

Pressure Regulators Steam, Gas or Liquid Service Models 525 and 526

Pressure Reducing Back Pressure and
Differential Pressure Control



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Foreword

The Models 525 and 526 double seated regulators are designed to handle a wide variety of process pressure control applications. Construction features have been carefully selected to provide optimum performance. Those include:

Top and Bottom Guiding

A well accepted industry standard particularly suited for double seated plugs to provide adequate support against side loads.

High Capacity with Low Recovery

Flow capacity is at top levels for contemporary double seated regulators and is attained with very little pressure recovery as indicated by a high critical flow factor.

Reduced Capacity Trim

0.4 Factor Trim - the most practical double seated trim design giving a substantial reduction in capacity while maintaining desirable flow characteristics.

High Performance Materials

Materials of construction have been selected for high performance and long life when handling the high pressure drop capabilities of the valve.

High Temperature Applications

For temperatures over the rating of the diaphragm material, the regulator must be mounted with the actuator below the centerline of the regulator body. The diaphragm will be protected from the high temperature by a condensate barrier in the sensing line and actuator diaphragm case. If installed otherwise, an adequate condensate barrier must be incorporated. Consult factory for more information.

Configurations

Models 525 and 526 Regulators are designed for use with the 10900 Series Actuators for reducing, back pressure and differential pressure applications.

Refer to Specification Data CY5010 for actuator selection.

General Data

| | | |
|---|--|--|
| <ul style="list-style-type: none"> • Function pressure reducing differential pressure reducing back pressure differential back pressure | <ul style="list-style-type: none"> Model 525 525-50 526 526-50 | <ul style="list-style-type: none"> • Body Configuration high capacity globe with double seated top and bottom guided plug |
| <ul style="list-style-type: none"> • Service | <ul style="list-style-type: none"> steam, gas, liquids | <ul style="list-style-type: none"> • Trim full area reduced capacity disk type quick opening plug |

Ratings (ANSI Class)

| Body Size (in.) | ANSI Class | | | |
|-----------------|------------|-----|-----|-----|
| | 125 | 150 | 300 | 600 |
| 1/2 | | | | • |
| 3/4 | | | | • |
| 1 | • | • | • | • |
| 1 1/2 | • | • | • | • |
| 2 | • | • | • | • |
| 2 1/2 | • | • | • | • |
| 3 | • | • | • | • |
| 4 | • | • | • | • |

Body Materials and End Connections

| Body Material | End Connections | Size (in.) | | | | | | | |
|--|-----------------------------------|------------|-----|---|-------|---|-------|---|---|
| | | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 | 3 | 4 |
| Cast Iron | ANSI Class 125 Flat Face Flange | | | • | • | • | • | • | • |
| | ANSI Class 150 Raised Face Flange | | | • | • | • | • | • | • |
| Carbon Steel & St. St. | ANSI Class 300 Raised Face Flange | | | • | • | • | • | • | • |
| | ANSI Class 600 Raised Face Flange | | | • | • | • | • | • | • |
| | ANSI Class 600 Threaded | • | • | • | • | • | | | |
| | Ring Type Joint | | | • | • | • | • | • | • |
| For availability of other alloys consult factory | Butt Weld | | | | | | • | • | • |
| | Socket Weld | • | • | • | • | • | | | |

Trim Materials

| |
|---|
| 316 Stainless Steel Plug and Seat Rings |
| 316 Stainless Steel Plug and Seat Rings Hardfaced |
| For availability of other alloys consult factory |

Bonnet Packing

| Packing Material | Remarks |
|-----------------------------------|------------------|
| Crane 285K PTFE w/Aramid Core | -20° F to 450° F |
| Flexible Graphite | 450° F to 800° F |
| Chesterton 324 (100% Teflon Ring) | -20° F to 450° F |

Flow Coefficients - Rated C_v

| Trim Size | Size (in.) | | | | | | | |
|------------|------------|-----|-----|-------|------|-------|----|-----|
| | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 | 3 | 4 |
| Full area | 2.7 | 6 | 9 | 21 | 36 | 54 | 75 | 125 |
| 0.4 Factor | --- | --- | 3.6 | 8.4 | 14.4 | 21.6 | 30 | 50 |

Critical flow factor - F_L
 Full area trim - $F_L = 0.9$
 0.4 factor trim - $F_L = 0.95$

