



## Camflex® II 35002 Series

Rotary Control Valves



# Camflex® II 35002 Series

Rugged, All Purpose  
Rotary Control Valves



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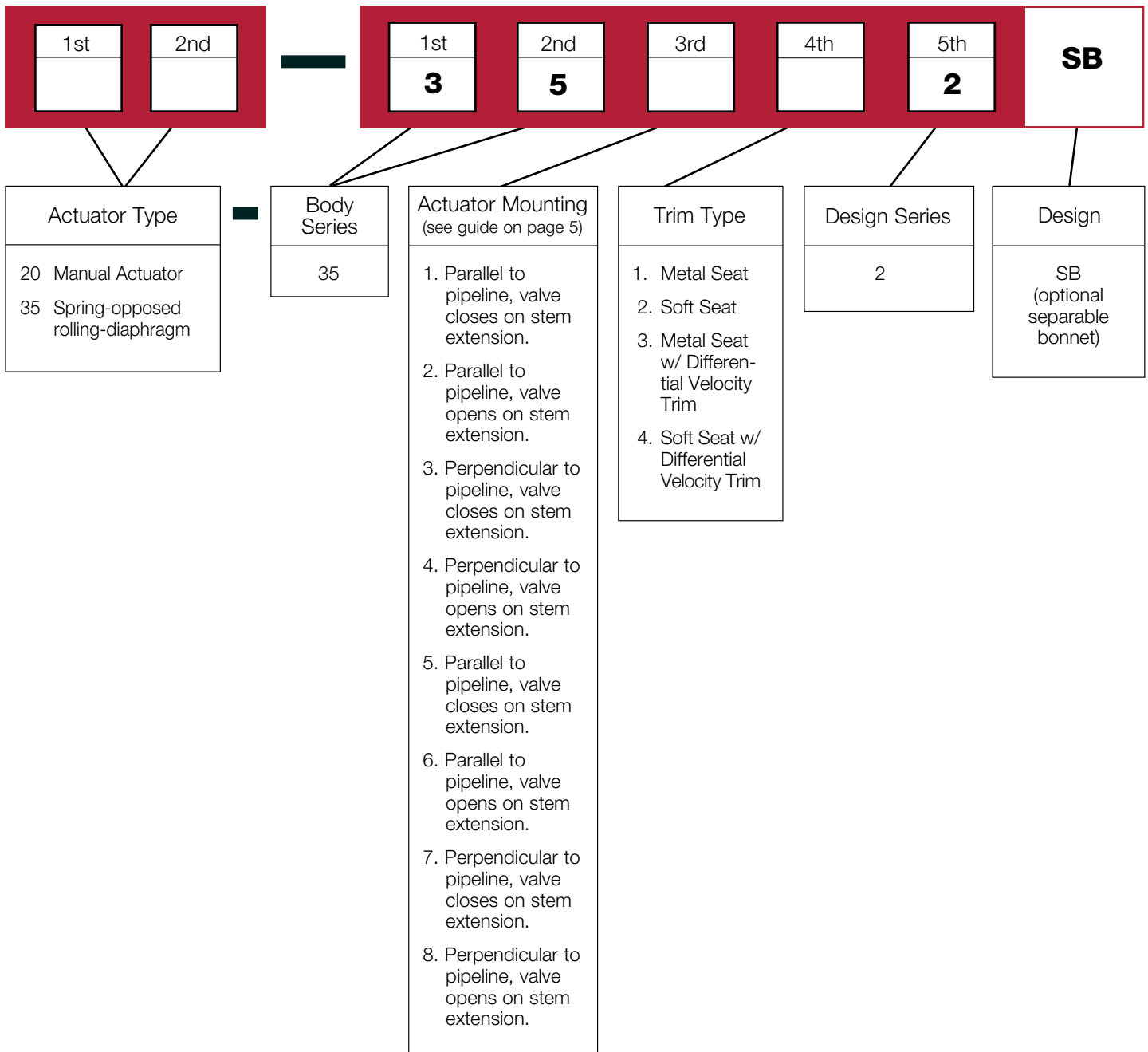
## Features

The Camflex® II is a heavy duty automatic throttling control valve which incorporates the following features:

- Flangeless body rating is a rugged ANSI Class 600.
- Heavy duty guide lugs assure quick, positive alignment during installation.
- Flanged version available 1" through 12" (25mm through 300mm) in 150 or 300 ANSI and 1" through 8" (25mm through 200mm) in 600 ANSI.
- Separable Bonnet design available.
- Straight through flow pattern provides **greater flow capacities**.
- Standard integral extension bonnet allows for a **wide range of fluid temperature applications** (-320°F to 750°F), (-196°C to 400°C).
- The unique self-aligning eccentric rotating plug provides **tight shut off** and **low dynamic forces**.
- A large variety of reduced trim options are available in all sizes.
- The triple, over-sized bearing system provides **exceptional plug shaft guiding**.
- Shouldered shaft design.
- Optional patented differential velocity device (DVD) separates compressible flowstreams into a high velocity core and a low velocity envelope flowstream. Provides up to 18dBA noise attenuation.
- Optional alloy constructions are available.
- Powerful, low profile spring diaphragm actuator guarantees positive "fail-safe" action.
- Splined shaft and actuator linkages, combined with low friction techniques, assure minimum deadband and hysteresis.
- Large, highly visible valve position indicator.
- Totally enclosed actuator linkage (purge option available).

Trade names noted throughout are for reference only. Masoneilan reserves the right to supply trade named material or its equivalent.

# Numbering System

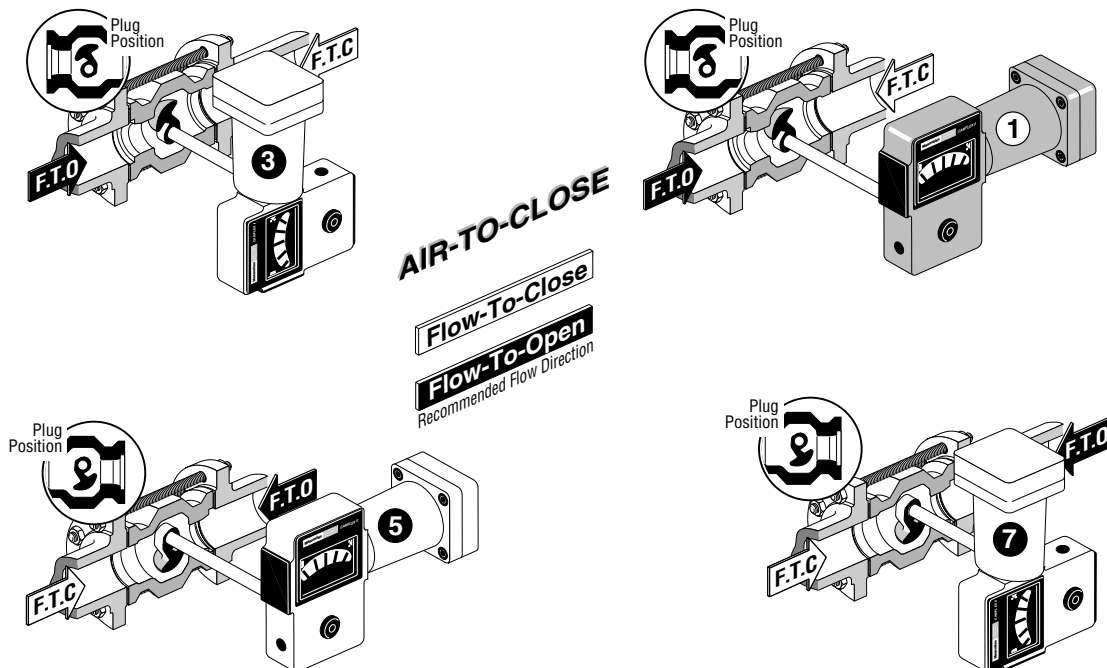
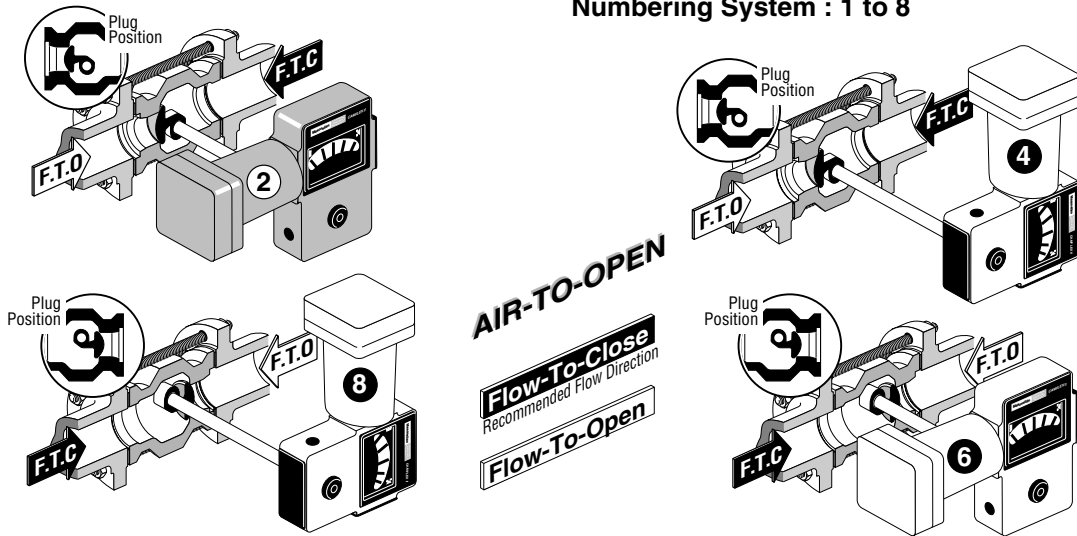


# Actuator Mounting Guide

## CAMFLEX II VALVES (Mounted On Horizontal Pipeline)

3 5 - 3 5 . 0 2

Actuator Position in Relation to Valve Body  
Numbering System : 1 to 8



### Notes:

1. It is recommended that the actuator always be mounted as shown above. For other positions, consult local sales office.
2. Installation is assumed to be in horizontal pipeline for orientation of airset and other accessories unless specified on order.
3. Action and orientation field reversible without additional parts. See Instruction EF5000.
4. Operating efficiencies may vary depending on valve configuration.
5. The above schematic does not reflect every possible body/actuator orientation, but should serve as an effective guide.

