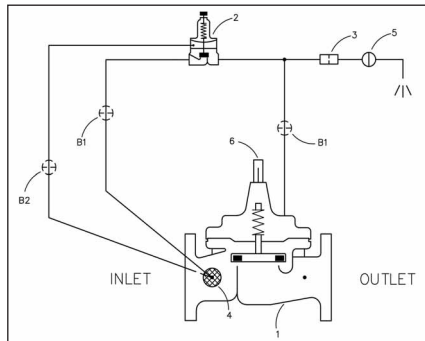




— MODEL — **50-33**

Excess Pressure Safety Shut-Off Valve



- **Automatic Operation Adds Safety to Pressure Reducing Valve (PRV) Rigs**
- **Easy Adjustment and Maintenance**
- **Optional BMS Fail Signal**
- **Manual Reset Feature**

The Cla-Val 50-33 Excess Pressure Safety Shut-Off Valve (XPSV) automatically protects the downstream distribution piping and fixtures or municipal systems from experiencing excess unsafe pressures in the event that outlet pressure of the high flow PRV rises above an acceptable level. Typically, the XPSV is set 10-15 psi higher than the PRV setpoint.

In operation, when the PRV discharge pressure is as set, the XPSV is fully open. When the PRV outlet pressure rises above normal, the XPSV will begin close to isolate the excess pressure from the downstream piping. Operation is completely automatic and may be easily field adjusted.

For reduced port valve applications, use Cla-Val Model 650-33.

Schematic Diagram

Item Description

- 1 Hytrol 100-01 Main Valve Reverse Flow
- 2 CRL/CRL-60 Pressure Relief Control
- 3 X58A Restriction Assembly
- 4 X46A Flow Clean Strainer
- 5 CK2 Manual Reset Control
- 6 X101 Valve Position Indicator

Optional Features

Item Description

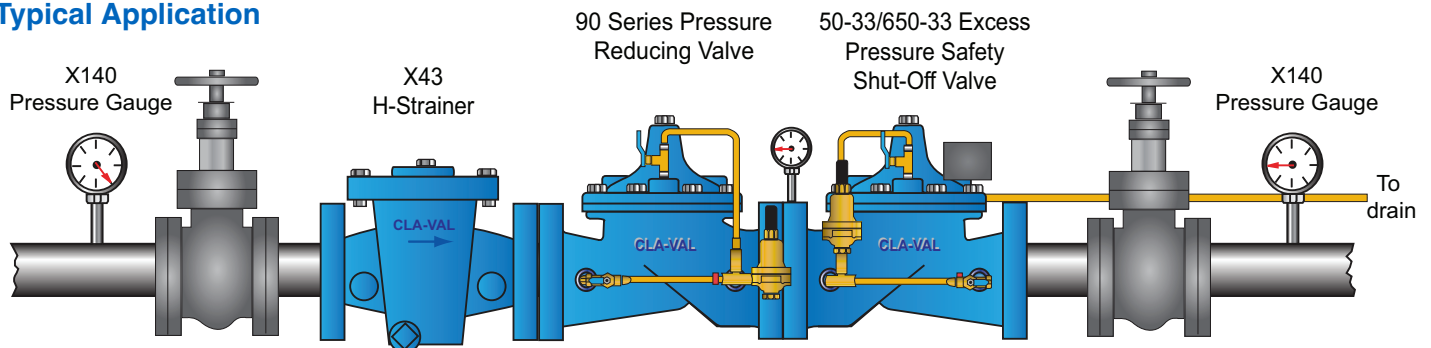
- B CK2 Isolation Valve

Application Overview

Water systems that serve critical fixtures and require uninterrupted water service should be designed with the added security of the Excess Pressure Safety Shut-Off Valve. Careful review of the system flow requirements, and need for PRV redundancy, should be considered when determining the optimum PRV Station design. When seeking the highest reliability for the PRV Station, careful consideration of the valve construction materials is important.

A Fail Switch Option provides contact closure for remote (BMS) indication of an event that requires operator attention. If the PRV Station is located in an area where an adequate drain is not available, a Dry Drain option should be considered. The hydraulic conditions must be taken into account when specifying the Model 50-33 Excess Pressure Safety Shut-Off Valve.

