

Series 3500 Control Valves

Globe - 3 Way Mixing Valves

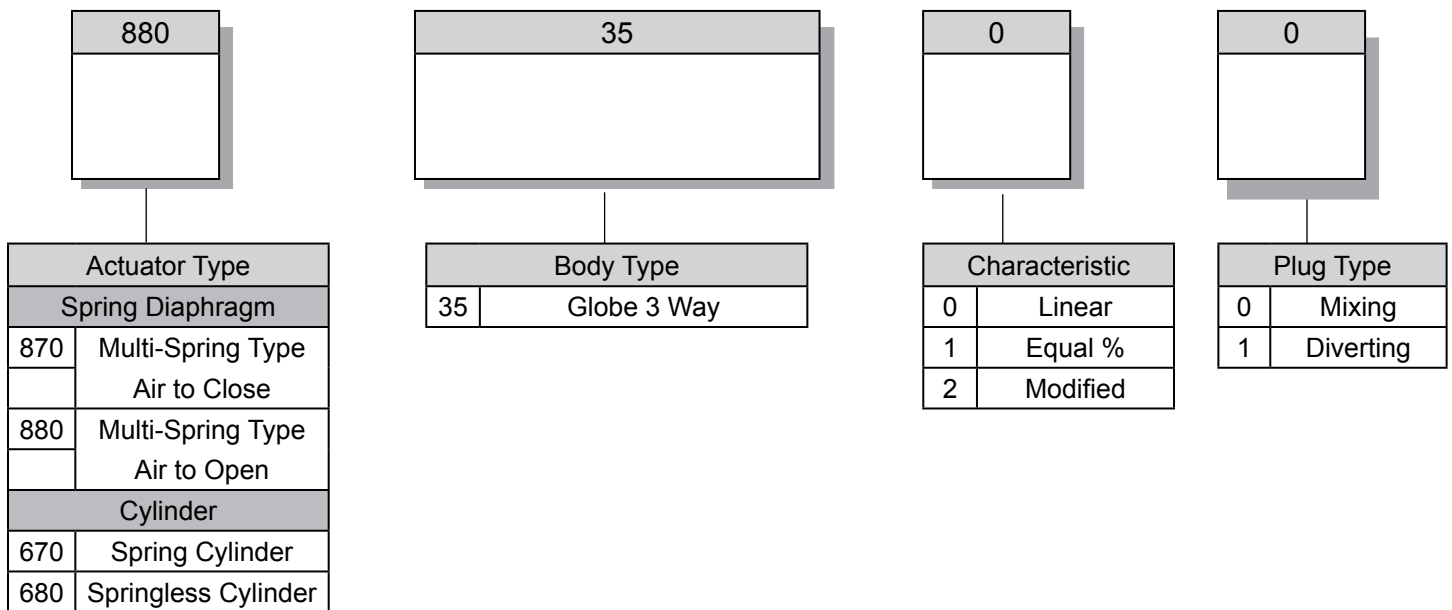
Globe - 3 Way Diverting Valves



J Flow Controls

J Flow Controls, LLC
14 De Camp • Cincinnati, OH 45216
Phone: 513-731-2900 • Fax 513-731-6939
www.jflowcontrols.com

