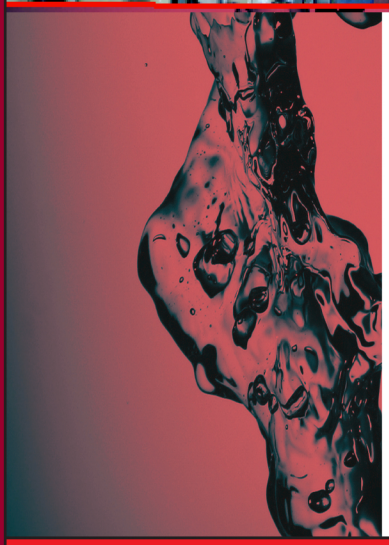
Thermoplastic Valves, Actuation & Controls



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Product Development and CAE Analysis

Fig. A

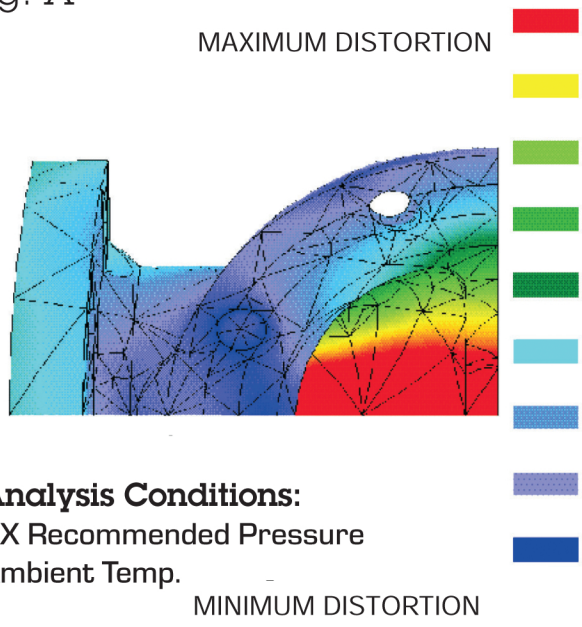
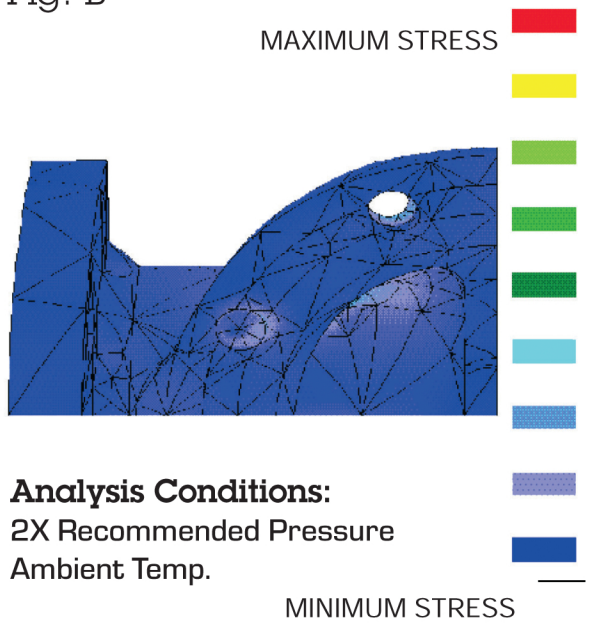


Fig. B



A Dedication to Product Improvement

Our goal has been to design valves that will last longer than anyone else's, even in the worst kind of corrosive service. We feel we have achieved this, but we are also continuing to improve our design, engineering, and manufacturing processes to go even further.

What you see in the two figures above represents just one small part of the process. It is, however, a very important one. When a new valve is still in the design stage, we employ a very extensive computer modeling procedure that can simulate the effects of pressure, temperature, and mechanical forces that can cause stress and distortion on the valve. This highly sophisticated testing process, called "Computer Aided Engineering" or CAE, was used in the development process of this 3" Type 14 diaphragm valve before the prototype molds were ever made.

Fig. A shows a finite analysis of the expected distortion points in the diaphragm area of the valve under high pressure. Fig. B shows the reaction of this same valve to mechanical stress while still under the same high pressure. What we learn from this test, and many others like it, enables us to produce a product that will perform as we expect.

Ergonomic considerations influence the design: How does the handwheel feel when it is turned? Are there sharp edges anywhere? Even how the valve looks is important to our engineers before it is subjected to extensive prototype testing in the field under the worst possible conditions. And, finally, when we manufacture our valves, 100% are thoroughly tested; in fact, the results of every test are recorded and are available for review at any time. We know that all this effort will pay off for our customers who can purchase products that we know will stand up to the test of time.

One Source for Total Systems Solutions

One Company Will Take Responsibility

Asahi/America offers our distributors and their customers ONE complete package; thermoplastic valves, actuators, single and double containment pipe and fittings, and the engineering expertise to put everything together. This systems approach gives our clients ONE company to turn to for answers – ONE company that will make things right should anything go wrong. Every component we put together has been engineered to work together. We even provide complete support, training, and equipment for the many joining methods available.

Asahi has been pioneering the development of corrosion resistant thermoplastic systems for over fifty years. No company has as broad a product line of valve types and size ranges as we do. Add to this our ISO 9001 manufacturing designation, our knowledgeable customer sales and engineering support staffs, our 24/7 web site for ordering and checking on product availability and delivery, and you have ONE company you can depend on.

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 230 psi, thermoplastic valves outperform metal with respect to corrosion, abrasion and freeze resistance, and lower installed cost. Over 70% 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 which 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 semi-conductor, 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: Over-all 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 over-all 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 E. I. du Pont de Nemours and Company
** Trade mark of Asahi Glass Co., Ltd.

Caution:

1. Actual temperature that any particular valves 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 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 230 psi, 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° 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® 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 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 57 valve, which has no metal to media or environment contact whatsoever. These valves may be operated manually, electrically, or pneumatically.

DIAPHRAGM VALVES

The diaphragm valve offers many combinations of body materials and elastomeric 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 two basic types of check valves: swing check valves and ball check 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 backflow. Both types of valves may be installed vertically or horizontally.

GLOBE VALVES

The flow through a globe valve follows a course that takes nearly two 90° 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.

Valve Types

PRESSURE RELIEF VALVES

The thermoplastic pressure relief valve protects equipment and systems against overpressures or sudden pressure surges. Able to handle highly corrosive or ultrapure liquids, it prevents pumps from dead-heading due to unexpected shut-offs downstream (also known as a "bypass relief valve"). It maintains back pressure in closed-loop systems to make pumps run more smoothly (also known as a back pressure valve).

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.

SIGHT GLASS GAUGE

The sight glass/gauge valve is the most convenient way to visually monitor the liquid level in tanks. Its thermoplastic construction produces excellent corrosion resistance, and its compact design permits it to be safely located close to the tank.

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.

GASKETS

Asahi valve gaskets offer a unique double convex ring design that gives optimum sealing with only 1/3 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 salt water applications.

Type 21/21A Ball Valves

Standard Features (Sizes 1/2" – 6")

- Pressure rated up to 230 psi (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 or 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

Options

- Pneumatic and electric actuators & accessories
- Stem extensions
- 2" square operating nut or "T" nut
- Locking and/or spring return 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

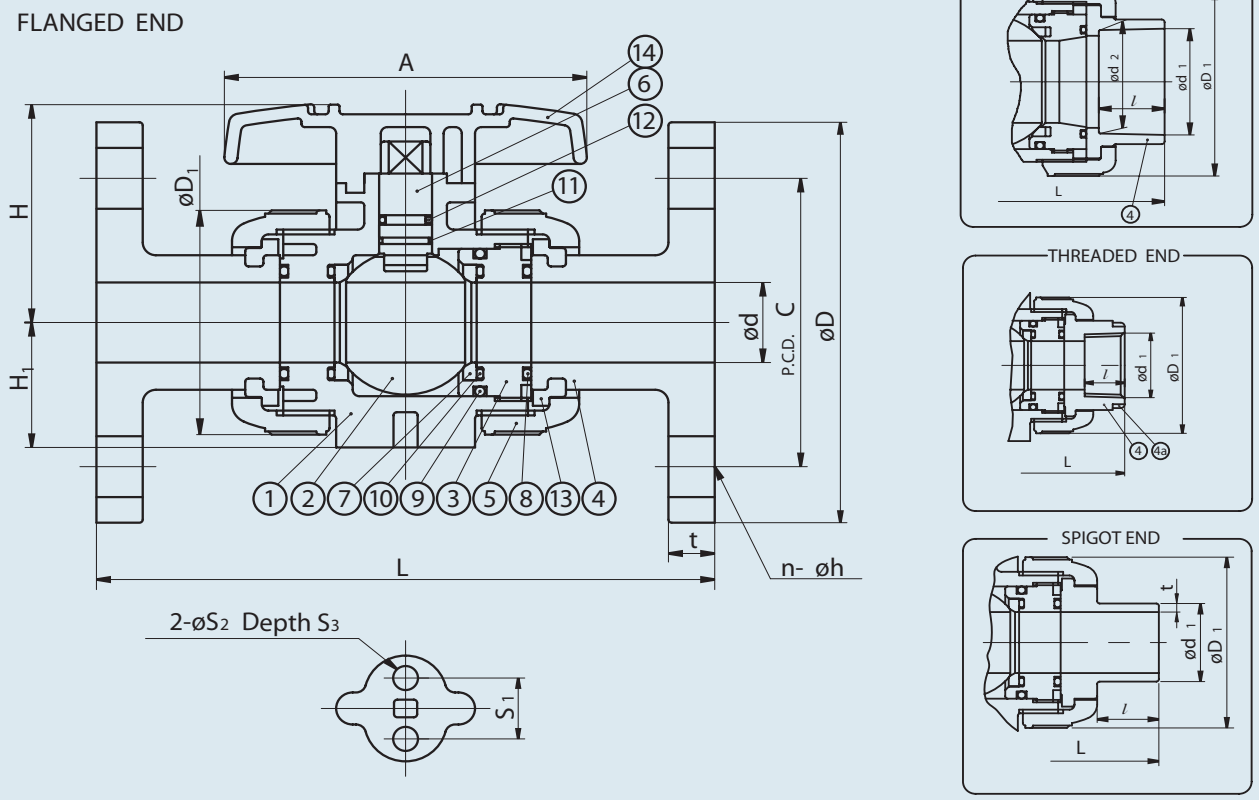
‡ Trademark of Asahi Glass Co., Ltd.

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")

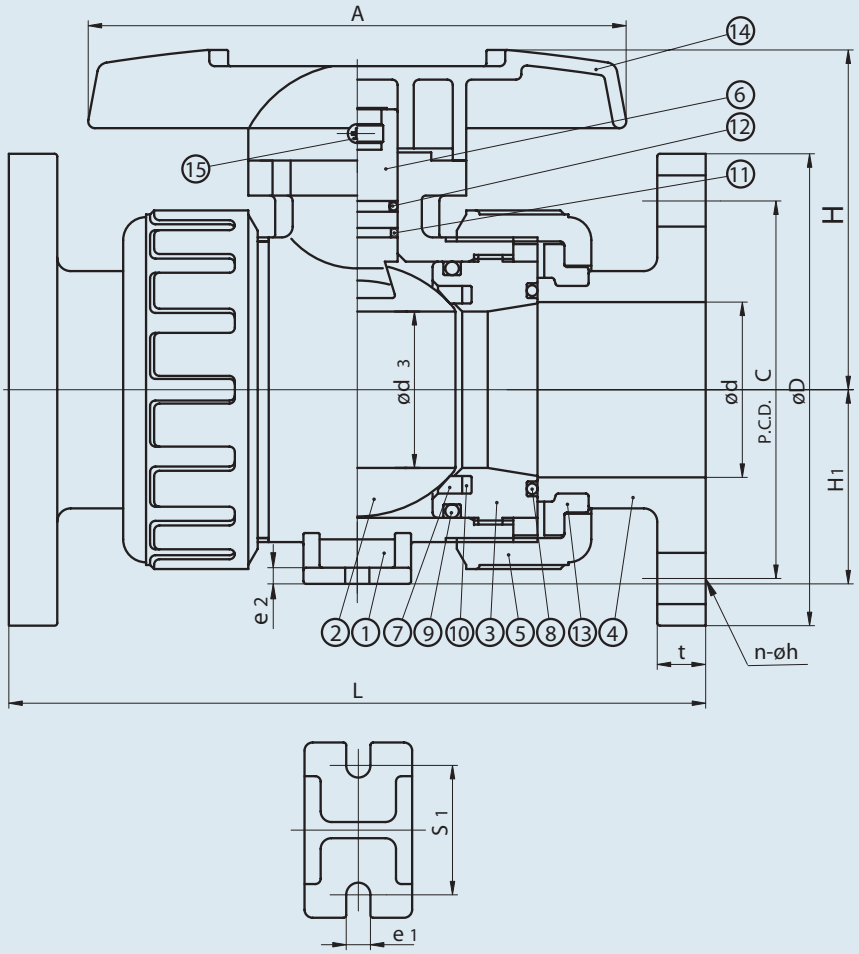
NOMINAL SIZE			FLANGED						SOCKET										
			ANSI CLASS 150						PVC, CPVC				PP, PVDF (DIN)				PP, PVDF (IPS)		
									ASTM SCH 80				DIN 16962						
INCHES	mm	d	D	C	n	h	L	t	d1	d2	l	L	d1	d2	l	L	d1	l	L
1/2	15	0.59	3.50	2.38	4	0.62	5.63	0.47	0.848	0.836	0.875	4.45	0.768	0.760	0.57	3.90	0.83	0.87	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	4.49	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	5.83	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

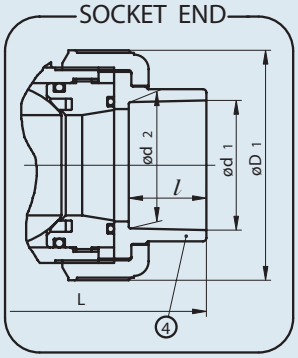
NOMINAL SIZE		THREADED							SPIGOT (BUTT END)							
									PP,PVDF							
									DIN 3442		PP	PVDF				
INCHES	mm	d1	l	L	D1	H	H1	A	d1	l	t	t	L	S1	S2	S3
1/2	15	1/2-14 NPT	0.59	4.02	1.89	2.03	1.14	3.62	0.787	0.728	0.098	0.075	4.882	0.75	0.29	0.43
3/4	20	3/4-14 NPT	0.67	4.72	2.36	2.34	1.38	3.94	0.984	0.866	0.106	0.075	5.670	0.75	0.29	0.43
1	25	1-11 1/2 NPT	0.79	5.16	2.76	2.68	1.54	4.33	1.260	0.886	0.118	0.094	6.063	0.75	0.29	0.43
1 1/4	32	1 1/4-11 1/2 NPT	0.87	5.91	3.23	3.17	1.85	4.76	1.575	1.024	0.146	0.094	6.850	1.18	0.35	0.59
1 1/2	40	1 1/2-11 1/2 NPT	0.98	6.42	3.94	3.50	2.17	5.16	1.969	1.260	0.181	0.118	7.638	1.18	0.35	0.59
2	50	2-11 1/2 NPT	1.10	7.76	4.96	4.04	2.60	6.26	2.480	1.417	0.228	0.118	8.819	1.18	0.35	0.59

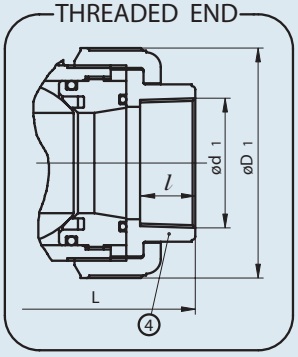
PARTS (DIFFERENT NUMBERS FROM 1/2" – 2")			
NO.	DESCRIPTION	PCS.	MATERIAL
10	Cushion	2	EPDM, FKM, Others
15	Screw	1	304 Stainless Steel

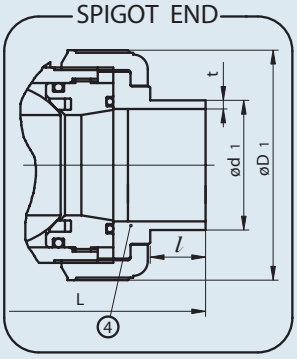
FLANGED END

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









Dimensions (Sizes 2-1/2" – 4") FOR 6" SIZE CONSULT FACTORY

NOMINAL SIZE			FLANGED						SOCKET										
			ANSI CLASS 150						PVC, CPVC				PP, PVDF (DIN)				PP, PVDF (IPS)		
									ASTM SCH 80				DIN 16962						
INCHES	mm	d	D	C	n	h	L	t	d1	d2	l	L	d1	d2	l	L	d1	l	L
21/2	65	2.56	7	5.5	4	0.75	10.2	0.71	2.889	2.868	1.75	9.45	2.923	2.911	1.22	8.15	2.88	1.752	9.45
3	80	3.07	7.5	6	4	0.75	11.97	0.71	3.516	3.492	1.875	11.1	3.512	3.498	1.4	9.88	3.48	1.874	11.1
4	100	3.94	9	7.5	8	0.75	14.65	0.71	4.518	4.491	2	13.9	4.293	4.278	1.63	12.2	4.48	2.252	14.37

NOMINAL SIZE		THREADED								SPIGOT (BUTT END)							
										PP,PVDF							
										DIN 3442		PP	PVDF				
INCHES	mm	d1	l	L	d3	D1	H	H1	A	d1	l	t	t	L	e1	e2	S1
21/2	65	2 1/2 - 8NPT	1.26	8.46	2.28	5.24	4.96	2.83	7.87	2.953	1.496	0.272	0.142	9.72	0.35	0.24	1.89
3	80	3 - 8NPT	1.38	10.39	2.70	5.98	5.51	3.35	9.45	3.543	1.496	0.323	0.169	11.61	0.43	0.28	2.17
4	100	4 - 8NPT	1.77	14.17	3.54	8.27	7.01	4.33	11.81	4.331	1.752	0.394	0.209	12.72	0.43	0.31	2.56

Pressure vs. Temperature (PSI, WATER, NON-SHOCK)

NOMINAL SIZE		PVC				CPVC						PP				PVDF				
		30° F	71° F	106° F	121° F	30° F	71° F	106° F	121° F	141° F	176° F	-5° F	86° F	121° F	141° F	-5° F	71° F	106° F	141° F	176° F
INCHES	mm	70° F	105° F	120° F	140° F	70° F	105° F	120° F	140° F	175° F	195° F	85° F	120° F	140° F	175° F	70° F	105° F	140° F	175° F	210° F
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 12454-A, 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 230 psi for sizes 1/2" to 3" and 150 psi for 4" (150 psi for PP, all sizes) at 70 ° F. Type 21 Ball Valves must carry a two-year guarantee, as manufactured by Asahi/America, Inc.

Cv Values

NOMINAL SIZE		Cv
INCHES	mm	
1/2	15	14
3/4	20	29
1	25	47
1 1/4	32	72
1 1/2	40	155
2	50	190
2 1/2	65	365
3	80	410
4	100	680

Weight (POUNDS)

NOMINAL SIZE		SOCKET THREADED	FLANGED
INCHES	mm		
1/2	15	0.44	1.10
3/4	20	0.66	1.54
1	25	1.10	2.70
1 1/4	32	1.54	3.30
1 1/2	40	2.64	4.40
2	50	4.40	8.15
2 1/2	65	6.17	8.80
3	80	9.70	13.00
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.

Caution

- Do not use ball valves where media has suspended particles. Use the following valves: *Butterfly Valves* – PVDF disc is most abrasion resistant and 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 (H_2O_2) 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 over-tightened. 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.

Type 21 Locking Handle

Specifications

Sizes: 1/2" – 4"

Models: 9 Individual handles per valve size

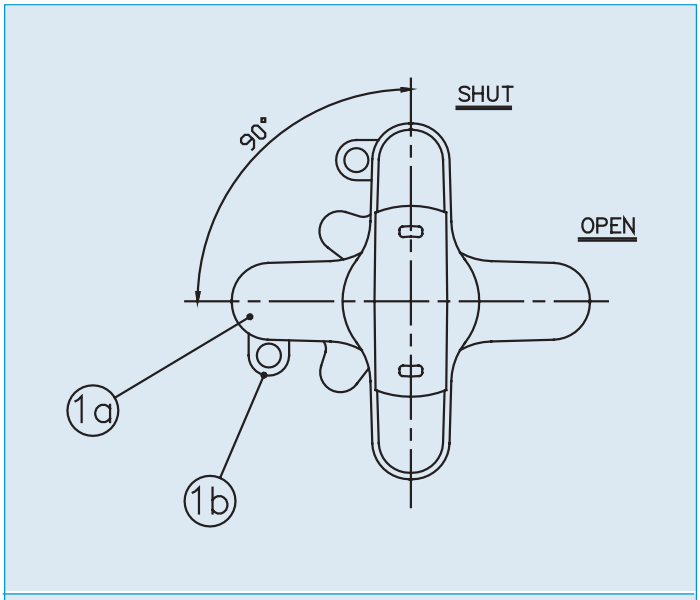
Padlock Not Included

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

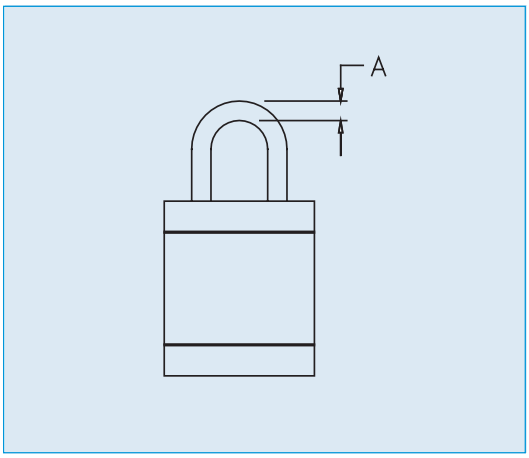
Parts List (Sizes 1/2" – 4")

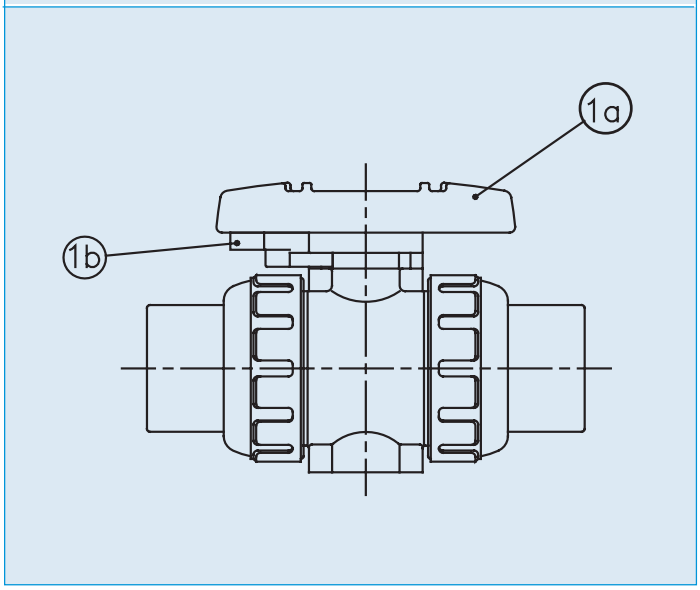
No.	Description	PCS	Material
1B	Trigger	1	PPG
1A	Locking Handle	1	ABS

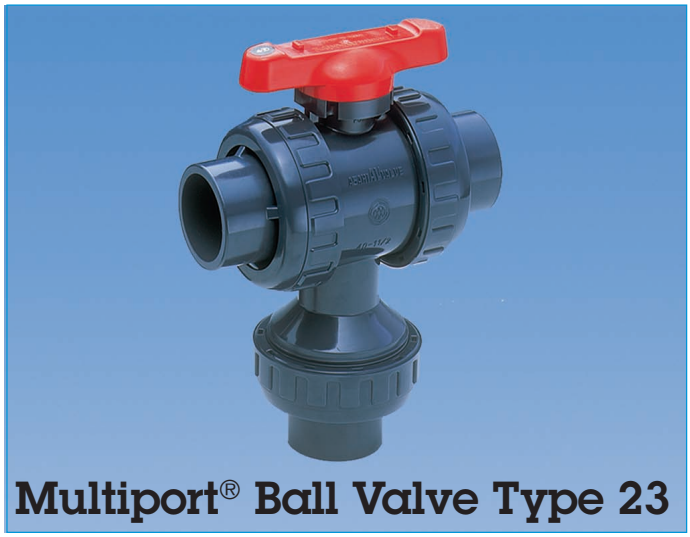


Padlock Shaft Diameters (max)

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







Multiport® Ball Valve Type 23

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.

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 & accessories
- Stem extensions
- 2" square operating nut or "T" nut
- Locking handles
- Limit switches
- "T" port, Double "L" port

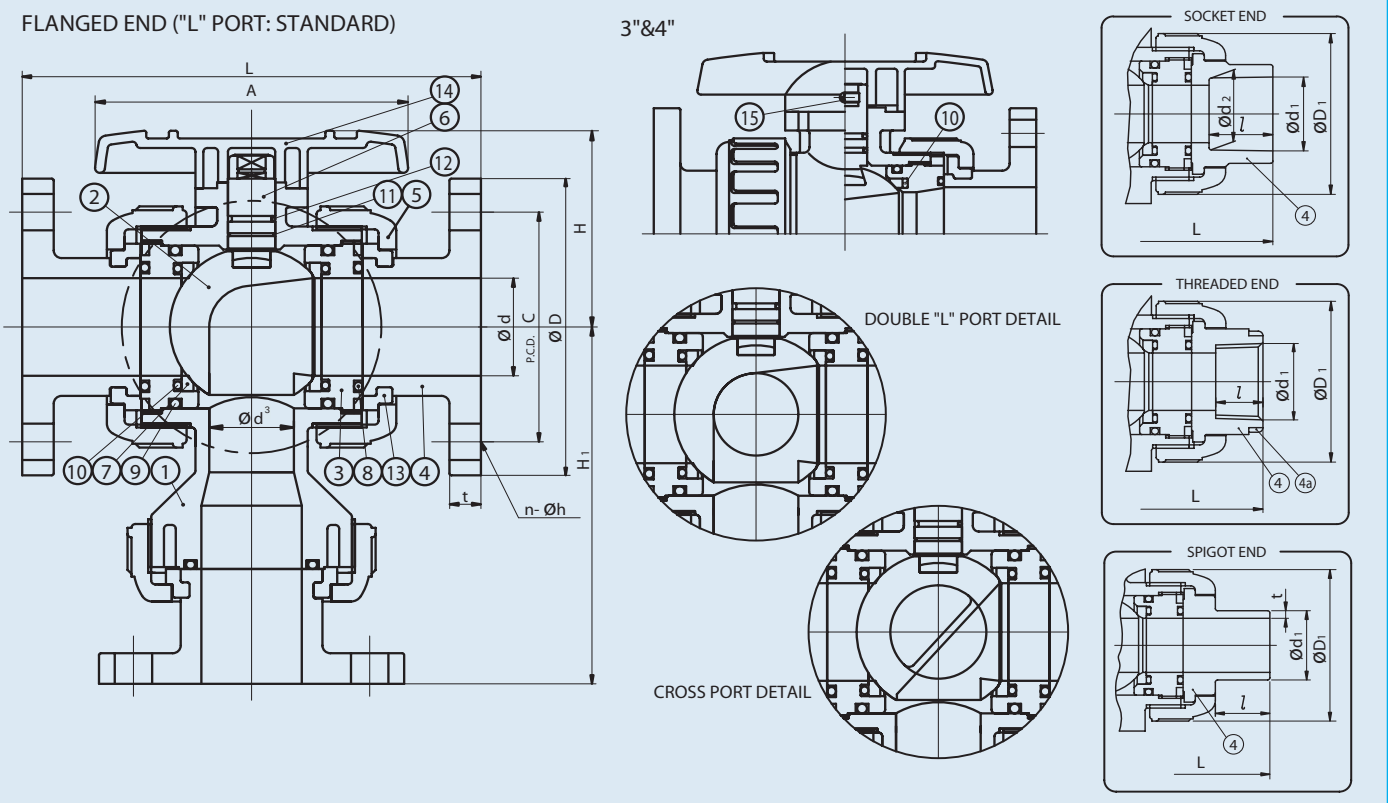
Cross Port Ball Options (1/2" - 2" only)

- 4 different flow patterns through 3 separate ports are possible because of the crossed flow patterns within the ball
- Changing position of handle changes flow pattern. Handle rotates 360°

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* 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***	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"



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

NOMINAL SIZE				FLANGED							THREADED						
				ANSI CLASS 150							PP, PVDF (IPS)						
INCHES	mm	d	d^3	D	C	n	h	L	t	H_1	d_1	ℓ	L	H_1	d_1	ℓ	t
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	1.10	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	12.01

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	d_1	d_2	ℓ	L	H_1	d_1	d_2	ℓ	L	H_1	d_1	ℓ	L	H_1	d_1	ℓ	t	t	L	H_1
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	1.40	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

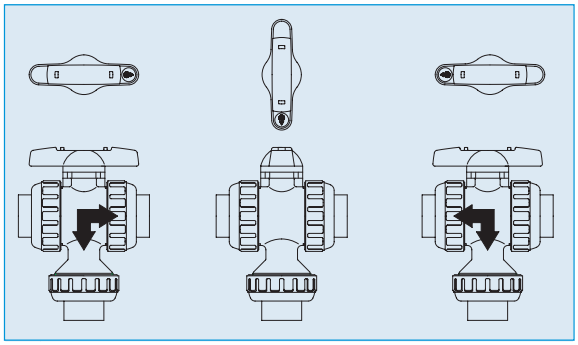
Type 23 Multiport® Ball Valves

Pressure vs. Temperature (PSI, WATER, NON-SHOCK)

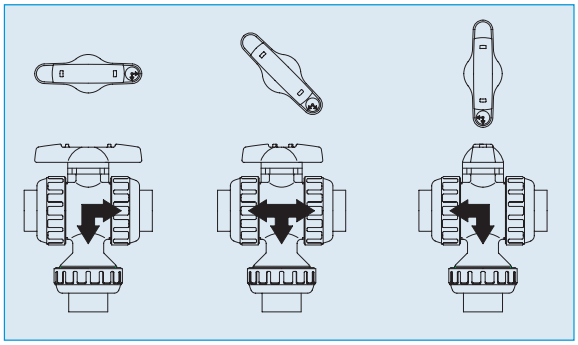
NOMINAL SIZE		PVC			CPVC				PP			PVDF			
INCHES	mm	30˚ F 70˚ F	71˚ F 105˚ F	106˚ F 120˚ F	30˚ F 120˚ F	121˚ F 140˚ F	141˚ F 175˚ F	176˚ F 195˚ F	-5˚ F 85˚ F	86˚ F 140˚ F	141˚ F 175˚ F	-5˚ F 140˚ F	141˚ F 175˚ F	176˚ F 195˚ F	196˚ F 210˚ F
1/2-2	15-50	150	150	150	150	120	85	55	150	90	60	150	120	110	85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

Available Flow Patterns

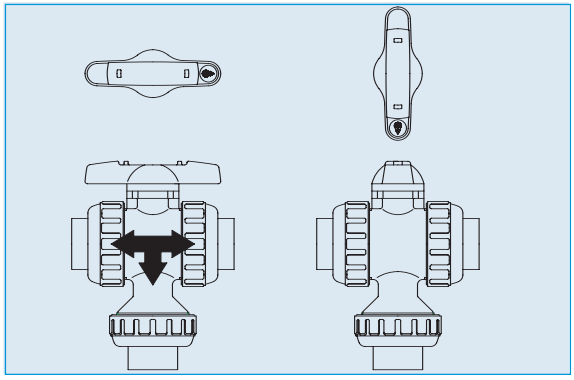
L-Port



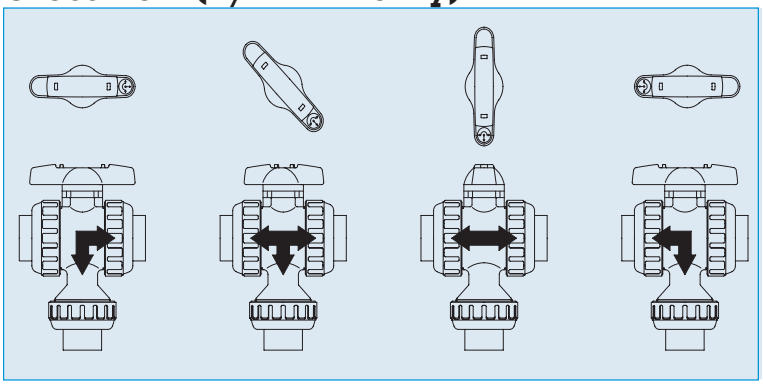
Double L-Port



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 2 position, 90° Rotation.

For Electrical Actuation:

"L-Port" ball is supplied as a standard feature. All other ball configurations are available as options. Electrical actuators are 2 position, 180° 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 end 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 12454-A, 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 valves shall be rated to 150 psi 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.

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 (POUNDS)

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

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 over-tightened. 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.

Specifications

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

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

Standard Features (Sizes 3/8" – 3")

- Blocks in two directions
- Rugged structure
- Unibody construction
- Compact, low profile, short face-to-face dimensions
- PTFE seat backed by EPDM for low stem torque
- Rated for full vacuum service

Options

- Electrically actuated

Pressure vs. Temperature (PSI, WATER, NON-SHOCK)

NOMINAL SIZE		PVC	CPVC			
		30˚ F 120˚ F	30˚ F 120˚ F	121˚ F 140˚ F	141˚ F 175˚ F	176˚ F 195˚ F
INCHES	mm					
3/8-2	13-50	150	150	120	90	60
3	80	150	150	120	90	60

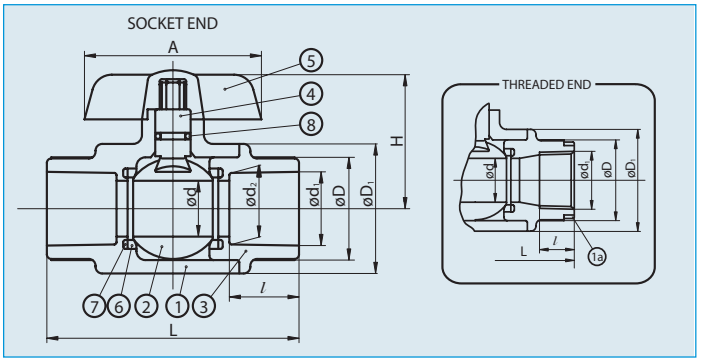
Sample Specification

All OMNI® ball valves size 3/8"- 3" shall be of one-piece compact design non-union type. All O-rings shall be EPDM with PTFE seats. Seats must have elastomeric backing cushions of the same material as the valve seals. PVC conforming to ASTM D1784 Cell Classification 12454-A, and CPVC conforming to ASTM D1784 Cell Classification 23567-A. Valve shall be rated 150 psi at 70°F, as manufactured by Asahi-America, Inc.

Parts List (Sizes 3/8"– 3")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC
2	Ball	1	PVC, CPVC
3	End Connector	1	PVC, CPVC
4	Stem	1	PVC, CPVC
5	Handle	1	ABS
6	Seat	2	PTFE
7	Cushion	2	EPDM, Others
8	O-Ring	1	EPDM, Others
1a	Ring*	2	304 Stainless Steel

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



Dimensions (Sizes 3/8" – 3")

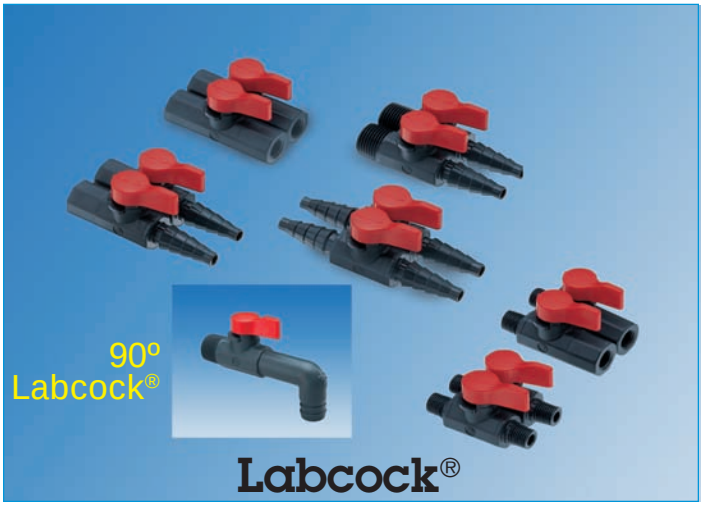
NOMINAL SIZE		SOCKET ASTM SCH 40				THREADED							
INCHES	mm	d1	d2	l	L	d1	l	L	d	A	D	D1	h
3/8	13	0.687	0.671	0.59	3.35	3/8-18 NPT	0.59	3.35	0.51	2.36	1.22	1.38	1.65
1/2	15	0.848	0.836	0.69	3.82	1/2-14 NPT	0.59	3.82	0.59	2.76	1.22	1.38	1.73
3/4	20	1.058	1.046	0.72	4.02	3/4-14 NPT	0.67	4.06	0.79	3.15	1.46	2.17	2.17
1	25	1.325	1.310	0.87	4.49	1-11 1/2 NPT	0.79	4.45	0.98	3.15	1.77	2.36	2.36
1 1/4	32	1.670	1.655	0.94	5.00	1 1/4-11 1/2 NPT	0.87	5.00	1.22	3.74	2.13	2.76	2.76
1 1/2	40	1.912	1.894	1.09	5.98	1 1/2-11 1/2 NPT	0.98	5.94	1.38	4.33	2.50	2.99	2.99
2	50	2.387	2.369	1.16	6.93	2-11 1/2 NPT	1.10	6.97	1.77	4.33	3.01	3.31	3.31
3	80	3.516	3.492	1.87	9.29	3-8 NPT	1.17	9.29	2.70	7.87	4.25	4.88	4.88

Weight (LBS.)

NOMINAL SIZE		SOCKET THR'D
INCHES	mm	
3/8	13	0.22
1/2	15	0.26
3/4	20	0.55
1	25	0.88
1 1/4	32	1.21
1 1/2	40	1.32
2	50	2.20
3	80	6.61

Cv Values

NOMINAL SIZE		Cv
INCHES	mm	
3/8	13	7.7
1/2	13	14
3/4	20	29
1	25	47
1 1/4	30	72
1 1/2	40	140
2	50	185
3	80	410



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")

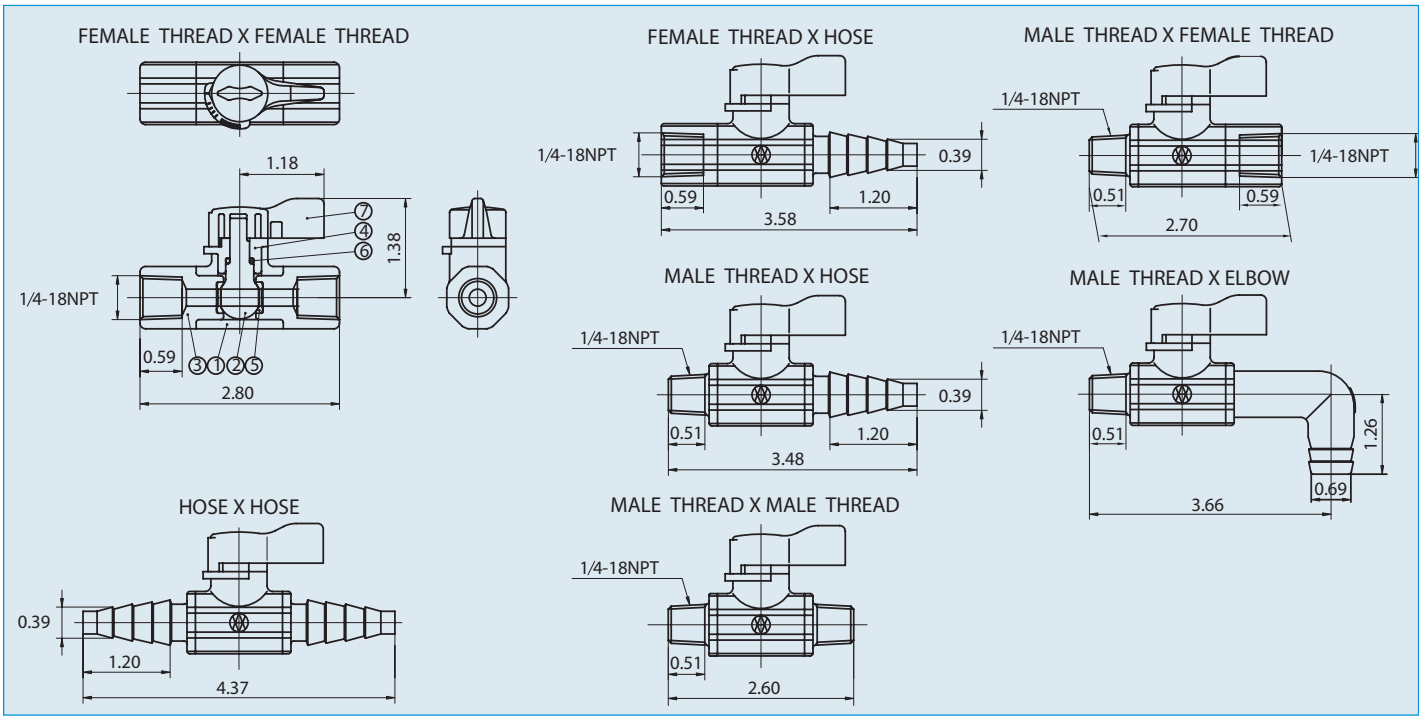
- Pressure rated at 150 psi at 120° F (water)
- Precise fingertip control
- Calibrated flow indicator
- Rugged unibody construction, sturdy stem
- Full vacuum rated, 29.9" Hg
- 90° turn operation with lever handle
- Cv = 1.6

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 12454-A. All O-rings shall be EPDM . LABCOCK® valves are rated to 150 psi 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



Specifications

Series 83: Motor Type - Unidirectional, Single phase
Size - A83 1/2" - 2" valves
Torque - 120 in-lbs
Voltage - 120 VAC, 50/60 Hz
Amp Draw - 2.1 Amps
Temp - Ambient Temp - 150 F
Switches - One single pole, Double throw (15 Amp rating)
Corrosion/Weather proof - Type 4X

Standard Features (Sizes 1/2" – 2")

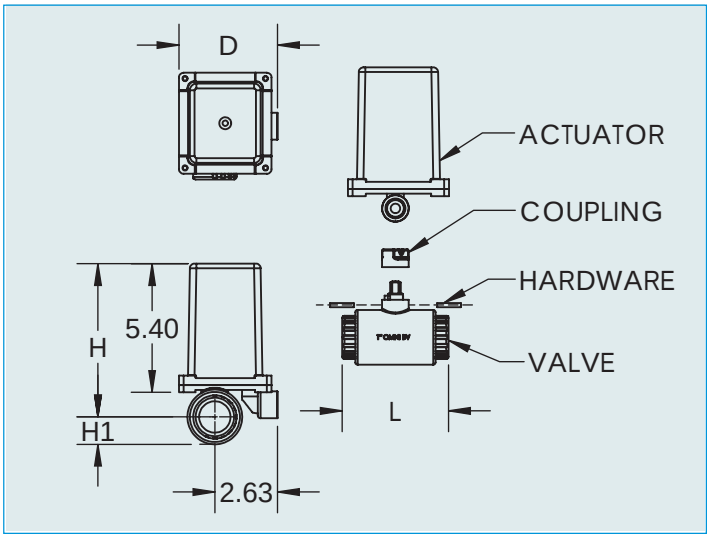
- PVC or CPVC Omni valve (All materials Type-21 or Type-23 ball valves up to 2")
- Standard models are 115 vac thermally protected with single limit switch cam/coupling activated
- Redesigned sealed weatherproof enclosure includes:
  - Flanged cover and base Type 4X rated enclosure with Nitrile flat gasket seal
  - Nitrile O-ring or gasket valve to actuator base seal
  - Nitrile motor mounting bolt seals
  - Redesigned NPT threaded to base 90° elbow provides 1/2" NPT conduit entry w/ 6" color coded wire leads
- Interated ISO mounting pattern baseplates [T-21 & T-23 models]
- Direct mounted valves no mounting bracket required
- Sealed 90° cable entry elbow
- Captivated stainless steel hex head slotted cover screws
- 1/4 turn 5 seconds cycle time uni-directional (120 & 220 vac) motors
- Compact and low profile, ideal for OEM type installations

Options

- Voltages: 220 vac, 12/24 vac, 12/24 vdc
- 2-wire control relay for retrofitting solenoid (Requires constant power and SPST dry contact switching
- 1-additional limit switch for open/close position indication
- Amber/Green position indicating lights

Sample Specification

All open/close electrically actuated ball valves sizes 3/8" thru 2" shall have direct mounted unidirectional- 1/4 turn actuators (115 vac & 220 vac, 12/24 vac/vdc shall be reversing). Actuator shall be 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-21 or Type-23 ball valves as manufactured by Asahi/America Inc.