# General Data

## ■ Body

|                       |   |
|-----------------------|---|
| Type:                 | cast with integral bonnet<br>cast with separable bonnet - 1"-8"   |
| Flow Direction:       | flow to open or flow to close<br>(Differential Velocity Device trim flow to open only)  |
| Materials:            | carbon steel<br>316 stainless steel (flangeless)<br>316L stainless steel (flanged)<br>"Hastelloy C" (1"-4") (DN 25-100) <sup>1</sup>  |
| Body Pressure Rating: | ANSI Class 600 (per B16.34) standard<br>(1"-12") (DN 25-300) except for flanged construction;<br>valve rating is limited by flange rating   |
| End Connections:      | <ul style="list-style-type: none"> <li>• <b>threaded</b> - NPT for ANSI Class 600 rated connections (1") (DN 25)</li> <li>• <b>flangeless</b> - clamps between ANSI Class 150, 300 or 600 rated flanges (flange rating must be specified for 8"-12" (DN 200-300) valve for locator lug drilling and tapping)</li> <li>• <b>flanged</b> - bolts to ANSI Class 150 or 300 rated flanges (1"-12") (DN 25-300) ANSI Class 600 rated flanges (1"- 8") (DN 25-200)</li> </ul> |

## ■ Trim

|                       |  |
|-----------------------|--|
| Plug Type:            | self-aligning eccentrically rotating   |
| Materials:            | 1"-2" (DN 25-100) solid Stellite No. 6<br>3"-4" (DN 80 & 100) solid Stellite No. 6 optional<br>3"-12" (DN 80-300) 316L stainless steel with hardfaced seating surface<br>1"-4" (DN 25-100) "Hastelloy C" <sup>1</sup>  |
| Seat Ring:            | solid clamped  |
| Materials:            | 1"-12" (DN 25-300) 316 stainless steel<br>1"-4" (DN 25-100) "Hastelloy C" <sup>1</sup><br>3"-4" (DN 80 & 100) optional<br>1"-12" (DN 150-300) 316 stainless steel with hardfaced seat<br>1"-4" (DN 25-100) solid Stellite No. 6 optional<br>1"-12" (DN 25-300) 316 stainless steel with PTFE insert (to 450°F), (232°C)* |
| Retainer:             | 316 Stainless Steel  |
| Capacity:             | full area and reduced capacity in all sizes  |
| Flow Characteristic:  | standard trim - linear<br>low flow trim (.036 + .07 factor) - linear (requires SVI)<br>differential velocity device - linear   |
| C <sub>v</sub> Ratio: | standard trim >100:1<br>low flow trim 15:1<br>differential velocity device >50:1   |

1. See materials of construction

\*Not available in .2 factor or Low Flow Trim sizes

## ■ Actuators

### ■ Spring-Opposed Rolling Diaphragm

|                      |  |
|----------------------|--|
| Size:                | <ul style="list-style-type: none"> <li>• 4½" diameter with ¾" (89mm) stroke (1"-2" valves), (DN 25-50)</li> <li>• 6" diameter with 5¼" (146mm) stroke (3"-4" valves), (DN 80-100)</li> <li>• 7" diameter with 7¼" (184mm) stroke (6"-12" valves), (DN 150-300)</li> <li>• 9" diameter with 7¼" (184mm) stroke (6"-12" valves), (DN 150-300)</li> </ul> |
| Range:               | 7-15 psi (1"-4"), (DN 25-100)<br>7-24 psi (6"-12"), (DN 150-300) (7" diameter actuator)<br>7-24 psi (6"-12"), (DN 150-300) (9" diameter actuator, Air to Close)<br>8-25 psi (6"-12"), (DN 150-300) (9" diameter actuator, Air to Open)   |
| Air Connection:      | ¼" NPT   |
| Yoke:                | cast iron  |
| Bearing:             | sealed radial  |
| Auxiliary Handwheel: | solid disk with locking nut<br>6½" diameter (1"-4" valves), (DN 25-100)<br>10" diameter (6"-12" valves), (DN 150-300)  |

### ■ Manual Actuator

|           |   |
|-----------|---|
| Type:     | solid disk with detent anti-rotation device.<br>Continuously connected  |
| Sizes:    | <ul style="list-style-type: none"> <li>• 7" (178mm) diameter (1"-2" valves), (DN 25-50)</li> <li>• 8⅞" (225mm) diameter (3" &amp; 4" valves), (DN 80-100)</li> <li>• 16⅞" (410mm) diameter (6"-12" valves), (DN 150-300)</li> </ul> |
| Material: | aluminum  |
| Yoke:     | cast iron   |
| Bearing:  | sealed radial ball  |

# Ratings and Connections

| Valve Size |         | ANSI Class |       |       |
|------------|---------|------------|-------|-------|
| in.        | DN      | 150        | 300   | 600   |
| 1-2        | 25-50   | △ ○ ●      | △ ○ ● | △ ○ ● |
| 3-8        | 80-200  | ○ ●        | ○ ●   | ○ ●   |
| 10-12      | 250-300 | ○ ●        | ○ ●   | ○     |

△ Threaded    ○ Flangeless    ● RF Flanged

Note: For flangeless valve sizes 8"-12", (200mm-300mm) please specify ANSI Class rating.

Face to Face: ISA S75.04

# General Data

## Standard Spring Diaphragm Actuator Materials

| Description           | Material   |
|-----------------------|--|
| Yoke                  | Cast Iron  |
| Yoke Covers           | Polycarbonate  |
| Spring Barrel         | Die Cast Aluminum  |
| Diaphragm Case        | Die Cast Aluminum  |
| Piston                | Die Cast Aluminum  |
| Diaphragm             | Buna-N with Dacron Insert  |
| Piston Rod            | 303 St. St.  |
| Clevis                | Carbon Steel Zinc Dichromate Plated                              |
| Clevis Pin            | 17-4 PH (H1075) St. St.  |
| Lever                 | Steel With Epoxy Surface   |
| Lever Bearing         | PTFE Filament Surface Bonded to Glass Reinforced Plastic Backing |
| Handwheel and Locknut | Aluminum   |

## Standard Actuator Characteristics and Travel Times

| Actuator Diameter |      | Diaphragm Effective Area |                 | Actuator Stroke |      | Travel Time (sec.)           |                              |
|-------------------|------|--------------------------|-----------------|-----------------|------|------------------------------|------------------------------|
|                   |      |                          |                 |                 |      | Increasing Instrument Signal | Decreasing Instrument Signal |
| in.               | cm   | sq. in.                  | cm <sup>2</sup> | in.             | cm   |                              |                              |
| 4½                | 11.4 | 14                       | 90              | 3½              | 8.9  | 1.2                          | 2.4                          |
| 6                 | 15.2 | 24                       | 155             | 5¾              | 14.6 | 3                            | 6.3                          |
| 7                 | 17.8 | 36                       | 232             | 7¼              | 18.4 | 7.6                          | 9.8                          |
| 9                 | 22.9 | 75                       | 483             | 7¼              | 18.4 | 17                           | 24                           |

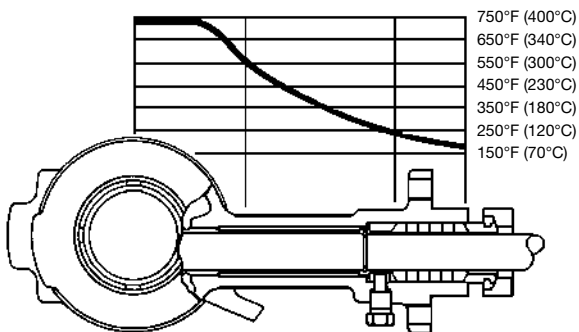
Measured with direct positioner at 30 psi (2 bar) supply  
4700P positioner with tubing size ¼ in.

## Temperature/Seat Leakage

| Valve Size |           | Seat Type   | Temp. Range*        |                   | Max. Seat Leakage, ANSI FCI/70.2 Class |
|------------|-----------|-------------|---------------------|-------------------|--|
| in.        | DN        |             | Min.                | Max.              |  |
| 1-12       | 25 to 300 | Metal       | -320°F*<br>(-196°C) | +750°F<br>(400°C) | IV                                     |
|            |           | Soft Seat** | -320°F*<br>(-196°C) | +450°F<br>(232°C) | VI                                     |

\* For Stainless Steel Bodies Only.