Regulator Capacity ①

Saturated Steam (lb/hr) - Full Area Trim ②

| Inlet Pressure psig | Outlet Pressure psig | Size (in.) | | | | | | | |
|------------------------|-------------------------|------------|------|------|-------|-------|-------|-------|-------|
| | | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 | 3 | 4 |
| 30 | 1/2 - 10 | 225 | 500 | 780 | 1710 | 2930 | 4400 | 6100 | 10100 |
| | 20 | 160 | 360 | 540 | 1250 | 2100 | 3200 | 4450 | 7400 |
| 50 | 1/2 - 20 | 320 | 710 | 1090 | 2500 | 4270 | 6250 | 8900 | 14600 |
| | 30 | 275 | 605 | 890 | 2100 | 3550 | 5250 | 7350 | 12500 |
| | 40 | 200 | 440 | 670 | 1550 | 2600 | 3900 | 5500 | 9100 |
| 60 | 1/2 - 25 | 370 | 820 | 1220 | 2930 | 4900 | 7300 | 10100 | 17100 |
| | 40 | 295 | 655 | 980 | 2250 | 3900 | 5800 | 8050 | 13500 |
| | 50 | 215 | 470 | 720 | 1550 | 2800 | 4200 | 5850 | 9750 |
| 75 | 1/2 - 30 | 450 | 980 | 1460 | 3420 | 5850 | 8800 | 12200 | 20800 |
| | 50 | 355 | 785 | 1200 | 2700 | 4650 | 7000 | 9700 | 16000 |
| | 60 | 285 | 635 | 945 | 2200 | 3750 | 5600 | 7800 | 13000 |
| 100 | 1/2 - 50 | 580 | 1220 | 1890 | 4450 | 7550 | 11100 | 15800 | 26900 |
| | 60 | 510 | 1100 | 1650 | 3850 | 6550 | 9900 | 14000 | 23000 |
| | 80 | 375 | 810 | 1200 | 2800 | 4800 | 7300 | 10200 | 16500 |
| 125 | 1/2 - 60 | 710 | 1520 | 2380 | 5500 | 9150 | 14000 | 19500 | 31800 |
| | 80 | 595 | 1300 | 2000 | 4500 | 7700 | 11500 | 16000 | 27000 |
| | 100 | 470 | 1000 | 1500 | 3550 | 6050 | 9200 | 12500 | 21000 |
| 150 | 1/2 - 70 | 840 | 1830 | 2750 | 6350 | 11000 | 16500 | 23200 | 37800 |
| | 100 | 690 | 1500 | 2250 | 5150 | 8750 | 13000 | 18500 | 30500 |
| | 125 | 495 | 1150 | 1600 | 3750 | 6400 | 9400 | 13500 | 23000 |
| 160 | 1/2 - 80 | 890 | 1950 | 2900 | 6800 | 11500 | 17000 | 24500 | 40000 |
| | 100 | 770 | 1650 | 2500 | 5700 | 10000 | 15000 | 20500 | 34500 |
| | 120 | 640 | 1380 | 2100 | 4800 | 8100 | 12500 | 17200 | 28500 |
| | 140 | 500 | 1070 | 1650 | 3900 | 6550 | 9650 | 14000 | 23000 |
| 175 | 1/2 - 90 | 975 | 2100 | 3150 | 7300 | 12200 | 19000 | 27000 | 44000 |
| | 100 | 865 | 1900 | 2850 | 6600 | 11000 | 17600 | 24000 | 40000 |
| | 125 | 730 | 1600 | 2400 | 5600 | 9700 | 14500 | 20000 | 33000 |
| | 160 | 425 | 910 | 1420 | 3240 | 5500 | 8100 | 11600 | 19200 |
| 200 | 1/2 - 100 | 1100 | 2450 | 3650 | 8550 | 14500 | 22000 | 30500 | 50000 |
| | 125 | 935 | 2000 | 3100 | 7250 | 12000 | 18000 | 25500 | 42500 |
| | 160 | 710 | 1550 | 2350 | 5450 | 9400 | 14000 | 18500 | 32500 |
| 225 | 1/2 - 120 | 1200 | 2700 | 4250 | 9400 | 16000 | 24500 | 33500 | 56000 |
| | 160 | 945 | 2050 | 3100 | 7200 | 12500 | 18800 | 26000 | 43000 |
| 250 | 1/2 - 130 | 1350 | 2900 | 4500 | 10000 | 17000 | 26000 | 36500 | 61000 |
| | 160 | 1150 | 2450 | 3750 | 8500 | 14400 | 22200 | 30500 | 51000 |

① Regulator Capacity Tables are included to provide convenience on common application limitations. If your particular service conditions are not listed in the Regulator Capacity Table, calculate the required C_v for selecting the correct regulator size.

