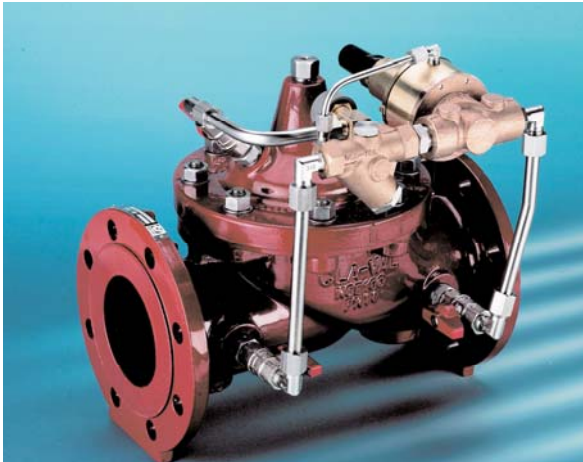




50GE-01
(Full Internal Port)
NGE50-01
(Reduced Internal Port)

CLA-VAL™ Pressure Relief & Pressure Sustaining Valve



- Accurate Pressure Control
- Optional Check Feature
- Fast Opening to Maintain Line Pressure
- Slow Closing to Prevents Surges
- Completely Automatic Operation

The Cla-Val Model 50GE-01/NGE50-01 Pressure Relief Valve is a hydraulically operated, pilot-controlled, modulating valve designed to maintain constant upstream pressure within close limits. This valve can be used for pressure relief, pressure sustaining, back pressure, or unloading functions in a by-pass system.

In operation, the valve is actuated by line pressure through a pilot control system, opening fast to maintain steady line pressure but closing gradually to prevent surges. Operation is completely automatic and pressure settings may be easily changed.

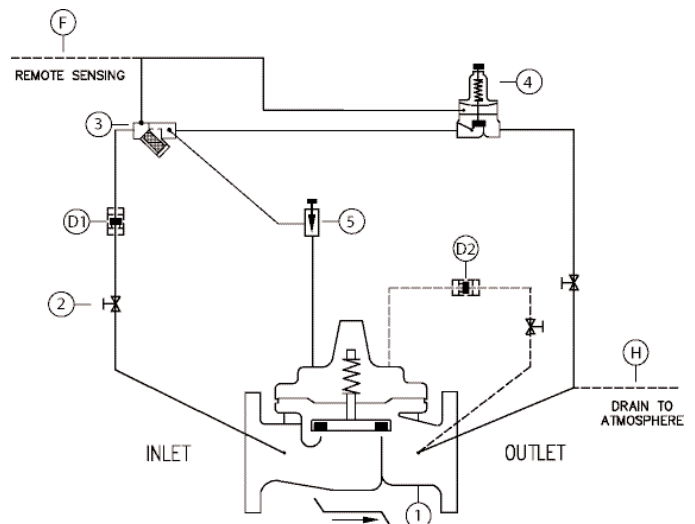
If a check feature is added, and a pressure reversal occurs, the downstream pressure is admitted into the main valve cover chamber, closing the valve to prevent return flow.

