V5011P
TWO-WAY THREADED GLOBE VALVE

- Red brass body with NPT-threaded end connections.
- Low seat leakage rate (≤0.05 percent of Cv).
- 50:1 rangeability per VDI/VDE 2173.
- Spring-loaded, self-adjusting packing.
- Accurate positioning to ensure state of the art temperature control.
- Directly coupled electric and pneumatic actuators for easy mounting.
- Sizes rang from 1-1/4 in. to 2 in.
- Valve designs provide equal percentage flow characteristic for water and linear flow characteristic for steam.
- Stainless steel stem and metal-to metal seats.
- Repack and rebuild kits for field servicing.

APPLICATION

The V5011P is a two-way threaded globe valve that control steam, water, and glycol solutions (up to 50 percent concentration) in heating or cooling HVAC applications. The valve is used in two-position and modulating control systems. The valve is not suitable for combustible gas service.

Technical Specification

IMPORTANT

The specifications given in this publication do not include normal manufacturing tolerances. Therefore, an individual unit may not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions and some minor differences in performance can be expected if those conditions are changed.

Models:
V5011P Valve: Two-way threaded globe valve for steam, water, or glycol. BSPT-threaded pipe connections. Throttling plug provides equal percentage flow characteristic for water (V5011P1xxx), linear flow characteristic for steam (V5011P2xxx).

NOTE: V5011P1xxx and V5011P2xxx are direct acting (stem down to close).

Dimensions	See Fig. 1.
Pipe Connections	Internal BSPT-threaded connections.
Seat	Stainless steel, replaceable
Valve Sizes and Flow Capacities	See Table 1.
Plug	Brass on V5011P1xxx, stainless steel on V5011P2xxx for steam
ANSI Body Class	300 psi.
Approximate Leakage Rate	0.05 percent Cv.
Packing	Spring-loaded, carbon fiber reinforced PTFE V-rings.
Stem	Stainless steel.
Stroke	3/4 in. (20 mm).
Rangeability	50:1 per VDI/VDE 2173.
Pattern:	2-way, straight-through.
Body Material	Red brass.
Pressure-Temperature Ratings:	Water: 36°F to 248°F, 217 psi (15 bar). 248°F to 337°F, 185 psi (12.8 bar). Maximum Water Differential Pressure: 230 psid (15.8 bar). Steam: 100 psi (6.9 bar) at 337°F (V5011P2xxx).

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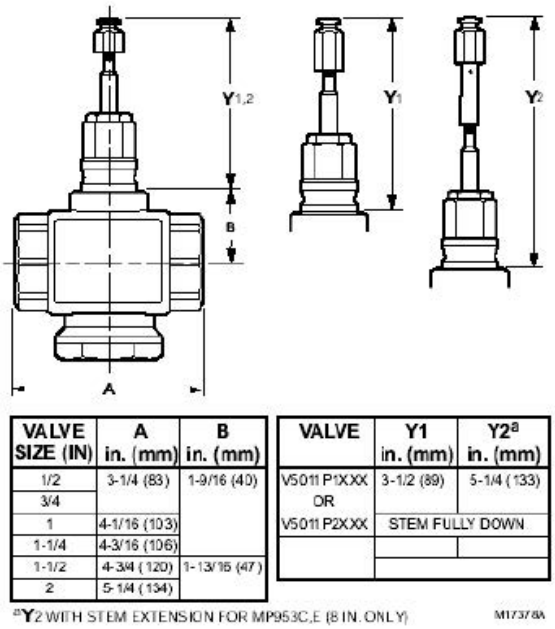
Maximum Differential for Quiet Water Service	20 psid.
Valve Flow Characteristics:	Water: Equal percentage (V5011P1xxx). Steam: Linear (V5011P2xxx). See Fig. 2.
Close-Off Pressure Ratings	See Fig. 3, and Table 2.
Valve Design Life	250,000 full cycles at maximum rated temperature.
Replacement Parts:	See Fig. 5 and Table 3.

