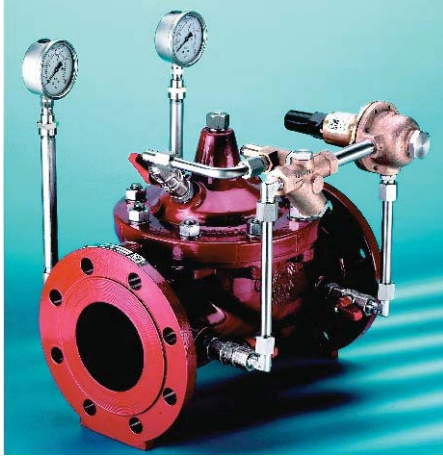




**90GE-01**  
(Full Internal Port)  
—MODEL—  
**NGE90-01**  
(Reduced Internal Port)

# Pressure Reducing Valve



Pressure Gauges Optional

- Extremely accurate control of set-point
- Positive drip tight shut-off at zero flow
- Exceptional reliability
- Adjustable over a wide range of pressures
- 3 year Warranty

The Cla-Val Model NGE90-01/90GE-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. 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 control pilot, the main valve and pilot valve close drip-tight.

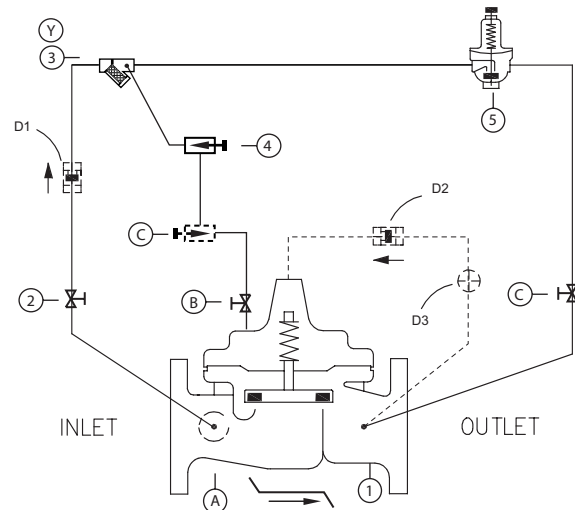
If a check feature is added, and a pressure reversal occurs, the downstream pressure is admitted in the main valve cover chamber, closing the valve to prevent return flow.

## Schematic Diagram

| Item | Description                             |
|------|-----------------------------------------|
| 1    | Hytrol (Main Valve)                     |
| 2    | RB117 Isolating Ball Valve              |
| 3    | X44A Strainer with Incorporated Orifice |
| 4    | CV Flow Control (Opening)               |
| 5    | CRD Pressure Reducing Control Valve     |

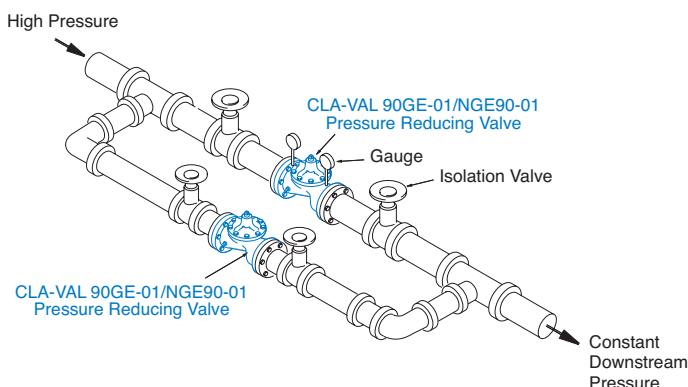
## Optional Features

| Item | Description                       |
|------|-----------------------------------|
| A    | X46A Flow Clean Strainer          |
| C    | CV Flow Control (Closing)*        |
| Y    | X43/80-EP High Capacity Strainer  |
| D    | Check Valves with Isolation Valve |



