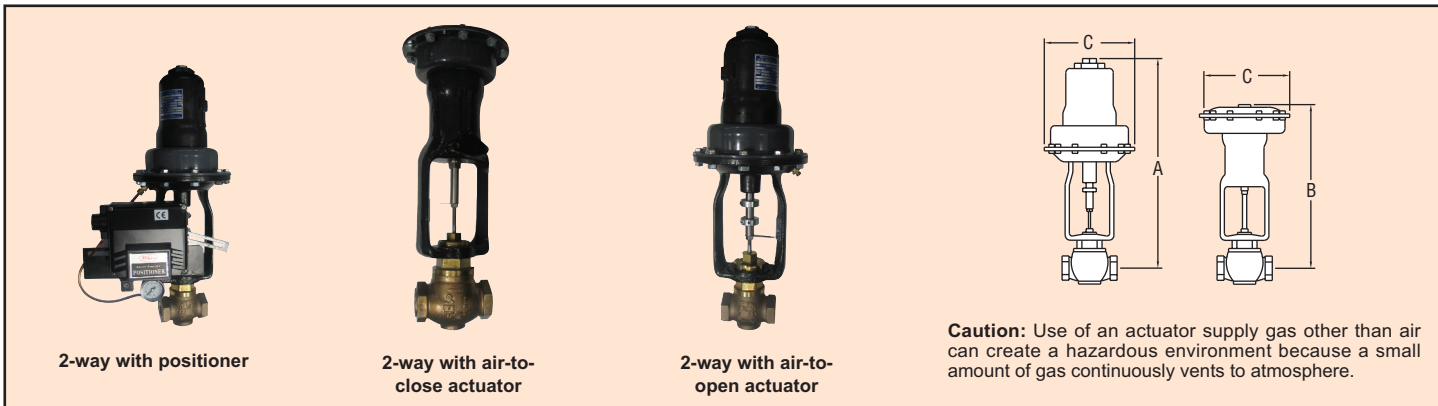




# Hi-Flow™ Control Valves

Globe Valves, Ideal for Steam and Water Flow Control,  
1/2" to 4" Sizes, 2-Way or 3-Way



**Caution:** Use of an actuator supply gas other than air can create a hazardous environment because a small amount of gas continuously vents to atmosphere.

Hi-Flow™ control valves are single seated, top or cage guided globe valves - probably the simplest, from a construction standpoint, yet most versatile control valve in use. The Hi-Flow™ valve can fit applications with a smaller size valve since the valve has a greater flow capacity than most conventional valves of the same size.

Coupled with the high flow capacity, the Hi-Flow™ valve maintains a wide rangeability of 50:1 to insure precise control. Heavy duty Hi-Flow™ valves are ruggedly constructed of the highest quality materials, precision machined, and performance tested to assure years of trouble free service. Standard packing consists of PTFE V-rings and wiper to minimize friction without leakage at high operating pressures. Available in brass, iron, or 316 SS body, trim is 316 SS with all welded plug construction to provide superior durability and corrosion resistance.

## FEATURES

- Wide rangeability of 50:1
- Exceptional shut-off and leak rate that meets ANSI/FCI 70-2 Class IV (0.01% of Cv in the closed position)
- Selectable fail safe condition with Air-to-Raise or Air-to-Lower actuators and Push-to-Open or Push-to-Close valve bodies
- Linear or equal percentage flow characteristics
- Low flow options of restricted trim or needle plug
- Removable and replaceable seat ring

## APPLICATIONS

- Flow control, mixing, or diverting service
- Perfect for steam, water or compatible glycol solutions

## SPECIFICATIONS

### VALVE BODY

**Service:** Compatible liquids, gases, and steam.

**Line Size:** 1/2" to 2-1/2".

**Body Style:** 2-way or 3-way globe.

**End Connections:** 1/2" to 2" female NPT, 2-1/2" flanged.

**Pressure Limit:** Iron and bronze body: 250 psi (17.2 bar); 316 SS body: 300 psi (20.7 bar).

### Wetted Materials:

Body material: Iron, bronze, or 316 SS;

Trim: 316 SS.

