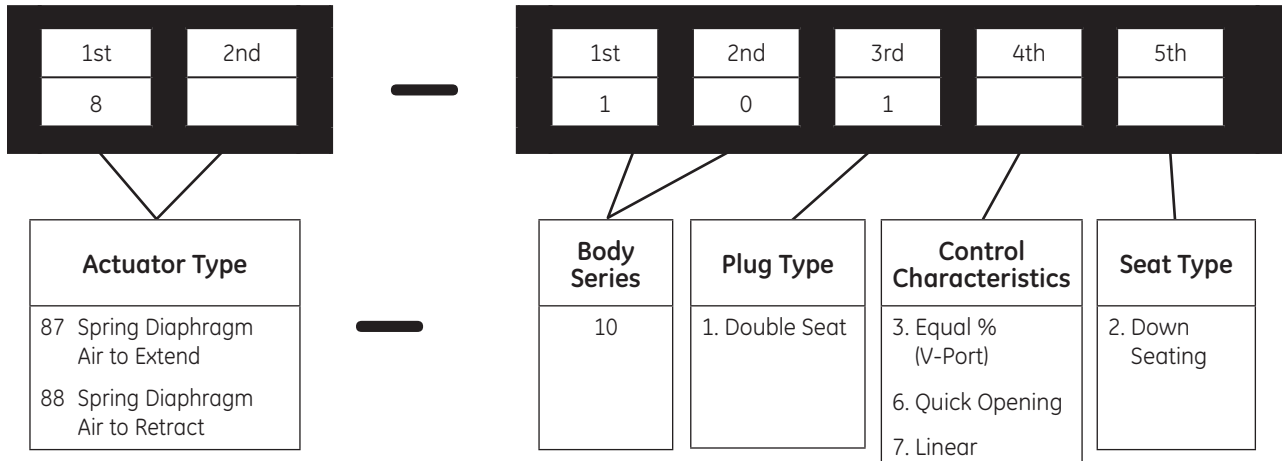


# Masoneilan\* **10000** Series Double Ported Globe Valve



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## General Data

### • Flow Direction

All trim: Flow through both ports

### • Body

Type: Double seat globe

### • Body Bonnet & Lower Flange

Type: Bolted

### • Bonnet & Lower Flange

Materials: Carbon steel  
Stainless steel  
Chrome-molybdenum steel

### • Trim

Plug type: Double seat  
V-port or contoured  
Seat ring: Threaded  
Guide: Heavy top and bottom guiding  
Capacity: Full area  
Reduced capacity (0.4 factor)  
Cv ratio: 50:1  
Flow characteristics: Equal percentage  
Quick opening  
Linear

### • Actuator

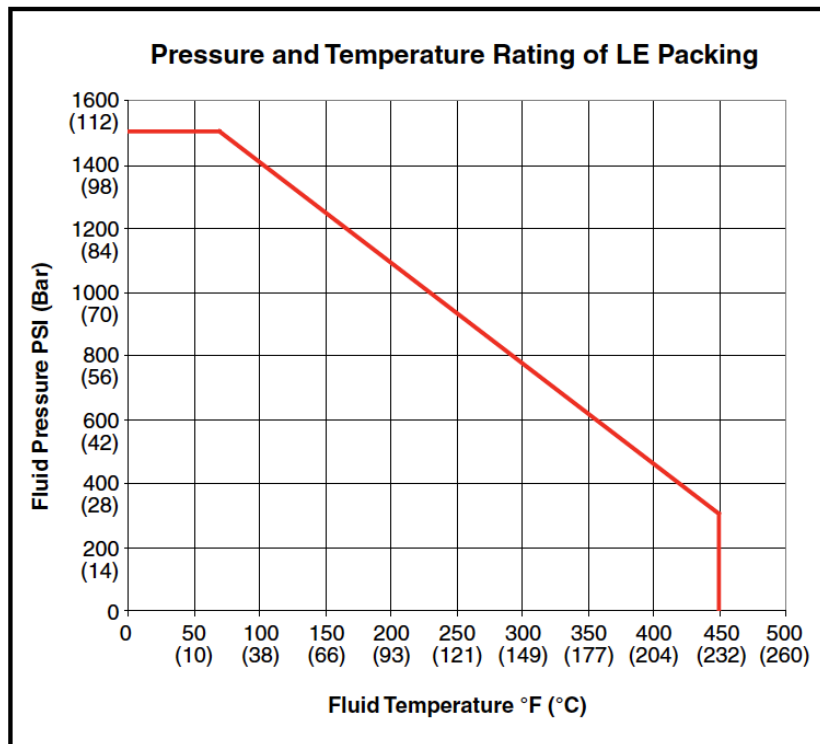
Type: Spring diaphragm  
Handwheel: Optional

# Temperature Range / Seat Leakage

| Valve Size <sup>(1)</sup> |           | Body Rating                          | Body & Bonnet Material | Temperature Range |                                |                  |                 | Seat Leakage IEC 60534-4 and ANSI/FCI 70.2 Class |
|---------------------------|-----------|--------------------------------------|------------------------|-------------------|--------------------------------|------------------|-----------------|--|
|                           |           |                                      |                        | Standard bonnet   |                                | Extension Bonnet |                 |  |
| inch                      | mm        |                                      |                        | min.              | max.                           | min.             | max.            |  |
| 0.75 to 16                | 20 to 400 | ASME Class 150 to 600 (PN 20 to 100) | Carbon Steel           | -20°F (-29°C)     | +450°F <sup>(1)</sup> (+232°C) | -20°F (-29°C)    | +800°F (+427°C) | II   |
|                           |           |                                      | Stainless Steel        | -20°F (-29°C)     | +450°F <sup>(1)</sup> (+232°C) | -148°F (-100°C)  | +800°F (+427°C) |  |
|                           |           |                                      | Chrome-Moly            | 32°F (0°C)        | +450°F <sup>(1)</sup> (+232°C) | 32°F (0°C)       | +800°F (+427°C) |  |
|                           |           |                                      | NACE                   | -20°F (-29°C)     | +450°F (+232°C)                |                  |                 |  |

1) Maximum temperature shown is with PTFE packing and LE Packing. Extended max. operating temperature of 800°F (427°C) allowable with Graphite packing.

2) LE Packing for low emissions applications is limited to maximum pressure and temperature as shown in chart below.



# Ratings/Connections

RF Flanged   
  RT Joint   
  Butt Weld   
  Socket Weld   
  Threaded

| Valve Size |     | ASME Class  |   |   |
|------------|-----|---|---|---|
| Inch       | mm  | 150   | 300   | 600   |
| .75        | 20  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| 1          | 25  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| 1.5        | 40  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| 2          | 50  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| 3          | 80  | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   |
| 4          | 100 | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   |
| 6          | 150 | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   |
| 8          | 200 | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   |
| 10         | 250 | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   |
| 12         | 300 | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   |
| 14         | 350 | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   |
| 16         | 400 | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   |

Note: Consult factory for availability of additional sizes and end connections.