Schematic Diagram

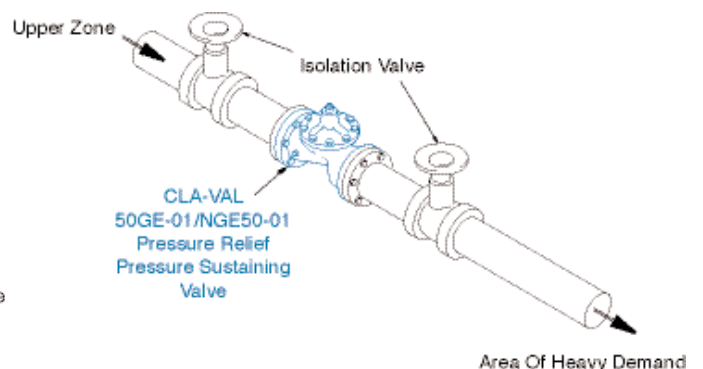
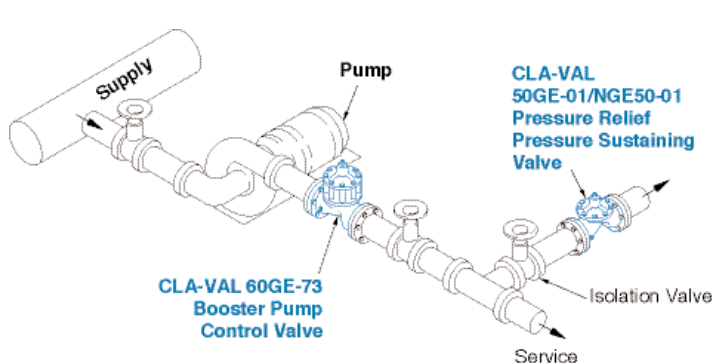
| Item | Description |
|------|-------------------------------|
| 1 | Hytrol (Main Valve) |
| 2 | RB117 Isolation Valves |
| 3 | X44A Strainer & Fixed Orifice |
| 4 | CRL Pressure Relief Control |
| 5 | 6120 Needle Valve |

Optional Features

| Item | Description |
|------|-----------------------------------|
| D | Check Valves with Isolation Valve |
| F | Remote Pilot Sensing |
| H | Drain to Atmosphere |



Typical Applications



Pressure Relief Service

This fast opening, slow closing relief valve provides system protection against high pressure surges on pump start up and pump shut down by dissipating the excess pressure to a safe location.

Pressure Sustaining Service

When installed in a line between an upper zone and a lower area of heavy demand, the valve acts to maintain desired upstream pressure to prevent "robbing" of the upper zone. Water in excess of pressure setting is allowed to flow to an area of heavy demand, control is smooth, and pressure regulation is positive.



Model 50GE-01 (Uses Basic Valve Model 100GE-01)

Pressure Ratings (Recommended Maximum Pressure - bar)

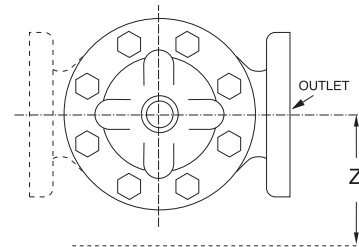
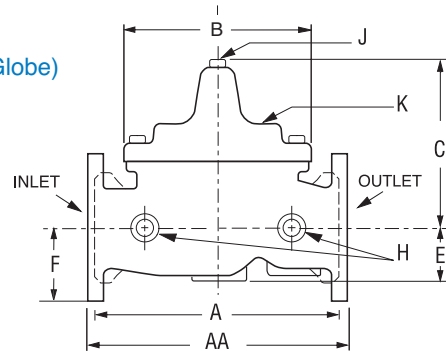
| Valve Body & Cover | | Pressure Class | | | | |
|--------------------|--------------|----------------|------|------|------|-------------|
| | | Flanged | | | | Threaded |
| Grade | Material | PN10 | PN16 | PN25 | PN40 | End Details |
| ASTM A536 | Ductile Iron | 10 | 16 | 25 | 40 | 20 |

Materials

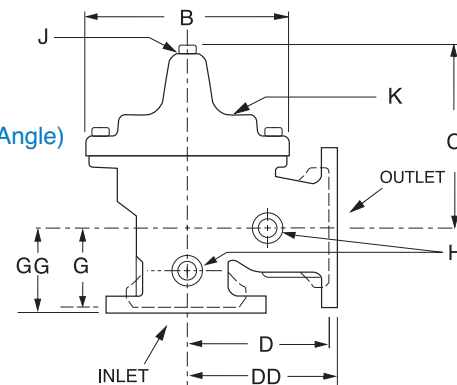
| Component | Standard Material Combinations |
|--|---|
| Body & Cover | Ductile Iron - Fusion Bonded Epoxy coated |
| Available Sizes | 32mm - 400mm * |
| Disc Retainer & Diaphragm Washer | Cast Iron - Fusion Bonded Epoxy coated |
| Trim: Disc Guide, Seat & Cover Bearing | Stainless Steel |
| Disc | 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 50GE-01 Dimensions (In mm)

