



— MODEL — **590-01**

Pressure Reducing Valve



- Sensitive and Accurate Pressure Control
- High Corrosion Resistance
- Easy Adjustment and Maintenance
- Optional Check Feature
- Fully Supported Frictionless Diaphragm

The Cla-Val Model 590-01 Pressure Reducing Valve automatically reduces a higher inlet pressure to a steady lower downstream pressure regardless of changing flow rate and/or varying inlet pressure. All metal parts are 316 Stainless Steel for high corrosion resistance in many industrial applications. This valve is an accurate, pilot-operated regulator capable of holding downstream pressure to a pre-determined limit. When downstream pressure exceeds the pressure setting of the pilot control, the valve and close drip-tight.

If a check feature is added, and a pressure reversal occurs, the downstream pressure is admitted in the main valve cover chamber, closing the valve to prevent return flow.

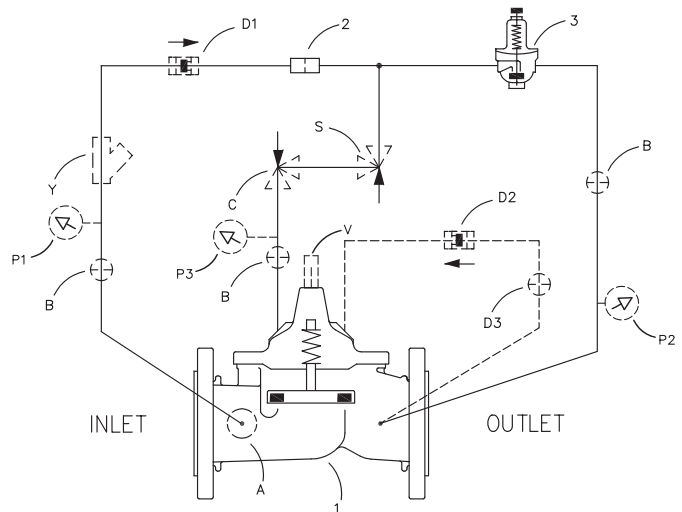
Schematic Diagram

| Item | Description |
|------|-------------------------------|
| 1 | 100-46 Hytrol Main Valve |
| 2 | X58C Restriction Fitting |
| 3 | CRD Pressure Reducing Control |

Optional Features

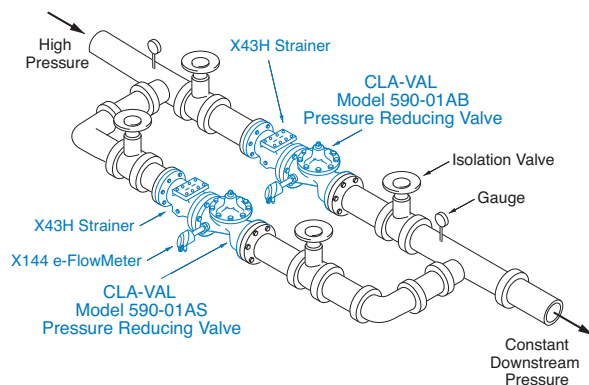
| Item | Description |
|------|-----------------------------------|
| A | X46A Flow Clean Strainer |
| B | CK2 Isolation Valve |
| C | CV Flow Control (Closing)* |
| D | Check Valves with Isolation Valve |
| P | X141 Pressure Gauge |
| S | CV Flow Control (Opening) |
| V | X101 Valve Position Indicator |
| Y | X43 "Y" Strainer |

*The closing speed control (optional) on this valve should always be open at least three (3) turns off its seat.

