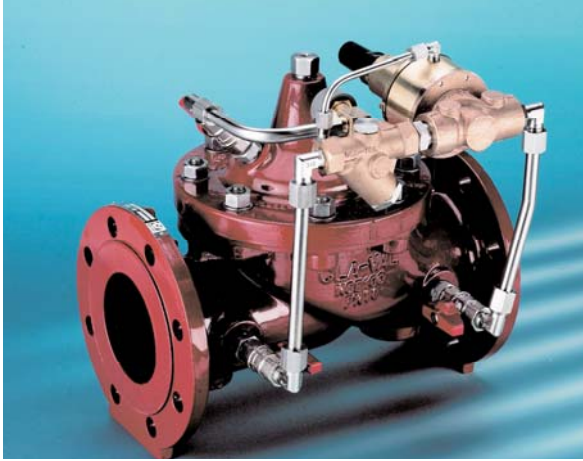




**50GE-01**  
(Full Internal Port)  
**NGE50-01**  
(Reduced Internal Port)

# 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.

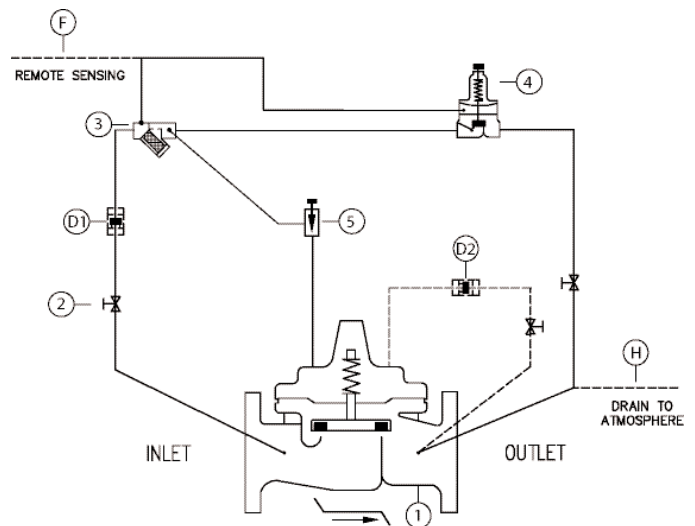
If a check feature is added, and a pressure reversal occurs, the downstream pressure is admitted into the main valve cover chamber, closing the valve to prevent return flow.

## Schematic Diagram

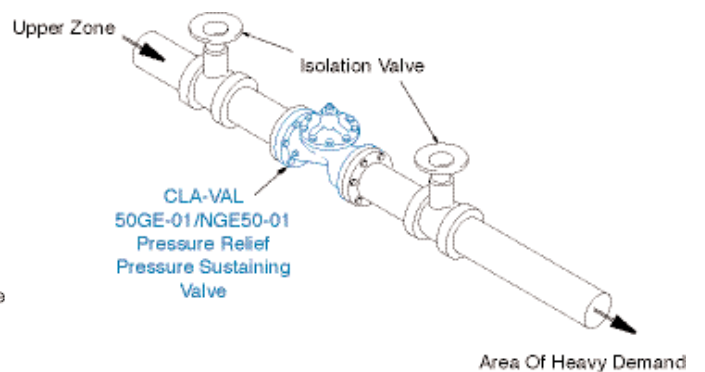
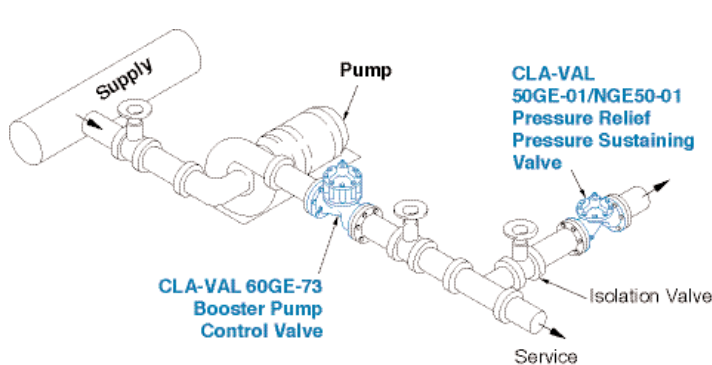
Item	Description
1	Hytrol (Main Valve)
2	RB117 Isolation Valves
3	X44A Strainer & Fixed Orifice
4	CRL Pressure Relief Control
5	6120 Needle Valve

