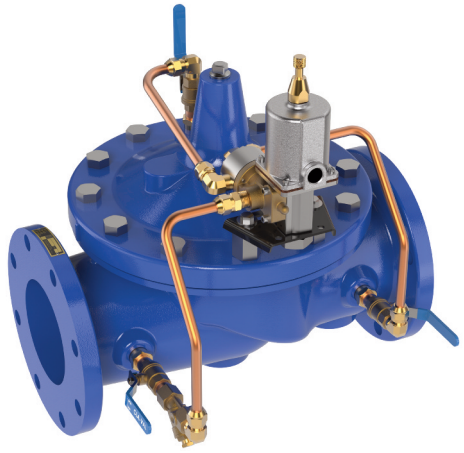
CLA-VAL™

MODEL 136-CB

Solenoid Control Valve



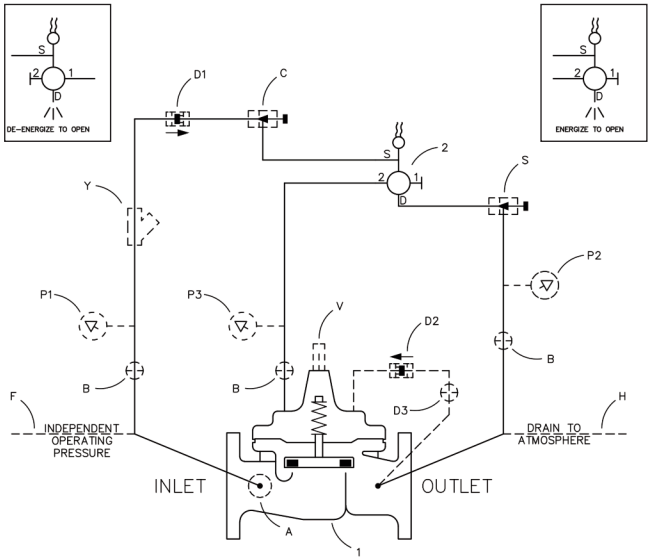
- **Fast Acting Solenoid Control**
- **Reliable, Drip-Tight Shut-Off**
- **Simple Design, Proven Reliable**
- **Optional Check Feature**
- **Easy Installation and Maintenance**

The Cla-Val Model 136-CB Solenoid Control Valve is an on-off control valve that either opens or closes upon receiving an electrical signal to the solenoid control. This valve consists of a Hytrol main valve and the CSM11-HC solenoid pilot control that alternately applies pressure to or relieves pressure from the diaphragm chamber of the main valve. It is furnished either normally open (de-energized solenoid to open) or normally closed (energized solenoid to open).

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

Schematic Diagram

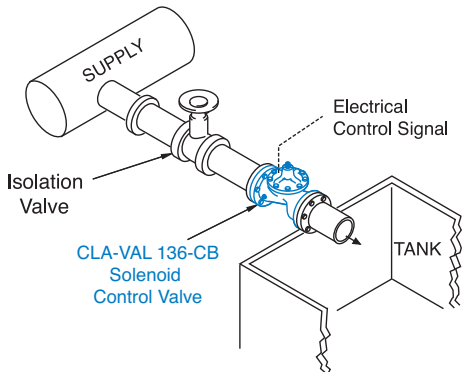
Item	Description
1	100-01 Hytrol Main Valve
2	CSM11-HC Solenoid Control



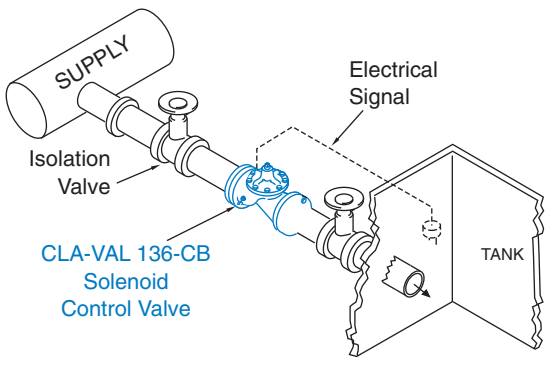
Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CNA Closing Speed Control
D	Check Valves with Isolation Valve
F	Independent Operating Pressure
H	Atmospheric Drain
P	X141 Pressure Gauge
S	CNA Needle Valve (Opening)
V	X101 Valve Position Indicator
Y	X43 "Y" Strainer

Typical Applications



Industrial uses for the solenoid control valve are many and include accurate control of process water for batching, mixing, washing, blending or other on-off type uses.