\*\*Temperature Limited by Teflon® Seal.



Temperature Gradient Across Standard Integral Bonnet

The ability of the Camflex valve to handle a wide range of process fluid temperatures is due to the long, integrally-cast bonnet. This affords ample radiation surface to normalize the packing temperatures.

## Maximum Rated Flow Coefficients (C<sub>v</sub>) and Critical Flow Factors (F<sub>L</sub>) at Maximum Opening (50°)

| Valve Size |     | Factor | Flow to Open         |                | Flow to Close        |                |
|------------|-----|--------|----------------------|----------------|----------------------|----------------|
| inches     | DN  |        | Rated C <sub>v</sub> | F <sub>L</sub> | Rated C <sub>v</sub> | F <sub>L</sub> |
| 1          | 25  | 0.036  | .5                   | 0.98           | .5                   | 0.86           |
|            |     | 0.07   | 1                    | 0.98           | 1                    | 0.86           |
|            |     | 0.2    | 2.8                  | 0.88           | 3                    | 0.7            |
|            |     | 0.4    | 5.6                  | 0.88           | 6                    | 0.7            |
|            |     | 0.6    | 8.4                  | 0.88           | 9                    | 0.7            |
|            |     | 1      | 14                   | 0.85           | 15                   | 0.68           |
|            |     | DVD    | 5                    |                |                      |                |
| 1.5        | 40  | 0.4    | 13.2                 | 0.88           | 15.6                 | 0.7            |
|            |     | 0.6    | 19.8                 | 0.88           | 23.4                 | 0.7            |
|            |     | 1      | 33                   | 0.85           | 39                   | 0.68           |
|            |     | DVD    | 12.5                 |                |                      |                |
| 2          | 50  | 0.4    | 20                   | 0.88           | 21.2                 | 0.7            |
|            |     | 0.6    | 30                   | 0.88           | 31.8                 | 0.7            |
|            |     | 1      | 50                   | 0.85           | 53                   | 0.68           |
|            |     | DVD    | 18                   |                |                      |                |
| 3          | 80  | 0.4    | 54                   | 0.88           | 58                   | 0.7            |
|            |     | 0.6    | 81                   | 0.88           | 87                   | 0.7            |
|            |     | 1      | 135                  | 0.85           | 145                  | 0.68           |
|            |     | DVD    | 48                   |                |                      |                |
| 4          | 100 | 0.4    | 92                   | 0.88           | 92                   | 0.7            |
|            |     | 0.6    | 138                  | 0.88           | 138                  | 0.7            |
|            |     | 1      | 230                  | 0.85           | 230                  | 0.68           |
|            |     | DVD    | 78                   |                |                      |                |
| 6          | 150 | 0.4    | 200                  | 0.88           | 200                  | .07            |
|            |     | 0.6    | 300                  | 0.88           | 300                  | 0.7            |
|            |     | 1      | 500                  | 0.85           | 500                  | 0.68           |
|            |     | DVD    | 181                  |                |                      |                |
| 8          | 200 | 0.4    | 340                  | 0.88           | 340                  | 0.7            |
|            |     | 0.6    | 510                  | 0.88           | 510                  | 0.7            |
|            |     | 1      | 850                  | 0.85           | 850                  | 0.68           |
|            |     | DVD    | 308                  |                |                      |                |
| 10         | 250 | 0.4    | 520                  | 0.88           | 520                  | 0.7            |
|            |     | 0.6    | 780                  | 0.88           | 780                  | 0.7            |
|            |     | 1      | 1300                 | 0.85           | 1300                 | 0.68           |
|            |     | DVD    | 486                  |                |                      |                |
| 12         | 300 | 0.4    | 700                  | 0.88           | 700                  | 0.7            |
|            |     | 0.6    | 1050                 | 0.88           | 1050                 | 0.7            |
|            |     | 1      | 1750                 | 0.85           | 1750                 | 0.68           |
|            |     | DVD    | 684                  |                |                      |                |

Note: Low flow trims (.036+.07 factor) requires use of SVI II AP, or FVP digital positioners.

# (C<sub>v</sub>) and (F<sub>L</sub>) Versus Travel

Flow Direction: Flow to Open

Flow Characteristics: Linear

ANSI Class: 150 through 600

Sizes: 1" through 12" (DN 25-300)

| Percent of Plug Rotation                   |     |              |      |                  |     | 10                   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  |
|--|-----|--------------|------|------------------|-----|----------------------|------|------|------|------|------|------|------|------|------|
| F <sub>L</sub> Full Area                   |     |              |      |                  |     | 0.96                 | 0.93 | 0.91 | 0.89 | 0.88 | 0.87 | 0.87 | 0.86 | 0.86 | 0.85 |
| F <sub>L</sub> Reduced Area (.6, .4, & .2) |     |              |      |                  |     | 0.96                 | 0.93 | 0.91 | 0.89 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Valve Size                                 |     | Orifice Dia. |      | Act. Stem Travel |     | Rated C <sub>v</sub> |      |      |      |      |      |      |      |      |      |
|  |     |              |      |                  |     |                      |      |      |      |      |      |      |      |      |      |
| in.  | DN  | in.          | mm   | in.              | mm  |                      |      |      |      |      |      |      |      |      |      |
| 1  | 25  | .321         | 8.2  | 3.50             | 89  | 0.4                  | 0.8  | 1.1  | 1.4  | 1.7  | 2.0  | 2.3  | 2.5  | 2.7  | 2.8  |
|  |     | .500         | 12.7 | 3.50             | 89  | 0.5                  | 0.9  | 1.4  | 2.0  | 2.7  | 3.5  | 4.2  | 4.8  | 5.2  | 5.6  |
|  |     | .579         | 14.7 | 3.50             | 89  | 0.6                  | 1.3  | 2.2  | 3.1  | 4.2  | 5.3  | 6.4  | 7.2  | 7.9  | 8.4  |
|  |     | .718         | 18.2 | 3.50             | 89  | 0.9                  | 2.1  | 3.7  | 5.7  | 7.8  | 9.6  | 11.1 | 12.4 | 13.3 | 14   |
| 1½   | 40  | .750         | 19.1 | 3.50             | 89  | 1.1                  | 2.1  | 3.3  | 4.7  | 6.5  | 8.4  | 9.9  | 11.2 | 12.3 | 13.2 |
|  |     | .907         | 23.0 | 3.50             | 89  | 1.4                  | 3.2  | 5.1  | 7.4  | 10.0 | 12.7 | 15.0 | 17.1 | 18.6 | 19.8 |
|  |     | 1.125        | 28.6 | 3.50             | 89  | 2.0                  | 5.0  | 8.6  | 13   | 19   | 22   | 26   | 29   | 32   | 33   |
| 2  | 50  | 1.000        | 25.4 | 3.50             | 89  | 1.6                  | 3.2  | 5.0  | 7.2  | 9.8  | 12.6 | 15.0 | 17.0 | 18.7 | 20   |
|  |     | 1.159        | 29.4 | 3.50             | 89  | 2.1                  | 4.8  | 7.7  | 11.2 | 15.1 | 19.1 | 22.7 | 25.8 | 28.2 | 30   |
|  |     | 1.437        | 36.5 | 3.50             | 89  | 3.1                  | 7.5  | 13.3 | 20.5 | 28   | 34.2 | 39.8 | 44.2 | 47.5 | 50   |
| 3  | 80  | 1.500        | 38.1 | 5.75             | 146 | 4.9                  | 9.4  | 14.1 | 20.0 | 26.5 | 33.5 | 39.8 | 45.4 | 50.2 | 54   |
|  |     | 1.874        | 47.6 | 5.75             | 146 | 5.7                  | 12.1 | 19.6 | 27.6 | 37.5 | 47.9 | 58.4 | 68.0 | 75.9 | 81   |
|  |     | 2.324        | 59.0 | 5.75             | 146 | 8.8                  | 17.7 | 29.8 | 44.5 | 60.7 | 78.3 | 96.2 | 113  | 127  | 135  |
| 4  | 100 | 2.000        | 50.8 | 5.75             | 146 | 8.4                  | 16.1 | 24.0 | 34.1 | 45.1 | 57.1 | 67.8 | 77.4 | 85.6 | 92   |
|  |     | 2.419        | 61.4 | 5.75             | 146 | 9.7                  | 20.7 | 33.4 | 47.0 | 63.8 | 81.6 | 99.4 | 116  | 129  | 138  |
|  |     | 3.000        | 76.2 | 5.75             | 146 | 15.0                 | 30.2 | 50.8 | 75.8 | 104  | 133  | 164  | 193  | 216  | 230  |
| 6  | 150 | 3.000        | 76.2 | 7.25             | 184 | 18.2                 | 34.9 | 52.2 | 74.1 | 98.0 | 124  | 147  | 168  | 186  | 200  |
|  |     | 3.629        | 92.2 | 7.25             | 184 | 21.2                 | 44.9 | 72.7 | 102  | 139  | 177  | 216  | 252  | 281  | 300  |
|  |     | 4.500        | 114  | 7.25             | 184 | 32.7                 | 65.7 | 110  | 165  | 225  | 290  | 356  | 419  | 470  | 500  |
| 8  | 200 | 3.797        | 96.4 | 7.25             | 184 | 22.0                 | 44.2 | 71.9 | 107  | 150  | 196  | 241  | 283  | 317  | 340  |
|  |     | 4.840        | 123  | 7.25             | 184 | 31.3                 | 63.6 | 114  | 178  | 246  | 313  | 374  | 425  | 468  | 510  |
|  |     | 6.000        | 152  | 7.25             | 184 | 42.8                 | 111  | 201  | 316  | 434  | 542  | 639  | 725  | 798  | 850  |
| 10   | 250 | 4.746        | 121  | 7.25             | 184 | 33.7                 | 67.6 | 110  | 164  | 230  | 300  | 369  | 432  | 485  | 520  |
|  |     | 6.050        | 154  | 7.25             | 184 | 47.8                 | 97.3 | 175  | 273  | 376  | 478  | 572  | 650  | 716  | 780  |
|  |     | 7.500        | 191  | 7.25             | 184 | 65.5                 | 170  | 307  | 483  | 663  | 828  | 977  | 1109 | 1221 | 1300 |
| 12   | 300 | 5.780        | 147  | 7.25             | 184 | 45.3                 | 91.0 | 148  | 221  | 309  | 403  | 497  | 582  | 652  | 700  |
|  |     | 7.460        | 189  | 7.25             | 184 | 64.4                 | 131  | 235  | 367  | 506  | 644  | 769  | 875  | 964  | 1050 |
|  |     | 9.250        | 235  | 7.25             | 184 | 88.1                 | 228  | 414  | 650  | 893  | 1115 | 1315 | 1493 | 1644 | 1750 |