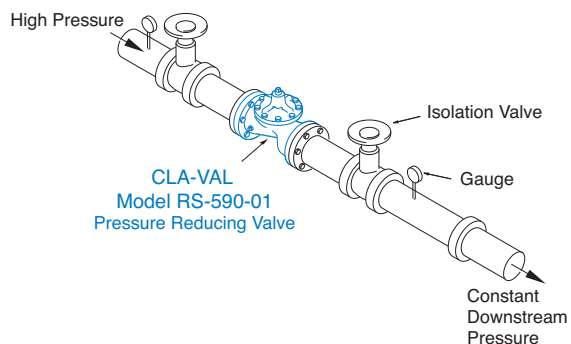


Typical Applications

Typical pressure reducing valve station using Model 590-1AS in parallel to handle wide range of flow rates. Larger Model 590-01AB valve takes care of peak loads. Smaller Model 590-01AS handles low flows.



The 590-01D Combination Pressure Reducing and Check Valve is installed downstream of a pump where a constant system pressure is required. The check feature is to prevent reverse flow through the pump and to hold system pressure when the pump is off.



Model 590-01

Specifications

Sizes

Globe (inch):

1½", 2", 2½", 3", 4", 6", 8", 10", 12"

Globe (mm):

40, 50, 65, 80, 100, 150, 200, 250, 300

Grooved End (inch): 1-1/2" - 6"

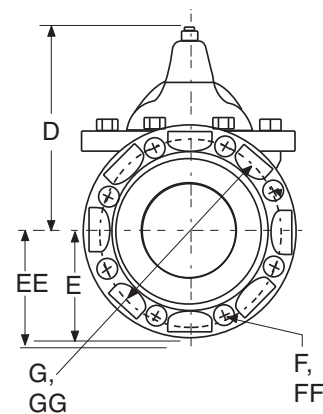
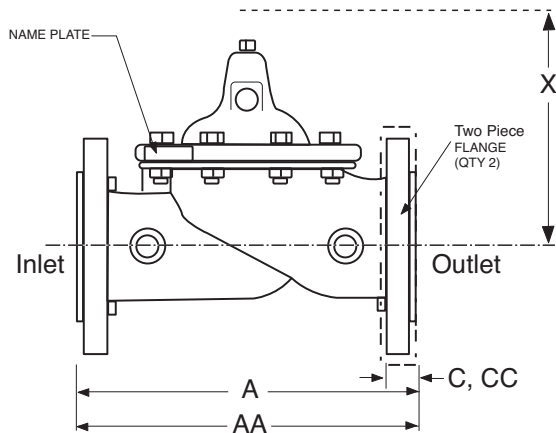
Grooved End (mm): 40 - 150 mm

End Detail

Slip-on Two Piece Flange

Dimensions Per ANSI B16.5

Grooved End AWWA/ANSI C-606



Pressure Rating

ANSI Class 150:

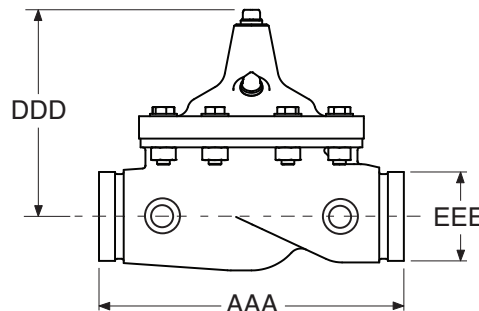
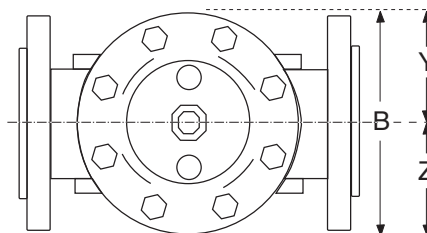
Maximum 285 psi

ANSI Class 300:

Maximum 400 psi

Higher Pressure Available

Please Contact Factory



Operating Temperature

Fluids Compatible with Valve

Materials

-40° to 180° F (-40° to 82° C)

Materials

Body, Cover, Trim,
Diaphragm Assembly,
Flanges, and Fasteners
316 Series
Stainless Steel
Electropolished

Disc:

Buna-N® Rubber*

Diaphragm:

Nylon Fabric Reinforced
Synthetic Buna-N® Rubber*

* Contact Factory for Other

Disc or Diaphragm Materials

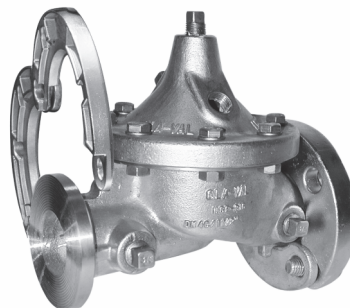
Model 590-01 Dimensions (Inches)

| Valve Size (Inches) | 1½ | 2 | 2½ | 3 | 4 | 6 | 8 | 10 | 12 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| A 150 ANSI | 7.87 | 9.38 | 11.00 | 12.00 | 15.00 | 20.00 | 25.38 | 29.75 | 34.00 |
| AA 300 ANSI | 7.87 | 9.38 | 11.00 | 12.00 | 15.00 | 20.00 | 25.38 | 29.75 | 34.00 |
| AAA Grooved End | 8.50 | 11.00 | 11.00 | 12.00 | 15.00 | 20.00 | — | — | — |
| B | 5.62 | 6.61 | 8.00 | 9.13 | 11.50 | 15.75 | 20.00 | 23.62 | 28.00 |
| C | 0.56 | 0.62 | 0.69 | 0.75 | 0.94 | 1.00 | 1.12 | 1.19 | 1.25 |
| CC 300 ANSI | 0.81 | 0.88 | 1.00 | 1.12 | 1.25 | 1.44 | 1.62 | 1.88 | 2.00 |
| D | 5.90 | 6.25 | 7.25 | 8.20 | 10.21 | 13.32 | 16.38 | 21.00 | 25.38 |
| DDD Grooved End | 5.29 | 6.34 | 7.43 | 8.14 | 10.30 | 13.03 | — | — | — |
| E | 2.56 | 3.05 | 3.54 | 3.75 | 4.53 | 5.61 | 6.75 | 8.00 | 9.50 |
| EE 300 ANSI | 3.05 | 3.25 | 3.74 | 4.13 | 5.02 | 6.30 | 7.50 | 8.75 | 10.25 |
| EEE Grooved End | 1.13 | 1.50 | 1.88 | 2.13 | 2.68 | 3.86 | — | — | — |
| F | 0.62 | 0.75 | 0.75 | 0.75 | 0.75 | 0.88 | 0.88 | 1.00 | 1.00 |
| FF 300 ANSI | 0.88 | 0.75 | 0.88 | 0.88 | 0.88 | 0.88 | 1.00 | 1.12 | 1.25 |
| G | 3.88 | 4.75 | 5.50 | 6.00 | 7.50 | 9.50 | 11.75 | 14.25 | 17.00 |
| GG 300 ANSI | 4.50 | 5.00 | 5.88 | 6.62 | 7.88 | 10.62 | 13.00 | 15.25 | 17.75 |
| Flange Bolts (150 Class) | 4 | 4 | 4 | 4 | 8 | 8 | 8 | 12 | 12 |
| Flange Bolts (300 Class) | 4 | 8 | 8 | 8 | 8 | 12 | 12 | 12 | 16 |
| Approx. Wt. (Lbs.) | 25 | 35 | 55 | 75 | 160 | 290 | 340 | 600 | 1000 |
| Approx. X Pilot System | 11.00 | 13.00 | 14.00 | 15.00 | 17.00 | 29.00 | 31.00 | 33.00 | 36.00 |
| Approx. Y Pilot System | 9.00 | 9.00 | 10.00 | 11.00 | 12.00 | 20.00 | 22.00 | 24.00 | 26.00 |
| Approx. Z Pilot System | 9.00 | 9.00 | 10.00 | 11.00 | 12.00 | 20.00 | 22.00 | 24.00 | 26.00 |