Ordering Schematic



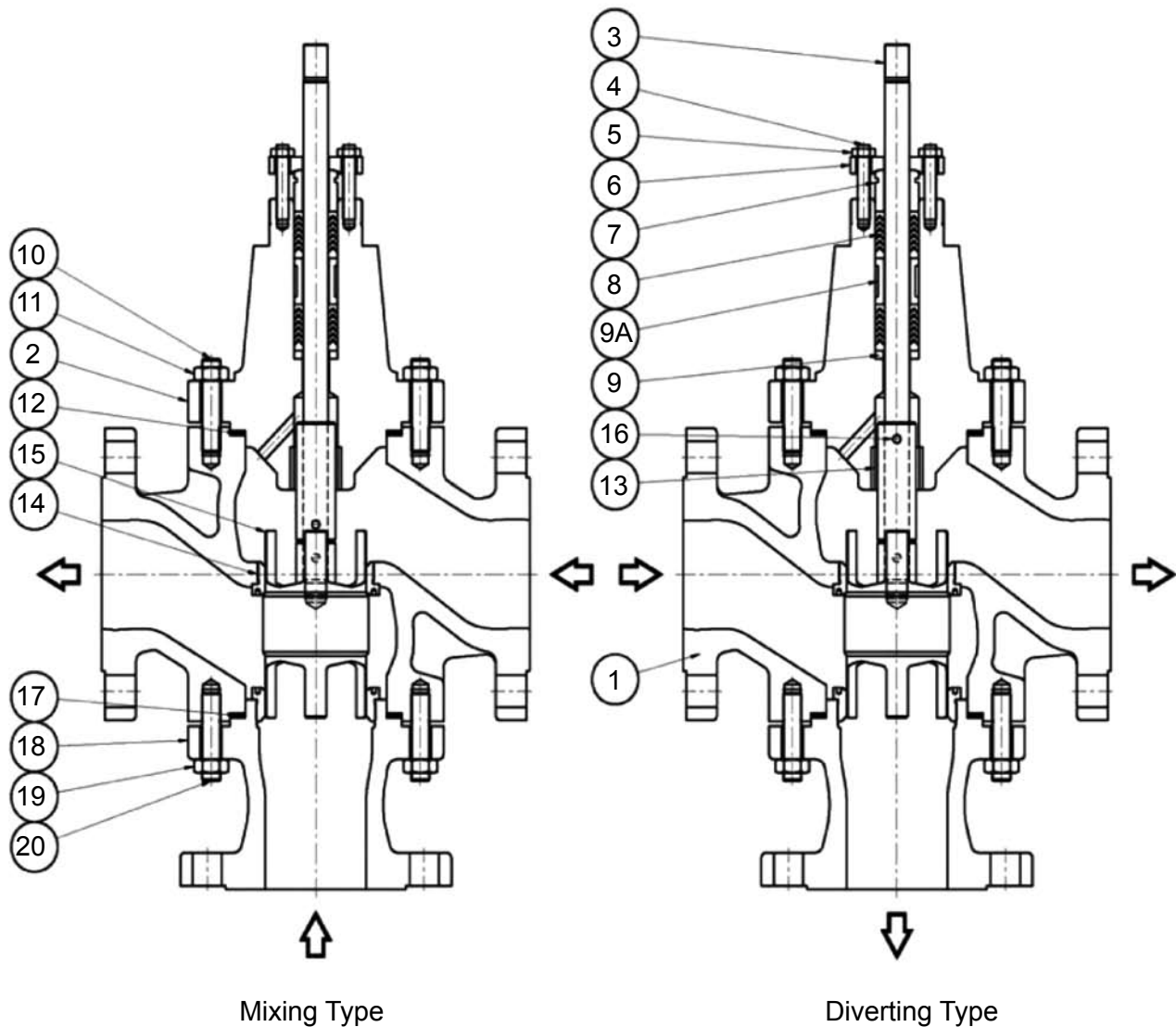
Manufacturing Range

| Description | Manufacturing Range | Remark |
|---------------|-------------------------------------------------------|--------|
| Body Size | 1" – 10" | |
| Ratings | ANSI Class 150 – 600 | |
| Connections | Flanged, Butt-Weld, Socket-Weld | |
| Body Material | A216 Gr-WCB, A351 Gr-CF8, CF8M, Alloy Steel Available | |
| Trim Material | 304, 316SST, Alloy Steel Available | |

General Specifications

- Flow Direction: Mixing, Diverting
- Max. Fluid Temperature: 1049°F
- Minimum Fluid Temperature: -320°F
- Seat Leakages: ANSI B16.104 Class IV
 - Option 1: ANSI B16.104 Class V for Metal Seat Tight Shutoff
 - Option 2: ANSI B16.104 Class VI for Teflon Soft Seat & Seal (-22°F ~ 446°F)
- Body: Globe Single Seated Top Guide
- Bonnet Type: Stud Bolted
 - Standard Type: -0.4°F ~ 536°F
 - Extension Type: 538°F ~ 1049°F & under -0.4°F
- Flow Characteristics: Linear, Equal Percentage, Modified %
- Cv Ratio: 50:1
- Diaphragm actuators enclosed, heavy duty cylinders (spring-cylinder and double-cylinder) available
- Applicable for various instruments (positioner, SOV, Limit switch)

