

## V5011A,B,F,G,H,J Single-Seated Valves

### PRODUCT DATA



### FEATURES

- Sizes range from one-half inch to six inches.
- Available with threaded or flanged pipe connections.
- Direct- or reverse-acting models.
- Valve designs provide equal percentage flow characteristic for close control of water and glycol solutions, and linear flow characteristic for close control of steam.
- Spring-loaded, self-adjusting packing.
- Stainless steel stem prevents corrosion that could damage the packing.
- V5011G Models available with metal-to-metal seating for high differential pressure applications.

### APPLICATION

The V5011 is a single-seated valve for control of steam, water, and glycol solutions (up to 50% concentration) in heating or air conditioning applications. These valves are used in two-position and modulating control systems.

These valves are not suitable for combustible gas service.

### Contents

|                            |   |
|----------------------------|---|
| Application .....          | 1 |
| Features.....              | 1 |
| Specifications.....        | 2 |
| Ordering Information ..... | 2 |
| Installation.....          | 7 |
| Checkout.....              | 8 |



## SPECIFICATIONS

### **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.*

## TRADELINE® Models

TRADELINE models are selected and packaged for ease of handling, ease of stocking, and maximum replacement value. TRADELINE model specifications are the same as those of standard models except as noted.

### **TRADELINE Model Available:**

V5011F Valve: Single-seated valve for water, glycol, or two-position steam. Throttling plug provides equal percentage flow characteristic. Not recommended for modulating steam. Push stem down to close valve.

### **Service Temperature Range:**

45° to 250°F (4° to 121°C).

### **Pipe Connections:**

Threaded connections.

### **Valve Disc:**

PTFE disc with removable throttling plug.

### **Additional Features**

TRADELINE pack with cross reference label and special instructions.

## Standard Models

### **Models:**

V5011A Valve: Single-seated valve for water, glycol, or two-position steam. Throttling plug provides equal percentage characteristic of flow. Push down valve stem to close. Flanged pipe connections. Refer to Table 1.

### **Valve Sizes and Flow Capacities:**

See Table 1.

V5011B Valve: Single-seated valve for water, glycol, or two-position steam. Throttling plug provides equal percentage characteristic of flow. Not recommended for modulating steam. Push down valve stem to open valve (reverse acting). Flanged pipe connections. Refer to Table 1.

V5011G Valve: Single-seated valve for modulating steam; also suitable for two-position steam. Throttling plug provides linear characteristic of flow. Push down valve stem to close valve. Threaded pipe connections. Refer to Table 1.

V5011H Valve: Single-seated valve for water, glycol, or two-position steam. Throttling plug provides equal percentage characteristic of flow. Not recommended for modulating steam. Push down valve stem to open valve (reverse acting). Threaded pipe connections. Refer to Table 1.

V5011J Valve: Single-seated valve for modulating steam; also suitable for two-position steam. Throttling plug provides linear characteristic of flow. Push down valve stem to open valve (reverse acting). Threaded pipe connection. Refer to Table 1.

## ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Home and Building control Sales Office (check white pages of your phone directory).
2. Home and Building Control Customer Logistics  
Honeywell Inc., 1885 Douglas Drive North  
Minneapolis, Minnesota 55422-4386 (612) 951-1000

In Canada—Honeywell Limited/Honeywell Limitée, 155 Gordon Baker Road, North York Ontario M2H 3N7.  
International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

**Pipe Connections:**

1/2 to 3 in. valves have threaded connections; 2-1/2 to 6 in. valves have flanged connections.

**Seat:**

- Brass: Removable, on threaded models (except V5011H,J).
- Stainless Steel: Removable on metal-to-metal seating V5011G.
- Bronze: Removable on flanged models.

**ANSI Body Class:**

150 psi on threaded connection models; 125 psi on flanged connection models.

**Stem:**

Stainless steel.

**Disc:**

Teflon® discs with removable throttling plugs; some models of the V5011G have a metal-to-metal valve disc for high pressure applications.

**Stroke:**

1/2 to 3 in. valves: 3/4 in.; 4 to 6 in. valves: 1-1/2 in.

**Pattern:**

Straight-through.

