

# 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 590-01/6590-01 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.

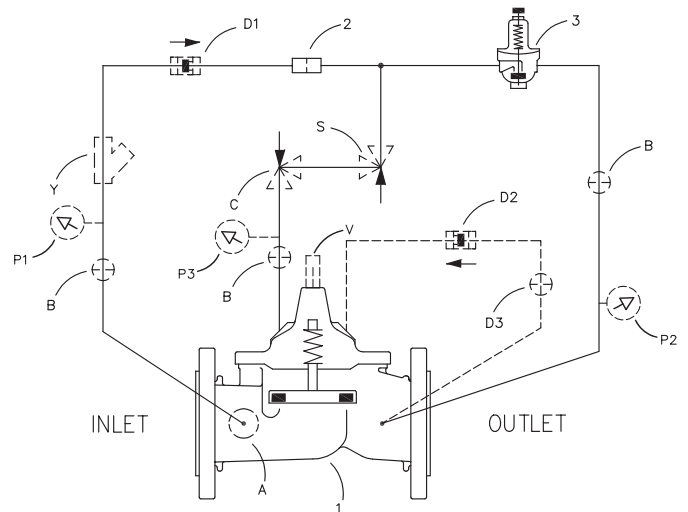
## Schematic Diagram

| Item | Description   |
|------|---|
| 1    | Hytrol (100-46 Main Valve - Full Internal Port)<br>Hytrol (100-44 Main Valve - Reduced Internal Post) |
| 2    | X58C Restriction Fitting  |
| 3    | CRD Pressure Reducing Control   |

## Optional Features

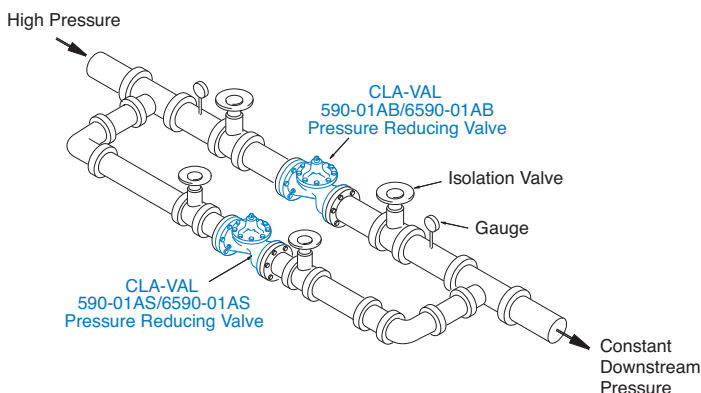
| Item | Description                       |
|------|-----------------------------------|
| A    | X46A Flow Clean Strainer          |
| B    | CK2 (Isolation Valve)             |
| C    | CV Flow Control (Closing)*        |
| D    | Check Valves with Isolation Valve |
| P    | X141 Pressure Gauge               |
| 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.

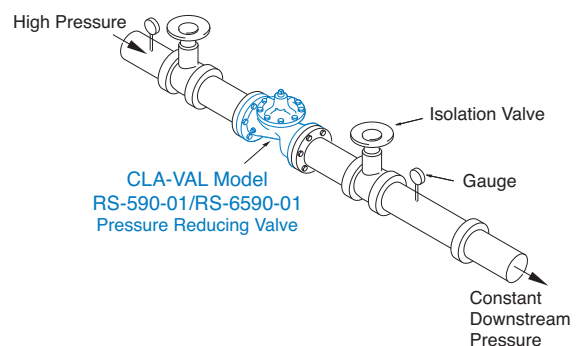


## Typical Applications

Typical pressure reducing valve station using Model 6590-01AB and Model 590-01AS in parallel to handle wide range of flow rates. Larger Model 590-01AB/6590-01AB valve takes care of peak loads. Smaller Model 590-01/6590-01AS handles low flows.



The 590-01D/6590-01D 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.



## Specifications

### Sizes

Globe (inch):  
1½", 2", 2½", 3", 4", 6"