② This Regulator Capacity Table is based on full area trim. Multiply capacity by 0.4 when using (0.4) factor trim.

Regulator Capacity ①

Air (scfm) - Full Area Trim ②

| Inlet Pressure psig | Outlet Pressure psig | Size (in.) | | | | | | | |
|------------------------|-------------------------|------------|-----|------|-------|------|-------|-------|-------|
| | | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 | 3 | 4 |
| 30 | 1/2 - 10 | 77 | 165 | 255 | 570 | 980 | 1550 | 2020 | 3450 |
| | 20 | 55 | 120 | 175 | 425 | 705 | 1060 | 1500 | 2950 |
| 50 | 1/2 - 20 | 105 | 245 | 365 | 810 | 1410 | 2160 | 2940 | 5000 |
| | 30 | 91 | 200 | 295 | 695 | 1180 | 1780 | 2480 | 4200 |
| | 40 | 67 | 150 | 225 | 510 | 880 | 1300 | 1800 | 3100 |
| 60 | 1/2 - 25 | 120 | 275 | 405 | 950 | 1620 | 2450 | 3350 | 5700 |
| | 40 | 95 | 215 | 320 | 715 | 1250 | 1900 | 2600 | 4400 |
| | 50 | 72 | 155 | 240 | 545 | 940 | 1400 | 2000 | 3250 |
| 75 | 1/2 - 30 | 155 | 325 | 500 | 1160 | 2000 | 2950 | 4150 | 6800 |
| | 50 | 120 | 260 | 395 | 935 | 1580 | 2450 | 3300 | 5400 |
| | 60 | 97 | 210 | 315 | 725 | 1300 | 1900 | 2650 | 4300 |
| 100 | 1/2 - 50 | 190 | 425 | 650 | 1490 | 2490 | 3750 | 5250 | 8750 |
| | 60 | 170 | 370 | 560 | 1350 | 2250 | 3350 | 4650 | 7800 |
| | 80 | 125 | 270 | 415 | 950 | 1600 | 2400 | 3450 | 5700 |
| 125 | 1/2 - 60 | 240 | 520 | 770 | 1810 | 3050 | 4650 | 6500 | 10800 |
| | 80 | 200 | 440 | 660 | 1500 | 2550 | 3950 | 5500 | 9150 |
| | 100 | 160 | 350 | 520 | 1250 | 2100 | 3100 | 4350 | 7300 |
| 150 | 1/2 - 70 | 280 | 610 | 935 | 2140 | 3680 | 5500 | 7750 | 12800 |
| | 100 | 225 | 500 | 765 | 1750 | 2850 | 4550 | 6350 | 10500 |
| | 125 | 165 | 370 | 540 | 1250 | 2150 | 3250 | 4550 | 7550 |
| 160 | 1/2 - 80 | 295 | 650 | 975 | 2350 | 3850 | 5700 | 8150 | 13400 |
| | 100 | 255 | 555 | 850 | 1950 | 3350 | 5000 | 7050 | 11500 |
| | 120 | 210 | 460 | 705 | 1600 | 2750 | 4250 | 5850 | 9750 |
| | 140 | 155 | 340 | 510 | 1250 | 2050 | 3100 | 4250 | 7200 |
| 175 | 1/2 - 90 | 325 | 710 | 1080 | 2450 | 4250 | 6300 | 8950 | 14600 |
| | 100 | 295 | 645 | 970 | 2250 | 3750 | 5700 | 8000 | 13000 |
| | 125 | 250 | 540 | 825 | 1900 | 3200 | 4850 | 6800 | 11500 |
| | 160 | 140 | 310 | 470 | 1100 | 1850 | 2800 | 4000 | 6600 |
| 200 | 1/2 - 100 | 365 | 815 | 1220 | 2850 | 4900 | 7350 | 10200 | 16600 |
| | 125 | 315 | 705 | 1050 | 2400 | 4050 | 6300 | 8550 | 14500 |
| | 160 | 240 | 525 | 800 | 1850 | 3150 | 4700 | 6650 | 11000 |
| 225 | 1/2 - 120 | 405 | 895 | 1340 | 3050 | 5300 | 7950 | 11000 | 18300 |
| | 160 | 325 | 715 | 1100 | 2500 | 4300 | 6450 | 9000 | 14500 |
| 250 | 1/2 - 130 | 445 | 975 | 1460 | 3350 | 5700 | 8550 | 12200 | 19900 |
| | 160 | 390 | 830 | 1300 | 2950 | 5000 | 7350 | 10500 | 17000 |

① Regulator Capacity Tables are included to provide convenience on common application limitations. If your particular service conditions are not listed in the Regulator Capacity Table, calculate the required C_v for selecting the correct regulator size.