## Flow Coefficient – Rated $C_v$

| Nominal Size      |     | Travel |       | Full Capacity $C_v^{(1)}$ | Reduced Capacity $C_v$ |
|-------------------|-----|--------|-------|---------------------------|------------------------|
| Inch              | mm  | Inch   | mm    |                           |                        |
| .75               | 20  | 0.5    | 12.7  | 8                         | -                      |
| 1                 | 25  | 0.5    | 12.7  | 12                        | 8 <sup>(2)</sup>       |
| 1.5               | 40  | 0.8    | 20.3  | 28                        | 11                     |
| 2                 | 50  | 0.8    | 20.3  | 48                        | 19                     |
| 3                 | 80  | 1.5    | 38.1  | 110                       | 44                     |
| 4                 | 100 | 1.5    | 38.1  | 195                       | 78                     |
| 6                 | 150 | 2      | 50.8  | 450                       | 180                    |
| 8                 | 200 | 2.5    | 63.5  | 750                       | 300                    |
| 10                | 250 | 2.5    | 63.5  | 1160                      | 460                    |
| 12                | 300 | 3.5    | 88.9  | 1620                      | 650                    |
| 14 <sup>(3)</sup> | 350 | 4      | 101.6 | 2000 <sup>(4)</sup>       | -                      |
| 16                | 400 | 4      | 101.6 | 2560 <sup>(4)</sup>       | -                      |

- 1) Rated  $C_v$  for Quick Opening trim is 1.3 times values shown.
- 2) 1" size reduced capacity trim is same as .75" size full area trim.
- 3) Consult factory for details on 14" size.
- 4) 14" and 16" sizes are only available with Equal Percentage trim.

# $C_V$ and $F_L$ versus Travel

Contoured Trim

ASME Class 150 to 600

Flow Characteristic: LINEAR

| Percent of Travel |                  |        | 10          | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  |
|-------------------|------------------|--------|-------------|------|------|------|------|------|------|------|------|------|
| $F_L$             | Full Area        |        | .63         | .64  | .65  | .70  | .77  | .85  | .90  | .90  | .89  | .88  |
|                   | Reduced Area     |        | .63         | .64  | .65  | .70  | .75  | .80  | .82  | .82  | .81  | .80  |
| Valve Size        | Orifice Diameter | Travel | Rated $C_V$ |      |      |      |      |      |      |      |      |      |
| inch              | inch             | inch   |             |      |      |      |      |      |      |      |      |      |
| 0.75              | .88/.80          | 0.5    | .8          | 1.6  | 2.4  | 3.2  | 4.0  | 4.8  | 5.6  | 6.4  | 7.2  | 8    |
| 1                 | .88/.80          | 0.5    | .8          | 1.6  | 2.4  | 3.2  | 4.0  | 4.8  | 5.6  | 6.4  | 7.2  | 8    |
|                   | 1.06/.98         | 0.5    | 1.2         | 2.4  | 3.6  | 4.8  | 6    | 7.2  | 8.4  | 9.6  | 10.8 | 12   |
| 1.5               | 1.06/.98         | 0.8    | 1.1         | 2.2  | 3.3  | 4.4  | 5.5  | 6.6  | 7.7  | 8.8  | 9.9  | 11   |
|                   | 1.5/1.42         | 0.8    | 2.8         | 5.6  | 8.4  | 11.2 | 14   | 16.8 | 19.6 | 22.4 | 25.2 | 28   |
| 2                 | 1.43/1.35        | 0.8    | 1.9         | 3.8  | 5.7  | 7.6  | 9.5  | 11.4 | 13.3 | 15.2 | 17.1 | 19   |
|                   | 2.00/1.90        | 0.8    | 4.8         | 9.6  | 14.4 | 19.2 | 24   | 28.8 | 33.6 | 38.4 | 43.2 | 48   |
| 3                 | 1.87/1.78        | 1.5    | 4.4         | 8.8  | 13.2 | 17.6 | 22   | 26.4 | 30.8 | 35.2 | 39.6 | 44   |
|                   | 2.62/2.53        | 1.5    | 11          | 22   | 33   | 44   | 55   | 66   | 77   | 88   | 99   | 110  |
| 4                 | 2.37/2.28        | 1.5    | 7.8         | 15.6 | 23.4 | 31.2 | 39   | 46.8 | 54.6 | 62.4 | 70.2 | 78   |
|                   | 3.50/3.40        | 1.5    | 19.5        | 39   | 58.5 | 78   | 97.5 | 117  | 136  | 156  | 175  | 195  |
| 6                 | 3.50/3.40        | 2      | 18          | 36   | 54   | 72   | 90   | 108  | 126  | 144  | 162  | 180  |
|                   | 5.25/5.15        | 2      | 45          | 90   | 135  | 180  | 225  | 270  | 315  | 360  | 405  | 450  |
| 8                 | 4.62/4.53        | 2.5    | 30          | 60   | 90   | 120  | 150  | 180  | 210  | 240  | 270  | 300  |
|                   | 7.00/6.87        | 2.5    | 75          | 150  | 225  | 300  | 375  | 450  | 525  | 600  | 675  | 750  |
| 10                | 5.25/5.15        | 2.5    | 46          | 92   | 138  | 184  | 230  | 276  | 322  | 368  | 414  | 460  |
|                   | 8.75/8.62        | 2.5    | 116         | 232  | 348  | 464  | 580  | 696  | 812  | 928  | 1044 | 1160 |
| 12                | 6.37/6.25        | 3.5    | 65          | 130  | 195  | 260  | 325  | 390  | 455  | 520  | 585  | 650  |
|                   | 10.50/10.34      | 3.5    | 162         | 324  | 486  | 648  | 810  | 972  | 1134 | 1295 | 1458 | 1620 |