Typical Application



Application Details

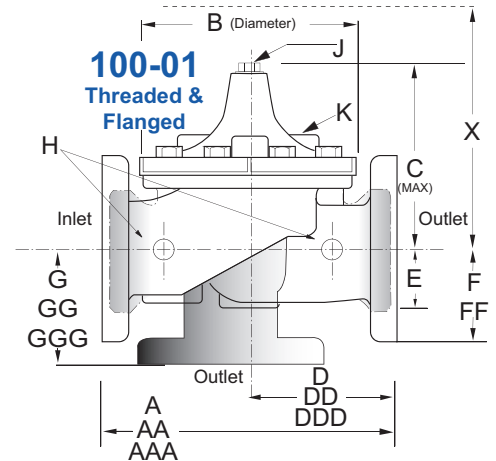
- Discharge to atmosphere or to contractor supplied drain piping
- Redundant design with parallel installation is suggested for commercial applications where uninterrupted service is required
- For larger sizes, please consult the factory at 800.942.6326 or info@cla-val.com

Model 50-33 (Uses Hytrol Main Valve 100-01)

Pressure Ratings (Recommended Maximum Pressure - psi)

Valve Body & Cover		Pressure Class				
		Flanged			Grooved	Threaded
Grade	Material	ANSI Standards*	150 Class	300 Class	300 Class	End† Details
ASTM A536	Ductile Iron	B16.42	250	400	400	400
ASTM A216-WCB	Cast Steel	B16.5	285	400	400	400
UNS 87850	Bronze	B16.24	225	400	400	400

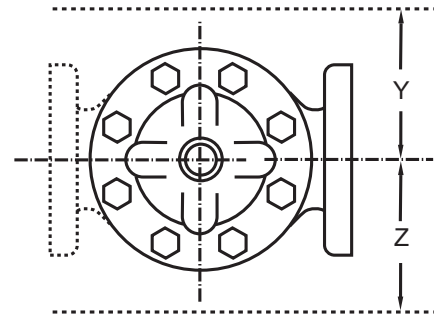
Note: * ANSI standards are for flange dimensions only.
 Flanged valves are available faced but not drilled.
 † End Details machined to ANSI B2.1 specifications.
Valves for higher pressure are available; consult factory for details



Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	25 - 200mm	25 - 200mm	25 - 200mm
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze
Trim: Disc Guide, Seat & Cover Bearing	Bronze is Standard Stainless Steel is Optional		
Disc	Buna-N® Rubber		
Diaphragm	Nylon Reinforced Buna-N® Rubber		
Stem, Nut & Spring	Stainless Steel		

For material options not listed, consult factory.
 Cla-Val manufactures valves in more than 50 different alloys.



Model 50-33 Dimensions (in mm)

Valve Size (mm)	25	32	40	50	65	80	100	150	200
A Threaded	184	184	184	238	279	318	—	—	—
AA 150 ANSI	—	—	216	238	279	305	381	508	645
AAA 300 ANSI	—	—	229	254	295	337	397	533	670
AAAA Grooved End	—	—	216	228	279	318	381	508	645
B Diameter	143	143	143	168	203	232	292	400	508
C Maximum	140	140	140	165	192	208	270	340	406
CC Maximum Grooved End	—	—	120	146	175	184	236	308	371
D Threaded	83	83	83	121	140	159	—	—	—
DD 150 ANSI	—	—	102	121	140	152	191	254	322
DDD 300 ANSI	—	—	108	127	149	162	200	267	337
DDDD Grooved End	—	—	—	121	—	152	191	—	—
E	29	29	29	38	43	52	81	110	135
EE Grooved End	—	—	52	64	73	79	108	152	192
F 150 ANSI	—	—	64	76	89	95	114	140	171
FF 300 ANSI	—	—	78	83	95	105	127	159	191
G Threaded	48	48	48	83	102	114	—	—	—
GG 150 ANSI	—	—	102	83	102	102	127	152	203
GGG 300 ANSI	—	—	102	89	110	111	135	165	216
GGGG Grooved End	—	—	—	83	—	108	127	—	—
H NPT Body Tapping	0.375	0.375	0.375	0.375	0.50	0.50	0.75	0.75	1.00
J NPT Cover Center Plug	0.25	0.25	0.25	0.50	0.50	0.50	0.75	0.75	1.00
K NPT Cover Tapping	0.375	0.375	0.375	0.375	0.50	0.50	0.75	0.75	1.00
Stem Travel	10	10	10	15	18	20	28	43	58
Approx. Ship Weight (kgs)	7	7	7	16	23	32	64	129	227
Approx. X Pilot System	280	280	280	331	356	381	432	737	788
Approx. Y Pilot System	229	229	229	229	254	280	305	508	559
Approx. Z Pilot System	229	229	229	229	254	280	305	508	559

Valve Selection Guide

50-33 Valve Selection	Inches	1	1¼	1½	2	2½	3	4	6	8
	mm	25	32	40	50	65	80	100	150	200
Main Valve 100-01	Pattern	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A
	End Detail	T	T	T, F, GR*	T, F, GR*	T, F, GR*	T, F, GR*	T, F, GR*	T, F, GR*	F, Gr*
Suggested Flow (gpm)	Maximum	55	93	125	210	300	460	800	1800	3100
Suggested Flow (Liters/Sec)	Maximum	3.5	6	8	13	19	29	50	113	195

Notes

Full Port Valves:

- 100-01 Pattern: Globe, Angle

End Connections:

- * Flanged • Threaded • Grooved (Globe only)

Pressure Classes:

- 150 and 300

Pilot System Specifications

Adjustment Ranges

0 to 75 psi Max.