② This Regulator Capacity Table is based on full area trim. Multiply capacity by 0.4 when using (0.4) factor trim.

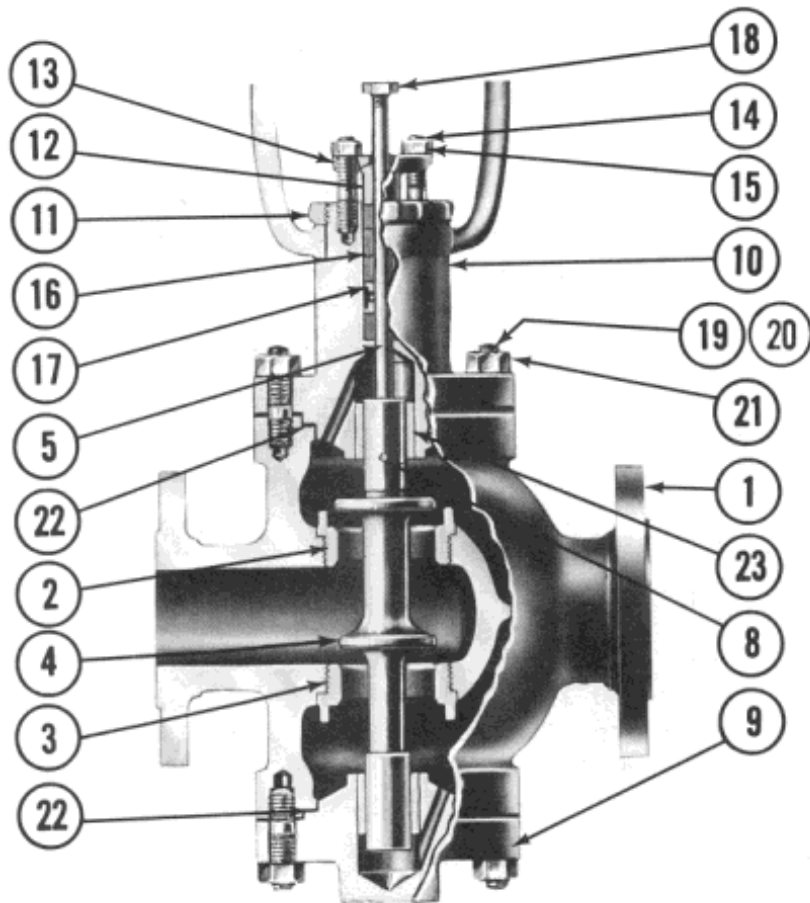
Regulator Capacity ①

Water (gpm) - Full Area Trim ②

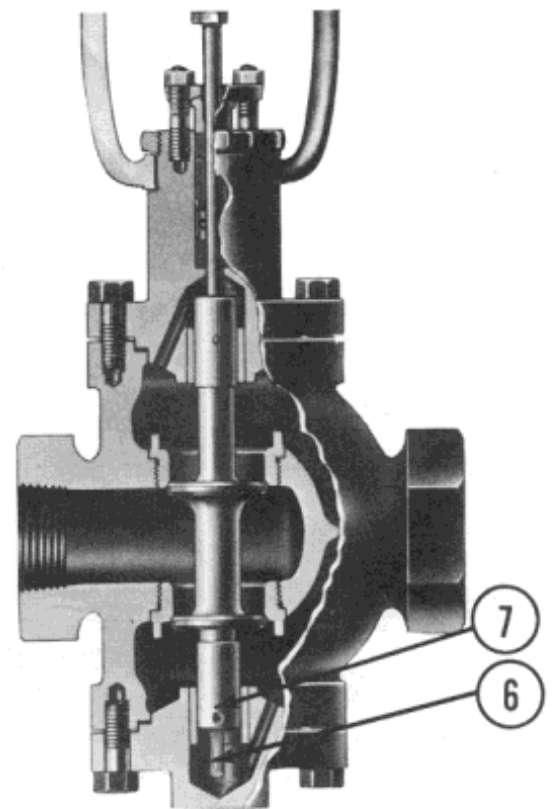
| Pressure Drop Inlet Pressure Minus Outlet Pressure | Size (in.) | | | | | | | |
|---|------------|-----|-----|-------|-----|-------|------|------|
| | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 | 3 | 4 |
| 10 | 8 | 18 | 28 | 65 | 110 | 165 | 230 | 380 |
| 15 | 10 | 23 | 35 | 78 | 140 | 200 | 280 | 460 |
| 20 | 12 | 26 | 40 | 90 | 160 | 240 | 330 | 550 |
| 25 | 13 | 30 | 45 | 100 | 180 | 265 | 370 | 600 |
| 30 | 14 | 33 | 50 | 115 | 200 | 290 | 400 | 660 |
| 35 | 16 | 35 | 53 | 120 | 210 | 310 | 440 | 720 |
| 40 | 17 | 38 | 56 | 130 | 230 | 340 | 470 | 760 |
| 45 | 18 | 40 | 60 | 140 | 240 | 360 | 500 | 800 |
| 50 | 19 | 42 | 64 | 145 | 250 | 375 | 510 | 830 |
| 60 | 21 | 46 | 70 | 160 | 280 | 410 | 560 | 920 |
| 70 | 22 | 50 | 75 | 170 | 300 | 450 | 610 | 1000 |
| 80 | 24 | 54 | 80 | 185 | 320 | 480 | 650 | 1100 |
