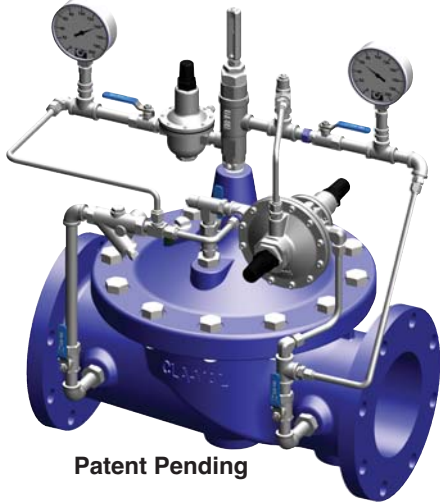




98 Series
(Full Internal Port)
— MODEL —
698 Series
(Reduced Internal Port)

Pressure Management Control Valve



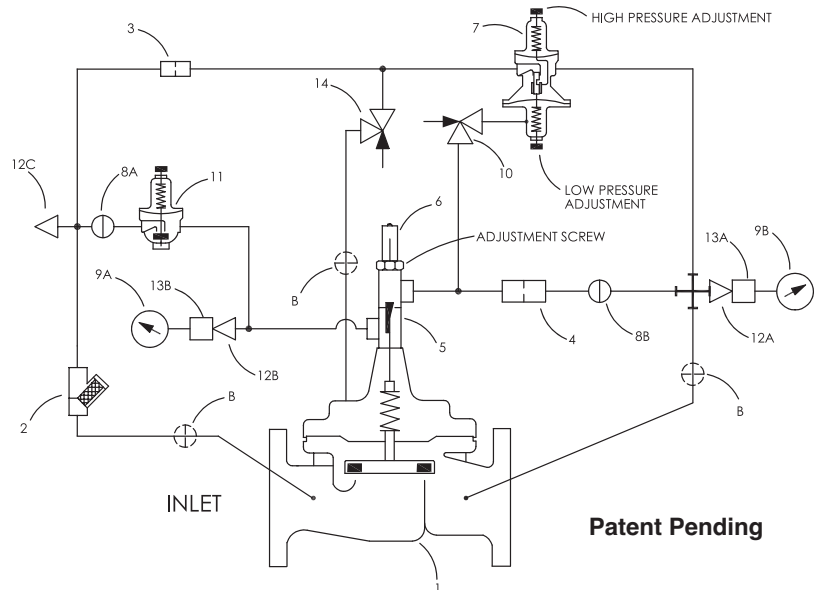
Patent Pending

- Water Conservation
- Pipe Break Prevention
- Leakage Reduction
- System Efficiency
- Energy Savings
- Retrofits to Existing Valves
- 100% Hydraulic Control
- Supplies Optimal Pressure Based on Flow Demand
- No Inline Orifice Plate Required

The Cla-Val Model 98 Series / 698 Series Pressure Management Control Valve automatically adjusts downstream pressure based on demand changes in the system. This fully adjustable control valve automatically changes outlet pressure from a high setting during high flow conditions to a low setting during low flow conditions. The patent pending all-hydraulic operation design assures smooth ramping between pressure settings as flow demand conditions change. Model 98 Series easily manages the system pressure based on demand changes to reduce costly system leakage losses and line breaks.

Schematic Diagram

Item	Description
1	Hytrol (Main Valve)
2	X43 "Y" Strainer
3	X58C Restriction Assembly
4	X58A Restriction Fitting
5	X78 Stem Assembly
6	X101 Valve Position Indicator Assembly
7	CRD2SF Pressure Management Control
8	CK2 (Isolation Valve)
9	X141 Gage
10	CV Flow Control (Closing)
11	CRD Pressure Reducing Control
12	Plug, Gage Connection
13	Socket, Gage Connection
14	CV Flow Control (Opening)

