY, OR LITTLEFUSE CCMR002.TXP 2A FUSE FOR 12VDC POWER SUPPLY

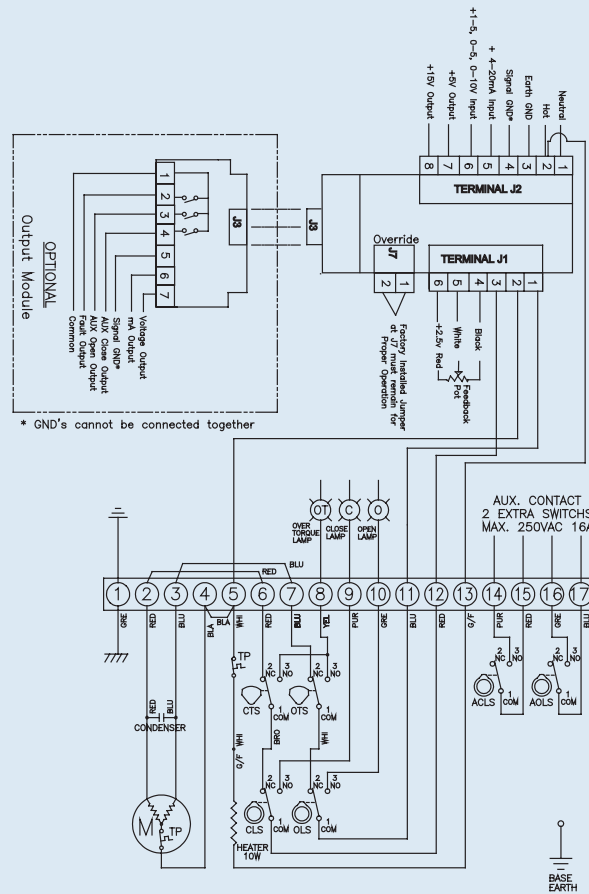
-1 +2 = CW ROTATION OF CAM SHAFT = OPEN
+1 -3 = CCW ROTATION OF CAM SHAFT = CLOSE

10P Wiring Schematics

Series 10P 110\1\60



Series 10P Modulating



Pneumatic Actuation Ordering Information

Size	Material	Code	Series	Action	Code	Options	Code
A	Cataphoresis and Rilsan Coated Aluminum		79P/79PA	Double Acting		No Solenoid	N
B						Glass-filled Polyamide	P
B5	NEMA 4 Dbl Limit Switch	M2					
C	316 SS	S	3-15 psi Positioner	C2			
C5						4-20 mA Positioner	C1
D							
D5							
E	Examples:						
F	BP79PSN:						
G	B Size, Glass-filled Polyamide, Series 79P, Single Acting, No Options						
L	F79PW115A:						
M	F Size, Aluminum, Series 79P, Double Acting, with 115 VAC NEMA 4 Solenoid						

PA-Series

Air to Air		Air to Spring	
Model No.	Item No.	Model	Item No.
A79PA	2441001	A79PASN	2442001
B79PA	2441000	B79PASN	2442000
B579PA	2441005	B579PASN	2442005
C79PA	2441010	C79PASN	2442010
C579PA	2441015	C579PASN	2442015
D79PA	2441022	D79PASN	2442022
D579PA	2441025	D579PASN	2442025
E79PA	2441030	E79PASN	2442030

P-Series Cataphoresis and Rilsan Coated Aluminum Body

Air to Air		Air to Spring	
Model No.	Item No.	Model	Item No.
F79PN	2355000	F79PSN	2364000
G79PN	2358000	G79PSN	2368000
L79PN	2358001	L79PSN	2368001
M79PN	2358002	M79PSN	2368002

316 Stainless Steel Body

Air to Air		Air to Spring	
Model No.	Item No.	Model	Item No.
BS79PN	2444014	BS79PSN	2445014
CS79PN	2444017	CS79PSN	2445017
DS79PN	2444022	DS79PSN	2445022
ES79PN	2444000	ES79PSN	2445040