| 90 | 25 | 56 | 85 | 200 | 340 | 500 | 700 | 1160 |
| 100 | 27 | 60 | 90 | 210 | 360 | 540 | 750 | 1250 |
| 120 | 29 | 65 | 98 | 225 | 390 | 580 | 800 | 1300 |
| 140 | 32 | 70 | 105 | 240 | 420 | 630 | 880 | 1400 |
| 160 | 34 | 75 | 115 | 260 | 460 | 660 | 920 | 1500 |
| 180 | 37 | 80 | 120 | 270 | 490 | 710 | 980 | 1600 |
| 210 | 39 | 85 | 130 | 290 | 520 | 760 | 1050 | 1750 |
| 230 | 40 | 90 | 135 | 300 | 540 | 780 | 1100 | 1800 |

① Regulator Capacity Tables are included to provide convenience on common application limitations. If your particular service conditions are not listed in the Regulator Capacity Table, calculate the required C_v for selecting the correct regulator size.

② This Regulator Capacity Table is based on full area trim. Multiply capacity by 0.4 when using (0.4) factor trim.



Model 525 Reducing Regulator
 Model 525-50 Differential Pressure Reducing Regulator



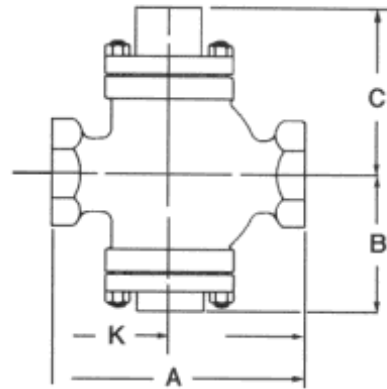
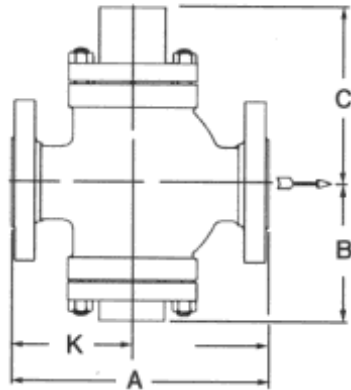
Model 526 Back Pressure Regulator
 Model 526-50 Differential Back Pressure Regulator