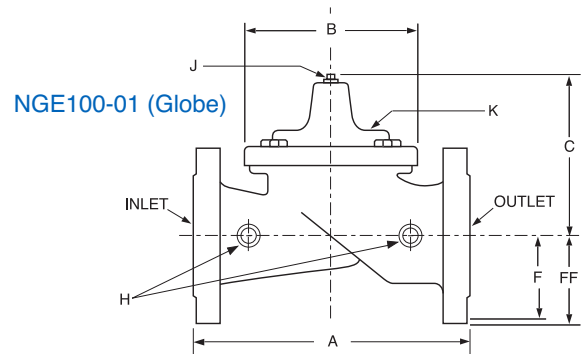
| Valve Size (mm) | 32-40 | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 |
|--|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| A Threaded | 200 | 238 | 280 | 318 | — | — | — | — | — | — | — |
| AA Flanged | 216* | 254 | 279 | 305 | 381 | 508 | 645 | 756 | 864 | 991 | 1051 |
| AAAA Grooved End | 216 | 228 | 279 | 318 | 381 | 508 | 645 | — | — | — | — |
| B Dia. | 145 | 170 | 205 | 235 | 295 | 400 | 510 | 600 | 712 | 832 | 900 |
| C Max. | 140 | 165 | 192 | 208 | 270 | 340 | 406 | 435 | 530 | 614 | 635 |
| CC Max. Grooved End | 120 | 146 | 175 | 184 | 236 | 308 | 371 | — | — | — | — |
| D Threaded | 83 | 121 | 140 | 159 | — | — | — | — | — | — | — |
| DD Flanged | 102* | 127 | 149 | 162 | 191 | 254 | 324 | 378 | 432 | 495 | 528 |
| DDDD Grooved End | — | 121 | — | 152 | 191 | — | — | — | — | — | — |
| E | 29 | 38 | 43 | 52 | 81 | 110 | 135 | 235 | 273 | 321 | 394 |
| EE Grooved End | 52 | 64 | 73 | 79 | 108 | 152 | 192 | — | — | — | — |
| F | 75 | 82.5 | 93 | 100 | 110 | 142.5 | 170 | 236 | 274 | 267 | 295 |
| G Threaded | 48 | 83 | 102 | 114 | — | — | — | — | — | — | — |
| GG Flanged | 102* | 89 | 110 | 111 | 126 | 153 | 203 | 219 | 349 | 378 | 398 |
| GGGG Grooved End | — | 83 | — | 108 | 127 | — | — | — | — | — | — |
| H BSP Body Tapping | 3/8 | 3/8 | 1/2 | 1/2 | 3/4 | 3/4 | 1 | 1 | 1 | 1 | 1 |
| J 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 |
| K BSP Cover Tapping | 3/8 | 3/8 | 1/2 | 1/2 | 3/4 | 3/4 | 1 | 1 | 1 | 1 | 1 |
| Z (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 NGE50-01 (Uses Basic Valve Model NGE100-01)

Dimensions
(In mm)