# (C<sub>v</sub>) and (F<sub>L</sub>) Versus Travel

Flow Direction: Flow to Close

Flow Characteristics: Linear

ANSI Class: 150 through 600

Sizes: 1" through 12" (DN 25-300)

| Percent of Plug Rotation                   |     |              |      |                  |     | 10                   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  |
|--|-----|--------------|------|------------------|-----|----------------------|------|------|------|------|------|------|------|------|------|
| F <sub>L</sub> Full Area                   |     |              |      |                  |     | 0.94                 | 0.91 | 0.88 | 0.83 | 0.80 | 0.77 | 0.74 | 0.72 | 0.70 | 0.68 |
| F <sub>L</sub> Reduced Area (.6, .4, & .2) |     |              |      |                  |     | 0.94                 | 0.91 | 0.88 | 0.83 | 0.80 | 0.77 | 0.74 | 0.72 | 0.70 | 0.7  |
| Valve Size                                 |     | Orifice Dia. |      | Act. Stem Travel |     | Rated C <sub>v</sub> |      |      |      |      |      |      |      |      |      |
| in.  | DN  | in.          | mm   | in.              | mm  |                      |      |      |      |      |      |      |      |      |      |
| 1  | 25  | .321         | 8.2  | 3.50             | 89  | 0.4                  | 0.9  | 1.2  | 1.5  | 1.8  | 2.1  | 2.5  | 2.7  | 2.9  | 3    |
|  |     | .500         | 12.7 | 3.50             | 89  | 0.5                  | 1.0  | 1.5  | 2.1  | 2.9  | 3.8  | 4.5  | 5.1  | 5.6  | 6    |
|  |     | .579         | 14.7 | 3.50             | 89  | 0.6                  | 1.4  | 2.4  | 3.3  | 4.5  | 5.7  | 6.9  | 7.7  | 8.5  | 9    |
|  |     | .718         | 18.2 | 3.50             | 89  | 1.0                  | 2.3  | 4.0  | 6.1  | 8.4  | 10.3 | 11.9 | 13.3 | 14.3 | 15   |
| 1½   | 40  | .750         | 19.1 | 3.50             | 89  | 1.3                  | 2.5  | 3.9  | 5.6  | 7.7  | 9.9  | 11.7 | 13.2 | 14.5 | 15.6 |
|  |     | .907         | 23.0 | 3.50             | 89  | 1.7                  | 3.8  | 6.0  | 8.7  | 11.8 | 15.0 | 17.7 | 20.2 | 22.0 | 23.4 |
|  |     | 1.125        | 28.6 | 3.50             | 89  | 2.4                  | 5.9  | 10.2 | 15.4 | 22.5 | 26.0 | 30.7 | 34.3 | 37.8 | 39   |
| 2  | 50  | 1.000        | 25.4 | 3.50             | 89  | 1.7                  | 3.4  | 5.3  | 7.6  | 10.4 | 13.4 | 15.9 | 18.0 | 19.8 | 21.2 |
|  |     | 1.159        | 29.4 | 3.50             | 89  | 2.2                  | 5.1  | 8.2  | 11.9 | 16.0 | 20.2 | 24.1 | 27.3 | 29.9 | 31.8 |
|  |     | 1.437        | 36.5 | 3.50             | 89  | 3.3                  | 8.0  | 14.1 | 21.7 | 29.7 | 36.3 | 42.2 | 46.9 | 50.4 | 53   |
| 3  | 80  | 1.500        | 38.1 | 5.75             | 146 | 5.3                  | 10.1 | 15.1 | 21.5 | 28.5 | 36.0 | 42.7 | 48.8 | 53.9 | 58   |
|  |     | 1.874        | 47.6 | 5.75             | 146 | 6.1                  | 13.0 | 21.1 | 29.6 | 40.3 | 51.4 | 62.7 | 73.0 | 81.5 | 87   |
|  |     | 2.324        | 59.0 | 5.75             | 146 | 9.5                  | 19.0 | 32.0 | 47.8 | 65.2 | 84.1 | 103  | 121  | 136  | 145  |
| 4  | 100 | 2.000        | 50.8 | 5.75             | 146 | 8.4                  | 16.1 | 24.0 | 34.1 | 45.1 | 57.1 | 67.8 | 77.4 | 85.6 | 92   |
|  |     | 2.419        | 61.4 | 5.75             | 146 | 9.7                  | 20.7 | 33.4 | 47.0 | 63.8 | 81.6 | 99.4 | 116  | 129  | 138  |
|  |     | 3.000        | 76.2 | 5.75             | 146 | 15.0                 | 30.2 | 50.8 | 75.8 | 104  | 133  | 164  | 193  | 216  | 230  |
| 6  | 150 | 3.000        | 76.2 | 7.25             | 184 | 18.2                 | 34.9 | 52.2 | 74.1 | 98.0 | 124  | 147  | 168  | 186  | 200  |
|  |     | 3.629        | 92.2 | 7.25             | 184 | 21.2                 | 44.9 | 72.7 | 102  | 139  | 177  | 216  | 252  | 281  | 300  |
|  |     | 4.500        | 114  | 7.25             | 184 | 32.7                 | 65.7 | 110  | 165  | 225  | 290  | 356  | 419  | 470  | 500  |
| 8  | 200 | 3.797        | 96.4 | 7.25             | 184 | 22.0                 | 44.2 | 71.9 | 107  | 150  | 196  | 241  | 283  | 317  | 340  |
|  |     | 4.840        | 123  | 7.25             | 184 | 31.3                 | 63.6 | 114  | 178  | 246  | 313  | 374  | 425  | 468  | 510  |
|  |     | 6.000        | 152  | 7.25             | 184 | 42.8                 | 111  | 201  | 316  | 434  | 542  | 639  | 725  | 798  | 850  |
| 10   | 250 | 4.746        | 121  | 7.25             | 184 | 33.7                 | 67.6 | 110  | 164  | 230  | 300  | 369  | 432  | 485  | 520  |
|  |     | 6.050        | 154  | 7.25             | 184 | 47.8                 | 97.3 | 175  | 273  | 376  | 478  | 572  | 650  | 716  | 780  |
|  |     | 7.500        | 191  | 7.25             | 184 | 65.5                 | 170  | 307  | 483  | 663  | 828  | 977  | 1109 | 1221 | 1300 |
| 12   | 300 | 5.780        | 147  | 7.25             | 184 | 45.3                 | 91.0 | 148  | 221  | 309  | 403  | 497  | 582  | 652  | 700  |
|  |     | 7.460        | 189  | 7.25             | 184 | 64.4                 | 131  | 235  | 367  | 506  | 644  | 769  | 875  | 964  | 1050 |
|  |     | 9.250        | 235  | 7.25             | 184 | 88.1                 | 228  | 414  | 650  | 893  | 1115 | 1315 | 1493 | 1644 | 1750 |

# (C<sub>v</sub>) Versus Travel

Differential Velocity Device (DVD)