# $C_v$ and $F_L$ versus Travel

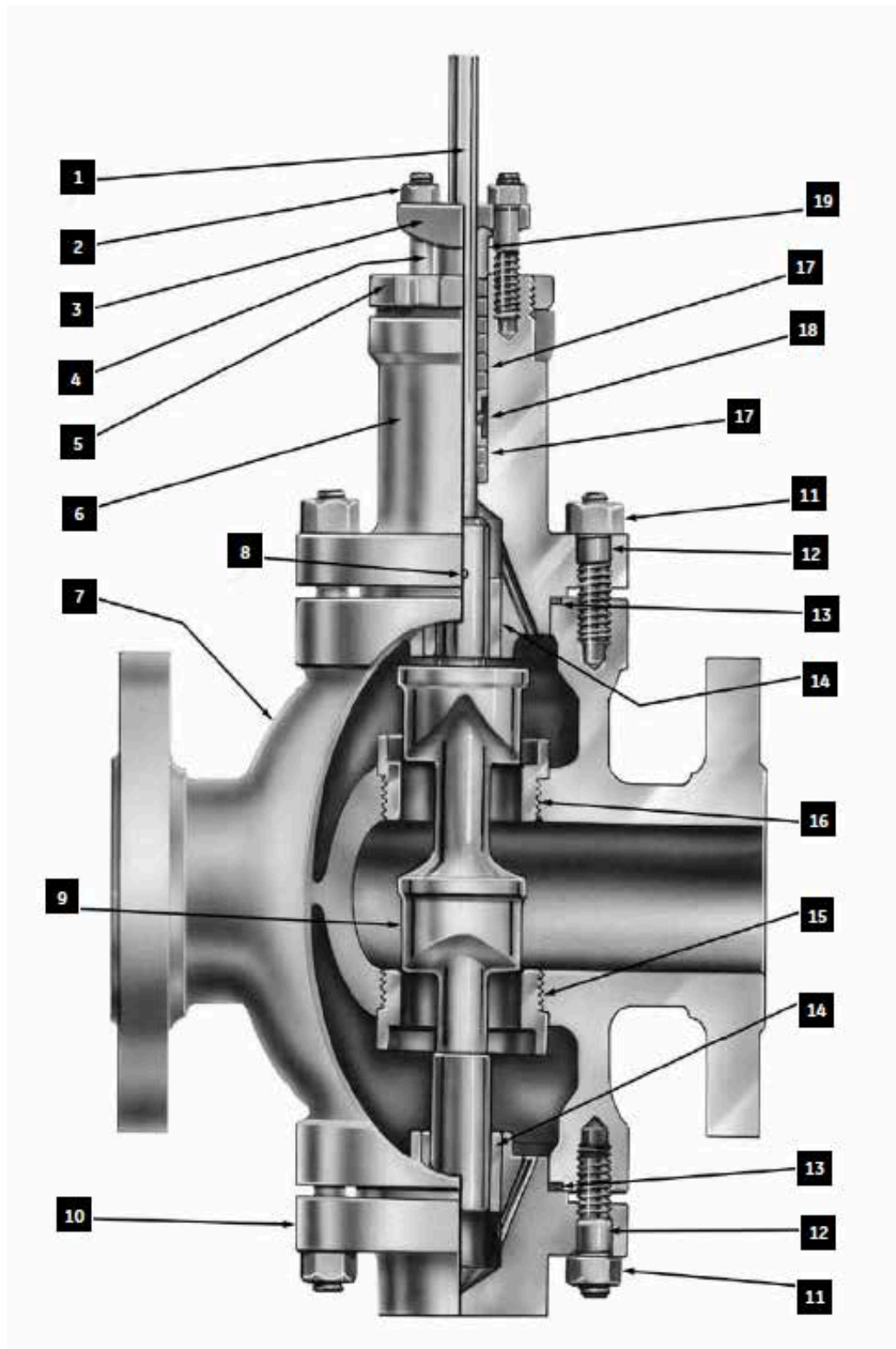
V-Port Trim

ASME Class 150 to 600

Flow Characteristic: EQUAL PERCENTAGE

| Percent of Travel |                  |        | 10          | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  |
|-------------------|------------------|--------|-------------|------|------|------|------|------|------|------|------|------|
| $F_L$             | Full Area        |        | .96         | .96  | .96  | .96  | .95  | .94  | .94  | .93  | .91  | .90  |
|                   | Reduced Area     |        | .96         | .96  | .95  | .94  | .93  | .92  | .91  | .90  | .89  | .88  |
| Valve Size        | Orifice Diameter | Travel | Rated $C_v$ |      |      |      |      |      |      |      |      |      |
| inch              | inch             | inch   |             |      |      |      |      |      |      |      |      |      |
| 0.75              | .88/.80          | 0.5    | .24         | .48  | .64  | .88  | 1.2  | 1.8  | 2.3  | 3.6  | 5.2  | 8    |
| 1                 | .88/.80          | 0.5    | .24         | .48  | .64  | .88  | 1.2  | 1.8  | 2.3  | 3.6  | 5.2  | 8    |
|                   | 1.06/.98         | 0.5    | .36         | .72  | .96  | 1.3  | 1.8  | 2.6  | 3.5  | 5.4  | 7.8  | 12   |
| 1.5               | 1.06/.98         | 0.8    | .33         | .66  | .88  | 1.2  | 1.6  | 2.4  | 3.2  | 4.9  | 7.1  | 11   |
|                   | 1.5/1.42         | 0.8    | .84         | 1.7  | 2.2  | 3.1  | 4.2  | 6.2  | 8.1  | 12.6 | 18.2 | 28   |
| 2                 | 1.43/1.35        | 0.8    | 0.6         | 1.1  | 1.5  | 2    | 2.8  | 4.2  | 5.5  | 8.5  | 12.3 | 19   |
|                   | 2.00/1.90        | 0.8    | 1.4         | 2.8  | 3.8  | 5.3  | 7.2  | 10.5 | 13.9 | 21.6 | 31.2 | 48   |
| 3                 | 1.87/1.78        | 1.5    | 1.3         | 2.6  | 3.5  | 4.8  | 6.6  | 9.7  | 12.8 | 19.8 | 28.6 | 44   |
|                   | 2.62/2.53        | 1.5    | 3.3         | 6.6  | 8.8  | 12.1 | 16.5 | 24.2 | 31.9 | 49.5 | 71.5 | 110  |
| 4                 | 2.37/2.28        | 1.5    | 2.3         | 4.7  | 6.2  | 8.6  | 11.7 | 17.2 | 22.6 | 35.1 | 50.7 | 78   |
|                   | 3.50/3.40        | 1.5    | 5.8         | 11.7 | 15.6 | 21.4 | 29.2 | 42.9 | 56.5 | 87.7 | 126  | 195  |
| 6                 | 3.50/3.40        | 2      | 5           | 11   | 14   | 20   | 27   | 40   | 52   | 81   | 117  | 180  |
|                   | 5.25/5.15        | 2      | 14          | 27   | 36   | 50   | 68   | 99   | 130  | 202  | 292  | 450  |
| 8                 | 4.62/4.53        | 2.5    | 9           | 18   | 24   | 33   | 45   | 66   | 87   | 135  | 195  | 300  |
|                   | 7.00/6.87        | 2.5    | 23          | 45   | 60   | 83   | 112  | 165  | 217  | 337  | 487  | 750  |
| 10                | 5.25/5.15        | 2.5    | 14          | 28   | 37   | 51   | 69   | 101  | 133  | 207  | 299  | 460  |
|                   | 8.75/8.62        | 2.5    | 35          | 70   | 93   | 127  | 174  | 255  | 336  | 522  | 754  | 1160 |
| 12                | 6.37/6.25        | 3.5    | 20          | 39   | 52   | 72   | 98   | 143  | 189  | 293  | 423  | 650  |
|                   | 10.50/10.34      | 3.5    | 49          | 97   | 130  | 178  | 243  | 356  | 469  | 729  | 1053 | 1620 |
| 16                | 14.00/13.86      | 4      | 77          | 153  | 207  | 281  | 384  | 563  | 742  | 1152 | 1664 | 2560 |