Electric	Pneumatic
ML6421/ML6425	MP953C(5 and 8 in.)
ML7421/ML7425	MP953C(5 and 8 in.)
ML7984/ML6984	---
Modutrol IV with Q5001	---
Damper DCA with Q5020	---

Size (in.)	Capacity
1/2	0.73 1.16 1.85 2.9 4.7
3/4	7.3
1	11.7
1-1/4	18.7
1-1/2	29.3
2	46.8

Table 1. Valve Size and Flow Capacities.



VALVE SIZE (IN)	A in. (mm)	B in. (mm)
1/2	3-1/4 (83)	1-9/16 (40)
3/4		
1	4-1/16 (103)	
1-1/4	4-3/16 (106)	
1-1/2	4-3/4 (120)	1-13/16 (47)
2	5-1/4 (134)	

VALVE	Y1 in. (mm)	Y2[a] in. (mm)
V5011 P1XXX OR	3-1/2 (89)	5-1/4 (133)
V5011 P2XXX	STEM FULLY DOWN	

[a]Y2 WITH STEM EXTENSION FOR MP953C,E (8 IN. ONLY)

M17378A

Fig. 1. V5011P body dimensions in in. (mm).

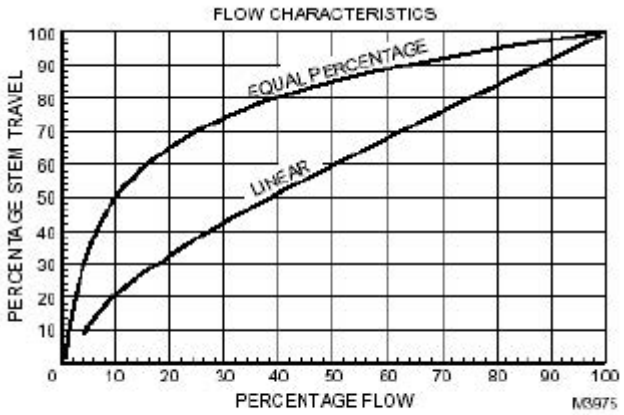


Fig. 2. Equal percentage and linear flow characteristics.

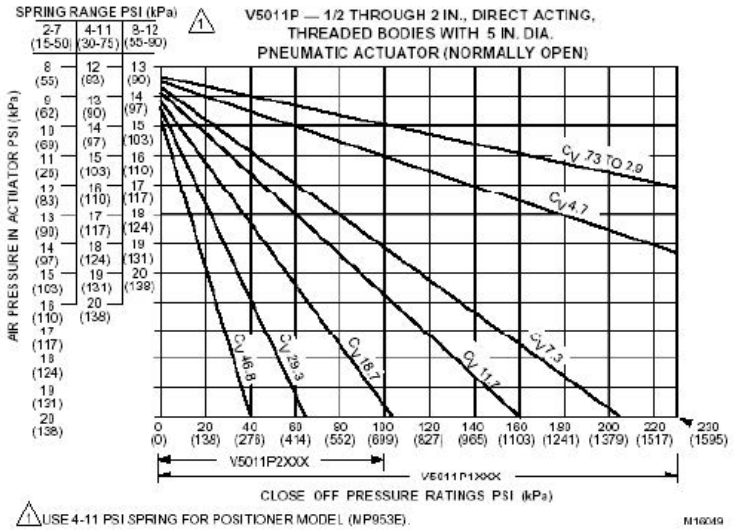
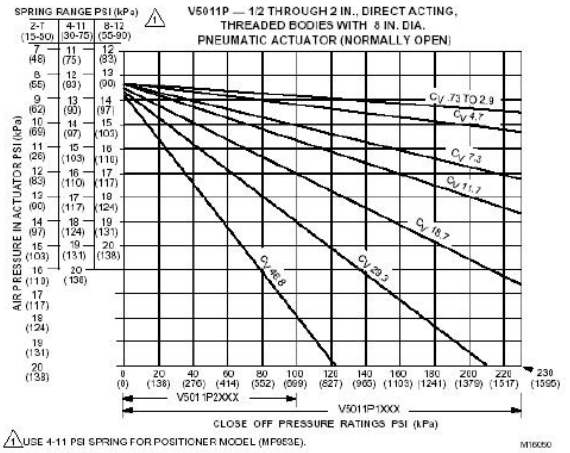
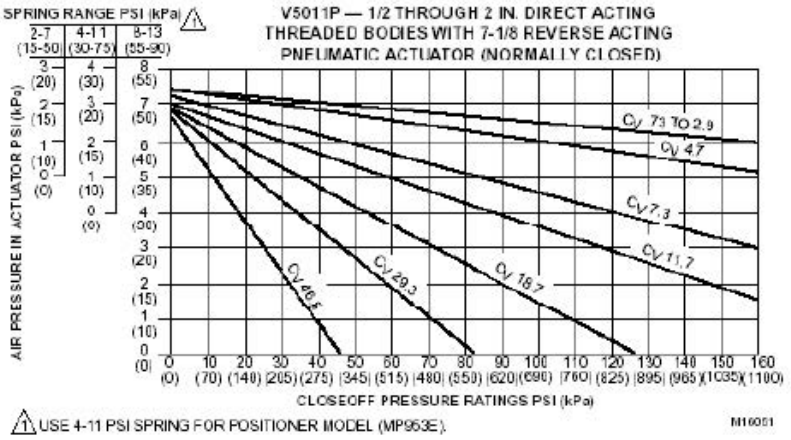


