

Chemical Resistant 2 & 3 Way Valves FOR CORROSIVE AND ULTRA-PURE LIQUIDS

DESIGN

2-Way Valves: Plast-O-Matic manufactures a complete line of air operated 2-way shutoff valves in sizes 1/2" through 2" NPT or BSP with inline flow patterns. All inline valves have Teflon® shafts standard for low friction and non-sticking. The Fail-Dry® design is standard. Clear acrylic air cylinders to see valve position are standard.

3-Way Valves: Plast-O-Matic 3-way valves are available in sizes 1/2" through 2" NPT or BSP. They can be used with one common inlet and two outlets, or two separate inlets and one common outlet. Teflon shaft is standard on 1/2" size and optional on 3/4" through 2". Clear acrylic air cylinders to see valve position are standard. The Fail-Dry concept is standard.

Fail-Dry®: Fail-Dry is a registered and patented design of Plast-O-Matic where by the liquid seals and air pressure seals are separated by a vent which will give an indication of a valve problem before a system shutdown is necessary.

Throttling of 2-Way Valves: A very simple and inexpensive throttling limit stop to control flow is available on the 2-way valves. This is adjusted in the field to a set opening and the valve will always re-open to that point. If the line pressure remains constant then the flow will also remain constant.

Pressure Ratings: The valves are rated for 150 psi inlet pressure unless rated otherwise. Acrylic air cylinders are also rated for 150 psi; however, it is recommended to use 60 to 80 psi as a maximum. For other pressure ratings and air pressures needed see the appropriate tables for each valve design.

Flow Ratings: See tables for Cv ratings.

Vacuum: The valves are designed to handle vacuum service except for series BLT, and ELT.

Water Hammer: In piping systems where high velocity flows are present (especially on 1 1/2" and 2" sizes) the closing speed of the valves should be controlled to avoid water hammer. This can be accomplished with an air flow control valve available as an option from Plast-O-Matic.

MATERIALS OF CONSTRUCTION

Bodies: Standard material is Type 1, Grade 1 PVC (polyvinyl chloride). Special materials are Polypropylene, Teflon, CPVC, and PVDF. Consult factory for availability of special materials.

Seals: Standard seals are Viton®, Buna-N, or EPDM.

Springs: These are not located in the liquid section of the valve. Standard material is steel.

Shafts: Depending on valve series the shafts are either PVC or glass-filled Teflon. See specific valve series for details.

Hardware: Stainless steel is standard. These are in atmosphere only.

Air Cylinder: Standard is clear acrylic on all series.

OPERATION

Actuation: Each of the Plast-O-Matic air operated valves requires a solenoid valve to control the air or hydraulic pressure that actuates the Plast-O-Matic valve. The solenoid valve must be a 3-way or a 4-way depending on the mode of operation of the Plast-O-Matic valve. The only valves that require a 4-way solenoid valve are those operated with air pressure for both opening and closing. The Plast-O-Matic valves that fall into this category are Series EAT. All others utilize a 3-way solenoid valve. These solenoid valves are available as an option from Plast-O-Matic in 1/8 NPT with brass body construction.

Mode of Operation: The options available with Plast-O-Matic's air operated valves are as follows:

1. Air to open and air to close.
2. Air to open and spring to close (normally closed).
3. Air to close and spring to open (normally open).
4. Air to close and liquid line pressure to open (normally open).

Air Actuation: In most cases air pressure is available to actuate the Plast-O-Matic valves. It is recommended to regulate the air pressure to 60 to 80 psi. The air should be filtered and lubricated for longer valve life. No solvent vapors or detergents should be in the air supply.

Water or Hydraulic Actuation: In situations where air pressure is not available water pressure can be used so long as the pressure available is sufficient to actuate the valve. The brass solenoid valves (3 or 4 way) will handle air or water. If the water is not clean a filter should be used.

Water Hammer Caused By High Velocity Flow: See previous note in Design Section.

INSTALLATION

Mounting: Valves should be mounted upright for best results and less strain on piping.

Flow Direction: All 2-way valves are supplied with the flow direction indicated. This should be adhered to or problems could result. For 3-way diverter valves the common port, normally closed port, and normally open port are labeled. The common port can be used as either an inlet or an outlet.

Piping Alignment: Do not force the piping alignment when installing a valve or a fracture could result. The valve must be installed with no strain on the piping.