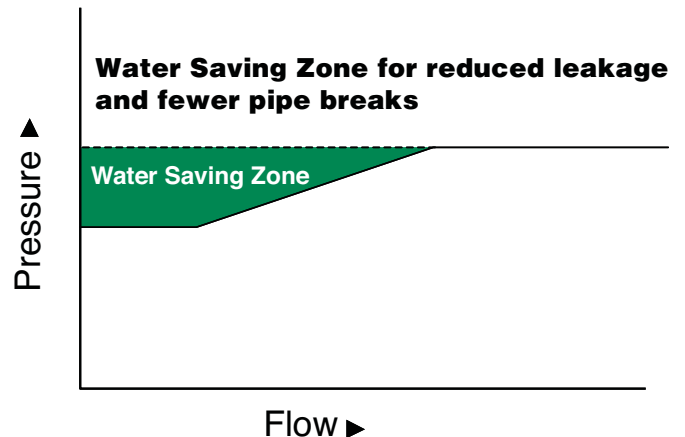


Optional Features

Item	Description
B	CK2 (Isolation Valve)

Typical Performance

A desired pressure profile with reduced system pressure during low demand periods is illustrated by the solid line in chart. At low flows a minimum pressure is maintained and as flow increases delivery pressure gradually increases up to maximum pressure set point for maximum flow. The ramping is adjustable to fine tune valve to system requirements. The "water saving zone" below maximum pressure line represents valve effectiveness in reducing water losses and pipeline breakage in system.



Model 98 Series (Uses Basic Valve Model 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
ASTM B62	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.

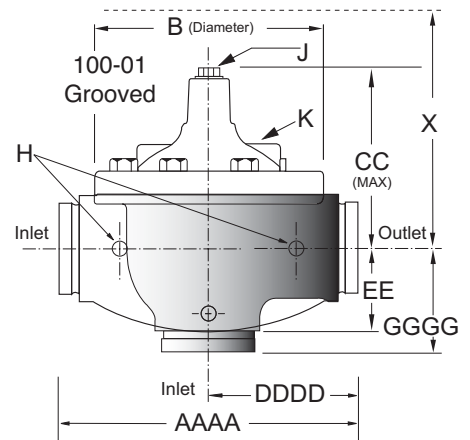
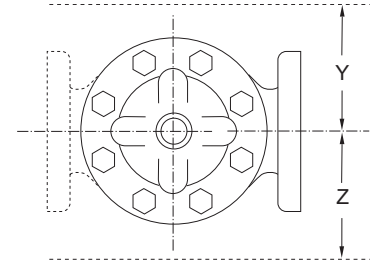
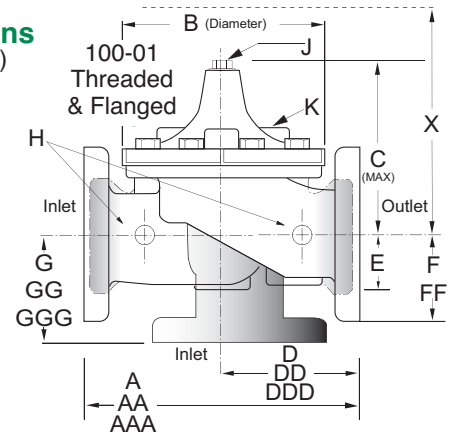
Valves for higher pressure are available; consult factory for details

Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	2" - 24"	2" - 16"	2" - 16"
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.

Dimensions (In inches)