Fig. 3. Close-off ratings at various control air pressures for V5011P Valves and MP953 Pneumatic Actuators.





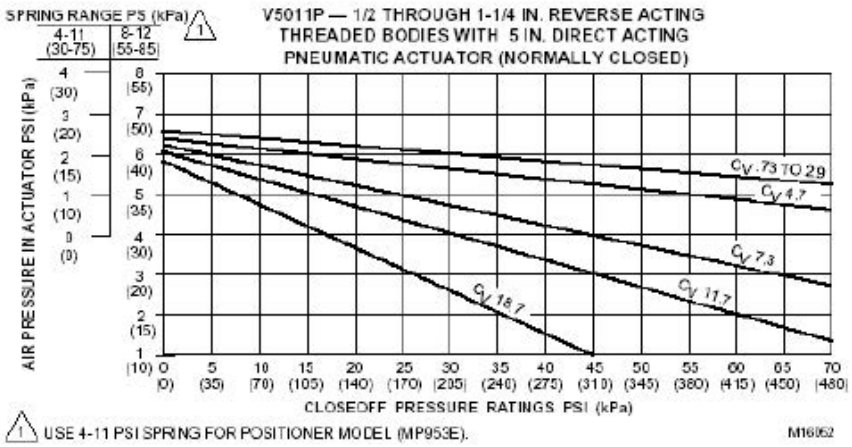


Fig. 3. Close-off ratings at various control air pressures for V5011P Valves and MP953 Pneumatic Actuators. (continued)