Materials

| Ref. No. | Temperature Range | -20°F | 450°F | 800°F |
|----------|--------------------------|--|-------|-------|
| | Description | Materials | | |
| 1 | Body | Cast Iron ASTM A126 CL 8 | | |
| | | Carbon Steel ASTM A216 Gr WCB | | |
| | | 316 Stainless Steel | | |
| 2 | Large Bore Seat Rings | 316 Stainless Steel | | |
| | | 316 Stainless Steel Hardfaced | | |
| 3 | Small Bore Seat Rings | 316 Stainless Steel | | |
| | | 316 Stainless Steel Hardfaced | | |
| 4 | Plug | 316 Stainless Steel | | |
| | | 316 Stainless Steel Hardfaced | | |
| 5 | Plug Stem | 316 Stainless Steel | | |
| 6 | Plug Stop | | | |
| 7 | Plug Stop Pin | | | |
| 8 | Plug Pin | | | |
| 9 | Blindhead | Carbon Steel | | |
| 10 | Bonnet | | | |
| 11 | Drive Nut | | | |
| 12 | Packing Follower | 303 Stainless Steel | | |
| 13 | Packing Flange | Carbon Steel | | |
| 14 | Packing Flange Studs | 304 Stainless Steel | | |
| 15 | Packing Flange Stud Nuts | | | |
| 16 | Packing | Crane 285K PTFE w/Aramid Core | | |
| | | Flexible Graphite | | |
| | | Chesterton 324 (100% Teflon) | | |
| 17 | Lantern Ring | 303 Stainless Steel | | |
| 18 | Stem Locknuts | Carbon Steel | | |
| 19 | Body Studs | Chrome Molybdenum Alloy Steel (Steel Bodies) | | |
| 20 | Body Cap Screws | Carbon Steel (Iron Bodies) | | |
| 21 | Body Stud Nuts | Carbon Steel (Steel Bodies) | | |
| 22 | Body Gasket | 304 Stainless Steel w/Graphite Filler Sprial Wound | | |
| 23 | Guide Bushing | Type 440C Stainless Steel | | |

Note: The plug stop (Ref. 6) and plug stop pin (Ref. 7) are installed in the bottom of the plug on Model 526 back pressure regulators with the 10900 Series Actuators No. 3 1/2 case (80-250 psi range) and No. 4 case (60-125 psi range) to prevent overtravel.

Dimensions (inches)



| Size (in.) | ANSI Class | | | | | | | | | | B | C |
|---------------|-----------------------|--------|----------------|--------|----------------|-------|-----------------|---------|-------------------------|---------|-------|---------|
| | 125 150 Flanged | | 300 Flanged | | 600 Flanged | | 600 RT Joint | | Threaded Socket Weld | | | |
| | A | K | A | K | A | K | A | K | A | K | | |
| 1/2 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 6 | 27/8 | 4 1/2 | 5 11/16 |
| 3/4 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 6 | 27/8 | 4 1/2 | 5 11/16 |
| 1 | 7 1/4 | 3 5/8 | 7 3/4 | 3 7/8 | 8 1/4 | 4 1/8 | 8 1/4 | 4 1/8 | 6 | 27/8 | 4 1/2 | 5 11/16 |
| 1 1/2 | 8 3/4 | 4 1/16 | 9 1/4 | 4 5/16 | 9 7/8 | 4 5/8 | 9 7/8 | 4 5/8 | 8 | 3 11/16 | 5 3/8 | 6 |
| 2 | 10 | 4 5/8 | 10 1/2 | 4 7/8 | 11 1/4 | 5 1/4 | 11 3/8 | 5 5/16 | 9 1/4 | 4 1/8 | 6 | 7 3/16 |
| 2 1/2 | 10 7/8 | 5 1/16 | 11 1/2 | 5 3/8 | 12 1/4 | 5 3/4 | 12 3/8 | 5 13/16 | ---- | ---- | 6 3/8 | 7 11/16 |
| 3 | 11 3/4 | 5 1/2 | 12 1/2 | 5 7/8 | 13 1/4 | 6 1/4 | 13 3/8 | 6 5/16 | ---- | ---- | 7 3/4 | 9 3/16 |
| 4 | 13 7/8 | 6 9/16 | 14 1/2 | 6 7/8 | 15 1/2 | 7 3/8 | 15 5/8 | 7 7/16 | ---- | ---- | 8 1/8 | 9 3/8 |

Approximate Shipping Weights (lbs.) - Regulator with Spring Diaphragm Actuator

| Size (in.) | ANSI Class | | |
|---------------|------------|------------|--------------------------------------|
| | 125 | 150 300 | 600 |
| | Iron | Steel | Threaded Butt Weld Socket Weld |
| 1/2 | ---- | ---- | 85 |
| 3/4 | ---- | ---- | 85 |
| 1 | 85 | 80 | 95 |
| 1 1/2 | 100 | 105 | 115 |
| 2 | 140 | 145 | 160 |
| 2 1/2 | 155 | 165 | 170 |
| 3 | 215 | 240 | 250 |
| 4 | 280 | 300 | 330 |

For L.P. Diff. Actuators add 25 lbs.
For H.P. Diff. Actuators add 35 lbs.