**Body Material:**

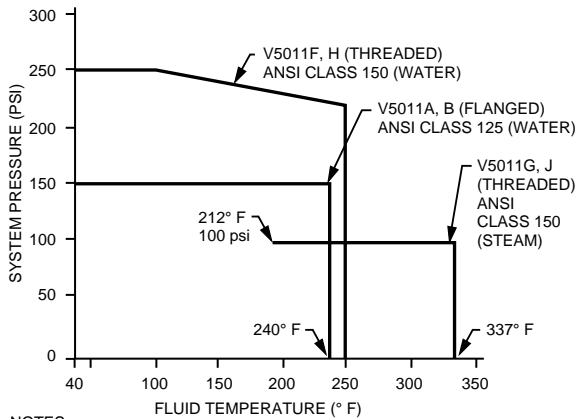
- Bronze: Threaded connection models.
- Cast Iron: Flanged connection models.

**Packing:**

- Spring-loaded, self-adjusting:
- Teflon/rubber : V5011F,H.
- Teflon cone: V5011A,B,G,J.

**Pressure-Temperature Body Ratings:**

See Fig. 1.



**NOTES:**

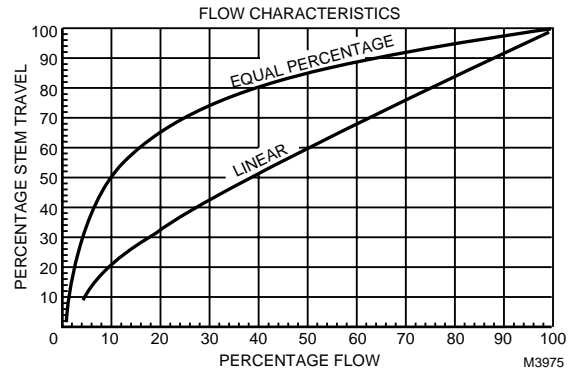
1. FOR HEATING FLUID TEMPERATURES, THE VALVE AND/OR PIPING SHOULD BE INSULATED TO PREVENT AMBIENT TEMPERATURES FROM EXCEEDING ACTUATOR RATINGS.
2. FOR MAXIMUM TEMPERATURE DIFFERENTIAL IN ALTERNATE HOT-COLD WATER, USE: 140° F.

**Fig. 1. Valve pressure/temperature ratings.**

**Valve Flow Characteristics:**

**Equal Percentage Flow Characteristics:** Equal movements of the valve stem at any point of the flow range change the existing flow by a constant percentage, regardless of the quantity of flow. Used in water coil applications. See Fig. 2.

**Linear Flow Characteristics:** Equal valve stem movements produce equal flow (volume) changes, regardless of the percentage of valve opening. In actual operation, characteristic is a modified linear action to improve control at low flow rates. Used in steam coil applications. See Fig. 2.



**Fig. 2. Equal percentage and linear flow characteristics.**

**Close-Off Pressure Rating:**

Depends on valve size and actuator used. See Valve Selection Guide, form 63-8038.

**Maximum Pressure Differential for Quiet Water Service:**

20 psi.

**Maximum Pressure Drop for Normal Seat and Disc Life:**

Metal-to-metal Disc, Steam Service: 100 psi drop. Not recommended for water service.

**PTFE and Composition Disc:**

- Two-position Applications: Steam Service—70 psi; water service—50 psi.
- Modulating Applications: Steam Service—35 psi; water service—25 psi.

**Body Marking:**

Arrows on both sides of valve to show direction of flow.

**Packing Limits:**

- Water Service V5011F,H: 250 psi maximum pressure; 40° to 250°F temperature range.
- V5011A,B: 150 psi maximum pressure; 40° to 240°F temperature range.
- Steam Service V5011G,J: 100 psi maximum pressure; 337°F maximum temperature.

**Alternating Hot and Cold Water Service:**

140°F maximum temperature difference (also see Fig. 1 for body pressure-temperature limits).