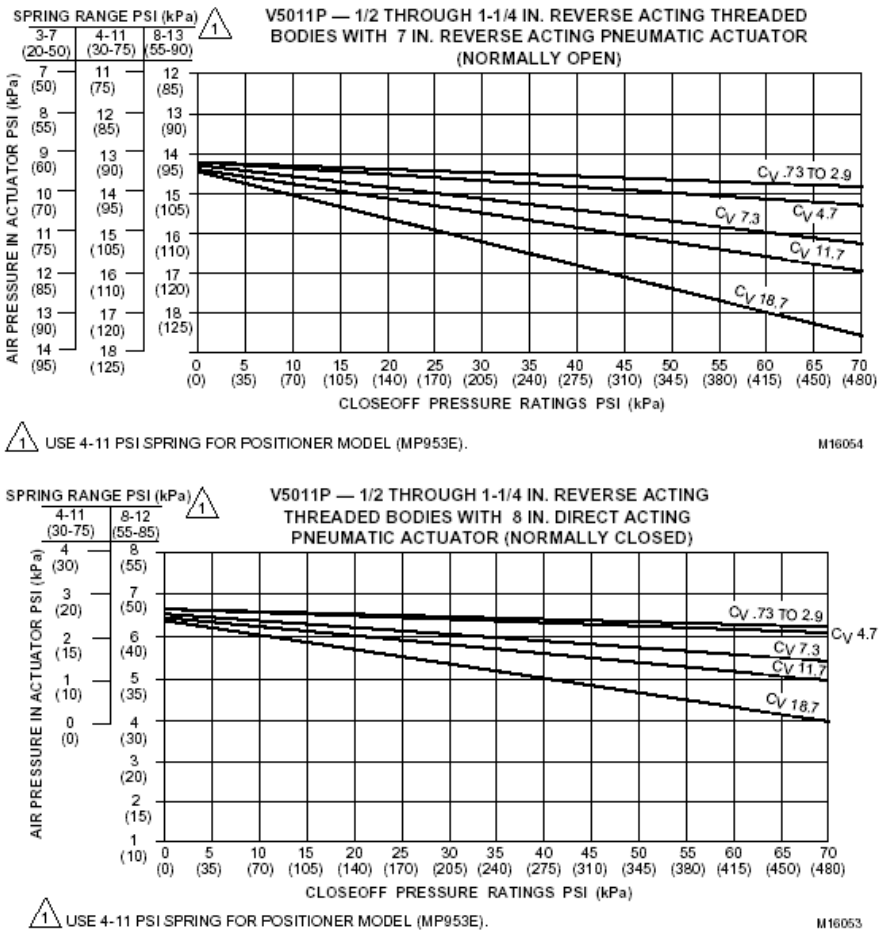


Fig. 3. Close-off ratings at various control air pressures for V5011P Valves and MP953 Pneumatic Actuators. (continued)

INSTALLATION

When Installing This Product.

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

IMPORTANT

1. Do not lift the valve by holding the stem.
2. Do not mount the valve with the stem pointed lower than horizontal.
3. Mount the valve with the flow arrow pointed in the direction of flow through the valve.
4. Mount the valve between aligned pipes. Mounting the valve on pipes that are not aligned causes leakage at the valve-to-pipe connection.
5. Ensure complete engagement on pipe to valve body threads.
6. Hold the valve body with a clamp or pipe wrench on the hexagonal fitting nearest the pipe to prevent damage to the valve body while mounting on the pipe. Refer to Fig. 4.
7. 7. Be sure to allow enough room for installation and service. Clearance for valve installation is dependent on actuator size and the valve pipe size.

Location

Select a location where the valve, linkage, and actuator are within the appropriate pressure and temperature ratings. Leave sufficient clearance above the valve to accommodate actuator installation and allow room for servicing the valve body. (Completely install the valve body in the pipe line before installing the actuator and linkage.)

When selecting a location for the valve, consider actuator mounting restrictions. Modutrol IV™ Motor crankshafts must be mounted horizontally.

Mounting

The preferred valve mounting position is with the stem vertical. For steam applications, mount with the stem at a 45 degree angle. Do not mount the valve with the stem more than 90 degrees from the vertical (pointing lower than horizontal). Scale and foreign material can collect, scoring the stem and causing packing leakage. Protect the stem from damage due to bending or scratching.

IMPORTANT

1. Before installing linkag and actuator, make sure that the valve stem operates freely. Impaired stem operation can indicate that the body was twisted or the stem was bent. Either of these conditions can require valve replacement.
2. Align pipes squarely ith valve at each end connections.
3.. If the pipes are forced to the valve, the body can become twisted and improper seating can result.
4. Apply pipe dope sparingly
5. Be careful to prevent pipe debris, such as chips a scale, from entering the piping because this material can lodge in the seat and prevent proper closing.