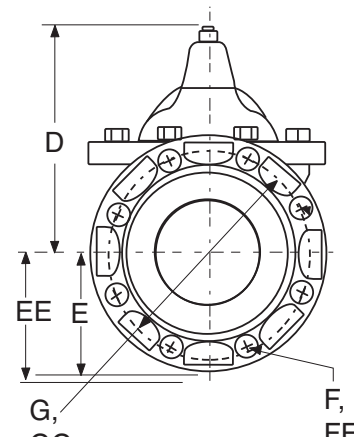
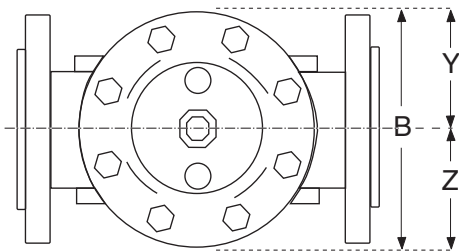
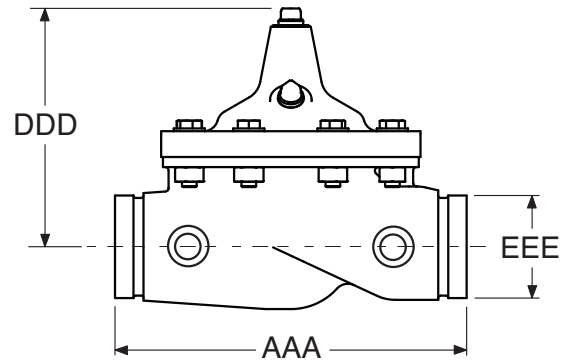
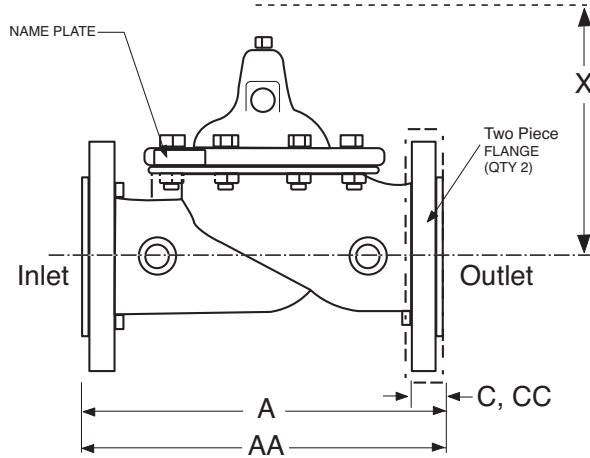
100-46 Full Port Functional Data

| Size (Inches) | Cv (gpm)* | Cv (l/s)** |
|---------------|-----------|------------|
| 1½ | 32 | 8 |
| 2 | 54 | 13 |
| 2½ | 85 | 20 |
| 3 | 115 | 27 |
| 4 | 200 | 48 |
| 6 | 440 | 105 |
| 8 | 770 | 185 |
| 10 | 1245 | 299 |
| 12 | 1725 | 414 |

*Cv = gpm flow at 1 psi drop
**Cv = l/s flow at 1 bar drop



Model 590-01 Dimensions (mm)



Model 590-01 Dimensions (mm)