Flow Direction: Flow to Open only

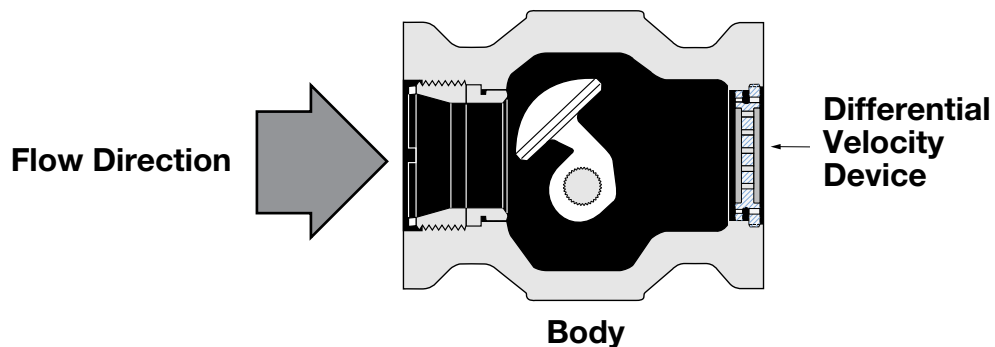
Flow Characteristics: Linear

ANSI Class: 150 through 600

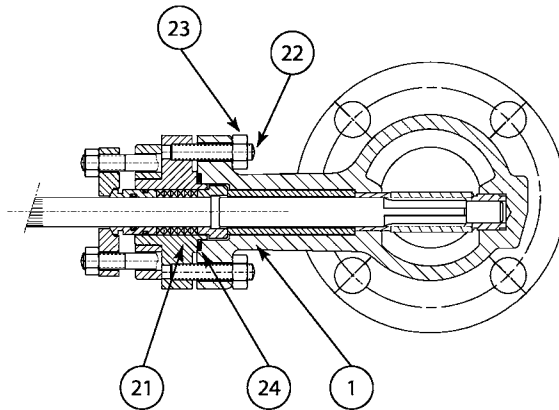
Sizes: 1" through 12" (DN 25-300)

| Percent of Plug Rotation |     |              |      |                  |     | 10   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  |
|--------------------------|-----|--------------|------|------------------|-----|------|------|------|------|------|------|------|------|------|------|
| Valve Size               |     | Orifice Dia. |      | Act. Stem Travel |     |      |      |      |      |      |      |      |      |      |      |
| in.                      | DN  | in.          | mm   | in.              | mm  |      |      |      |      |      |      |      |      |      |      |
| 1                        | 25  | 0.579        | 14.7 | 3.5              | 89  | 0.52 | 1.04 | 1.88 | 2.62 | 3.23 | 3.76 | 4.22 | 4.58 | 4.84 | 5.00 |
| 1.5                      | 40  | 0.907        | 23.0 | 3.5              | 89  | 1.30 | 2.60 | 4.69 | 6.54 | 8.06 | 9.41 | 10.5 | 11.4 | 12.1 | 12.5 |
| 2                        | 50  | 1.159        | 29.4 | 3.5              | 89  | 1.88 | 3.75 | 6.75 | 9.42 | 11.6 | 13.6 | 15.2 | 16.5 | 17.4 | 18.0 |
| 3                        | 80  | 1.874        | 47.6 | 5.75             | 146 | 5.00 | 10.0 | 18.0 | 25.1 | 31.0 | 36.1 | 40.5 | 43.9 | 46.4 | 48.0 |
| 4                        | 100 | 2.419        | 61.4 | 5.75             | 146 | 8.13 | 16.3 | 29.3 | 40.8 | 50.3 | 58.7 | 65.8 | 71.4 | 75.4 | 77.0 |
| 6                        | 150 | 3.629        | 92.2 | 7.25             | 184 | 18.9 | 37.7 | 67.9 | 94.7 | 116  | 136  | 153  | 166  | 175  | 181  |
| 8                        | 200 | 4.84         | 123  | 7.25             | 184 | 32.1 | 64.2 | 116  | 161  | 199  | 232  | 260  | 282  | 298  | 308  |
| 10                       | 250 | 6.05         | 154  | 7.25             | 184 | 50.6 | 101  | 182  | 254  | 313  | 366  | 410  | 445  | 470  | 486  |
| 12                       | 300 | 7.46         | 189  | 7.25             | 184 | 71.3 | 143  | 257  | 358  | 441  | 515  | 577  | 626  | 661  | 684  |

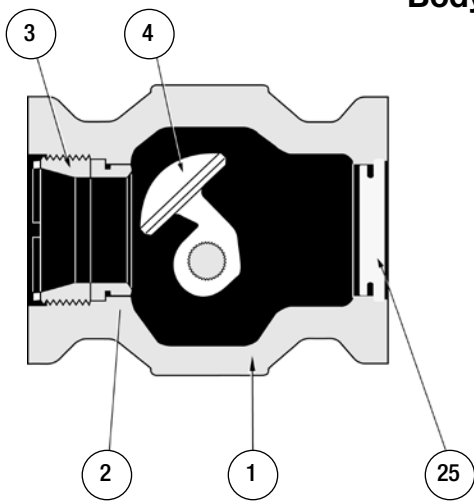
Note: The differential velocity device is used for aerodynamic noise reduction. It must be used with .6 factor trim flow to open.



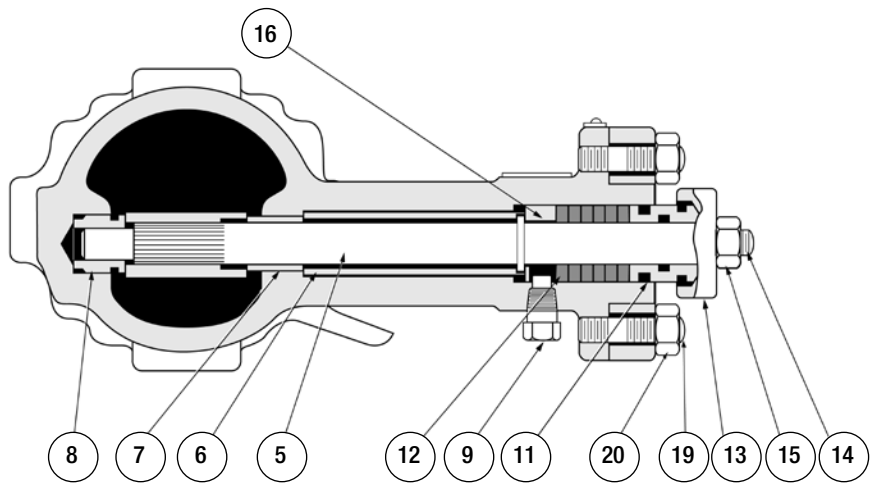
# Materials of Construction



**Body with Separable Bonnet**

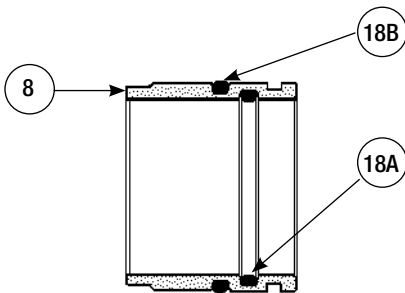


**Body**

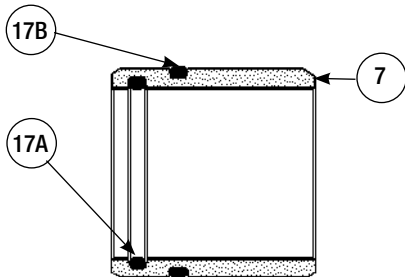


**Body with Integral Bonnet**

## Optional Slurry Package Seal Bushings



LOWER GUIDE BUSHING



UPPER GUIDE BUSHING

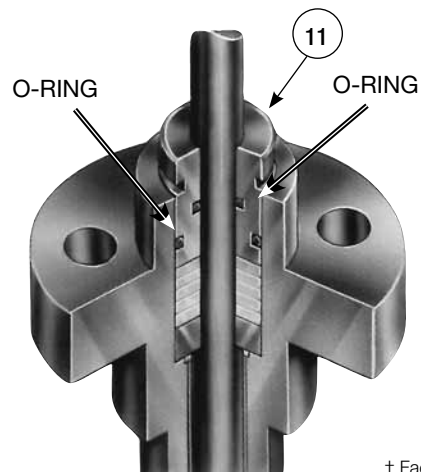
## Standard Camflex Packing Arrangement

### EF Seal

*(Emission Free)*

### Double O-Ring Seal Packing Follower

Fugitive Emission Containment Package for Zero Leakage†



Provides long term reliable extremely low emission shaft seal performance. This economical solution to fugitive emissions won't compromise control performance, and is suitable for use in environmentally sensitive applications.