NOTE: Threading on threaded bodies conform to BSPT.

Refer to the table in Fig. 4 for valve pipe sizes and thread lengths. Fig. 4 also shows two effective methods of holding the valve and pipe when attaching it. Refer to installation information furnished with the linkage and motor when installing these controls.

Table 2 Closs-off rating (psid) for V5011P Valves with Electric and Electronic Actuators

Valve Size (BSPT)	Mod IV with Q5001 Linkages			ML6421A, ML7421A	ML6425,ML7425 ML6420,ML7420	ML7984, ML6874
	320 lb	160 lb	80 lb	405 lb	135 lb	160 lb
V5011P1xxx						
1/2	---	230	230	---	230	230
3/4	---	230	131			
1	230	196	91	230	163	196
1-1/4	230	126	57	230	104	126
1-1/2	173	81	36	221	67	81
2	98	46	19	126	37	46
V5011P2xxx Valves						
1/2, 3/4	---	100	100	---	100	100
1	100	100	91	100		
1-1/4	100	100	57			
1-1/2	100	81	36	100	67	81
2	98	46	11	100	37	46

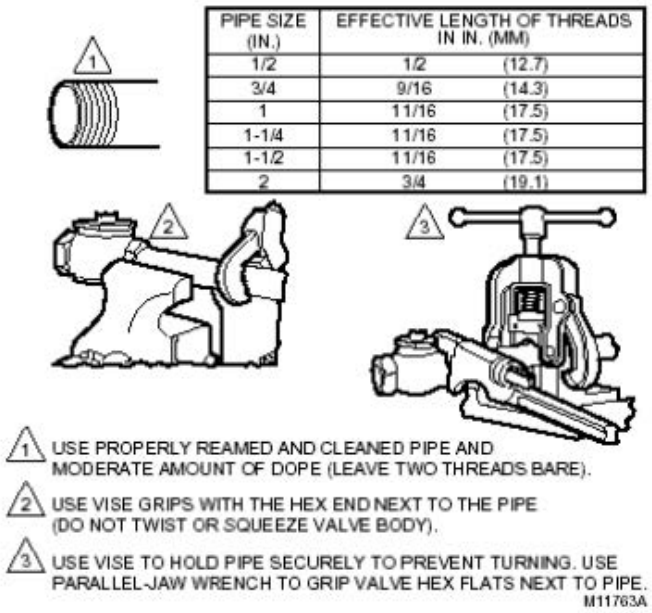


Fig 4 Installing Valves with threaded connections

CHECKOUT

Use the following procedure to check for proper valve operation:

1. Check valve body and connections for leaks.
2. After installing linkage and actuator, check operation according to installation information furnished with these controls.
3. Operate system through one complete cycle to ensure valve controls properly.
4. Check valve at regular intervals for leakage around packing.

IMPORTANT

Before installing linkage (if used) and actuator, make sure that the valve stem operates freely. Impaired stem operation can indicate that the body was twisted or the stem was bent. Either of these conditions can require valve replacement.

5. If leakage is discovered and inspection shows that the packing gland is screwed down tightly, then repack the valves.

NOTE: Packing is spring-loaded and should seldom require attention.

R_`jc 1, T_jtc Pc`sgjb _lb Pcn_ai lgrq,

Opbcp lsk``cp	@QNR qgxc	Djmu A_n_agrw At	Qrck Bg_kcrcp &gl,'	Pcn_ai lgr	Pc`sgjb lgr
V5011P1004	35	//,5		.7./565?	.7./530?
V5011P1012	90	/6,5			.7./531?
V5011P1020	150	07,1	1-6		.7./532?
V5011P1038	400	24,6			.7./533?
V5011P2002	500	/6,5			.7.1207?
V5011P2010	650	07,1		.7./565?	.7.121.?
V5011P2028	1000	24,6			.7.121/?

