



MODEL 690-72 Pressure Reducing Valve with Low Flow By-Pass



- **Modulating Control**
- **Maintains Constant Outlet Pressure Over a Wide Range of Flows**
- **Durable Construction**
- **Convenient and Space Saving**

The Cla-Val Model 690-72 Pressure Reducing Valve with Low Flow By-Pass automatically reduces a higher inlet pressure to a steady lower downstream pressure, regardless of changing flow rate. The low flow by-pass capability is achieved by using the Cla-Val Model CRD-L Direct Acting Pressure Reducing Valve as an integral part of the main valve. By doing this, space is saved and installation and maintenance become much easier.

The pressure reducing valve is hydraulically operated and controlled by a Cla-Val CRD pilot control, which senses pressure at the main valve outlet. An increase in outlet pressure forces the CRD pilot control to close and a decrease in outlet pressure opens the control. This causes the main valve cover pressure to vary, modulating the main valve, thereby, maintaining constant outlet pressure.

The Cla-Val Model CRD-L in the low flow pressure reducing bypass is set to a higher pressure than the CRD pilot control. The 990 responds to pressure changes at the main valve outlet. When the CRD closes, the CRD-L remains open, allowing low flow to by-pass the main valve. The CRD-L closes when the flow decreases and the downstream pressure reaches its set-point.

The Cla-Val Model 690-72 is not a substitute for a low flow bypass valve in all cases. This valve is commonly used in buildings where 1-15 gpm low flows are common in off peak usage. The bypass on this valve is limited to the body tapping size on the main valve.

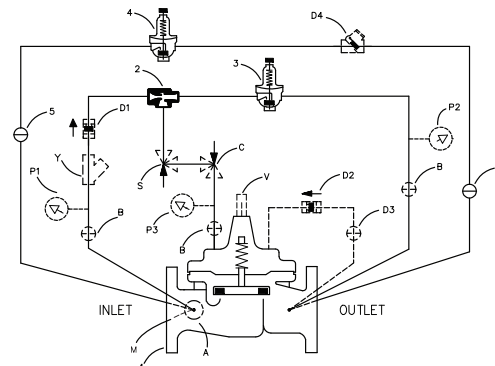
Schematic Diagram

Item	Description
1	100-20 Hytrol Main Valve
2	X47A Ejector
3	CRD Pressure Reducing Control
4	CRD-L Pressure Reducing Valve
5	CK2 Isolation Valve

Optional Features

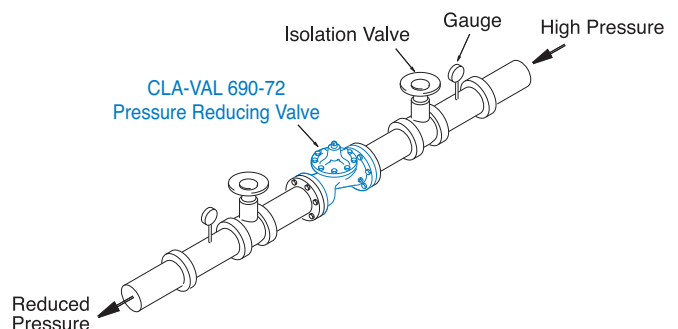
Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CV Flow Control (Closing)*
D	Check Valves with Isolation Valve
M	X144 e-FlowMeter
P	X141 Pressure Gauge
S	CV Speed Control (Opening)*
V	X101 Valve Position Indicator
Y	X43 "Y" Strainer

*The optional closing speed control on this valve should always be open at least three (3) turns off its seat.



Typical Applications

This valve has the flexibility to be installed in a distribution system where the demand varies over a wide range. This frequently occurs in industrial, residential, educational, high-rise buildings and other applications. Another important feature of the valve is its space efficient configuration, allowing easy installation and maintenance.