Liquid level control can be provided by using a float switch or electrode probe which sends an electrical signal to open or close the valve as needed.

Model 136-CB (Uses Hytrol Main Valve Model 100-01)

Pressure Ratings (Recommended Maximum Pressure - psi)

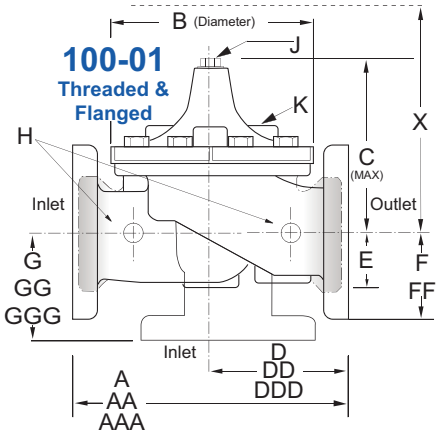
Valve Body & Cover		Pressure Class				
		Flanged			Grooved	Threaded
Grade	Material	ANSI Standards*	150 Class	300 Class	300 Class	End‡ Details
ASTM A536	Ductile Iron	B16.42	250	400	400	400
ASTM A216-WCB	Cast Steel	B16.5	285	400	400	400
UNS 87850	Bronze	B16.24	225	400	400	400

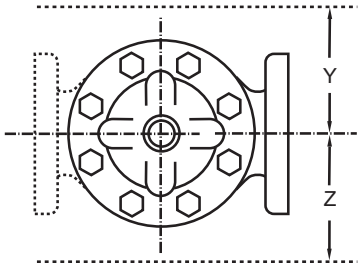
Note: * ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
‡ End Details machined to ANSI B2.1 specifications.
Valves for higher pressure are available; consult factory for details

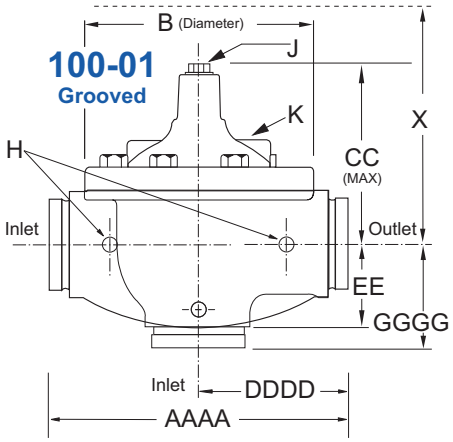
Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	6" - 16" 150 - 400mm	6" - 16" 150 - 400mm	6" - 16" 150 - 400mm
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.