**Table 1. Valve Sizes, Flow Capacities, Temperature and Pressure Ratings.**

| Model Number  | Valve Body                  |                  |                 | Flow Capacity (Cv) |
|---|-----------------------------|------------------|-----------------|--------------------|
|   | Disc Material               | Pipe Connections | Pipe Size (in.) |                    |
| V5011A (Equal Percentage Flow Characteristic).<br>Stem down to close. | Composition                 | Flanged          | 2-1/2           | 63.0               |
|   |                             |                  | 3               | 100.0              |
|   |                             |                  | 4               | 160.0              |
|   |                             |                  | 5               | 250.0              |
|   |                             |                  | 6               | 360.0              |
| V5011B (Equal Percentage Flow Characteristic).<br>Stem up to close.   | Composition                 | Flanged          | 4               | 160.0              |
|   |                             |                  | 5               | 250.0              |
|   |                             |                  | 6               | 360.0              |
| V5011F (Equal Percentage Flow Characteristic).<br>Stem down to close. | Composition                 | Threaded         | 1/2             | 0.63               |
|   |                             |                  |                 | 1.0                |
|   |                             |                  |                 | 1.6                |
|   |                             |                  |                 | 2.5                |
|   |                             |                  |                 | 4.0                |
|   |                             |                  | 3/4             | 6.3                |
|   |                             |                  | 1               | 10.0               |
|   |                             |                  | 1-1/4           | 16.0               |
|   |                             |                  | 1-1/2           | 25.0               |
|   |                             |                  | 2               | 40.0               |
|   |                             |                  | 2-1/2           | 63.0               |
| 3   | 100.0                       |                  |                 |                    |
| V5011G (Linear Flow Characteristic). Stem down to close.              | Composition                 | Threaded         | 2               | 40.0               |
|   |                             |                  | 2-1/2           | 63.0               |
|   |                             |                  | 3               | 100.0              |
|   | Metal-to Metal <sup>a</sup> | Threaded         | 1/2             | 0.40               |
|   |                             |                  |                 | 0.63               |
|   |                             |                  |                 | 1.0                |
|   |                             |                  |                 | 1.6                |
|   |                             |                  |                 | 2.5                |
|   |                             |                  | 4.0             |                    |
|   |                             |                  | 3/4             | 6.3                |
|   |                             |                  | 1               | 10.0               |
|   |                             |                  | 1-1/4           | 16.0               |
|   |                             |                  | 1-1/2           | 25.0               |
| V5011H (Equal Percentage Flow Characteristic).<br>Stem up to close.   | Composition                 | Threaded         | 1/2             | 2.5                |
|   |                             |                  |                 | 4.0                |
|   |                             |                  | 3/4             | 6.3                |
|   |                             |                  | 1               | 10.0               |
|   |                             |                  | 1-1/4           | 16.0               |
| V5011J (Linear Flow Characteristic). Stem up to close.                | Composition                 | Threaded         | 1/2             | 2.5                |
|   |                             |                  |                 | 4.0                |
|   |                             |                  | 3/4             | 6.3                |
|   |                             |                  | 1               | 10.0               |
|   |                             |                  | 1-1/4           | 16.0               |

<sup>a</sup>Stainless steel seats and trim. For modulating steam service. *Not recommended for modulating water service*

**Dimensions:**

See Fig. 3 through 7.

**Motor And Linkage Selection:**

Refer to Valve Selection Guide, form 63-8038.

**Accessories:**

- Rebuild Kits (for threaded V5011A,C,F,G Valves *only*):

For Water Service:

- 14002694-006 For 1/2 in. valves.
- 14002695-006 For 3/4 in. and 1 in. valves.
- 14003109-006 For 1-1/4 in. valves.
- 14003110-006 For 1-1/2 in. valves.
- 14003111-006 For 2 in., 2-1/2 in., and 3 in. valves.

For Steam Service:

- 14002694-008 For 1/2 in. valves.
- 14002695-008 For 3/4 in. and 1 in. valves.
- 14003109-008 For 1-1/4 in. valves.
- 14003110-008 For 1-1/2 in. valves.
- 14003111-008 TRADELINE® Kit for 2 in., 2-1/2 in., and 3 in. valves.

- Repack Kits:

For Water Service:

- 14003294-004 TRADELINE® Kit for 1/2 in., 3/4 in., 1 in. and 1-1/4 in. threaded V5011A,C,F,G and all V5011H,J Valves.
- 14003295-004 For 1-1/2 in., 2 in., 2-1/2 in. and 3 in. threaded V5011A,C,F,G and 2-1/2 in. and 3 in. flanged V5011A Valves.
- 14003296-002 For 4 in., 5 in., and 6 in. flanged V5011A,B Valves.

