

## Type 1499

3/4" and 1" Flanged Valve Assembly  
Class 150 and 300 R.F.  
RESEARCH® CONTROL Valves

# Technical Brief

### DESCRIPTION

The Type 1499 globe control valve is available in either 3/4" or 1" pipe size with Class 150 or Class 300 raised face flanges. It is designed to fit directly into pipelines of the same flange size and rating. Its compact size and light weight make it especially suited to modulating control of medium to low flow rates within the pressure range of the flanges. Its welded construction makes it readily available in a variety of materials and in other types of flanges. Special face-to-face dimensions, as well as mixing of flange size and body size, are also available on request.

### APPLICATIONS

Type 1499 valves are widely used in industrial applications where flanged-type ends are desired to facilitate removal of the unit from the line or to comply with specific piping standards. In low flow applications, the unit occupies much less space than its larger counterparts.

### MATERIALS OF CONSTRUCTION

#### Body - Bonnet

|          |   |
|----------|---|
| Standard | 316 stainless steel, carbon steel                       |
| Optional | Monel®, alloy 20, Hastelloy® B and C or ASTM equivalent |

#### Innervalue

|          |  |
|----------|--|
| Standard | 316 stainless steel  |
| Optional | Stellite®, Monel, alloy 20, Hastelloy B and C or ASTM equivalent |

#### Packing

|          |                   |
|----------|-------------------|
| Standard | TFE chevron rings |
| Optional | Graphite          |

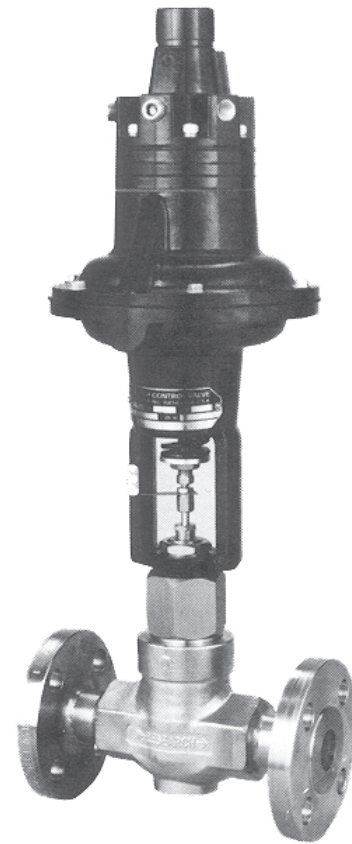
#### Actuator (uses 1/2" size)

|          |   |
|----------|---|
| Standard | Die cast aluminum                       |
| Optional | 316L stainless steel on standard models |

### ACTUATOR CHOICES

|                  |   |
|------------------|---|
| Standard         | Air-to-open, fail close<br>Air-to-close, fail open                            |
| Optional         | Integral top mounted positioner   |
| Standard Signals | 3-15#, 3-27#, 6-30#   |
| Optional Signals | 3-9#, 9-15# with positioner   |
| Accessories      | Filter regulator, gauges, I/P converter, limit switches, handwheel, solenoids |

**Note:** The EVA-1 electric actuator can also be used for low pressure applications if air is not available.



Shown with Type 766 actuator

### STANDARD FEATURES

- Interchangeable trim sets
- Threaded bonnet for quick disassembly
- Choice of linear or equal percent (size "J" and larger)
- TFE chevron packing
- ANSI Class IV shutoff (size "J" and larger)
- Serrated flange face with concentric grooves

### OPTIONAL FEATURES

- Ring type joint, tongue and groove, flat face or raised face-smooth face flanges
- Radiating fin bonnet for higher temperatures
- Bellows stem seal
- Angle pattern body
- Special face-to-face dimensions
- Oversized flanges

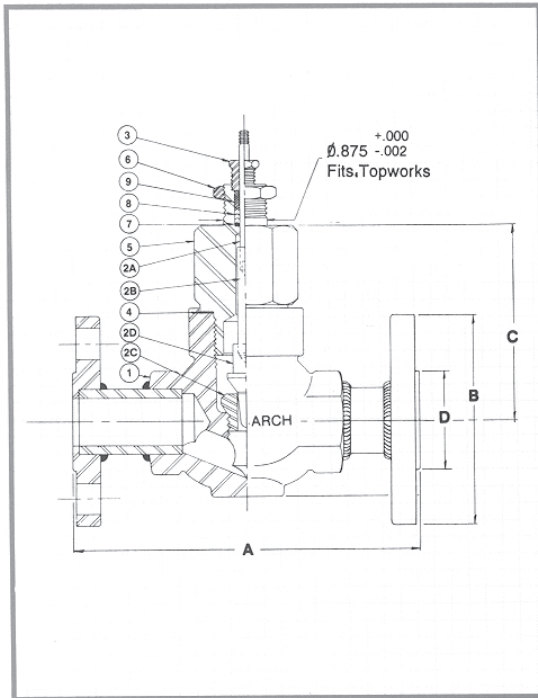
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Stellite® is a registered trademark of Haynes Stellite Company.  
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**Description of Items**

1. Valve Body
2. Innerset (trim set):
  - A. Upper stem - 3/16" Ø
  - B. Intermediate/guide stem - 3/8" Ø
  - C. Seat - 3/4" - 3/4" hex  
1" - 15/16" hex
  - D. Plug (integral on stem on some sizes)
3. Packing gland - 1/2" hex  
(Some exotic material bonnets are round with wrench flats.)
4. Body-bonnet gasket (not supplied on exotic materials)
5. Bonnet - 3/4" valve: 1-1/2" hex  
1" valve: 1-3/4" hex
6. Yoke lock nut - 1-1/8" hex
7. Packing adaptor
8. Packing
9. Packing follower