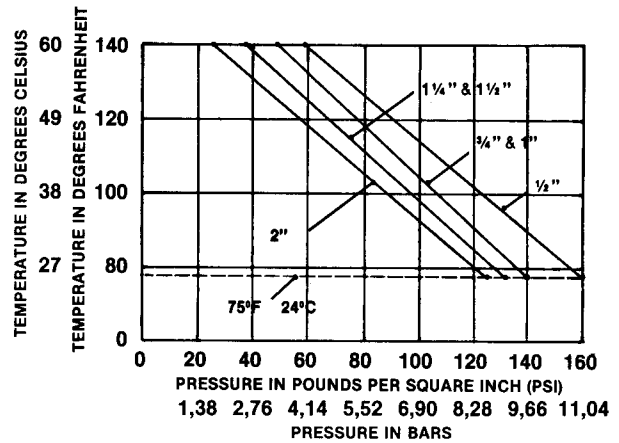
Threaded Connections: It is not recommended that threaded connections be made to metal piping. If this is necessary, use extreme caution. Teflon tape or other acceptable pipe sealant should be used to effect a seal. The assembly need only be made hand tight followed by a quarter turn more with a strap wrench. Do not overtighten and do not use pipe wrenches.

Socket Connections: Use extreme care with solvent welding to avoid dripping the solvent cement into the inner valve components.

Flanged Connections: The valve flange bolt holes should always line up with the bolt holes in the companion flange. The flange should not be used as a take up to compensate for a short pipe. The plastic valve flange can be butted to a metal flange providing they are in alignment.

TEMPERATURE VS PRESSURE

PVC: Line pressure directly affects the temperature at which a plastic valve can operate safely. Also the size of a plastic valve has a direct bearing on the pressure it can withstand. The chart below is a guide for our standard PVC valves.



Special Plastics: Maximum working temperature for other plastic used in Plast-O-Matic valves will vary from the above chart. Consult factory for specific recommendations.

Acrylic Cylinders: The maximum temperature rating is 100°F at 125 psi and 160°F at 50 psi.

ORDERING INFORMATION

When ordering any of the Plast-O-Matic shutoff valves, it is helpful to specify the exact chemicals, concentrations, temperatures and line pressures of the process liquid. Also specify if the valve is to be used in vacuum or pressure service. Specify the exact model number of the Plast-O-Matic valve needed and be sure that the seal material has been chosen correctly.

Keep in mind that an air solenoid is required to control the operation of these valves. These solenoids can be purchased from Plast-O-Matic.

3-Way Air Solenoid Valve	4-Way Air Solenoid Valve
Gen. purpose #8320G13	#8345G1
Exp. proof #EF8320G13	#8345E11

DIMENSION & PART NUMBER UPDATE – SERIES EAT, ELT, EST 2-Way Valves Design Revision • Machined Solid Bodies

DESIGN:

Series EAT, ELT and EST 2-Way Shut-off Valves with visual position indicator have been re-designed. The main valve body is now machined from solid thermoplastic stock; the previous design was fabricated.

SPECIFICATIONS:

The pressure ratings, pressure requirements, material specifications and features in Catalog ASO-3 still apply and should be referred to.

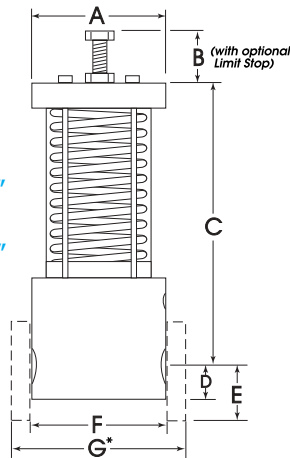
PART NUMBERS:

To avoid confusion with parts and seal kits for fabricated valves, the part numbers for the new designs have been changed. For all future EAT, ELT, EST-NC and EST-NO orders, replace the "E" in the part number with a "B". For example, EST100V-NC-PV should be ordered as BST100V-NC-PV.

DIMENSIONS:

Some of the body dimensions have changed. Please refer to the tables below for all BAT, BLT and BST valves 3/4" through 2". For 1/2" sizes and diverter valves (F & BFS), the dimensions in Catalog ASO-3 still apply.