Glass-filled Polyamide

Air to Air		Air to Spring	
Model No.	Item No.	Model	Item No.
AP79PN	2343011	AP79PSN	2344011
BP79PN	2343014	BP79PSN	2344014
CP79PN	2343017	CP79PSN	2344017
DP79PN	2343022	DP79PSN	2344022

Option Series 79

Options	79 Item #
Positioners	
PST-202 SMART 4-20mA	
Air-to-Air (Standard with Transmitter)	2415420
Air-to-Spring (Standard with Transmitter)	2415420
Positioner & Transmitter with HART Protocol	2415425
PST-101 3-15 PSI	
Air-to-Air	2414315
Air-to-Spring	2414315
PST-101 3-15 PSI Positioner Options	
2 X SPDT Mechanical Switches	2414320
AS-I Bus Options	
A79-E79 Air-Air, Air-Spring	2407010
F79-G79 Air-Air, Air-Spring	2407040
Limit Switches	
Type 4, Double (2-SPDT)	2403779
Type 7, Double (2-SPDT)	2403780
Inductive Sensor (2-SPDT)	2408000
I Switch	
NEMA 4 Double (2-SPDT)	2403785
Solenoids	
Type 4, Plastic, 120 VAC	2401779
Type 7, Plastic, 120 VAC	2401780
P-Series Solenoid, IP65	2401783
Voltages	
12 VDC	2415749
24 VDC	2415750
12 VAC	2415751
24 VAC	2415752
220 VAC	2415753
Camstops	
BP79P	2221000
CP79P	2222000
DP79P	2223000
E79P	2224000
F79P	2225000
G79P	2439000
Filter Regulator with Gauge	2123000

De-Clutchable Manual Override

Description	Part Number
B79PA Declutch Man O/R-RD315	2219000
B5-C579PA Declutch Man O/R-RD315	2219010
D79PA Declutch Man O/R-RD320	2219020
D579PA Declutch Man O/R-RD330	2219030
E79PA Declutch Man O/R-RD330	2219030
F79P Declutch Man O/R-RD345	2219040
G79P Declutch Man O/R-RD350	2219050
L79P Declutch Man O/R-RD360	2219060
M79P Declutch Man O/R-RD370	2219070

Electric Actuation Ordering Information

Size	Series
S	92
A	92
B	92
C	92
A	94
B	94

Options	
1 Extra Limit Switch	M1
2 Extra Limit Switches	M2
Heater & Thermostat	HT
Feedback Pot	P
Center Off	CO
2 Wire Control	2WC
Failsafe Battery Pack	FS
Positioner	C1
RHM Module	RHM
Transmitter	C3
Hazardous Locations	XW

Enclosure	Code
General Locations	W
General Locations	W
General Locations	W
General Locations	W
General Locations	W
General Locations	W
General Locations	W
General Locations	W

Output Torque
400 in./lbs.
700 in./lbs.
1100 in./lbs.
2000 in./lbs.
150 in./lbs.
300 in./lbs.

Size	Series
10-15P	10
10-20P	10
10-30P	10
10-50P	10
10-60P	10
10-80P	10
10-120P	10
10-200P	10
10-300P	10

General Locations	W
General Locations	W
General Locations	W
General Locations	W
General Locations	W
General Locations	W
General Locations	W
General Locations	W
General Locations	W
General Locations	W

1320 in./lbs.
1740 in./lbs.
2580 in./lbs.
4320 in./lbs.
5220 in./lbs.
6960 in./lbs.
10440 in./lbs.
17400 in./lbs.
26040 in./lbs.