**Packing:** PTFE.

**Temperature Limits:** 20 to 400°F (-7 to 204.4°C).

### ACTUATOR

**Type:** Pneumatic spring/diaphragm.

**Control Signal:** 3 to 15 psi (0.21 to 1.0 bar) standard. Custom ranges available.

**Maximum Supply Pressure:** 220, 222, and 230: 100 psi (6.89 bar).

221, 223, 231, and 233: 50 psi (3.45 bar).

**Air Connection:** 1/4" female NPT.

**Temperature Limit:** 150°F (66°C).

Positioners and current-to-pressure transducers available factory mounted. See Series 165 for positioners and see Series 2800 and 2900 for transducers.

### How to Order:

Select model number from model chart or standard product chart and supply maximum upstream pressure, USP.



# Hi-Flow™ Control Valves

## 2-Way Simplified Selection Guide with Standard Products

Use the chart below to aid in the selection of Hi-Flow™ Control Valve. As long as the maximum upstream pressure (USP) is less than, or equal to, the value listed, the model shown can be manufactured and calibrated to your specific requirements. Specify maximum upstream pressure, USP, when ordering.

| Pipe Size | Cv 100% | Body Material | Model (Air-To-Open) | Max USP psi (bar) 3-15 (.21-1.0) | A in (mm)        | C in (mm)      | Model (Air-To-Close) | Max. USP psi (bar) 3-15 (.21-1.0) | B in (mm)        | C in (mm)      |
|-----------|---------|---------------|---------------------|----------------------------------|------------------|----------------|----------------------|-----------------------------------|------------------|----------------|
| 1/2"      | 6.45    | BRONZE        | 2000VA32-230        | 250 (17.2)                       | 19-3/4 (501.7)   | 7-3/4 (196.9)  | 2000VA32-220         | 250 (17.2)                        | 18-7/16 (468.3)  | 7-3/4 (196.9)  |
|           |         | 316SS         | 2000VA42-230        | 300 (20.7)                       | 19-3/4 (501.7)   | 7-3/4 (196.9)  | 2000VA42-220         | 300 (20.7)                        | 18-7/16 (468.3)  | 7-3/4 (196.9)  |
| 3/4"      | 10.75   | BRONZE        | 2001VA32-230        | 250 (17.2)                       | 19-3/4 (501.7)   | 7-3/4 (196.9)  | 2001VA32-220         | 250 (17.2)                        | 18-7/16 (468.3)  | 7-3/4 (196.9)  |
|           |         |               | 2001VA32-231        | 250 (17.2)                       | 20-3/8 (517.5)   | 10-5/8 (269.9) | 2001VA32-221         | 250 (17.2)                        | 19-1/8 (485.8)   | 10-5/8 (269.9) |
|           |         | 316SS         | 2001VA42-230        | 285 (19.7)                       | 19-3/4 (501.7)   | 7-3/4 (196.9)  | 2001VA42-220         | 300 (20.7)                        | 18-7/16 (468.3)  | 7-3/4 (196.9)  |
|           |         |               | 2001VA42-231        | 300 (20.7)                       | 20-3/8 (517.5)   | 10-5/8 (269.9) | 2001VA42-221         | 300 (20.7)                        | 19-1/8 (485.8)   | 10-5/8 (269.9) |
| 1"        | 17.42   | BRONZE        | 2002VA32-230        | 166 (11.4)                       | 20-3/16 (512.8)  | 7-3/4 (196.9)  | 2002VA32-220         | 192 (13.2)                        | 18-7/8 (479.4)   | 7-3/4 (196.9)  |
|           |         |               | 2002VA32-231        | 250 (17.2)                       | 20-13/16 (528.6) | 10-5/8 (269.9) | 2002VA32-221         | 250 (17.2)                        | 19-9/16 (496.9)  | 10-5/8 (269.9) |
|           |         | 316SS         | 2002VA42-230        | 166 (11.4)                       | 20-3/16 (512.8)  | 7-3/4 (196.9)  | 2002VA42-220         | 192 (13.2)                        | 18-7/8 (479.4)   | 7-3/4 (196.9)  |
|           |         |               | 2002VA42-231        | 300 (20.7)                       | 20-13/16 (528.6) | 10-5/8 (269.9) | 2002VA42-221         | 300 (20.7)                        | 19-9/16 (496.9)  | 10-5/8 (269.9) |
| 1-1/4"    | 25.30   | BRONZE        | 2003VA32-230        | 98 (6.8)                         | 20-5/16 (515.9)  | 7-3/4 (196.9)  | 2003VA32-220         | 115 (7.9)                         | 19 (482.6)       | 7-3/4 (196.9)  |
|           |         |               | 2003VA32-231        | 245 (16.9)                       | 20-15/16 (531.8) | 10-5/8 (269.9) | 2003VA32-221         | 250 (17.2)                        | 19-11/16 (500.1) | 10-5/8 (269.9) |