For Steam Service:

- 14003294-002 For 1/2 in., 3/4 in., 1 in. and 1-1/4 in. threaded V5011A,C,F,G and all V5011H,J Valves.
- 14003295-002 For 1-1/2 in., 2 in., 2-1/2 in. and 3 in. threaded V5011A,C,F,G and 2-1/2 in. and 3 in. flanged V5011A Valves.
- 14003296-002 For 4 in., 5 in., and 6 in. flanged V5011A,B Valves.

- Replacement Discs:

For Threaded Valves:

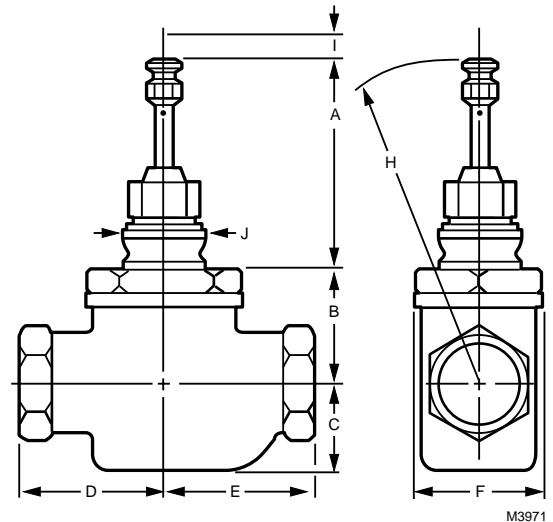
- 14004625-001 For 1/2 in. V5011A,F Valves.
- 14004625-002 For 3/4 in. and 1 in. V5011A,F Valves.
- 14004625-003 For 1-1/4 in. V5011A,F Valves.
- 14004625-004 For 1-1/2 in. V5011A,F Valves.
- 14004625-005 For 2 in. V5011A,F Valves.
- 14004625-006 For 2-1/2 in. V5011A,F Valves.
- 14004625-007 For 3 in. V5011A,F Valves.
- 14004625-011 For 1/2 in. V5011C,G Valves.
- 14004625-012 For 3/4 in. and 1 in. V5011C,G Valves.
- 14004625-013 For 1-1/4 in. V5011C,G Valves.
- 14004625-014 For 1-1/2 in. V5011C,G Valves.
- 14004625-015 For 2 in. V5011C,G Valves.
- 14004625-016 For 2-1/2 in. V5011C,G Valves.
- 14004625-017 For 3 in. V5011C,G Valves.

For Flanged Valves:

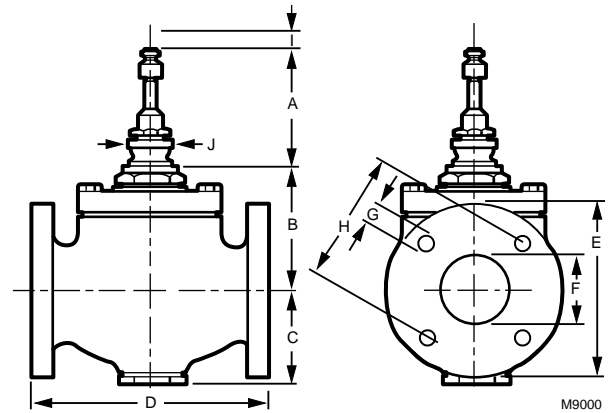
- 30041049-835 For 2-1/2 in. V5011A Valves.
- 30041050-835 For 3 in. V5011A Valves.

**NOTES:**

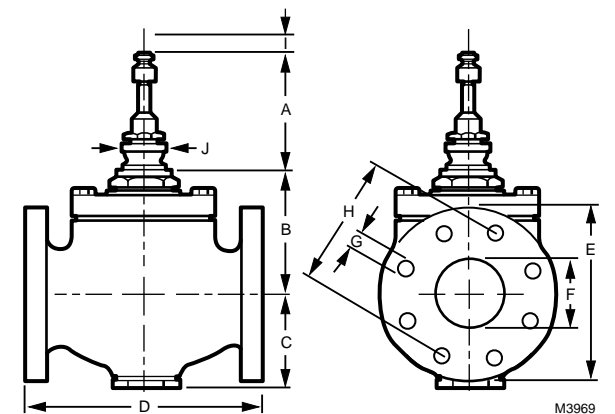
- To rebuild a 2-1/2 in. or 3 in. threaded valve, order the replacement discs in addition to the rebuild kit.
- Rebuild kits are not available for Flange valves or reverse acting valves.