Examples:

A92RHMWX:

A Size, Series 92 with RHM module hazardous locations

B94C1W:

B Size, Series 94, positioner, general location

10-15PM2HTW

10-15P Size, Series 10P, two extra limit switches, heater and thermostat, general locations

Series 92 Actuators

General Locations (120 VAC)		
Model	Output Torque	Part Number
S92W	400 in./lbs.	2172000
A92W	700 in./lbs	2173000
B92BRW	1100 in./lbs	2174000
C92BRW	2000 in./lbs	2175000
General Locations (12 VDC)		
Model	Output Torque	Part Number
S92W	400 in./lbs	2172001
A92W	700 in./lbs	2173001
B92W	1100 in./lbs	2174001
C92W	2000 in./lbs	2175001
C92GW	5000 in./lbs	2175071
General Locations (24 VDC)		
Model	Output Torque	Part Number
S92W	400 in./lbs	2172002
A92W	700 in./lbs	2173002
B92W	1100 in./lbs	2174002
C92W	2000 in./lbs	2175002
C92GW	5000 in./lbs	2175072
General Locations (12 VAC)		
Model	Output Torque	Part Number
S92W	400 in./lbs	2172003
A92W	700 in./lbs	2173003
B92W	1100 in./lbs	2174003
C92W	2000 in./lbs	2175003
General Locations (24 VAC)		
Model	Output Torque	Part Number
S92W	400 in./lbs	2172004
A92W	700 in./lbs	2173004
B92W	1100 in./lbs	2174004
C92W	2000 in./lbs	2175004
General Locations (220 VAC)		
Model	Output Torque	Part Number
S92W	400 in./lbs	2172005
A92W	700 in./lbs	2173005
B92BRW	1100 in./lbs	2174005
C92BRW	2000 in./lbs	2175005

Hazardous Locations (120 VAC)		
Model	Output Torque	Part Number
S92XW	400 in./lbs	2172500
A92XW	700 in./lbs	2173500
B92BRXW	1100 in./lbs	2174500
C92BRXW	2000 in./lbs	2175500
Hazardous Locations (12 VDC)		
Model	Output Torque	Part Number
S92XW	400 in./lbs	2172501
A92XW	700 in./lbs	2173501
B92XW	1100 in./lbs	2174501
C92XW	2000 in./lbs	2175501
C92GXW	5000 in./lbs	2175571
Hazardous Locations (24 VDC)		
Model	Output Torque	Part Number
S92XW	400 in./lbs	2172502
A92XW	700 in./lbs	2173502
B92XW	1100 in./lbs	2174502
C92XW	2000 in./lbs	2175502
C92GXW	5000 in./lbs	2175572
Hazardous Locations (220 VAC)		
Model	Output Torque	Part Number
S92XW	400 in./lbs	2172505
A92XW	700 in./lbs	2173505
B92BRXW	1100 in./lbs	2174505
C92BRXW	2000 in./lbs	2175505

Series 94 Actuators

General Locations (120 VAC)		
Model	Output Torque	Part Number
A94W	150 in./lbs	2070800
B94W	300 in./lbs	2070900
General Locations (12 VDC)		
Model	Output Torque	Part Number
A94W	150 in./lbs	2070801
B94W	300 in./lbs	2070901
General Locations (24 VDC)		
Model	Output Torque	Part Number
A94W	150 in./lbs	2070802
B94W	300 in./lbs	2070902
General Locations (12 VAC)		
Model	Output Torque	Part Number
A94W	150 in./lbs	2070803
B94W	300 in./lbs	2070903
General Locations (24 VAC)		
Model	Output Torque	Part Number
A94W	150 in./lbs	2070804
B94W	300 in./lbs	2070904
General Locations (220 VAC)		
Model	Output Torque	Part Number
A94W	150 in./lbs	2070805
B94W	300 in./lbs	2070905