# Materials of Construction



# Materials of Construction

Standard Carbon Steel Version

-20°F

650°F

800°F

| Ref. No. | Temperature Rating      |  |   |
|----------|-------------------------|--|---|
|          | Description             | Materials  |   |
| 1        | Plug Stem               | 316 St. St. ASTM 479 TY 316                            |   |
| 2        | Packing Flange Nut      | St. St. ASTM A194 GR 8                                 |   |
| 3        | Packing Flange          | Zinc Dichromate Carbon Steel ASTM A105                 |   |
| 4        | Packing Flange Stud     | 304 St. St. ASTM A193 GR B8                            |   |
| 5        | Drive Nut               | Carbon Steel SAE 1117 or ASTM A216 GR WCC              |   |
| 6        | Valve Bonnet            | Carbon Steel ASTM A216 Grade WCC or ASTM A105          |   |
| 7        | Valve Body              | Carbon Steel ASTM A216 Grade WCC                       |   |
| 8        | Plug Pin                | 316 St. St. ASTM 479 TY 316                            |   |
| 9        | Plug                    | 316 St. St. ASTM 479 TY 316                            | 316 St. St. with Hardfaced Seat and Guide |
|          |                         | 316 St.St.with Hardfaced Seat                          |   |
| 10       | Lower Flange            | Carbon Steel ASTM A216 Grade WCC or ASTM A105          |   |
| 11       | Body Stud Nut           | Carbon Steel ASTM A194 GR 2H                           |   |
| 12       | Body Stud               | Alloy Steel ASTM A193 GR B7                            |   |
| 13       | Body Gasket             | 316L St. St. w/Flexible Graphite Filler (Spiral Wound) |   |
| 14       | Guide Bushing           | 440C St. St. ASTM A276 TY 440C                         | Stellite or Equivalent 6 UNS 30006        |
| 15       | Lower Seat Ring         | 316 St. St. ASTM 479 TY 316                            | 316 St. St. with Hardfaced Seat           |
|          |                         | 316 St.St. with Hardfaced Seat                         |   |
| 16       | Upper Seat Ring         | 316 St. St. ASTM 479 TY 316                            | 316 St. St. with Hardfaced Seat           |
|          |                         | 316 St.St. with Hardfaced Seat                         |   |
| 18       | Lantern Ring (Optional) | Austenitic 300 Series Stainless Steel                  |   |
| 19       | Packing Follower        | Austenitic 300 Series Stainless Steel                  |   |
| Ref. No. | Temperature Range       |  |   |

-29°C

343°C

427°C



# Materials of Construction

## Standard Stainless Version

| Ref. No. | Description                   | Temperature Rating   |       |   |       |
|----------|-------------------------------|--|-------|---|-------|
|          |                               | -148°F   | -20°F | 650°F   | 800°F |
| 1        | Plug Stem                     | 316 St. St. ASTM 479 TY 316                                      |       |   |       |
| 2        | Packing Flange Nut            | St. St. ASTM A194 GR 8   |       |   |       |
| 3        | Packing Flange                | Zinc Dichromate Carbon Steel ASTM A105                           |       |   |       |
| 4        | Packing Flange Stud           | 304 St. St. ASTM A193 GR B8                                      |       |   |       |
| 5        | Drive Nut                     | Carbon Steel SAE 1117 or ASTM A216 GR WCC                        |       |   |       |
| 6        | Valve Bonnet Plain Version    | 316 Stainless Steel ASTM A351 Grade CF8M or ASTM A182 Grade F316 |       |   |       |
| 6        | Valve Bonnet Extended Version | 316 Stainless Steel ASTM A351 Grade CF8M or ASTM A182 Grade F316 |       |   |       |
| 7        | Valve Body                    | 316 Stainless Steel ASTM A351 Grade CF8M                         |       |   |       |
| 8        | Plug Pin                      | 316 St. St. ASTM 479 TY 316                                      |       |   |       |
| 9        | Plug                          | 316 St. St. ASTM 479 TY 316                                      |       | 316 St. St. with Hardfaced Seat and Guide     |       |
|          |                               | 316 St.St. with Hardfaced Seat                                   |       |   |       |
| 10       | Lower Flange                  | 316 Stainless Steel ASTM A351 Grade CF8M or ASTM A182 Grade F316 |       |   |       |
| 11       | Body Stud Nut                 | Carbon Steel ASTM A194 GR 2H<br>Zinc Dichromate Plating          |       | C. S. ASTM A194 GR 2H<br>(No Zinc)            |       |
|          |                               | ASTM A194 Gr. 8 <sup>(1)</sup>                                   |       |   |       |
| 12       | Body Stud                     | Alloy Steel ASTM A193 GR B7<br>Zinc Dichromate Plating           |       | Alloy Steel ASTM A193<br>GR B7 <sup>(3)</sup> |       |
|          |                               | ASTM A193 Gr. B8 <sup>(1)(3)</sup>                               |       |   |       |
| 13       | Body Gasket                   | 316L St. St. w/Flexible Graphite Filler (Spiral Wound)           |       |   |       |
| 14       | Guide Bushing                 | Stellite or Equivalent 6 <sup>(2)</sup>                          |       |   |       |
| 15       | Lower Seat Ring               | 316 St. St. ASTM 479 TY 316                                      |       | 316 St. St. with Hardfaced Seat               |       |
|          |                               | 316 St.St. with Hardfaced Seat                                   |       |   |       |
| 16       | Upper Seat Ring               | 316 St. St. ASTM 479 TY 316                                      |       | 316 St. St. with Hardfaced Seat               |       |
|          |                               | 316 St.St. with Hardfaced Seat                                   |       |   |       |
| 18       | Lantern Ring (Optional)       | Austenitic 300 Series Stainless Steel                            |       |   |       |
| 19       | Packing Follower              | Austenitic 300 Series Stainless Steel                            |       |   |       |
| Ref. No. | Temperature Range             | -100°C   | -29°C | 343°C   | 427°C |

- 1) Use of non-plated bolting must be reviewed by the factory for proper application.
- 2) For operating temperatures above 650°F (343°C), the Solid Stellite or Equivalent bushings are tack welded to the bonnet and lower flange to account for thermal expansion.
- 3) ASTM A453 Gr. 660 may be required to meet low temperature or corrosion resistance requirements.

# Materials of Construction

Standard Chrome-Moly Version

| Ref. No. | Temperature Rating      |  | 32°F   |  | 650°F |   | 800°F |  |
|----------|-------------------------|--|--|--|-------|---|-------|--|
|          | Description             |  | Materials  |  |       |   |       |  |
| 1        | Plug Stem               |  | 316 St. St. ASTM 479 TY 316                            |  |       |   |       |  |
| 2        | Packing Flange Nut      |  | St. St. ASTM A194 GR 8                                 |  |       |   |       |  |
| 3        | Packing Flange          |  | Zinc Dichromate Carbon Steel ASTM A105                 |  |       |   |       |  |
| 4        | Packing Flange Stud     |  | 304 St. St. ASTM A193 GR B8                            |  |       |   |       |  |
| 5        | Drive Nut               |  | Carbon Steel SAE 1117 or ASTM A216 GR WCC              |  |       |   |       |  |
| 6        | Valve Bonnet            |  | Chrome-Molybdenum Steel ASTM A217 Grade WC9            |  |       |   |       |  |
| 7        | Valve Body              |  | Chrome-Molybdenum Steel ASTM A217 Grade WC9            |  |       |   |       |  |
| 8        | Plug Pin                |  | 316 St. St. ASTM 479 TY 316                            |  |       |   |       |  |
| 9        | Plug                    |  | 316 St. St. ASTM 479 TY 316                            |  |       | 316 St. St. with Hardfaced Seat and Guide |       |  |
|          |                         |  | 316 St.St.with Hardfaced Seat                          |  |       |   |       |  |
| 10       | Lower Flange            |  | Chrome-Molybdenum Steel ASTM A217 Grade WC9            |  |       |   |       |  |
| 11       | Body Stud Nut           |  | Carbon Steel ASTM A194 GR 2H                           |  |       |   |       |  |
| 12       | Body Stud               |  | Alloy Steel ASTM A193 GR B7                            |  |       |   |       |  |
| 13       | Body Gasket             |  | 316L St. St. w/Flexible Graphite Filler (Spiral Wound) |  |       |   |       |  |
| 14       | Guide Bushing           |  | 440C St. St. ASTM A276 TY 440C                         |  |       | Stellite or Equivalent 6 UNS 30006        |       |  |
| 15       | Lower Seat Ring         |  | 316 St. St. ASTM 479 TY 316                            |  |       | 316 St. St. with Hardfaced Seat           |       |  |
|          |                         |  | 316 St.St. with Hardfaced Seat                         |  |       |   |       |  |
| 16       | Upper Seat Ring         |  | 316 St. St. ASTM 479 TY 316                            |  |       | 316 St. St. with Hardfaced Seat           |       |  |
|          |                         |  | 316 St.St. with Hardfaced Seat                         |  |       |   |       |  |
| 18       | Lantern Ring (Optional) |  | Austenitic 300 Series Stainless Steel                  |  |       |   |       |  |
| 19       | Packing Follower        |  | Austenitic 300 Series Stainless Steel                  |  |       |   |       |  |
| Ref. No. | Temperature Range       |  | 0°C  |  | 343°C |   | 427°C |  |