### End Detail

Slip-on Two Piece Flange  
Dimensions Per ANSI B16.5

### 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)

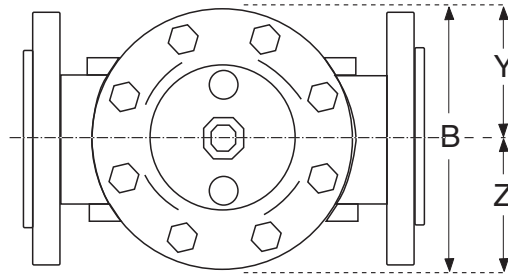
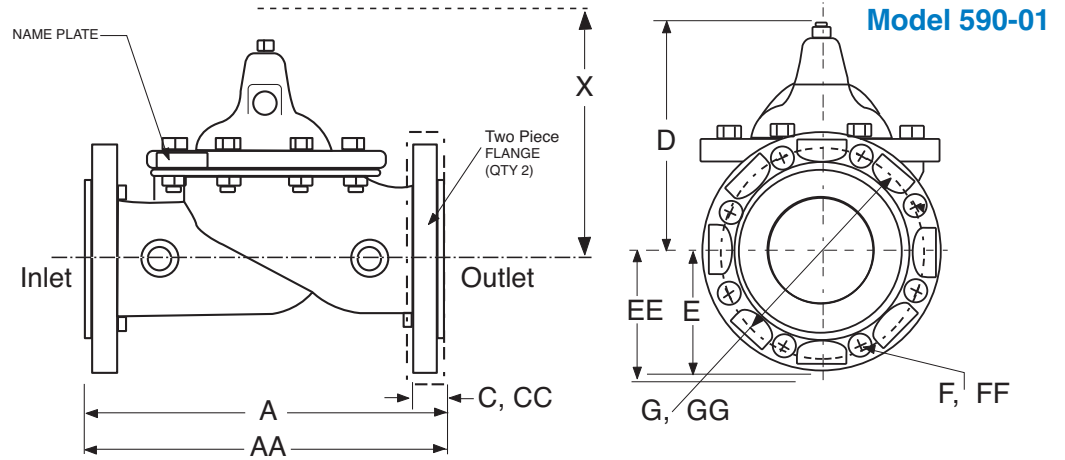
### Materials

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



## Dimensions

| Size (In)                | 1½   | 2    | 2½    | 3     | 4     | 6     |
|--------------------------|------|------|-------|-------|-------|-------|
| (mm)                     | 40   | 50   | 65    | 80    | 100   | 150   |
| <b>A</b> 150 ANSI        | 7.87 | 9.38 | 11.00 | 12.00 | 15.00 | 20.00 |
| <b>AA</b> 300 ANSI       | 7.87 | 9.38 | 11.00 | 12.00 | 15.00 | 20.00 |
| <b>B</b>                 | 5.62 | 6.61 | 8.00  | 9.13  | 11.50 | 15.75 |
| <b>C</b>                 | .56  | .62  | .69   | .75   | .94   | 1.00  |
| <b>CC</b> 300 ANSI       | .81  | .88  | 1.00  | 1.12  | 1.25  | 1.44  |
| <b>D</b>                 | 5.90 | 6.25 | 7.25  | 8.20  | 10.21 | 13.32 |
| <b>E</b>                 | 2.56 | 3.05 | 3.54  | 3.75  | 4.53  | 5.61  |
| <b>EE</b> 300 ANSI       | 3.05 | 3.25 | 3.74  | 4.13  | 5.02  | 6.30  |
| <b>F</b>                 | .62  | .75  | .75   | .75   | .75   | .88   |
| <b>FF</b> 300 ANSI       | .88  | .75  | .88   | .88   | .88   | .88   |
| <b>G</b>                 | 3.88 | 4.75 | 5.50  | 6.00  | 7.50  | 9.50  |
| <b>GG</b> 300 ANSI       | 4.50 | 5.00 | 5.88  | 6.62  | 7.88  | 10.62 |
| Flange Bolts (150 Class) | 4    | 4    | 4     | 4     | 8     | 8     |
| Flange Bolts (300 Class) | 4    | 8    | 8     | 8     | 8     | 12    |
| Approx. Ship Wt. Lbs.    | 25   | 35   | 55    | 75    | 160   | 290   |
| Approx. Ship Wt. Kgs.    | 11.4 | 16   | 25    | 35    | 73    | 132   |

## 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        |

\*Cv = gpm flow at 1 psi drop

\*\*Cv = l/s flow at 1 bar drop



## Specifications

Model 6590-01

### Sizes

Globe (inch):  
2", 2½", 3", 4", 6", 8", 10", 12"