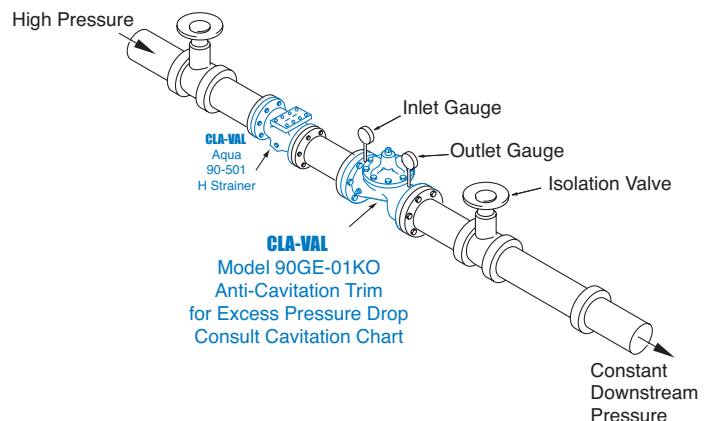
## Typical Applications

Typical applications include pressure reducing valve station using model in parallel to handle wide range of flow rates. Larger model valve meets requirements of peak loads and smaller model handles low flows.



Cla-Val Model NGE90-01KO/90GE-01KO Pressure Reducing Valve with Anti-Cavitation Trim provides for optimum downstream pressure control while reducing noise and eliminating damage associated with cavitation.

See Cavitation Guide to determine if the valve is a candidate for the KO Anti-Cavitation Trim.



## Model 90GE-01 (Uses Basic Valve Model 100GE-01)

### Pressure Ratings (Recommended Maximum Pressure - bar)

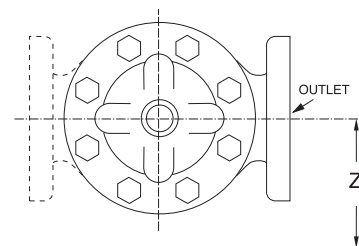
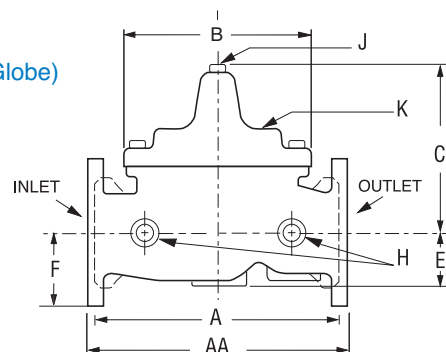
| Valve Body & Cover |              | Pressure Class |      |      |      |             |
|--------------------|--------------|----------------|------|------|------|-------------|
|                    |              | Flanged        |      |      |      | Threaded    |
| Grade              | Material     | PN10           | PN16 | PN25 | PN40 | End Details |
| ASTM A536          | Ductile Iron | 10             | 16   | 25   | 40   | 20          |

### Materials

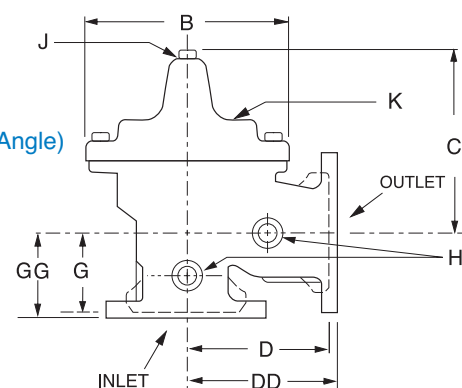
| Component                              | Standard Material Combinations            |
|----------------------------------------|-------------------------------------------|
| Body & Cover                           | Ductile Iron - Fusion Bonded Epoxy coated |
| Available Sizes                        | 32mm - 400mm *                            |
| Disc Retainer & Diaphragm Washer       | Cast Iron - Fusion Bonded Epoxy coated    |
| Trim: Disc Guide, Seat & Cover Bearing | Stainless Steel                           |
| Disc                                   | EPDM                                      |
| Diaphragm                              | Nylon Reinforced EPDM                     |
| Stem, Nut & Spring                     | Stainless Steel                           |
| * See TYTAN range for Larger Sizes     |                                           |