Packing Options - Carbon Steel, Stainless Steel and Chrome-Moly Constructions

| Ref. No.   | Temperature Rating |                  | -20°F   |  | 450°F |  | 800°F |  |
|------------|--------------------|------------------|---|--|-------|--|-------|--|
|            | Description        |                  | Materials                                       |  |       |  |       |  |
| 17         | Packing            | Standard Bonnet  | PTFE Packing                                    |  |       |  |       |  |
|            |                    |                  | LE Packing                                      |  |       |  |       |  |
|            |                    |                  | Expanded Graphite Filler + Graphite wiper rings |  |       |  |       |  |
|            | Packing            | Extension Bonnet | PTFE Packing                                    |  |       |  |       |  |
| LE Packing |                    |                  |   |  |       |  |       |  |
| Ref. No.   | Temperature Range  |                  | -29°C   |  | 232°C |  | 427°C |  |

# Materials of Construction

## NACE Materials Construction

| -20°F    |                     |  | 450°F |
|----------|---------------------|--|-------|
| Ref. No. | Temperature Range   | ▽  |       |
|          | Description         | Standard and Optional Materials <sup>(1)</sup>                 |       |
| 1        | Plug Stem           | 316 St. St. ASTM A479 TY 316 (HRC 22 Max.)                     |       |
|          |                     | ASTM A638 Gr 660 <sup>(2)</sup>                                |       |
| 2        | Packing Flange Nut  | 304 St. St. ASTM A194 Gr 8 <sup>(3)</sup> (non exposed)        |       |
|          |                     | Alloy Steel ASTM A194 Gr 8A <sup>(4)</sup> (exposed)           |       |
| 3        | Packing Flange      | Zinc Dichromate Carbon Steel ASTM A105                         |       |
| 4        | Packing Flange Stud | 304 St. St. ASTM A193 GR B8 (exposed and non exposed)          |       |
| 5        | Drive Nut           | Carbon Steel ASTM A105 or SAE 1010-1025 <sup>(4)</sup>         |       |
| 6        | Valve Bonnet        | Carbon Steel ASTM A216 Grade WCC (HRC 22 Max.)                 |       |
|          |                     | Carbon Steel ASTM A105 (HRC 22 Max.)                           |       |
|          |                     | 316 St. St. ASTM A351 Gr CF8M (HRC 22 Max.)                    |       |
| 7        | Valve Body          | Carbon Steel ASTM A216 Grade WCC (HRC 22 Max.)                 |       |
|          |                     | 316 St. St. ASTM A351 Gr CF8M (HRC 22 Max.)                    |       |
| 8        | Plug Pin            | 316 St. St. ASTM A479 TY 316 (HRC 22 Max.)                     |       |
| 9        | Plug                | 316 St. St. ASTM A479 TY 316 (HRC 22 Max.)                     |       |
|          |                     | 316 St. St. ASTM A479 TY 316 with Hardfaced Seat (HRC 22 Max.) |       |
| 10       | Lower Flange        | Carbon Steel ASTM A216 Grade WCC (HRC 22 Max.)                 |       |
|          |                     | Carbon Steel ASTM A105 (HRC 22 Max.)                           |       |
|          |                     | 316 St. St. ASTM A351 Gr CF8M (HRC 22 Max.)                    |       |
| 11       | Body Stud Nut       | ASTM A194 GR 2H <sup>(3)</sup> (non exposed)                   |       |
|          |                     | ASTM A194 Gr 2HM <sup>(4)</sup> (exposed)                      |       |
|          |                     | ASTM A194 GR 2H Zinc Plating <sup>(3)(5)</sup> (non exposed)   |       |
|          |                     | ASTM A194 Gr 2HM Zinc Plating <sup>(4)(5)</sup> (exposed)      |       |
| 12       | Body Stud           | ASTM A193 GR B7 <sup>(3)</sup> (non exposed)                   |       |
|          |                     | ASTM A193 Gr B7M <sup>(4)</sup> (exposed)                      |       |
|          |                     | ASTM A193 GR B7 Zinc Plated <sup>(3)(5)</sup> (non exposed)    |       |
|          |                     | ASTM A193 Gr B7M Zinc Plated <sup>(4)(5)</sup> (exposed)       |       |
| 13       | Body Gasket         | 316L St. St. w/Flexible Graphite Filler (Spiral Wound)         |       |
| 14       | Guide Bushing       | Stellite or Equivalent 6 UNS 30006                             |       |
| Ref. No. | Temperature Range   | △  |       |

-29°C

232°C

# Materials of Construction

NACE Materials Construction

-20°F

450°F

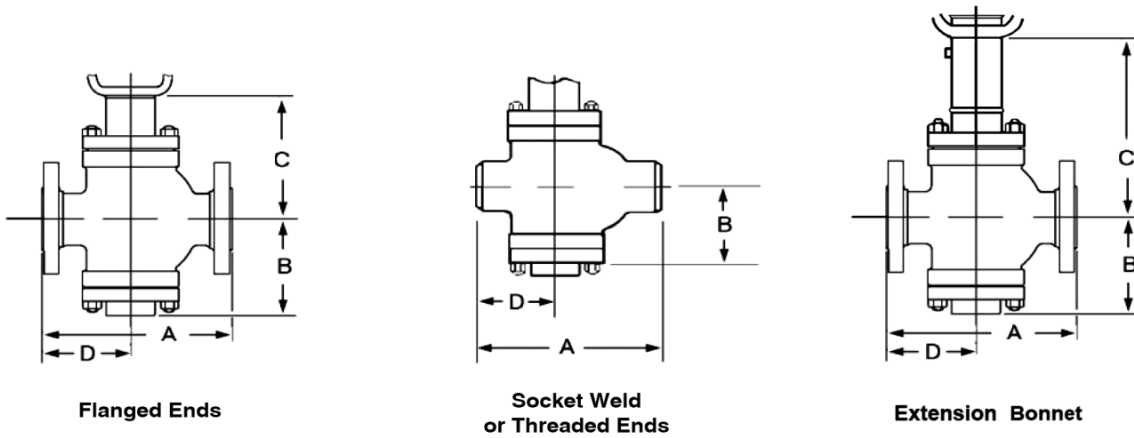
| Ref. No. | Temperature Range       | -20°F  | 450°F |
|----------|-------------------------|--|-------|
|          | Description             | Standard and Optional Materials <sup>(1)</sup>                 |       |
| 15       | Lower Seat Ring         | 316 St. St. ASTM A479 TY 316 (HRC 22 Max.)                     |       |
|          |                         | 316 St. St. ASTM A479 TY 316 with Hardfaced Seat (HRC 22 Max.) |       |
| 16       | Upper Seat Ring         | 316 St. St. ASTM A479 TY 316 (HRC 22 Max.)                     |       |
|          |                         | 316 St. St. ASTM A479 TY 316 with Hardfaced Seat (HRC 22 Max.) |       |
| 17       | Packing                 | PTFE Packing   |       |
| 18       | Lantern Ring (Optional) | 304 St. St. ASTM A479 TY 304                                   |       |
| 19       | Packing Follower        | 304 St. St. ASTM A479 TY 304                                   |       |
| Ref. No. | Temperature Range       |  |       |