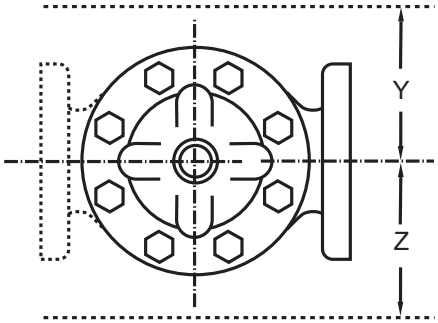


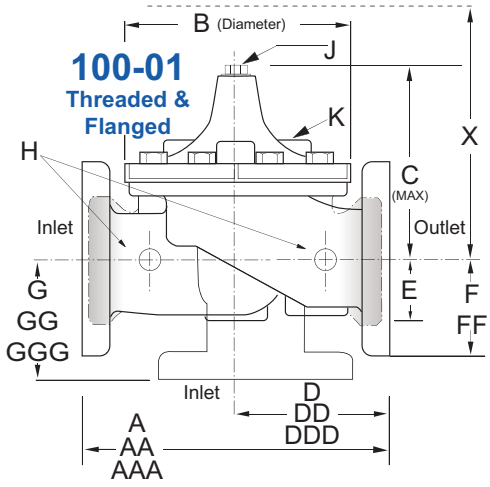


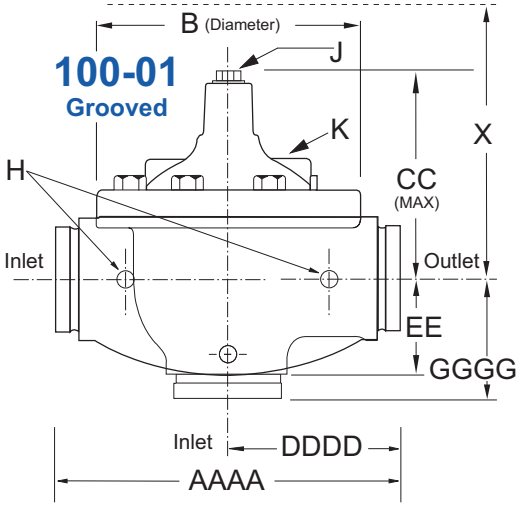
Model 136-CB Dimensions (inches)

Valve Size (Inches)	3	4	6	8	10	12	14	16
A Threaded	12.50	—	—	—	—	—	—	—
AA 150 ANSI	12.00	15.00	20.00	25.38	29.75	34.00	39.00	41.38
AAA 300 ANSI	13.25	15.62	21.00	26.38	31.12	35.50	40.50	43.50
AAAA Grooved End	12.50	15.00	20.00	25.38	—	—	—	—
B Diameter	9.12	11.50	15.75	20.00	23.62	28.00	32.75	35.50
C Maximum	8.19	10.62	13.38	16.00	17.12	20.88	24.19	25.00
CC Maximum Grooved End	7.25	9.31	12.12	14.62	—	—	—	—
D Threaded	6.25	—	—	—	—	—	—	—
DD 150 ANSI	6.00	7.50	10.00	12.69	14.88	17.00	19.50	20.81
DDD 300 ANSI	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62
DDDD Grooved End	6.00	7.50	—	—	—	—	—	—
E	2.06	3.19	4.31	5.31	9.25	10.75	12.62	15.50
EE Grooved End	3.12	4.25	6.00	7.56	—	—	—	—
F 150 ANSI	3.75	4.50	5.50	6.75	8.00	9.50	10.50	11.75
FF 300 ANSI	4.13	5.00	6.25	7.50	8.75	10.25	11.50	12.75
G Threaded	4.50	—	—	—	—	—	—	—
GG 150 ANSI	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69
GGG 300 ANSI	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50
GGGG Grooved End	4.25	5.00	—	—	—	—	—	—
H NPT Body Tapping	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00
J NPT Cover Center Plug	0.50	0.75	0.75	1.00	1.00	1.25	1.50	2.00
K NPT Cover Tapping	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00
Stem Travel	0.80	1.10	1.70	2.30	2.80	3.40	4.00	4.50
Approx. Ship Weight (lbs)	70	140	285	500	780	1165	1600	2265
Approx. **X** Pilot System	15	17	29	31	33	36	40	40
Approx. **Y** Pilot System	11	12	20	22	24	26	29	30
Approx. **Z** Pilot System	11	12	20	22	24	26	29	30

Model 136-CB **Metric Dimensions** (Uses 100-01 Hytrol Main Valve)







Model 136-CB Dimensions (mm)