### Dimensions (In mm)

#### 100GE-01 (Globe)



#### 100AE-01 (Angle)



### Model 90GE-01 Dimensions (In mm)

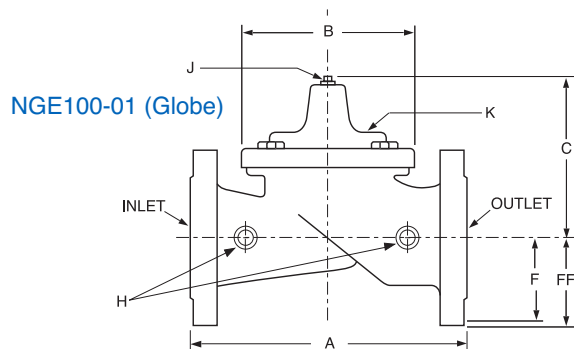
| Valve Size (mm)                                | 32-40 | 50    | 65    | 80     | 100    | 150    | 200    | 250    | 300    | 350    | 400    |
|------------------------------------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>A</b> Threaded                              | 200   | 238   | 280   | 318    | —      | —      | —      | —      | —      | —      | —      |
| <b>AA</b> Flanged                              | 216*  | 254   | 279   | 305    | 381    | 508    | 645    | 756    | 864    | 991    | 1051   |
| <b>AAAA</b> Grooved End                        | 216   | 228   | 279   | 318    | 381    | 508    | 645    | —      | —      | —      | —      |
| <b>B</b> Dia.                                  | 145   | 170   | 205   | 235    | 295    | 400    | 510    | 600    | 712    | 832    | 900    |
| <b>C</b> Max.                                  | 140   | 165   | 192   | 208    | 270    | 340    | 406    | 435    | 530    | 614    | 635    |
| <b>CC</b> Max. Grooved End                     | 120   | 146   | 175   | 184    | 236    | 308    | 371    | —      | —      | —      | —      |
| <b>D</b> Threaded                              | 83    | 121   | 140   | 159    | —      | —      | —      | —      | —      | —      | —      |
| <b>DD</b> Flanged                              | 102*  | 127   | 149   | 162    | 191    | 254    | 324    | 378    | 432    | 495    | 528    |
| <b>DDDD</b> Grooved End                        | —     | 121   | —     | 152    | 191    | —      | —      | —      | —      | —      | —      |
| <b>E</b>                                       | 29    | 38    | 43    | 52     | 81     | 110    | 135    | 235    | 273    | 321    | 394    |
| <b>EE</b> Grooved End                          | 52    | 64    | 73    | 79     | 108    | 152    | 192    | —      | —      | —      | —      |
| <b>F</b>                                       | 75    | 82.5  | 93    | 100    | 110    | 142.5  | 170    | 236    | 274    | 267    | 295    |
| <b>G</b> Threaded                              | 48    | 83    | 102   | 114    | —      | —      | —      | —      | —      | —      | —      |
| <b>GG</b> Flanged                              | 102*  | 89    | 110   | 111    | 126    | 153    | 203    | 219    | 349    | 378    | 398    |
| <b>GGGG</b> Grooved End                        | —     | 83    | —     | 108    | 127    | —      | —      | —      | —      | —      | —      |
| <b>H</b> BSP Body Tapping                      | 3/8   | 3/8   | 1/2   | 1/2    | 3/4    | 3/4    | 1      | 1      | 1      | 1      | 1      |
| <b>J</b> BSP Cover Center Plug                 | 1/4   | 1/2   | 1/2   | 1/2    | 3/4    | 3/4    | 1      | 1      | 1 1/4  | 1 1/2  | 2      |
| <b>K</b> BSP Cover Tapping                     | 3/8   | 3/8   | 1/2   | 1/2    | 3/4    | 3/4    | 1      | 1      | 1      | 1      | 1      |
| <b>Z</b> (Approx Outer Limits of Pilot System) | 150   | 150   | 165   | 203    | 216    | 230    | 285    | 330    | 370    | 400    | 475    |
| Valve Stem Internal Thread UNF                 | 10-32 | 10-32 | 10-32 | 1/4-28 | 1/4-28 | 3/8-24 | 3/8-24 | 3/8-24 | 3/8-24 | 3/8-24 | 1/2-20 |
| Stem Travel                                    | 10    | 15    | 18    | 20     | 28     | 43     | 58     | 71     | 86     | 102    | 114    |
| Approx. Ship Wt. Kgs.                          | 13    | 20    | 25    | 30     | 50     | 95     | 170    | 310    | 470    | 726    | 970    |