-29°C

232°C

- 1) Materials and processes in accordance with the requirements of NACE specification MR0103, 2003.  
Applications requiring compliance to MR0175, 2003 Rev. or ISO 15156 would require engineering review.
- 2) ASTM A638 Gr 660 will be substituted in applications when required due to the differential pressure.
- 3) Materials designated for these parts conform to NACE Class III (unexposed) bolting requirements.
- 4) Materials designated for these parts conform to NACE Class I or Class II (exposed) bolting requirement.
- 5) Zinc plating is mandatory for St. Steel construction only.

# Valve Dimensions

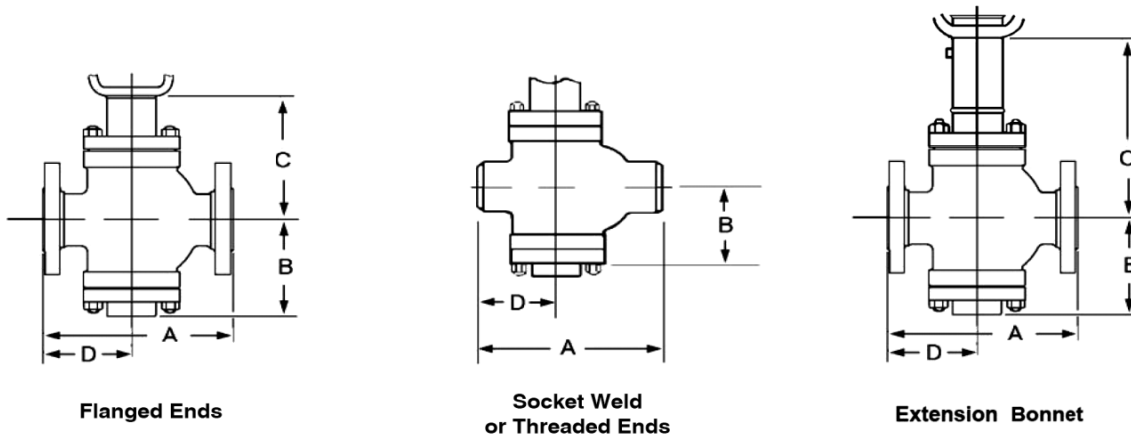


## 10000 Series Dimensions (inches)

| Valve Size |     | ASME Class 150 and equivalent PN |       |       |       | ASME Class 300 and equivalent PN |       |       |       | ASME Class 600 and equivalent PN |       |       |       | ASME Class 150-600 and equivalent PN |      |
|------------|-----|----------------------------------|-------|-------|-------|----------------------------------|-------|-------|-------|----------------------------------|-------|-------|-------|--------------------------------------|------|
| inches     | mm  | RF                               |       | RTJ   |       | RF                               |       | RTJ   |       | RF                               |       | RTJ   |       | Threaded & Socket Weld               |      |
|            |     | A                                | D     | A     | D     | A                                | D     | A     | D     | A                                | D     | A     | D     | A                                    | D    |
| 0.75       | 20  | 7.24                             | 3.66  | -     | -     | 7.64                             | 3.86  | 8.11  | 4.09  | 8.11                             | 4.09  | 8.11  | 4.09  | 6.02                                 | 2.87 |
| 1          | 25  | 7.24                             | 3.66  | 7.76  | 3.90  | 7.76                             | 3.90  | 8.27  | 4.13  | 8.27                             | 4.13  | 8.27  | 4.13  | 6.02                                 | 2.87 |
| 1.5        | 40  | 8.74                             | 4.09  | 9.25  | 4.33  | 9.25                             | 4.33  | 9.76  | 4.57  | 9.88                             | 4.65  | 9.88  | 4.65  | 7.99                                 | 3.70 |
| 2          | 50  | 10.00                            | 4.61  | 10.51 | 4.88  | 10.51                            | 4.88  | 11.10 | 5.20  | 11.26                            | 5.24  | 11.38 | 5.31  | 9.25                                 | 4.13 |
| 3          | 80  | 11.73                            | 5.51  | 12.24 | 5.75  | 12.52                            | 5.87  | 13.11 | 6.18  | 13.27                            | 6.26  | 13.39 | 6.30  | -                                    | -    |
| 4          | 100 | 13.90                            | 6.57  | 14.37 | 6.81  | 14.49                            | 6.89  | 15.12 | 7.20  | 15.51                            | 7.36  | 15.63 | 7.44  | -                                    | -    |
| 6          | 150 | 17.76                            | 7.64  | 18.11 | 7.87  | 18.62                            | 8.08  | 19.25 | 8.39  | 20.00                            | 8.74  | 20.12 | 8.82  | -                                    | -    |
| 8          | 200 | 21.38                            | 8.54  | 21.89 | 8.82  | 22.40                            | 9.06  | 22.99 | 9.37  | 24.02                            | 9.88  | 24.13 | 9.92  | -                                    | -    |
| 10         | 250 | 24.61                            | 9.96  | 25.12 | 10.24 | 26.02                            | 10.67 | 26.65 | 10.98 | 27.75                            | 11.54 | 27.87 | 11.61 | -                                    | -    |
| 12         | 300 | 28.74                            | 11.30 | 29.25 | 11.57 | 30.24                            | 12.09 | 30.87 | 12.36 | 32.01                            | 12.91 | 32.13 | 12.99 | -                                    | -    |
| 16         | 400 | 35.39                            | 15.71 | 35.87 | 15.94 | 37.01                            | 16.50 | 37.64 | 16.81 | 39.02                            | 17.24 | 39.13 | 17.32 | -                                    | -    |

| Valve Size |     | ASME Class 150 - 600 and equivalent PN |                 |               |
|------------|-----|--|-----------------|---------------|
| inches     | mm  | 8                                      | C (Std. Bonnet) | C (EB Bonnet) |
| 0.75       | 20  | 4.49                                   | 5.67            | 9.72          |
| 1          | 25  | 4.49                                   | 5.67            | 9.72          |
| 1.5        | 40  | 5.39                                   | 6.02            | 10.67         |
| 2          | 50  | 5.98                                   | 7.20            | 11.42         |
| 3          | 80  | 7.80                                   | 9.29            | 13.11         |
| 4          | 100 | 8.11                                   | 9.49            | 13.74         |
| 6          | 150 | 11.18                                  | 12.60           | 18.03         |
| 8          | 200 | 13.39                                  | 14.69           | 20.00         |
| 10         | 250 | 14.80                                  | 16.42           | 22.60         |
| 12         | 300 | 17.80                                  | 19.80           | 25.98         |
| 16         | 400 | 22.28                                  | 26.10           | 34.61         |