† Factory Mutual Certified Report

# Materials of Construction

## Carbon Steel Construction

| Ref. No.    | Temperature Range       | -20°F  | +400°F | +450°F | +750°F |
|-------------|-------------------------|--|--------|--------|--------|
|             |                         | -29°C  | +205°C | +232°C | +400°C |
| Description |                         | Materials  |        |        |        |
| 1           | Body                    | A216 Gr WCC  |        |        |        |
| 2           | Seat Ring               | 316 St. St. ASTM A351 Gr CF8M  |        |        |        |
|             |                         | 316 St. St. ASTM A351 Gr CF8M + Stellite Hardfacing Optional   |        |        |        |
| 3           | Seat Ring Retainer      | 316 St. St. ASTM A351 Gr CF8M  |        |        |        |
| 4           | Plug                    | Solid Stellite 1" to 2" (DN 25-50)<br>316L St. St. ASTM A351 Gr CF3M + Stellite Hardfacing 3" to 12" (DN 80-300) |        |        |        |
| 5           | Shaft                   | 17-4 PH ASTM A564 Gr 630 (H1075)   |        |        |        |
| 6           | Spacer                  | ASTM A312 TY 316   |        |        |        |
| 7           | Upper Guide             | ASTM A276 TY 440C  |        |        |        |
|             | Upper Guide + O-Ring    | STELLITE No. 6 + VITON   |        |        |        |
| 8           | Lower Guide             | ASTM A276 TY 440C  |        |        |        |
|             | Lower Guide + O-Ring    | STELLITE No. 6 + VITON   |        |        |        |
| 9           | Safety Pin              | ASTM A479 TY 316   |        |        |        |
| 11          | Packing Follower        | ASTM A582 TY 303   |        |        |        |
|             | O-Ring Packing Follower | VITON  |        |        |        |
| 12          | Packing                 | PTFE + KEVLAR  |        |        |        |
| 13          | Packing Flange          | Carbon Steel ASTM A105 Zinc Plated   |        |        |        |
| 14          | Packing Flange Stud     | 304 St. St. ASTM A193 Gr B8  |        |        |        |
| 15          | Packing Flange Stud Nut | 304 St. St. ASTM A194 GR 8   |        |        |        |
| 16          | Packing Box Ring        | ASTM A479 TY 316   |        |        |        |
| 19          | Body Stud               | 304 St. St. ASTM A193 Gr B8  |        |        |        |
| 20          | Body Stud Nuts          | 304 St. St. ASTM A194 Gr 8   |        |        |        |
| 21*         | Bonnet                  | Carbon Steel A216 GR WCC   |        |        |        |
| 22*         | Body / Bonnet Stud      | ASTM A 193 Gr B8 Class 2   |        |        |        |
| 23*         | Body / Bonnet Nut       | ASTM A 194 Gr 8  |        |        |        |
| 24*         | Body Gasket             | AISI 316L + GRAPHITE   |        |        |        |
| 25          | DVD Low Noise Plate     | ASTM A479 TY 316   |        |        |        |

\* Separable Bonnet version only.

## "NACE" Carbon Steel Construction

| Ref. No.    | Temperature Range       | -20°F  | +400°F | +450°F | +750°F |
|-------------|-------------------------|--|--------|--------|--------|
|             |                         | -29°C  | +205°C | +232°C | +400°C |
| Description |                         | Materials  |        |        |        |
| 1           | Body                    | Carbon Steel A216 Gr WCC   |        |        |        |
| 2           | Seat Ring               | 316 St. St. ASTM A351 Gr CF8M  |        |        |        |
|             |                         | 316 St. St. ASTM A351 Gr CF8M + Stellite Hardfacing Optional   |        |        |        |
| 3           | Seat Ring Retainer      | 316 St. St. ASTM A351 Gr CF8M  |        |        |        |
| 4           | Plug                    | Solid Stellite 1" to 2" (DN 25-50)<br>316L St. St. ASTM A351 Gr CF3M + Stellite Hardfacing 3" to 12" (DN 80-300) |        |        |        |
| 5           | Shaft                   | ASTM A479 TY 316 St. St.   |        |        |        |
| 6           | Spacer                  | ASTM A312 TY 316   |        |        |        |
| 7           | Upper Guide             | STELLITE No. 6   |        |        |        |
|             | Upper Guide + O-Ring    | STELLITE No. 6 + VITON   |        |        |        |
| 8           | Lower Guide             | STELLITE No. 6   |        |        |        |
|             | Lower Guide + O-Ring    | STELLITE No. 6 + VITON   |        |        |        |
| 9           | Safety Pin              | ASTM A479 TY 316   |        |        |        |
| 11          | Packing Follower        | ASTM A479 TY 316   |        |        |        |
|             | O-Ring Packing Follower | VITON  |        |        |        |
| 12          | Packing                 | PTFE + KEVLAR  |        |        |        |
| 13          | Packing Flange          | Carbon Steel ASTM A105 Zinc Plated   |        |        |        |
| 14          | Packing Flange Stud     | 304 St. St. ASTM A 193 GR B8   |        |        |        |
| 15          | Packing Flange Stud Nut | 304 St. St. ASTM A194 GR 8   |        |        |        |
| 16          | Packing Box Ring        | ASTM A479 TY 316   |        |        |        |
| 19          | Body Stud               | 304 St. St. ASTM A193 Gr B8  |        |        |        |
| 20          | Body Stud Nuts          | 304 St. St. ASTM A194 Gr 8   |        |        |        |
| 25          | DVD Low Noise Plate     | ASTM A479 TY 316   |        |        |        |

**Note:** Standard materials and processes are in accordance with the requirements of NACE specification MR0103. Applications requiring compliance to MR0175-2003 or ISO 15156 must be reviewed by Masoneilan.

# Materials of Construction

## Stainless Steel Construction

| Ref. No. | Temperature Range       | -320°F   | -58°F                  | +400°F | +450°F | +750°F |
|----------|-------------------------|--|------------------------|--------|--------|--------|
|          |                         | -196°C   | -50°C                  | +205°C | +232°C | +400°C |
|          | Description             | Materials  |                        |        |        |        |
| 1        | Body                    | Flangeless Body 316 St. St. ASTM A351 Gr CF8M<br>Flanged Body 316L St. St. ASTM A351 GR CF3M |                        |        |        |        |
| 2        | Seat Ring               | 316 St. St. ASTM A351 Gr CF8M<br>316 St. St ASTM A351 Gr CF8M + Stellite Hardfacing Optional |                        |        |        |        |
|          |                         | ASTM A479 TY 316 St. St. + PTFE 1" to 6" (DN 25-150)   |                        |        |        |        |
|          |                         | 316 St. St. A351 Gr CF8M + PTFE 8" to 12" (DN 200-300)                                       |                        |        |        |        |
| 3        | Seat Ring Retainer      | 316 St. St. ASTM A351 Gr CF8M  |                        |        |        |        |
| 4        | Plug                    | Solid Stellite 1" to 2" (DN 25-50)   |                        |        |        |        |
|          |                         | 316L St. St. ASTM A351 Gr CF3M + Stellite Hardfacing N°6 3" to 12" (DN 80-300)               |                        |        |        |        |
| 5        | Shaft                   | 316 St. St. ASTM A479 TY 316<br>ASTM A564 Gr 630 (H1075) Optional                            |                        |        |        |        |
| 6        | Spacer                  | ASTM A 312 TY 316  |                        |        |        |        |
| 7        | Upper Guide             | STELLITE No. 6   |                        |        |        |        |
|          | Upper Guide + O-Ring    |  | STELLITE No. 6 + VITON |        |        |        |
| 8        | Lower Guide             | STELLITE No. 6   |                        |        |        |        |
|          | Lower Guide + O-Ring    |  | STELLITE No. 6 + VITON |        |        |        |
| 9        | Safety Pin              | ASTM A479 TY 316   |                        |        |        |        |
| 11       | Packing Follower        | ASTM A582 TY 303   |                        |        |        |        |
|          | O-Ring                  | VITON  |                        |        |        |        |
| 12       | Packing                 | PTFE + KEVLAR  |                        |        |        |        |
| 13       | Packing Flange          | ASTM A182 GR F304  |                        |        |        |        |
| 14       | Packing Flange Stud     | 304 St. St. ASTM A193 Gr B8  |                        |        |        |        |
| 15       | Packing Flange Stud Nut | 304 St. St. ASTM A194 Gr 8   |                        |        |        |        |
| 16       | Packing Box Ring        | ASTM A479 TY 316   |                        |        |        |        |
| 19       | Body Stud               | 304 St. St. ASTM A 193 Gr B8   |                        |        |        |        |
| 20       | Body Stud Nuts          | 304 St. St. ASTM A194 Gr 8   |                        |        |        |        |
| 21*      | Bonnet                  | 316L St. St. ASTM A351 Gr CF3M   |                        |        |        |        |
| 22*      | Body / Bonnet Stud      | 304 St. St. ASTM A193 GR B8 CL 2   |                        |        |        |        |
| 23*      | Body / Bonnet Nut       | 304 St. St. ASTM A194 GR 8   |                        |        |        |        |
| 24*      | Body Gasket             | AISI 316L + GRAPHITE   |                        |        |        |        |
| 25       | DVD Low Noise Plate     | ASTM A479 TY 316   |                        |        |        |        |

\* Separable Bonnet version only.