**Fig. 3. V5011F,G threaded, 1/2 to 3 in. body dimensions. See Table 2.**



**Fig. 4. V5011A flanged, 2-1/2 and 3 in. body dimensions. See Table 2.**



**Fig. 5. V5011A flanged, 4, 5 and 6 in. body dimensions. See Table 2.**

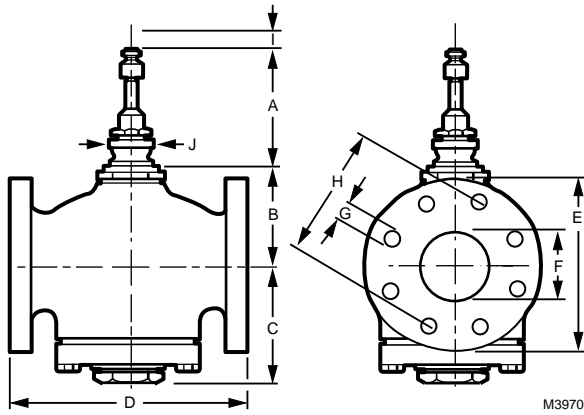


Fig. 6. V5011B flanged, 4, 5 and 6 in. body dimensions. See Table 2.

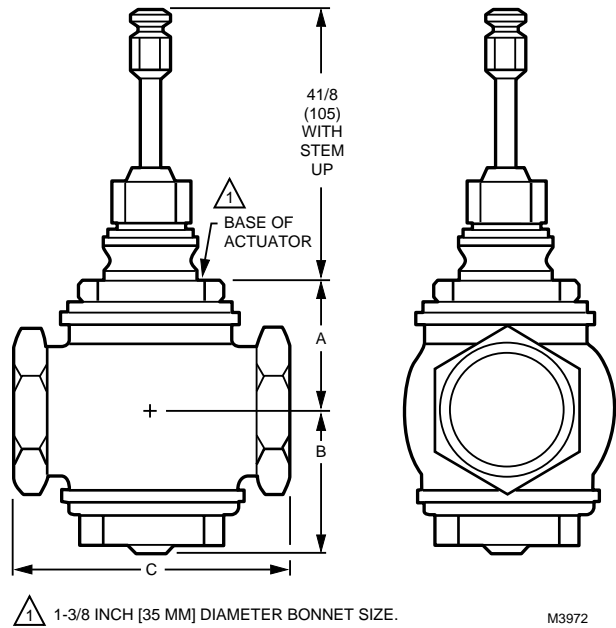


Fig. 7. V5011H,J threaded, reverse acting body dimensions. See Table 2.

Table 2. Valve Dimensions for Fig. 3 Through 7.