# Valve Dimensions



## 10000 Series Dimensions (mm)

| Valve Size |        | ASME Class 150 and equivalent PN |     |     |     | ASME Class 300 and equivalent PN |     |     |     | ASME Class 600 and equivalent PN |     |     |     | ASME Class 150-600 and equivalent PN |     |
|------------|--------|----------------------------------|-----|-----|-----|----------------------------------|-----|-----|-----|----------------------------------|-----|-----|-----|--------------------------------------|-----|
| mm         | inches | RF                               |     | RTJ |     | RF                               |     | RTJ |     | RF                               |     | RTJ |     | Threaded & Socket Weld               |     |
|            |        | A                                | D   | A   | D   | A                                | D   | A   | D   | A                                | D   | A   | D   | A                                    | D   |
| 20         | 0.75   | 184                              | 93  | -   | -   | 194                              | 98  | 206 | 104 | 206                              | 104 | 206 | 104 | 153                                  | 73  |
| 25         | 1      | 184                              | 93  | 197 | 99  | 197                              | 99  | 210 | 105 | 210                              | 105 | 210 | 105 | 153                                  | 73  |
| 40         | 1.5    | 222                              | 104 | 235 | 110 | 235                              | 110 | 248 | 116 | 251                              | 118 | 251 | 118 | 203                                  | 94  |
| 50         | 2      | 254                              | 117 | 267 | 124 | 267                              | 124 | 282 | 132 | 286                              | 133 | 289 | 135 | 235                                  | 105 |
| 80         | 3      | 298                              | 140 | 311 | 146 | 318                              | 149 | 333 | 157 | 337                              | 159 | 340 | 160 | -                                    | -   |
| 100        | 4      | 353                              | 167 | 365 | 173 | 368                              | 175 | 384 | 183 | 394                              | 187 | 397 | 189 | -                                    | -   |
| 150        | 6      | 451                              | 194 | 460 | 200 | 473                              | 205 | 489 | 213 | 508                              | 222 | 511 | 224 | -                                    | -   |
| 200        | 8      | 543                              | 217 | 556 | 224 | 589                              | 230 | 584 | 238 | 610                              | 251 | 613 | 252 | -                                    | -   |
| 250        | 10     | 625                              | 253 | 638 | 260 | 661                              | 271 | 677 | 279 | 705                              | 298 | 708 | 295 | -                                    | -   |
| 300        | 12     | 730                              | 287 | 743 | 294 | 768                              | 307 | 784 | 314 | 813                              | 328 | 816 | 330 | -                                    | -   |
| 400        | 16     | 899                              | 399 | 911 | 405 | 940                              | 419 | 956 | 427 | 991                              | 438 | 994 | 440 | -                                    | -   |

| Valve Size |        | ASME Class 150 - 600 and equivalent PN |                 |               |
|------------|--------|--|-----------------|---------------|
| mm         | inches | 8                                      | C (Std. Bonnet) | C (EB Bonnet) |
| 20         | 0.75   | 114                                    | 144             | 247           |
| 25         | 1      | 114                                    | 144             | 247           |
| 40         | 1.5    | 137                                    | 153             | 271           |
| 50         | 2      | 152                                    | 183             | 290           |
| 80         | 3      | 198                                    | 236             | 333           |
| 100        | 4      | 206                                    | 241             | 349           |
| 150        | 6      | 284                                    | 320             | 458           |
| 200        | 8      | 340                                    | 373             | 508           |
| 250        | 10     | 376                                    | 417             | 574           |
| 300        | 12     | 452                                    | 503             | 660           |
| 400        | 16     | 566                                    | 663             | 879           |

# Valve Weights

Weights in (lbs)

| Valve Size |     | ASME Class 150-600 and equivalent PN | ASME Class 150 and equivalent PN | ASME Class 300 and equivalent PN | ASME Class 600 and equivalent PN |
|------------|-----|--------------------------------------|----------------------------------|----------------------------------|----------------------------------|
| inches     | mm  | Threaded & Socket Weld               | Flanged                          |                                  |                                  |
| 0.75       | 20  | 40                                   | 79                               | 79                               | 90                               |
| 1          | 25  | 44                                   | 86                               | 86                               | 99                               |
| 1.5        | 40  | 44                                   | 106                              | 110                              | 119                              |
| 2          | 50  | 51                                   | 150                              | 159                              | 174                              |
| 3          | 80  | 110                                  | 245                              | 256                              | 269                              |
| 4          | 100 | 192                                  | 304                              | 309                              | 335                              |
| 6          | 150 | 364                                  | 514                              | 529                              | 595                              |
| 8          | 200 | 668                                  | 798                              | 825                              | 959                              |
| 10         | 250 | 1168                                 | 1349                             | 1378                             | 1497                             |
| 12         | 300 | 1455                                 | 1698                             | 1737                             | 1898                             |
| 16         | 400 | 2579                                 | 3016                             | 3086                             | 4198                             |

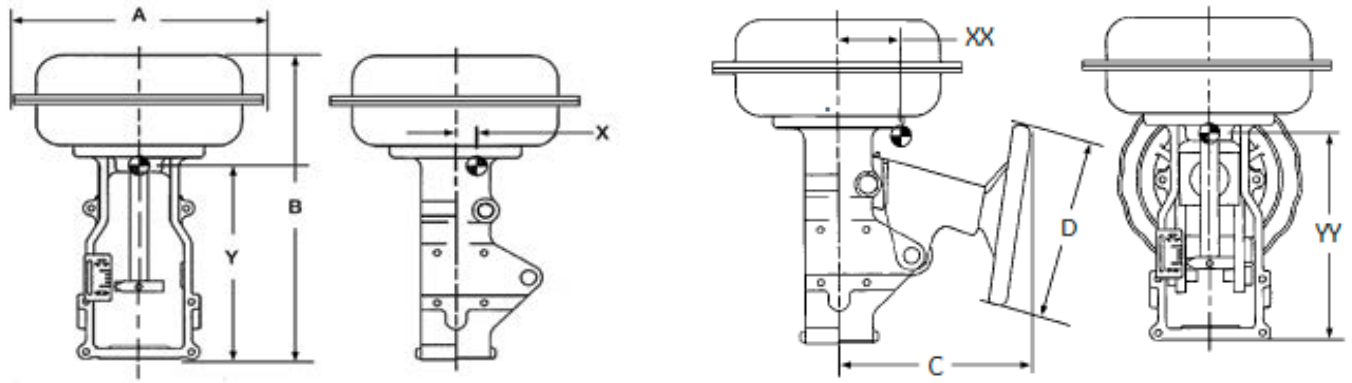
1) Consult factory for weight data on 14" size.