## Model NGE90-01 (Uses Basic Valve Model NGE100-01)

## Dimensions (In mm)

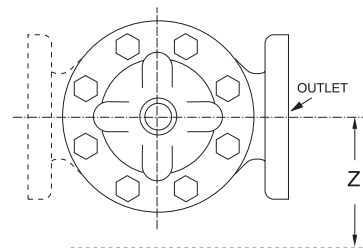
## Pressure Ratings (Recommended Maximum Pressure - bar)

| Valve Body & Cover |              | Pressure Class |      |      |      |             |
|--------------------|--------------|----------------|------|------|------|-------------|
|                    |              | Flanged        |      |      |      | Threaded    |
| Grade              | Material     | PN10           | PN16 | PN25 | PN40 | End Details |
| ASTM A536          | Ductile Iron | 10             | 16   | 25   | 40   | 20          |



## Materials

| Component                              | Standard Material Combinations            |
|----------------------------------------|-------------------------------------------|
| Body & Cover                           | Ductile Iron - Fusion Bonded Epoxy coated |
| Available Sizes                        | 50mm - 600mm *                            |
| Disc Retainer & Diaphragm Washer       | Cast Iron - Fusion Bonded Epoxy coated    |
| Trim: Disc Guide, Seat & Cover Bearing | Stainless Steel                           |
| Disc                                   | EPDM                                      |
| Diaphragm                              | Nylon Reinforced EPDM                     |
| Stem, Nut & Spring                     | Stainless Steel                           |
| * See TYTAN range for Larger Sizes     |                                           |



## Model NGE90-01 Dimensions (In mm)

| Valve Size (mm)                                | 50    | 65    | 80    | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  | 600  |
|------------------------------------------------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|
| <b>A</b>                                       | 230   | 290   | 310   | 350  | 480  | 600  | 730  | 850  | 980  | 1100 | 1200 | 1250 | 1450 |
| <b>B</b> Dia.                                  | 145   | 170   | 170   | 235  | 295  | 400  | 510  | 600  | 712  | 712  | 712  | 900  | 900  |
| <b>C</b> Max.                                  | 136   | 170   | 178   | 219  | 295  | 381  | 454  | 533  | 530  | 654  | 635  | 800  | 800  |
| <b>F</b> PN16                                  | 83    | 93    | 100   | 110  | 143  | 170  | 200  | 228  | 260  | 290  | 325  | 370  | 430  |
| <b>FF</b> PN25                                 | 83    | 93    | 100   | 118  | 150  | 180  | 213  | 243  | 278  | 310  | 335  | 370  | 430  |
| <b>H</b> BSP Body Tapping                      | %     | %     | %     | ½    | ¾    | ¾    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| <b>J</b> BSP Cover Center Plug                 | ½     | ½     | ½     | ½    | ¾    | ¾    | 1    | 1    | 1¼   | 1¼   | 2    | 2    | 2    |
| <b>K</b> BSP Cover Tapping                     | %     | %     | %     | ½    | ¾    | ¾    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| <b>Z</b> (Approx Outer Limits of Pilot System) | 190   | 200   | 200   | 200  | 250  | 270  | 290  | 365  | 400  | 425  | 450  | 520  | 520  |
| Valve Stem Internal Thread UNF                 | 10-32 | 10-32 | 10-32 | ¼-28 | ¼-28 | ¾-24 | ¾-24 | ¾-24 | ¾-24 | ¾-24 | ½-20 | ½-20 | ½-20 |
| Stem Travel                                    | 10    | 15    | 15    | 20   | 28   | 43   | 58   | 71   | 86   | 86   | 86   | 114  | 114  |
| Approx. Ship Wt. Kgs.                          | 15    | 20    | 25    | 39   | 70   | 120  | 190  | 330  | 540  | 640  | 681  | 980  | 1060 |