| Body Style and Figure Reference          | Size (in) | Dimensions (in in.) |         |        |         |         |       |     |       |            |              |
|--|-----------|---------------------|---------|--------|---------|---------|-------|-----|-------|------------|--------------|
|  |           | A <sup>a</sup>      | B       | C      | D       | E       | F     | G   | H     | I (Travel) | J (Diameter) |
| V5011A Flanged Direct Body (Fig. 4)      | 2-1/2     | 3-1/2               | 4-13/16 | 4      | 9-1/2   | 7       | 2-1/2 | 3/4 | 5-1/2 | 3/4        | 1-3/8        |
|  | 3         | 3-1/2               | 5-3/8   | 4-5/8  | 11      | 7-1/2   | 3     | 3/4 | 6     | 3/4        | 1-3/8        |
| V5011A Flanged Direct Body (Fig. 5)      | 4         | 5-1/4               | 7-9/16  | 5-3/16 | 13      | 9       | 4     | 3/4 | 7-1/2 | 1-1/2      | 1-7/8        |
|  | 5         | 5-1/4               | 7       | 6-1/8  | 15      | 10      | 5     | 7/8 | 8-1/2 | 1-1/2      | 1-7/8        |
|  | 6         | 5-1/4               | 8       | 7-1/16 | 16-1/2  | 11      | 6     | 7/8 | 9-1/2 | 1-1/2      | 1-7/8        |
| V5011B Flanged Reverse Body (Fig. 6)     | 4         | 6-3/4               | 4-11/16 | 8-1/16 | 13      | 9       | 4     | 3/4 | 7-1/2 | 1-1/2      | 1-7/8        |
|  | 5         | 6-3/4               | 5-5/8   | 7-1/2  | 15      | 10      | 5     | 7/8 | 8-1/2 | 1-1/2      | 1-7/8        |
|  | 6         | 6-3/4               | 6-9/16  | 8-1/2  | 16-1/2  | 11      | 6     | 7/8 | 9-1/2 | 1-1/2      | 1-7/8        |
| V5011F,G Threaded, Direct Body (Fig. 3)  | 1/2       | 3-1/2               | 2       | 1-3/4  | 1-11/16 | 1-11/16 | 2     |     | 5-1/2 | 3/4        | 1-3/8        |
|  | 3/4       | 3-1/2               | 1-3/4   | 1-3/4  | 1-11/16 | 1-11/16 | 2     |     | 5-1/4 | 3/4        | 1-3/8        |
|  | 1         | 3-1/2               | 1-7/8   | 1-5/8  | 2-1/8   | 2-1/8   | 2-1/8 |     | 5-3/8 | 3/4        | 1-3/8        |
|  | 1-1/4     | 3-1/2               | 2       | 1-1/2  | 2-7/16  | 2-7/16  | 2-3/4 |     | 5-1/2 | 3/4        | 1-3/8        |
|  | 1-1/2     | 3-1/2               | 2-7/8   | 1-3/8  | 2-13/16 | 2-13/16 | 3-1/2 |     | 6-3/8 | 3/4        | 1-3/8        |
|  | 2         | 3-1/2               | 3-1/8   | 2      | 2-13/16 | 2-13/16 | 3-1/2 |     | 6-5/8 | 3/4        | 1-3/8        |
|  | 2-1/2     | 3-1/2               | 2-3/4   | 2-3/8  | 3-3/4   | 3-3/4   | 4-3/8 |     | 6-1/4 | 3/4        | 1-3/8        |
|  | 3         | 3-1/2               | 3-1/8   | 2-3/8  | 4-7/16  | 4-7/16  | 5-1/8 |     | 6-5/8 | 3/4        | 1-3/8        |
| V5011H,J Threaded, Reverse Body (Fig. 7) | 1/2       | 1-3/4               | 2-1/4   | 3-1/2  | —       | —       | —     | —   | —     | —          | —            |
|  | 3/4       | 1-3/4               | 2-1/4   | 3-3/8  | —       | —       | —     | —   | —     | —          | —            |
|  | 1         | 1-7/8               | 2-15/16 | 3-7/8  | —       | —       | —     | —   | —     | —          | —            |
|  | 1-1/4     | 2                   | 2-3/16  | 4-1/4  | —       | —       | —     | —   | —     | —          | —            |

<sup>a</sup>Dimension A is with the valve closed (stem down for the V5011A,F,G; stem up for the V5011B).

## 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

Mount valve so fluid flows in the direction of the arrow cast on the valve body.

### Location

Select a location where the valve, linkage, and motor will be within the ambient pressure and temperature ratings.

For installation of the linkage and motor and to provide room for servicing the valve body, leave approximately a 20 inch clearance above the valve. (The valve body should be completely installed in the pipe line before the motor and linkage are installed.)

When selecting a location for the valve, remember that most Modutrol IV Motors mount with the motor shaft horizontal.

### Mounting

The preferred mounting position of the valve is with the stem vertical. Avoid mounting the valve with the stem below the horizontal. Scale and foreign material might collect and tend to score the stem and cause packing leakage. Protect the stem from damage due to bending or scratching.