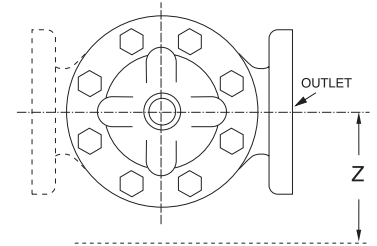
Pressure Ratings (Recommended Maximum Pressure - bar)

| 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 NGE50-01 Dimensions (In mm)

| Valve Size (mm) | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 |
|--|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| A | 230 | 290 | 310 | 350 | 480 | 600 | 730 | 850 | 980 | 1100 | 1200 | 1250 | 1450 |
| B Dia. | 145 | 170 | 170 | 235 | 295 | 400 | 510 | 600 | 712 | 712 | 712 | 900 | 900 |
| C Max. | 136 | 170 | 178 | 219 | 295 | 381 | 454 | 533 | 530 | 654 | 635 | 800 | 800 |
| F PN16 | 83 | 93 | 100 | 110 | 143 | 170 | 200 | 228 | 260 | 290 | 325 | 370 | 430 |
| FF PN25 | 83 | 93 | 100 | 118 | 150 | 180 | 213 | 243 | 278 | 310 | 335 | 370 | 430 |
| H BSP Body Tapping | 3/8" | 3/8" | 3/8" | 1/2" | 3/4" | 3/4" | 1" | 1" | 1" | 1" | 1" | 1" | 1" |
| J BSP Cover Center Plug | 1/2" | 1/2" | 1/2" | 1/2" | 3/4" | 3/4" | 1" | 1" | 1 1/4" | 1 1/4" | 2" | 2" | 2" |
| K BSP Cover Tapping | 3/8" | 3/8" | 3/8" | 1/2" | 3/4" | 3/4" | 1" | 1" | 1" | 1" | 1" | 1" | 1" |
| Z (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 | 1/4-28 | 1/4-28 | 3/8-24 | 3/8-24 | 3/8-24 | 3/8-24 | 3/8-24 | 3/8-24 | 1/2-20 | 1/2-20 |
| 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 50GE-01 | Basic Valve 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 (M³/hr) | Max. Continuous | 21.6 | 29 | 43 | 72 | 108 | 173 | 389 | 702 | 1080 | 1548 | 2088 | 2736 | | | | |
| | | Max. Surge | 32 | 47 | 72 | 122 | 184 | 284 | 641 | 1134 | 1764 | 2556 | 3456 | 4536 | | | | |
| | Suggested Flow (Litres/Sec) | Max. Continuous | 6 | 8 | 12 | 20 | 30 | 48 | 108 | 195 | 300 | 430 | 580 | 760 | | | | |
| | | Max. Surge | 9 | 13 | 20 | 34 | 51 | 79 | 178 | 315 | 490 | 710 | 960 | 1260 | | | | |
| | Contact Factory for Sizes not Shown | | | | | | | | | | | | | | | | | |
| | Model NGE50-01 | Basic Valve NGE100-01 | Globe Pattern | | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CV (L/S) | | | | | 9 | 12 | 16 | 33 | 58 | 133 | 222 | 359 | 455 | 497 | 575 | 847 | 895 | |
| Suggested Flow (M³/hr) | | Max. Continuous | | | 36 | 61 | 90 | 144 | 316 | 565 | 882 | 1271 | 1732 | 2261 | 3535 | 3535 | 5090 | |
| | | Max. Surge | | | 67 | 85 | 101 | 198 | 482 | 950 | 1584 | 2394 | 2880 | 3852 | 5112 | 5112 | 6984 | |
| Suggested Flow (Litres/Sec) | | Max. Continuous | | | 10 | 17 | 25 | 40 | 88 | 157 | 245 | 353 | 481 | 620 | 982 | 982 | 1414 | |
| | | Max. Surge | | | 18.5 | 23.5 | 28 | 55 | 134 | 264 | 440 | 665 | 800 | 1070 | 1420 | 1420 | 1940 | |

NGE50-01 is the reduced internal port size version of the 50GE-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 surge is approx. 10 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 & maximum surge is approx. 10 metres/sec.

Many factors should be considered in sizing pressure relief / sustaining 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 5.3 bar
1.4 to 14.0 bar *
7.0 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. 50GE-01 or No. NGE50-01
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



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