Valve Size (Inches)	2	3	4	6	8	10	12	14	16	18	20	24
A Threaded	9.38	12.50	—	—	—	—	—	—	—	—	—	—
AA 150 ANSI	9.38	12.00	15.00	20.00	25.38	29.75	34.00	39.00	41.38	46.00	52.00	61.50
AAA 300 ANSI	10.00	13.25	15.62	21.00	26.38	31.12	35.50	40.50	43.50	47.64	53.62	63.24
AAAA Grooved End	9.00	12.50	15.00	20.00	25.38	—	—	—	—	—	—	—
B Dia.	6.62	9.12	11.50	15.75	20.00	23.62	28.00	32.75	35.50	41.50	45.00	53.16
C Max.	6.50	8.19	10.62	13.38	16.00	17.12	20.88	24.19	25.00	39.06	41.90	43.93
CC Max. Grooved End	5.75	7.25	9.31	12.12	14.62	—	—	—	—	—	—	—
D Threaded	4.75	6.25	—	—	—	—	—	—	—	—	—	—
DD 150 ANSI	4.75	6.00	7.50	10.00	12.69	14.88	17.00	19.50	20.81	—	—	30.75
DDD 300 ANSI	5.00	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62	—	—	31.62
DDDD Grooved End	4.75	6.00	7.50	—	—	—	—	—	—	—	—	—
E	1.50	2.06	3.19	4.31	5.31	9.25	10.75	12.62	15.50	12.95	15.00	17.75
EE Grooved End	2.50	3.12	4.25	6.00	7.56	—	—	—	—	—	—	—
F 150 ANSI	3.00	3.75	4.50	5.50	6.75	8.00	9.50	10.50	11.75	15.00	16.50	19.25
FF 300 ANSI	3.25	4.13	5.00	6.25	7.50	8.75	10.25	11.50	12.75	15.00	16.50	19.25
G Threaded	3.25	4.50	—	—	—	—	—	—	—	—	—	—
GG 150 ANSI	3.25	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69	—	—	22.06
GGG 300 ANSI	3.50	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50	—	—	22.90
GGGG Grooved End	3.25	4.25	5.00	—	—	—	—	—	—	—	—	—
H NPT Body Tapping	.375	.50	.75	.75	1	1	1	1	1	1	1	1
J NPT Cover Center Plug	.50	.50	.75	.75	1	1	1.25	1.5	2	1.5	1.5	1.5
K NPT Cover Tapping	.375	.50	.75	.75	1	1	1	1	1	1	1	1
Stem Travel	0.6	0.8	1.1	1.7	2.3	2.8	3.4	4.0	4.5	5.1	5.63	6.75
Approx. Ship Wt. Lbs.	35	70	140	285	500	780	1165	1600	2265	2982	3900	6200
X Pilot System	13	15	17	29	31	33	36	40	40	43	47	68
Y Pilot System	9	11	12	20	22	24	26	29	30	32	34	39
Z Pilot System	9	11	12	20	22	24	26	29	30	32	34	39

Note: The top two flange holes on valve size 36 are threaded to 1 1/2"-6 UNC.

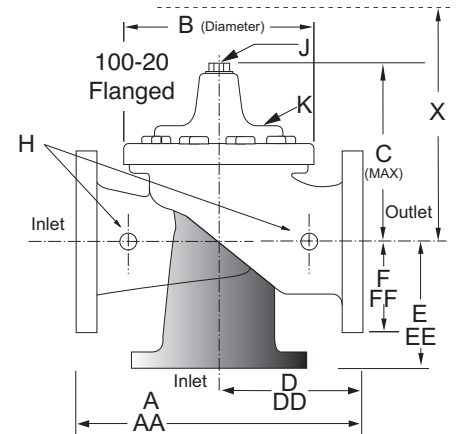
Model 698 Series (Uses Basic Valve Model 100-20)

Dimensions (In inches)

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
ASTM B62	Bronze	B16.24	225	400

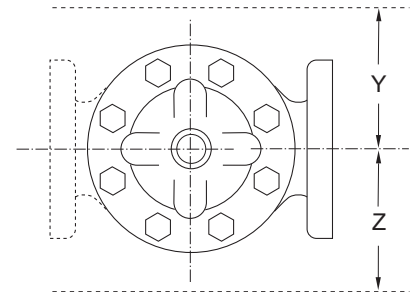
Note: * ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
Valves for higher pressure are available; consult factory for details



Materials

Component	Standard Material Combinations		
	Ductile Iron	Cast Steel	Bronze
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	3" - 24"	3" - 16"	3" - 16"
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.