Weights in (kg)

| Valve Size |        | ASME Class 150-600 and equivalent PN | ASME Class 150 and equivalent PN | ASME Class 300 and equivalent PN | ASME Class 600 and equivalent PN |
|------------|--------|--------------------------------------|----------------------------------|----------------------------------|----------------------------------|
| mm         | inches | Threaded & Socket Weld               | Flanged                          |                                  |                                  |
| 20         | 0.75   | 18                                   | 36                               | 36                               | 41                               |
| 25         | 1      | 20                                   | 39                               | 39                               | 45                               |
| 40         | 1.5    | 20                                   | 48                               | 50                               | 54                               |
| 50         | 2      | 23                                   | 68                               | 72                               | 79                               |
| 80         | 3      | 50                                   | 111                              | 116                              | 122                              |
| 100        | 4      | 87                                   | 138                              | 140                              | 152                              |
| 150        | 6      | 165                                  | 233                              | 240                              | 270                              |
| 200        | 8      | 303                                  | 362                              | 374                              | 435                              |
| 250        | 10     | 530                                  | 612                              | 625                              | 679                              |
| 300        | 12     | 660                                  | 770                              | 788                              | 861                              |
| 400        | 16     | 1170                                 | 1368                             | 1400                             | 1904                             |

1) Consult factory for weight data on 14" size.

# Actuator Dimensions and Weights (in./lbs)



Shown with optional Handwheel

## Dimensions and Weight

| Actuator Size | Actuator Dimensions (inches) |               |       |       | Weights (lbs.) |             |
|---------------|------------------------------|---------------|-------|-------|----------------|-------------|
|               | A                            | B (Model 88)  | C     | D     | Standard       | w/Handwheel |
| 6             | 11.50                        | 15.54 (17.52) | 10.00 | 9.00  | 45             | 60          |
| 10            | 14.50                        | 19.58 (21.54) | 10.90 | 12.00 | 85             | 105         |
| 16            | 18.75                        | 28.22 (30.79) | 14.00 | 18.00 | 210            | 245         |
| 23            | 21.63                        | 30.71 (33.27) | 16.00 | 18.00 | 265            | 320         |

Actuator Removal Clearance = 6 inches

## Center of Gravity (inches) Without Handwheel

| Size | X   | Y     |
|------|-----|-------|
| 6    | .19 | 9.75  |
| 10   | .0  | 12.88 |
| 16   | .13 | 18.50 |
| 23   | .06 | 21.13 |

## Center of Gravity (inches) Without Handwheel

| Size | X    | Y     |
|------|------|-------|
| 6    | 1.25 | 9.13  |
| 10   | 0.88 | 12.00 |
| 16   | 1.38 | 16.75 |
| 23   | 1.38 | 19.00 |

## Limit Stops (inches) Up Stop

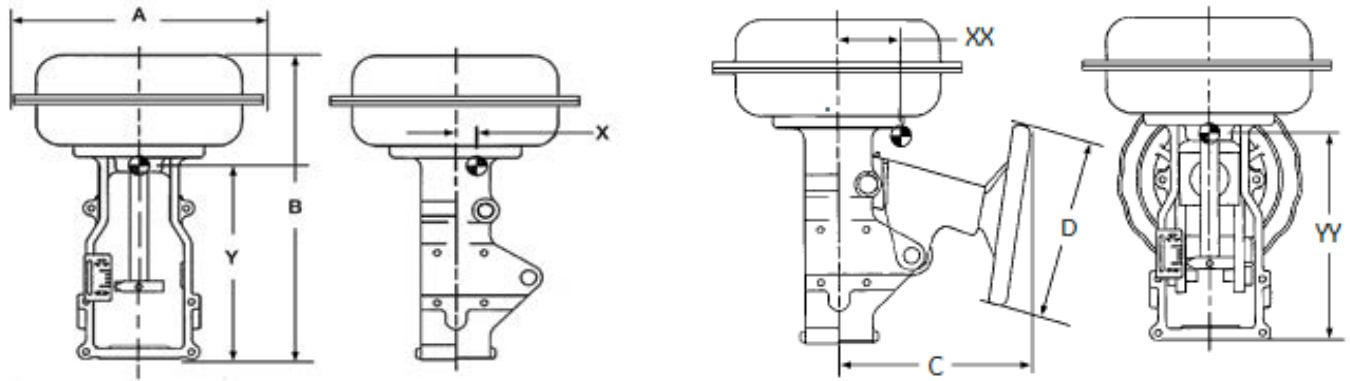
| Size | Model | Overall Height B |
|------|-------|------------------|
| 6    | 87    | 19.45            |
| 10   |       | 25.43            |
| 16   |       | 36.42            |
| 23   |       | 38.84            |
| 6    | 88    | 19.16            |
| 10   |       | 25.06            |
| 16   |       | 35.48            |
| 23   |       | 38.65            |

## Down Stop

| Size | Model | Overall Height B |
|------|-------|------------------|
| 6    | 87    | 19.80            |
| 10   |       | 25.98            |
| 16   |       | 37.20            |
| 23   |       | 39.90            |
| 6    | 88    | 19.74            |
| 10   |       | 25.85            |
| 16   |       | 37.46            |
| 23   |       | 40.33            |



# Actuator Dimensions and Weights (mm/kg)



Shown with optional Handwheel

## Dimensions and Weight

| Actuator Size | Actuator Dimensions (mm) |              |     |     | Weights (kg) |             |
|---------------|--------------------------|--------------|-----|-----|--------------|-------------|
|               | A                        | B (Model 88) | C   | D   | Standard     | w/Handwheel |
| 6             | 302                      | 395 (445)    | 254 | 229 | 20           | 27          |
| 10            | 373                      | 497 (547)    | 277 | 305 | 39           | 48          |
| 16            | 476                      | 717 (782)    | 356 | 457 | 95           | 111         |
| 23            | 549                      | 780 (845)    | 406 | 457 | 120          | 145         |

Actuator Removal Clearance = 152mm

## Center of Gravity (mm) Without Handwheel

| Size | X | Y   |
|------|---|-----|
| 6    | 5 | 248 |
| 10   | 0 | 327 |
| 16   | 3 | 470 |
| 23   | 2 | 537 |

## Center of Gravity (inches) Without Handwheel

| Size | X  | Y   |
|------|----|-----|
| 6    | 32 | 232 |
| 10   | 22 | 305 |
| 16   | 35 | 425 |
| 23   | 35 | 483 |

## Limit Stops (mm) Up Stop

| Size | Model | Overall Height B |
|------|-------|------------------|
| 6    | 87    | 494              |
| 10   |       | 646              |
| 16   |       | 925              |
| 23   |       | 987              |
| 6    | 88    | 487              |
| 10   |       | 636              |
| 16   |       | 901              |
| 23   |       | 982              |

## Down Stop

| Size | Model | Overall Height B |
|------|-------|------------------|
| 6    | 87    | 503              |
| 10   |       | 660              |
| 16   |       | 945              |
| 23   |       | 1014             |
| 6    | 88    | 501              |
| 10   |       | 657              |
| 16   |       | 952              |
| 23   |       | 1024             |

## Notes

## Notes

# DIRECT SALES OFFICE LOCATIONS

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06/2017