20 to 105 psi

20 to 200 psi *

100 to 300 psi

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

Temperature Range

Water: to 180°F

Materials

Standard Pilot System Materials

Pilot Control: Low Lead Bronze

Trim: Stainless Steel Type 303

Rubber: Buna-N® Synthetic Rubber

Tubing & Fitting: Copper and Bronze

Optional Pilot System Materials

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



CRL Pilot

The Model CRL is normally held closed by the force of the compression spring above the diaphragm. Control pressure is applied under the diaphragm. When the controlling pressure exceeds the spring setting, the disc is lifted off its seat, permitting flow through the control. When control pressure drops below the spring setting, the spring forces the control back to its normally closed position. The controlling pressure is applied to the chamber beneath the diaphragm through a sensing port on the CRL Pilot Control.



CRL-60 Pilot

The CRL-60 is normally held closed by the force of the compression spring above the diaphragm. Control pressure is applied under the diaphragm. When the controlling pressure exceeds the spring setting, the disc is lifted off its seat, permitting flow through the control. When control pressure drops below the spring setting, the spring forces the control back to its normally closed position. The controlling pressure is applied to the chamber beneath the diaphragm through a sensing port on the CRL-60 Pilot Control.

Model 50-33 Purchase Specification Summary*

INTRODUCTION

This specification covers the design, manufacture, and testing of 1 in. (25 mm) through 8 in. (200 mm) Control Valves

GENERAL

1. Standard products - use the same manufacturer for multiple units of same type.
2. "Tying" of equipment into packages for the purpose of thwarting competition shall be considered to be in non-compliance with these specifications.
3. Manufacturers shall price items under different subsections or sections separately.

EXCESS PRESSURE SAFETY SHUT-OFF CONTROL VALVE FUNCTION

The Excess Pressure Safety Shut-Off Valve shall automatically protect critical downstream distribution piping, fixtures or municipal systems from experiencing excess and unsafe pressures; in the event that outlet pressure of the high flowing Pressure Reducing Control Valve rises above an acceptable level. The Excess Pressure Safety Shut-Off Valve shall be installed downstream from and is typically set 10-15 psi higher than the set point of the Pressure Reducing Control Valve. When the Pressure Reducing Control Valve discharge pressure is maintaining its set point, the Excess Pressure Safety Shut-Off Valve shall remain fully open. When the Pressure Reducing Control Valve outlet pressure rises above normal, the Excess Pressure Safety Shut-Off Valve will begin closing to isolate the excess pressure from the downstream piping. Excess Pressure Safety Shut-Off Valve shall be easily field adjusted.

- Please visit www.cla-val.com for the complete 50-33 Purchase Specification.

Component	Material	Options
Body & Cover	Ductile Iron-ASTM A536	Cast Steel or Bronze
Main Valve Trim	Stainless Steel	Other Materials Available
Seat	Stainless Steel	Other Materials Available
Stem, Nut & Spring	Stainless Steel	- - -
Seal Disc	Buna-N [®] Rubber	- - -
Diaphragm	Nylon Reinforced Buna-N [®] Rubber	Other Materials Available
Internal Trim Parts	Stainless Steel • Bronze • Brass	
End Detail	Flanged (1-1/2" - 36")	
	Threaded (1" - 3")	
	Grooved (1-1/2" - 8")	
Pressure Rating	Class 150 lb. (250 psi Max) • Class 300 lb. (400 psi Max)	
Temperature Range	Water to 180° F <i>Consult factory for hot water applications.</i>	
Any other wetted metallic parts	Stainless Steel • Bronze • Brass	
Coating	NSF/ANSI 61 Fusion Bonded Epoxy (Interior and Exterior)	
Optional Accessories	Position Indicator; Limit Switch; Opening & Closing Speed Controls; Check Feature; Isolation Valves; Gauges; Anti-Cavitation Trim, etc.	

When Ordering, Please Specify:

1. Catalog No. 50-33
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