SERIES "BST-NC"
&
SERIES "BST-NO"



SERIES "BST-NC" DIMENSIONS

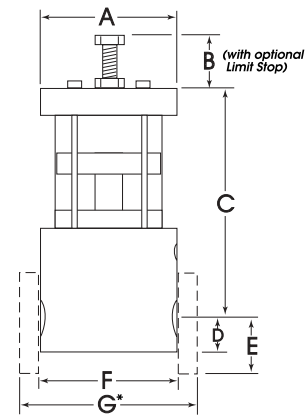
	in. 3/4"	mm	in. 1"	mm	in. 1 1/4"	mm	in. 1 1/2"	mm	in. 2"	mm
A	3 1/2	88.9	3 3/4	95.3	4 9/16	115.9	5	127.0	6	152.4
B _(max)	1 3/4	44.5	1 3/4	44.5	1 5/8	41.3	1 3/4	44.5	2 3/8	60.3
C	9 3/8	238.0	11 5/16	287.3	13	330.2	15	381.0	15 13/16	401.6
D	1 5/32	29.2	1 3/8	34.8	1 25/32	45.2	1 25/32	45.2	1 15/32	37.1
E	1 15/16	49.2	2 1/8	53.8	2 5/16	58.7	2 1/2	63.5	3	76.2
F	3	76.2	4	101.6	4 1/2	114.3	6	152.4	5	127.0
G*	4	101.6	5	127.0	5 3/4	146.1	7 3/8	187.2	8 1/2	215.9

SERIES "BST-NO" DIMENSIONS

	in. 3/4"	mm	in. 1"	mm	in. 1 1/4"	mm	in. 1 1/2"	mm	in. 2"	mm
A	3 1/2	88.9	3 3/4	95.3	4 9/16	115.9	5	127.0	6	152.4
B _(max)	1 3/4	44.5	1 3/4	44.5	1 5/8	41.3	1 3/4	44.5	2 3/8	60.3
C	9 1/16	230.1	9 15/16	236.5	11 5/16	287.3	14 1/8	358.6	14 3/4	374.7
D	1 5/32	29.2	1 3/8	34.8	1 25/32	45.2	1 25/32	45.2	1 15/32	37.1
E	1 15/16	49.2	2 1/8	53.8	2 5/16	58.7	2 1/2	63.5	3	76.2
F	3	76.2	4	101.6	4 1/2	114.3	6	152.4	5	127.0
G*	4	101.6	5	127.0	5 3/4	146.1	7 3/8	187.2	8 1/2	215.9

G* Dimension is inlet-to-outlet with optional flanged ends.

SERIES "BAT"
&
SERIES "BLT"



SERIES "BAT" DIMENSIONS

	in. 3/4"	mm	in. 1"	mm	in. 1 1/4"	mm	in. 1 1/2"	mm	in. 2"	mm
A	3 1/2	88.9	3 3/4	95.3	4 9/16	115.9	5	127.0	6	152.4
B _(max)	1 3/4	44.5	1 3/4	44.5	1 5/8	41.3	1 3/4	44.5	2 3/8	60.3
C	6 9/16	166.6	7 3/8	187.2	8 5/16	211.1	9	228.6	10 3/16	258.6
D	1 5/32	29.2	1 3/8	34.8	1 5/8	41.1	1 7/8	47.5	1 15/32	29.2
E	1 15/16	49.2	2 1/8	53.8	2 5/16	58.7	2 1/2	63.5	3	76.2
F	3	76.2	4	101.6	4 1/2	114.3	6	152.4	5	127.0
G*	4	101.6	5	127.0	5 3/4	146.1	7 3/8	187.2	8 1/2	215.9

SERIES "BLT" DIMENSIONS

	in. 3/4"	mm	in. 1"	mm	in. 1 1/4"	mm	in. 1 1/2"	mm	in. 2"	mm
A	3 1/2	88.9	3 3/4	95.3	4 9/16	115.9	5	127.0	6	152.4
B _(max)	1 3/4	44.5	1 3/4	44.5	1 5/8	41.3	1 3/4	44.5	2 3/8	60.3
C	5 5/16	134.9	5 9/16	141.2	6 3/8	161.8	6 5/8	168.2	8 7/8	225.3
D	1 5/32	29.2	1 3/8	34.8	1 7/8	47.5	1 7/8	47.5	1 1/2	38.1
E	1 15/16	49.2	2 1/8	53.8	2 5/16	58.7	2 1/2	63.5	3	76.2
F	3	76.2	4	101.6	4 1/2	114.3	6	152.4	5	127.0
G*	4	101.6	5	127.0	5 3/4	146.1	7 3/8	187.2	8 1/2	215.9

G* Dimension is inlet-to-outlet with optional flanged ends.



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