Valve Size (mm)	**80**	**100**	**150**	**200**	**250**	**300**	**350**	**400**
A Threaded	318	—	—	—	—	—	—	—
AA 150 ANSI	305	381	508	645	756	864	991	1051
AAA 300 ANSI	337	397	533	670	790	902	1029	1105
AAAA Grooved End	318	381	508	645	—	—	—	—
B Diameter	232	292	400	508	600	711	832	902
C Maximum	208	270	340	406	435	530	614	635
CC Maximum Grooved End	184	236	308	371	—	—	—	—
D Threaded	159	—	—	—	—	—	—	—
DD 150 ANSI	152	191	254	322	378	432	495	528
DDD 300 ANSI	162	200	267	337	395	451	514	549
DDDD Grooved End	152	191	—	—	—	—	—	—
E	52	81	110	135	235	273	321	394
EE Grooved End	79	108	152	192	—	—	—	—
F 150 ANSI	95	114	140	171	203	241	267	298
FF 300 ANSI	105	127	159	191	222	260	292	324
G Threaded	114	—	—	—	—	—	—	—
GG 150 ANSI	102	127	152	203	219	349	378	399
GGG 300 ANSI	111	135	165	216	236	368	397	419
GGGG Grooved End	108	127	—	—	—	—	—	—
H NPT Body Tapping	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00
J NPT Cover Center Plug	0.50	0.75	0.75	1.00	1.00	1.25	1.50	2.00
K NPT Cover Tapping	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00
Stem Travel	20	28	43	58	71	86	102	114
Approx. Ship Weight (kgs)	32	64	129	227	354	528	726	1027
Approx. **X** Pilot System	381	432	737	788	839	915	1016	1016
Approx. **Y** Pilot System	280	305	508	559	610	661	737	762
Approx. **Z** Pilot System	280	305	508	559	610	661	737	762

136-CB Valve Selection	100-01 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes								
	Inches	3	4	6	8	10	12	14	16
	mm	80	100	150	200	250	300	350	400
Main Valve 100-01	Pattern	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A
	End Detail	T, F, Gr	F, Gr	F, Gr*	F, Gr*	F	F	F	F
Suggested Flow (gpm)	Maximum	460	800	1800	3100	4900	7000	8400	11000
	Maximum Intermittent	580	990	2250	3900	6150	8720	10540	13700
Suggested Flow (Liters/Sec)	Maximum	29	50	113	195	309	442	530	694
	Maximum Intermittent	37	62	142	246	387	549	664	863

100-01 Series is the full internal port Hytrol. *Globe Grooved Only

CSM11-HC Solenoid Control Power Consumption

Volts	Amperes		Coil Resistance
AC 60 Hz	Holding	Inrush	Ohms
24	2.88	25.4	0.5
120	.575	5.1	14.1
208	.330	2.93	40
240	.288	2.54	58
440	.156	1.38	174
440	.143	1.27	233
Volts	Amperes		Coil Resistance
(AC 50 Hz)	Holding	Inrush	Ohms
110	.48	4.6	15.7
220	.24	2.3	66
240	.22	2.1	88

CSM11-HC Specifications

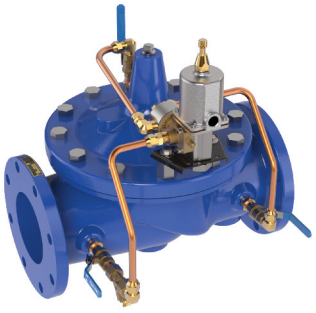
Enclosure General purpose NEMA Type 3; Aluminum
Note: For other enclosures and NEMA Types, consult factory

Housing Body — Aluminum
Trim — Stainless Steel

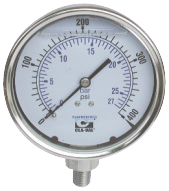
Operating Pressure: Maximum pressure 300 psi, for higher pressure consult factory.

Coil Insulation Class A (molded)

AC voltage 15.4 watts



Valve Options



X141 Pressure Gauge

X101 Valve Position Indicator

X43H Strainer

Pilot System Specifications

Temperature Range

Water to 180°F Max

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 Aluminum, Stainless Steel or Monel materials.

When Ordering, Specify

1. Catalog No. 136-CB
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. Materials Desired
7. Energized or de-energized to open Main Valve
8. Solenoid Enclosure, Voltage & Hertz, Coil Insulation, and Max. Operating Pressure Differential
9. Desired Options
10. When Vertically Installed