| Valve Selection                     |                                | These Symbols  and  Indicate Available Sizes |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                     |                                | Inches                                                                                                                                                                                                         | 1¼                                                                                | 1½                                                                                | 2                                                                                 | 2½                                                                                | 3                                                                                 | 4                                                                                 | 6                                                                                 | 8                                                                                  | 10                                                                                  | 12                                                                                  | 14                                                                                  | 16                                                                                  | 18                                                                                  | 20                                                                                  | 24                                                                                  |
|                                     |                                | mm                                                                                                                                                                                                             | 32                                                                                | 40                                                                                | 50                                                                                | 65                                                                                | 80                                                                                | 100                                                                               | 150                                                                               | 200                                                                                | 250                                                                                 | 300                                                                                 | 350                                                                                 | 400                                                                                 | 450                                                                                 | 500                                                                                 | 600                                                                                 |
|                                     |                                | End Detail                                                                                                                                                                                                     | Threaded                                                                          | Threaded & Flanged                                                                |                                                                                   |                                                                                   |                                                                                   | Flanged                                                                           |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Model<br>90GE-01                    | Basic Valve<br>100GE-01        | Globe Pattern                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |  |  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                                     |                                | CV (L/S)                                                                                                                                                                                                       | 7                                                                                 | 8                                                                                 | 13                                                                                | 20                                                                                | 28                                                                                | 48                                                                                | 111                                                                               | 185                                                                                | 299                                                                                 | 414                                                                                 | 552                                                                                 | 706                                                                                 |                                                                                     |                                                                                     |                                                                                     |
|                                     |                                | Angle Pattern                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                     |                                                                                     |                                                                                     |
|                                     |                                | CV (L/S)                                                                                                                                                                                                       | 6                                                                                 | 7                                                                                 | 16                                                                                | 24                                                                                | 33                                                                                | 57                                                                                | 130                                                                               | 238                                                                                | 378                                                                                 | 601                                                                                 | 734                                                                                 | 1009                                                                                |                                                                                     |                                                                                     |                                                                                     |
|                                     | Suggested Flow<br>(M³/hr)      | Max. Continuous                                                                                                                                                                                                | 21.6                                                                              | 29                                                                                | 43                                                                                | 72                                                                                | 108                                                                               | 173                                                                               | 389                                                                               | 702                                                                                | 1080                                                                                | 1548                                                                                | 2088                                                                                | 2736                                                                                |                                                                                     |                                                                                     |                                                                                     |
|                                     |                                | Max. Intermittent                                                                                                                                                                                              | 27.36                                                                             | 34                                                                                | 54                                                                                | 90                                                                                | 137                                                                               | 216                                                                               | 482                                                                               | 864                                                                                | 1350                                                                                | 1944                                                                                | 2628                                                                                | 3456                                                                                |                                                                                     |                                                                                     |                                                                                     |
|                                     |                                | Min. Continuous                                                                                                                                                                                                | 2                                                                                 | 2                                                                                 | 3                                                                                 | 5                                                                                 | 7                                                                                 | 12                                                                                | 26                                                                                | 47                                                                                 | 68                                                                                  | 90                                                                                  | 115                                                                                 | 148                                                                                 |                                                                                     |                                                                                     |                                                                                     |
|                                     | Suggested Flow<br>(Litres/Sec) | Max. Continuous                                                                                                                                                                                                | 6                                                                                 | 8                                                                                 | 12                                                                                | 20                                                                                | 30                                                                                | 48                                                                                | 108                                                                               | 195                                                                                | 300                                                                                 | 430                                                                                 | 580                                                                                 | 760                                                                                 |                                                                                     |                                                                                     |                                                                                     |
|                                     |                                | Max. Intermittent                                                                                                                                                                                              | 7.6                                                                               | 9.5                                                                               | 15                                                                                | 25                                                                                | 38                                                                                | 60                                                                                | 134                                                                               | 240                                                                                | 375                                                                                 | 540                                                                                 | 730                                                                                 | 960                                                                                 |                                                                                     |                                                                                     |                                                                                     |
|                                     |                                | Min. Continuous                                                                                                                                                                                                | 0.4                                                                               | 0.4                                                                               | 0.6                                                                               | 1.3                                                                               | 1.9                                                                               | 3.2                                                                               | 7.2                                                                               | 13                                                                                 | 19                                                                                  | 25                                                                                  | 32                                                                                  | 41                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Contact Factory for Sizes not Shown |                                |                                                                                                                                                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Model<br>NGE90-01                   | Basic Valve<br>NGE100-01       | Globe Pattern                                                                                                                                                                                                  |                                                                                   |                                                                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                     |                                | CV (L/S)                                                                                                                                                                                                       |                                                                                   |                                                                                   | 9                                                                                 | 12                                                                                | 16                                                                                | 33                                                                                | 58                                                                                | 133                                                                                | 222                                                                                 | 359                                                                                 | 455                                                                                 | 497                                                                                 | 575                                                                                 | 847                                                                                 | 895                                                                                 |
|                                     | Suggested Flow<br>(M³/hr)      | Max. Continuous                                                                                                                                                                                                |                                                                                   |                                                                                   | 36                                                                                | 61                                                                                | 90                                                                                | 144                                                                               | 316                                                                               | 565                                                                                | 882                                                                                 | 1271                                                                                | 1732                                                                                | 2261                                                                                | 3535                                                                                | 3535                                                                                | 5090                                                                                |
|                                     |                                | Min. Continuous                                                                                                                                                                                                |                                                                                   |                                                                                   | 2.1                                                                               | 3.2                                                                               | 3                                                                                 | 7                                                                                 | 12                                                                                | 26                                                                                 | 47                                                                                  | 68                                                                                  | 115                                                                                 | 115                                                                                 | 205                                                                                 | 205                                                                                 | 205                                                                                 |
|                                     | Suggested Flow<br>(Litres/Sec) | Max. Continuous                                                                                                                                                                                                |                                                                                   |                                                                                   | 10                                                                                | 17                                                                                | 25                                                                                | 40                                                                                | 88                                                                                | 157                                                                                | 245                                                                                 | 353                                                                                 | 481                                                                                 | 620                                                                                 | 982                                                                                 | 982                                                                                 | 1414                                                                                |
|                                     |                                | Min. Continuous                                                                                                                                                                                                |                                                                                   |                                                                                   | 0.6                                                                               | 0.9                                                                               | .9                                                                                | 1.9                                                                               | 3.2                                                                               | 7.2                                                                                | 13                                                                                  | 19                                                                                  | 32                                                                                  | 32                                                                                  | 57                                                                                  | 57                                                                                  | 57                                                                                  |