Body Constructions



| | | | | | |
|---|----------------|----|----------------|----|----------------------|
| 1 | Body | 8 | Packing | 14 | Seat Ring |
| 2 | Bonnet | 9 | Packing Spacer | 15 | Plug |
| 3 | Plug Stem | 9A | Lantern Ring | 16 | Plug Stem Pin |
| 4 | Packing Stud | 10 | Body Stud | 17 | Bottom Flange Gasket |
| 5 | Packing Nut | 11 | Body Nut | 18 | Bottom Flange |
| 6 | Packing Flange | 12 | Body Gasket | 19 | Bottom Flange Nut |
| 7 | Gland | 13 | Guide Bushing | 20 | Bottom Flange Stud |

Body Materials: Carbon Steel or Alloy Steel

| Part No. | Description | Material |
|----------|----------------------|---------------------------------------------------|
| 1 | Body | ASTM A216 Gr-WCB / Alloy Steel Available |
| 2 | Bonnet | ASTM A216 Gr-WCB / Alloy Steel Available |
| 3 | Plug Stem | 316 Stainless Steel |
| 4 | Packing Stud | 316 / 304 Stainless Steel |
| 5 | Packing Nut | 316 / 304 Stainless Steel |
| 6 | Packing Flange | 316 / 304 / 303 Stainless Steel |
| 7 | Gland | 316 / 304 / 303 Stainless Steel |
| 8 | Packing | PTFE Carbon Fiber / Graphite / Grafoil + Graphite |
| 9 | Packing Spacer | 316 / 304 / 303 Stainless Steel |
| 9A | Lantern Ring | 316 / 304 / 303 Stainless Steel |
| 10 | Body Stud | A193 B7 |
| 11 | Body Nut | A194 2H |
| 12 | Body Gasket | 316 SST with Grafoil Filler |
| 13 | Guide Bushing | Solid Stellite / 440C Stainless Steel |
| 14 | Seat Ring | 316 Stainless Steel |
| 15 | Plug | 316 Stainless Steel |
| 16 | Plug Stem Pin | 316 Stainless Steel |
| 17 | Bottom Flange Gasket | 316 Stainless Steel with Grafoil Filler |
| 18 | Bottom Flange | ASTM A216 Gr-WCB / Alloy Steel Available |
| 19 | Bottom Flange Nut | A194 2H |
| 20 | Bottom Flange Stud | A193 B7 |

Body Materials: Stainless Steel

| Part No. | Description | Material |
|----------|----------------------|---------------------------------------------------|
| 1 | Body | ASTM A351 Gr-CF8 / A351 Gr-CF8M |
| 2 | Bonnet | ASTM A351 Gr-CF8 / A351 Gr-CF8M |
| 3 | Plug Stem | 316 Stainless Steel |
| 4 | Packing Stud | 316 / 304 Stainless Steel |
| 5 | Packing Nut | 316 / 304 Stainless Steel |
| 6 | Packing Flange | 316 / 304 / 303 Stainless Steel |
| 7 | Gland | 316 / 304 / 303 Stainless Steel |
| 8 | Packing | PTFE Carbon Fiber / Graphite / Grafoil + Graphite |
| 9 | Packing Spacer | 316 / 304 / 303 Stainless Steel |
| 9A | Lantern Ring | 316 / 304 / 303 Stainless Steel |
| 10 | Body Stud | A193 B7 |
| 11 | Body Nut | A194 2H |
| 12 | Body Gasket | 316 SST with Grafoil Filler |
| 13 | Guide Bushing | Solid Stellite / 440C Stainless Steel |
| 14 | Seat Ring | 316 Stainless Steel |
| 15 | Plug | 316 Stainless Steel |
| 16 | Plug Stem Pin | 316 Stainless Steel |
| 17 | Bottom Flange Gasket | 316 Stainless Steel with Grafoil Filler |
| 18 | Bottom Flange | ASTM A351 Gr-CF8 / A351 Gr-CF8M |
| 19 | Bottom Flange Nut | A194 2H |
| 20 | Bottom Flange Stud | A193 B7 |

Flow Coefficients – Rated Cv

| Valve Size | Travel (inches) | Orifice Diameter | Cv |
|------------|-----------------|------------------|-----|
| 1" | 0.98 | 1.06 | 9 |
| 1-1/2" | 1.57 | 1.50 | 21 |
| 2" | 1.97 | 2.01 | 36 |
| 3" | 3.15 | 2.64 | 75 |
| 4" | 3.94 | 3.50 | 124 |
| 6" | 5.91 | 5.24 | 270 |
| 8" | 7.87 | 7.01 | 480 |
| 10" | 9.84 | 8.74 | 750 |