### End Detail

Slip-on Two Piece Flange  
Dimensions Per ANSI B16.5

### 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)

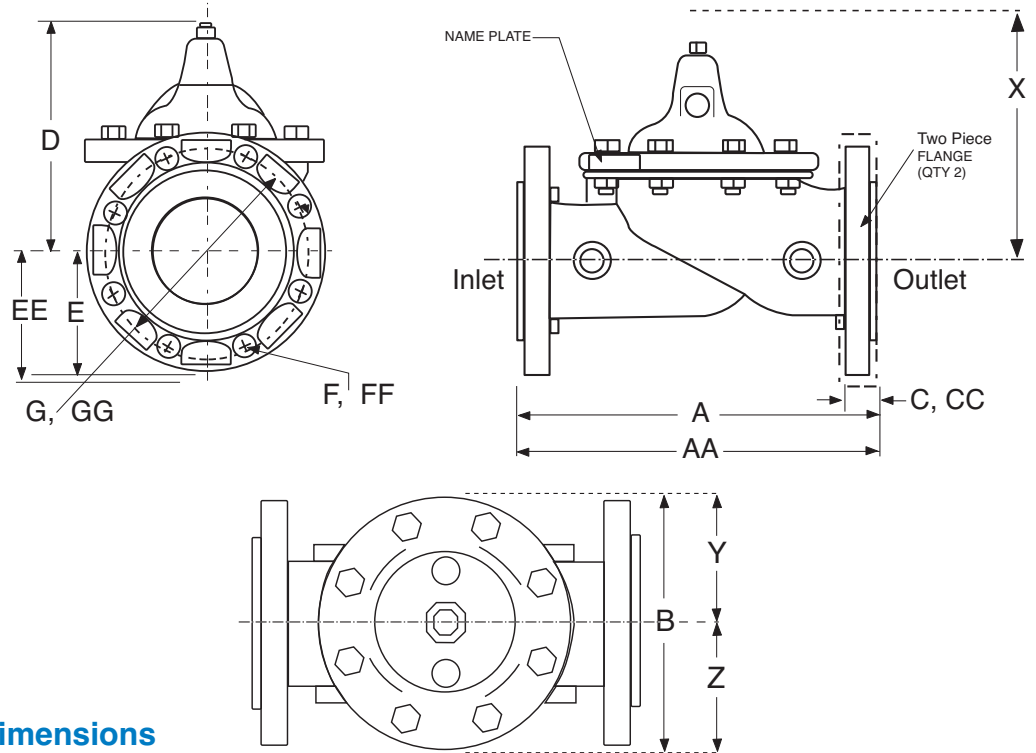
### Materials

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



### Dimensions

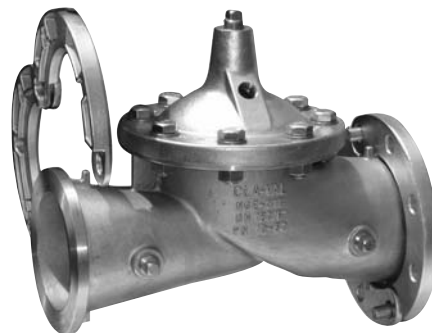
| Size (Inches)            | 2     | 2 ½   | 3     | 4     | 6     | 8     | 10    | 12    |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Size (mm)                | 50    | 65    | 80    | 100   | 150   | 200   | 250   | 300   |
| <b>A</b> 150 ANSI        | 9.06  | 11.42 | 12.20 | 13.78 | 18.90 | 23.62 | 28.74 | 33.46 |
| <b>AA</b> 300 ANSI       | 9.06  | 11.42 | 12.20 | 13.78 | 18.90 | 23.62 | 28.74 | 33.46 |
| <b>B</b>                 | 5.70  | 8.06  | 6.69  | 9.25  | 11.61 | 15.75 | 20.08 | 23.62 |
| <b>C</b>                 | .89   | .89   | .93   | .93   | 1.02  | 1.15  | 1.15  | 1.25  |
| <b>CC</b> 300 ANSI       | .96   | .96   | 1.00  | 1.00  | 1.10  | 1.15  | 1.46  | 1.50  |
| <b>D</b>                 | 6.50  | 7.95  | 8.20  | 10.12 | 13.32 | 16.39 | 19.12 | 20.95 |
| <b>E</b>                 | 3.05  | 3.54  | 3.74  | 4.53  | 5.61  | 6.79  | 7.97  | 9.55  |
| <b>EE</b> 300 ANSI       | 3.25  | 3.75  | 4.13  | 5.01  | 6.30  | 7.48  | 8.76  | 10.24 |
| <b>F</b>                 | .71   | .71   | .71   | .71   | .91   | .87   | 1.02  | 1.02  |
| <b>FF</b> 300 ANSI       | .71   | .75   | .87   | .87   | .87   | 1.03  | 1.16  | 1.34  |
| <b>G</b>                 | 4.75  | 5.50  | 6.00  | 7.50  | 9.50  | 11.75 | 14.25 | 17.00 |
| <b>GG</b> 300 ANSI       | 5.00  | 5.88  | 6.62  | 7.88  | 10.62 | 13.00 | 15.25 | 17.72 |
| Flange Bolts (150 Class) | 4     | 4     | 4     | 8     | 8     | 8     | 12    | 12    |
| Flange Bolts (300 Class) | 8     | 8     | 8     | 8     | 12    | 12    | 16    | 16    |
| Approx. Ship Wt. Lbs.    | 25    | 40    | 40    | 75    | 160   | 290   | 419   | 728   |
| Approx. Ship Wt. Kgs.    | 11.4  | 19    | 19    | 35    | 73    | 132   | 190   | 330   |
| <b>X</b> Pilot System    | 13.00 | 14.00 | 15.00 | 17.00 | 29.00 | 31.00 | 33.00 | 36.00 |
| <b>Y</b> Pilot System    | 9.00  | 10.00 | 11.00 | 12.00 | 20.00 | 22.00 | 24.00 | 26.00 |
| <b>Z</b> Pilot System    | 9.00  | 10.00 | 11.00 | 12.00 | 20.00 | 22.00 | 24.00 | 26.00 |