## 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)

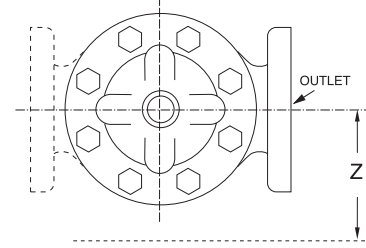
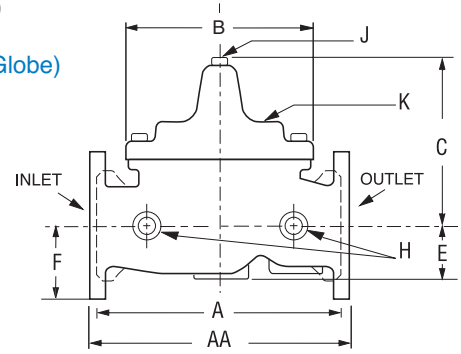
Valve Body & Cover		Pressure Class				
		Flanged				Threaded
Grade	Material	PN10	PN16	PN25	PN40	End Details
ASTM A536	Ductile Iron	10	16	25	40	20

### Materials

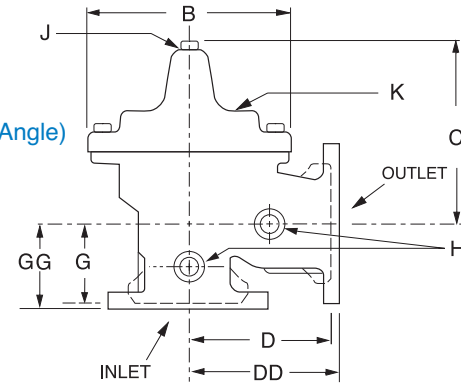
Component	Standard Material Combinations
Body & Cover	Ductile Iron - Fusion Bonded Epoxy coated
Available Sizes	32mm - 400mm *
Disc Retainer & Diaphragm Washer	Cast Iron - Fusion Bonded Epoxy coated
Trim: Disc Guide, Seat & Cover Bearing	Stainless Steel
Disc	EPDM
Diaphragm	Nylon Reinforced EPDM
Stem,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

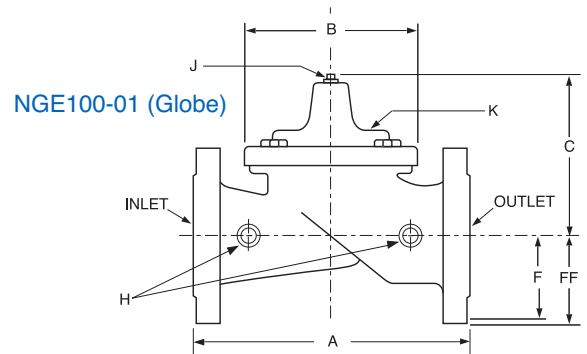
Valve Size (mm)	32-40	50	65	80	100	150	200	250	300	350	400
<b>A</b> Threaded	200	238	280	318	—	—	—	—	—	—	—
<b>AA</b> Flanged	216*	254	279	305	381	508	645	756	864	991	1051
<b>AAAA</b> Grooved End	216	228	279	318	381	508	645	—	—	—	—
<b>B</b> Dia.	145	170	205	235	295	400	510	600	712	832	900
<b>C</b> Max.	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 NGE50-01** (Uses Basic Valve Model NGE100-01)

**Dimensions**  
(In mm)

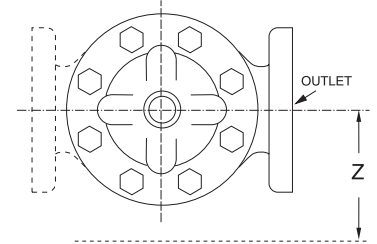
**Pressure Ratings** (Recommended Maximum Pressure - bar)

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	
<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	3/8	3/8	3/8	1/2	3/4	3/4	1	1	1	1	1	1	1	
<b>J</b> 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	
<b>K</b> BSP Cover Tapping	3/8	3/8	3/8	1/2	3/4	3/4	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	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	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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