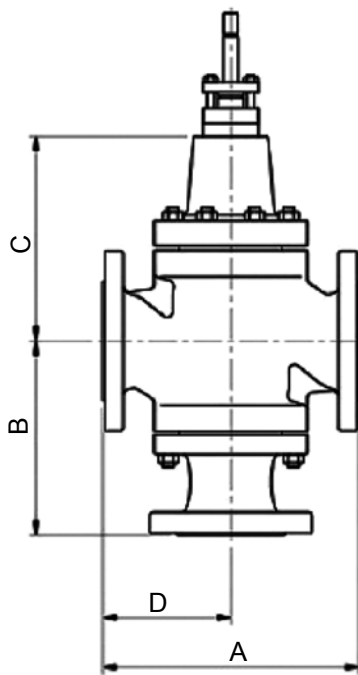
The Cv values shown are for reference only.

J Flow Controls, LLC can design and modify the seat design to meet different customer requirements.

Flow Characteristics: LINEAR

| Valve Size | Percent of Valve Travel | | | | | | | | | | | | | | | | | | | | | |
|------------|-------------------------|-----|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|---|
| | 0% | | 10% | | 20% | | 30% | | 40% | | 50% | | 60% | | 70% | | 80% | | 90% | | 100% | |
| 1" | 0 | 9 | 0.9 | 8.1 | 1.8 | 7.2 | 2.7 | 6.3 | 3.6 | 5.4 | 4.5 | 4.5 | 5.4 | 3.6 | 6.3 | 2.7 | 7.2 | 1.8 | 8.1 | 0.9 | 9 | 0 |
| 1-1/2" | 0 | 21 | 2.1 | 18.9 | 4.2 | 16.8 | 6.3 | 14.7 | 8.4 | 12.6 | 10.5 | 10.5 | 12.6 | 8.4 | 14.7 | 6.3 | 16.8 | 4.2 | 18.9 | 2.1 | 21 | 0 |
| 2" | 0 | 36 | 3.6 | 32.4 | 7.2 | 28.8 | 10.8 | 25.2 | 14.4 | 21.6 | 18 | 18 | 21.6 | 14.4 | 25.2 | 10.8 | 28.8 | 7.2 | 32.4 | 3.6 | 36 | 0 |
| 3" | 0 | 75 | 7.5 | 67.5 | 15 | 60 | 22.5 | 52.5 | 30 | 45 | 37.5 | 37.5 | 45 | 30 | 52.5 | 22.5 | 60 | 15 | 67.5 | 7.5 | 75 | 0 |
| 4" | 0 | 124 | 12.4 | 111.6 | 24.8 | 99.2 | 37.2 | 86.8 | 49.6 | 74.4 | 62 | 62 | 74.4 | 49.6 | 86.8 | 37.2 | 99.2 | 24.8 | 111.8 | 12.4 | 124 | 0 |
| 6" | 0 | 270 | 27 | 243 | 54 | 216 | 81 | 189 | 108 | 162 | 135 | 135 | 162 | 108 | 189 | 81 | 216 | 54 | 243 | 27 | 270 | 0 |
| 8" | 0 | 480 | 48 | 432 | 96 | 384 | 144 | 336 | 192 | 288 | 240 | 240 | 288 | 192 | 336 | 144 | 384 | 96 | 432 | 48 | 480 | 0 |
| 10" | 0 | 750 | 75 | 675 | 150 | 600 | 225 | 525 | 300 | 450 | 375 | 375 | 450 | 300 | 525 | 225 | 600 | 150 | 675 | 75 | 750 | 0 |