# Materials of Construction

## “NACE” Stainless Steel Construction

| Ref. No. | Temperature Range       | -20°F<br>-29°C   | +400°F<br>+205°C | +750°F<br>+400°C |
|----------|-------------------------|--|------------------|------------------|
|          | Description             | Materials  |                  |                  |
| 1        | Body                    | Flangeless Body 316 St. St. ASTM A351 Gr CF8M<br>Flanged Body 316L St. St. ASTM A351 Gr CF3M                     |                  |                  |
| 2        | Seat Ring               | 316 St. St. ASTM A351 Gr CF8M<br>316 St. St. ASTM A351 Gr CF8M + Stellite Hardfacing                             |                  |                  |
| 3        | Seat Ring Retainer      | 316 St. St. ASTM A351 Gr CF8M  |                  |                  |
| 4        | Plug                    | Solid Stellite 1" to 2" (DN 25-50)<br>316L St. St. ASTM A351 Gr CF3M + Stellite Hardfacing 3" to 12" (DN 80-300) |                  |                  |
| 5        | Shaft                   | ASTM A479 TY 316 St. St.   |                  |                  |
| 6        | Spacer                  | ASTM A312 TY 316   |                  |                  |
| 7        | Upper Guide             | STELLITE No. 6   |                  |                  |
|          | Upper Guide + O-Ring    | STELLITE No. 6 + VITON   |                  |                  |
| 8        | Lower Guide             | STELLITE No. 6   |                  |                  |
|          | Lower Guide + O-Ring    | STELLITE No. 6 + VITON   |                  |                  |
| 9        | Safety Pin              | ASTM A479 TY 316   |                  |                  |
| 11       | Packing Follower        | ASTM A479 TY 316   |                  |                  |
|          | O-Ring                  | VITON  |                  |                  |
| 12       | Packing                 | PTFE + KEVLAR  |                  |                  |
| 13       | Packing Flange          | ASTM A182 GR F304  |                  |                  |
| 14       | Packing Flange Stud     | 304 St. St. ASTM A193 Gr B8  |                  |                  |
| 15       | Packing Flange Stud Nut | 304 St. St. ASTM A194 Gr 8   |                  |                  |
| 16       | Packing Box Ring        | ASTM A479 TY 316   |                  |                  |
| 19       | Body Stud               | 304 St. St. ASTM A 193 Gr B8   |                  |                  |
| 20       | Body Stud Nuts          | 304 St. St. ASTM A194 Gr 8   |                  |                  |
| 25       | DVD Low Noise Plate     | ASTM A479 TY 316   |                  |                  |

**Note:** Standard materials and processes are in accordance with the requirements of NACE specification MR0103. Applications requiring compliance to MR0175-2003 or ISO 15156 must be reviewed by Masoneilan.

# Materials of Construction

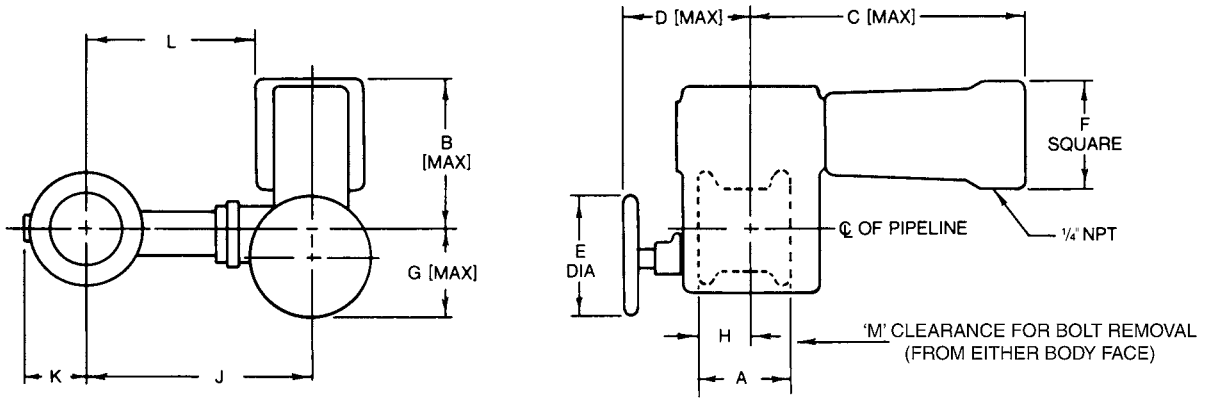
## Hastelloy C Construction 1" to 4"

| Ref. No.    | Temperature Range                 | -320°F                      | -58°F                  | +400°F | +500°F |
|-------------|-----------------------------------|-----------------------------|------------------------|--------|--------|
|             |                                   | -196°C                      | -50°C                  | +205°C | +260°C |
| Description |                                   | Materials                   |                        |        |        |
| 1           | Body                              | ASTM A494 Gr CX-2 MW        |                        |        |        |
| 2           | Seat Ring                         | HASTELLOY C22               |                        |        |        |
|             |                                   | HASTELLOY C22 + PTFE        |                        |        |        |
| 3           | Seat Ring Retainer                | HASTELLOY C22               |                        |        |        |
| 4           | Plug                              | HASTELLOY C22               |                        |        |        |
| 5           | Shaft                             | HASTELLOY C22               |                        |        |        |
| 6           | Spacer                            | HASTELLOY C22               |                        |        |        |
| 7           | Upper Guide <sup>1</sup>          | STELLITE No. 6              |                        |        |        |
|             | Upper Guide <sup>1</sup>          | ALLOY 25                    |                        |        |        |
|             | Upper Guide <sup>1</sup>          | ULTIMET                     |                        |        |        |
|             | Upper Guide + O-Ring <sup>1</sup> |                             | STELLITE No. 6 + VITON |        |        |
| 8           | Lower Guide <sup>1</sup>          | STELLITE No. 6              |                        |        |        |
|             | Lower Guide <sup>1</sup>          | ALLOY 25                    |                        |        |        |
|             | Upper Guide <sup>1</sup>          | ULTIMET                     |                        |        |        |
|             | Lower Guide + O-Ring <sup>1</sup> |                             | STELLITE No. 6 + VITON |        |        |
| 9           | Safety Pin                        | HASTELLOY C22               |                        |        |        |
| 11          | Packing Follower                  | HASTELLOY C22               |                        |        |        |
|             | O-Ring                            | VITON                       |                        |        |        |
| 12          | Packing                           | PTFE + KEVLAR               |                        |        |        |
| 13          | Packing Flange                    | ASTM A182 Gr F304           |                        |        |        |
| 14          | Packing Flange Stud               | 304 St. St. ASTM A193 Gr B8 |                        |        |        |
| 15          | Packing Flange Stud Nut           | 304 St. St. ASTM A194 Gr 8  |                        |        |        |
| 16          | Packing Box Ring                  | HASTELLOY C22               |                        |        |        |
| 19          | Body Stud                         | 304 St. St. ASTM A193 Gr B8 |                        |        |        |
| 20          | Body Stud Nuts                    | 304 St. St. ASTM A194 Gr 8  |                        |        |        |
| 25          | DVD Low Noise Plate               | HASTELLOY C22               |                        |        |        |

**Note:** Standard materials and processes are in accordance with the requirements of NACE specification MR0103. Applications requiring compliance to MR0175-2003 or ISO 15156 must be reviewed by Masoneilan.

<sup>1</sup> Material selection must be based on fluid properties and compatibility.

# Dimensions and Weights



Dimensions (inches)

| Valve size |     | A             |                        | B    | C    | D    | E    | F   | G   | H             |             |         | J    | K    | L    | M             |             |         |                      |
|------------|-----|---------------|------------------------|------|------|------|------|-----|-----|---------------|-------------|---------|------|------|------|---------------|-------------|---------|----------------------|
| in.        | DN  | Threaded ends | Flanged and flangeless |      |      |      |      |     |     | Threaded ends | Flange-less | Flanged |      |      |      | Threaded ends | Flange-less | Flanged | ANSI Class 150 PN 10 |
| 1          | 25  | 4.00          | 4.00                   | 6.8  | 11.5 | 10.0 | 6.3  | 5.5 | 4.4 | 2.64          | 2.64        | 2.01    | 8.1  | 1.5  | 5.4  | 6.5           | 9.0         | 9.0     | 9.0                  |
| 1 1/2      | 40  |               | 4.50                   | 6.9  | 11.5 | 10.0 | 6.3  | 5.5 | 4.4 |               | 2.44        | 2.32    | 9.2  | 2.0  | 6.5  | 6.5           | 10.0        | 10.0    | 10.0                 |
| 2          | 50  |               | 4.88                   | 6.9  | 11.5 | 10.0 | 6.3  | 5.5 | 4.5 |               | 2.44        | 2.44    | 9.4  | 2.6  | 6.7  | 10.5          | 10.5        | 10.5    | 10.5                 |
| 3          | 80  |               | 6.50                   | 10.3 | 16.8 | 10.5 | 6.3  | 6.9 | 5.1 |               | 3.82        | 3.39    | 13.1 | 3.3  | 9.6  | 11.8          | 13.5        | 14.0    | 14.0                 |
| 4          | 100 |               | 7.62                   | 10.4 | 16.8 | 10.5 | 6.3  | 6.9 | 5.2 |               | 4.17        | 4.17    | 14.0 | 4.3  | 10.5 | 13.0          | 14.0        | 16.0    | 16.5                 |
| 6          | 150 |               | 9.00                   | 13.0 | 20.4 | 12.0 | 10.0 | 8.6 | 8.4 |               | 5.00        | 5.00    | 17.0 | 5.8  | 12.7 | 15.5          | 16.0        | 18.5    | 18.5                 |
| 8          | 200 |               | 9.56                   | 13.1 | 20.4 | 12.0 | 10.0 | 8.6 | 8.5 |               | 5.83        | 5.83    | 18.5 | 8.0  | 14.2 | 15.5          | 18.5        | 19.5    | 21.0                 |
| 10         | 250 |               | 11.69                  | 13.2 | 20.4 | 12.0 | 10.0 | 8.6 | 8.6 |               | 6.57        | 6.57    | 22.6 | 9.9  | 18.3 | 20.0          | 20.5        | 22.5    | 24.5                 |
| 12         | 300 |               | 13.31                  | 13.3 | 20.4 | 12.0 | 10.0 | 8.6 | 8.7 |               | 7.24        | 7.24    | 24.0 | 10.9 | 19.7 | 20.0          | 22.5        | 24.8    | 25.5                 |

Weight (lbs.)