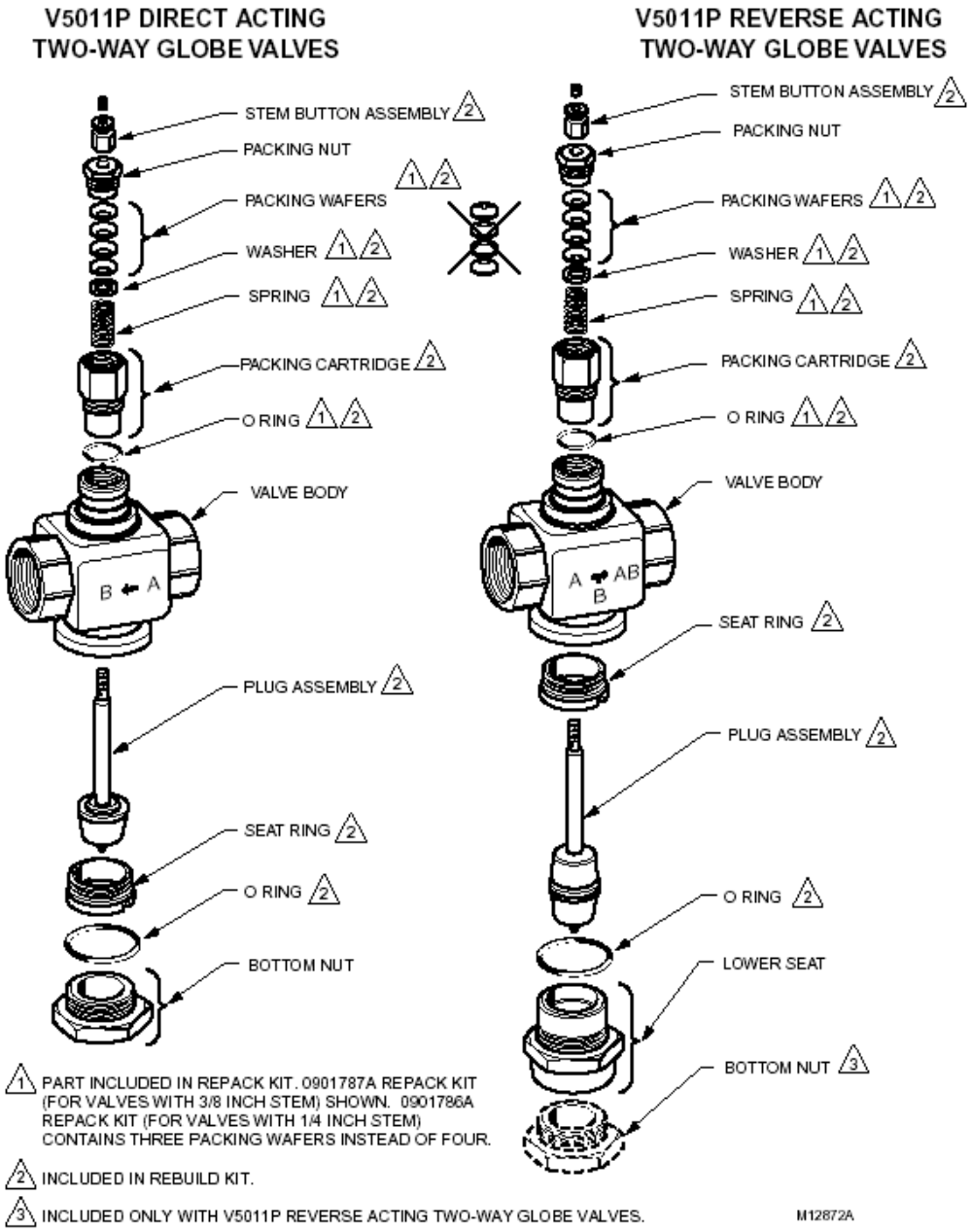


Fig. 5. V5011P replacement parts.

For more information,
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