Wt./Dimensions

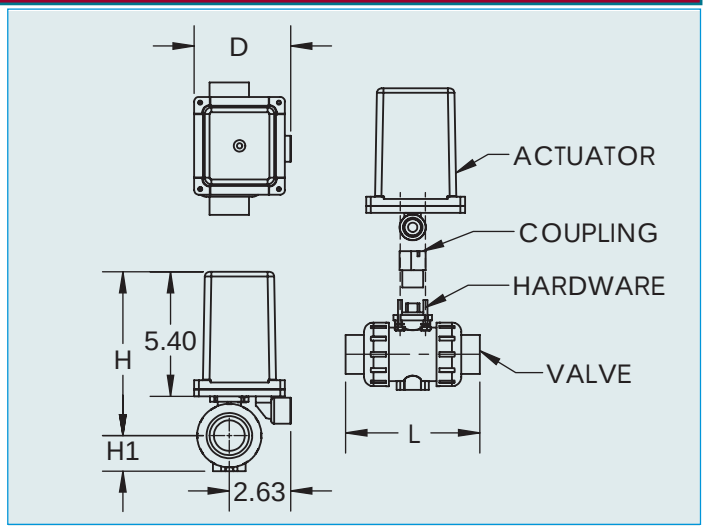
NOMINAL SIZE		WT. (LBS.)	H	H1	L	D
INCHES	mm					
3/8	13	1.75	5.93	.61	3.82	4.14
1/2	15	1.75	6.15	.94	4.06	4.14
3/4	20	2.00	6.35	1.16	4.45	4.14
1	25	2.50	6.36	1.15	5.00	4.14
1 1/2	40	3.00	6.75	1.45	5.94	4.14
2	50	4.00	7.04	1.74	6.97	4.37

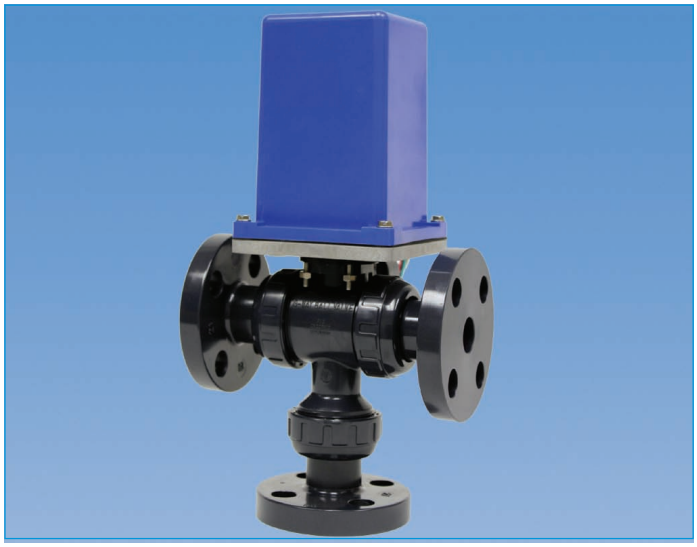
Voltage

Voltage	Current Draw (amps)	Cycle Time (sec)	Duty Cycle (%)
115 Vac	2.10	5	25
220 Vac	.60	5	25
12 Vac	2.25	5	75
24 Vac	4.00	5	75
12 Vdc	2.00	5	75
24 Vdc	3.50	5	75

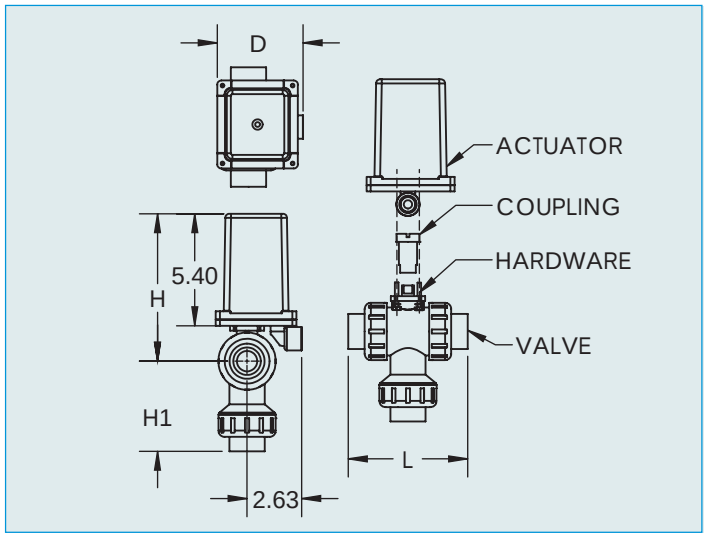
Electrically Actuated Ball Valves

Series 83 on Type 21 Ball Valve



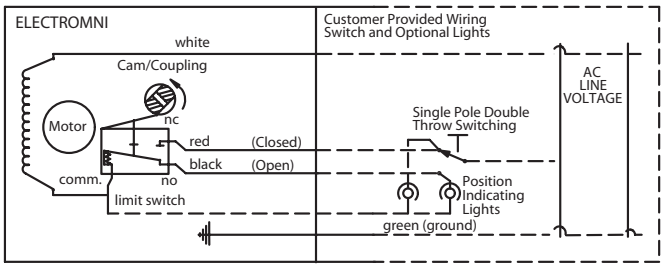


Series 83 on Multiport Ball Valve



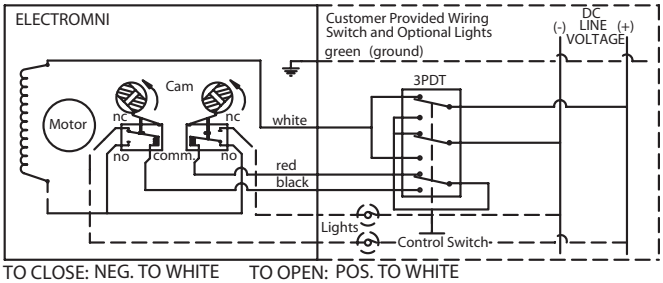
Wiring

115 VAC WIRING



White - Neutral
Black - Hot 'Open'
Red - Hot 'Closed'

24 VDC WIRING



TO CLOSE: NEG. TO WHITE
POS. TO BLACK

TO OPEN: POS. TO WHITE
NEG. TO RED

Dimensions (IN.)
SERIES 83 ON
TYPE 21 (1/2"-2")

NOMINAL SIZE		H	H1	L	D
INCHES	mm				
1/2	15	6.58	1.14	4.45	4.14
3/4	20	6.83	1.38	5.08	4.14
1	25	7.10	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 17.

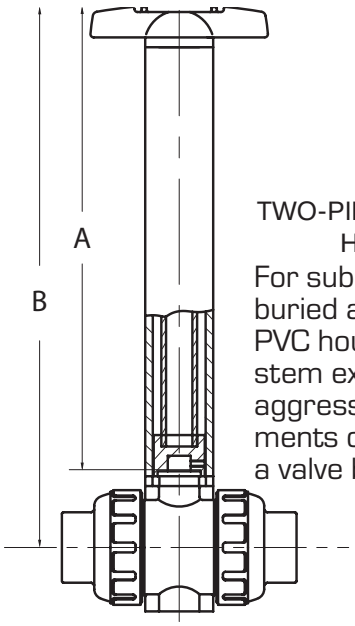
Dimensions (IN.)
SERIES 83 ON
MULTIPORT (1/2"-2")

NOMINAL SIZE		H	H1	L	D
INCHES	mm				
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 17.

Ball Valve Stem Extensions and Options

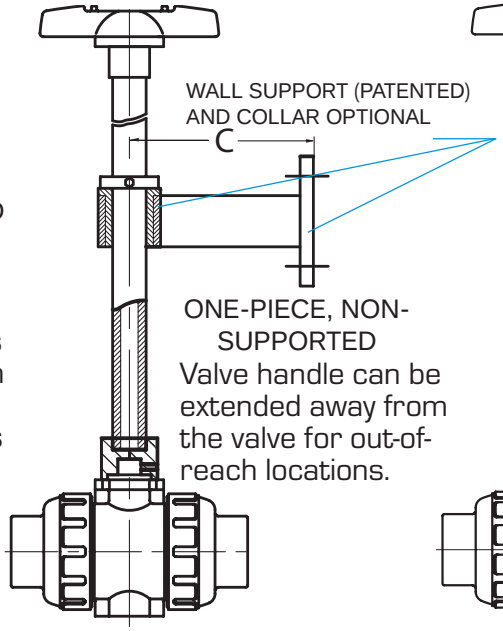
Stem Extensions



Style BV-A

TWO-PIECE STEM AND HOUSING

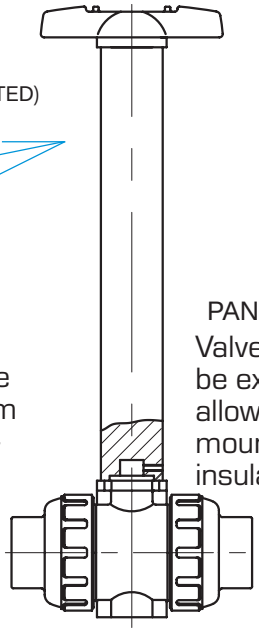
For submerged or buried applications. PVC housing protects stem extensions from aggressive environments or functions as a valve box.



Style BV-B

ONE-PIECE, NON-SUPPORTED

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



Style BV-P

PANEL MOUNT

Valve handle can be extended to allow for panel mount and pipe insulation

Please use Stem Extension Work Sheet on Page 20 when ordering any stem extension

All stem extensions tolerances +/- 1 inch

Panel Mount

VALVE HANDLE IS EXTENDED FOR PANEL MOUNT (STYLE BV-P) APPLICATION. PLEASE SPECIFY LENGTH OF EXTENSION 1/2"-3" 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 or Type 56 or Type 75 and Lever or Gear

   Diaphragm valves Type 14 , Type 15 or 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"

Series 92 Electric Actuators

Specifications

Series 92:

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

UL-508 Listed

Max Ambient Temp – 150˚ F
Switches – Two single pole, double throw (15 Amp rating)

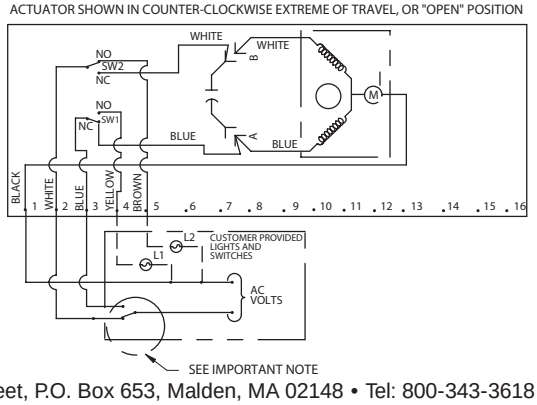
Standard Features (Sizes 1/2" – 4")

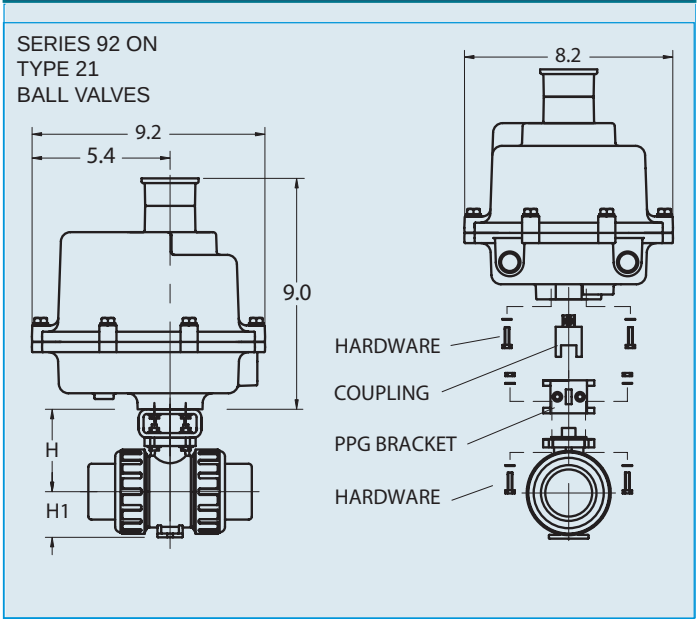
- Brushless, capacitor-run motors (AC models)
- Integral thermal overload protection with auto-reset (AC models)
- Permanently lubricated gear train
- Duty cycle 100% for high cycle applications
- Combination Type 4X, 7 and 9 enclosure with thermally bonded powder coating with stainless steel trim
- ISO bolt circle
- 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

Options

- Failsafe battery pack
- Extra limit switches
- Feedback potentiometer
- Heater and thermostat (to -40° F)
- Positioner: 4–20mA or 0–10 VDC input
- 4-20mA output position transmitter
- Voltages: 220 VAC, 24 VAC, 12 VAC, 24 VDC, 12 VDC
- Mechanical brake eliminates seating oscillation

AC Wiring (For 115 VAC and 220 VAC only)





Engineering Data

Actuator Model	Torque (in-lbs.)	Duty Cycle	Cycle Time* (sec.)	Weight (lbs.)	Amp Draw					
					115 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 shown above is for 115 VAC at ambient temperature.

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 MOTOR.
3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM. (115 AND 220 VAC MODEL).
4. IF 115 & 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

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

Series 94 Electric Actuators

Standard Features (Sizes 1/2" – 3")

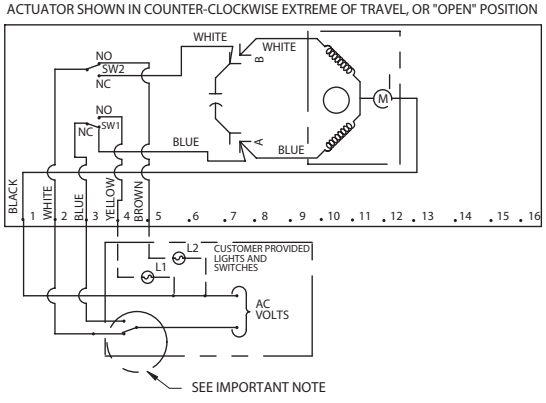
- Brushless, capacitor-run motors (AC models)
- Integral thermal overload protection with auto-reset (AC models)
- Permanently lubricated gear train
- Duty cycle 100% for high cycle applications
- Corrosion-proof/weatherproof Type 4X thermoplastic housing with stainless steel trim
- ISO bolt circle
- 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

Options

- Failsafe battery pack
- Extra limit switches
- Feedback potentiometer
- Heater and thermostat (to -40° F)
- Positioner: 4–20 mA or 0–10 VDC input signal
- 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 115 VAC and 220 VAC only)

ACTUATOR SHOWN IN COUNTER-CLOCKWISE EXTREME OF TRAVEL, OR "OPEN" POSITION



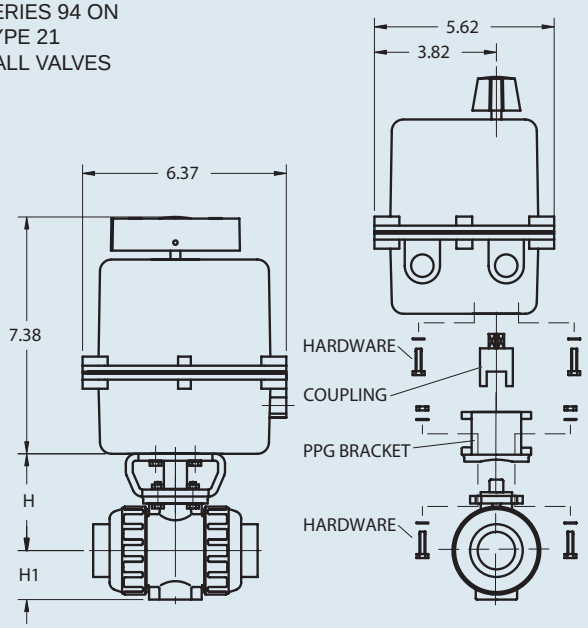
Specifications

Series 94:

UL-508 Listed

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)

SERIES 94 ON TYPE 21 BALL VALVES



Engineering Data

Actuator Model	Torque (in-lbs)	Duty Cycle	Cycle Time (sec)	Weight (lbs)	Amp Draw					
					115 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

Duty cycle shown above is for 115 VAC at ambient temperature.

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 MOTOR.
3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM. (115 AND 220 VAC MODEL).
4. IF 115 & 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

NOMINAL SIZE		H	H_1
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	32	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

ASAHI/AMERICA

Electrically Actuated Type 23

Series 92 on Multiport Ball Valve

Series 94 on Multiport Ball Valve

L-port Ball Configuration Supplied as a standard for 180 degree rotation.

Dimensions (IN.)
SERIES 92 ON MULTIPORT (1/2"-4")

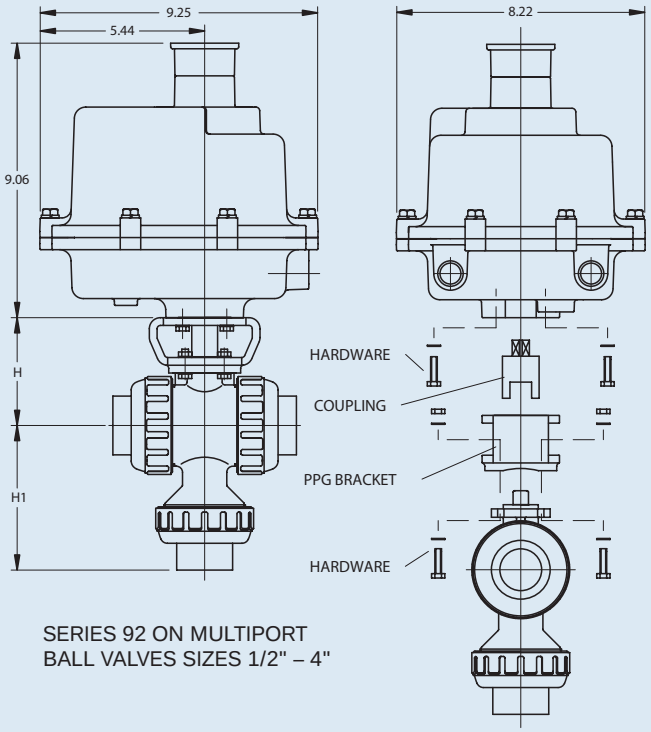
NOMINAL SIZE		H	H1*
INCHES	mm		
1/2	15	2.76	3.08
3/4	20	3.01	3.56
1	25	3.29	4.32
1 1/2	40	3.98	5.71
2	50	4.43	6.66
3	80	5.47	9.59
4	100	6.97	11.58

*PVC/CPVC Socket End
FOR FEATURES OF SERIES 92 ACTUATOR, SEE PAGE 21.

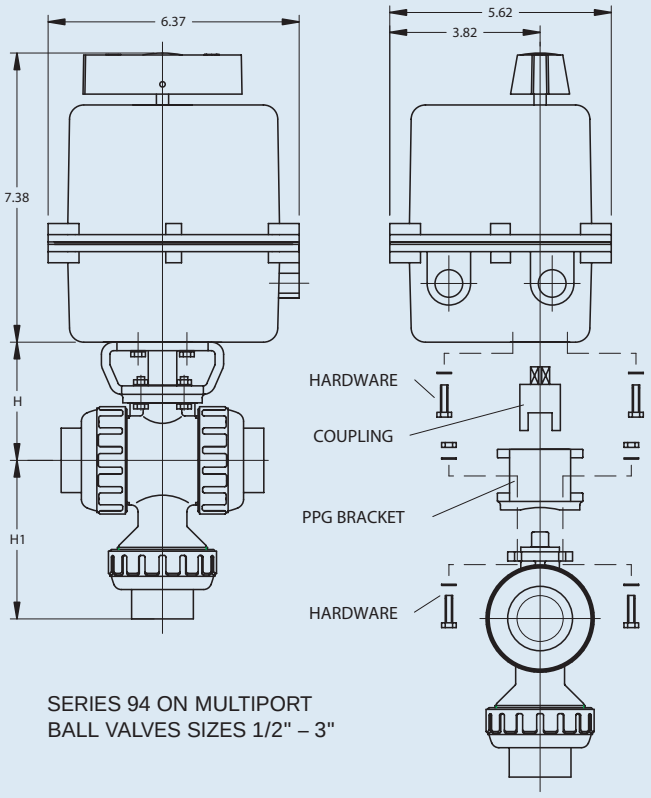
Dimensions (IN.)
SERIES 94 ON MULTIPORT (1/2"-3")

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 22.



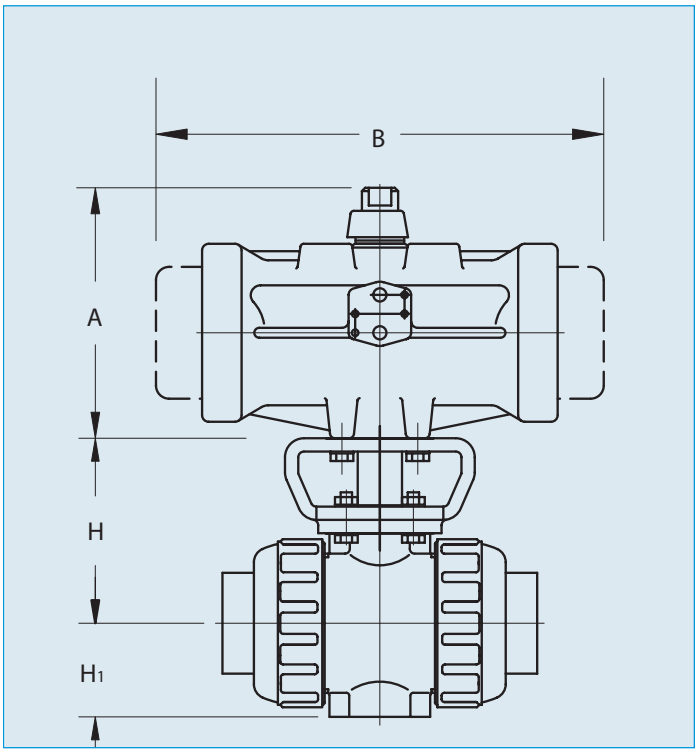
SERIES 92 ON MULTIPORT
BALL VALVES SIZES 1/2" – 4"

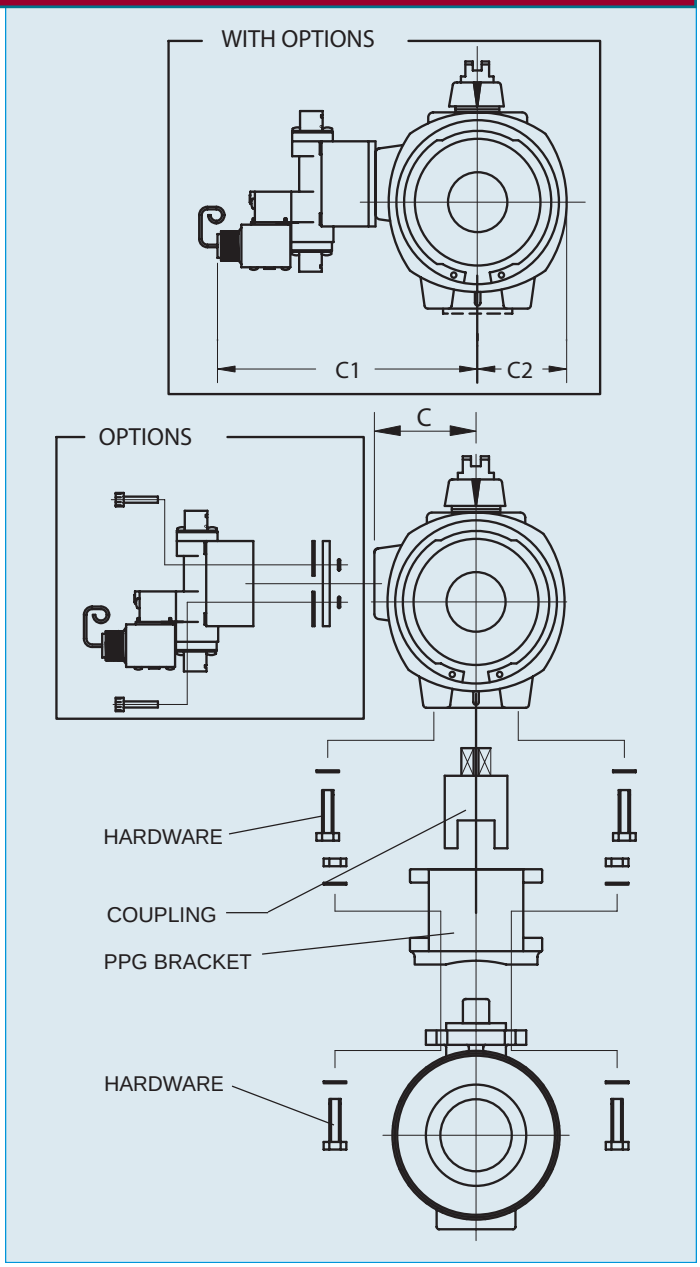


SERIES 94 ON MULTIPORT
BALL VALVES SIZES 1/2" – 3"

Pneumatically Actuated Ball Valves

Type 79P on Type 21 Ball Valve



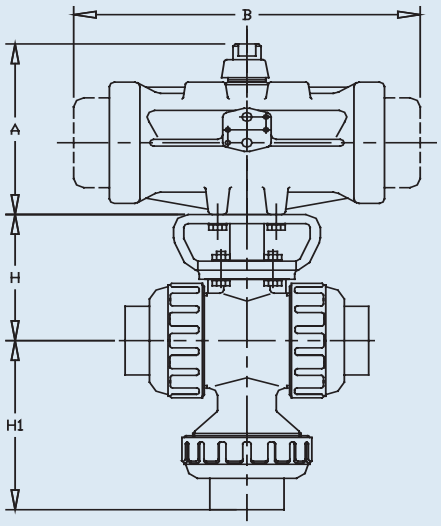


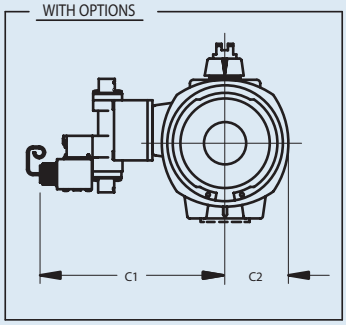
Dimensions (Sizes 1/2" – 4")

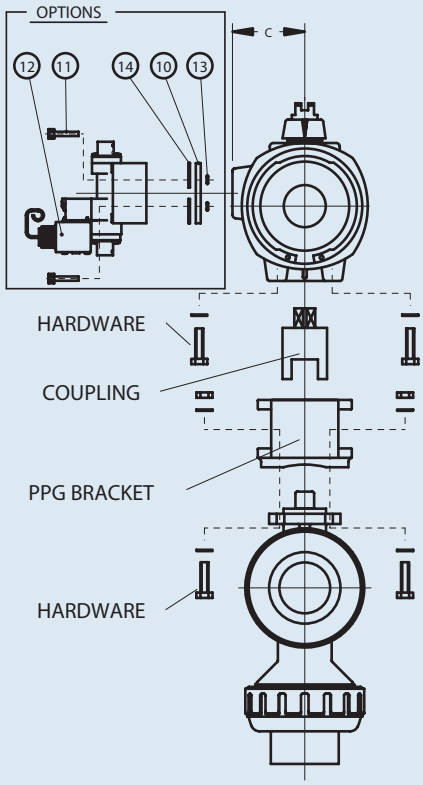
NOMINAL SIZE		Model No. Air-Air	Model No. Air-Spring	H	H1	A		B		C		C1		C2	
INCHES	mm					A-A	A-S	A-A	A-S	A-A	A-S	A-A	A-S	A-A	A-S
1/2	15	AP79PN	AP79PSN	2.76	1.14	3.34	3.34	4.22	5.55	1.47	1.47	5.41	5.41	1.21	1.21
3/4	20	AP79PN	AP79PSN	3.01	1.38	3.34	3.34	4.22	5.55	1.47	1.47	5.41	5.41	1.21	1.21
1	25	AP79PN	AP79PSN	3.29	1.54	3.34	3.34	4.22	5.55	1.47	1.47	5.41	5.41	1.21	1.21
1 1/4	32	AP79PN	AP79PSN	3.64	1.85	3.34	3.34	4.22	5.55	1.47	1.47	5.41	5.41	1.21	1.21
1 1/2	40	AP79PN	BP79PSN	3.98	2.17	3.34	4.40	4.22	5.86	1.47	1.73	5.41	5.41	1.21	1.41
2	50	AP79PN	CP79PSN	4.43	2.60	3.34	5.00	4.22	7.64	1.47	1.97	5.41	5.41	1.21	1.85
2 1/2	65	CP79PN	CP79PSN	5.12	2.83	5.00	5.00	7.00	8.74	1.97	1.97	5.89	5.89	1.85	1.85
3	80	CP79PN	DP79PSN	5.47	3.35	5.00	6.49	7.00	11.49	1.97	2.56	5.89	5.89	1.85	2.36
4	100	DP79PN	DP79PSN	6.97	4.33	6.49	6.49	9.21	11.49	2.56	2.56	6.48	6.48	2.36	2.36

Pneumatically Actuated Type 23

Series 79P on Multiport Valve







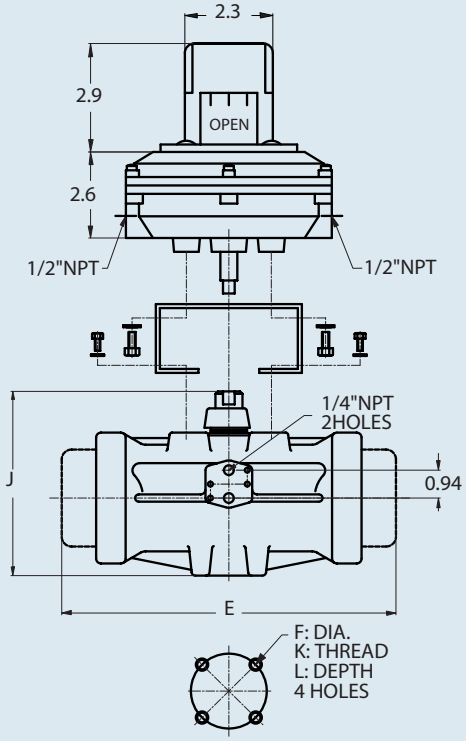
Dimensions (Sizes 1/2" – 4")

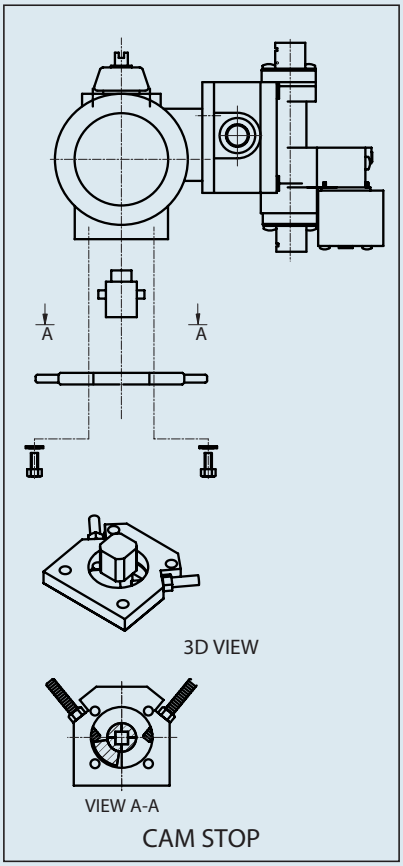
NOMINAL SIZE		Model No. Air-Air	Model No. Air-Spring	H	H1	A		B		C		C1		C2	
INCHES	mm					A-A	A-S	A-A	A-S	A-A	A-S	A-A	A-S	A-A	A-S
1/2	15	AP79PN	AP79PSN	2.76	3.08	3.34	3.34	4.22	5.55	1.47	1.47	5.41	5.41	1.21	1.21
3/4	20	AP79PN	AP79PSN	3.01	3.56	3.34	3.34	4.22	5.55	1.47	1.47	5.41	5.41	1.21	1.21
1	25	AP79PN	AP79PSN	3.29	4.32	3.34	3.34	4.22	5.55	1.47	1.47	5.41	5.41	1.21	1.21
1 1/2	40	AP79PN	BP79PSN	3.98	5.71	3.34	4.40	4.22	5.86	1.47	1.73	5.41	5.66	1.21	1.41
2	50	AP79PN	CP79PSN	4.43	6.66	3.34	5.00	4.22	7.64	1.47	1.97	5.41	5.89	1.21	1.85
3	80	CP79PN	DP79PSN	5.47	9.59	5.00	6.49	7.00	11.49	1.97	2.56	5.89	6.48	1.85	2.36
4	100	DP79PN	DP79PSN	6.97	11.58	6.49	6.49	9.21	11.49	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

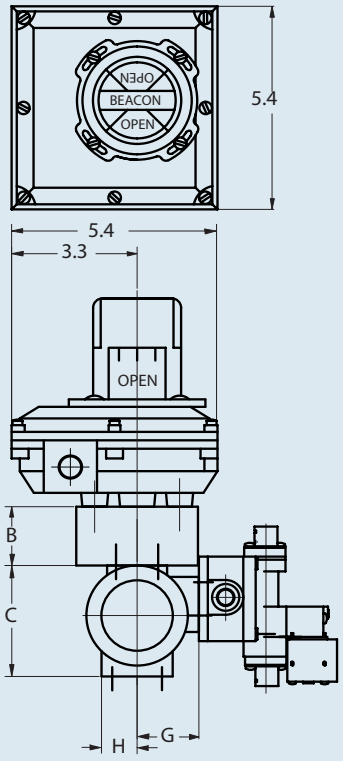
Pneumatic Actuator and Options

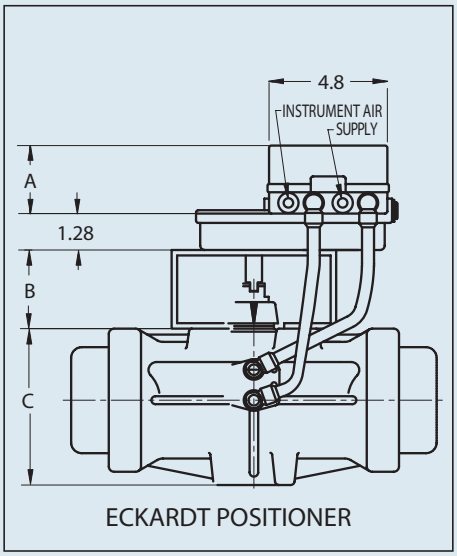
SWITCH ASSEMBLY

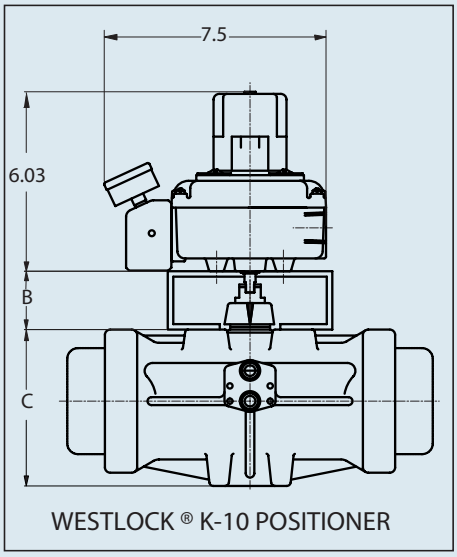




SWITCH ASSEMBLY WITH SOLENOID







Dimensions (INCHES)
ACTUATOR WITH LIMIT SWITCH

ACTUATOR SIZE	B	C	E		F	H	G	J	K	L
			A-A	A-S						
AP79P	1.75	2.56	4.22	5.55	1.65	1.21	1.48	3.34	6mm	.16
BP79P	2.16	3.14	4.92	5.86	1.97	1.41	1.73	4.40	6mm	.50
CP79P	2.16	3.81	7.00	8.74	2.76	1.85	1.96	5.00	8mm	.62
DP79P	2.16	5.15	9.21	11.49	2.76	2.36	2.55	6.49	8mm	.75

Dimensions (INCHES)
ACTUATOR WITH POSITIONER

ACTUATOR SIZE	B	C	E		A	
			A-A	A-S	3-15 psi	4-20 mA
AP79P	1.75	2.56	4.22	5.55	2.28	4.15
BP79P	2.16	3.14	4.92	5.86	2.28	4.15
CP79P	2.16	3.81	7.00	8.74	2.28	4.15
DP79P	2.16	5.15	9.21	11.49	2.28	4.15

Air
CONSUMPTION

MODEL NO.	Cubic Inches
AP79P	6.0
BP79P	9.0
CP79P	19.5
DP79P	52.0

Type 57 Butterfly Valves

Specifications

Sizes:	Lever: 1-1/2" – 8" Gear: 8" – 14"
Models:	Wafer Style
Operators:	Lever and Gear
Bodies:	PVC, PP and PVDF
Discs:	PVC, PP, PVDF and CPVC
Seats:	EPDM, FKM, and Nitrile
Seals:	Same as seating material
Stems:	403 and 316 stainless steel, Titanium, Hastelloy C® ‡

PVC/PP/EPDM Models
NSF-61 Certified

‡ Trademark of Cabot Corporation

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

- Standard model (1-1/2" – 14") has PVC body and PP disc for superior chemical resistance and elevated temperature capabilities
- 316/403 stainless steel shaft has full engagement over the entire length of the disc and is a non-wetted part
- 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 over tightening protection–Molded body stops and seat stress relief area
- Spherical disc design offers increased Cv, ultimate sealing and high cycle life
- 18 position throttle plate for lever handle style

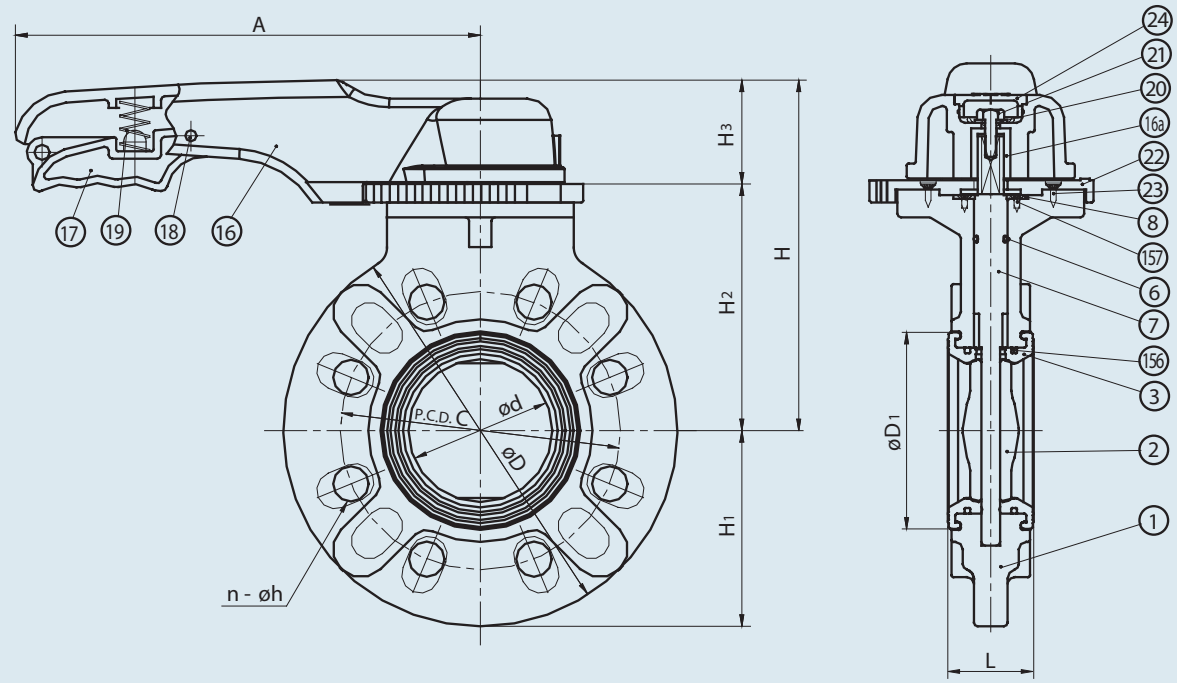
Options

- Pneumatically and electrically actuated with accessories
- Alternate discs:
  (I) PVC : 1-1/2" – 14"
  (II) PVDF : 1-1/2" – 14"
  (III) CPVC : 3", 4", 6" & 8"
- Lug style (stainless steel 304 or 316) for blocking & end-of-line applications
- Stems in 316 stainless steel, titanium, Hastelloy C®
- 2" square nut on stem (1-1/2" - 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.)

Parts List (Lever: Sizes 1-1/2" – 8")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, PP, PVDF
2	Disc	1	PVC, CPVC, 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	Liner Stabilization Ring	2	Stainless Steel (SCS13)
157	Screw (F)	4	Stainless Steel 304

Type 57 – Lever Operated Butterfly Valves



Dimensions (Lever: Sizes 1-1/2" – 8")

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

Cv Values

NOMINAL SIZE		Cv (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

Pressure vs. Temperature (PSI, WATER, NON-SHOCK)*

BODY		PVC			PP		PVDF			
DISC		PP			PP		PVDF			
NOMINAL SIZE		30° F 120° F	121° F 140° F	141° F 175° F	-5° F 140° F	141° F 175° F	-5° F 140° F	141° F 175° F	176° F 210° F	211° F 250° F
INCHES	mm									
1 1/2	40	150	70	30	150	100	150	100	85	75
2	50	150	70	30	150	100	150	100	85	75
2 1/2	65	150	70	30	150	100	150	100	85	75
3	80	150	70	30	150	100	150	100	85	75
4	100	150	45	30	150	100	150	100	85	75
5	125	150	45	30	150	100	150	100	85	75
6	150	150	45	30	150	100	150	100	85	75
8	200	150	40	20	150	85	150	85	75	60

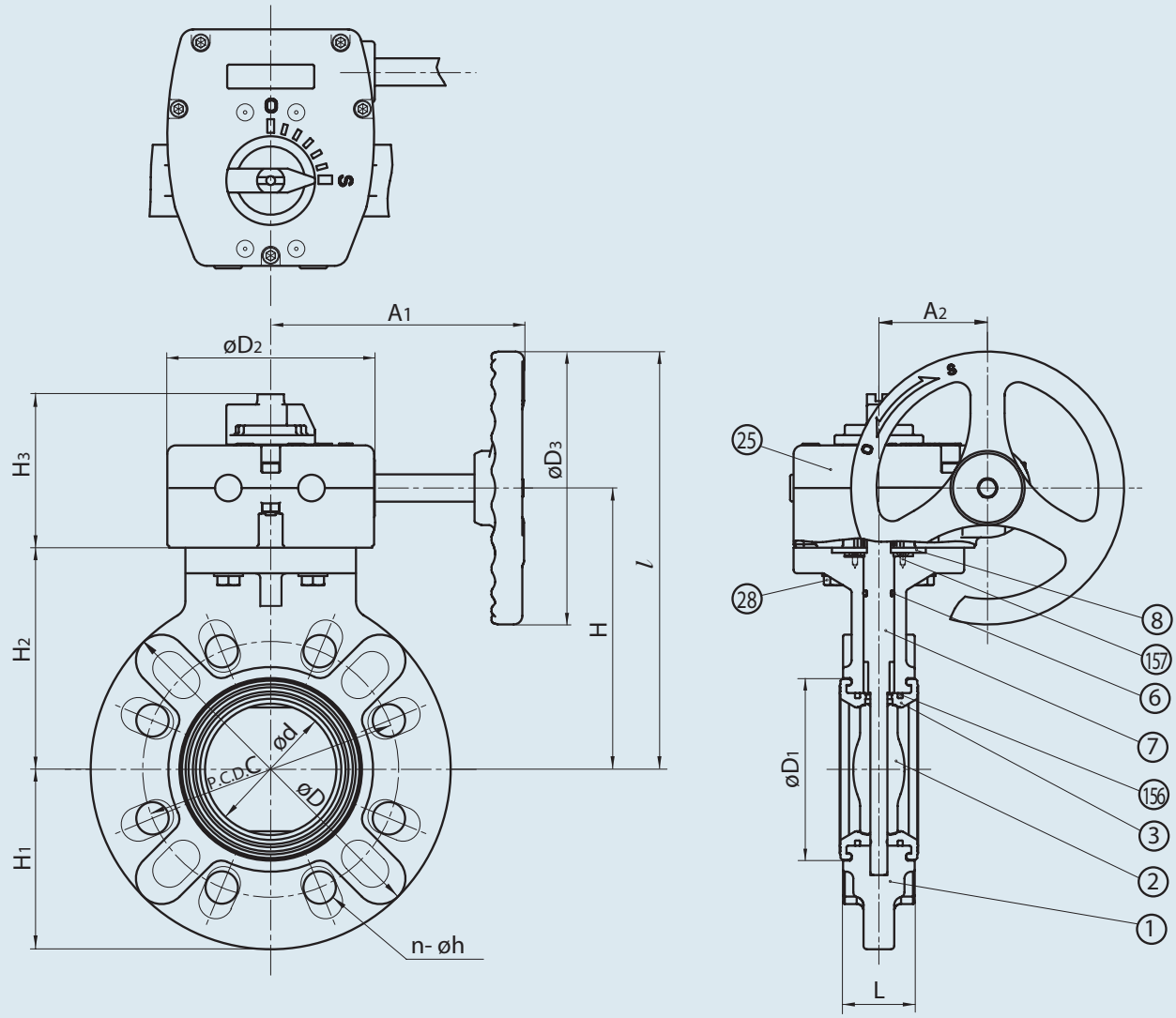
Wt. (LBS) / Vacuum Service

NOMINAL SIZE		PVC	PP	PVDF
INCHES	mm			
1 1/2	40	3	3	3
2	50	4	3	4
2 1/2	65	4	3	4
3	80	5	4	5
4	100	6	5	7
5	125	11	9	13
6	150	13	10	15
8	200	21	16	25

NOMINAL SIZE		VACUUM SERVICE (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

* For lug style data consult factory

Type 57 – Gear Operated Butterfly Valves



Dimensions (Sizes 1-1/2" – 14")

Note: Gear operated valve is standard 8" - 14" sizes
Sizes 1-1/2" - 6" are options

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	A1	A2	Wheel Cycles	
1 1/2	40	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	
2	50	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	9.5	
2 1/2	65	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	9.5	
3	80	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	9.5	
4	100	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	9.5	241
5	125	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	9.5	
6	150	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	9.5	
8	200	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	9.5	
10	250	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	9.5	
12	300	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	9.5	243
14	350	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	9.5	

Type 57 – Gear Operated Butterfly Valves

Parts List (Gear: Sizes 1-1/2" – 14")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, PP, PVDF
2	Disc	1	PVC, CPVC, PP, PVDF
3	Seat	1	EPDM, FKM, NBR
6	O-Ring (C)	1	EPDM, FKM, NBR
7	Stem	1	Stainless Steel 316, 403
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

Troubleshooting

What if fluid still flows when the 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 over-tightened 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 over-tightened. Retighten.