Dimensions



Mixing

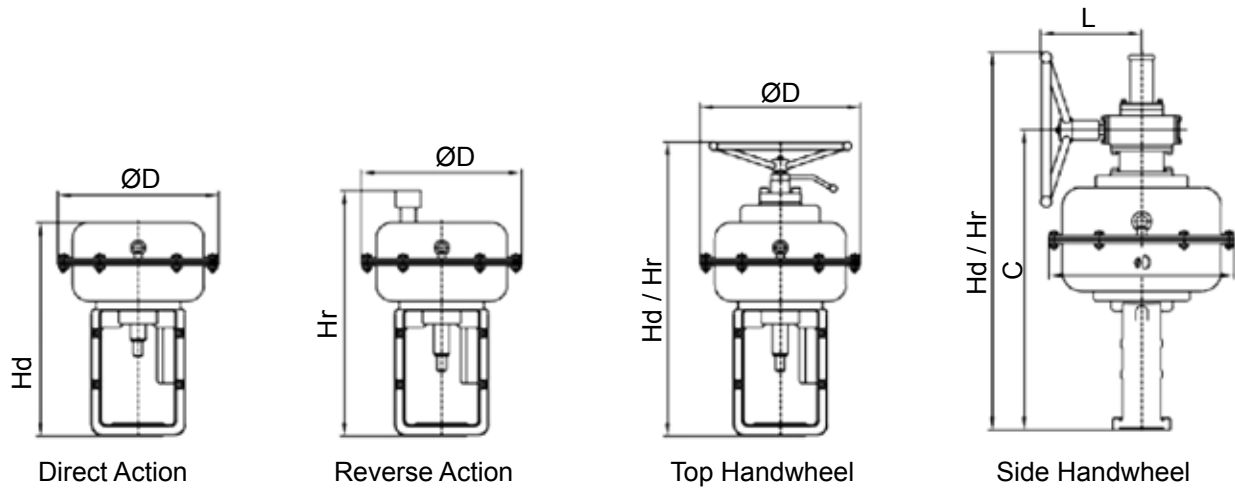
| Valve Size | A | | | B | | | C | D | | |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|----------------|----------------|----------------|
| | ANSI Class 150 | ANSI Class 300 | ANSI Class 600 | ANSI Class 150 | ANSI Class 300 | ANSI Class 600 | | ANSI Class 150 | ANSI Class 300 | ANSI Class 600 |
| 1" | 7.24 | 7.76 | 8.27 | 5.51 | 5.51 | 5.51 | 5.12 | 3.62 | 3.90 | 3.90 |
| 1-1/2" | 8.74 | 9.25 | 9.88 | 6.26 | 6.26 | 6.26 | 5.24 | 4.37 | 4.65 | 4.65 |
| 2" | 10.0 | 10.5 | 11.3 | 6.61 | 6.61 | 6.61 | 6.26 | 5.00 | 5.28 | 5.28 |
| 3" | 11.7 | 12.5 | 13.3 | 7.99 | 7.99 | 8.62 | 7.99 | 5.87 | 6.26 | 6.26 |
| 4" | 13.9 | 14.5 | 15.5 | 9.0 | 9.02 | 10.1 | 8.39 | 6.97 | 7.24 | 7.24 |
| 6" | 17.8 | 18.6 | 20.0 | 11.4 | 11.4 | 12.4 | 11.0 | 8.90 | 9.33 | 9.33 |
| 8" | 21.4 | 22.4 | 24.0 | 13.3 | 13.3 | 14.3 | 12.6 | 10.7 | 11.2 | 11.2 |
| 10" | 24.6 | 26.0 | 27.8 | 15.4 | 15.4 | 16.4 | 13.11 | 12.3 | 13.0 | 13.0 |

Diverting

| Valve Size | A | | | B | | | C | D | | |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|------|----------------|----------------|----------------|
| | ANSI Class 150 | ANSI Class 300 | ANSI Class 600 | ANSI Class 150 | ANSI Class 300 | ANSI Class 600 | | ANSI Class 150 | ANSI Class 300 | ANSI Class 600 |
| 1-1/2" | 8.74 | 9.25 | 9.88 | 7.01 | 7.01 | 7.01 | 6.10 | 4.06 | 4.29 | 4.65 |
| 2" | 10.0 | 10.5 | 11.3 | 7.76 | 7.76 | 7.76 | 7.24 | 4.65 | 4.88 | 5.24 |
| 3" | 11.7 | 12.5 | 13.3 | 9.37 | 9.37 | 9.88 | 9.25 | 5.51 | 5.51 | 5.51 |
| 4" | 13.9 | 14.5 | 15.5 | 10.63 | 10.63 | 11.1 | 9.37 | 6.57 | 6.89 | 7.36 |
| 6" | 17.8 | 18.6 | 20.0 | 13.0 | 13.0 | 14.0 | 12.6 | 7.64 | 8.07 | 8.74 |
| 8" | 21.4 | 22.4 | 24.0 | 15.4 | 15.4 | 16.4 | 14.8 | 8.54 | 9.06 | 9.88 |
| 10" | 24.6 | 26.0 | 27.8 | 18.0 | 18.0 | 19.3 | 16.4 | 9.92 | 10.6 | 11.6 |