Valve Size (Inches)	3	4	6	8	10	12	14	16	18	20	24
A 150 ANSI	10.25	13.88	17.75	21.38	26.00	30.00	34.25	35.00	42.12	48.00	48.00
AA 300 ANSI	11.00	14.50	18.62	22.38	27.38	31.50	35.75	36.62	43.63	49.62	49.75
B Dia.	6.62	9.12	11.50	15.75	20.00	23.62	27.47	28.00	35.44	35.44	35.44
C Max.	7.00	8.62	11.62	15.00	17.88	21.00	20.88	25.75	25.00	31.00	31.00
D 150 ANSI	—	6.94	8.88	10.69	CF*	CF*	CF*	CF*	CF*	CF*	CF*
DD 300 ANSI	—	7.25	9.38	11.19	CF*	CF*	CF*	CF*	CF*	CF*	CF*
E 150 ANSI	—	5.50	6.75	7.25	CF*	CF*	CF*	CF*	CF*	CF*	CF*
EE 300 ANSI	—	5.81	7.25	7.75	CF*	CF*	CF*	CF*	CF*	CF*	CF*
F 150 ANSI	3.75	4.50	5.50	6.75	8.00	9.50	11.00	11.75	15.88	14.56	17.00
FF 300 ANSI	4.12	5.00	6.25	7.50	8.75	10.25	11.50	12.75	15.88	16.06	19.00
H NPT Body Tapping	.375	.50	.75	.75	1	1	1	1	1	1	1
J NPT Cover Center Plug	.50	.50	.75	.75	1	1	1.25	1.25	2	2	2
K NPT Cover Tapping	.375	.50	.75	.75	1	1	1	1	1	1	1
Stem Travel	0.6	0.8	1.1	1.7	2.3	2.8	3.4	3.4	3.4	4.5	4.5
Approx. Ship Wt. Lbs.	45	85	195	330	625	900	1250	1380	1500	2551	2733
X Pilot System	13	15	27	30	33	36	36	41	40	46	55
Y Pilot System	10	11	18	20	22	24	26	26	30	30	30
Z Pilot System	10	11	18	20	22	24	26	26	30	30	30

*Consult Factory

Note: The top two flange holes on valve sizes 36 thru 48 are threaded to 1 1/2"-6 UNC.

98 Series Valve Selection	100-01 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes																		
	Inches	1	1¼	1½	2	2½	3	4	6	8	10	12	14	16	18	20	24	30	36
	mm	25	32	40	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
Basic Valve 100-01	Pattern				G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A					
	End Detail				T, F, Gr	T, F, Gr*	T, F, Gr	F, Gr	F, Gr*	F, Gr*	F	F	F	F					
Suggested Flow (gpm)	Maximum				210	300	460	800	1800	3100	4900	7000	8400	11000					
	Maximum Intermittent				260	370	580	990	2250	3900	6150	8720	10540	13700					
	Minimum				1	2	2	4	10	15	35	50	70	95					
Suggested Flow (Liters/Sec)	Maximum				13	19	29	50	113	195	309	442	530	694					
	Maximum Intermittent				16	23	37	62	142	246	387	549	664	863					
	Minimum				.06	.09	0.13	0.25	0.63	0.95	2.2	3.2	4.4	6.0					

100-01 Series is the full internal port Hytrol.

For Lower Flows Consult Factory

*Globe Grooved Only

698 Series Valve Selection	100-20 Pattern: Globe (G), Angle (A), End Connections: Flanged (F) Indicate Available Sizes															
	Inches	3	4	6	8	10	12	14	16	18	20	24	30	36	42	48
	mm	80	100	150	200	250	300	350	400	450	500	600	750	900	1000	1200
Basic Valve 100-20	Pattern	G	G, A	G, A	G, A	G	G	G	G	G	G	G				
	End Detail	F	F	F	F	F	F	F	F	F	F	F				
Suggested Flow (gpm)	Maximum	260	580	1025	2300	4100	6400	9230	9230	16500	16500	16500				
	Minimum	1	2	4	10	15	35	50	50	95	95	95				
Suggested Flow (Liters/Sec)	Maximum	16	37	65	145	258	403	581	581	1040	1040	1040				
	Minimum	.06	.13	.25	.63	.95	2.2	3.2	3.2	6.0	6.0	6.0				

100-20 Series is the reduced internal port size version of the 100-01 Series.

For Lower Flows Consult Factory

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.

Not Recommended for Dead-end Service

Pilot System Specifications

Outlet Pressure Adjustment Range:

Materials

High Flow Pressure Setting:

200 psi (13.8 bar) Maximum

Low Flow Pressure Setting:

Up to 35 psi (2.4 bar) below high setting

Temperature Range

Water: to 180°F

Standard Pilot System Materials

Pilot Control: Bronze ASTM B62

Trim: Stainless Steel Type 303

Rubber: Buna-N® Synthetic Rubber

Optional Pilot System Materials

Pilot Systems are available with optional

Aluminum, Stainless Steel or Monel materials.

When Ordering, Please Specify

1. Catalog No. 98 Series or 698 Series
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. Trim Material
7. Desired Options
8. When Vertically Installed