Sample Specification

All solid thermoplastic butterfly valves sizes 1-1/2" thru 14" shall be of the TYPE 57 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 1-1/2" thru 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 over tightening of mating flanges. Stem shall be of 316/403 stainless steel, non wetted, have engagement over the full length of the disc and be locked into valve body by PP stem retainer. Valves shall have a molded ISO bolt pattern on top flange for actuator mount. PVC shall conform to ASTM D1784 Cell Classification 12454-A, PP conforming to ASTM D4101 Cell Classification PP0210B67272, and PVDF conforming to ASTM D 3222 Cell Classification Type II. All PVC PP and PVDF body valves shall be rated to 150 psi at 70 degrees F, sizes 1-1/2" thru 10" and 100 psi for sizes 12" and 14". Butterfly valves shall be wafer style, as manufactured by Asahi/America Inc.

Caution

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

Cv Values

NOMINAL SIZE		Cv (at various opening degrees)		
INCHES	mm	30°	60°	90°
8	200	150	1525	2500
10	250	232	2355	3860
12	300	342	3477	5700
14	350	386	3928	6440

Pressure vs. Temperature (PSI, WATER, NON-SHOCK)* Wt. (LBS) /Vacuum Service

BODY		PVC			PP		PVDF			
DISC		PP			PP		PVDF			
NOMINAL SIZE		30° F 120° F	121° F 140° F	141° F 175° F	-5° F 140° F	141° F 175° F	-5° F 140° F	141° F 175° F	176° F 210° F	211° F 250° F
INCHES	mm									
8	200	150	40	20	150	85	150	85	75	60
10	250	150	40	20	150	85	150	85	75	60
12	300	100	30	15	100	60	100	60	45	30
14	350	100	30	7	100	45	100	45	30	15

NOMINAL SIZE		PVC	PP	PVDF
INCHES	mm			
8	200	24	20	28
10	250	33	27	41
12	300	62	53	76
14	350	67	58	81

NOMINAL SIZE		VACUUM SERVICE (INCHES OF MERCURY)
INCHES	mm	
8	200	-29.92
10	250	-29.92
12	300	-23.62
14	350	-23.62

* For lug style data consult factory

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 over tightening protection-molded body stops and seat stress relief area
- Spherical disc design offers increased Cv, ultimate sealing and high cycle life
- 316SS Factory Lugs
- 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 316 stainless steel, titanium, 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

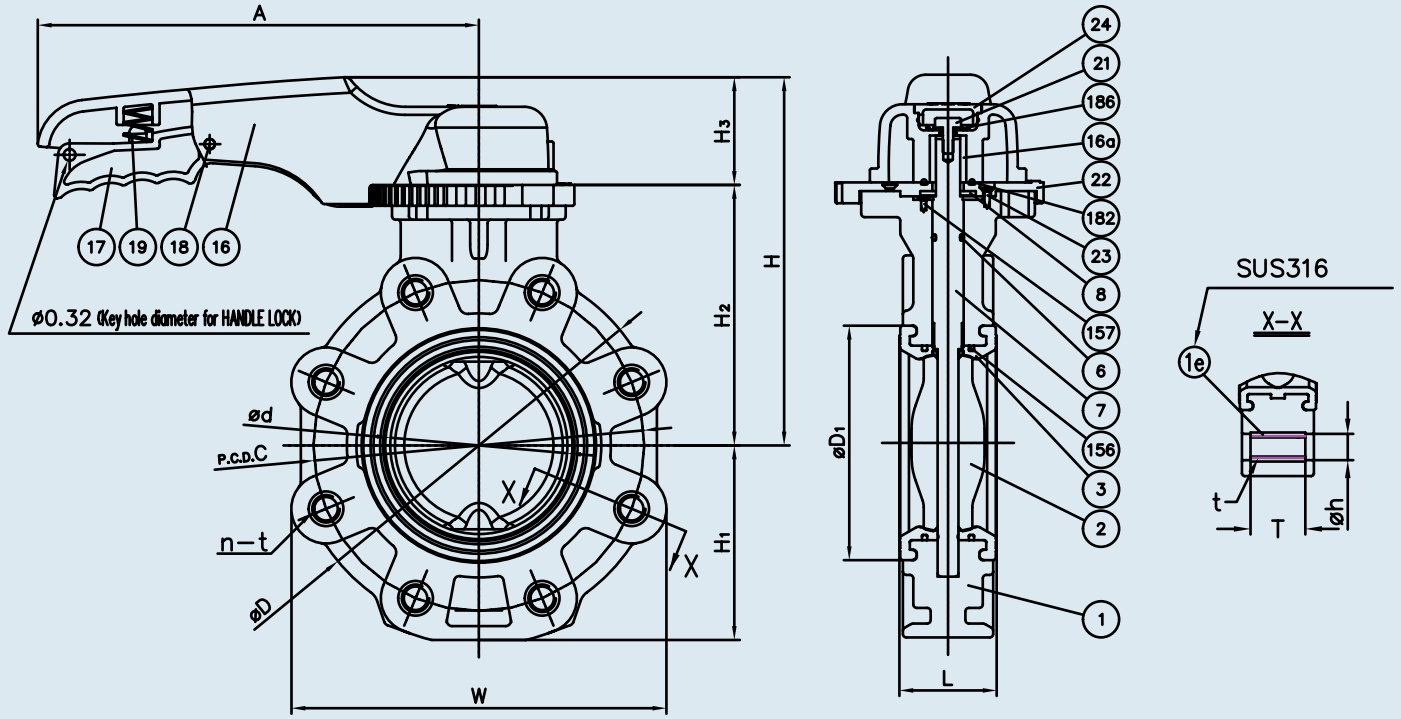
Sizes:	Lever: 3" – 8" Gear: 8" – 12"
Models:	Lug Style
Operators:	Lever and Gear
Body:	PVC
Discs:	PVC, PP, and PVDF
Seats:	EPDM, FKM and Nitrile
Seals:	Same as seating material
Stems:	316 stainless steel, Titanium, Hastelloy C®‡

‡ 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")

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	5/8-11UNC
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	5/8-11UNC
6	150	5.91	9.50	8	0.87	10.63	7.48	2.80	9.92	5.55	7.20	2.72	12.60	10.67	1.97	3/4-10UNC
8	200	7.68	11.75	8	0.87	12.60	9.53	3.43	11.14	6.61	8.43	2.72	15.75	12.76	2.26	3/4-10UNC

Press vs. Temp

BODY		PVC		
DISC		PP		
NOMINAL SIZE		30˚ F 120˚ F	121˚ F 140˚ F	141˚ F 175˚ F
INCHES	mm			
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

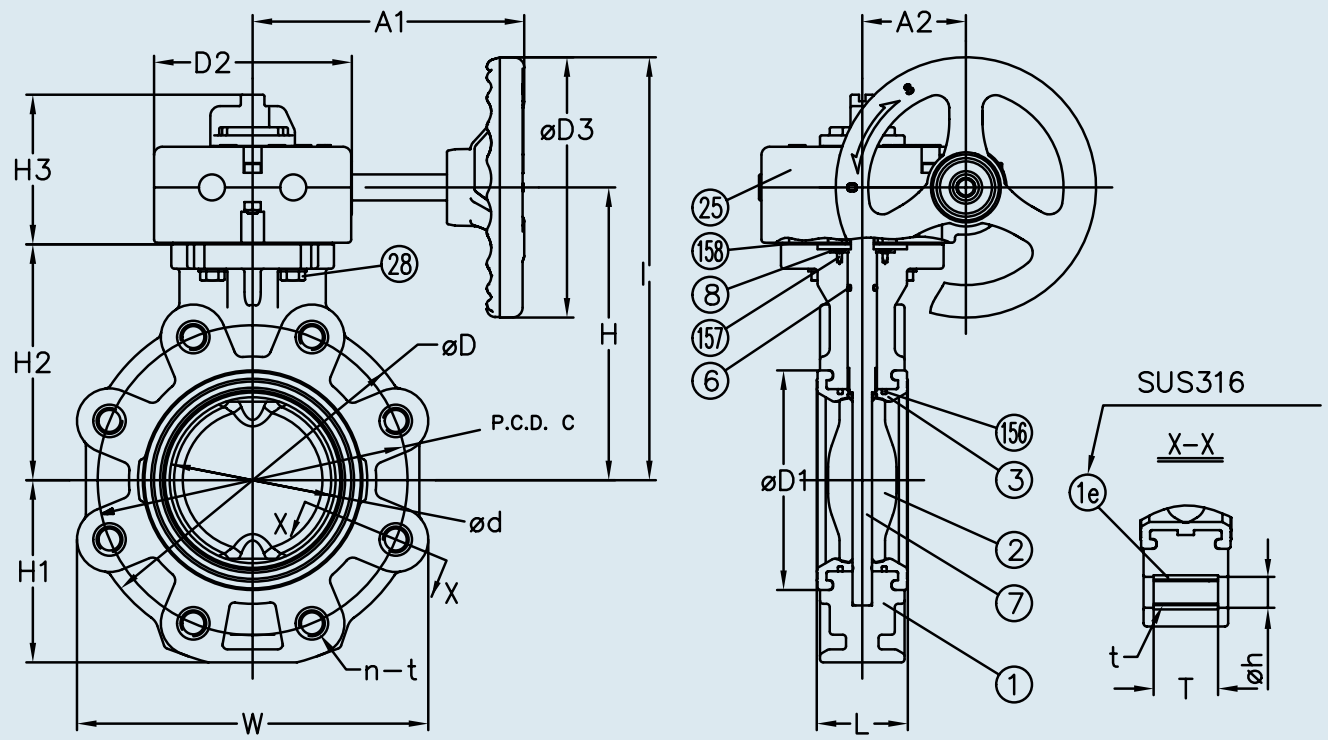
Wt (LBS)

NOMINAL SIZE		LEVER OPERATED	GEAR OPERATED
INCHES	mm		
3	80	5	10
4	100	7	12
6	150	15	20
8	200	25	30
10	250	n/a	41
12	300	n/a	76

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")

NOMINAL SIZE			ANSI CLASS 150																			Wheel Cycles	Gear box model no.
INCHES	mm	d	C	n	h	D	D1	D2	D3	L	H	H1	H2	H3	l	A1	A2	W	T	t			
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	5/8-11UNC		9.5	
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	5/8-11UNC		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	3/4-10UNC		9.5	241
8	200	7.68	11.75	8	0.87	12.60	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	3/4-10UNC		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	7/8-9UNC		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	9.53	3.90	18.54	3.14	7/8-9UNC		9.5	243

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

Press vs. Temp

BODY		PVC		
DISC		PP		
NOMINAL SIZE		30˚ F 120˚ F	121˚ F 140˚ F	141˚ F 175˚ F
INCHES	mm			
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 over-tightened 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.

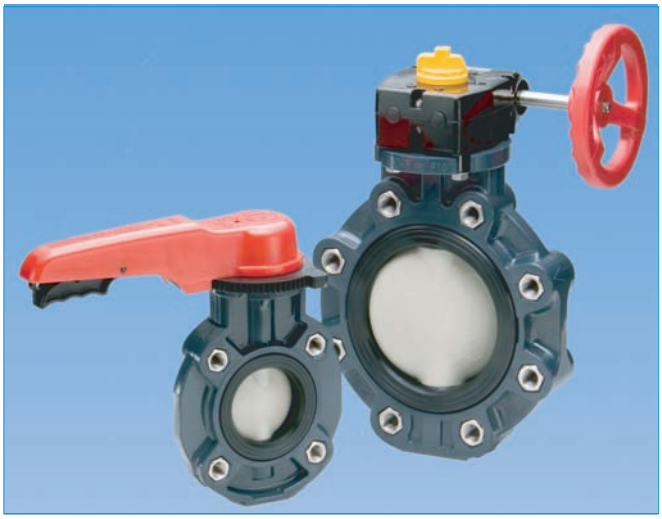
What if valve does not operate smoothly?

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 over-tightened. Retighten.

Sample Specification

All solid thermoplastic butterfly valves sizes 3" thru 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" thru 8") shall have a molded provision for a padlock. Gear operators shall be worm gear design, self locking Plasgear TM

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 SS 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 12454-A, PP conforming to ASTM D4101 Cell Classification PP0210B67272, and All (3" thru 10"), valves shall be rated to 150 psi and 12" rated to 100 psi, Butterfly valves shall be lug style, as manufactured by Asahi/America.



Type 57 LIS Butterfly Valves

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

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 SS 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
- Integral locking lever handle w/21 position throttling plate
- Plasgear™ operator – Industry first composite enclosure gear-operator
- Integral ISO-5211 top mounting pad for actuation mounting
- Polypropylene stem retainer to prevent stem removal

Options

- 316 SS lug inserts for end-of line service
- Pneumatic and electric actuators with accessories
- Alternate disc materials
  (I) PVC
  (II) CPVC
  (III) PVDF
- Alternate stem materials
  (I) Titanium
  (II) Hastelloy
- 2" square operating nuts on valve stem or gear operator shaft
- Stem extensions for above ground or buried applications
- Chain operators
- Manual limit switches

Parts List (Lever: Sizes 3" – 8")

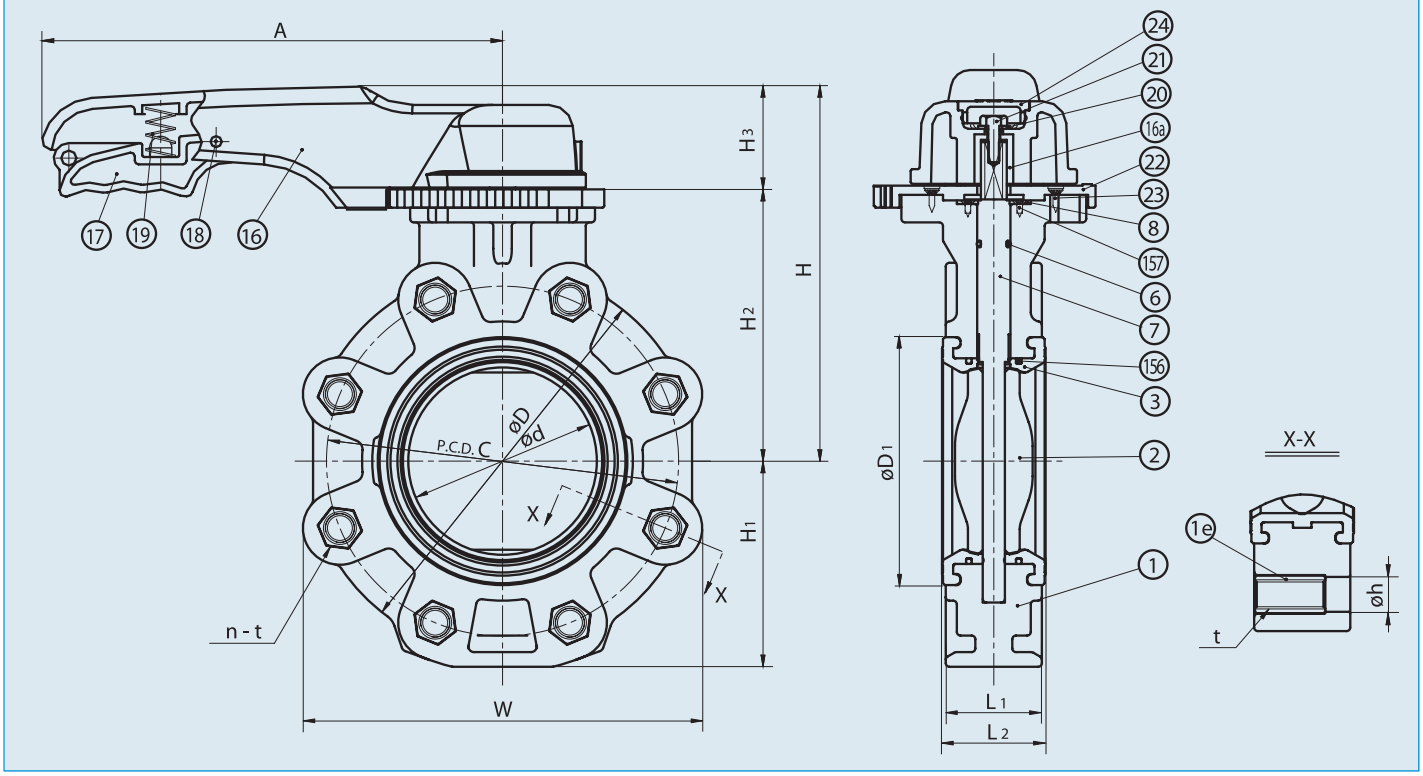
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
1a	Lug	-	Stainless Steel 316
2	Disc	1	PVC, CPVC, PP, PVDF
3	Seat	1	EPDM, FKM, NBR
6	O-Ring (C)	1	EPDM, FKM, NBR
7	Stem	1	Stainless Steel 316
8	Stem Retainer	1	PP
16	Handle	1	PP
16a	Metal Insert in Handle	1	Stainless Steel 316L
17	Handle Lever	1	PPG
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

Caution

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

Type 57 LIS Lever Butterfly Valves



Dimensions (Lever: Sizes 3" – 8")

NOMINAL SIZE			ANSI CLASS 150														
INCHES	mm	d	C	n	h	D	D1	L	L2	H	H1	H2	H3	A	W	T	t
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	5/8-11UNC
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	5/8-11UNC
6	150	5.91	9.50	8	0.87	10.63	7.48	2.20	2.80	9.92	5.55	7.20	2.72	12.60	10.67	1.57	3/4-10UNC
8	200	7.68	11.75	8	0.87	12.60	9.53	2.36	3.43	11.14	16.61	8.43	2.72	15.75	12.76	1.57	3/4-10UNC

Press vs. Temp

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

Cv Values

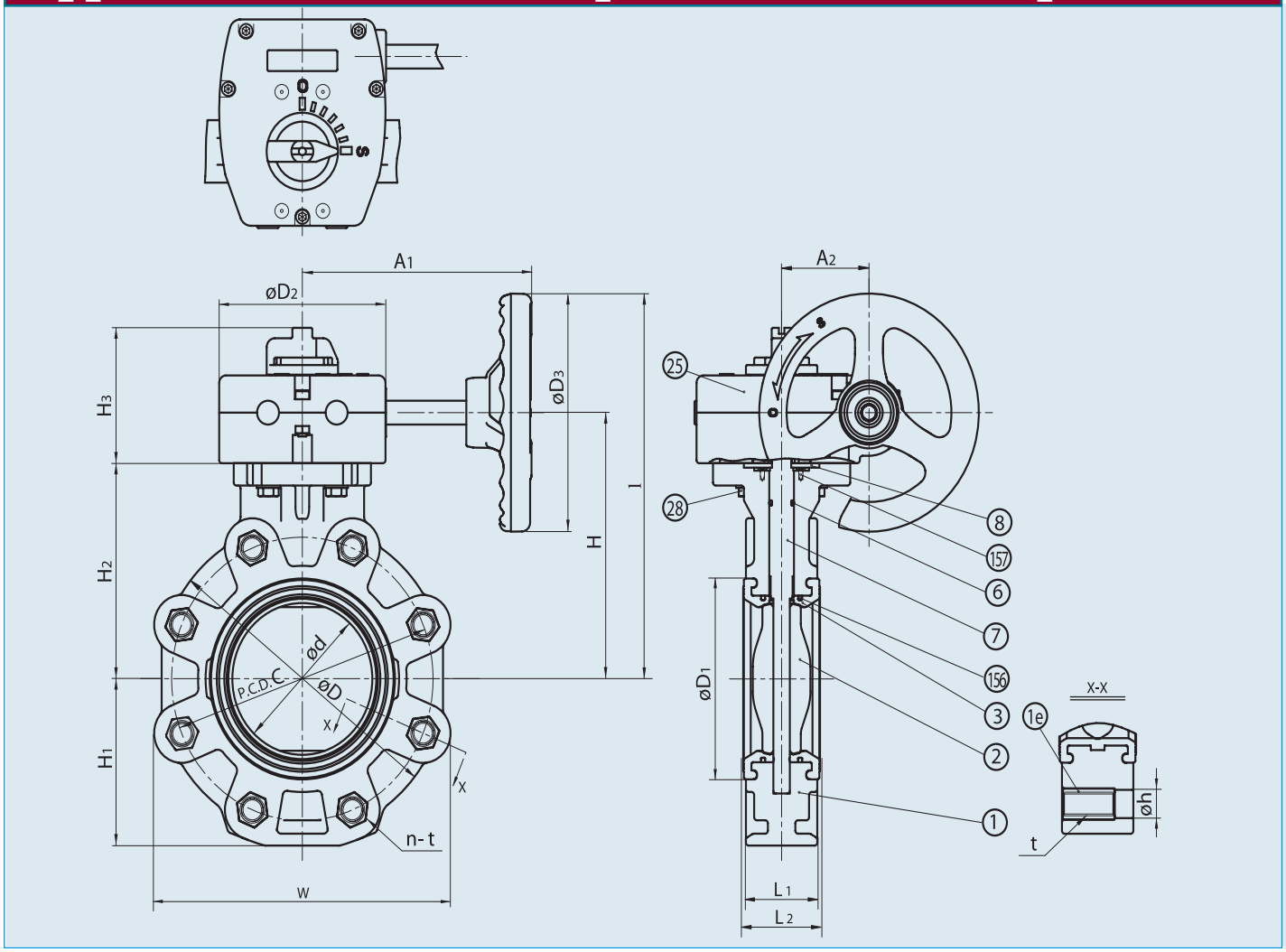
NOMINAL SIZE		Cv (at various opening degrees)		
INCHES	mm	30˚	60˚	90˚
3	80	18	183	300
4	100	28	287	470
6	150	66	671	1100
8	200	150	1525	2500

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	5	10
4	100	7	12
6	150	15	20
8	200	25	30

Type 57 LIS – Gear Operated Butterfly Valves



Dimensions (Gear: Sizes 3"-8")

NOMINAL SIZE			ANSI CLASS 150																			
INCHES	mm	d	C	n	h	D	D1	D2	D3	L1	L2	H	H1	H2	H3	l	A1	A2	W	T	t	Wheel Cycles
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	5/8-11UNC	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	5/8-11UNC	9.5
6	150	5.91	9.50	8	0.88	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	3/4-10UNC	9.5
8	200	7.68	11.75	8	0.88	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	3/4-10UNC	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	Stabilization Ring	2	Stainless Steel (SCS13)
157	Screw (F)	4	Stainless Steel 304

* Supplied installed with Lug Style Valves only

Sample Specification

All Type 57 LIS 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 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
SS 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 SS 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, CPVC to ASTM D1784 CC 23567A, PP to ASTM D4141 CC 0210B67272, and PVDF to ASTM D3222-91A CC Type II. All Type 57 LIS butterfly valves shall be rated to 150 psi at 70 F and be wafer or lug style as manufactured by Asahi/America Inc.

Type 56 Butterfly Valves

Specifications

Sizes:	Gear: 16"
Models:	Wafer 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®‡, etc

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.

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® , etc.
- 2" square nut on gear operator
- Stem extensions (single stem and two-piece stem)
- Locking devices
- Chain operators
- Manual limit switch - Asahi P-Series

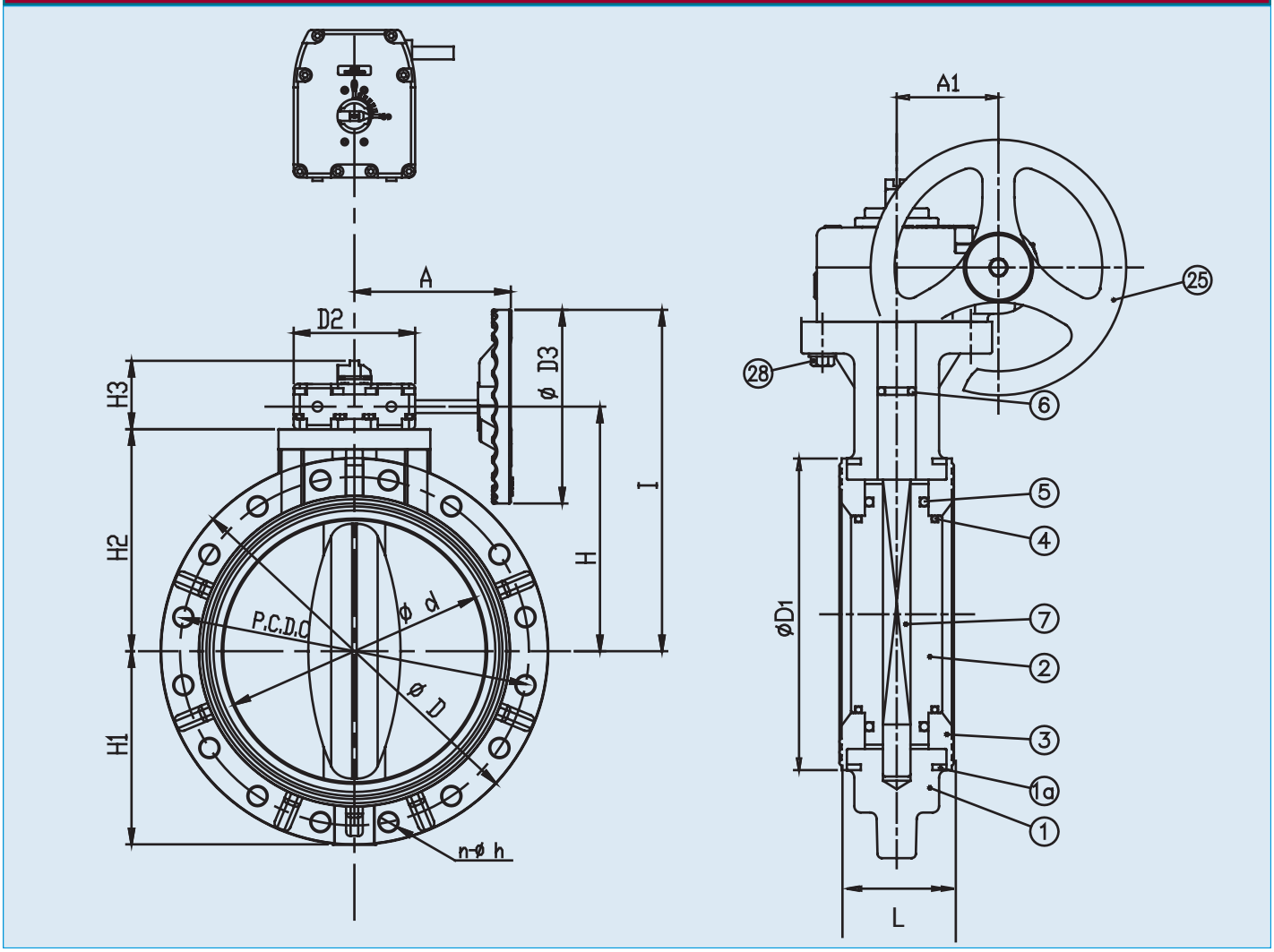
Parts List (Gear: Size 16")

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/I –5211/II on top flange for actuator mount. PP conforming to ASTM D4101 Cell Classification PP0210B67272, and PVDF conforming to ASTM D 3222 Cell Classification Type II. PP and PVDF body valves shall be rated 85 psi size 16" at 70 degrees F. Butterfly valves shall be wafer style, as manufactured by Asahi/America Inc.

Type 56 – Gear Operated Butterfly Valves



Dimensions (Sizes 16") Note: Gear operated valve is standard size 16"

NOMINAL SIZE			ANSI CLASS 150															Gear Box Model
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	18.50	7.40	11.81	6.65	14.92	11.81	13.54	4.25	20.82	10.71	3.90	243

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 over-tightened 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 over-tightened. 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 140° F	141° F 175° F	-5° F 140° F	141° F 175° F	176° F 210° F	211° F 250° F
INCHES	mm						
16	400	85	45	85	45	30	15

* For lug style data consult factory

Wt. (LBS) / Vacuum Service

NOMINAL SIZE		GEAR OPERATED
INCHES	mm	
16	400	79.40

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 Valves

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®‡, etc

Standard Features (Sizes 16" - 24")

- Standard model 16" - 24" has PDCPD body w/PP Disc
- 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.
- Higher pressure rating than standard 56 or 75 110 PSI at 70 F - all sizes 16"– 24"
- Seat over-tightening 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

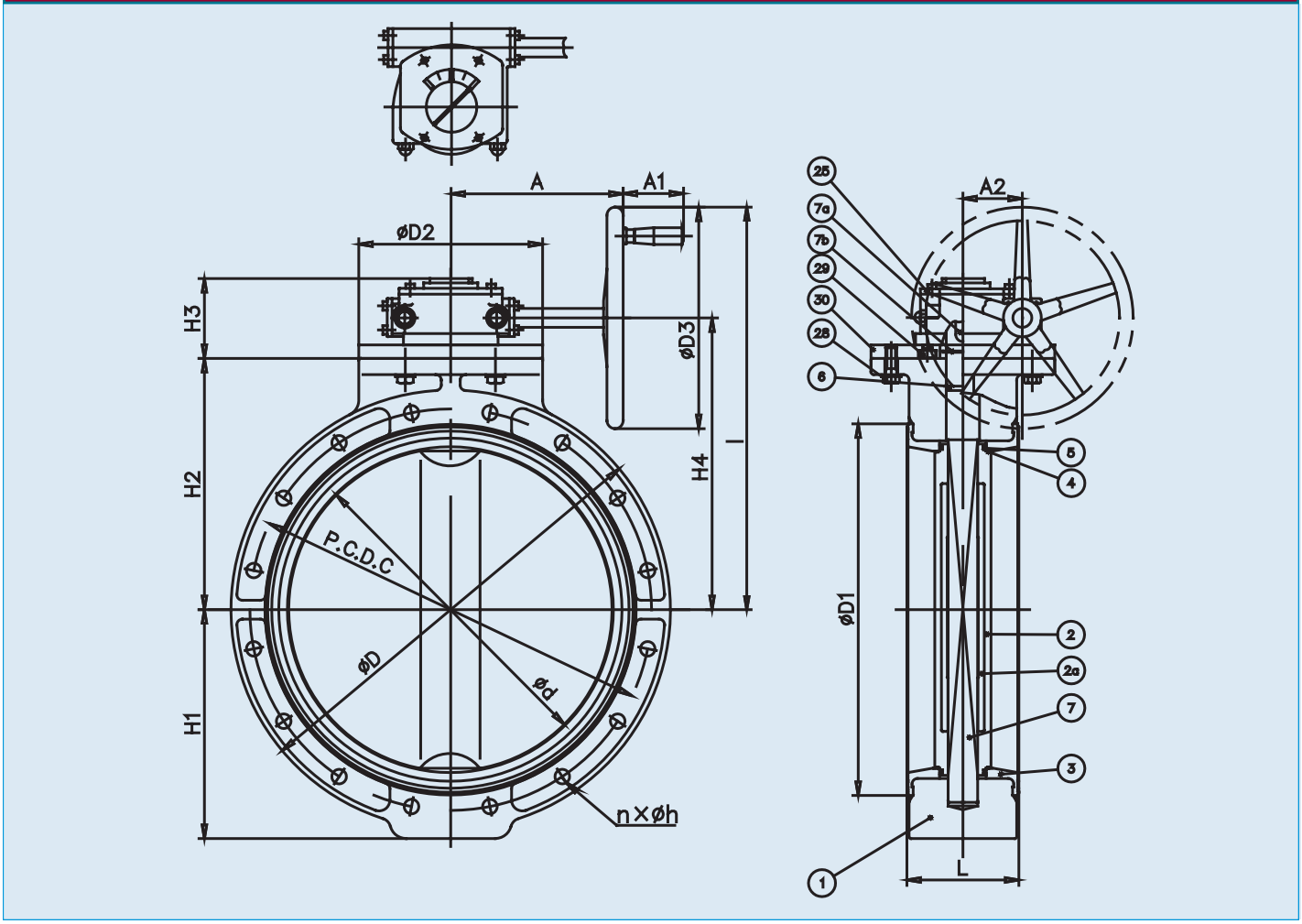
- Pneumatically and electrically actuated with accessories
- Alternate disc: PVDF
- Stems in 316 stainless steel, titanium, Hastelloy C® etc.
- 2" square nut on gear operator
- Stem extensions (single stem and two-piece stem)
- Locking devices
- Chain operators
- Manual limit switch - Asahi P-Series

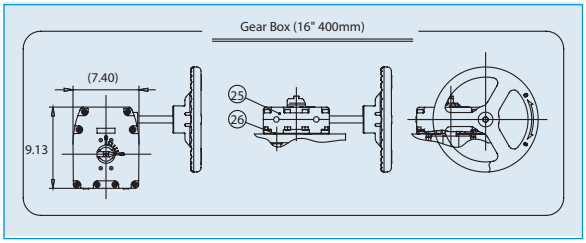
Parts List

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PDCPD
2	Disc	1	PP, PVDF
2a	Disc Insert	1	AC4C
3	Seat	1	FKM, EPDM
4	O-Ring (A)	2	FKM, EPDM
5	O-Ring (B)	2	FKM, EPDM
6	O-Ring (C)	1	FKM, EPDM
7	Stem	1	Stainless Steel 403
7B	Snap Ring	1	Stainless Steel 304
7A	Key (A)	1	Carbon Steel
25	Gear Box	1	16" - Plasgear TM 18" - 24" - Cast Aluminium Alloy
28	Bolt (C)	4	Stainless Steel 304
29	Bolt (D)	4	Stainless Steel 304
30	Stand	1	Stainless Steel 400

Sample Specification

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", & 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 PP0210B67272, and PVDF conforming to ASTM D 3222 Cell Classification Type II. All PDCPD body valves shall be rated to 110 psi size at 70 degrees F. Butterfly valves shall be wafer style, as manufactured by Asahi/America.





Dimensions (Sizes 16" - 24")

Note: Gear operated valve is standard 16" - 24" sizes

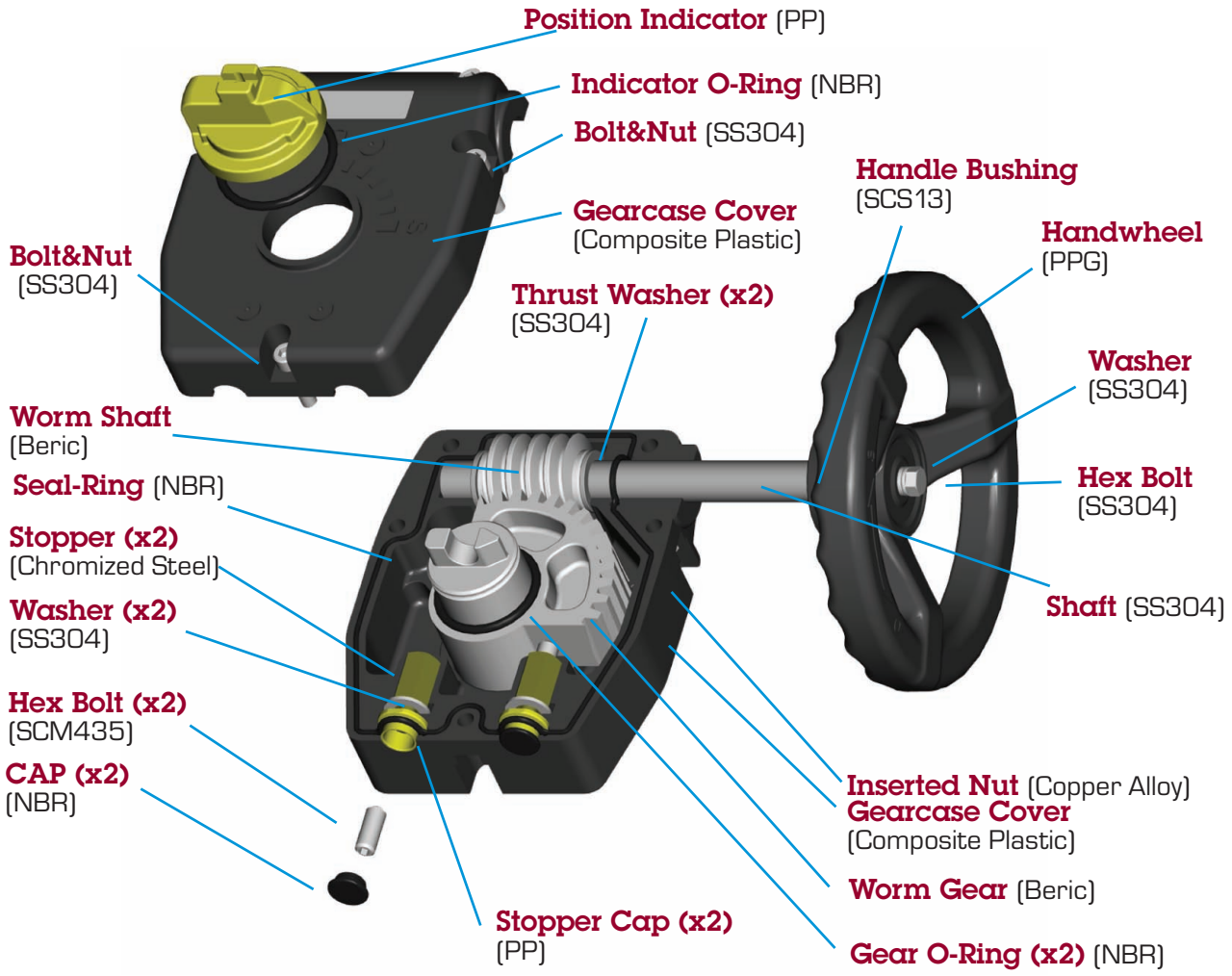
NOMINAL SIZE			ANSI Class 150															
INCHES	mm	d	C	n	h	D	D1	D2	D3	L	H1	H2	H3	l	A	A1	A2	Gear Box Model
16	400	15.98	21.26	16	1.12	24.41	18.50	9.25	11.81	6.65	12.40	13.78	4.25	21.26	10.71	-	3.91	BRF-10
18	450	17.80	22.76	20	1.26	26.18	20.67	13.39	16.14	7.05	13.19	14.57	5.47	25.59	12.56	3.35	4.33	BRF-10
20	500	19.76	25.00	20	1.26	28.35	22.64	13.39	16.14	7.48	14.37	15.75	5.47	26.77	12.56	3.35	4.33	BRF-10
24	600	23.74	29.53	20	1.38	32.01	27.01	13.39	16.14	8.23	16.69	18.31	5.47	29.33	12.56	3.35	4.33	BRF-20

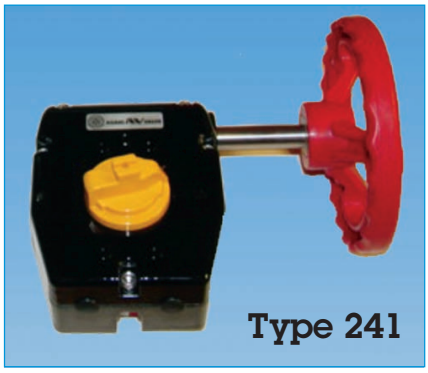
Pressure vs. Temperature (PSI, WATER, NON-SHOCK)*

MODEL	BODY		PDCPD				PDCPD			
	DISC		PP				PVDF			
	NOMINAL SIZE		30 F° 77 F°	78 F° 140F°	141 F° 175 F°	176 F° 194 F°	30 F° 77 F°	78 F° 140 F°	141 F° 175 F°	176 F° 210 F°
	INCHES	mm								
	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



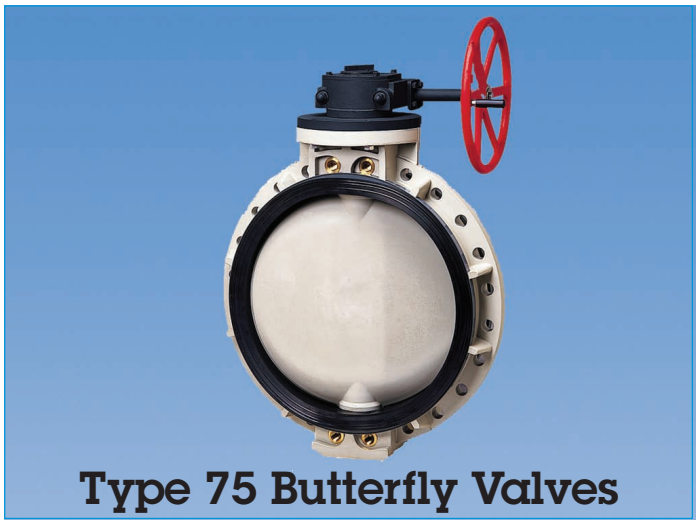


Specifications

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



Type 75 Butterfly Valves

Specifications

Sizes:	18" – 24"
Models:	Wafer 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®‡, etc.

‡ Trademark of Cabot Corporation

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

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® , etc.
- 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 40.