|           |         |               | 2003VA32-233        | 250 (17.2)                       | 25-13/32 (645.3) | 13-3/8 (339.7) | 2003VA32-223         | 250 (17.2)                        | 23-1/8 (587.4)   | 13-3/8 (339.7) |
|           |         | 316SS         | 2003VA42-230        | 98 (6.8)                         | 20-5/16 (515.9)  | 7-3/4 (196.9)  | 2003VA42-220         | 115 (7.9)                         | 19 (482.6)       | 7-3/4 (196.9)  |
|           |         |               | 2003VA42-231        | 245 (17.0)                       | 20-15/16 (531.8) | 10-5/8 (269.9) | 2003VA42-221         | 300 (20.7)                        | 19-11/16 (500.1) | 10-5/8 (269.9) |
|           |         |               | 2003VA42-233        | 300 (20.7)                       | 25-13/32 (645.3) | 13-3/8 (339.7) | 2003VA42-223         | 300 (20.7)                        | 23-1/8 (587.4)   | 13-3/8 (339.7) |
| 1-1/2"    | 32.10   | BRONZE        | 2004VA32-230        | 65 (4.5)                         | 20-11/16 (525.5) | 7-3/4 (196.9)  | 2004VA32-220         | 80 (5.5)                          | 19-3/8 (492.1)   | 7-3/4 (196.9)  |
|           |         |               | 2004VA32-231        | 168 (11.6)                       | 21-5/16 (541.3)  | 10-5/8 (269.9) | 2004VA32-221         | 235 (16.2)                        | 20-1/16 (509.6)  | 10-5/8 (269.9) |
|           |         |               | 2004VA32-233        | 250 (17.2)                       | 25-25/32 (654.8) | 13-3/8 (339.7) | 2004VA32-223         | 250 (17.2)                        | 23-1/2 (596.9)   | 13-3/8 (339.7) |
|           |         | 316SS         | 2004VA42-230        | 65 (4.5)                         | 20-11/16 (525.5) | 7-3/4 (196.9)  | 2004VA42-220         | 80 (5.5)                          | 19-3/8 (492.1)   | 7-3/4 (196.9)  |
|           |         |               | 2004VA42-231        | 168 (11.6)                       | 21-5/16 (541.3)  | 10-5/8 (269.9) | 2004VA42-221         | 235 (16.2)                        | 20-1/16 (509.6)  | 10-5/8 (269.9) |
|           |         |               | 2004VA42-233        | 300 (20.7)                       | 25-25/32 (654.8) | 13-3/8 (339.7) | 2004VA42-223         | 300 (20.7)                        | 23-1/2 (596.9)   | 13-3/8 (339.7) |
| 2"        | 50.30   | BRONZE        | 2005VA32-230        | 31 (2.1)                         | 20-15/16 (531.8) | 7-3/4 (196.9)  | 2005VA32-220         | 44 (3.0)                          | 19-5/8 (498.5)   | 7-3/4 (196.9)  |
|           |         |               | 2005VA32-231        | 88 (6.1)                         | 21-9/16 (547.7)  | 10-5/8 (269.9) | 2005VA32-221         | 140 (9.7)                         | 20-5/16 (515.9)  | 10-5/8 (269.9) |
|           |         |               | 2005VA32-233        | 175 (12.1)                       | 26-1/32 (661.2)  | 13-3/8 (339.7) | 2005VA32-223         | 250 (17.2)                        | 23-3/4 (603.3)   | 13-3/8 (339.7) |
|           |         | 316SS         | 2005VA42-230        | 31 (2.1)                         | 20-15/16 (531.8) | 7-3/4 (196.9)  | 2005VA42-220         | 44 (3.0)                          | 19-5/8 (498.5)   | 7-3/4 (196.9)  |
|           |         |               | 2005VA42-231        | 88 (6.1)                         | 21-9/16 (547.7)  | 10-5/8 (269.9) | 2005VA42-221         | 140 (9.7)                         | 20-5/16 (515.9)  | 10-5/8 (269.9) |
|           |         |               | 2005VA42-233        | 175 (12.1)                       | 26-1/32 (661.2)  | 13-3/8 (339.7) | 2005VA42-223         | 272 (18.8)                        | 23-3/4 (606.3)   | 13-3/8 (339.7) |
| *2-1/2"   | 78.60   | IRON          | 2006VA12-233        | 105 (7.2)                        | 26-1/4 (666.8)   | 13-3/8 (339.7) | 2006VA12-223         | 190 (13.1)                        | 24-7/16 (620.7)  | 13-3/8 (339.7) |
|           |         | BRONZE        | 2006VA32-233        | 105 (7.2)                        | 26-1/4 (666.8)   | 13-3/8 (339.7) | 2006VA32-223         | 190 (13.1)                        | 24-7/16 (620.7)  | 13-3/8 (339.7) |
|           |         | 316SS         | 2006VA42-233        | 105 (7.2)                        | 26-1/4 (666.8)   | 13-3/8 (339.7) | 2006VA42-223         | 190 (13.1)                        | 24-7/16 (620.7)  | 13-3/8 (339.7) |