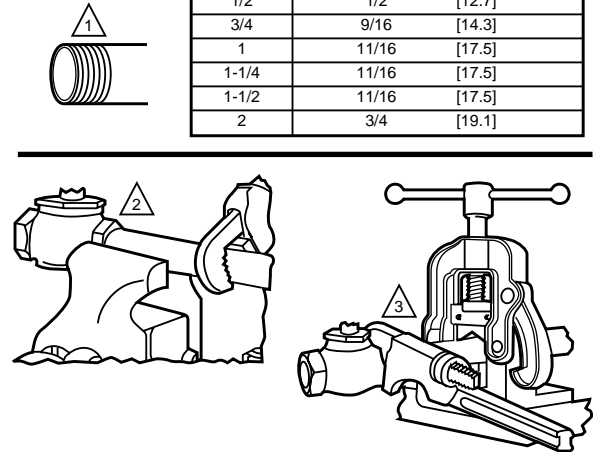
### Threaded Valve Bodies

Threaded body threads conform to American Standard Taper Pipe Threads (NPT).

Squarely align the pipes with the valve at each end connection. If the pipes are forced into the valve, the body may become twisted and improper seating will result. Sparingly apply pipe dope. Take care to prevent pipe chips, scale, etc., from entering the piping because this material may lodge in the seat and prevent proper closing.

Refer to the table in Fig. 8 for valve pipe sizes and thread lengths. This figure also shows two effective methods of holding the valve and pipe when attaching it. The valve will not function properly if it is twisted or squeezed during installation.

| PIPE SIZE (INCHES) | EFFECTIVE LENGTH OF THREADS (INCHES) [MILLIMETERS] |        |
|--------------------|--|--------|
| 1/2                | 1/2  | [12.7] |
| 3/4                | 9/16   | [14.3] |
| 1                  | 11/16  | [17.5] |
| 1-1/4              | 11/16  | [17.5] |
| 1-1/2              | 11/16  | [17.5] |
| 2                  | 3/4  | [19.1] |

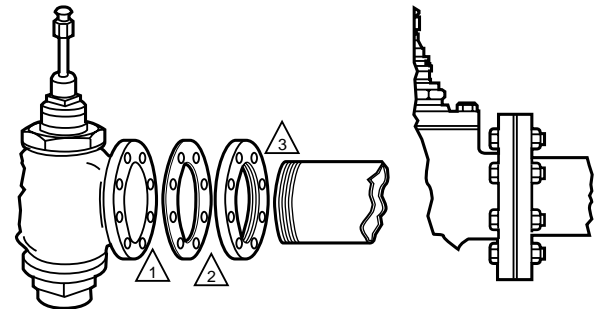


- 1 USE PROPERLY REAMED AND CLEANED PIPE AND MODERATE AMOUNT OF DOPE (LEAVE TWO THREADS BARE).
- 2 VISE GRIPS HEX END NEXT TO PIPE (DO NOT TWIST OR SQUEEZE VALVE BODY).
- 3 VISE HOLDS PIPE SECURELY AGAINST TURNING AND PARALLELED JAW WRENCH GRIPS VALVE HEX FLATS NEXT TO PIPE. M11763

Fig. 8. Installing valves with threaded connections.

### Flanged Valve Bodies

Flanged valve bodies conform to the American Standard for Cast-iron Pipe Flanges and Flanged Fittings. The valve flanges are flat-faced with a smooth finish. Companion flanges must be of the same specifications. See Fig. 9.



- 1 DO NOT APPLY PIPE DOPE TO VALVE FLANGE, COMPANION FLANGE OR GASKET.
- 2 BE SURE FACE OF COMPANION FLANGE IS FLUSH WITH FACE OF VALVE-BODY FLANGE AND ALIGNED SQUARELY BEFORE TIGHTENING MOUNTING NUTS.
- 3 IF POSSIBLE, MOUNT COMPANION FLANGE ON PIPE BEFORE MOUNTING FLANGE ON THE VALVE. M11764

Fig. 9. Proper flange mounting.

Mounting bolts must be long enough to allow the nuts to utilize full length of the nut threads. To allow clearance for installing, the bolts should be 1/8 inch smaller than the diameter of the bolt hole.

To prevent leakage, use a gasket material recommended for the medium to be handled.

Refer to installation information furnished with the linkage and motor when installing these controls.

## CHECKOUT

Before installing linkage and motor, make sure that the valve stem operates freely. Impaired stem operation may indicate that the body was twisted by faulty piping or that the stem was bent by rough handling. Either of these conditions may require replacement of the valve.

Check the valve body and connections for leaks. After installing linkage and motor, check the operation according to the installation information furnished with these controls. Operate the system through one complete cycle to make certain that the valve controls properly.

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