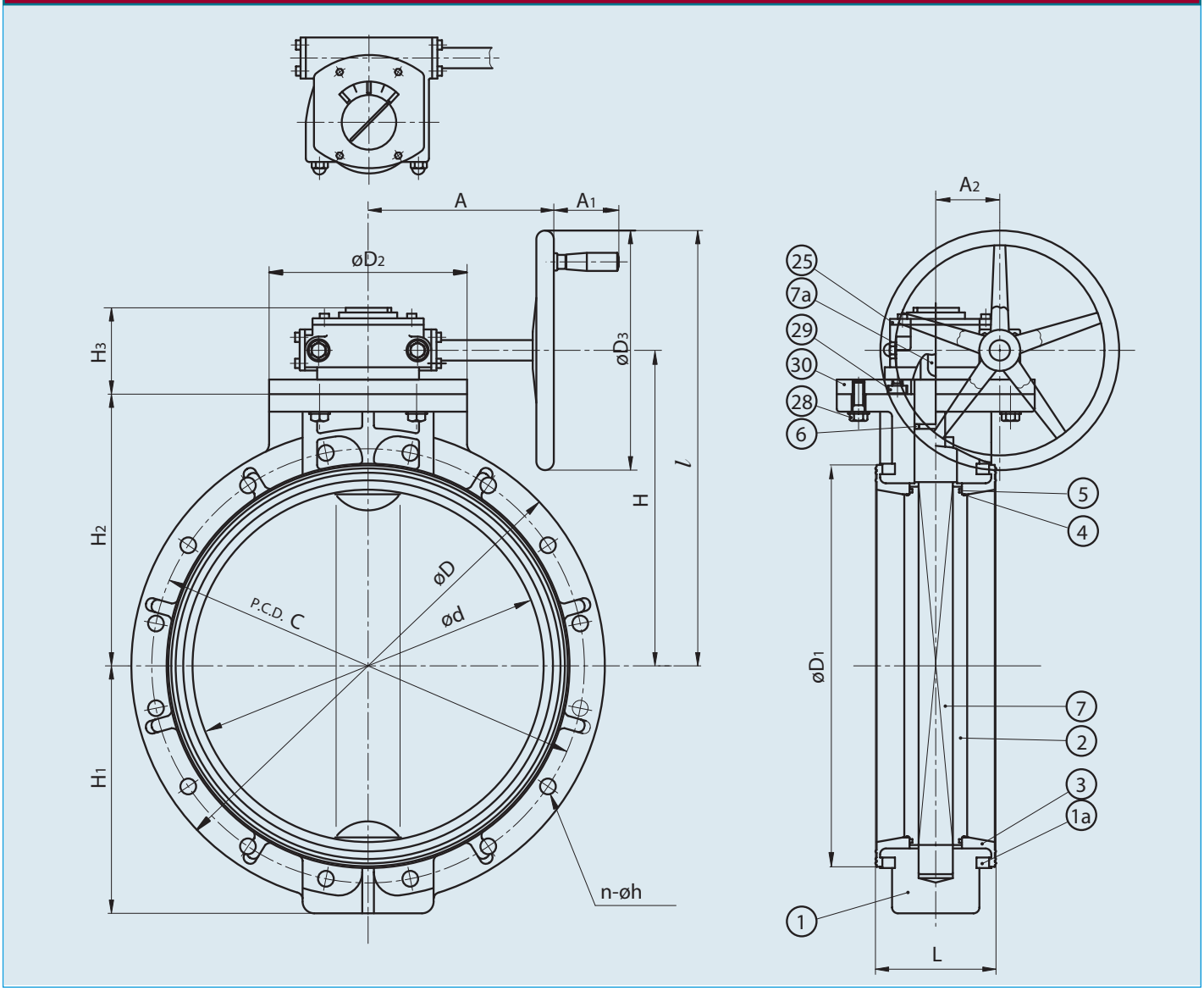
Parts List (Sizes 18" – 24")

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, 403
7a	Key (A)		Stainless Steel, 403
25	Gear Box	1	Cast Aluminum Alloy*
28	Bolt (A)	4	Stainless Steel 304
29	Bolt (D)	4	Stainless Steel 304
30	Stand	1	Steel*
1a	Ring	2	Steel*

Sample Specification

All solid thermoplastic butterfly valves (18" thru 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 PP0210B67272 and PVDF conforming to ASTM D3222 Cell Classification Type II. PP and PVDF bodies shall be rated to 75 psi, size 18", and 50 psi, sizes 20" and 24" at 70˚ F. Butterfly valves shall be wafer style, as manufactured by Asahi/America Inc.

Type 75 Butterfly Valves



Dimensions (Sizes 18" – 24")

NOMINAL SIZE			ANSI CLASS 150			D													
INCHES	mm	d	C	n	h	PP	PVDF	D1	D2	D3	L	H	H1	H2	H3	l	A	A1	A2
18	450	17.80	22.75	16	1.25	24.92	24.80	20.67	13.39	16.14	7.05	17.52	12.40	14.57	6.22	25.59	12.56	3.35	4.33
20	500	19.76	25.00	20	1.25	26.89	26.77	22.64	13.39	16.14	7.48	18.70	13.78	15.75	6.22	26.77	12.56	3.35	4.33
24	600	23.74	29.50	20	1.38	31.22	31.10	27.01	13.39	16.14	8.23	21.26	16.69	18.31	6.22	29.33	12.56	3.35	4.33

Cv Values

NOMINAL SIZE		Cv (at various opening degrees)		
INCHES	mm	30°	60°	90°
18	450	1100	5020	10890
20	500	1448	6620	14060
24	600	2130	9180	18500

Wt.(LBS)/ Vacuum Service/ Pressure vs. Temperature (PSI, WATER)*

NOMINAL SIZE		GEAR
INCHES	mm	
18	450	195.00
20	500	232.00
24	600	285.00

NOMINAL SIZE		VACUUM SERVICE (inches of Mercury)
INCHES	mm	
18	450	-19.69
20	500	-19.69
24	600	-19.69

BODY		PP		PVDF			
DISC		PP		PVDF			
NOMINAL SIZE		-5 F° 140 F°	141 F° 175 F°	-5 F° 140 F°	141 F° 175 F°	176 F° 210 F°	211 F° 250 F°
INCHES	mm						
18	450	75	45	75	45	30	15
20-24	500-600	75	30	50	30	25	15

* For lug style data consult factory

Type 55 Butterfly Valves

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

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
- 18 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

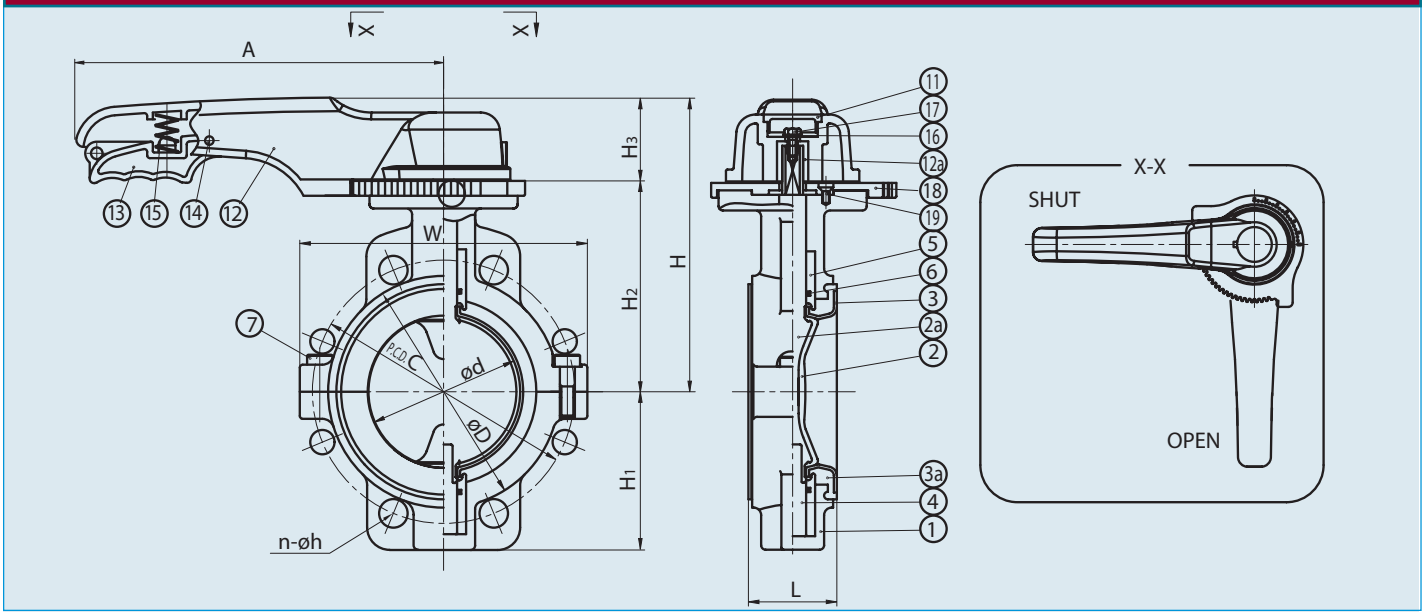
- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

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

Type 55 Lever Butterfly Valves



Dimensions (Sizes 2" – 5")

NOMINAL SIZE			ANSI Class 150										
INCHES	mm	d	C	n	h	D	L	H	H1	H2	H3	W	A
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	2(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

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 (POUNDS)

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.Temp.

NOMINAL SIZE		-5° F 210° F
INCHES	mm	
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 over-tightened or unevenly tightened. Retighten properly.

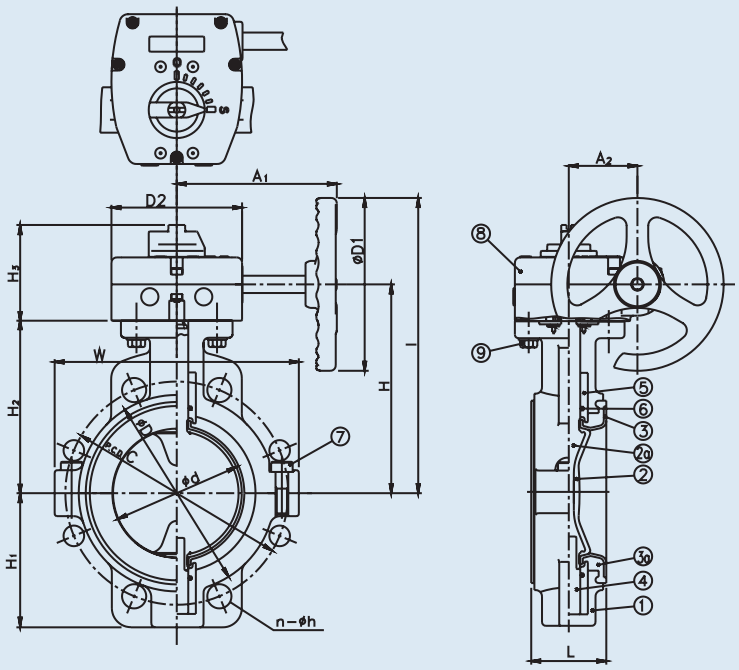
What if fluid leaks outside between seat and mating flange?

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 over-tightened. Retighten.

Type 55 Gear Butterfly Valves



Dimensions (Sizes 2" – 10")

NOMINAL SIZE			ANSI Class 150													
INCHES	mm	d	C	n	h	D	D1	L	H	H1	H2	H3	*l*	W	A	A1
2	50	2.17	4.75	2(4)	0.75	3.54	6.30	1.73	5.29	2.40	3.94	3.54	8.49	4.57	6.57	2.52
3	80	3.15	6.00	2(4)	0.75	4.92	6.30	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	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	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	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	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	3.78	10.80	7.87	9.45	3.54	14.00	13.43	6.57	2.52

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

*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" thru 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/I and 5211/II 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, not wetted and have engagement over the full length of the disc. The butterfly valves shall be wafer style, Valves shall be rated to 150 psi from –5 degrees F. to +210 degrees F., as manufactured by Asahi/America, Inc.

Pool-Pro ®Type SP Butterfly Valves

Specifications

Sizes:	1-1/2" – 12"
Models:	Wafer Style
Operators:	Lever and Gear
Bodies:	PVC
Discs:	PVC
Seats:	EPDM
Seals:	EPDM
Stems:	316 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.

- **316SS non-wetted 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 & automation.

- 18 position throttle plate for lever handle style

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 316 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 150 psi and size (12") 100 psi at 70 degrees F as manufactured by Asahi/America, Inc.

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 316
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 ™
28	Bolt (C)	4	Stainless Steel 304

Pressue vs Temperature

NOMINAL SIZE		30 °F 120 °F
INCHES	mm	
11/2	40	150 PSI
2	50	150 PSI
21/2	65	150 PSI
3	80	150 PSI
4	100	150 PSI
6	150	150 PSI
8	200	150 PSI
10	250	150 PSI
12	300	100 PSI

Weight (lbs)

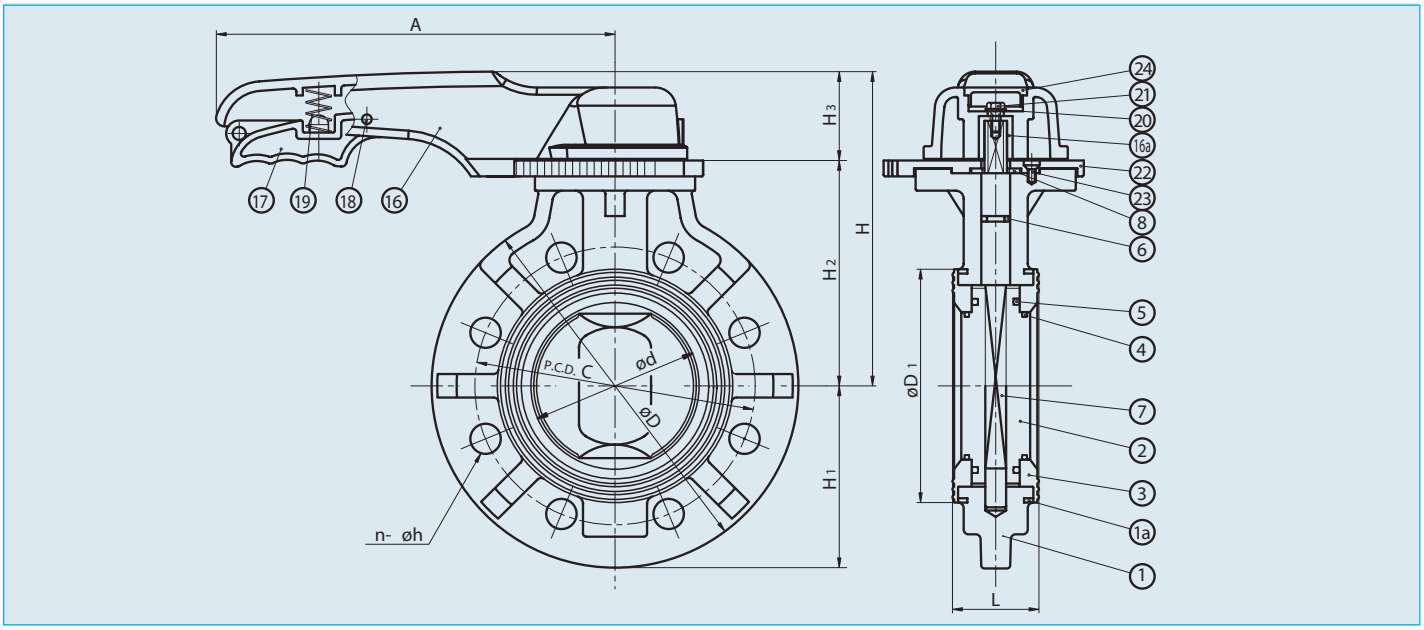
NOMINAL SIZE		Lever/Gear Operated (lbs)
INCHES	mm	
11/2 (L)	40	2.7
2 (L)	50	3.1
21/2 (L)	65	3.5
3 (L)	80	4.0
4 (L)	100	5.5
6 (L)	150	13.3
8 (L)	200	19.9
8 (G)	200	24.3
10 (G)	250	41.0
12 (G)	300	58.4

CV Values

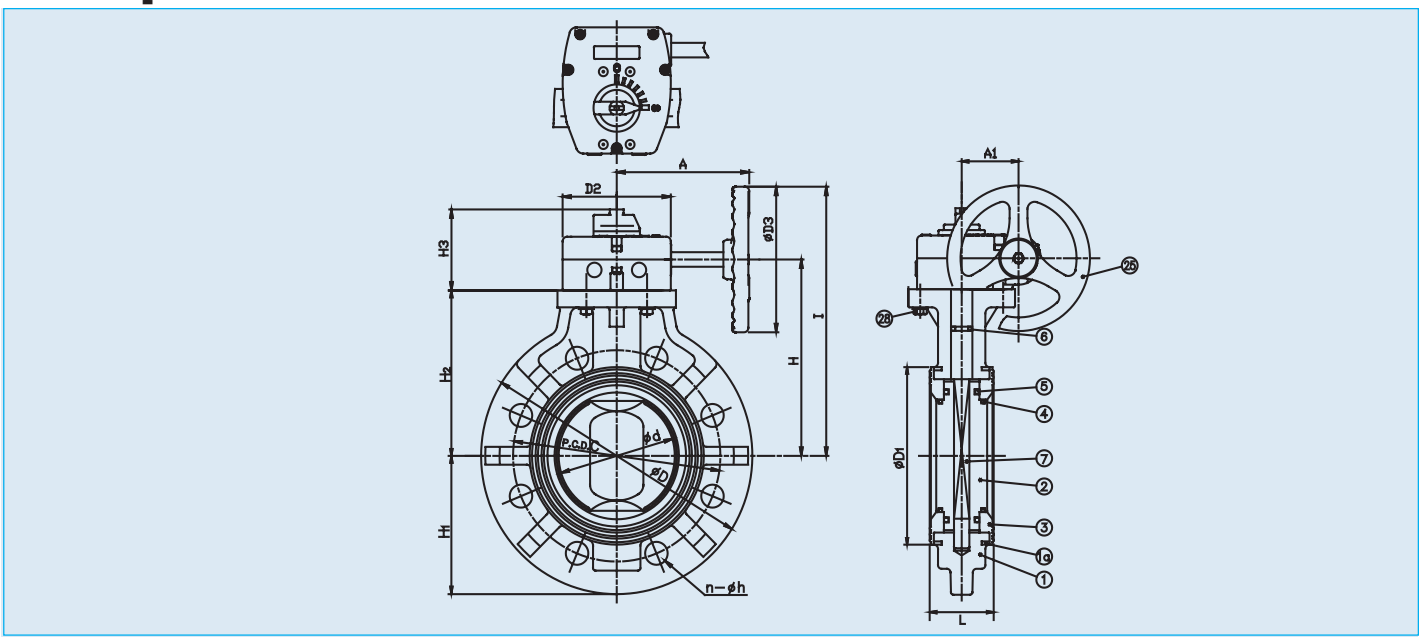
NOMINAL SIZE		Cv (at various opening degrees)		
INCHES	mm	30°	60°	90°
11/2	40	2.9	43.3	71
2	50	3.9	56.1	92
21/2	65	5.9	85.4	140
3	80	9.3	134	220
4	100	15.1	231	380
6	150	46.6	671	1100
8	200	106	1425	2500
10	250	270	1476	3600
12	300	408	2140	5160

Pool-Pro Type SP Butterfly Valves

Lever Style



Gear Style



Dimensions

NOMINAL SIZE			ANSI CLASS 150									GEAR STYLE						LEVER STYLE			
INCHES	mm	d	C	n	h	D	D1	D2	D3	L	H1	H	H2	H3	I	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
5	125	5.16	8.50	8	0.88	10.00	7.09	4.80	6.30	2.60	5.00	7.84	6.46	3.74	10.99	6.57	2.52	9.49	6.77	2.72	12.60
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	9.53	3.90	-	-	-	-

PDCPD Large Diameter Butterfly Valves (28" - 48")

Specifications

Sizes: 28" – 48"
Models: Wafer Style
Operators: Gear
Bodies: PDCPD
Discs: PDCPD
Seats: EPDM, FKM
Stems: 403 Stainless steel
Max Working Press: 110 PSI
Max Working Temp: 175˚ F

Standard Features

- High corrosion resistance PDCPD body
- Light Weight – 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 SS stem
- Durable cast iron epoxy coated gear-operator
- Class 6 bubble-tight shut-off

Options

- 2" Square operating nut on gear-operator

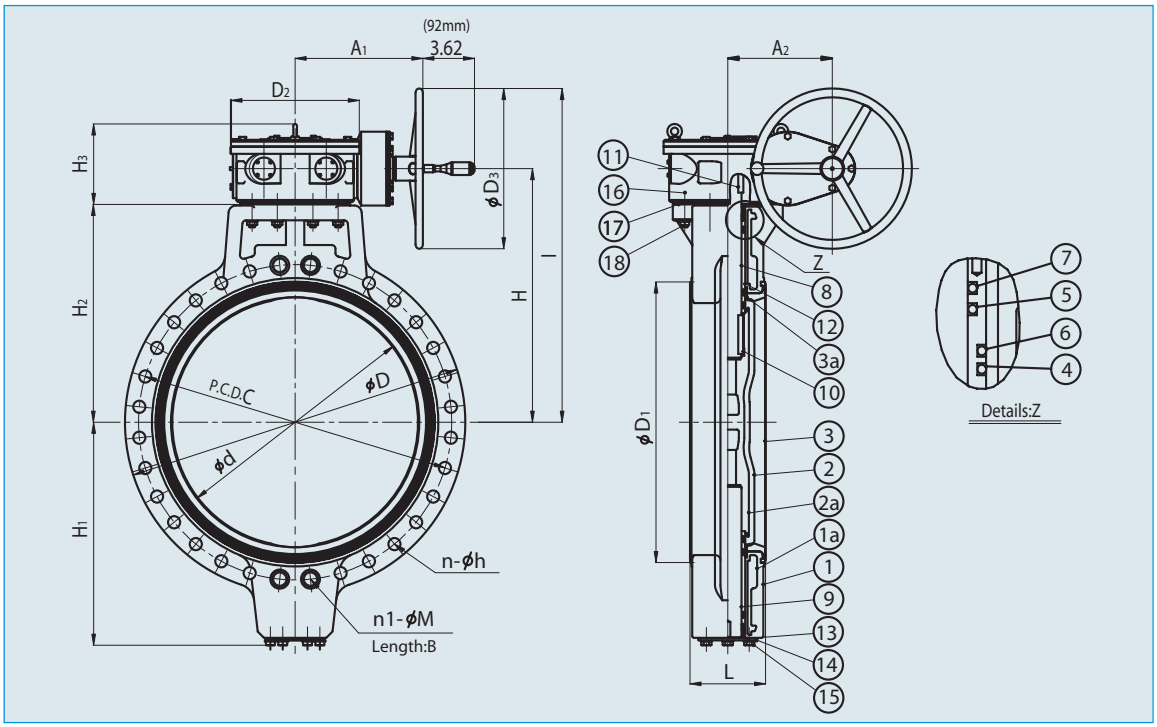
Parts List

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 304
9	Stem (B)	1	Stainless Steel 304
10	Key (A)	1	Carbon Steel
11	Key (B)	1	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	UHMEPE
18	Bolt (B)	8	Stainless Steel 304
3a	Stabilization Ring	2	Stainless Steel 304
1a	Inserted Metal of Body	1	Cast Iron (FCD450)
1b	Inserted Metal of Disc	1	Cast Iron (FCD450)

Sample Specification

All PDCPD butterfly valves sizes 28"– 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 403SS, non-wetted and of 2-piece design. Valves shall have ISO 5211 molded bolt pattern on top flange. All valves shall be rated to a maximum of 110 psi at 70 F as manufactured by Asahi/America, Inc.

PDCPD Large Diameter Butterfly Valves



Dimensions (Inches)

NOMINAL SIZE			ANSI CLASS 125/150																		Gear Box Model
INCHES	mm	d	C	n	h	h1	M	B	D	D1	D2	D3	L	A1	A2	H1	H2	H3	H	I	
28	700	26.38	34.00	24	1.38	4	1-1/4	1.38	36.54	29.92	13,78	17.13	8.11	15.83	11.22	23.19	23.23	9.76	26.97	35.31	BRF10
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	BRF20
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	BRF20
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	BRF20

Cv Values

NOMINAL SIZE		Cv		
INCHES	mm	30˚	60˚	90˚
28	700	3,600	13,000	32,000
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

Pres. vs. Temp (Non-shock)

NOMINAL SIZE		Pressure Vs Temp.		Weight (Lbs)
INCHES	mm	30-120˚ F	121-175˚ F	
28	700	110 PSI	70 PSI	840
32	800	110 PSI	70 PSI	1015
36	900	110 PSI	70 PSI	1215
40	1000	110 PSI	70 PSI	1830
44	1200	110 PSI	97.5 PSI	2205
48	1400	110 PSI	97.5 PSI	2426

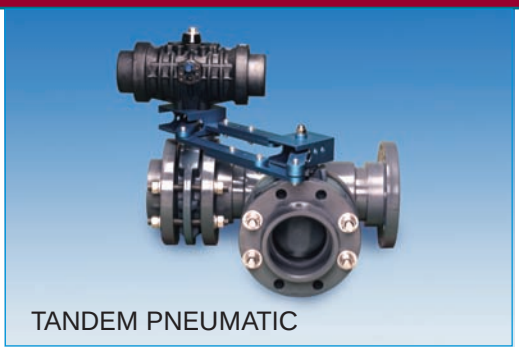
Tandem Butterfly Valves

TANDEM ELECTRIC

Standard Features

- Series 92 or 87 electric actuator
- De-clutchable manual override
- Visual position indicators
- 2-end of travel limit switches supplied as a standard
- Type 4X enclosure
- Visual position indication
- 304 SS 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 thru 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 optional limit switches, heater & thermostat and 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"	S92XWJ
2"	S92XWJ
2-1/2"	S92XWJ
3"	S92XWJ
4"	S92BRXWJ
6"	B92BRXWJ
8"	C92BRXWJ
10"	10-50
12"	10-50


TANDEM PNEUMATIC

Standard Features

- Series 79 air to air (A-A) or air to spring (A-S) pneumatic actuator
- Air-to-spring design allows for fail closed position of 1 valve
- Durable molded polyamide or extruded aluminum rack and pinion design actuator
- Visual position indication
- 304 SS 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 thru 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	CP79PSN
2"	BP79PN	CP79PSN
2-1/2"	BP79PN	CP79PSN
3"	CP79PN	DP79PSN
4"	CP79PN	DP79PN
6"	DP79PN	E79PASN
8"	E79PAN	F79PSN
10"	E79PAN	F79PSN
12"	F79PN	G79PSN

LIMIT SWITCHES

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

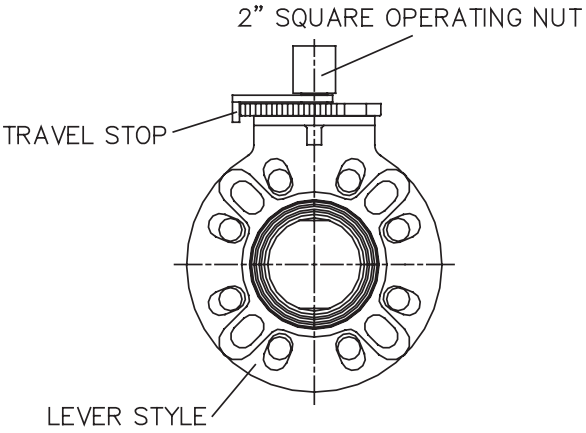
P-Series Limit Switch (Lever Type)

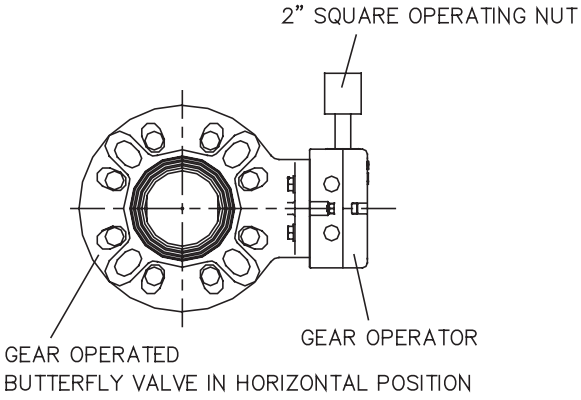
Westlock Limit Switch (Gear Type)

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.



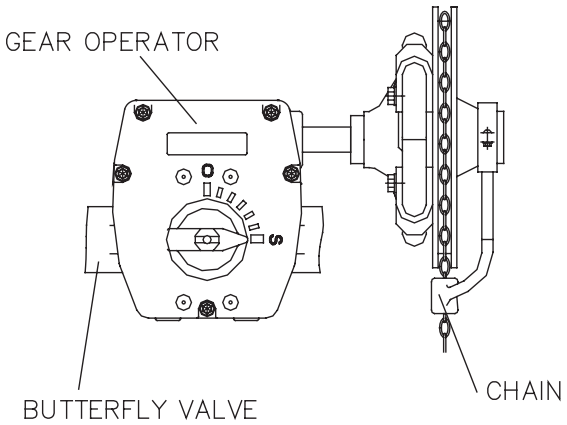


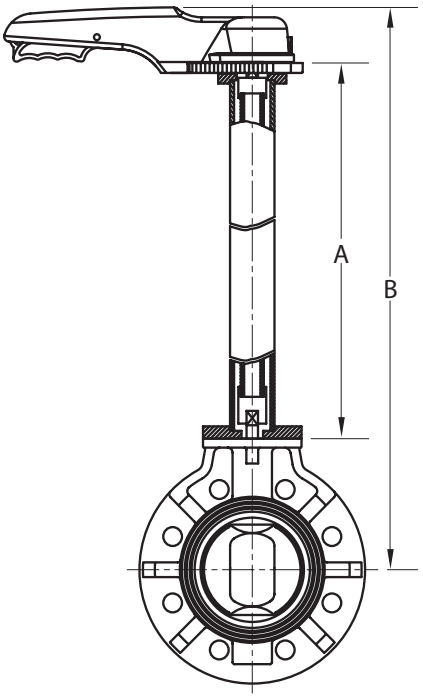
BUTTERFLY VALVE IN HORIZONTAL POSITION

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

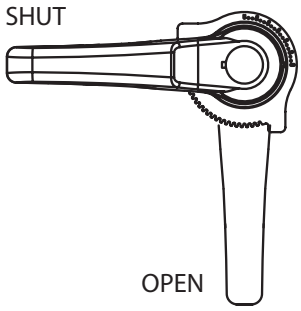
CHAIN OPERATORS

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





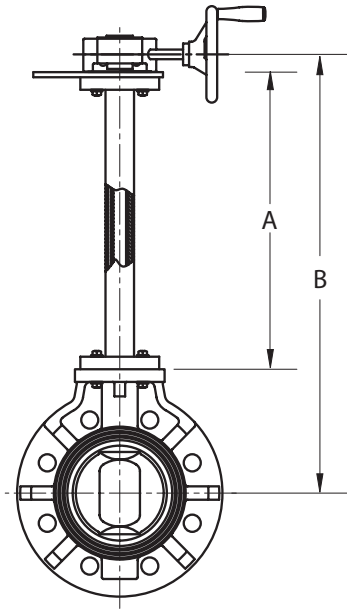
STYLE LBF-A
(TWO PIECE, STEM & HOUSING)



Two-Piece Stem and Housing

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

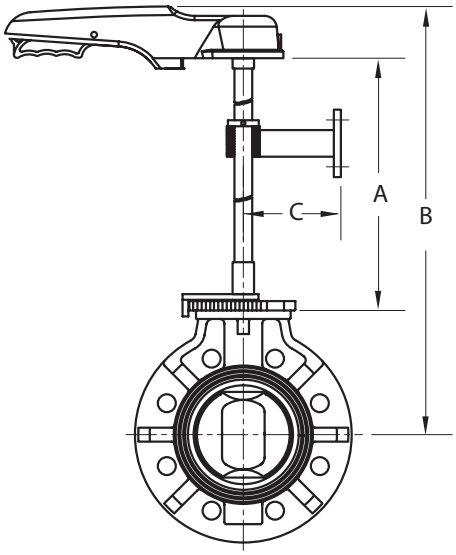
Note: Landfill style stem extensions are gear-operated type only.



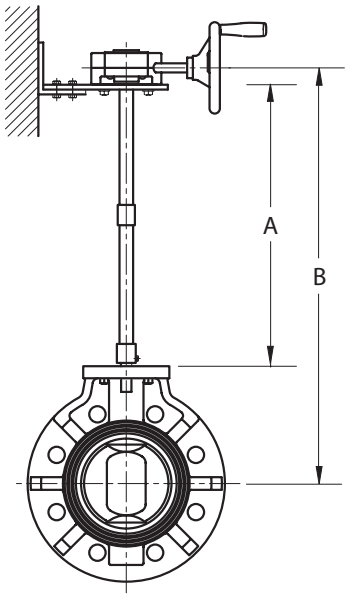
STYLE GBF-A
(TWO PIECE,STEM&HOUSING)

Single Stem Extensions

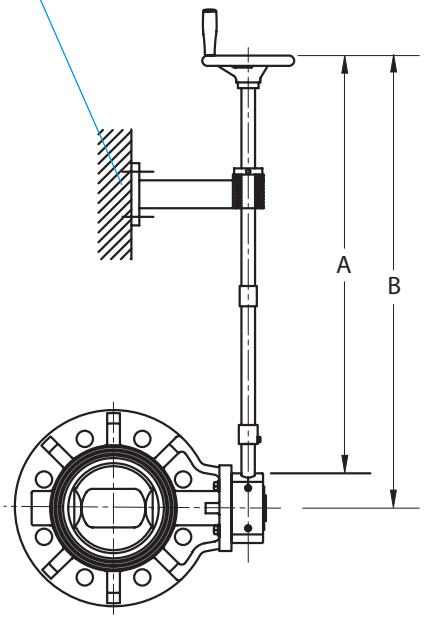
Valve handle can be extended away from the valve for out-of-reach locations.



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



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



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

Please use Stem Extension Work Sheet on Page 20 when ordering any stem extension

All stem extension tolerances +/- 1 inch

Series 92 Electric Actuators

Specifications

Series 92:

UL - 508 Listed

Motor Type – Reversing, 1/4 turn single phase
Models – S92, A92, B92, C92 for sizes1-1/2" – 8"
Contact factory for sizes 10" – 24"
Torque – 400 – 2000 in.-lbs.
Voltage – 120 VAC, 50/60 Hz
Max Ambient Temp – 150˚ F
Switches – Two single pole, double throw (15 Amp rating)

Standard Features (Sizes 1-1/2" – 8")

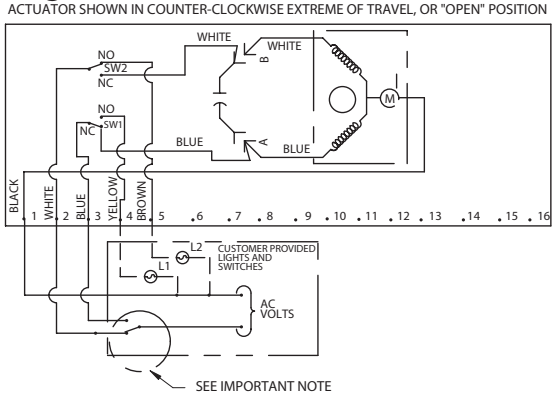
- Brushless, capacitor-run motors (AC models)
- Integral thermal overload protection with auto-reset (AC models)
- Permanently lubricated gear train
- Duty cycle 100% for high cycle applications
- Combination NEMA Type 4X, 7 and 9 enclosure with thermally bonded powder coating/304 SS trim
- ISO bolt circle
- 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

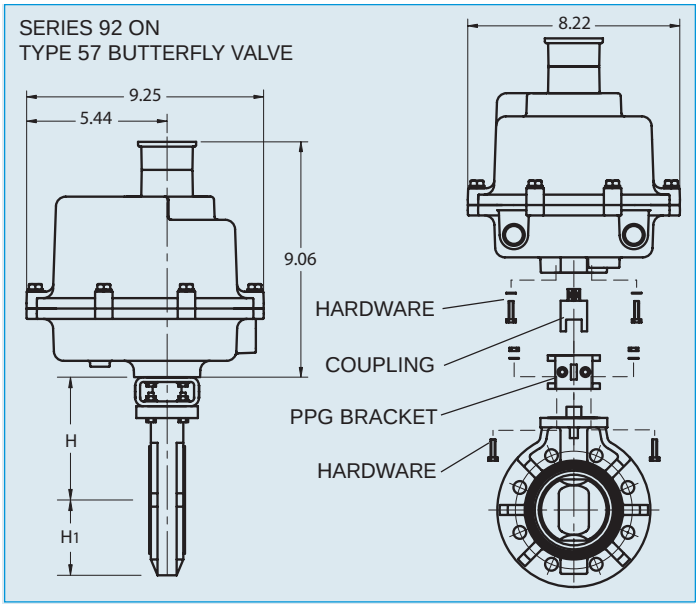
Options

- Failsafe battery pack
- Extra limit switches
- Feedback potentiometer
- Heater and thermostat (to -40° F)
- Positioner: 4–20mA or 0–10VDC input
- 4–20mA output wtransmitter
- Voltages: 220 VAC, 24 VAC, 12 VAC, 24 VDC, 12 VDC
- Mechanical brake eliminates seating oscillation

AC Wiring (For 115 VAC and 220 VAC only)

ACTUATOR SHOWN IN COUNTER-CLOCKWISE EXTREME OF TRAVEL, OR "OPEN" POSITION





Engineering Data

Duty cycle shown above is for 115 Vac at ambient temperature.

Actuator Model	Torque (in-lbs.)	Duty Cycle	Cycle Time* (sec.)	Weight (lbs.)	Amp Draw					
					115 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.

(Contact factory for sizes above 8")

NOTE TO WIRING DIAGRAM:

1. EACH ACTUATOR MUST BE POWERED THROUGH ITS OWN INDIVIDUAL SWITCH CONTACTS TO AVOID CROSS FEED.
2. MOTOR LEADS "A" AND "B" ARE REVERSED FOR B92 & C92
3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM. (115 AND 220 VAC MODEL).
4. IF 115 & 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/ Actuator Model

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

ASAHI/AMERICA

Rev. F 8-11

Series 94 Electric Actuators

Series 94:

UL - 508 Listed

Specifications

Motor Type – Reversing, 1/4 turn, single phase
Sizes – A94 for sizes 1-1/2" – 2"
B94 for sizes 2-1/2" – 4"
Torque – 150 to 300 in-lbs
Voltage – 120 VAC, 50/60 Hz
Amp Draw – For A94: .5 Amps
For B94: .80 Amps
Max Ambient Temp – 150˚ F
Switches – Two single pole, double throw (15 Amp rating)

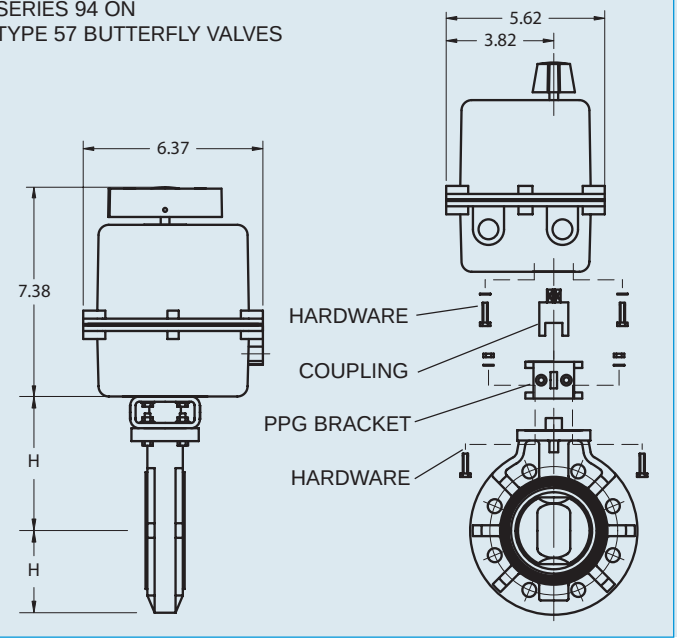
Standard Features (Sizes 1-1/2" – 4")

- Brushless, capacitor-run motors (AC models)
- Integral thermal overload protection with auto-reset (AC models)
- Permanently lubricated gear train
- Duty cycle 100% for high cycle applications
- Corrosion-proof/weatherproof Type 4X thermoplastic housing with stainless steel trim
- ISO bolt circle
- Two 1/2" NPT conduit ports prevent interference between control and power signals
- Low in cost
- Declutchable manual override
- Standard travel-stop limit switches can simultaneously be used for indicator lights
- Visible position indicator

Options

- Failsafe battery pack
- Extra limit switches
- Feedback potentiometer
- Heater and thermostat (to -40° F)
- Positioner: 4–20mA or 0–10 VDC input signal
- 4-20mA output position transmitter
- Voltages: 220 VAC, 24 VAC, 12 VAC, 24 VDC, 12 VDC
- Mechanical brake eliminates seating oscillation

SERIES 94 ON
TYPE 57 BUTTERFLY VALVES



Engineering Data

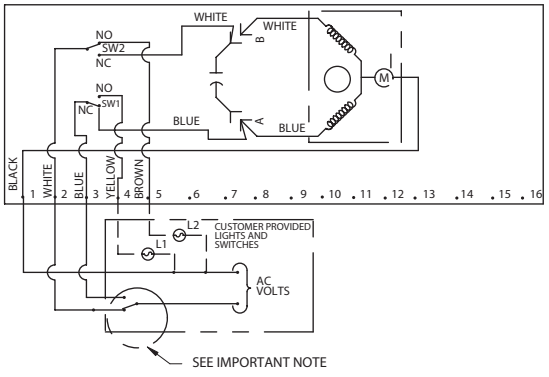
Duty cycle shown above is for 115 Vac at ambient temperature.

Actuator Model	Torque (in-lbs)	Duty Cycle	Cycle Time (sec)	Weight (lbs)	Amp Draw					
					115 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.

AC Wiring (For 115 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. WIRING AS SHOWN IS FOR A94 AND B94 MOTOR.
3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM. (115 AND 220 VAC MODEL).
4. IF 115 & 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.

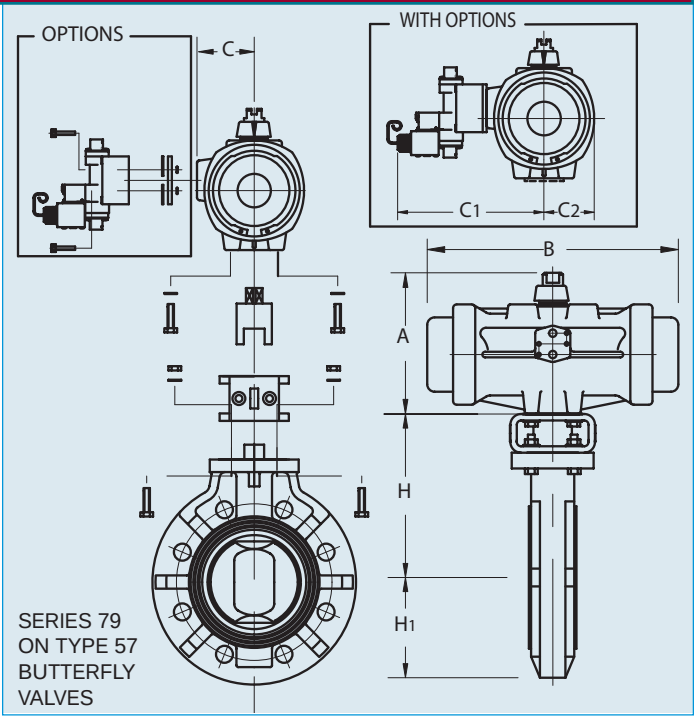
Dimensions/ Actuator Model

NOMINAL SIZE		MODEL	H	H_1
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

Pneumatically Actuated Butterfly Valves

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

- Recommended air supply pressure:
  80 psi (filtered air)
  maximum air supply pressure 120 psi
- Double piston, double rack and pinion design (Polyamid-Nylon 66)
- Air-to-air (double acting) or air-to-spring (spring return failsafe) 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-See page 24
- Air-to-air actuators up to 6" and air-to- spring actuators up to 4" have PAG (polyamide glass-filled) plastic enclosures. Larger sizes feature aluminum bodies with cataphoresis and Rilsan coating inside and outside.
- Concentric nested spring sets allow for consistent output torque.
- ISO and NAMUR mounting dimensions allow for valve accessory mounting
- All models are corrosion resistant to handle the most aggressive applications.