\* Valve has flanged connections. Max. USP (PSI) is for Linear Valves. Consult factory for optional trim.

### Control Valves - Hi-Flow™ Series, 2-Way, Stocked Models

| Pipe Size | Cv 100% | Body Material | Model           | Set at USP psig (bar) | Adjustable USP Range psig (bar) |
|-----------|---------|---------------|-----------------|-----------------------|---------------------------------|
| 1/2"      | 6.45    | Bronze        | 2000VA32-230-QS | 125 (8.6)             | 96-200 (6.8-13.8)               |
| 3/4"      | 10.75   | Bronze        | 2001VA32-230-QS | 125 (8.6)             | 81-155 (5.6-10.7)               |
| 1"        | 17.42   | Bronze        | 2002VA32-230-QS | 125 (8.6)             | 123-166 (8.5-11.5)              |
| 1"        | 17.42   | Bronze        | 2002VA32-231-QS | 125 (8.6)             | 71-155 (4.9-10.7)               |
| 1-1/4"    | 25.30   | Bronze        | 2003VA32-230-QS | 98 (6.8)              | 66-98 (4.6-6.8)                 |
| 1-1/4"    | 25.30   | Bronze        | 2003VA32-231-QS | 125 (8.6)             | 121-165 (8.3-11.4)              |
| 1-1/2"    | 32.10   | Bronze        | 2004VA32-231-QS | 125 (8.6)             | 104-137 (7.2-9.5)               |
| 2"        | 50.30   | Bronze        | 2005VA32-231-QS | 88 (6.1)              | 68-88 (4.7-6.1)                 |
| 2"        | 50.30   | Bronze        | 2005VA32-233-QS | 125 (8.6)             | 116-145 (8.0-10.0)              |