**DIMENSIONS (INCHES)**

| PS       | CLASS | A     | B    | C    | D    | STROKE |
|----------|-------|-------|------|------|------|--------|
| 3/4 inch | 150#  | 7.25  | 3.88 | 3.9  | 1.63 | 0.562  |
| 3/4 inch | 300#  | 7.625 | 4.63 | 3.9  | 1.63 | 0.562  |
| 1 inch   | 150#  | 7.25  | 4.25 | 3.95 | 2.00 | 0.562  |
| 1 inch   | 300#  | 7.75  | 4.88 | 3.95 | 2.00 | 0.562  |

**3/4" Pressure (PSIG) vs. Temperature**

| TEMP  | 316 SS  |         | Carbon Steel            |         |
|-------|---------|---------|-------------------------|---------|
|       | Cl. 150 | Cl. 300 | Cl. 150                 | Cl. 300 |
| 100°F | 275     | 720     | 285                     | 740     |
| 200°F | 240     | 620     | 260                     | 675     |
| 300°F | 215     | 560     | 230                     | 655     |
| 400°F | 195     | 515     | 200                     | 635     |
| 500°F | 170     | 480     | 170                     | 600     |
| 600°F | 140     | 450     | 140                     | 550     |
| 700°F | 110     | 430     | 110                     | 535     |
| 800°F | 80      | 415     | Do Not use in this area |         |

Rec. Bonnet Torque=290 ft/lbs.

**1" Pressure (PSIG) vs. Temperature**

| TEMP  | 316 SS                  |         | Carbon Steel             |         |
|-------|-------------------------|---------|--------------------------|---------|
|       | Cl. 150                 | Cl. 300 | Cl. 150                  | Cl. 300 |
| 100°F | 275                     | 720     | 285                      | 740     |
| 200°F | 240                     | 620     | 260                      | 675     |
| 300°F | 215                     | 560     | 230                      | 655     |
| 400°F | 195                     | 515     | 200                      | 635     |
| 500°F | 170                     | 480     | 170                      | 600     |
| 600°F | 140                     | 450     | 140                      | 550     |
| 700°F | 110                     | 255     | 110                      | 535     |
| 800°F | Do Not use in this area |         | Do Not use in this area. |         |

Rec. Bonnet Torque=345 ft/lbs.

**Note:**

TFE chevron ring packing temperature limit is 400°F. Consult the factory for higher temperatures. The above charts are a combination of ANSI B16.34 and Badger's ratings for the valve superstructure.

**INNERVALVE CHART**

| Valve Size | Trim Designation | Cv Coefficient | Nominal Rangeability<br>Linear = Percent |      | Orifice Port Dia. | Port Area (in. 2) |
|------------|------------------|----------------|--|------|-------------------|-------------------|
| 1"         | 6.0              | 6.0            | 50:1                                     | 60:1 | .625"             | .307              |
| 1"         | 5.0              | 5.0            | 50:1                                     | 60:1 | .625"             | .307              |
| 1"         | 4.5              | 4.5            | 50:1                                     | 60:1 | .500"             | .197              |
| 3/4" & 1"  | 4.0              | 4.0            | 50:1                                     | 60:1 | .500"             | .197              |
| 3/4" & 1"  | 3.5              | 3.5            | 50:1                                     | 60:1 | .500"             | .197              |
| 3/4" & 1"  | A                | 2.5            | 40:1                                     | 50:1 | .375"             | .1105             |
| 3/4" & 1"  | B                | 2.0            | 40:1                                     | 50:1 | .375"             | .1105             |
| 3/4" & 1"  | C                | 1.25           | 40:1                                     | 50:1 | .281"             | .0621             |
| 3/4" & 1"  | D                | .8             | 40:1                                     | 50:1 | .250"             | .0491             |
| 3/4" & 1"  | E                | .5             | 40:1                                     | 50:1 | .250"             | .0491             |
| 3/4" & 1"  | F                | .32            | 30:1                                     | 40:1 | .156"             | .01911            |
| 3/4" & 1"  | G                | .2             | 30:1                                     | 40:1 | .156"             | .01911            |
| 3/4" & 1"  | H                | .13            | 30:1                                     | 40:1 | .156"             | .01911            |
| 3/4" & 1"  | I                | .08            | 30:1                                     | 40:1 | .156"             | .01911            |
| 3/4" & 1"  | J                | .05            | 30:1                                     | 40:1 | .156"             | .01911            |
| 3/4" & 1"  | K                | .03            | 25:1                                     | N/A  | .086"             | .00581            |
| 3/4" & 1"  | L                | .02            | 25:1                                     | N/A  | .086"             | .00581            |
| 3/4" & 1"  | M                | .01            | 25:1                                     | N/A  | .086"             | .00581            |
| 3/4" & 1"  | N                | .006           | 25:1                                     | N/A  | .086"             | .00581            |
| 3/4" & 1"  | O                | .003           | 25:1                                     | N/A  | .086"             | .00581            |

**NOTE:**

"K" through "O" and the "P" series trims are considered "reduced" trims



Please see our website at [www.badgermeter.com](http://www.badgermeter.com) for specific regions and contacts.



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