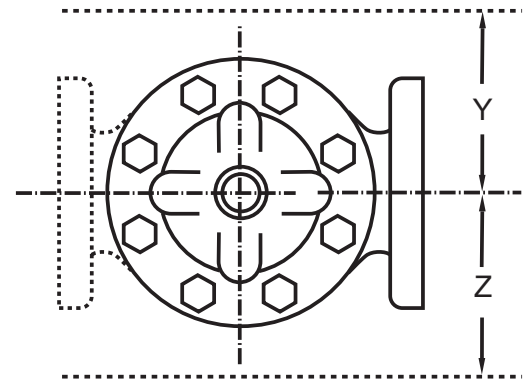
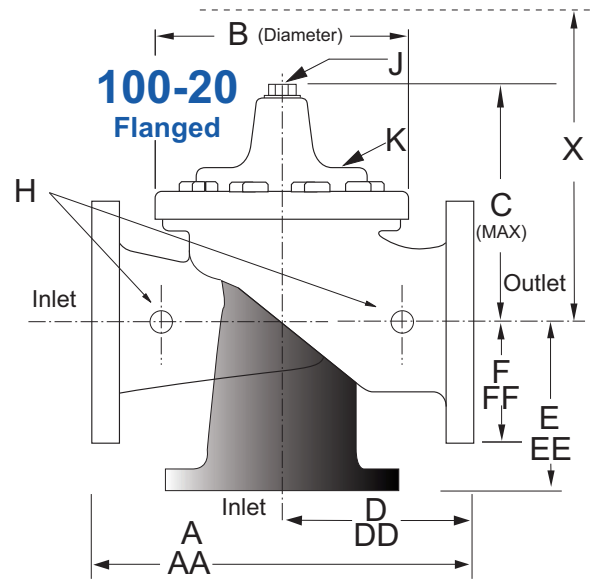


Model 690-72 (Uses 100-20 Hytrol Main Valve)

Pressure Ratings (Recommended Maximum Pressure - psi)

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

Note: * ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
Valves for higher pressure are available; consult factory for details



Materials

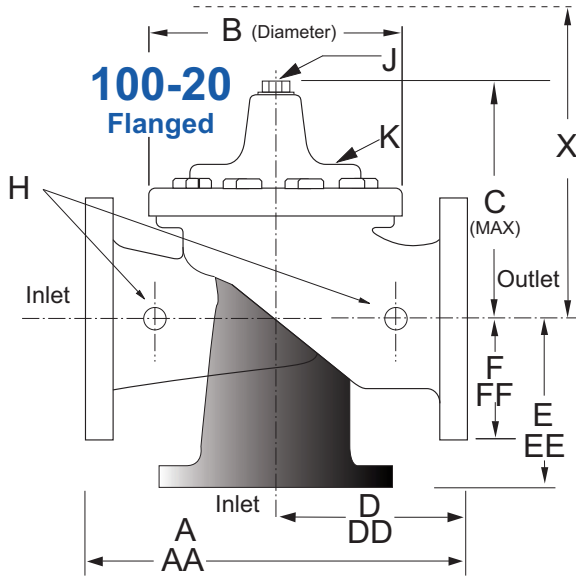
Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes (inches)	3" - 10"	3" - 10"	3" - 10"
Available Sizes (mm)	80 - 250 mm	80 - 250 mm	80 - 250 mm
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze
Trim: Disc Guide, Seat & Cover Bearing	Bronze 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.

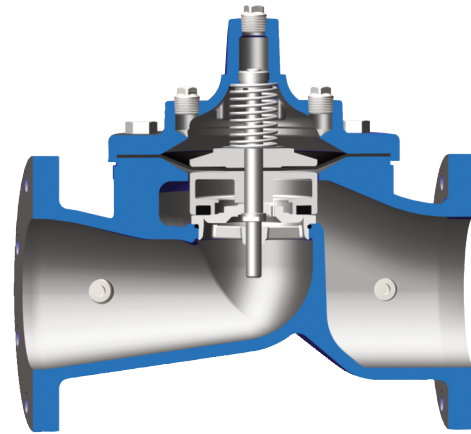
Model 690-72 Dimensions (inches) - For larger sizes, consult Factory

Valve Size (Inches)	3	4	6	8	10
A 150 ANSI	10.25	13.88	17.75	21.38	26.00
AA 300 ANSI	11.00	14.50	18.62	22.38	27.38
B Diameter	6.62	9.12	11.50	15.75	20.00
C Maximum	7.00	8.62	11.62	15.00	17.88
D 150 ANSI	—	6.94	8.88	10.69	CF*
DD 300 ANSI	—	7.25	9.38	11.19	CF*
E 150 ANSI	—	5.50	6.75	7.25	CF*
EE 300 ANSI	—	5.81	7.25	7.75	CF*
F 150 ANSI	3.75	4.50	5.50	6.75	8.00
FF 300 ANSI	4.12	5.00	6.25	7.50	8.75
H NPT Body Tapping	0.375	0.50	0.75	0.75	1.00
J NPT Cover Center Plug	0.50	0.50	0.75	0.75	1.00
K NPT Cover Tapping	0.375	0.50	0.75	0.75	1.00
Stem Travel	0.60	0.80	1.10	1.70	2.30
Approx. Ship Weight (lbs)	45	85	195	330	625
Approx. X Pilot System	13	15	27	30	33
Approx. Y Pilot System	10	11	18	20	22
Approx. Z Pilot System	10	11	18	20	22