Options

- Solenoids in various NEMA Type enclosure ratings and voltages are supplied with muffler speed control and push button override
- Double limit switches in Type 4 and 7 enclosures
- Positioner for modulating service: 4–20 mA or 3 –15 psi control signal (requiring no solenoid)
- 316 stainless steel actuator body
- Bus systems

Dimensions (Sizes 1-1/2" – 24")

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 1/2	40	BP79PN	CP79PSN	5.51	2.95	4.40	5.00	4.92	8.74	1.73	2.17	5.66	5.89	1.41	1.85
2	50	BP79PN	CP79PSN	5.75	3.25	4.40	5.00	4.92	8.74	1.73	2.17	5.66	5.89	1.41	1.85
2 1/2	80	BP79PN	CP79PSN	6.18	3.66	4.40	5.00	4.92	8.74	1.73	2.17	5.66	5.89	1.41	1.85
3	100	CP79PN	DP79PSN	6.46	3.94	5.00	6.49	7.00	11.50	2.17	2.64	5.89	6.48	1.85	2.36
4	100	CP79PN	DP79PSN	7.16	4.53	5.00	6.49	7.00	11.50	2.17	2.64	5.89	6.48	1.85	2.36
5	125	CP79PN	E79PASN	8.46	5.00	5.00	8.31	7.00	18.86	2.17	3.70	5.89	7.55	1.85	3.27
6	150	DP79PN	E79PASN	8.97	5.63	6.49	8.31	9.21	18.86	2.64	3.70	6.48	7.55	2.36	3.27
8	200	E79PAN	F79PSN	11.27	6.69	8.31	8.31	13.74	18.86	3.70	3.70	7.55	7.55	3.27	3.27
10	250	E79PAN	F79PSN	12.46	7.99	8.31	10.71	13.74	23.54	3.70	4.72	7.55	8.57	4.18	4.18
12	300	F79PN	G79PSN	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	G79PN	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	G79PN	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	G79PN	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	G79PN	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

Fast Pack - Valve/Actuator Packages

Series 94/Type 57 Butterfly Valve
Standard Features (Sizes 1-1/2" - 4")

- UL-508 Listed electric actuator
- Type-57 PVC body, PP disc, EDPM or FKM seals , wafer style
- 120 VAC capacitor run reversing type motor
- Thermal overload protection with auto reset
- De-clutchable manual override
- Visual position indicator
- 5 second cycle time*
- Mechanical brake supplied as standard for 4" T-57 butterfly valves
- Type 4X engineered resin enclosure
- 2 end of travel limit switches
- 2 Additional limit switches for indication
- Complete factory assembled and tested actuated valve package

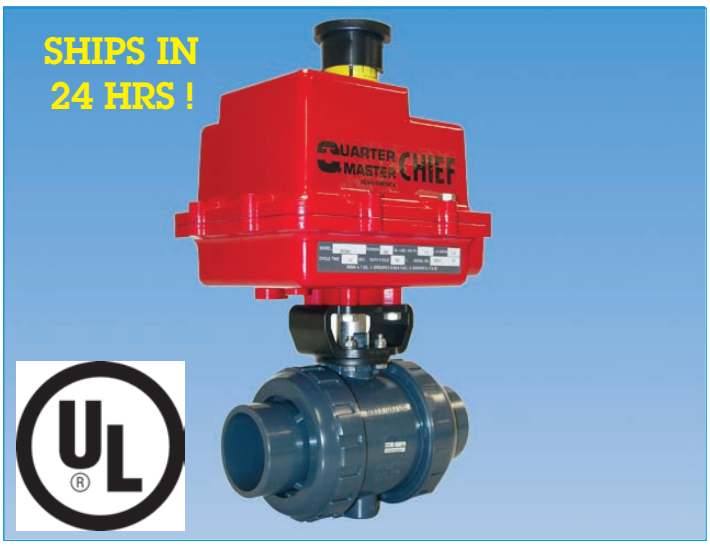
Series 94/Type 21 Ball Valve
Standard Features (Sizes 1/2" - 4")

- UL-508 listed electric actuator
- Type-21 PVC with EPDM or FKM seals, Tru-Union Ball Valve
- T-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
- De-clutchable manual override
- Visual position indicator
- 5 second cycle time*
- Type 4X engineered resin enclosure
- 2 End of travel limit switches
- 2 Additional limit switches for indication
- Complete factory assembled and tested actuated valve package

*Cycle times appproximate

Valve Type	Size	Actuation Model	Input Voltage	L.R. Amps	Duty Cycle
T-21	1/2" - 2"	A94M2WJ	115 vac	0.5	100%
T-21	2-1/2" - 3"	B94M2WJ	115 vac	0.8	75%
T-57	1-1/2" - 2"	A94M2WJ	115 vac	0.5	100%
T-57	2-1/2" - 3"	B94M2WJ	115 vac	0.8	75%
T-57	4"	B94BRM2WJ	115 vac	0.8	75%

Fast Pack - Valve/Actuator Packages



Series 92/Type 57 Butterfly Valve

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

- UL-508 Listed electric actuator
- Type-57 PVC body, PP disc, EDPM or FKM seals, wafer style
- 120 VAC capacitor run reversing type motor
- Thermal overload protection with auto reset
- De-clutchable manual override
- Visual beacon position indicator
- 10 Second cycle time 1-1/2"– 4", 25 second cycle time 6" & 8" T-57*
- Mechanical brake supplied as standard for 6" and 8" T-57
- Type 4X/7 diecast aluminum w/ powdercoat finish enclosure
- 2 End of travel limit switches
- 2 Additional limit switches for indication
- PPG mounting bracket with 304 SS coupling and hardware 304 SS mounting bracket, coupling and hardware sizes 6" & 8"
- Complete factory assembled and tested actuated valve package

*Cycle times appproximate

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, Tru-Union Ball Valve
- T-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
- De-clutchable manual override
- Visual beacon position indicator
- 10 second cycle time*
- Type 4X/7 diecast aluminum w/ powdercoat finish enclosure
- 2 End of travel limit switches
- 2 Additional limit switches for indication
- PPG mounting bracket with 304 SS coupling and hardware
- Complete factory assembled and tested actuated valve package

Valve Type	Size	Actuation Model	Input Voltage	L.R. Amps	Duty Cycle
T-21	1/2" - 3"	S92M2XWJ	115 vac	0.5	100%
T-21	4"	A92M2XWJ	115 vac	0.8	75%
T-57	1-1/2" - 4"	S92M2XWJ	115 vac	0.5	100%
T-57	6"	B92BRM2XWJ	115 vac	0.8	100%
T-57	8"	C92BRM2XWJ	115 vac	1.0	50%

Fast Pack - Valve/Actuator Packages

Series 79 A-A/Type 57 Butterfly

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

- Type-57 PVC body, PP disc, EDPM or FKM seals, wafer style
- Glass filled polyamide actuator body w/ SS trim 1-1/2"– 6" Butterfly Valves
- Aluminum body with 3-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
- 80 psi supply air requirement
- Visual position indicator
- PPG Mounting bracket with 304 SS coupling and hardware
- 304 SS mounting bracket, coupling and hardware butterfly valves size 8"
- Complete factory assembled and tested actuated valve package

Series 79 A-A/Type 21 Ball Valve

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

- Type-21 PVC with EPDM or FKM seals Tru-Union Ball Valve
- T-21 1/2" – 2" supplied with both socket and threaded ends, 2-1/2"– 4" socket only
- Glass filled polyamide actuator body w/ SS 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
- 80 psi supply air requirement
- Visual position indicator
- PPG Mounting bracket with 304 SS coupling and hardware
- Complete factory assembled and tested actuated valve package

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

Fast Pack - Valve/Actuator Packages

Series 79 A-S/Type 57 Butterfly

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

- Type-57 PVC body, PP disc, EDPM or FKM seals, wafer style
- All actuators supplied spring return air to OPEN/ spring to CLOSE
- Glass filled polyamide actuator body w/ SS trim 1-1/2"– 4" butterfly valves
- Aluminum body with 3-stage coating 6" & 8"
- Rack and pinion with dual opposed piston design
- Namur mount design for solenoid and limit switch mounting
- 80 psi supply air requirement
- Visual position indicator
- PPG mounting bracket with 304 SS coupling and hardware
- 304 SS mounting bracket, coupling and hardware butterfly valves sizes 6" & 8"
- Complete factory assembled & tested actuated valve package

Series 79 A-S/Type 21 Ball Valve

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

- Type-21 PVC with EPDM or FKM seals ,Tru-Union Ball Valve
- T-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 w/ SS trim
- Rack and pinion with dual opposed piston design
- Namur mount design for solenoid and limit switch mounting
- 80 psi supply air requirement
- Visual position indicator
- PPG mounting bracket with 304 SS coupling and hardware
- Complete factory assembled and tested actuated valve package

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

Type 14 Flanged Diaphragm

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

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 thermo-plastic 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 internals from corrosive environments
- Built-in travel stop to prevent over-tightening 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 over-tightening
- 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

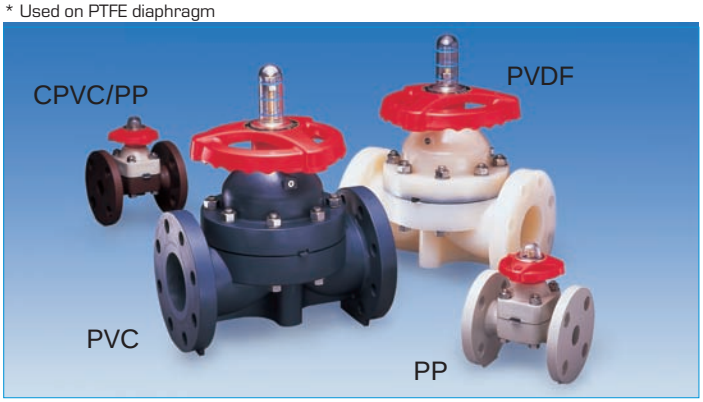
Options

- 2" square nut
- Stem extensions (single and two-piece design)
- Locking device for tamper-proofing
- Manual limit switches for remote position indication by lights or for sequencing of other equipment
- Pneumatic (all sizes) or electric (to 4") actuation

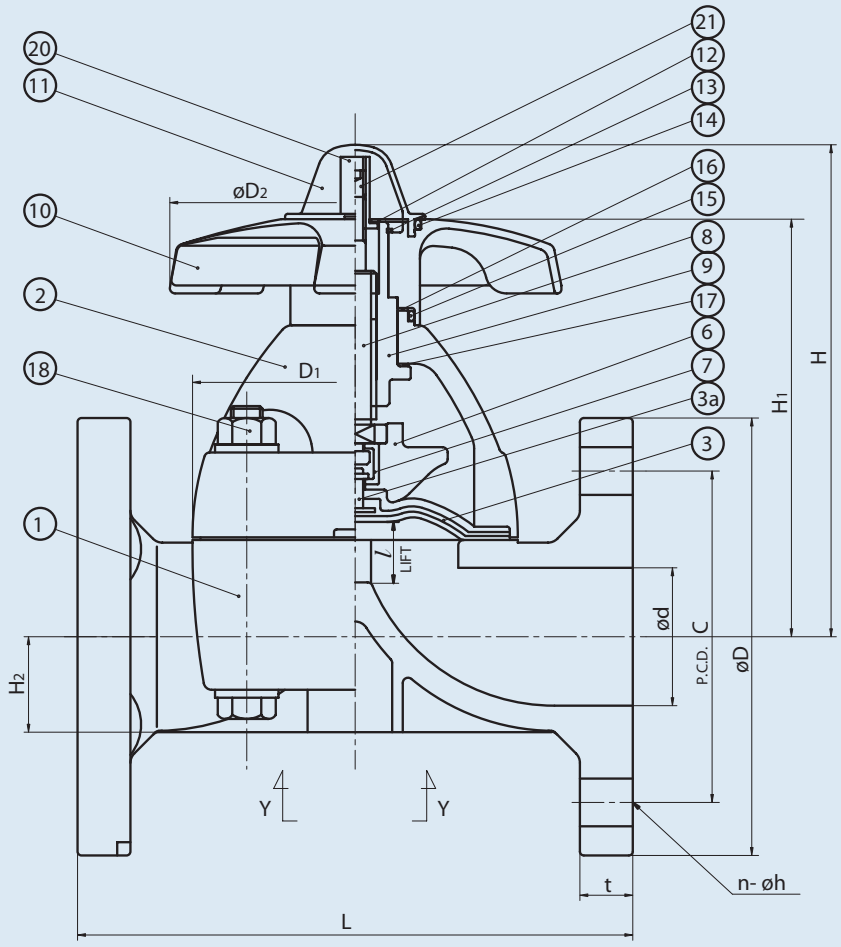
Parts Type 14 Flanged (Sizes 1/2" – 2")

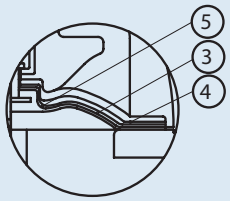
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Bonnet	1	PVC, PPG, PP, PVDF
3	Diaphragm	1	EPDM, PTFE, Others
3a	Diaphragm Metal Insert	1	Stainless Steel 304
4	Cushion*	1	EPDM
5	PVDF Gas Barrier*	1	PVDF
6	Compressor	1	PVDF
7	Joint	1	Stainless Steel 304
8	Stem	1	Copper Alloy
9	Sleeve	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

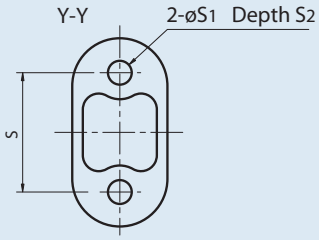


Type 14 Flanged Diaphragm Valves





In case of PTFE diaphragm



Detail of holes for insert metal fittings

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

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 x 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 x 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 x 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 x 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 x 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 x 4.84	6.14	0.98	7.94	0.79	7.52	6.22	1.42	1.77	0.35	0.59

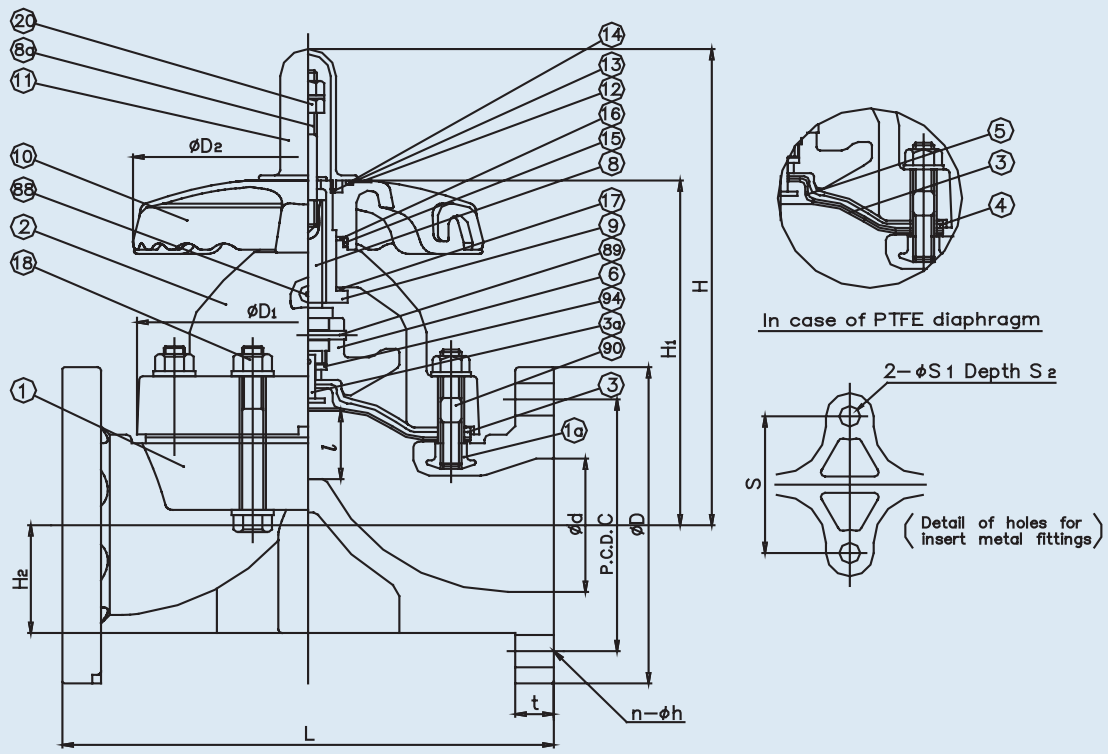
Pressure vs. Temperature PSI, WATER, NON-SHOCK

NOMINAL SIZE		PVC		CPVC				PP				PVDF			
		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
1/2	15	150	100	150	115	85	40	150	115	85	70	150	120	95	70
3/4	20	150	100	150	115	85	40	150	115	85	70	150	120	95	70
1	25	150	100	150	115	85	40	150	115	85	70	150	120	95	70
1 1/4	32	150	100	150	115	85	40	150	115	85	70	150	120	95	70
1 1/2	40	150	100	150	115	85	40	150	115	85	70	150	120	95	70
2	50	150	100	150	115	85	40	150	115	85	70	150	120	95	70

Cv Values/Wt.

NOMINAL SIZE		Cv	WT. FLG. (lbs)
INCHES	mm		
1/2	15	4.8	1.50
3/4	20	5.3	1.80
1	25	8.5	2.40
1 1/4	32	11	3.10
1 1/2	40	26	6.20
2	50	43	8.00

Type 14 Flanged Diaphragm Valves



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

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	8	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

NOMINAL SIZE		PVC		CPVC				PP				PVDF			
		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
21/2	65	150	115	150	120	95	85	150	120	95	85	150	115	85	70
3	80	150	115	150	120	95	85	150	120	95	85	150	115	85	70
4	100	150	115	150	120	95	85	150	120	95	85	150	115	85	70

Cv Values/Wt.

NOMINAL SIZE		Cv	WT. FLG. (LBS.)
INCHES	mm		
2 1/2	65	85	14.33
3	80	115	17.64
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.

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
1a	Inserted Nut	4	Stainless Steel 304[1]
			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. Retorque 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 over-tightening) 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 23567-A, 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 150 psi for elastomeric and PTFE diaphragms at 70 degrees F., as manufactured by Asahi/America, Inc.

Type 14 True Union Diaphragm

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

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 over-tightened
- 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
- Teflon encapsulated FKM or FKM end connector o-ring seals.

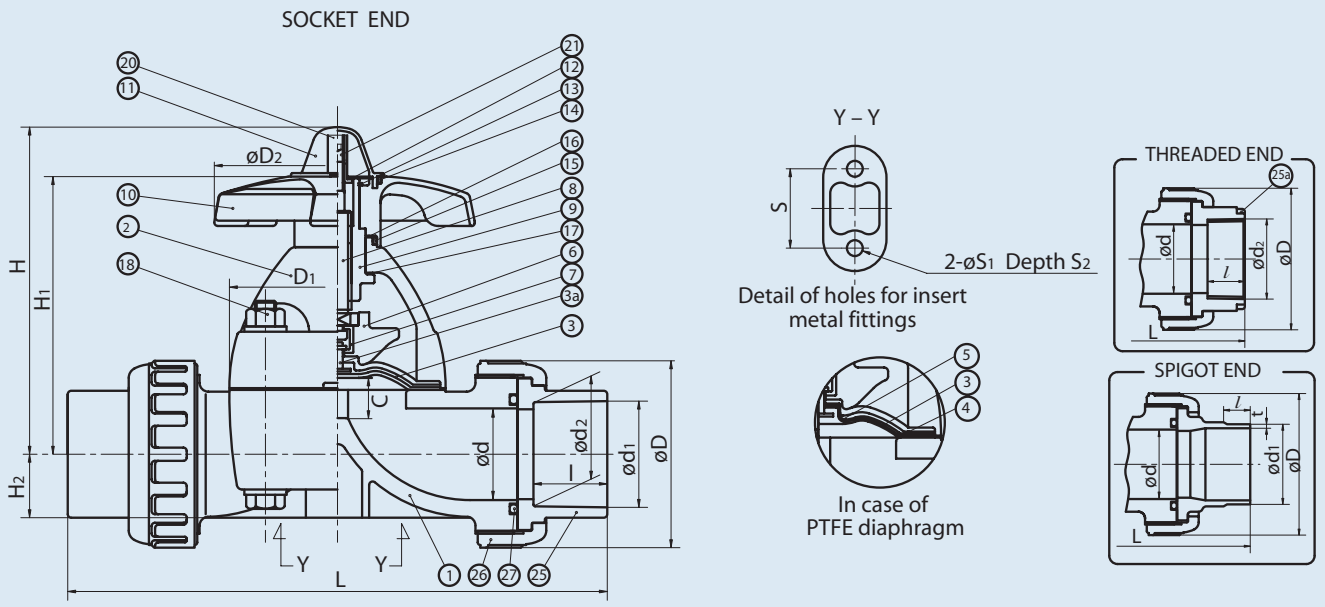
Parts Type 14 True Union (1/2" – 2")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Bonnet	1	PVC, PPG, PP, PVDF
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 for PTFE diaphragm
** Used for CPVC body, threaded end, 1/2" through 1"

- Pneumatic or electric actuation

Type 14 True Union Diaphragm Valves



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

NOMINAL SIZE			SOCKET												THREADED		L	
			PVC, CPVC					PP, PVDF (DIN)				PP, PVDF (IPS)						
			ASTM SCH 80					DIN 16962										
INCHES	mm	d	d1	d2	l	L		d1	d2	l	L	d1	l	L	d1	l	PVC CPVC	PP PVDF
1/2	15	0.63	0.848	0.836	0.875	5.47		0.768	0.760	0.57	4.92	0.83	0.87	5.43	1/2-14NPT	O.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	1-111/2NPT	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	11/4-111/2NPT	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	11/2-111/2NPT	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	2-111/2NPT	1.10	10.95	10.95

NOMINAL SIZE		SPIGOT (BUTT END)					D	D1	D2	C (LIFT)	H	H1	H2	S	S1	S2
		PP, PVDF														
		DIN 3442		PP	PVDF											
INCHES	mm	d1	l	t	t	L										
1/2	15	0.787	0.728	0.098	0.075	5.906	1.89	2.13 X 2.60	3.46	0.39	4.09	3.39	0.49	0.98	0.28	0.51
3/4	20	0.984	0.866	0.106	0.075	6.772	2.36	2.13 X 2.60	3.46	0.39	4.17	3.46	0.57	0.98	0.28	0.51
1	25	1.260	0.886	0.118	0.094	7.677	2.76	2.64 X 3.15	3.46	0.47	4.37	3.66	0.73	0.98	0.28	0.51
1 1/4	32	1.575	1.024	0.146	0.094	8.346	3.23	2.64 X 3.15	3.46	0.47	4.57	3.82	0.89	0.98	0.28	0.51
1 1/2	40	1.969	1.260	0.181	0.118	10.866	3.94	4.25 X 4.25	6.14	0.83	6.97	5.67	1.08	1.77	0.35	0.59
2	50	2.480	1.417	0.228	0.118	12.087	4.17	4.84 X 4.84	6.14	0.98	7.52	6.22	1.42	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

NOMINAL SIZE		PVC		CPVC				PP			PVDF		
		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
1/2	15	150	130	150	115	85	40	150	115	85	150	120	95
3/4	20	150	130	150	115	85	40	150	115	85	150	120	95
1	25	150	130	150	115	85	40	150	115	85	150	120	95
1 1/4	32	150	130	150	115	85	40	150	115	85	150	120	95
1 1/2	40	150	130	150	115	85	40	150	115	85	150	120	95
2	50	150	130	150	115	85	40	150	115	85	150	120	95

Cv Values/Wt.

NOMINAL SIZE		Cv	WT. Soc (lbs)
INCHES	mm		
1/2	15	4.8	1.1
3/4	20	5.3	1.3
1	25	8.5	2.0
1 1/4	32	11	2.4
1 1/2	40	26	5.8
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. Retorque 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 12454-A, CPVC conforming to ASTM D1784 Cell Classification 23567-A, 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 150 psi for elastomeric and PTFE diaphragms at 70 degrees F, as manufactured by Asahi/America, Inc.

Type 14 Pneumatic Diaphragm

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:	60 psi (Recommended) 90 psi (Maximum)
O-Ring End Connectors:	EPDM

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 over-tightened
- 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

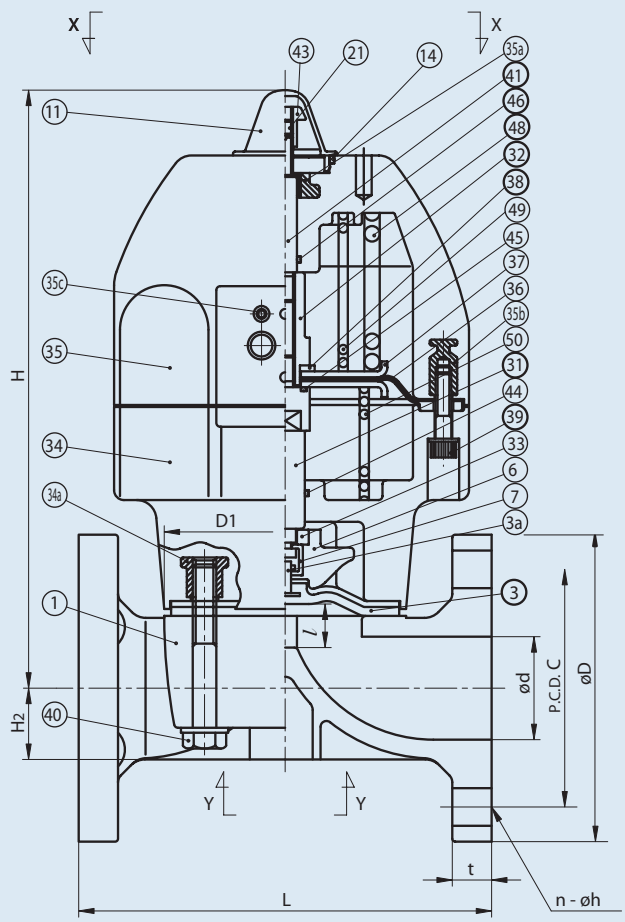
- Solenoid valves in all electrical type ratings and voltages
- Limit switches for interface with computers and other equipment
- Positioners: 3 – 15psi and 4 - 20mA inputs for throttling applications
  4 – 20mA output for interface with computers and other equipment
- Manual over-ride for air-to-spring

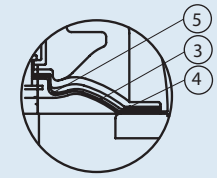
2" PVDF TYPE 14 AIR-TO-AIR FLANGED DIAPHRAGM VALVE

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

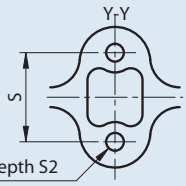
2" PVC TYPE 14 AIR-TO-SPRING FLANGED DIAPHRAGM VALVE WITH NEMA IV DOUBLE LIMIT SWITCH

Type 14 Pneumatic Diaphragm Valves



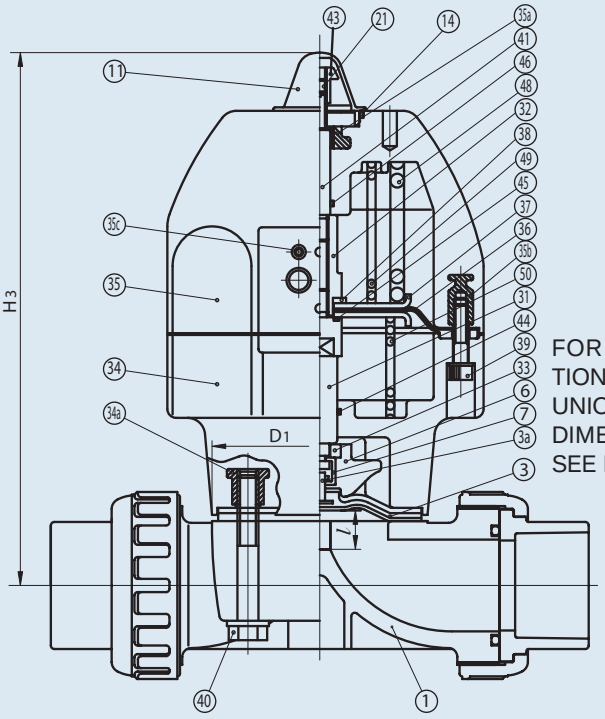


In case of PTFE diaphragm

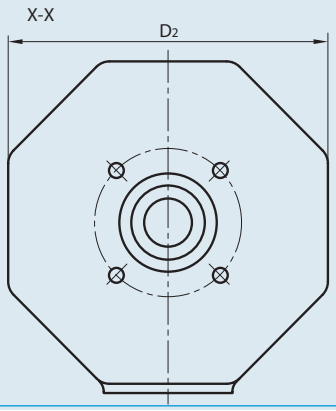


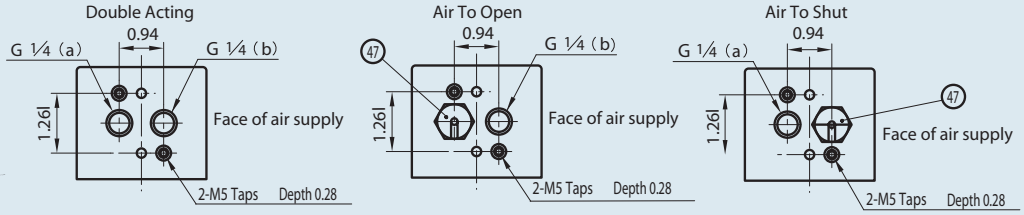
2-øS1 Depth S2

Detail of holes for insert metal fittings.



FOR ADDITIONAL TRUE UNION VALVE DIMENSIONS, SEE PAGE 67





NOTE:
1. Operating Pressure: 60 psi – 90 psi
2. Double Acting – Valve Open: Port (a) Exhaust
   Port (b) Supply
   Valve Shut: Port (a) Supply
   Port (b) Exhaust

Air To Open — Valve Open: Port (b) Supply
Valve Shut: Port (b) Exhaust

Air To Shut — Valve Open: Port (a) Exhaust
Valve Shut: Port (a) Supply

3. The shape and appearance of the actual assembly may differ slightly in nominal size as compared with this drawing

Dimensions Type 14 Pneumatic Flanged (Sizes 1/2" – 2") Weight/Cv

NOMINAL SIZE			ANSI CLASS 150											TRUE UNION				WT. (LBS.)		Cv
INCHES	mm	d	C	D	n	h	D1	D2	l	L	t	H	H2	H3	S	S1	S2	A-A	A-S	
1/2	15	0.63	2.38	3.50	4	0.62	2.13 x 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 x 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 x 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 x 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 x 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 x 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-202 SMART (Electro-Pneumatic)

Specifications

Input Current: 4 to 20mA
Supply Air Pressure: 60 to 90psi
Resolution: 0.2% of Span
Linearity: (plus/minus) 0.51% of Span
Hysteresis: 0.5% of Span
Repeatability: 0.2% of Span
Air Connections: 1/4" NPT
Conduit Entry: 1/2" NPT

Standard Features

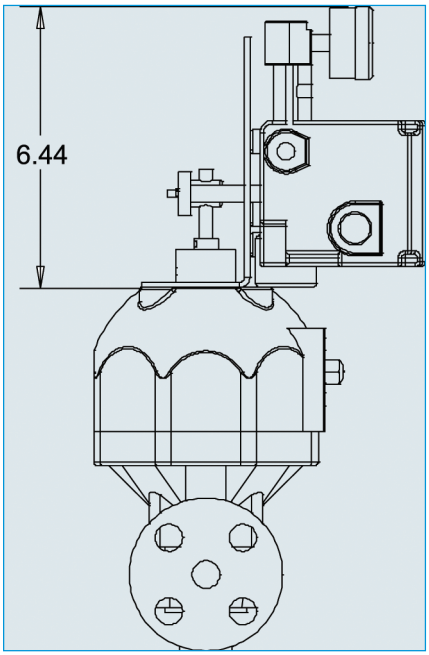
- Simple calibration of positioner with Autocal pushbuttons located inside of positioner housing
- Transmitter
- Type 4X Enclosure
- Corrosion Resistant Polyester Powder Coated Enclosure
- SS Trim
- LCD Visual Position Indication shown in percentage
- Pressure Gauges
- 1/2" Conduit Entry
- 1/4" NPT Air Connection
- Split Range Capability
- Reverse Acting Capability
- Temperature limit of 185° F

Options

- 2-SPDT Mechanical Switches
- Hart Capability
- 316SS Enclosure
- ATEX Enclosure

Sample Specification

All PST-202 I/P modulating valves shall be equipped with the PST-202 SMART (Electro-Pneumatic) Positioner. Positioner housing shall be polyester powder coated meeting 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: 3-15 psi
Supply Air Pressure: 60 to 100 psi
Air Consumption: 0.4 CFM @ 60 psi
Linearity: (plus/minus) 1% of Span
Hysteresis: (plus/minus) 0.75% of Span
Repeatability: (plus/minus) 0.3% of Span
Air Connections: 1/4" NPT

Standard Features

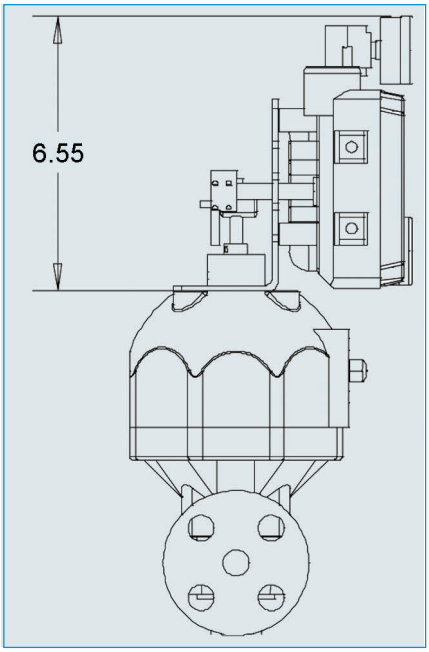
- Simple calibration of positioner with independent Zero and Span
- Short and precise response time
- Type 4X Enclosure
- Corrosion Resistant Polyester Powder Coated Enclosure
- SS Trim
- Low air consumption
- Pressure Gauges
- 1/4" NPT Air Connection
- Can operate in high vibration environments
- Reverse Acting Capability
- Temperature limit of 185° F

Options

- 2-SPDT Mechanical Switches
- 2-SPST Inductive Switches
- Hart Capability
- 4-20mA Transmitter

Sample Specification

All PST- 101 modulating valves shall be equipped with the PST-101 Pneumatic Positioner. Positioner housing shall be polyester powder coated meeting Type 4X, with SS 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.



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. By-pass 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 Tru-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 – 90 psi. 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 12454-A, CPVC conforming to ASTM D1784 Cell Classification 23567-A, 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 150 psi for elastomeric and PTFE diaphragms at 70 degrees F., as manufactured by Asahi/America, Inc.

Type 15 Flanged Diaphragm

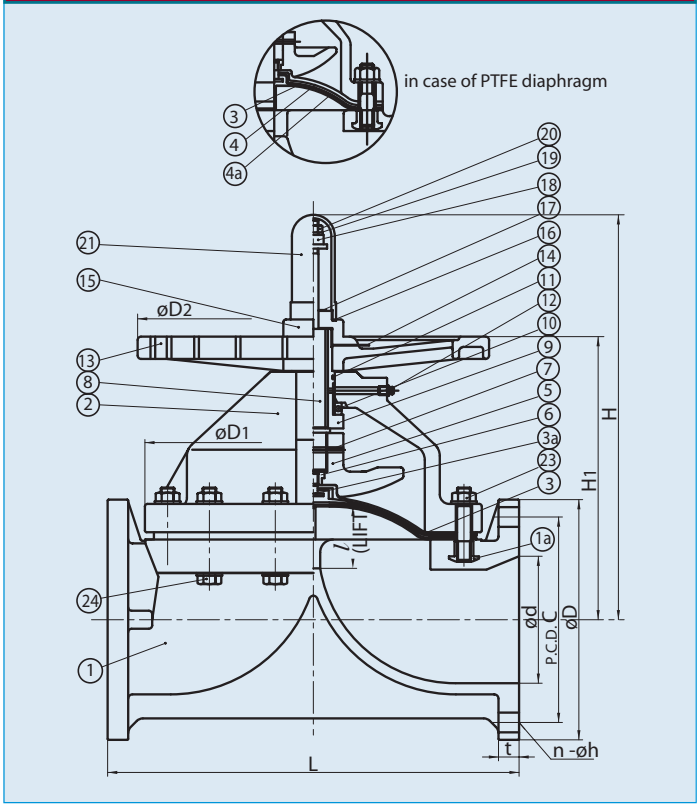
Specifications

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, PP, PPG, 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



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

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

NOMINAL SIZE		d	ANSI CLASS 150				L	t		D1	D2	l	H	H1
INCHES	mm		C	D	n	h		PVC	PP, PVDF					
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

Cv Values/Weight

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

Type 15 Flanged Diaphragm Valves

Standard Features

- Weir design for excellent throttling
- Uniquely designed body and bonnet together with diaphragms of new sealing designs by the 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 over-tightened
- Indicator at the top for valve position and prevention of over-tightening
- 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
- Manual limit switches for remote position indication by lights or for sequencing of other equipment

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?

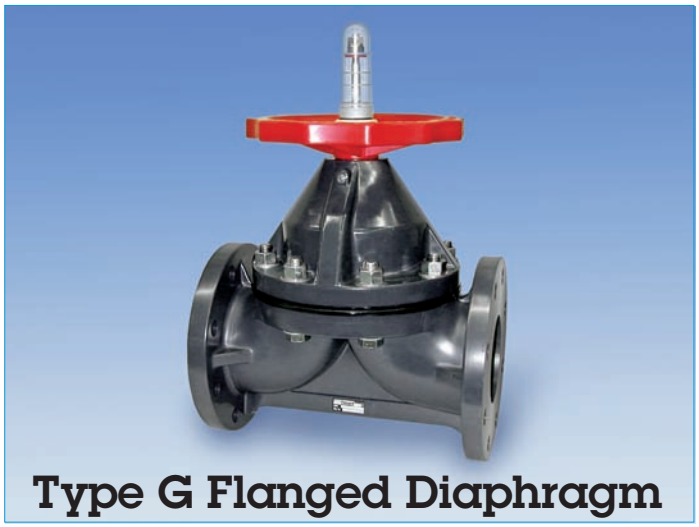
1. Bonnet bolts not properly torqued. Retorque according to *Operation and Maintenance* manual.
2. Line pressure exceeds maximum recommended line pressure. Check or reduce system line pressure.
3. Diaphragm has ruptured or has been chemically attacked. Replace diaphragm.

Sample Specification

All TYPE 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 over-tightening) 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 12454-A, 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, and PP shall be rated to 115 psi for elastomeric diaphragms at 70 degrees F. PVC, PP and PVDF shall be rated to 100 psi (5") and 70 psi (6") for PTFE diaphragms at 70 degrees F., as manufactured by Asahi/America, Inc.

Pressure vs. Temperature PSI, WATER, NON-SHOCK

NOMINAL SIZE		PVC				PP						PVDF							
		ELASTOMERS		PTFE		ELASTOMERS			PTFE			ELASTOMERS				PTFE			
INCHES	mm	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

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 over-tightened
- 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

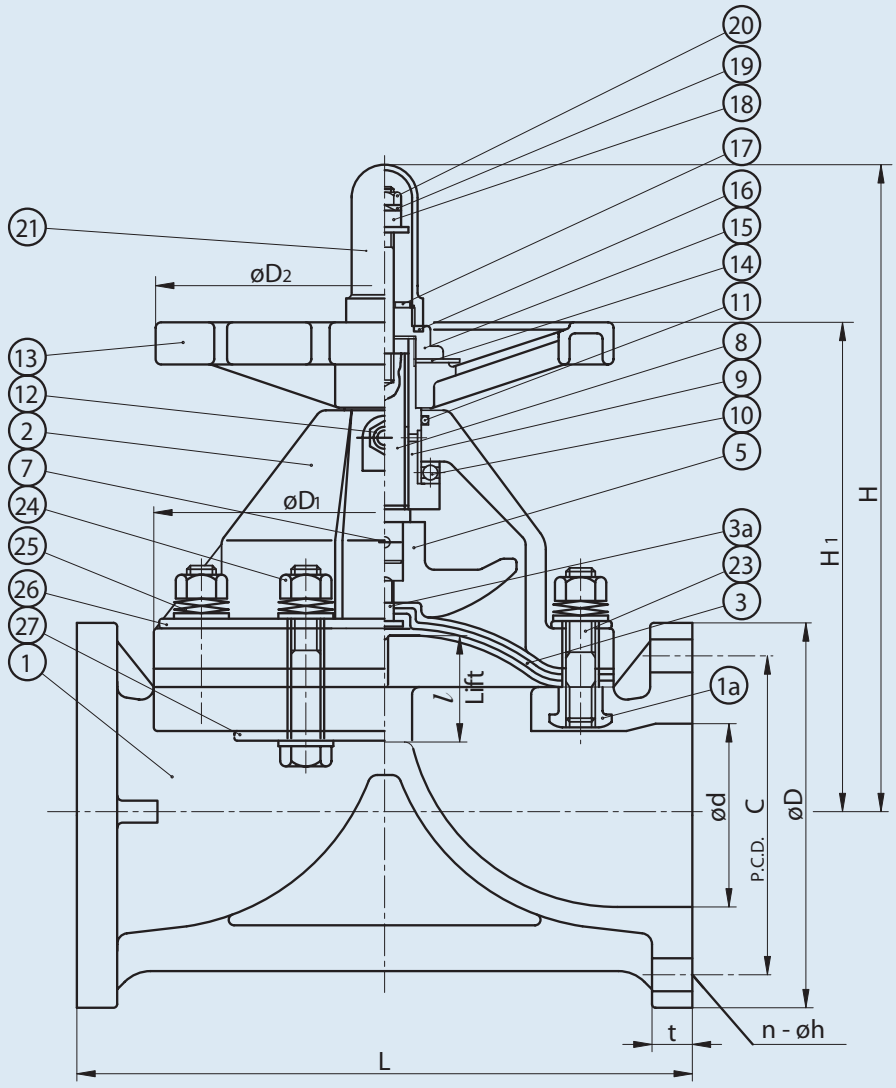
- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

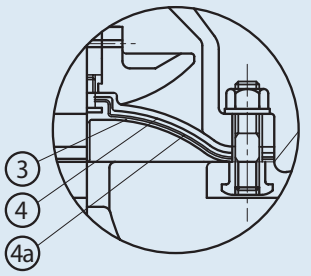
Parts Type G Flanged (Sizes 8" – 10")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, PP, PVDF
2	Bonnet	1	PVC, PP, PVDF, PPG
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	Carbon Steel
9	Sleeve	1	Cast Iron
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





in case of PTFE diaphragm

Dimensions Type G (Sizes 8" – 10")

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

Cv Values/Weight

NOMINAL SIZE		Cv	WT.
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	
INCHES	mm	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
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. Retorque 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 over-tightening) 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 Clasification 12454-A, 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 and PP shall be rated to 75 psi size 8"and 65 psi size 10" for elastomeric diaphragms at 70 degrees F. PVC, PP and PVDF shall be rated to 60 psi for PTFE diaphragms at 70 degrees F., as manufactured by Asahi/America, Inc.

TI 1/2" - 2" Diaphragm Valves

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
Joint: Palladium Titanium
Fasteners: Titanium

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 (C3604)
9	Sleeve	1	COPPER ALLOY (C3604)
10	Handwheel	1	PP
11	Gauge Cover	1	POLYCARBONATE
12	Name Plate	1	PVC
13	Retaining Ring C-Type	1	304 SS
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 (C3604)
21	Screw	1	304 SS

For exploded view drawings refer to page 64

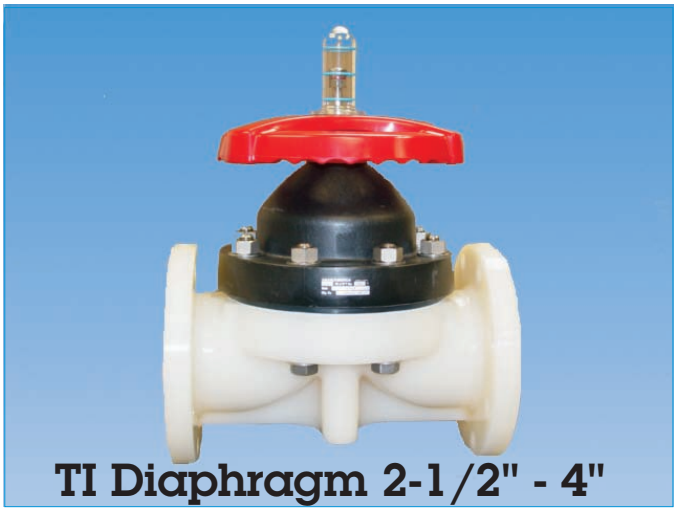
Standard Features (Sizes 1/2" - 2")

- Durable corrosion resistant PPG bonnet
- Solid molded PVDF flanged body
- 3-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 3-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 150 psi 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

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 (C3604)
8a	Indicating Rod	1	304 SS
9	Sleeve	1	COPPER ALLOY (C3604)
10	Handwheel	1	PP
11	Gauge Cover	1	POLYCARBONATE
12	Name Plate	1	PVC
13	Retaining Ring C-Type	1	304 SS
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 (C3604)
88	Bonnet Plug	1	TITANIUM
89	Compressor Pin	1	PALLADIUM TITANIUM
90	Stud Bolt, Nut, Washer	4 Sets	TITANIUM
94	Metal Compressor Insert	1	PALLIDIUM TITANIUM
1a	Body Insert Nut	4	TITANIUM

For exploded view drawings refer to page 65

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

- Durable corrosion resistant PPG bonnet
- Solid molded PVDF flanged body
- 3-Layer EPDM/PVDF/PTFE diaphragm
- All titanium body to bonnet fasteners
- Palladium titanium compressor pin, compressor insert 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 3-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 150 psi at 70 F as manufactured by Asahi/America, Inc.