NGE90-01 is the reduced internal port size version of the 90GE-01.

\*\*Flanged End Detail Only

The flow coefficient CV, expressed as l/s is the flow which produces a 1 bar pressure drop across the fully open valve at a water temperature of 15 °C.

For 100GE-01 basic valves, suggested flow calculations were based on flow through Schedule 40 Pipe. Maximum continuous flow is approx. 6.1 meters/sec & maximum intermittent is approx. 7.6 meters/sec and minimum continuous flow is approx. .3 meters/sec. For NGE100-01 basic valves, suggested flow calculations were based on flow through the valve. Approx. 5.0 meters/sec was used for maximum continuous flow & .3 meters/sec is used for minimum continuous flow.

Many factors should be considered in sizing pressure reducing valves including inlet pressure, outlet pressure and flow rates. For sizing questions or cavitation analysis, consult Cla-Val with system details.

## Pilot System Specifications

### Adjustment Ranges

|     |    |           |
|-----|----|-----------|
| 0.1 | to | 2.0 bar   |
| 1.0 | to | 5.3 bar   |
| 1.4 | to | 7.2 bar * |
| 2.1 | to | 21.0 bar  |

\*Supplied unless otherwise specified

Other ranges available, please consult factory

### Temperature Range

Water: to 65°C

### Materials

#### Standard Pilot System Materials

Pilot Control: Bronze ASTM B62

Trim: Stainless Steel Type 303

Rubber: Buna-N® Synthetic Rubber

Tubing and Fittings: Stainless Steel

#### Optional Pilot System Materials

Pilot Systems are available with optional Aluminum, Stainless Steel or Monel materials at additional cost.

Note: Available with remote sensing control.

## When Ordering, Please Specify

1. Catalog No. 90GE-01 or No. NGE90-01
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. Trim Material
7. Adjustment Range
8. Desired Options
9. When Vertically Installed



## CLA-VAL

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