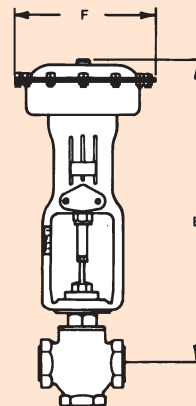


# Hi-Flow<sup>®</sup> Control Valves

## 3-Way Standard Products for Mixing or Diverting



**Caution:** Use of an actuator supply gas other than air can create a hazardous environment because a small amount of gas continuously vents to atmosphere



Use the standard models chart to aid in the selection of the most economical Hi-Flow<sup>™</sup> 3-Way Control Valve for your application. Specify maximum upstream pressures (USP's); Mixing: USP<sub>U</sub> and USP<sub>L</sub>; Diverting: USP<sub>C</sub>; based on standard 3-15 psi (.21-1.0 bar) pneumatic control signal.

### Hi-Flow<sup>™</sup> Control Valves, 3-Way Simplified Selection Guide with Standard Products

| Pipe Size | Cv 100% | Body Material | Model        | USP(S) PSI (bar) | E in (mm)        | F in (mm)      |
|-----------|---------|---------------|--------------|------------------|------------------|----------------|
| 1/2"      | 6.45    | Bronze        | 3000WA32-220 | 250 (17.2)       | 18-1/16 (458.8)  | 7-3/4 (196.9)  |
|           |         | 316SS         | 3000WA42-220 | 300 (20.7)       | 18-1/16 (458.8)  | 7-3/4 (196.9)  |
| 3/4"      | 10.75   | Bronze        | 3001WA32-220 | 250 (17.2)       | 18-1/16 (458.8)  | 7-3/4 (196.9)  |
|           |         | 316SS         | 3001WA42-220 | 300 (20.7)       | 18-1/16 (458.8)  | 7-3/4 (196.9)  |
| 1"        | 17.42   | Bronze        | 3002WA32-220 | 200 (13.8)       | 18-5/16 (465.1)  | 7-3/4 (196.9)  |
|           |         |               | 3002WA32-221 | 250 (17.2)       | 19 (482.6)       | 10-5/8 (269.9) |
|           |         | 316SS         | 3002WA42-220 | 200 (13.8)       | 18-5/16 (465.1)  | 7-3/4 (196.9)  |
|           |         |               | 3002WA42-221 | 300 (20.7)       | 19 (482.6)       | 10-5/8 (269.9) |
| 1-1/4"    | 25.30   | Bronze        | 3003WA32-220 | 120 (8.4)        | 18-3/8 (466.7)   | 7-3/4 (196.9)  |
|           |         |               | 3003WA32-221 | 250 (17.2)       | 19-1/16 (484.2)  | 10-5/8 (269.9) |
|           |         | 316SS         | 3003WA42-220 | 120 (8.3)        | 18-3/8 (466.7)   | 7-3/4 (196.9)  |
|           |         |               | 3003WA42-221 | 300 (20.7)       | 19-1/16 (484.2)  | 10-5/8 (269.9) |
| 1-1/2"    | 32.10   | Bronze        | 3004WA32-220 | 80 (5.6)         | 18-5/8 (473.1)   | 7-3/4 (196.9)  |
|           |         |               | 3004WA32-221 | 200 (13.8)       | 19-5/16 (490.5)  | 10-5/8 (269.9) |
|           |         |               | 3004WA32-223 | 250 (17.2)       | 21-3/8 (542.9)   | 13-3/8 (339.7) |
|           |         | 316SS         | 3004WA42-220 | 80 (5.5)         | 18-5/8 (473.1)   | 7-3/4 (196.9)  |
|           |         |               | 3004WA42-221 | 200 (13.8)       | 19-5/16 (490.5)  | 10-5/8 (269.9) |
|           |         |               | 3004WA42-223 | 300 (20.7)       | 21-3/8 (542.9)   | 13-3/8 (339.7) |
| 2"        | 50.30   | Bronze        | 3005WA32-220 | 45 (3.1)         | 19-1/16 (484.2)  | 7-3/4 (196.9)  |
|           |         |               | 3005WA32-221 | 100 (6.9)        | 19-3/4 (501.7)   | 10-5/8 (269.9) |
|           |         |               | 3005WA32-223 | 175 (12.1)       | 21-13/16 (554.0) | 13-3/8 (339.7) |
|           |         | 316SS         | 3005WA42-220 | 45 (3.1)         | 19-1/16 (484.2)  | 7-3/4 (196.9)  |
|           |         |               | 3005WA42-221 | 100 (6.9)        | 19-3/4 (501.7)   | 10-5/8 (269.9) |
|           |         |               | 3005WA42-223 | 175 (12.1)       | 21-12/16 (554.0) | 13-3/8 (339.7) |
| *2-1/2"   | 78.6    | Iron          | 3006WA12-223 |                  |                  |                |
|           |         | Bronze        | 3006WA32-223 | 97 (6.7)         | 24.52 (622.8)    | 13-3/8 (339.7) |
|           |         | 316SS         | 3006WA42-223 |                  |                  |                |