TI 6" Diaphragm Valves

TI Diaphragm 6"

Specifications

Size: 6”
Body Material: PVDF
Bonnet Material: PPG
Diaphragm: 3-Layer EPDM/PVDF/PTFE with Palladium Titanium Insert
Compressor Pin: Palladium Titanium
Compressor Nut: Palladium Titanium
Fasteners: Titanium

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 (C3604)
9	Sleeve (A)	1	COPPER ALLOY (C3604)
10	Thrust Bearing (A)	1	HIGH CARBON CHROMIUM (SUJ 2)
11	O-Ring (A)	1	NBR
12	Bonnet Plug	1	Titanium
13	Handwheel	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 SS)
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 75

Standard Features (Size 6")

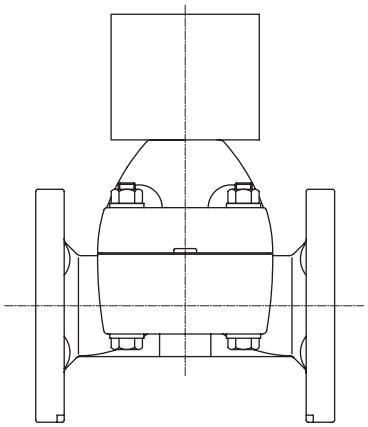
- Durable corrosion resistant PPG bonnet
- Solid molded PVDF flanged body
- 3-Layer EPDM/PVDF/PTFE diaphragm
- All titanium body to bonnet fasteners
- Palladium titanium compressor pin, compressor insert and diaphragm insert

Sample Specification (6”)

All TI Type15 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 3-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 70 psi at 70 F as manufactured by Asahi/America, Inc.

Operating Nuts

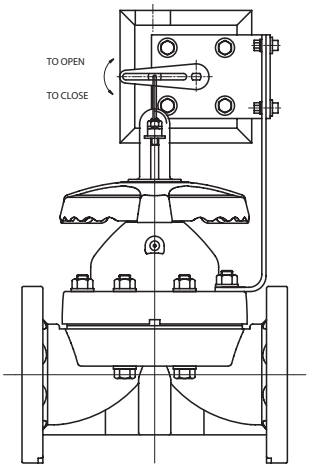
Available in 2" square configuration. Used for remote operation of a valve by a wrench.



Limit Switches

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

Please note:
1/2" -2" N/A

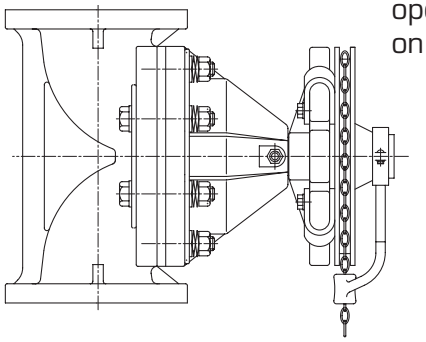


Locking Handles

To prevent unauthorized operation, the valve handwheel can be padlocked 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.

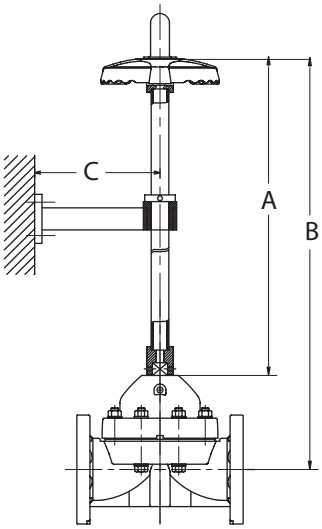


Single Stem Extensions

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

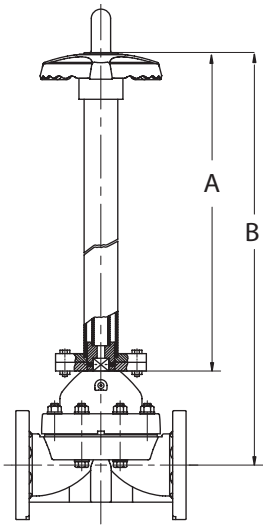
Style
DV-B



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



Please use Stem Extension Work Sheet on Page 20 when ordering any stem extension

All stem extension tolerances +/- 1 inch

Actuator Options Diaphragm Valves

Series 92 Electric Actuators

Standard Features (Sizes 1/2" – 4")

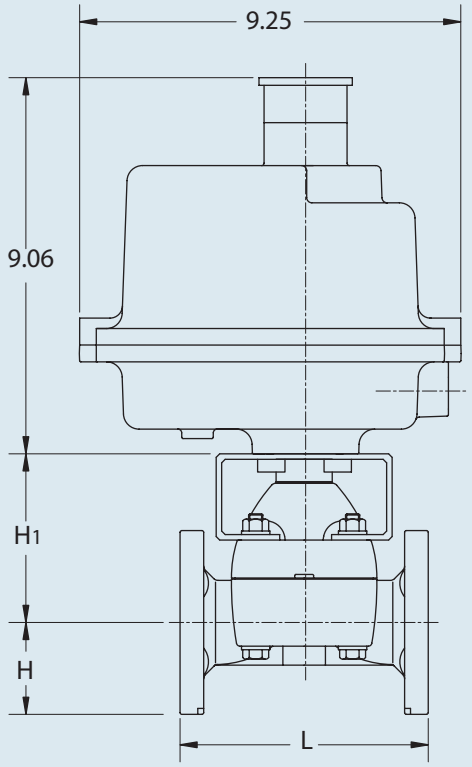
- Brushless, capacitor-run motors (115V/60 Hz)
- Integral thermal overload protection with auto-reset
- Permanently lubricated gear train
- Combination Type 4X, 7 and 9 enclosure with thermally bonded powder coating/304 SS trim
- ISO bolt circle
- Two 1/2" NPT conduit ports prevent interference between control and power signals
- Declutchable manual override
- Highly visible position indicator
- 3-layer rotary switch for dry contact indication
- Extra limit switches supplied as a standard

Options

- Heater and thermostat (to -40° F)
- Positioner: 4–20mA or 0–10 VDC input
- 4-20mA output position transmitter
- Feedback potentiometer

Electrically Actuated Diaphragm

ACTUATOR DEPTH: 9.25"

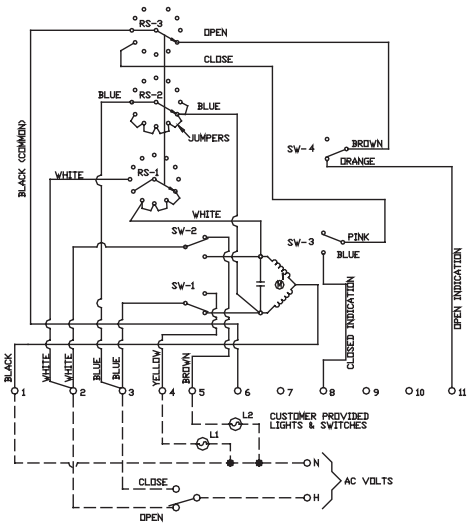


NOTE: CONSULT FACTORY FOR SIZES GREATER THAN 4" FOR TRUE UNION "L" DIMENSIONS SEE PAGE 67.

AC Wiring (For 115 VAC only)

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 Ⓜ IN DIAGRAM.
4. IF 115 VAC MODELS ARE PLC DRIVEN, OUTPUT CONTACTS OF PLC SHOULD BE RATED AT A MINIMUM OF 1.5 TIMES REQUIRED INPUT VOLTAGE OF ACTUATOR.



Cycle Times

NOMINAL SIZE		TIME (SEC.)
INCHES	mm	
1/2	15	189
3/4	20	189
1	25	189
1 1/2	40	247
2	50	305
2 1/2	65	363
3	80	363
4	100	363

Weight

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

Dimensions

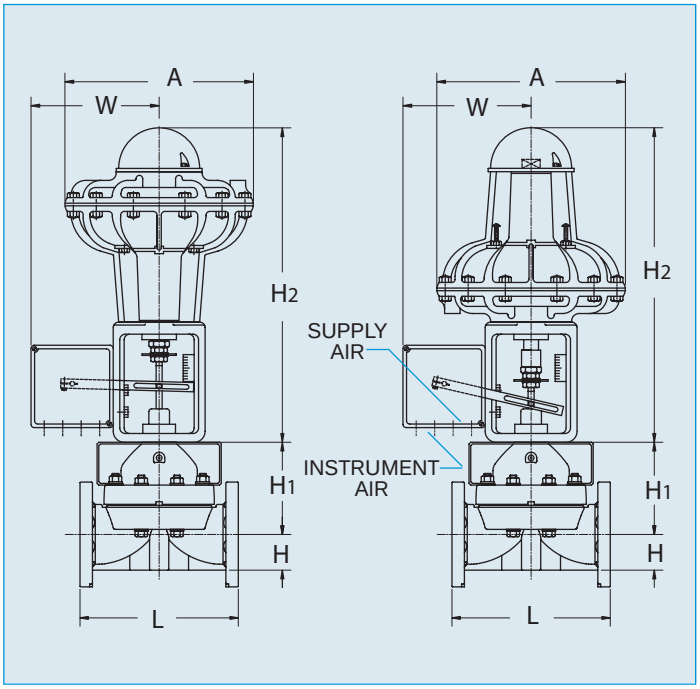
NOMINAL SIZE		H	H1	L
INCHES	mm			
1/2	15	1.75	3.55	4.25
3/4	20	1.94	3.61	5.88
1	25	2.13	3.77	5.88
1 1/2	40	2.50	6.50	6.94
2	50	3.00	7.02	7.94
2 1/2	65	3.50	9.52	9.84
3	80	3.75	10.25	10.38
4	100	4.50	11.00	12.94

*Duty Cycle: 25%

Cycle times are approximate

Actuator Options Diaphragm Valves

Pneumatically Actuated Diaphragm



Actuator Sizing

NOMINAL SIZE		ACTUATOR
INCHES	mm	
1/2	15	P25
3/4	20	P25
1	25	P25
1 1/2	40	P25
2	50	P50
2 1/2	65	P50
3	80	P110
4	100	P110

Weight

NOMINAL SIZE		WT. (LBS.)
INCHES	mm	
1/2	15	15.5
3/4	20	17.0
1	25	18.0
1 1/2	40	21.5
2	50	30.0
2 1/2	65	34.5
3	80	82.0
4	100	87.0

Dimensions (Sizes 1/2" – 4")

NOMINAL SIZE							
INCHES	mm	W	A	L	H	H1	H2
1/2	15	6.5	7.9	4.25	.49	2.35	13.4
3/4	20	6.5	7.9	5.88	.57	2.43	13.4
1	25	6.5	7.9	5.88	.73	2.69	13.4
1 1/2	40	6.5	7.9	6.94	1.08	4.27	13.4
2	50	6.6	10.5	7.94	1.42	4.84	16.6
2 1/2	65	6.6	10.5	9.84	2.40	5.81	16.6
3	80	7.6	15.2	10.38	2.48	6.28	26.5
4	100	7.6	15.2	12.94	3.07	7.86	26.5

Standard Features (Sizes 1/2" – 4")

- Air-to-spring diaphragm actuator
- Choice of failsafe action can be either spring-to-close or spring-to-open
- Corrosion resistant, coated, die-cast aluminum body
- Diaphragm of nylon-reinforced Neoprene
- Actuator working pressure: 60 psi MAX
- 1/4" NPT air connection
- Position indicator
- Travel stop

Specifications

SPECIFICATION	UNIT	P25	P50	P110
Effective Diaphragm Area	(in^2)	25.00	50.00	110.0
Air Volume (at zero stroke)	(in^3)	6.71	21.35	42.7
Air Volume (at full stroke)	(in^3)	28.06	96.38	292.8
Typical Stroke Time (60 psi)	(sec.)	3	4	8

Options

- Solenoids in all Electrical type ratings and voltages
- 4–20mA output for interface with computers and other equipment
- Travel stops for limiting valve lift
- Limit switches for interface with computers and other equipment
- Positioners: 3-15 PSI and 4-20mA inputs for throttling applications
- Manual override

Swing Check Valves

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 #'s 5j, 5k, 6 and 7) as standard
- PVDF valves, part #'s 5j and 7 of PTFE and 6 of PVDF bonded EPDM
- 3/4" PP valves supplied with Ring 1a

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")

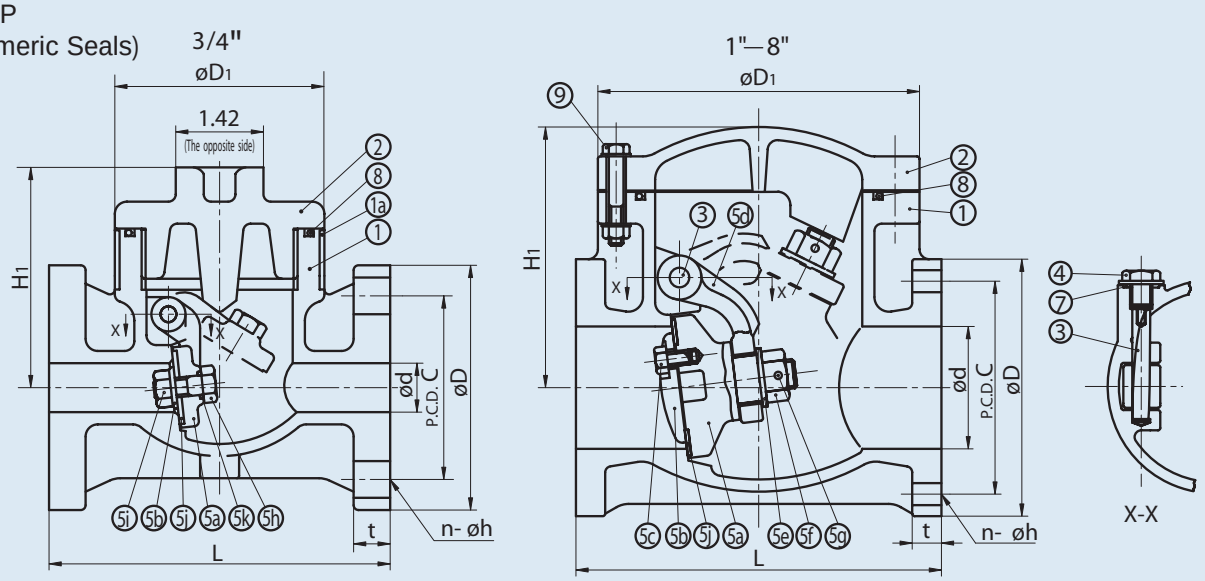
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	HI-PVC, PP, PVDF
2	Bonnet	1	HI-PVC, PP, PVDF
3	Shaft	1	HI-PVC, PP, PVDF
4	Bolt	1	HI-PVC, PP, PVDF
5a	Disc	1	HI-PVC, PP, PVDF
5b	Seat Holder	1	HI-PVC, PP, PVDF
5c	Bolt (A)	-	HI-PVC, PP, PVDF
5d	Arm	1	HI-PVC, PP, PVDF
5e	Washer	1	HI-PVC, PP, PVDF
5f	Nut (A)	1	HI-PVC, PP, PVDF
5g	Pin	1	HI-PVC, PP, 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)

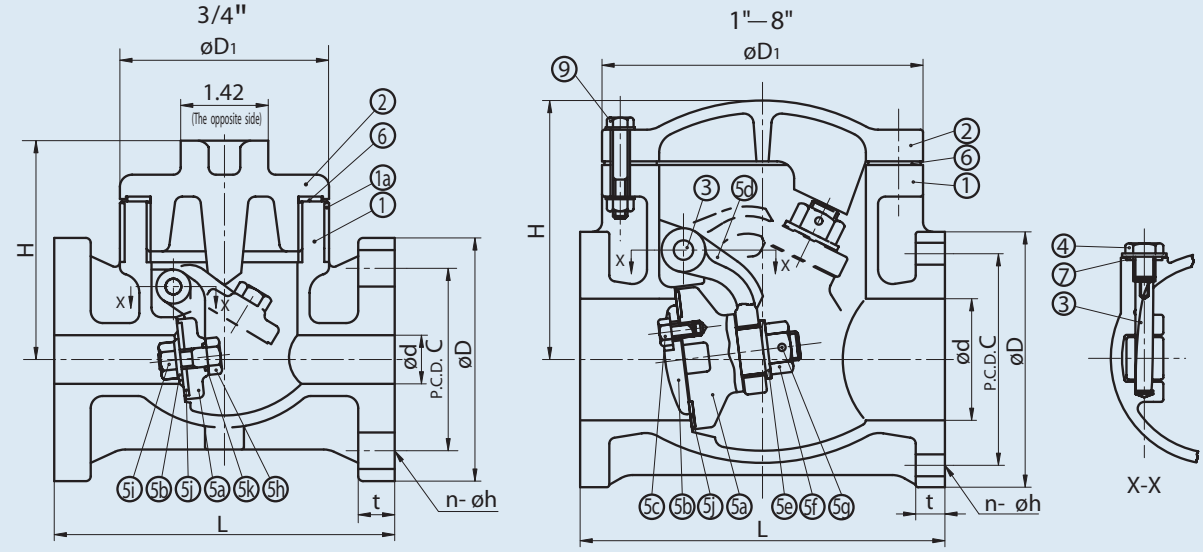
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Fitting	1	PVC, PP, PVDF
2	Nut	1	PVC, PP, PVDF
3	Shaft	1	Stainless Steel 316
4	Counter Weight	1	PVC
5	Spacer	1	PVC, PP, PVDF
6	O-Ring	1	EPDM, FKM
7	Hex Cap Bolt	Set	Stainless Steel 316
8	Set Screw	1	Stainless Steel 316

Swing Check Valves

PVC&PP
(Elastomeric Seals)



PVDF

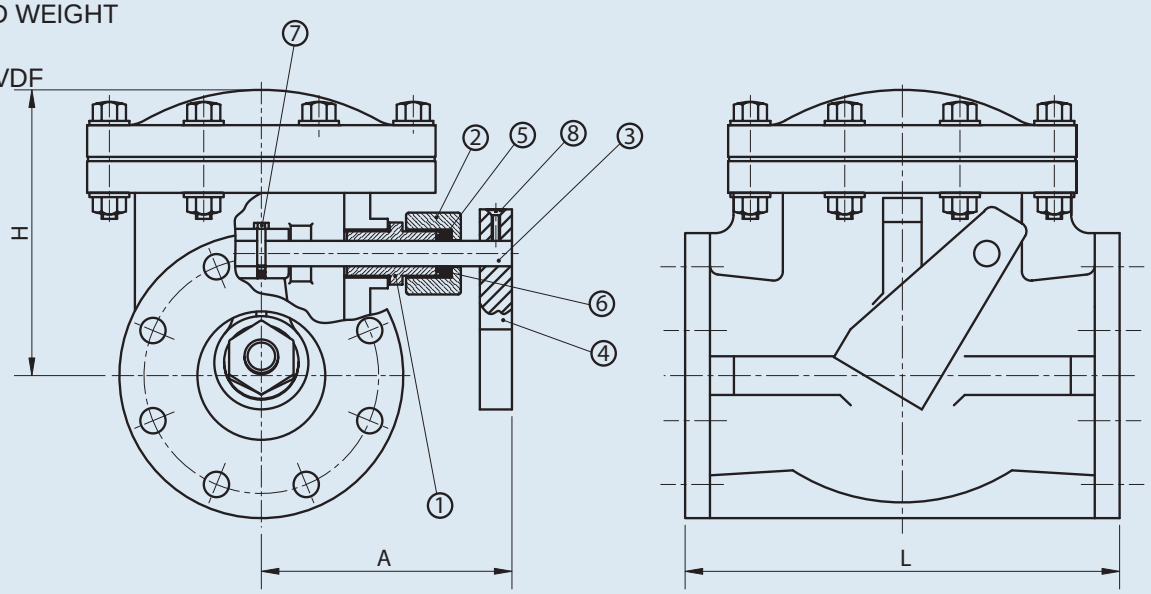


Dimensions (Sizes 3/4" – 8")

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

Swing Check Valves

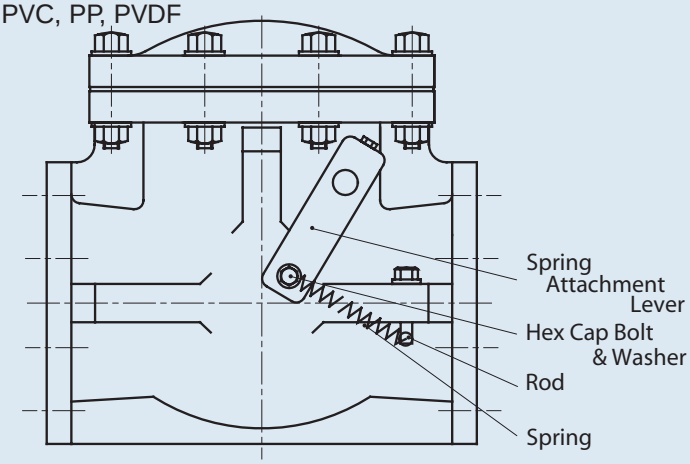
LEVER AND WEIGHT
(OPTION)
PVC, PP, PVDF



Dimensions (Lever & Weight/External Spring)

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 SS 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. PVC shall conform to ASTM D1784 Cell Classification 12454-A, PP conforming to ASTM D4101 Cell Classification PP0210B67272 and PVDF conforming to ASTM D3222 Cell Classification Type II. Valves shall be rated to 150 psi sizes 3/4" thru 3", 100 psi sizes 4" thru 6", 75 psi size 8" for PVC or PP with EPDM or FKM seals, 90 psi sizes 3/4" thru 2-1/2", 75 psi sizes 3" & 4", 60 psi size 5" and 45 psi sizes 6" & 8" for PVC with Teflon® seals, 90 psi sizes 3/4" thru 2-1/2", 75 psi sizes 3" & 4", 60 psi size 5" and 45 psi sizes 6" & 8" for PP or PVDF with Teflon® seals all at 70 degrees F, as manufactured by Asahi/America, Inc.

Swing Check Valves

Pressure vs. Temperature (PSI, WATER, NON-SHOCK)

NOMINAL SIZE		PVC			PP				PVDF		
		ELASTOMERS			ELASTOMERS				ELASTOMERS		
INCHES	mm	30° F 80° F	81° F 85° F	86° F 120° F	-5° F 85° F	86° F 95° F	96° F 140° F	141° F 175° F	-30° F 140° F	141° F 175° F	176° F 210° F
3/4	20	150	135	100	150	150	100	85	90	75	60
1	25	150	135	100	150	150	100	85	90	75	60
1 1/2	40	150	135	100	150	150	100	85	90	75	60
2	50	150	135	100	150	150	100	85	90	75	60
2 1/2	65	150	135	100	150	150	100	85	90	75	60
3	80	150	135	100	150	150	100	85	75	60	45
4	100	100	100	75	100	90	75	55	75	60	45
5	125	100	100	75	100	90	75	55	60	45	40
6	150	100	100	75	100	90	75	55	45	40	30
8	200	75	75	55	75	65	40	30	45	40	30

Pressure vs. Temperature (PSI, WATER, NON-SHOCK)

NOMINAL SIZE		PVC	PP		PVDF		
		PTFE	PTFE		PTFE		
INCHES	mm	30° F 120° F	-5° F 140° F	141° F 175° F	-30° F 140° F	141° F 175° F	176° F 210° F
3/4	20	90	90	75	90	75	60
1	25	90	90	75	90	75	60
1 1/2	40	90	90	75	90	75	60
2	50	90	90	75	90	75	60
2 1/2	65	90	90	75	90	75	60
3	80	75	75	60	75	60	45
4	100	75	75	60	75	60	45
5	125	60	60	45	60	45	40
6	150	45	45	30	45	40	30
8	200	45	45	30	45	40	30

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

NOMINAL SIZE		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

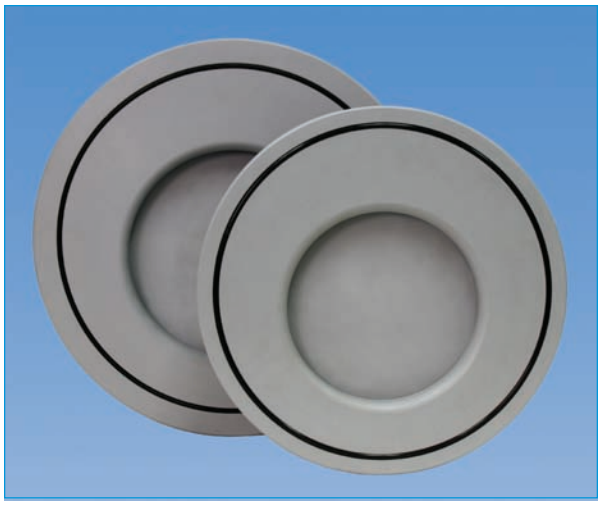
Troubleshooting

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: 10" & 12"
Models: Wafer Style ANSI
Bodies: PVC
Seals: EPDM or FKM

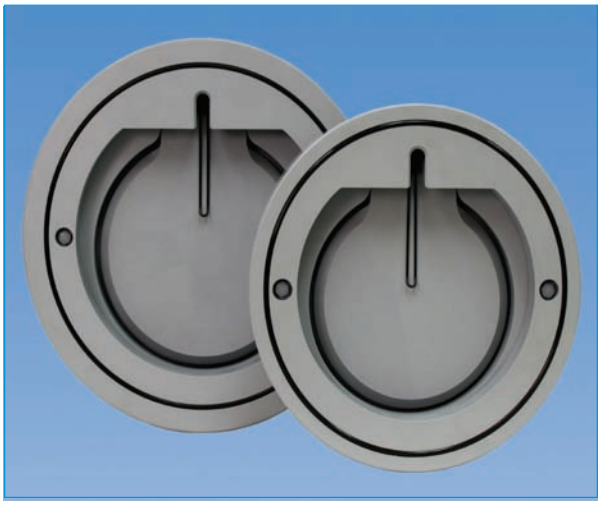
Wafer Check Valves

Standard Features (Sizes 10" & 12")

- PVC body with EPDM or FKM seals
- Slim profile permits easy installation
- Wafer style fits between 2-mating flanges
- Face to Face meets ASME/ANSI B16.10
- No spacer required
- No pipe interference with disc
- No bolt pattern – Permits installation using ANSI/JIS/DIN mating flanges
- Vertical or Horizontal installation
- No external shaft
- Excellent chemical resistance
- Max Pressure 90 psi
- Max Temperature 120 F

Options

- SWP-B (SS) Spring ECTFE coated



Parts List (Sizes 10" & 12")

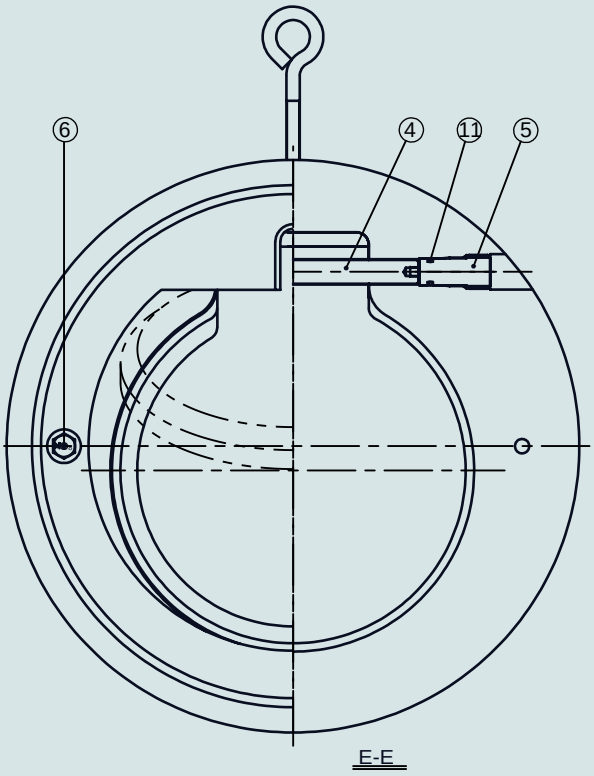
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
2	Disc	1	PVC
3	Stopper	1	PVC
4	Shaft	1	PVC
5	Shaft Plug	1	PVC
6	AV Bolt	2	PVC
7	I Bolt	1	SS400
8*	Spring	1	SWP-B W/ECTFE Coating
9	O-Ring (A)	3	EPDM/FKM
10	O-Ring (B)	1	EPDM/FKM
11	O-Ring (C)	1	EPDM/FKM

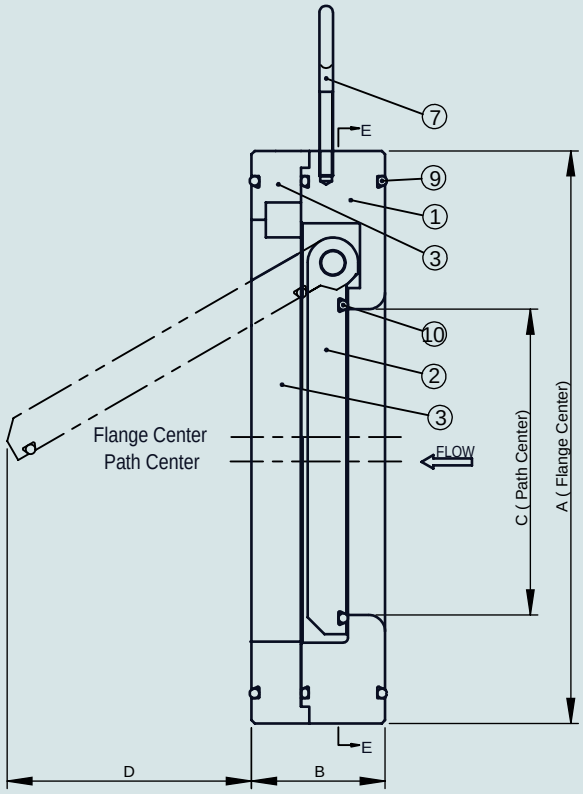
* Item # 8 used on spring type valve only

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 ECTFE coated spring for use in vertical applications. PVC shall conform to ASTM D1784 Cell Classification 12454. Valves shall be rated to 90 psi at 70 degrees F, as manufactured by Asahi/America, Inc.

Wafer Check Valves





Dimensions (Sizes 10" & 12")

NOMINAL SIZE		Wafer ANSI Class 150			
		A	B	C	D
10"	250mm	13.39	3.12	6.97	5.75
12"	300mm	16.14	3.38	8.54	7.09

Note: Dimensions are identical for Spring type

Press vs. Temp (PSI) Water Non-Shock

NOMINAL SIZE		PVC EPDM/FKM 30F - 120F
10"	250mm	90
12"	300mm	90

Minimum Opening Pressures

NOMINAL SIZE		Minimum Opening Pressure (PSI)			
		Without Spring		With Spring	
		Horizontal	Vertical	Horizontal	Vertical
10"	250mm	0.1	0.1	0.1	0.1
12"	300mm	0.1	0.1	0.1	0.1

Wt. (LBS)

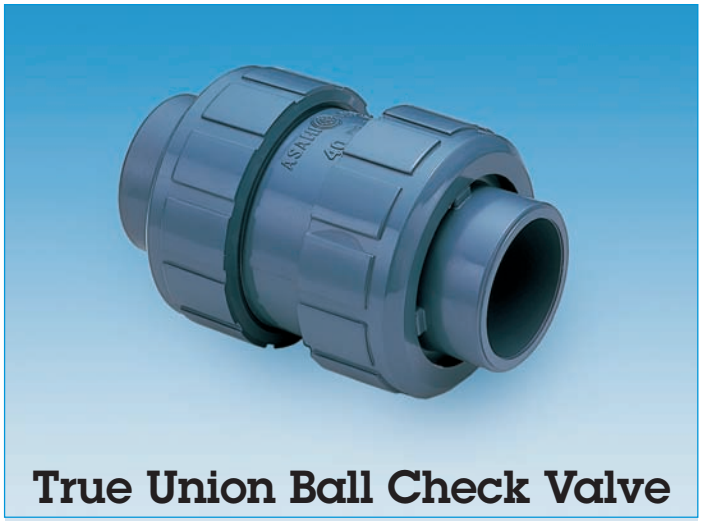
NOMINAL SIZE		Weight (LBS)
10"	250mm	16
12"	300mm	25

Minimum Sealing Pressures

NOMINAL SIZE		Minimum Sealing Pressure (PSI)			
		Without Spring		With Spring	
		Horizontal	Vertical	Horizontal	Vertical
10"	250mm	1.0	1.0	1.0	1.0
12"	300mm	1.0	1.0	1.0	1.0

Cv Values

NOMINAL SIZE		CV
10"	250mm	1750
12"	300mm	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 backflow.
- May be used vertically or horizontally
- Minimum shut-off of 5 psi
- All sizes rated for full vacuum service
- Solid thermoplastic ball

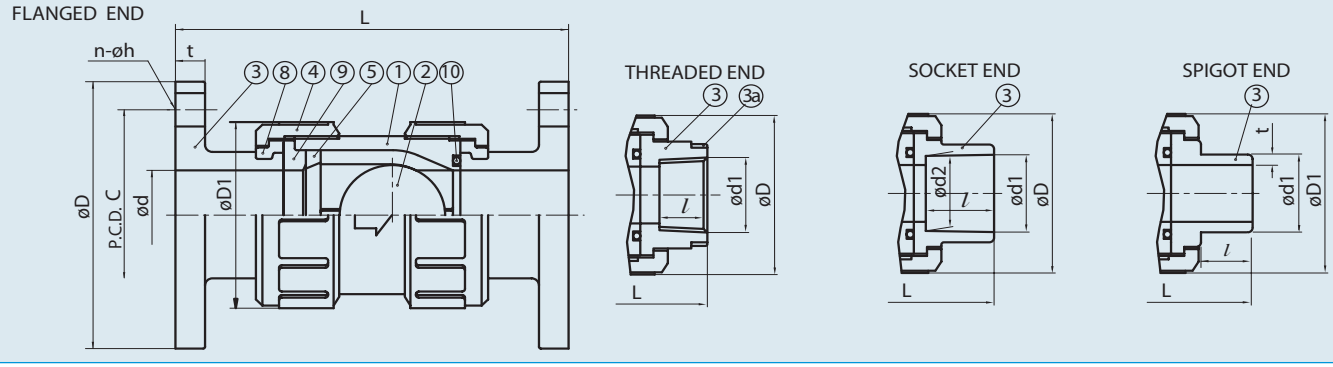
Options:

- 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")

NOMINAL SIZE		FLANGED						THREADED					SOCKET											SPIGOT(BUTT END)				
		ANSI CLASS 150											PVC, CPVC				PP, PVDF (DIN)				PP, PVDF (IPS)			PP, PVDF				
													PP, PVDF				DIN 16962							DIN 3442	PP	PVDF		
INCHES	mm	D	C	n	h	L	t	d1	l	L	d	D1	d1	d2	l	L	d1	d2	l	L	d1	l	L	d1	l	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	1-111/2NPT	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	-	-	-	-	-	-	11/4-111/2NPT	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	11/2-111/2NPT	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	2-111/2NPT	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

Single Union Ball Check Valves

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

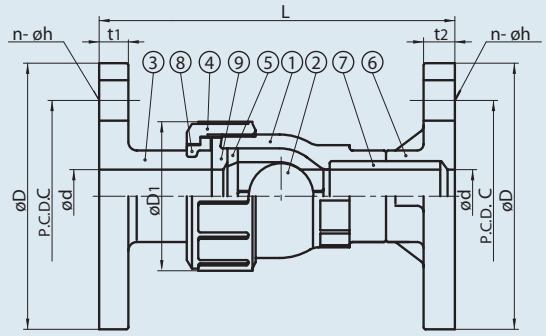
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Ball	1	PVC, CPVC, PP, PVDF
3	End Connector	1	PVC, CPVC, PP, PVDF
4	Union Nut	1	PVC, CPVC, PP, PVDF
5	Stop Ring (A)	1	PVC, CPVC, PP, PVDF
6	Flange		PVC, CPVC, PVDF
7	Stub		PVC, CPVC, PVDF
8	Stop Ring (B)*	1	PVDF
9	Seat	1	EPDM, FKM,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

* Used for flanged end

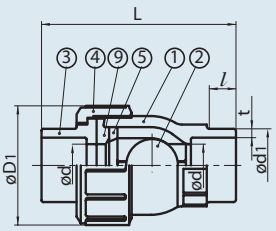
Dimensions (Sizes 3" – 4")

NOMINAL SIZE				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		PP	PVDF	
INCHES	mm	d	D1	D	C	n	h	L	t1	t2	d1	d2	*l*	L	d1	d2	*l*	L	d1	*l*	L	d1	*l*	L	d1	*l*	t	t	L
3	80	3.07	5.98	7.50	6.00	4	0.75	12.20	0.71	0.87	3.516	3.492	1.875	9.57	3.512	3.498	1.40	8.46	3.480	1.874	9.55	3-8 NPT	1.38	8.74	3.543	1.496	0.323	0.169	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	4.293	4.278	1.63	11.46	4.480	2.252	12.60	4-8 NPT	1.77	12.09	4.331	1.752	0.394	0.209	13.93

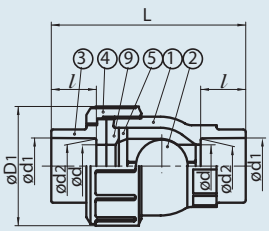
FLANGED END



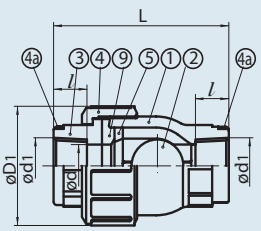
SPIGOT END



SOCKET END



THREADED END



True Union, Single Union, and Foot Valve Weight (POUNDS)

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 – (BALL CHECK VALVES)

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 12454-A, CPVC shall conform to ASTM D1784 Cell Classification 23567-A, PP shall conform to ASTM D4101 Cell Classification PP0210B67272 and PVDF shall conform to ASTM D3222 Cell Classification Type II. Ball Check valves and foot valves sizes 1/2"– 2" shall be rated 150 psi at 70 degrees F, 3" and 4" rated 100 psi at 70 degrees F, as manufactured by Asahi/America, Inc.

Ball Check Foot Valve Option

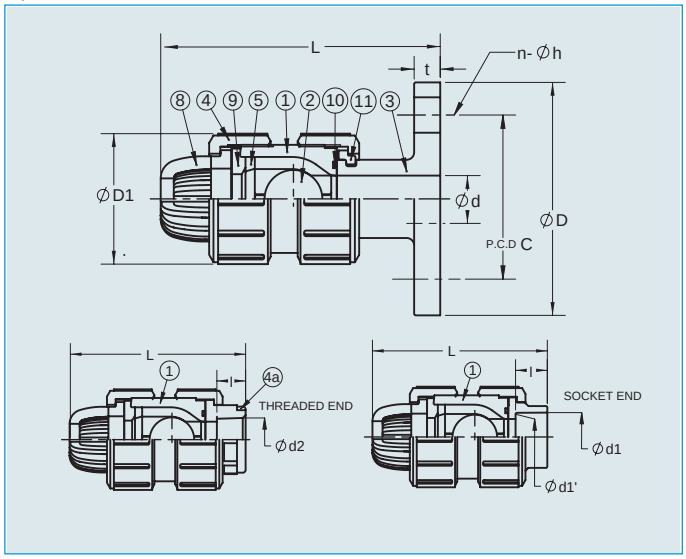
Parts List Foot Valve (Sizes 1/2" – 2")

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	304 SS

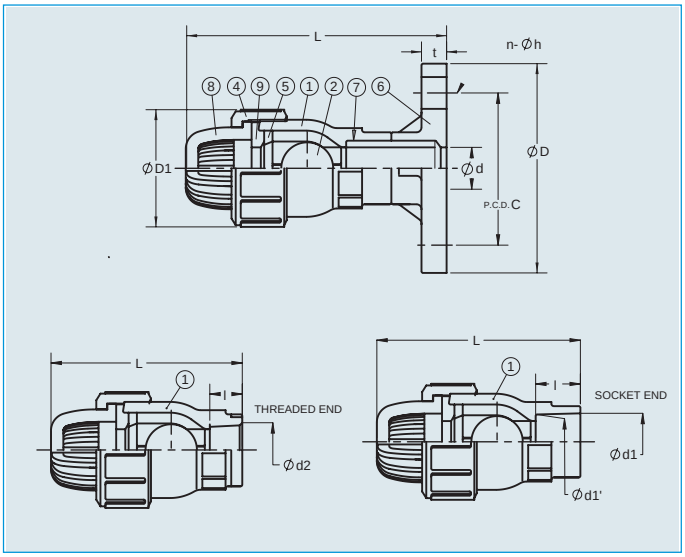
Parts List Foot Valve (Sizes 3" – 4")

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	1	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	304 SS

1/2" - 2"



3" - 4"



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

Foot Valve Wt. (LBS)

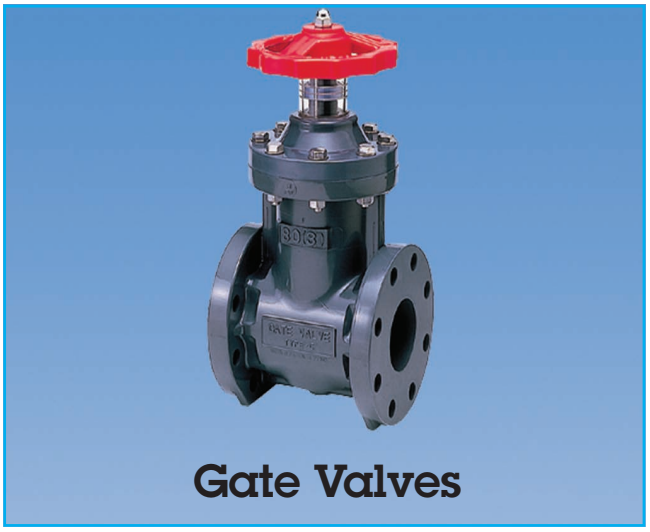
NOMINAL SIZE		SOCKET	FLANGED
INCHES	mm		
1/2	15	0.22	0.66
3/4	20	0.44	0.88
1	25	0.66	1.32
1 1/2	40	1.54	3.31
2	50	2.20	3.31
3	80	7.71	11.02
4	100	15.43	23.14

Dimensions (1/2"– 4")

NOMINAL SIZE			SOC.	THR'D		FLG.	
				PVC CPVC	PVDF PP	PVC CPVC	PVDF PP
INCHES	mm	D1	L	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	16.10	13.23
4	100	8.27	14.96	14.72	14.41	20.41	16.34

Caution

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



Gate Valves

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

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
- Light weight 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

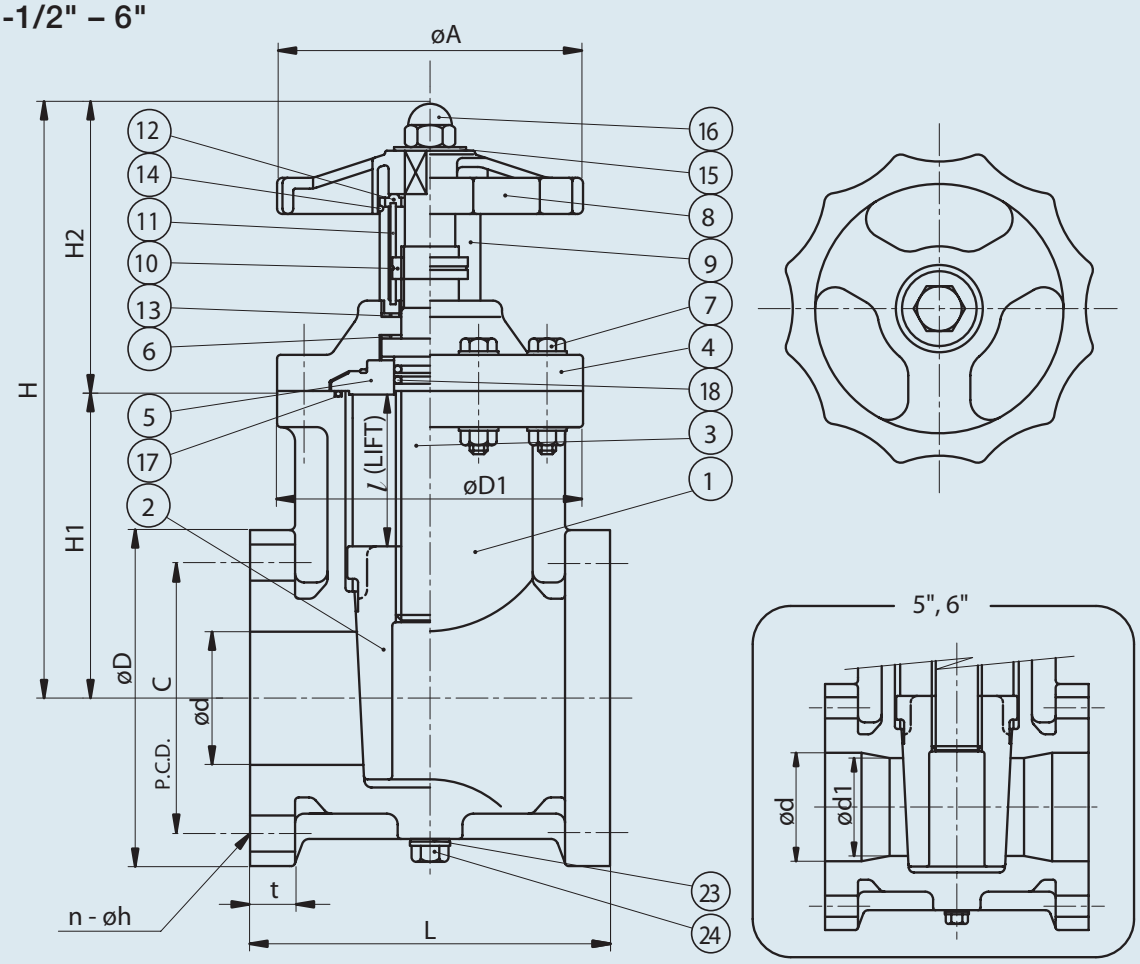
- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

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	-	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

Sizes 1-1/2" – 6"



Troubleshooting

What if fluid still flows when fully closed?