Model 690-72 Metric Dimensions (Uses Main Valve Model 100-20)



Model 100-20 Reduced Port Hytrol Main Valve



Model 690-72 Dimensions (mm)

Valve Size (mm)	80	100	150	200	250
A 150 ANSI	260	353	451	543	660
AA 300 ANSI	279	368	473	568	695
B Diameter	168	232	292	400	508
C Maximum	178	219	295	381	454
D 150 ANSI	—	176	226	272	CF*
DD 300 ANSI	—	184	238	284	CF*
E 150 ANSI	—	140	171	184	CF*
EE 300 ANSI	—	148	184	197	CF*
F 150 ANSI	95	114	140	171	203
FF 300 ANSI	105	127	159	191	222
H NPT Body Tapping	0.375	0.50	0.75	0.75	1.00
J NPT Cover Center Plug	0.50	0.50	0.75	0.75	1.00
K NPT Cover Tapping	0.375	0.50	0.75	0.75	1.00
Stem Travel	15	20	28	43	58
Approx. Ship Weight (kgs)	20	39	89	150	284
Approx. X Pilot System	331	381	686	762	839
Approx. Y Pilot System	254	280	458	508	559
Approx. Z Pilot System	254	280	458	508	559

690-72 Valve Selection	100-20 Pattern: Globe (G), Angle (A), End Connections: Flanged (F) Indicate Available Sizes					
	Inches	3	4	6	8	10
	mm	80	100	150	200	250
Main Valve 100-20	Pattern	G	G, A	G, A	G, A	G
	End Detail	F	F	F	F	F
Suggested Flow (gpm)	Maximum	260	580	1025	2300	4100
	Minimum	1	1	1	1	1
Suggested Flow (Liters/Sec)	Maximum	16	37	65	145	258
	Minimum	.06	.06	.06	.06	.95

100-20 Series is the reduced internal port size version of the 100-01 Series. For Lower Flows Consult Factory

CRD Pilot System Specifications



Adjustment Ranges

2 to 30 psi
 15 to 75 psi
 20 to 105 psi
 30 to 300 psi*
 150 to 600 psi (CRD-18)

*Supplied unless otherwise specified

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

Optional Pilot System Materials

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

Note: Available with remote sensing control.

CRD-L Valve Size and Spring Adjustment Range and Specifications



1/2", 3/4" and 1"	1-1/4" and 1-1/2"	2"	2-1/2"
15-65	5-60	18-50	18-70
25-100	25-100	30-95	50-95
80-150	75-160	75-200	75-200
125-250	--	--	--

Temperature Range

Water: to 140°F (70°C) Max

Diaphragm: Buna-N®

Disc: EPDM

Strainer: Inline Mesh

Materials

Body and Cover: Low Lead Bronze CuZn21Si3P

Pressure Ratings

Max. Inlet Pressure: 400 psi (25 Bar)

Max. Differential Pressure: 150 psi (10 Bar)

Min. Differential Pressure: 14.5 psi

When Ordering, Please Specify

1. Catalog No. 690-72
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. Trim Material
7. Adjustment Ranges
8. Desired Options
9. When Vertically Installed
10. Product Enhancements



CLA-VAL

1701 Placentia Avenue • Costa Mesa, CA 92627

800-942-6326 • Fax: 949-548-5441 • Web Site: cla-val.com • E-mail: info@cla-val.com

CLA-VAL CANADA

4687 Christie Drive
 Beamsville, Ontario
 Canada L0R 1B4
 Phone: 905-563-4963
 E-mail: sales@cla-val.ca

CLA-VAL EUROPE

Chemin des Mésanges 1
 CH-1032 Romanel/
 Lausanne, Switzerland
 Phone: 41-21-643-15-55
 E-mail: cla-val@cla-val.ch

CLA-VAL UK

Dainton House, Goods Station Road
 Tunbridge Wells
 Kent TN11 2 DH England
 Phone: 44-1892-514-400
 E-mail: info@cla-val.co.uk

CLA-VAL FRANCE

Porte du Grand Lyon 1
 ZAC du Champ du Périer
 France - 01700 Neyron
 Phone: 33-4-72-25-92-93
 E-mail: cla-val@cla-val.fr

CLA-VAL PACIFIC

45 Kennaway Road
 Woolston, Christchurch, 8023
 New Zealand
 Phone: 64-39644860
www.cla-valpacific.com
 E-mail: info@cla-valpacific.com