\*Valve has flanged connections. Max. USP (PSI) is for Linear Valves. Consult factory for optional trim.

#### Dimension Data

| Pipe Size | B in (mm)       | C in (mm)     | D in (mm)      |
|-----------|-----------------|---------------|----------------|
| 1/2"      | 2-9/16 (65.1)   | 2-3/16 (55.6) | 4-1/8 (104.8)  |
| 3/4"      | 2-9/16 (65.1)   | 2-3/16 (55.6) | 4-1/8 (104.8)  |
| 1"        | 3 (76.2)        | 2-7/16 (61.9) | 4 (101.6)      |
| 1-1/4"    | 3-3/16 (81.0)   | 2-1/2 (63.5)  | 3-3/4 (93.7)   |
| 1-1/2"    | 3-3/4 (95.3)    | 2-3/4 (69.9)  | 3-11/16 (93.7) |
| 2"        | 3-15/16 (100.0) | 3-3/16 (81.0) | 3-11/16 (93.7) |

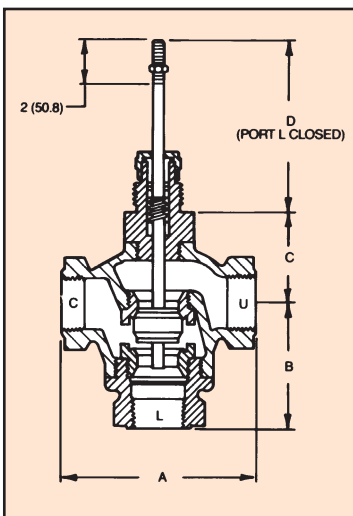
#### Mixing Service:

FLOW IN - ports U&L  
FLOW OUT - port C

#### Diverting Service:

FLOW IN - port C  
FLOW OUT - ports U&L

Standard Models include  
LIN-E-AIRE<sup>®</sup> Air-To-Lower Actuator  
- port L opens on loss of Air



For diverting service, add USP<sub>U</sub> and USP<sub>C</sub> to determine the shutoff pressure. For mixing service compute: (USP<sub>U</sub> - USP<sub>C</sub>) + (USP<sub>L</sub> - USP<sub>C</sub>) to determine the shutoff pressure.