1. Body or plug is worn or damaged. Replace.
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. Change stem.
2. Engaging part of stem and/or plug damaged or broken. Need to replace stem and/or plug.

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")

NOMINAL SIZE				ANSI CLASS 150											
INCHES	mm	d	d1	D	C	n	h	L	t	D1	A	l	H1	H2	H
1 1/2	40	1.57	-	5.00	3.88	4	0.62	6.50	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

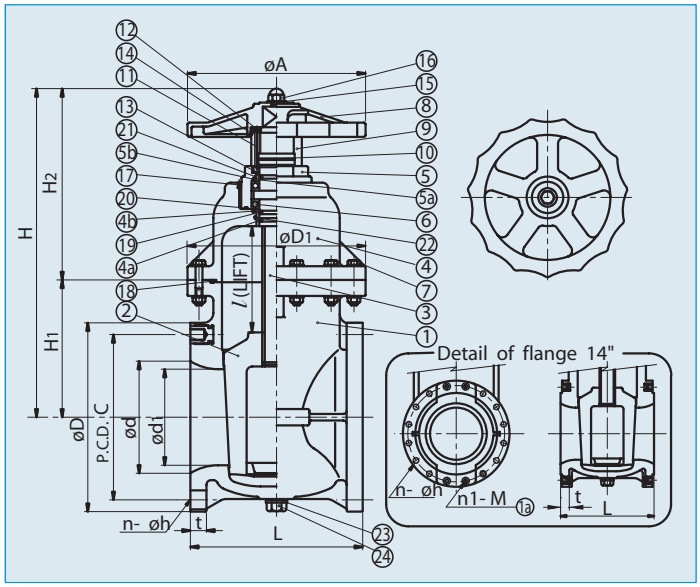
Gate Valves Type P

Type P Parts (Sizes 8" – 14")

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	High Carbon Chromium
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

Sizes: 8" – 14"



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 (POUNDS)

NOMINAL SIZE		FLANGED
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

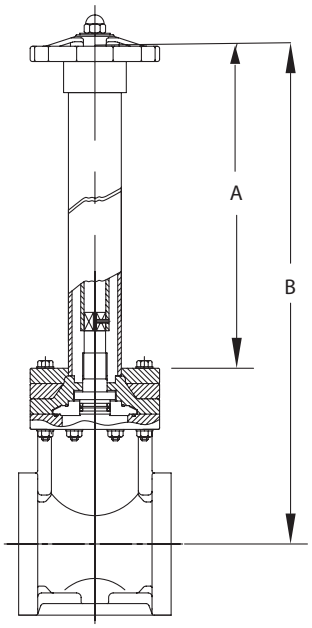
Sample Specification

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, & PP to ASTM D4101 Cell Classification PP0210B67272. Valves shall have a pressure rating of 150 psi at 70 degrees F sizes 1-1/2" through 8", 110 psi at 70 degrees F size 10", and 75 psi at 70 degrees 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.

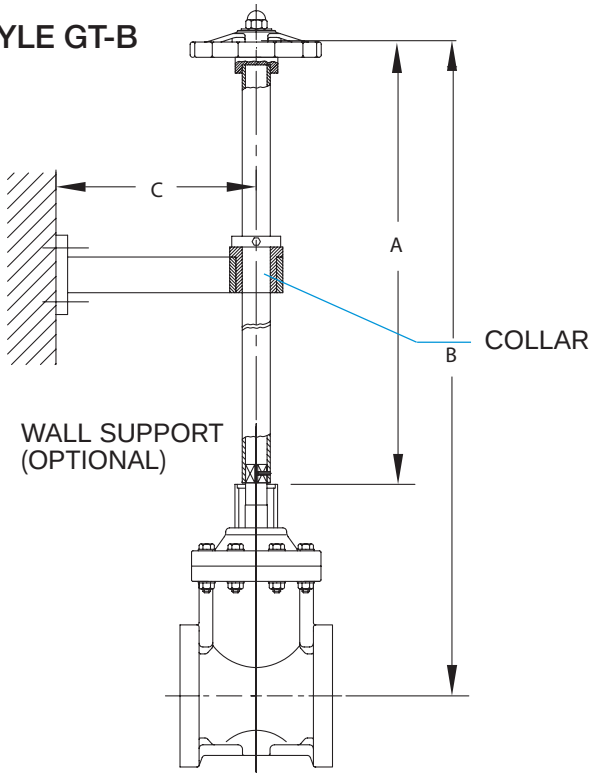
Dimensions (Sizes: 8" – 14")

NOMINAL SIZE				ANSI CLASS 150												
INCHES	mm	d	d1	D	C	n	h	n1 – M	L	t	D1	A	l	H1	H2	H
8	200	7.72	6.61	13.50	11.75	6	0.88	2 – 3/4 UNC	11.50	1.10	12.20	12.20	7.09	9.45	13.27	22.72
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

STYLE GT-A



STYLE GT-B

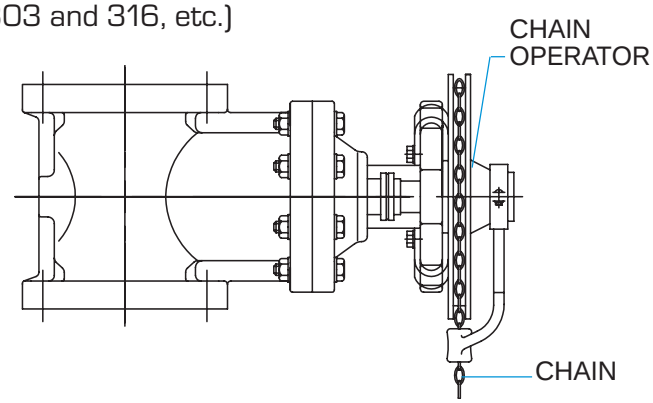


Please use Stem Extension Work Sheet on Page 20 when ordering any stem extension

All Stem Extension tolerances +/- 1 inch

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.)



Chain Operator

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

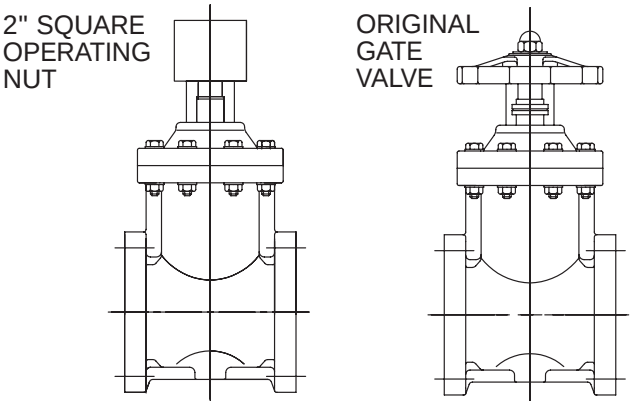
Locking Mechanism

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

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



Remote Operating Nuts

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

Material: 6061 Aluminum, anodized finish

Special O-Rings

FKM O-rings for corrosive applications.

Series 92 Electric Actuators

Specifications

Series 92:

Motor Type – Reversing, single phase
Model – S92 for sizes1-1/2" – 3"
Torque – 400 in.- lbs.
Voltage – 120 VAC, 50/60 Hz
Max Ambient Temp. – 150˚ F
Switches – Two single pole, double throw (15 Amp rating)

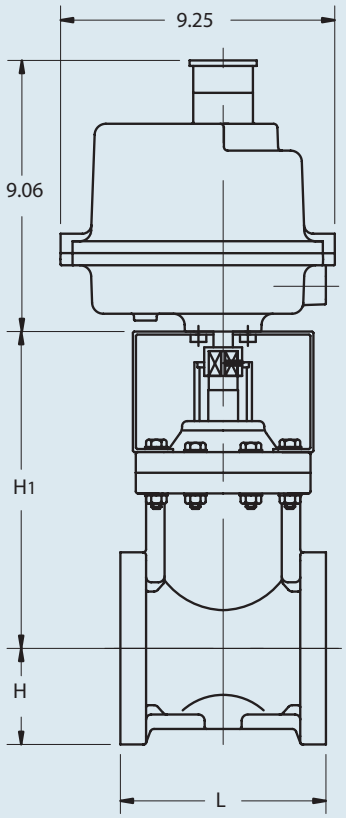
Standard Features (Sizes 1-1/2" – 3")

- Brushless, capacitor-run motors
- Integral thermal overload protection with auto-reset
- Permanently lubricated gear train
- Combination Type 4X, 7 and 9 enclosure with thermally bonded powder coating/304 SS trim
- ISO bolt circle
- Two 1/2" NPT conduit ports prevent interference between control and power signals
- Declutchable manual override
- Highly visible position indicator
- 3-Layer rotary switch for dry contact indication

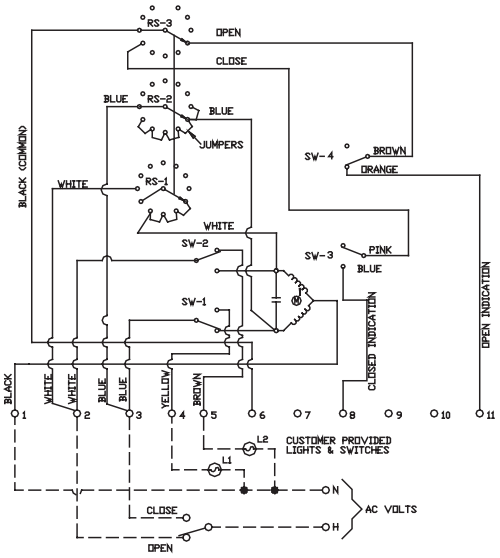
Options

- Extra limit switches (see page 82)
- Feedback potentiometer
- Heater and thermostat (to -40° F)
- Positioner: 4–20mA or 0–10 VDC input signal
- 4–20mA output position transmitter

SERIES 92 ON TYPE P GATE VALVE



AC Wiring (For 115 VAC only)



Engineering Data

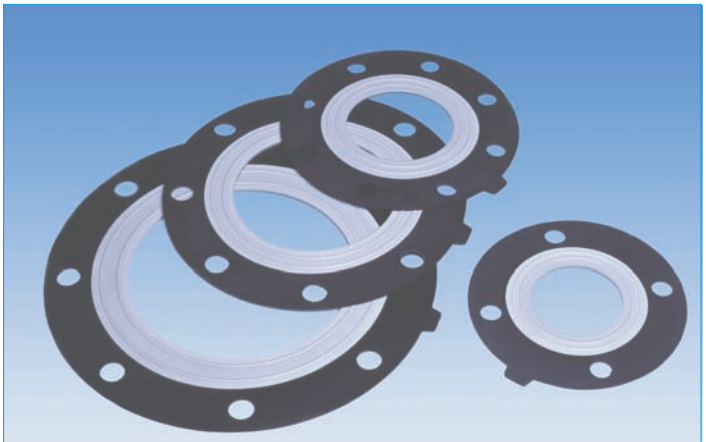
ACTUATOR MODEL	VOLTAGE	DUTY CYCLE	AMP DRAW	WEIGHT
S92	120 VAC	25%	.50	10 lbs.

NOTE TO WIRING DIAGRAM:

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

Dimensions

NOMINAL SIZE				
INCHES	mm	H	H_1	L
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



Low Torque AV Gaskets

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")

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
- Approx. a 1/3 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] Semi-conductor 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.

Dimensions (Sizes 1/2" – 12")

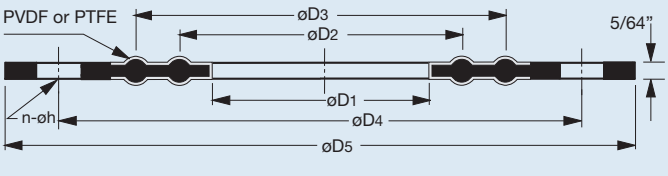
NOMINAL SIZE								
INCHES	mm	D1	D2	D3	D4	D5	h	n
1/2	15	0.7	1.0	1.6	2.4	3.4	0.6	4
3/4	20	0.9	1.3	1.9	2.8	3.8	0.6	4
1	25	1.2	1.5	2.1	3.1	4.2	0.6	4
1 1/4	32	1.5	2.0	2.6	3.5	4.5	0.6	4
1 1/2	40	1.7	2.1	2.7	3.9	4.9	0.6	4
2	50	2.1	2.7	3.3	4.7	5.9	0.8	4
2 1/2	65	2.7	3.4	4.0	5.5	6.9	0.8	4
3	80	3.2	3.9	4.4	6.0	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*

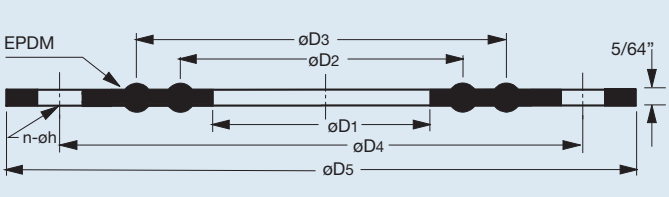
NOMINAL SIZE		PTFE PVDF	EPDM
INCHES	mm		
1/2	15	174	157
3/4	20	174	157
1	25	174	157
1 1/4	32	191	165
1 1/2	40	217	174
2	50	217	174
2 1/2	65	304	217
3	80	304	217
4	100	304	217
5	125	348	260
6	150	348	260
8	200	435	304
10	250	435	304
12	300	522	435

* 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

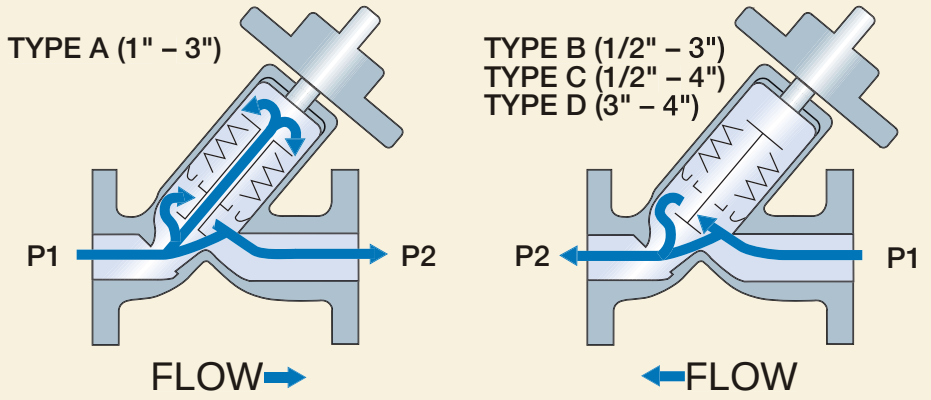
Standard Features (Sizes 1/2" – 4")

- 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 6 % of full scale flow rate (water at ambient temperature)
- Flow rate rangeability: 20 : 1 maximum
- Hand wheel permits ON/OFF opening and closing
- Hand wheel 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

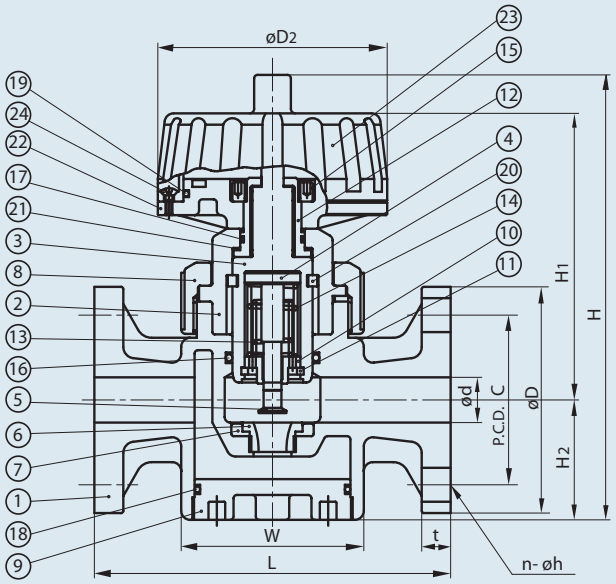
Sample Specification

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 SS with PCTFE coating. All constant flow valves shall have a calibrated flow dial and position indicator. Valve accuracy shall be +/- 6% of full scale. Constant flow valve sizes 1/2"-3" shall have a maximum upstream pressure range of 150 psi at 120 degree F. and Size 4" 70 psi at 120 degree F as manufactured by Asahi/America, Inc.

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



Constant Flow Valves 1/2" – 3/4" Model



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 orfice 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.

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

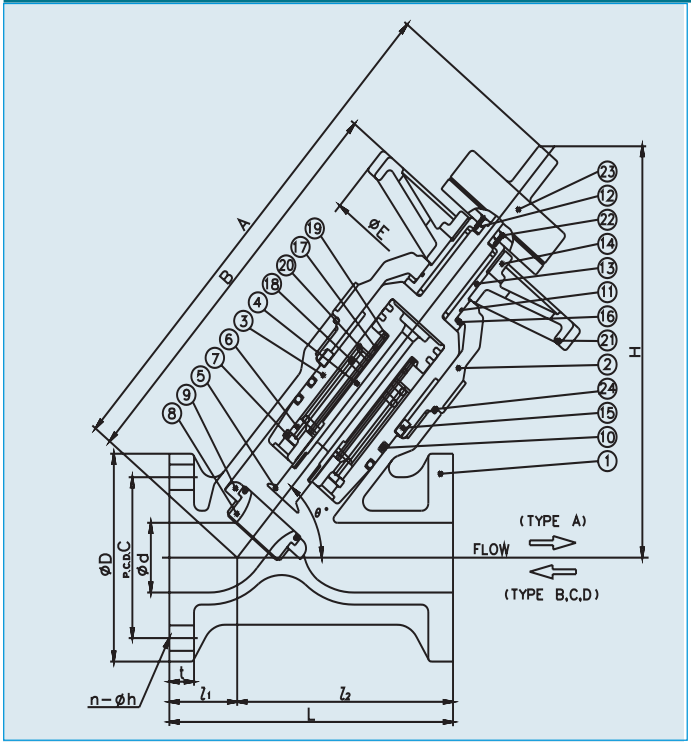
Dimensions (Sizes 1/2" – 3/4")

NOMINAL SIZE			ANSI CLASS 150					
INCHES	mm	d	D	c	n	h	L	t
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						
INCHES	mm	W	D2	H	H1	H
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.

Constant Flow Valves 1" – 4" Model



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	Hand Wheel	1	PP
22	Screw	1	Copper Alloy
23	Lift Indicator	1	PVC
24	O-Ring (D)	1	EPDM

Weight (POUNDS)

NOMINAL SIZE		FLANGED
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

* With PCTFE coating

Constant Flow Valves

Dimensions (Sizes 1" – 4")

NOMINAL SIZE			ANSI CLASS 150												
INCHES	mm	d	D	C	n	h	l1	l2	L	t	A	B	H	E	Degree
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											
INCHES	mm	d	D	C	n	h	l1	l2	L	t	A	B	H	E	Degree
4	100	3.94	8.66	7.50	8	0.75	3.35	12.40	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 4 that correlate to working temperatures per the format below.
- For size 4", maximum upstream working pressure is 70 psi.
- Make sure of 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 counter-clockwise 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 counter-clockwise till 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
  4. Cooling towers and scrubbers, etc.

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	0-35 PSI			
	35-70 PSI			
	70-110 PSI			
	110-150 PSI			

Max. Allowable Upstream Pressure

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

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._____ (F)
   Line Temperature:Min._____ (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 CONDITONS

Sediment Strainers

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

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", 150 psi; 3" and 4", 85 psi
- 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
- Inline 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.

Parts List (Sizes 1/2" – 4")

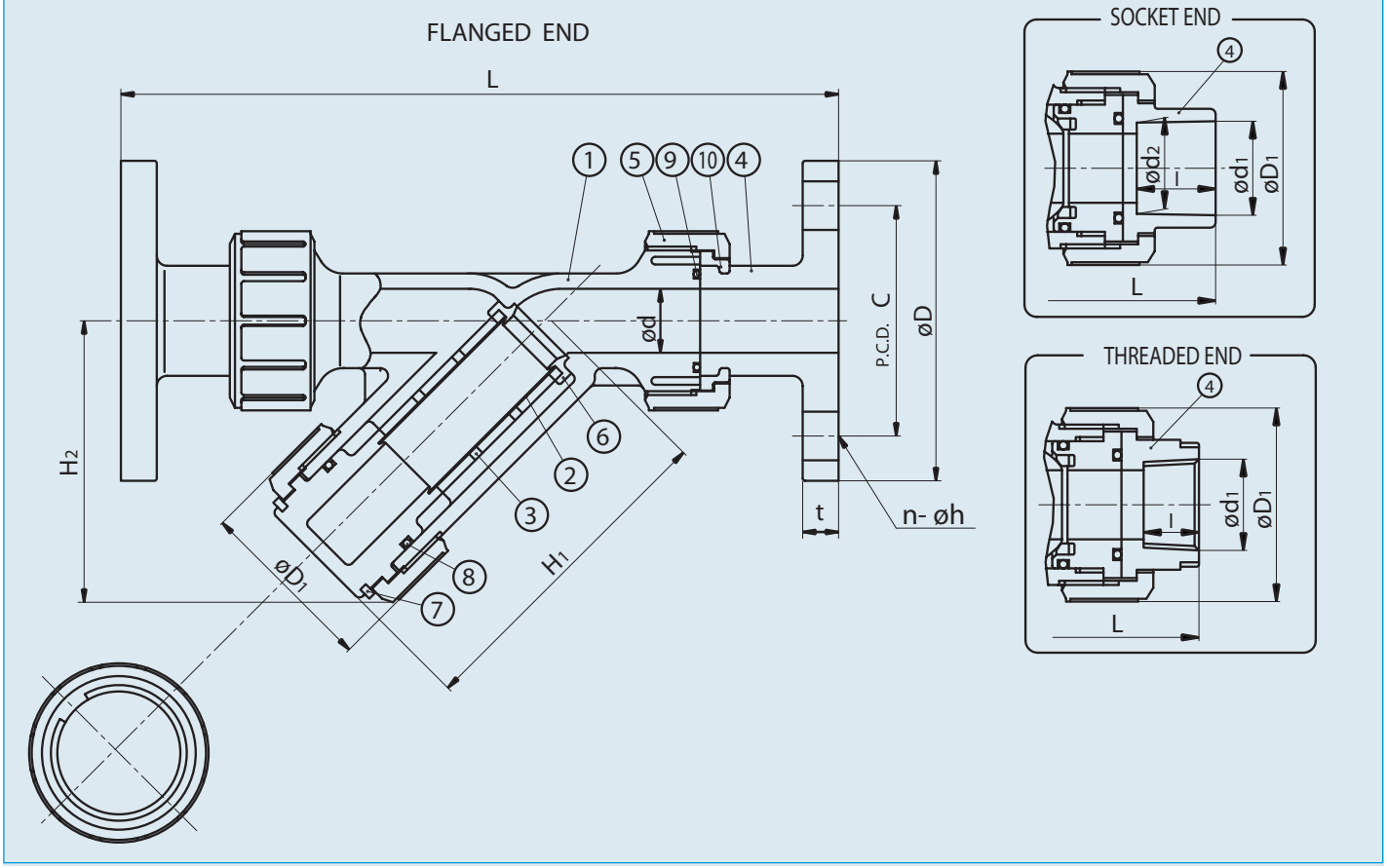
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC
2	Filter Screen	1	PVC, Stainless Steel 316
3	Screen Support	1	PVC
4	End Connector	2	PVC
5	Union Nut	3	PVC
6	Retaining Ring	1	PVC
7	Split Ring	1	PVC
8	O-Ring (A)	1	EPDM, FKM, Others
9	O-Ring (B)	2	EPDM, FKM, Others
10	Stop Ring	2	PVDF**

** 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 SS. 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 150 psi sizes 1/2" thru 2" and 85 psi sizes 3" and 4" at 70 degrees F, as manufactured by Asahi/America, Inc.

Sediment Strainers



Dimensions (Sizes 1/2" – 4")

NOMINAL SIZE		FLANGED						SOCKET				THREADED						
		ANSI CLASS 150						ASTM CLASS 40										
INCHES	mm	D	C	n	h	L	t	d1	d2	l	L	d1	l	L	d	D1	H1	H2
1/2	15	3.50	2.38	4	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	4	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	4	0.62	11.02	0.55	1.325	1.310	1.12	9.37	1-111/2 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	11/4-111/2 NPT	0.87	11.30	1.57	3.94	6.97	5.87
1 1/2	40	5.00	3.88	4	0.62	13.23	0.63	1.912	1.894	1.38	12.13	11/2-111/2 NPT	0.98	11.30	1.57	3.94	6.97	5.87
2	50	6.00	4.75	4	0.75	14.20	0.63	2.387	2.369	1.50	13.31	2-111/2 NPT	1.10	12.76	2.01	4.17	7.48	6.29
3	80	7.50	6.00	4	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 (POUNDS)

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.

Sight Glass Gauge Valves

Specifications

Sizes: 3/4" – 1"
Bodies: PVC and PP
Models: Flanged – ANSI
Diaphragms: EPDM, FKM and Others
Seals: EPDM, FKM and Others

Standard Features (3/4" - 1")

- All-in-one sight glass isolation valve
- Eliminates the need for fittings and multiple valves
- No cementing required – sight glass connects and seals, using double O-rings in packing gland
- One valve closes connection to tank and opens connection to drain plug to permit fluid sampling
- Compact valve enables sight glass to be located close to tank
- Easy maintenance of sight glass

Sample Specification

All Sight Glass Gauge Valves shall be of thermoplastic construction (PVC or PP) and have no metal to media contact. PVC shall conform to ASTM D1784 Cell Classification 12454-A and PP shall conform to ASTM D4101 Cell Classification PP0210B67272. Valves shall be of compact design and shall eliminate the need for multiple valves and fittings. Valves shall incorporate a double O-ring union end design to allow easy maintenance of the glass, and a drain plug to permit sampling of fluid. All valves shall be rated to a maximum of 70 psi at 70 degrees F, as manufactured by Asahi/America, Inc.

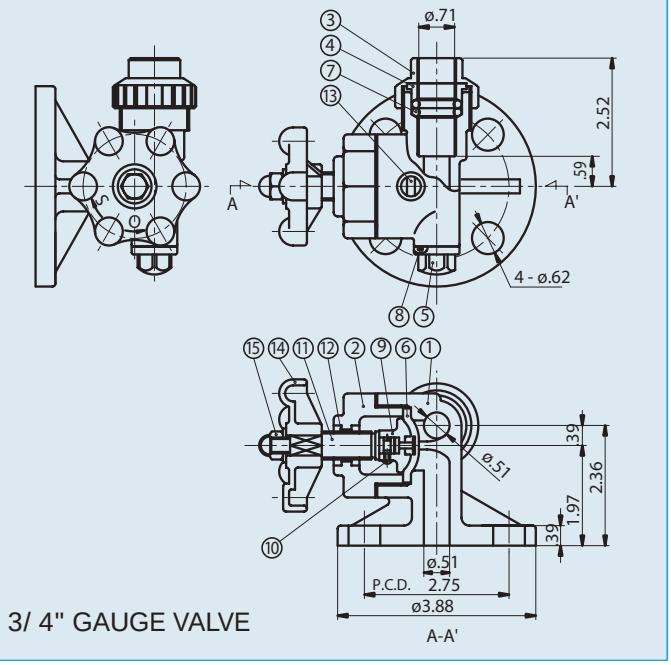
Parts (Sizes 3/4" – 1")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, PP
2	Bonnet	1	PVC, PP
3	Gland Nut	1	PVC, PP
4	Gland	1	PVC, PP
5	Hand Wheel	1	PP
6	Nut	1	Stainless Steel 304
7	Diaphragm	1	EPDM, FKM
8	O-Ring (A)	1	EPDM, FKM
9	Compressor	1	PVDF
10	Compressor Pin	1	Stainless Steel 304
11	Stem	1	Copper Alloy
12	Metal Insert In Bonnet	1	Copper Alloy
13	Indication of Material	1	Paper
14	Drain Plug	1	PVC
15	O-Ring (B)	1	EPDM, FKM

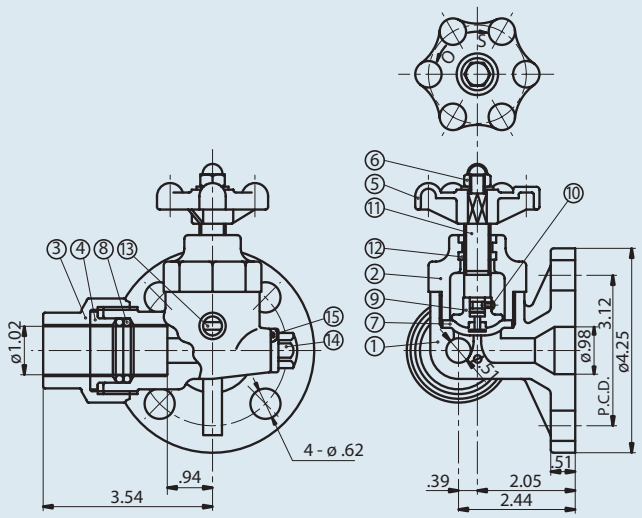
Weight (Pounds)

NOMINAL SIZE		FLANGED END	
INCHES	mm	PVC	PP
3/4	20	0.88	.66
1	25	1.32	1.10

Sight Glass Gauge Valves



3/ 4" GAUGE VALVE



1" GAUGE VALVE

Tips On Gauge Valves

- To Install:
  1. Insert Asahi's low torque gasket between flanges.
  2. Insert bolts to mating flange and tighten by hand.
  3. Further tighten them with a torque wrench at a specified torque rating.
  4. Loosen union nut and insert sight glass.
  5. Tighten union nut by hand. Do not over-tighten it.
- To Operate:
  1. Use hand only.
  2. Just rotate handle gradually to close or open.
  3. Do not over-tighten.
- To Replace Parts:
  1. Drain fluid in the tank and valve completely.
  2. Loosen union nut and remove sight glass.
  3. Remove bolts and nuts.
  4. Loosen nut on top of the handle to remove handle.
  5. Loosen bonnet with a wrench and remove stem from bonnet.
  6. To remove compressor, loosen two pins that connect stem.

Troubleshooting

What if it leaks between bonnet and body?

1. Bonnet is not tightened properly. Retighten.
2. Media crystallized. Disassemble and clean.

What if diaphragm does not seal?

1. Foreign material caught between diaphragm and weir. Clean.
2. Diaphragm or weir is damaged. Replace diaphragm or replace body.

What if it leaks between Sight Glass and Union Nut?

1. Union nut is not tightened. Retighten.
2. Foreign material caught between glass and union nut. Clean it.
3. O-ring seal is damaged. Replace O-ring.
4. Sight glass is damaged. Change the sight glass.

What if it leaks from stem?

1. Diaphragm damaged or torn. Replace diaphragm.

Caution

- Never remove valve from tank before tank and valve are completely drained.
- Always wear protective gloves and goggles.
- Compressor and diaphragm cannot be disassembled.

Type A Pressure Relief Valve

Specifications

Sizes:	1/2" – 2"
Materials:	PVC and PP
Models:	1) Threaded PVC 1/2" – 2"
	PP 1/2" – 1"
	2) Flanged PVC 1/2" – 2"
	PP 1/2" – 2"
Seals:	EPDM, FKM
Max.Line Pres:	PVC 110 psi
	PP 85 psi
Setting Range:	PVC 5 - 100 psi
	PP 5 - 75 psi

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

- Most extensive size range in the industry
- U-cup seals protect spring chamber while maintaining sensitive operation
- Designed for fewer flow restrictions and excellent flow capacity
- Repaired in line, easy maintenance
- Stainless Steel adjustment feature provides convenient relief pressure setting in the field (Factory set at no additional charge)

Sample Specification

All Pressure Relief Valves shall be of Thermoplastic construction, (PVC or PP) and have no metal part that comes in contact with media. 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 110 psi sizes 1/2" thru 2" and 75 psi sizes 2-1/2" thru 4", PP rated to 75 psi sizes 1/2" thru 4" at 70 degrees F, as manufactured by Asahi/America, Inc.

Troubleshooting

What if valve does not open fully?

1. Not enough overpressure is being applied to valve. Reset.

What if valve does not seat fully?

1. Foreign particles may be caught between the seat and plug. Clean seat and plug area.
2. Plug and seat may be damaged or worn. Replace plug and seat.
3. Line pressure is not below set pressure. Check line pressure and reset.

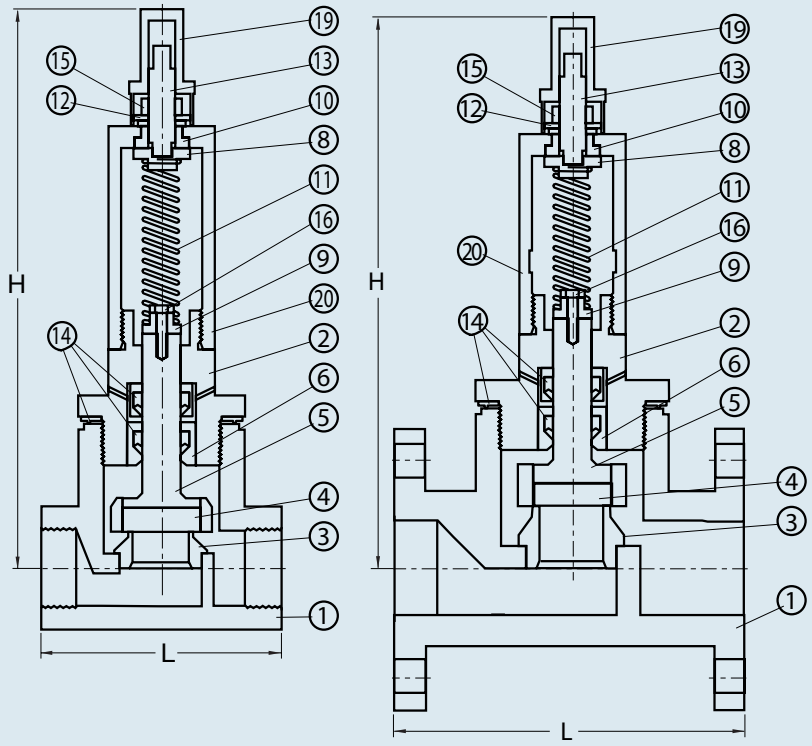
Parts List (Sizes 1/2" – 2")

PARTS		
NO.	DESCRIPTION	MATERIALS
1	Body	PVC, PP
2	Bonnet	PVC, PP
3	Seat	PVC, PP
4	Orifice Seal	EPDM, FKM
5	Piston	PVC, PP
6	Guide Bushing	PVC, PP
7	Bonnet Spacer	PVC, PP
8	Upper Spring Keeper	PVC, PP
9	Lower Spring Keeper	PVC, PP
10	Adjustment Screw Guide	300 SS
11	Spring	17-7 SS
12	5/8 Washer	Stainless Steel
13	Adjustment Screw	316 SS
14	Seal Kit	EPDM, FKM
15	5/8 Hex Nut	316 SS
16	1/4 Hex Screw	316 SS
17	5/16 Hex Screw	316 SS
18	Seat Spacer	316 SS
19	Cap	PVC, PP
20	Spring Housing	PVC, PP

Caution

- The valves are not safety devices and must not be substituted for code approved safety relief valves or rupture discs.
- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Type A Pressure Relief Valves



Dimensions (Thr'd 1/2" – 2")

NOMINAL SIZE		L	H
INCHES	mm		
1/2	15	3.36	9.30
3/4	20	3.74	9.40
1	25	4.33	9.40
1 1/2	40	5.51	12.70
2	50	7.09	13.00

Dimensions (Flange 1/2" – 2")

NOMINAL SIZE		L	H
INCHES	mm		
1/2	15	3.36	9.30
3/4	20	3.74	9.40
1	25	4.33	9.40
1 1/2	40	7.48	12.70
2	50	7.87	13.00

Pressure vs. Temperature (PSI)

NOMINAL SIZE		PVC			PP		
		30° F	71° F	106° F	-5° F	71° F	141° F
INCHES	mm	70° F	105° F	120° F	70° F	140° F	175° F
1/2 -1 1/2	15-40	110	75	75	85	65	45
2	50	110	75	65	85	50	30

Ordering Information

Step 1. Determine Set Pressure

(110 psi: Max. pres. rating for PVC valve)
(85 psi: Max. pres. rating for PP valve)

1. Max. allowable working pressure (MAWP[1]) for system _____ psi:
2. Overpressure[2] _____ psi:
3. Set pressure (normally 15 psi over operating pressure) _____ psi:
4. Normal operating pressure _____ psi:

[1] MAWP: Max. safe system pressure

[2] Overpressure: Amount of additional pressure required for disc to attain full lift, and therefore, full flow capacity. The Asahi/America design attains full lift at 25% overpressure.

Step 2. Service Conditions

1. Media: _____ % Concentration: _____ Temp: ____(F or C)
2. Ambient Temperature: _____(F or C)
3. Pipe Size: _____Material: _____
4. Body Material: PVC ____ Polypropylene ____
5. End Connections: NPT Threaded _____ 150# ANSI Flat Faced Flanges _____
6. Downstream Pressure: _____ psig
7. Flow Rate (gpm): Normal _____or Cv Required _____ Max _____ Mini _____

Type E Pressure Relief Valves

Specifications

Sizes:	1/2" – 1 1/4"
Materials:	PVC, PP, PVDF and PTFE
Model:	1) Threaded 1/2" -1 1/4" PVC 1/2" -1" PP 2) Flanged 1/2" -1"PP 1/2" -1 1/4" PVC, PVDF,PTFE
Seals:	EPDM,FKM
Max. Line Pressure:	90 psi
Max. Temp:	PVC 32-140° F, PP -5-175°F PVDF -40-266° F, PTFE -5- 284°F
Setting Range:	7-90 psi

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

- High valve coefficient (CV)
- Solid thermoplastic valve body provides excellent corrosion and chemical resistance
- PTFE bellows stem seal eliminates old style packing glands and minimizes maintenance
- Positive bubble-tight shut-off
- No metal to media contact
- In-line repairs
- Lightweight for ease of installation
- Valves can be installed in piping system of any material
- Pressure setting is field adjustable
- Type E Pressure Relief Valves are virtually maintenance free

Parts List (Sizes 1/2" – 1-1/4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Adjuster Nut	1	PVC/PP
2	Spring	1	Coated Steel
4	Valve Stem	1	Stainless Steel
5	Spring Housing	1	PVC/PP
6	Bellows Housing	1	PVC,PP,PVDF,PTFE
7	Body O-Ring	1	EPDM, FKM
8	Bellows	1	PTFE
9	Valve Seat	1	PVC, PP, PVDF, PTFE
10	Valve Body	1	PVC, PP, PVDF, PTFE

Sample Specification

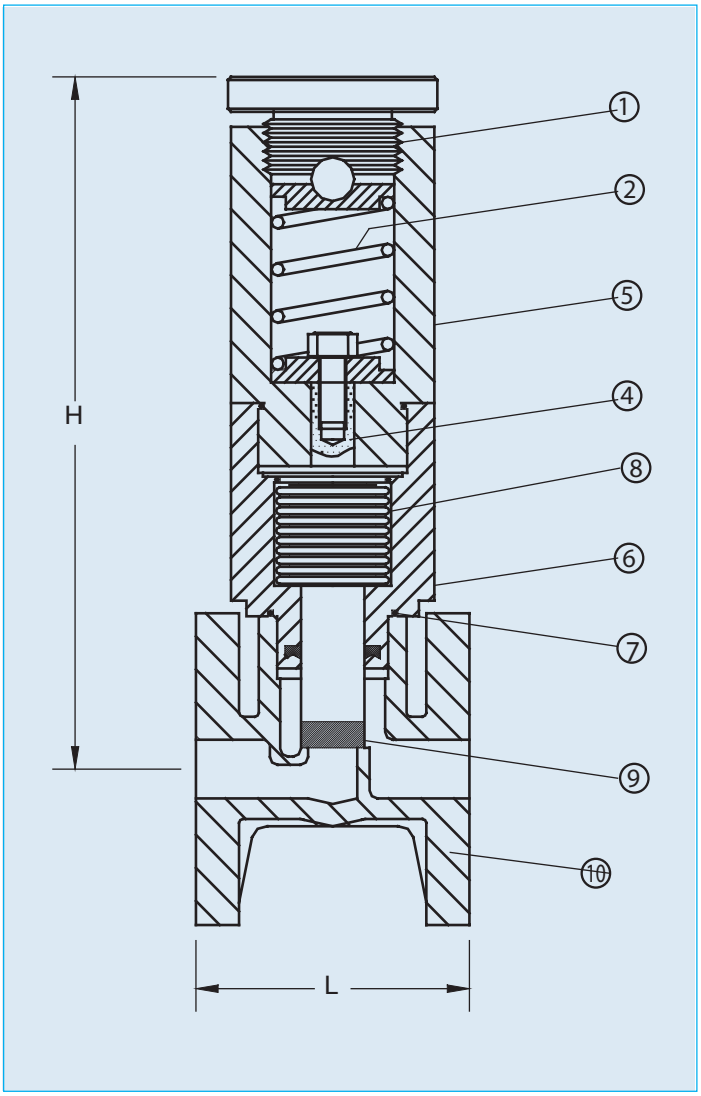
All Type E Pressure Relief Valves shall be of the Globe Valve design, have a PTFE stem seal of the bellows design, and have no metal to media contact. Valves shall be field adjustable and be rated to 90 psi. PVC shall conform to ASTM D1784 Cell Classification 12454-A, PP shall conform to ASTM D4101 Cell Classification PP0210B67272, PVDF shall conform 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 A/V GASKETS FOR THIS PRODUCT LINE

Caution

- These valves are not safety devices and must not be substituted for code approved safety relief valves or rupture discs.
- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Type E Pressure Relief Valve



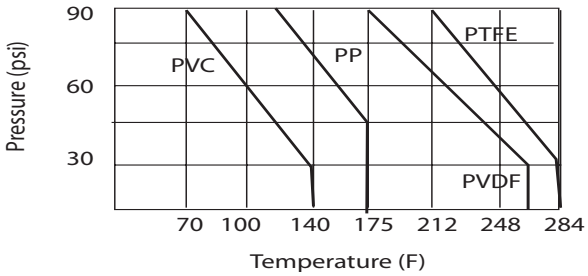
Dimensions (INCHES)

Nominal Size		PVC,PP			PVDF,PTFE	
inches	mm	L (Flg)	L (Thd)	H	L (Flg)	H
1/2	15	3.3	3.3	8.3	5.1	8.3
3/4	20	3.7	3.7	8.7	5.9	8.7
1	25	4.3	4.3	9.8	6.3	9.8
1 1/4	32	5.3	5.3	12.2	7.0	12.2

CV Values

CV Values			
1/2"	3/4"	1"	1 1/4"
4.7	7	9	18

Pressure vs Temperature



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.