| Valve Size (mm) | 40 | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 |
|--------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A 150 ANSI | 200 | 238 | 279 | 305 | 381 | 508 | 645 | 756 | 864 |
| AA 300 ANSI | 200 | 238 | 279 | 305 | 381 | 508 | 645 | 756 | 864 |
| AAA Grooved End | 216 | 279 | 279 | 305 | 381 | 508 | — | — | — |
| B | 143 | 168 | 203 | 232 | 292 | 400 | 508 | 600 | 711 |
| C | 14 | 16 | 18 | 19 | 24 | 25 | 28 | 30 | 32 |
| CC 300 ANSI | 21 | 22 | 25 | 28 | 32 | 37 | 41 | 48 | 51 |
| D | 150 | 159 | 184 | 208 | 259 | 338 | 416 | 533 | 645 |
| DDD Grooved End | 134 | 161 | 189 | 207 | 262 | 331 | — | — | — |
| E | 65 | 78 | 90 | 95 | 115 | 143 | 172 | 203 | 241 |
| EE 300 ANSI | 78 | 83 | 95 | 105 | 128 | 160 | 190 | 222 | 260 |
| EEE Grooved End | 29 | 38 | 48 | 54 | 68 | 98 | — | — | — |
| F | 16 | 19 | 19 | 19 | 19 | 22 | 22 | 25 | 25 |
| FF 300 ANSI | 22 | 19 | 22 | 22 | 22 | 22 | 25 | 28 | 32 |
| G | 99 | 121 | 140 | 152 | 190 | 241 | 299 | 362 | 432 |
| GG 300 ANSI | 114 | 127 | 149 | 168 | 200 | 270 | 330 | 387 | 451 |
| Flange Bolts (150 Class) | 102 | 102 | 102 | 102 | 203 | 203 | 203 | 305 | 305 |
| Flange Bolts (300 Class) | 102 | 203 | 203 | 203 | 203 | 305 | 305 | 305 | 406 |
| Approx. Wt. (Kgs.) | 11 | 16 | 25 | 34 | 73 | 132 | 154 | 272 | 454 |
| Approx. X Pilot System | 279 | 330 | 356 | 381 | 432 | 737 | 787 | 838 | 914 |
| Approx. Y Pilot System | 229 | 229 | 254 | 279 | 305 | 508 | 559 | 610 | 660 |
| Approx. Z Pilot System | 229 | 229 | 254 | 279 | 305 | 508 | 559 | 610 | 660 |

| 590-01 Valve Selection | 100-01 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes | | | | | | | | | |
|-----------------------------------|---|-----|-----|-----|------|------|------|------|------|------|
| | Inches | 1½ | 2 | 2½ | 3 | 4 | 6 | 8 | 10 | 12 |
| | mm | 40 | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 |
| Main Valve 100-46 | Pattern | G | G | G | G | G | G | G | G | G |
| | End Detail | F | F | F | F | F | F | F | F | F |
| Suggested Flow (gpm) | Maximum | 125 | 210 | 460 | 460 | 800 | 1800 | 3100 | 4900 | 7000 |
| | Maximum Intermittent | 160 | 260 | 580 | 580 | 990 | 2250 | 3900 | 6150 | 8720 |
| | Minimum | 1 | 1 | 2 | 2 | 4 | 10 | 15 | 35 | 50 |
| Suggested Flow (Liters/Sec) | Maximum | 8 | 13 | 29 | 29 | 50 | 113 | 195 | 309 | 442 |
| | Maximum Intermittent | 10 | 16 | 37 | 37 | 62 | 142 | 246 | 387 | 549 |
| | Minimum | .03 | .06 | .09 | 0.13 | 0.25 | 0.63 | 0.95 | 2.2 | 3.2 |

100-46 Series is the full internal port Hytrol. For Lower Flows Consult Factory *Globe Grooved Only

Pilot System Specifications

Adjustment Ranges

| | | | |
|----|----|-----|------|
| 2 | to | 30 | psi |
| 15 | to | 75 | psi |
| 20 | to | 105 | psi |
| 30 | to | 300 | psi* |

*Supplied unless otherwise specified
Other ranges available, please consult factory

Temperature Range

Water: to 180°F

Materials

Standard Pilot System Materials

Pilot Control: Stainless Steel Type 303
Trim: Stainless Steel Type 303
Rubber: Buna-N® Synthetic Rubber

Optional Pilot System Materials

Pilot Systems are available with optional
316 Stainless Steel or Monel materials.

Note: Available with remote sensing control.



When Ordering, Specify

1. Catalog No. 590-01
2. Valve Size
3. Pattern - Globe
4. Pressure Class
5. Flanged (150 / 300)
6. Trim Material
7. Adjustment Range
8. Desired Options
9. When Vertically Installed

Valve Options

X141
Pressure
Gauge



X101AR Valve
Position Indicator
with Air Release



X101
Valve Position
Indicator



X144 e-FlowMeter



X43H
Strainer



Stainless
Steel Pilot



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