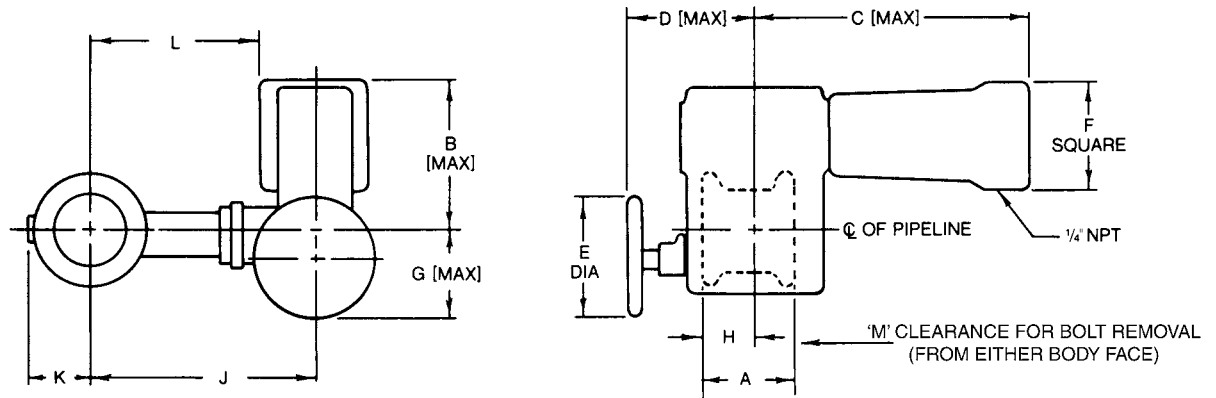
| Valve size |     | Actuator size | Flangeless |      | Flanged Class 150 |      | Flanged Class 300 |      | Flanged Class 600 |      |
|------------|-----|---------------|------------|------|-------------------|------|-------------------|------|-------------------|------|
| in.        | DN  |               | Kg         | lbs. | Kg                | lbs. | Kg                | lbs. | Kg                | lbs. |
| 1          | 25  | 4.5"          | 17         | 38   | 18                | 41   | 20                | 45   | 20                | 45   |
| 1 1/2      | 40  | 4.5"          | 19         | 43   | 22                | 50   | 24                | 54   | 25                | 55   |
| 2          | 50  | 4.5"          | 20         | 45   | 24                | 54   | 27                | 60   | 28                | 63   |
| 3          | 80  | 6"            | 46         | 103  | 52                | 116  | 57                | 129  | 59                | 133  |
| 4          | 100 | 6"            | 54         | 121  | 65                | 146  | 73                | 165  | 86                | 133  |
| 6          | 150 | 7"            | 103        | 232  | 115               | 259  | 131               | 295  | 156               | 351  |
| 8          | 200 | 7"            | 122        | 274  | 140               | 314  | 161               | 363  | 197               | 442  |
| 10         | 250 | 7"            | 178        | 400  | 203               | 456  | 236               | 531  |                   |      |
| 12         | 300 | 7"            | 222        | 499  | 260               | 586  | 307               | 689  |                   |      |
| 6          | 150 | No.9          | 131        | 295  | 143               | 321  | 159               | 358  | 184               | 414  |
| 8          | 200 | No.9          | 150        | 337  | 168               | 377  | 189               | 426  | 225               | 505  |
| 10         | 250 | No.9          | 206        | 463  | 231               | 519  | 264               | 594  |                   |      |
| 12         | 300 | No.9          | 250        | 562  | 288               | 648  | 335               | 752  |                   |      |

Specific Dimensions (inches) for the No.9 Actuator

| Valve size |     | B     | C     | D     | E     | F     | G     | L     |
|------------|-----|-------|-------|-------|-------|-------|-------|-------|
| in.        | DN  |       |       |       |       |       |       |       |
| 6          | 150 | 14.69 | 26.54 | 12.05 | 15.75 | 11.97 | 11.26 | 11.02 |
| 8          | 200 | 14.80 | 26.54 | 12.05 | 15.75 | 11.97 | 11.38 | 12.52 |
| 10         | 250 | 14.92 | 26.54 | 12.05 | 15.75 | 11.97 | 11.50 | 16.61 |
| 12         | 300 | 15.04 | 26.54 | 12.05 | 15.75 | 11.97 | 11.61 | 17.99 |



# Dimensions and Weights



## Dimensions (millimeters)

| Valve size |     | A             |                         | B   | C   | D   | E   | F   | G   | H             |             |         | J   | K   | L   | M             |             |         |                      |
|------------|-----|---------------|-------------------------|-----|-----|-----|-----|-----|-----|---------------|-------------|---------|-----|-----|-----|---------------|-------------|---------|----------------------|
| in.        | DN  | Threaded ends | Flanged and flange-less |     |     |     |     |     |     | Threaded ends | Flange-less | Flanged |     |     |     | Threaded ends | Flange-less | Flanged | ANSI Class 150 PN 10 |
| 1          | 25  | 102           | 102                     | 173 | 293 | 253 | 160 | 140 | 112 | 67            | 67          | 51      | 206 | 38  | 137 | 165           | 229         | 229     | 229                  |
| 1 1/2      | 40  |               | 114                     | 175 | 293 | 253 | 160 | 140 | 113 |               | 62          | 59      | 234 | 51  | 165 | 165           | 254         | 254     | 254                  |
| 2          | 50  |               | 124                     | 176 | 293 | 253 | 160 | 140 | 115 |               | 62          | 62      | 239 | 66  | 170 | 267           | 267         | 267     | 267                  |
| 3          | 80  |               | 165                     | 262 | 426 | 266 | 160 | 175 | 130 |               | 97          | 86      | 333 | 84  | 244 | 300           | 343         | 356     | 356                  |
| 4          | 100 |               | 194                     | 264 | 426 | 266 | 160 | 175 | 131 |               | 106         | 106     | 356 | 109 | 267 | 330           | 356         | 406     | 419                  |
| 6          | 150 |               | 229                     | 330 | 517 | 306 | 254 | 218 | 213 |               | 127         | 127     | 432 | 147 | 323 | 394           | 406         | 470     | 470                  |
| 8          | 200 |               | 243                     | 333 | 517 | 306 | 254 | 218 | 216 |               | 148         | 148     | 470 | 203 | 361 | 394           | 470         | 495     | 533                  |
| 10         | 250 |               | 297                     | 335 | 517 | 306 | 254 | 218 | 219 |               | 167         | 167     | 574 | 251 | 465 | 508           | 521         | 572     | 622                  |
| 12         | 300 |               | 338                     | 338 | 517 | 306 | 254 | 218 | 222 |               | 184         | 184     | 610 | 277 | 500 | 508           | 572         | 630     | 648                  |

## Weight (Kg)

| Valve size |     | Actuator size | Flangeless |      | Flanged Class 150 |      | Flanged Class 300 |      | Flanged Class 600 |      |
|------------|-----|---------------|------------|------|-------------------|------|-------------------|------|-------------------|------|
| in.        | DN  |               | Kg         | lbs. | Kg                | lbs. | Kg                | lbs. | Kg                | lbs. |
| 1          | 25  | 4.5"          | 17         | 38   | 18                | 41   | 20                | 45   | 20                | 45   |
| 1 1/2      | 40  | 4.5"          | 19         | 43   | 22                | 50   | 24                | 54   | 25                | 55   |
| 2          | 50  | 4.5"          | 20         | 45   | 24                | 54   | 27                | 60   | 28                | 63   |
| 3          | 80  | 6"            | 46         | 103  | 52                | 116  | 57                | 129  | 59                | 133  |
| 4          | 100 | 6"            | 54         | 121  | 65                | 146  | 73                | 165  | 83                | 186  |
| 6          | 150 | 7"            | 103        | 232  | 115               | 259  | 131               | 295  | 156               | 351  |
| 8          | 200 | 7"            | 122        | 274  | 140               | 314  | 161               | 363  | 167               | 442  |
| 10         | 250 | 7"            | 178        | 400  | 203               | 456  | 236               | 531  |                   |      |
| 12         | 300 | 7"            | 222        | 499  | 260               | 586  | 307               | 689  |                   |      |
| 6          | 150 | No.9          | 131        | 295  | 143               | 321  | 159               | 358  | 184               | 414  |
| 8          | 200 | No.9          | 150        | 337  | 168               | 377  | 189               | 426  | 224               | 505  |
| 10         | 250 | No.9          | 206        | 463  | 231               | 519  | 264               | 594  |                   |      |
| 12         | 300 | No.9          | 250        | 562  | 288               | 648  | 335               | 752  |                   |      |

## Specific Dimensions (millimeters) for the No.9 Actuator

| Valve size |     | B   | C   | D   | E   | F   | G   | L   |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|
| in.        | DN  |     |     |     |     |     |     |     |
| 6          | 150 | 373 | 674 | 306 | 400 | 304 | 286 | 280 |
| 8          | 200 | 376 | 674 | 306 | 400 | 304 | 289 | 318 |
| 10         | 250 | 379 | 674 | 306 | 400 | 304 | 292 | 422 |
| 12         | 300 | 382 | 674 | 306 | 400 | 304 | 295 | 457 |



# Notes



# Notes

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