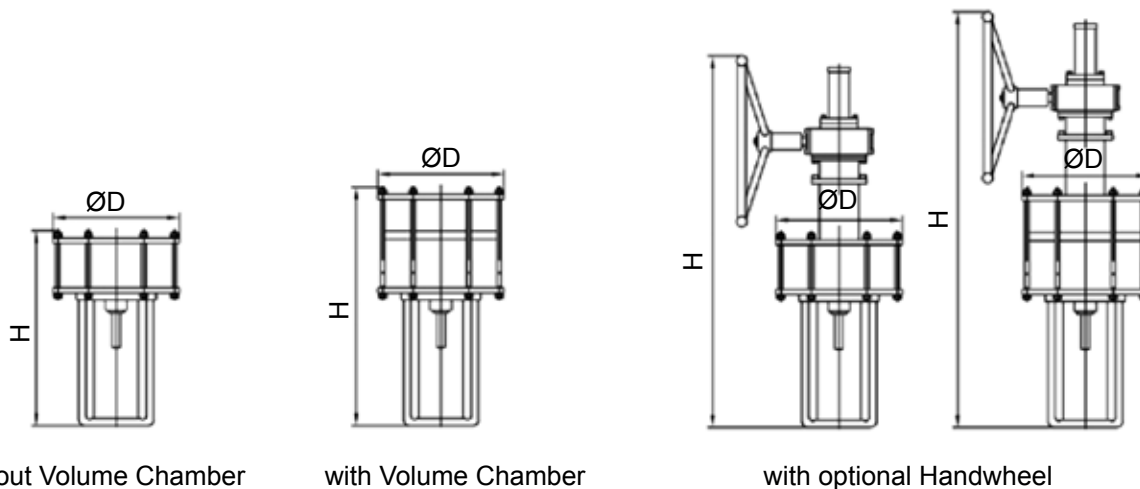
Actuator and Handwheels

Model 870 / 880 Diaphragm Actuators



| Actuator Size | D | Without Handwheel | | With Handwheel | | | | |
|---------------|------|-------------------|-------|----------------|-------|-------|------|------|
| | | DA Hd | RA Hr | Handwheel Type | DA Hd | RA Hr | C | L |
| #25 | 9.8 | 13.1 | 13.9 | Top | 17.7 | 18.6 | - | - |
| #29 | 11.4 | 14.5 | 16.5 | Top | 21.0 | 22.4 | - | - |
| #37 | 14.6 | 16.1 | 18.1 | Top | 22.6 | 24.4 | - | - |
| #48 | 18.9 | 24.8 | 26.7 | Side | 38.5 | 38.5 | 30.7 | 10.2 |
| #55 | 21.7 | 26.7 | 28.7 | Side | 43.2 | 43.2 | 33.4 | 11.8 |
| #55H | 21.7 | 28.7 | 30.6 | Side | 45.2 | 45.2 | 33.4 | 11.8 |

Model 670 / 680 Cylinder Actuators



Weight

Body Sub-Assembly

| Valve Size | Flanged | |
|------------|---------|------|
| | 150~300 | 600 |
| 1" | 44 | 71 |
| 1-1/2" | 90 | 99 |
| 2" | 126 | 139 |
| 3" | 220 | 234 |
| 4" | 300 | 328 |
| 6" | 525 | 615 |
| 8" | 774 | 934 |
| 10" | 1717 | 2087 |

Actuator

| Actuator Size | Standard | With Handwheel | |
|---------------|----------|----------------|------|
| | | Top | Side |
| #25 | 22 | 29 | 33 |
| #29 | 42 | 55 | 60 |
| #37 | 82 | 101 | 108 |
| #48 | 203 | 238 | 247 |
| #55 | 256 | 309 | 320 |
| #55H | 265 | 318 | 331 |

Accessories

- Positioners
 - Smart, E/P, P/P Positioners for Single / Double Acting
- Instrument Valves
 - Transfer (Trip) Valves, Volume Booster Relay
 - Air Regulators (Air Set), Speed Control Valves
- Limit Switches
- Solenoid Valves