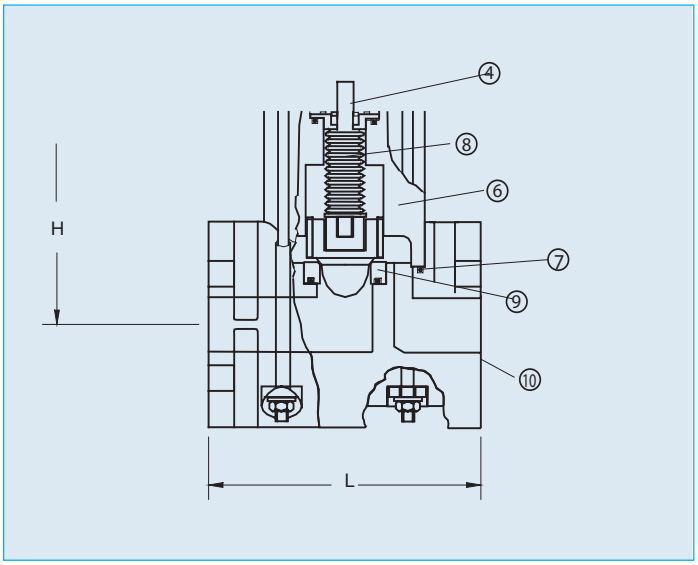
What if the valve does not open?

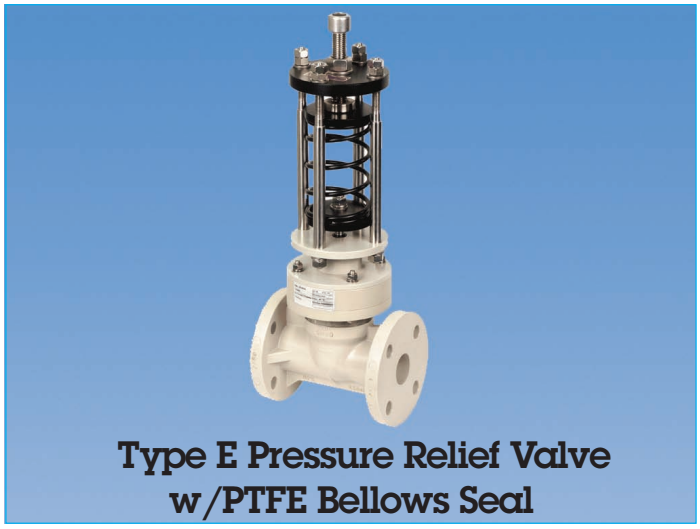
1. No system pressure.
2. Set pressure set too high for system.

What if fluid leaks from body?

1. Line pressure not below set pressure.

PVDF/PTFE





Type E Pressure Relief Valve w/PTFE Bellows Seal

Specifications

Sizes: 1 1/2" – 4"
Materials: PVC, PP, PVDF and PTFE
Model: 1) Threaded 1 1/2"-2" PVC,PP
2) Flanged 1 1/2"-4" PVC,PP, PVDF,PTFE
Seals: EPDM,FKM
Max. Line Pressure: 90 psi
Max. Temp: PVC 32 – 140° F, PP -5 – 175° F
PVDF -40 – 266° F, PTFE -5 – 284° F
Setting Range: 1 1/2"-2" 7-90 psi
2 1/2-4 7-50 psi
50-90 psi

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

- High valve coefficient (CV)
- Solid thermoplastic valve body provides excellent corrosion and chemical resistance
- PTFE bellows stem seal eliminates old style packing glands and minimizes maintenance
- Positive bubble-tight shut-off
- No metal to media contact
- In-line repairs
- Lightweight for ease of installation
- Valves can be installed in piping system of any material
- Pressure setting is field adjustable
- Type E Pressure Relief Valves are virtually maintenance free

Parts List (Sizes 1-1/2" – 4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Adjuster Nut	1	Stainless Steel
2	Spring	1	Stainless Steel
3	Posts	2	Stainless Steel
4	Valve Stem	1	Stainless Steel
6	Bellows Housing	1	PVC,PP,PVDF,PTFE
7	Body O-Ring	1	EPDM, FKM, PTFE Encapsulated FKM
8	Bellows	1	PTFE
9	Valve Plug & Seat	1	PVC, PP, PVDF, PTFE
10	Valve Body	1	PVC, PP, PVDF, PTFE

Sample Specification

All Type E Pressure Relief Valves shall be of the Globe Valve design, have a PTFE stem seal of the bellows design, and have no metal to media contact. Valves shall be field adjustable and be rated to 90 psi. PVC shall conform to ASTM D1784 Cell Classification 12454-A, PP shall conform to ASTM D4101 Cell Classification PP0210B67272, PVDF shall conform to ASTM D3222 Cell Classification Type II, and PTFE shall conform to PTFE TFE 1600, as manufactured by Asahi/America, Inc.

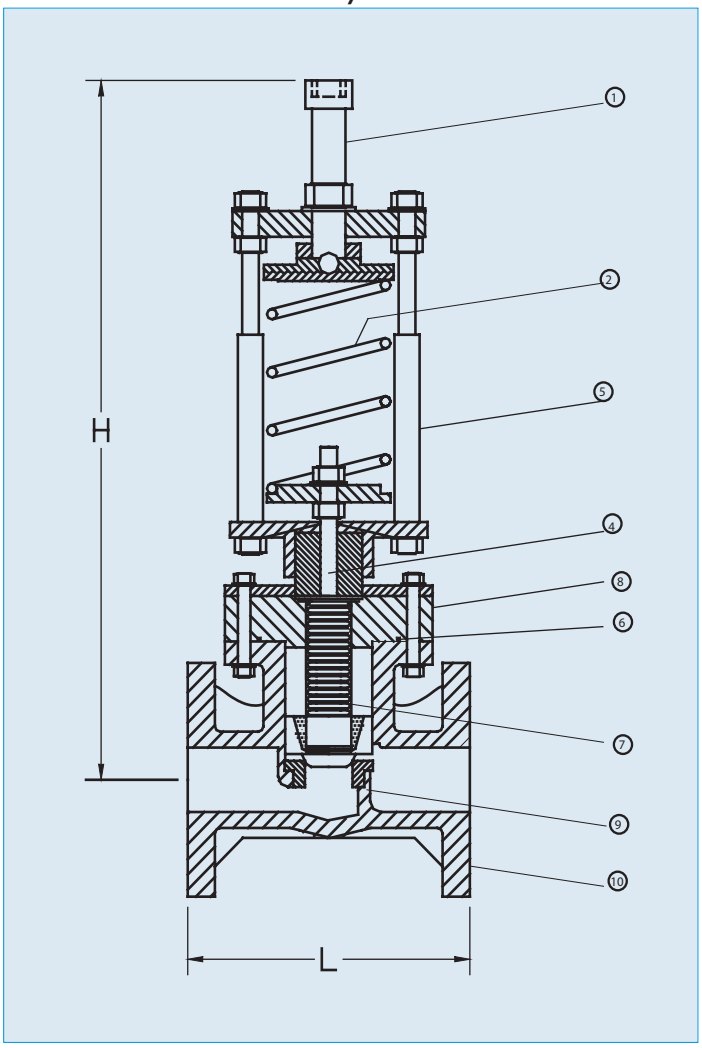
ASAHI/ AMERICA RECOMMENDS THE USE OF A/V GASKETS FOR THIS PRODUCT LINE

Caution

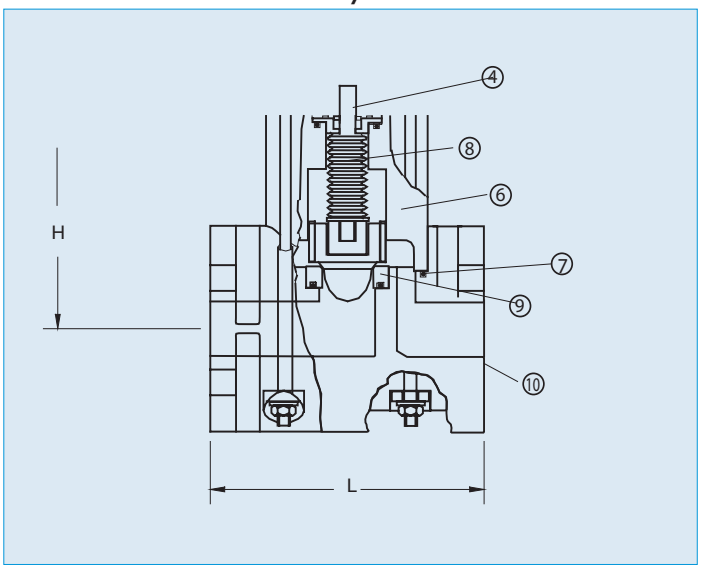
- These valves are not safety devices and must not be substituted for code approved safety relief valves or rupture discs.
- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Type E Pressure Relief Valve w/PTFE Bellows Seal

PVC/PP



PVDF/PTFE



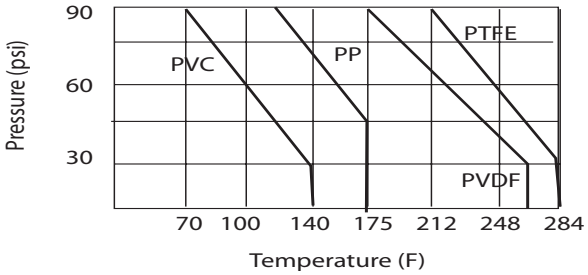
Dimensions (INCHES)

Nominal Size		PVC,PP			PVDF,PTFE	
inches	mm	L (Flg)	L (Thd)	H	L (Flg)	H (Max)
1 1/2	40	7.5	7.5	18.2	7.9	18.2
2	50	7.8	7.8	23.5	9.0	23.5
2 1/2	65	8.6	N/A	22.8	11.4	22.8
3	80	9.4	N/A	26.4	12.2	26.4
4	100	11.5	N/A	26.4	13.7	26.4

CV Values

CV Values				
1 1/2"	2"	2 1/2"	3"	4"
29	47	56	74	93

Pressure vs Temperature



Troubleshooting

What if fluid flows even when fully closed?

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

What if the valve does not open?

1. No system pressure.
2. Set pressure set too high for system.

What if fluid leaks from body?

1. Line pressure not below set pressure.

Globe Valves

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

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 150 psi at 70 degrees F sizes 1/2" thru 2" 110 psi at 70 degrees F sizes 2-1/2" thru 4". PP rated to 110 psi at 70 degrees F sizes 1/2" thru 4", as manufactured by Asahi/America, Inc.

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	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

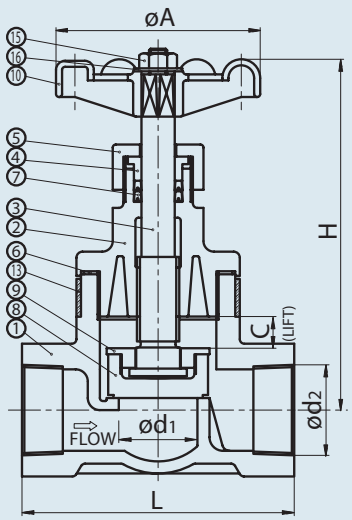
* PVC nut and washer on sizes 1/2" through 2"

Pressure vs. Temperature (PSI, WATER, NON-SHOCK)

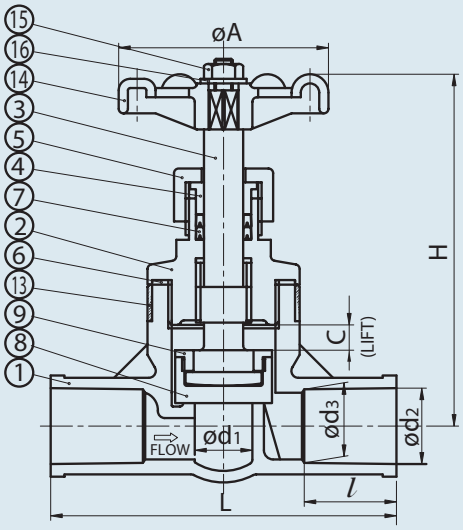
NOMINAL SIZE		PVC			PP		
INCHES	mm	30° F 70° F	71° F 105° F	106° F 120° F	-5° F 70° F	71° F 120° F	121° F 175° F
1/2 - 1 1/2	15-40	150	150	110	110	95	65
2	50	150	150	95	110	75	45
2 1/2 - 3	65-80	110	110	95	110	60	35
4	100	110	80	65	110	60	35

Globe Valves

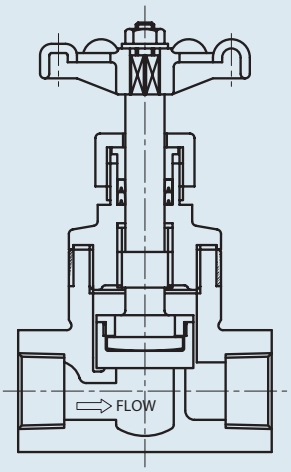
SOCKET AND THREADED END
1 1/2" — 2"

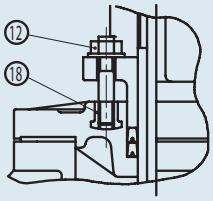


SOCKET END
1/2" — 1 1/4"

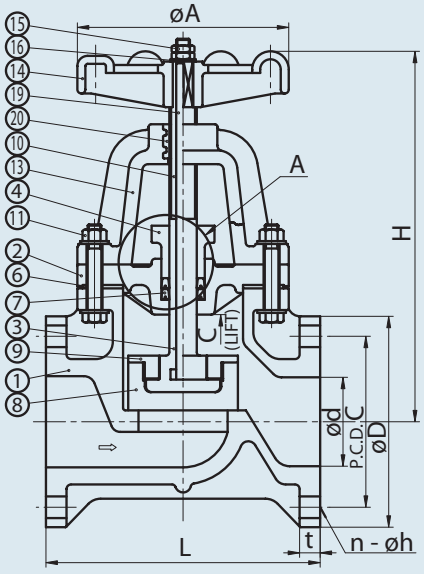


THREADED END
1/2" — 1 1/4"

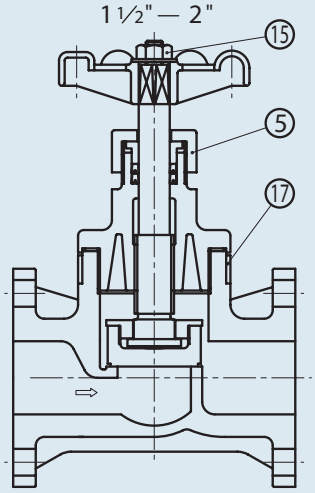




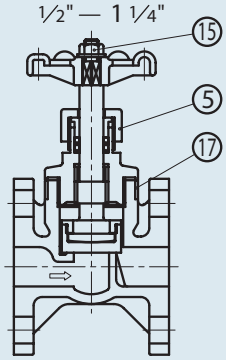
FLANGED 2 1/2" — 4"



FLANGED
1 1/2" — 2"



FLANGED
1/2" — 1 1/4"



Dimensions (INCHES)

NOMINAL SIZE		FLANGED								SOCKET AND THREADED									Cv Values
		WT. (LBS)	d	C	D	L	t	LIFT C	H (open)	WT. (LBS)	THREADED		SOCKET			LIFT C	d1	H (open)	
IN.	mm										d2	L	d2	L	l				
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	NPT1 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	NPT1 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

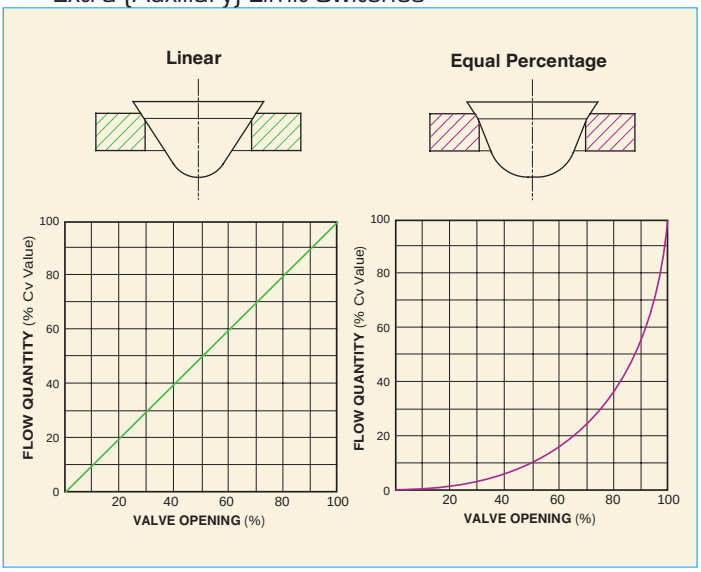
Sizes: 1/2" – 4"
Materials: PVC, PP, PVDF and PTFE
Model: Flanged (ANSI)
Stem Seal: PTFE Bellows
Valve Seal: FKM, EPDM, PTFE encapsulated FKM
Flow Char.: Linear or equal percentage"
Temp. Range: PVC 32 – 140° F, PP -5 – 175° F
PVDF -5 – 265° F, PTFE -5 – 300° F

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 SS trim
- 120 VAC/1ph supply voltage
- On/off or modulation
- 4-20 MA positioner & 4-20 MA output signal transmitter

Options

- Supplly 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

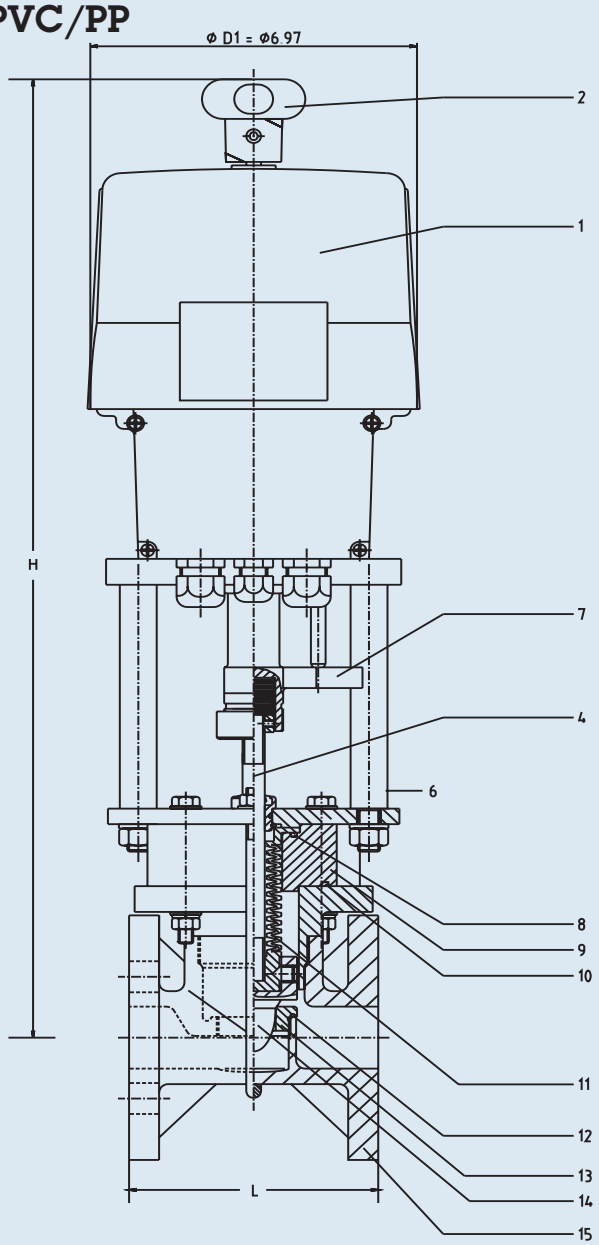
All Thermoplastic modulating control valves shall be of the Globe Valve design. Valves shall have interchangeable seat and plugs to accommodate various flow coefficients (Cv) and flow characteristics shall be either linear or equal percentage. Stem seal shall be PTFE and of the bellows design. Electric actuator shall be constructed of glass-filled polyester (PEG) with SS 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 PP0210B67272, 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

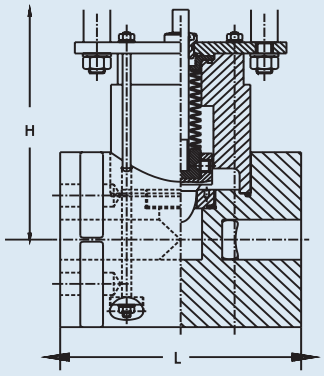
Caution

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

PVC/PP



PVDF/PTFE



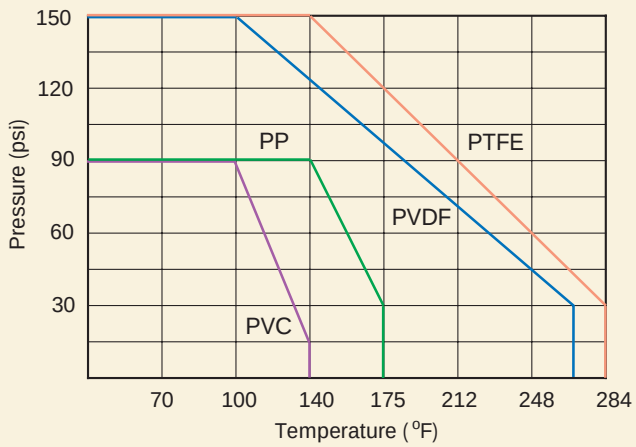
Dimensions (INCHES)

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?

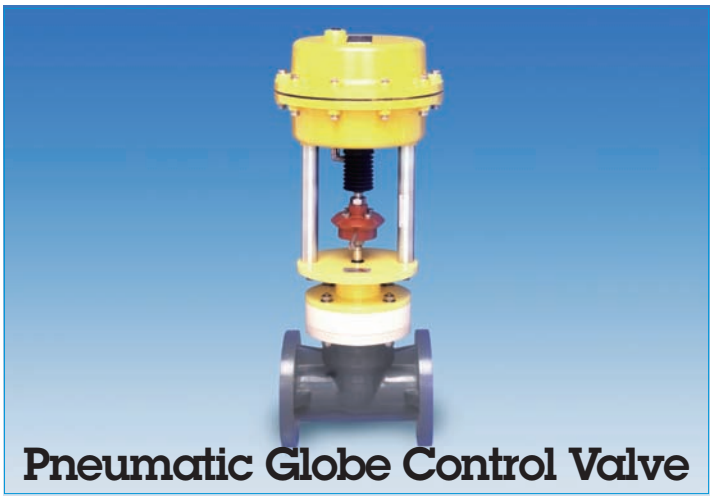
1. Plug or seat is damaged.
2. Foreign matter caught or formed at plug and seat.

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 Valve

Specifications

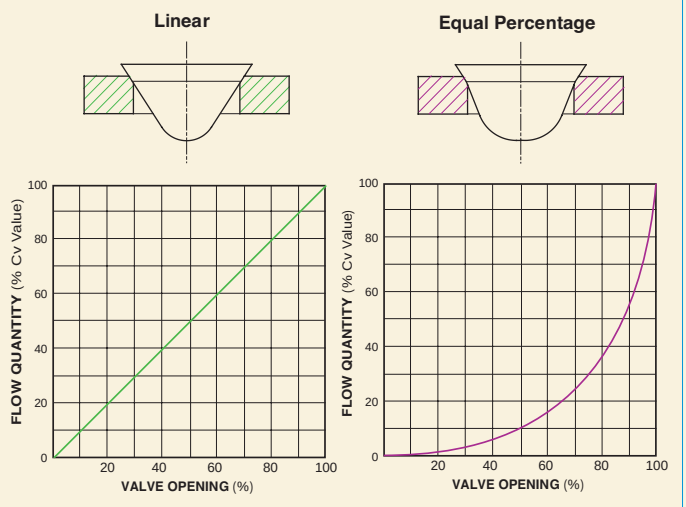
Sizes:	1/2" – 4"
Materials:	PVC, PP, PVDF and PTFE
Model:	Flanged (ANSI)
Stem Seal:	PTFE Bellows
Valve Seal:	FKM, EPDM, PTFE encapsulated FKM
Flow Char.:	Linear or equal percentage
Rangeability:	1: 50 for 1/2" – 3", 1: 30 for 4"
Temp. Range:	PVC 32 – 140° F, PP -5 – 175° F PVDF -5 – 265° F, PTFE -5 – 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 SS trim
- Maximum required air pressure is 90 psi
- 3-15 psi direct acting for sizes up to 1"

Options

- 3-15 psi Pneumatic Positioner
- 4-20mA Electro-Pneumatic Positioner
- 4-20mA 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	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

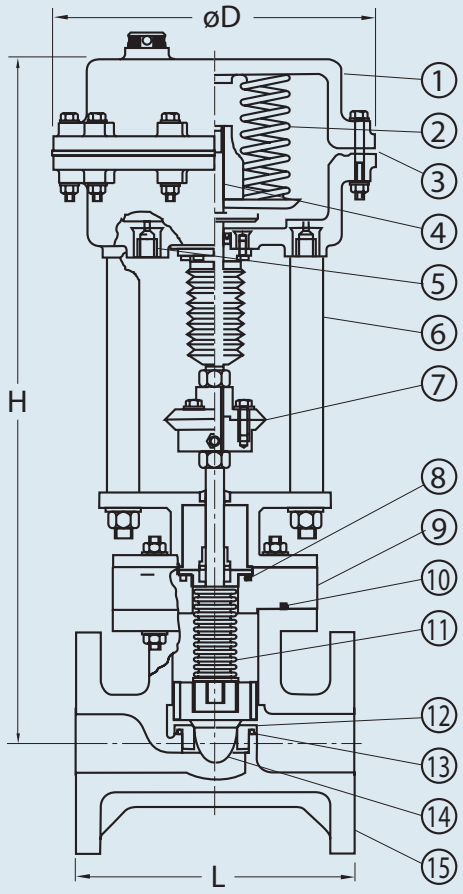
All Thermoplastic modulating control valves shall be of the Globe Valve design. Valves shall have interchangeable seat and plugs to accommodate various flow coefficients (Cv) and flow characteristics shall be either linear or equal percentage. Stem seal shall be PTFE and of the bellows design. Pneumatic actuator shall be constructed of glass-filled polyester (PEG) with SS 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 PP0210B67272, 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

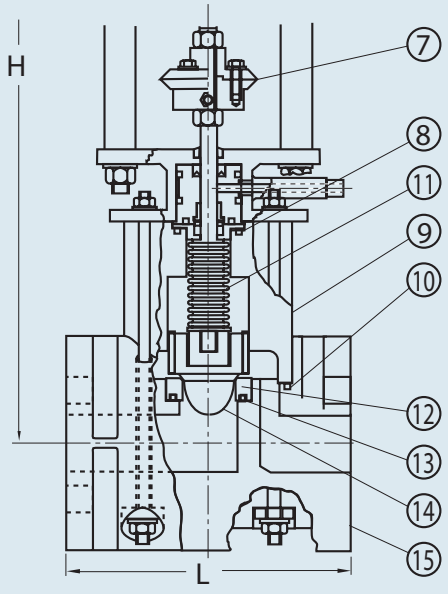
Caution

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

PVC/PP



PVDF/PTFE



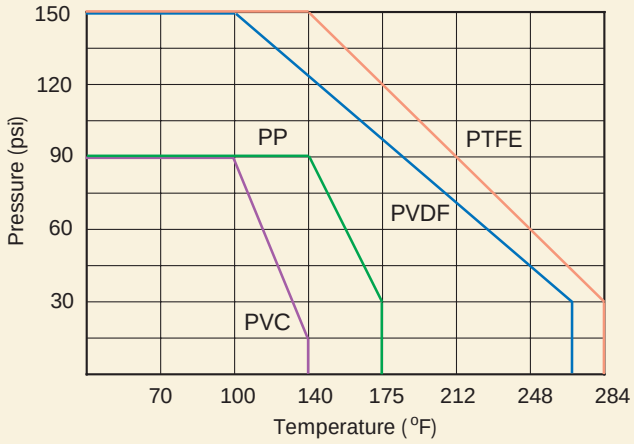
Dimensions (INCHES)

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.	VALVE SIZE (INCHES)								
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	VALVE SIZE (INCHES)								
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	18.0	18.0	
1.496					29.0	29.0	29.0	29.0	29.0
1.909						40.0	40.0	40.0	40.0
2.047							52.0	52.0	52.0
2.244								70.0	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 Chacteristics:	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

Series 79 Pneumatic Actuator

AS-i Bus System

Pneumatic 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 (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 Actuator-Sensor Interface 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-interface 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-interface a cost effective connection/control solution, particularly where low installation costs is 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.

AS-i Bus System

Series 79 Pneumatic Actuator and Ball Valve

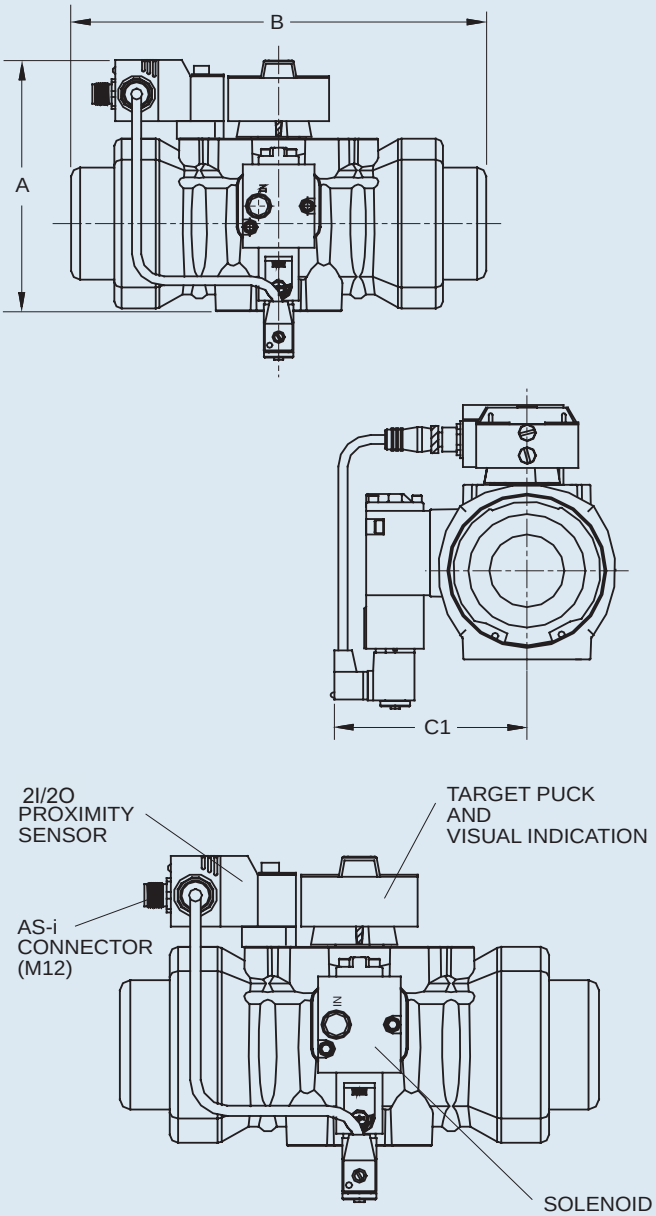
Series 79 Pneumatic Actuator and Butterfly Valve

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 SS 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.

Sample Specification

All pneumatically actuated AS-interface systems shall have a 2-input/2-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 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 over-ride, 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.



Dimensions (IN.)

Series	A	B	C1
AP79PN	4.36	4.22	3.52
AP79PSN	4.36	5.55	3.52
BP79PN	5.38	4.92	3.78
BP79PSN	5.38	6.22	3.78
CP79PN	5.62	7.01	4.22
CP79PSN	5.62	9.06	4.22
DP79PN	6.96	9.21	4.69
DP79PSN	6.96	12.13	4.69
E79PAN	8.89	12.13	5.59
E79PASN	8.89	18.50	5.59
F79PN	11.47	15.98	6.18
F79PSN	11.47	25.43	6.18
G79PN	12.67	20.63	7.25
G79PSN	12.67	27.32	7.25

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	ºF	32 ~ 140	23 ~ 140	32 ~ 194	- 4 ~ 194	- 40 ~ 248	-
Deflection Temperature (at 66 psi)	ºF	163 - 167	162 - 165	250	230 - 244	302	ASTM D648
Thermal Expansion	10^{-5}mm/ mm/ºC	6 - 8	7 - 8	6 - 8	11 - 12	11 - 12	ASTM D696
Thermal Conductivity	Kcal/mhºF	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 x 10^{15}	NA	2.28 x 10^{16}	1.93 x 10^{16}	1.97 x 10^{15}	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							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.

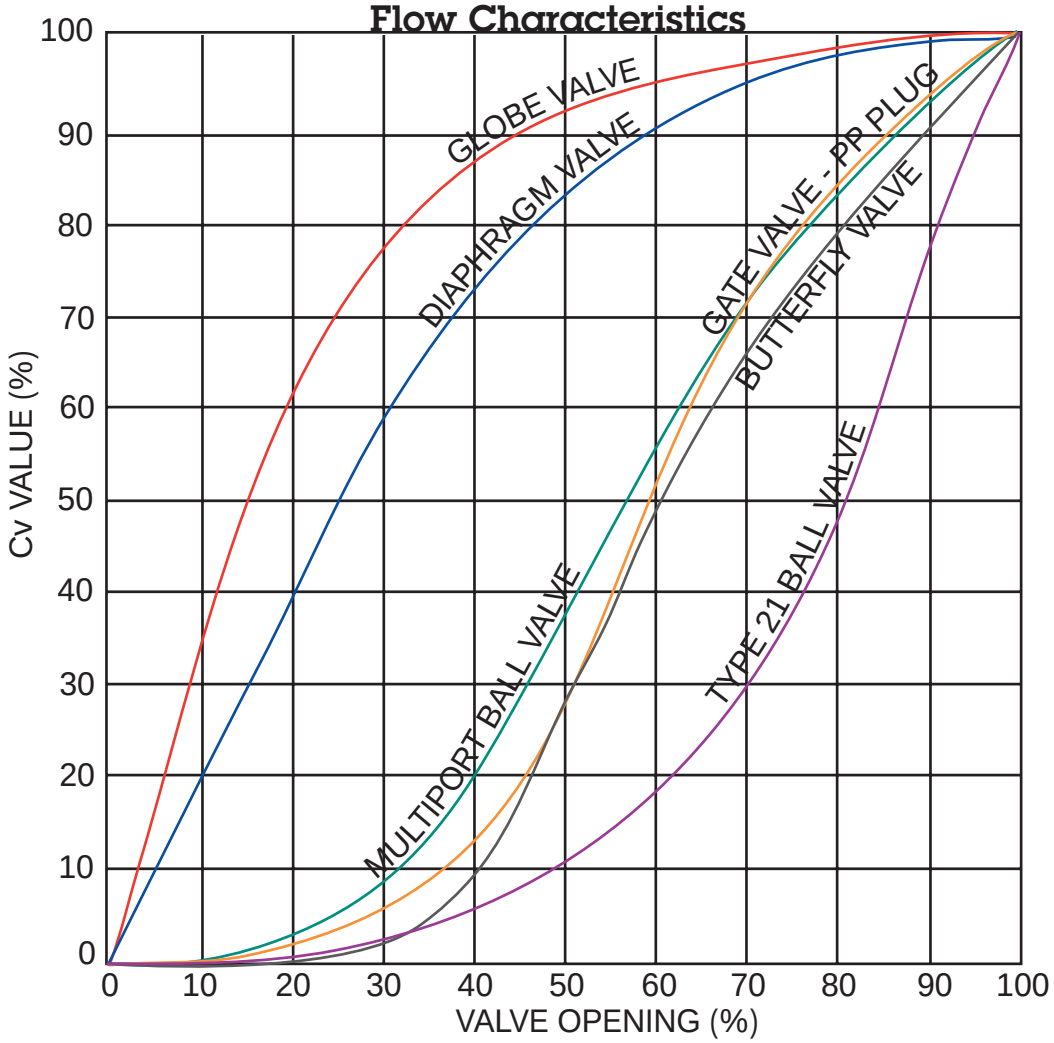
ASTM STANDARD D-3222

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



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:

Whenever a fluid passes through a valve, there will be a drop in pressure. The upstream pressure less the downstream pressure is know as the differential pressure, or:

$$P_1 - P_2 = P$$

where,

P_1 = upstream pressure
P_2 = downstream pressure
P = differential pressure

Cv is the flow rate through a valve which will produce a differential pressure of 1 psi.

$$P = (Q/Cv)^2 \text{ s.g.}$$
$$Q = Cv \left(P/\text{s.g.} \right)$$
$$Cv = Q \left(\text{s.g.}/P \right)$$

where,

P = 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 seven 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 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***

Part Numbers

Labcock Ball Valves

Body	Elastomer	Connection	1/4"
PVC	EPDM	FT x FT	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 Ball Valves

Body	Elastomer	Connection	3/8" - 3"
PVC	EPDM	Soc	1070***
PVC	EPDM	Thd	1071***
PVC	FKM	Soc	1084***
PVC	FKM	Thd	1085***
CPVC	EPDM	Soc	1072***
CPVC	EPDM	Thd	1073***
CPVC	FKM	Soc	1086***
CPVC	FKM	Thd	1087***

Electromni Valves

Body	Elastomer	Connection	3/8" - 2"
PVC	EPDM	Soc	2015***
PVC	EPDM	Thd	2016***
CPVC	EPDM	Soc	2017***
CPVC	EPDM	Thd	2018***

Ball Valve Actuators

Electric	Series 92	2001***
	Series 94	2085***
	Series 83, Electromni	2002***
	Electric - Fail Safe	2048***
Pneumatic Series 79	Air-to-Air	2301***
	Air-to-Spring	2302***

AS-i Bus System

Pneumatic Series 79	(2-way) A79-E79 Air to Air Air to Spring	2407010
Pneumatic Series 79	(2-way) F79-G79 Air to Air Air to Spring	2407040
Pneumatic Series 79	(3-way) A79-E79 Air to Air Air to Spring	2407011

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

Part Numbers

Type 57 Lever Butterfly Valves

Body	Disc	Elastomer	1 1/2"-8"
PVC	PP	EPDM	3730***
PVC	PP	FKM	3731***
PVC	PP	Nitrile	3732***
PVC	PVC	EPDM	3722***
PVC	PVC	FKM	3724***
PVC	PVDF	EPDM	3733***
PVC	PVDF	FKM	3734***
PP	PP	EPDM	3752**
PP	PP	FKM	3753**
PP	PVDF	EPDM	3740**
PP	PVDF	FKM	3741**
PVDF	PVDF	EPDM	3744**
PVDF	PVDF	FKM	3745**

Type 57 Gear Butterfly Valves

Body	Disc	Elastomer	1 1/2"-16" Plasgear	12"-14" Metal Gear	12"-24" Metal Gear
PVC	PP	EPDM	3719***	3786**	-
PVC	PP	FKM	3720***	3787**	-
PVC	PP	Nitrile	3721***	3788**	-
PVC	PVC	EPDM	3723***	3789**	-
PVC	PVC	FKM	3725***	3790**	-
PVC	PVDF	EPDM	3717***	3791**	-
PVC	PVDF	FKM	3718***	3792**	-
PP	PP	EPDM	3726**	-	3801**
PP	PP	FKM	3727**	-	3802**
PP	PP	Nitrile	3735**	-	3803**
PP	PVDF	EPDM	3736**	-	3804**
PP	PVDF	FKM	3737**	-	3805**
PVDF	PVDF	EPDM	3728**	-	3806**
PVDF	PVDF	FKM	3729**	-	3807**

Type 57 Actuators

Electric	Series 92, Chief, Reversible	1792***
	Series 94, Quarter Master	1793***
	Electric - Fail Safe	2048***
Pneumatic Series 79	Air-to-Air	1794***
	Air-to-Spring	1795***

Type 75 Butterfly Valves

Body	Disc	Elastomer	18" - 24"
PP	PP	EPDM	3801***
PP	PP	Viton	3803***
PP	PP	Nitrile	3802***
PVDF	PVDF	EPDM	3806***
PVDF	PVDF	FKM	3807***

Type 75 Actuators

Electric	Series 10, Reversible	2109***
Pneumatic Series 79	Air-to-Air	2315***
	Air-to-Spring	2316***

Type 55 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	28"	32"	36"	40"	44"	48"
PDCPD	EPDM 1721***	Gear	280	320	360	400	440	480
PDCPD	FKM 1723***	Gear	280	320	360	400	440	480

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***

Part Numbers

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	113875***
PVC	PVC	FKM	316 SS	113784***
PVC	PVDF	EPDM	316 SS	113857***
PVC	PVDF	FKM	316 SS	113759***
PP	PP	EPDM	304 SS	3860***
PP	PP	EPDM	316 SS	3861***
PP	PP	FKM	304 SS	3862***
PP	PP	FKM	316 SS	3863***
PP	PVDF	FKM	304 SS	3864***
PP	PVDF	EPDM	316 SS	3865***
PP	PVDF	EPDM	304 SS	3866***
PP	PVDF	FKM	316 SS	3867***
PVDF	PVDF	EPDM	304 SS	3868***
PVDF	PVDF	EPDM	316 SS	3869***
PVDF	PVDF	FKM	304 SS	3870***
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	304 SS	3832***	3840**
PP	PP	EPDM	316 SS	3833***	3841**
PP	PP	FKM	304 SS	3834***	3842**
PP	PP	FKM	316 SS	3835***	3843**
PP	PVDF	FKM	304 SS	3836***	3844**
PP	PVDF	EPDM	316 SS	3837***	3845**
PP	PVDF	EPDM	304 SS	3838***	3846**
PP	PVDF	FKM	316 SS	3839**	3847**
PVDF	PVDF	EPDM	304 SS	3848**	3852**
PVDF	PVDF	EPDM	316 SS	3849**	3853**
PVDF	PVDF	FKM	304 SS	3850**	3854**
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	Nitril	Wafer	3932***
PVC	PP	FKM	Wafer	3931***
PVC	PP	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	Nitril	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 14 Pnuematic 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	1428***
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 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 Pnuematic 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***

Part Numbers

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***

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***

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***

AV Gaskets

Material	1/2" - 12"
EPDM	3113***
PTFE-Bonded	3114***
PVDF-Bonded	3115***

Swing Check Valves

Body	Seat	Connection	3/4" - 8"
PVC	EPDM	Flg	1201***
PP	EPDM	Flg	1202***
PVDF	Teflon	Flg	1203***

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***

Sight Glass Valves

Body	Seals	Connection	3/4" - 1"
PVC	EPDM	Flg	1333***
PVC	FKM	Flg	1334***
PP	EPDM	Flg	1336***
PP	FKM	Flg	1337***

Type A Pressure Relief Valves

Body	Connection	1/2" - 2"
PVC	Thd	1361***
PVC	Flg	1360***
PP	Thd	1363***
PP	Flg	1362***

Type E Pressure Relief Valves

Body	Connection	1/2" - 2"	3" - 4"
PVC	FLG	1310***	1310***
PVC	THD	1311***	-
PP	FLG	1312***	1312***
PP	THD	1313***	-
PVDF	FLG	1314***	1314***
PTFE	FLG	1315***	1315***

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	Connection	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***

Part Numbers

Type TI Diaphragm Valves

Body	Bonnet	Diaphragm	1/2" - 6"
PVDF	PPG	PTFE	1457***

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-57 Butterfly Valve	PVD/EPDM	1-1/2" - 4"	2909***
Series 94	T-57 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-57 Butterfly Valve	PVC/FKM	1-1/2" - 8"	2914***

Fast Pack
Pneumatic

Actuator	Valve	Material	Size	Part Number
Series 79 A-A	T-21 Ball Valve	PVC/EPDM	1/2" - 4"	2904***
Series 79 A-A	T-21 Ball Valve	PVC/FKM	1/2" - 4"	2908***
Series 79 A-A	T-57 Butterfly Valve	PVD/EPDM	1-1/2" - 8"	2912***
Series 79 A-A	T-57 Butterfly Valve	PVC/FKM	1-1/2" - 8"	2916***
Series 79 A-S	T-21 Ball Valve	PVC/EPDM	1/2" - 4"	2903***
Series 79 A-S	T-21 Ball Valve	PVC/FKM	1/2" - 4"	2907***
Series 79 A-S	T-21 Ball Valve	PVC/EPDM	1-1/2" - 8"	2911***
Series 79 A-S	T-57 Butterfly Valve	PVC/FKM	1-1/2" - 8"	2915***