## 100-44 Reduced Port Functional Data

| Size (Inches) | Cv (gpm)* | Cv (l/s)** |
|---------------|-----------|------------|
| 2             | 38        | 9          |
| 2 1/2         | 50        | 12         |
| 3             | 67        | 16         |
| 4             | 138       | 33         |
| 6             | 242       | 58         |
| 8             | 555       | 133        |
| 10            | 923       | 222        |
| 12            | 1492      | 359        |

\*Cv = gpm flow at 1 psi drop

\*\*Cv = l/s flow at 1 bar drop



| 590-01<br>Valve<br>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    |
|                                   | mm  | 40  | 50  | 65  | 80   | 100  | 150  |
| Basic Valve<br>100-46             | Pattern   | G   | G   | G   | G    | G    | G    |
|                                   | End Detail  | F   | F   | F   | F    | F    | F    |
| Suggested<br>Flow<br>(gpm)        | Maximum   | 125 | 210 | 460 | 460  | 800  | 1800 |
|                                   | Maximum Intermittent  | 160 | 260 | 580 | 580  | 990  | 2250 |
|                                   | Minimum   | 1   | 1   | 2   | 2    | 4    | 10   |
| Suggested<br>Flow<br>(Liters/Sec) | Maximum   | 8   | 13  | 29  | 29   | 50   | 113  |
|                                   | Maximum Intermittent  | 10  | 16  | 37  | 37   | 62   | 142  |
|                                   | Minimum   | .03 | .06 | .09 | 0.13 | 0.25 | 0.63 |

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

| 6590-01<br>Valve<br>Selection     | 100-20 Pattern: Globe (G), Angle (A), End Connections: Flanged (F) Indicate Available Sizes |     |     |     |     |      |      |      |      |
|-----------------------------------|---|-----|-----|-----|-----|------|------|------|------|
|                                   | Inches  | 2   | 2½  | 3   | 4   | 6    | 8    | 10   | 12   |
|                                   | mm  | 50  | 65  | 80  | 100 | 150  | 200  | 250  | 300  |
| Basic Valve<br>100-44             | Pattern   | G   | G   | G   | G   | G    | G    | G    | G    |
|                                   | End Detail  | F   | F   | F   | F   | F    | F    | F    | F    |
| Suggested<br>Flow<br>(gpm)        | Maximum   | 160 | 260 | 260 | 580 | 1025 | 2300 | 4100 | 6400 |
|                                   | Minimum   | 1   | 2   | 1   | 2   | 4    | 10   | 15   | 35   |
| Suggested<br>Flow<br>(Liters/Sec) | Maximum   | 8   | 16  | 16  | 37  | 65   | 145  | 258  | 403  |
|                                   | Minimum   | .06 | .13 | .06 | .13 | .25  | .63  | .95  | 2.2  |

100-44 Series is the reduced internal port size version of the 100-01 Series. For Lower Flows Consult Factory

### 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, Please Specify

1. Catalog No. 590-01 or No. 6590-01
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



## CLA-VAL

1701 Placentia Ave. Costa Mesa, CA 92627-4471  
Phone: 949-722-4800 • Fax: 949-548-5441

#### CLA-VAL CANADA

4687 Christie Drive  
Beamsville, Ontario  
Canada L0R 1B4  
Phone: 905-563-4963  
Fax: 905-563-4040

#### CLA-VAL EUROPE

Chemin des Mesanges 1  
CH-1032 Romanel/  
Lausanne, Switzerland  
Phone: 41-21-643-15-55  
Fax: 41-21-643-15-50

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