Series 92 and 94 Options

	92 Item #	94 Item #
Double Extra Limit Switch	2126002	2126004
Heater & Thermostat	2127001	2127001
RHM	2133001	2132002
UL1203 Explosion-Proof Enclosure	2130900	N/A
Feedback Potentiometer	2129001	2129003
4-20 mA Positioner	2130810	2130812
4-20 mA Transmitter	2130813	2130813
ModBus Card	2130821	2130821
Cycle Length Control	2131001	2131003
Mechanical Brake	2136001	2136001
Center Off Switch	2132001	2132003
2-Wire Control	2102001	2102008
Protek Failsafe Battery Pack	2154000	2154001
LL-200C Local/Remote Station (1)	2190000	2190000
PK-100 Local/Remote Station (2)	2190001	2190001
Voltages:		
12 VDC	2135749	2135749
24 VDC	2135750	2135750
12 VAC	2135751	2135751
24 VAC	2135752	2135752
220VAC	2135753	2135753

(1) For open/close 120vac units only

(2) For 120/230vac modulating units with DHC Positioner

Series 10P Actuators

General Locations (120 VAC)		
Model	Output Torque	Part Number
10-15P	1320	2049002
10-20P	1740	2049009
10-30P	2580	2049003
10-50P	4320	2049004
10-60P	5220	2049010
10-80P	6960	2049005
10-120P	10440	2049006
10-200P	17400	2049007
10-300P	26040	2049008
General Locations (230 VAC)		
Model	Output Torque	Part Number
10-15P	1320	2049102
10-20P	1740	2049109
10-30P	2580	2049103
10-50P	4320	2049104
10-60P	5220	2049110
10-80P	6960	2049105
10-120P	10440	2049106
10-200P	17400	2049107
10-300P	26040	2049108

Series 10P Actuators Options

Feedback Potentiometer	2129001
4-20 mA Positioner	2130822
4-20 mA Transmitter	2130813
ModBus Card	2130821
Cycle Length Control	2131001
2-Wire Control	2102001
LL-200C Local/Remote Station (1)	2190000
PK-100 Local/Remote Station (2)	2190001

(1) For open/close 120vac units only

(2) For 120/230vac modulating units with DHC Positioner



WARRANTY AND LIMITATIONS

1.1 These Limited Representations and Warranties are applicable to all end-customers purchasing Asahi Valve and Actuation products manufactured and distributed by Asahi/America, Inc. and are subject to Asahi's standard Terms and Conditions of sale. Asahi warrants that for the warranty period, the products will be free from defects in materials and workmanship under normal and proper use, and will conform to manufacturer published specifications. This warranty is subject to the proper storage, handling, transportation, installation, use and maintenance of Asahi products by both the installer and final customer. This warranty does not include defects due to normal wear and tear or deterioration.

1.2 Customer shall provide written notice of any non-conformities or visible defects regarding the products within 14 business days of discovery. Failure to provide prompt notice shall void this warranty.

1.3 The sole obligation under the foregoing warranty is, at Asahi's discretion, to repair, to replace or exchange the product or to refund the purchase price. Any repaired, replaced or exchanged products shall be subject to the warranty set forth in 1.1 following the repair, the replacement or the exchange. If the Company has received notification from customer, and no defects of the product could be discovered, customer shall bear the costs that the company incurred as a result of the notice.

1.4 The "warranty period" for Asahi Valves and Asahi Actuators shall be **3 years year from the date of invoice** subject to the exclusion of the items detailed in 1.5 below, which shall be covered under our Warranty policy for a period of 1 year from the date of invoice.

1.5 Asahi's warranty with respect to the following items will be covered for a period of 1 year from the date of invoice; Dymatrix valves, Actuated Dymatrix valves, Pressure Relief valves, Frank Regulators, EM Technik valves and Actuated EM Technik valves, Type 342 and 343 Diaphragm valves, Air-Pro Ball valves, PE 100 Ball valves, PP Natural Ball valves, and Globe Control valves. All Actuators manufactured supplied by other manufacturers (Limatorque, Rotork, Century, etc.)

1.6 The Company does not authorize any person or party to assume or create for it any other obligation or liability in connection with the products except as set forth herein.

1.7 All requests and notices under this warranty shall be directed to:

Asahi/America, Inc.
Attn: Customer Service
655 Andover Street,
Lawrence, MA 01843
Tel: 781-321-5409 • Fax: 978-685-3010

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