



— MODEL — **636-46**

Booster Pump Control Valve



- **Rapid Close Feature on Power Failure**
- **Direct Acting Three Way Solenoid Controls**
- **Proven Reliable Design**
- **Simple Hydraulic Operation**
- **Positive Drip Tight Shut-Off**

The Cla-Val Model 636-46 Booster Pump Control Valve is designed for installation on the discharge of booster pumps to eliminate pipeline surges caused by the starting and stopping of the pump. The booster pump starts against a closed valve. The main solenoid control of this pilot operated valve is energized when the pump starts. The valve begins to open slowly, gradually increasing line pressure to full pumping head. When the pump is signaled to shut-off, the main solenoid control is de-energized and the valve begins to close slowly, gradually reducing flow while the pump continues to run. When the valve is in the closed position, a limit switch assembly, which serves as an electrical interlock between the valve and the pump, releases the pump starter and the pump stops. The limit switch assembly is adjustable over the entire valve travel.

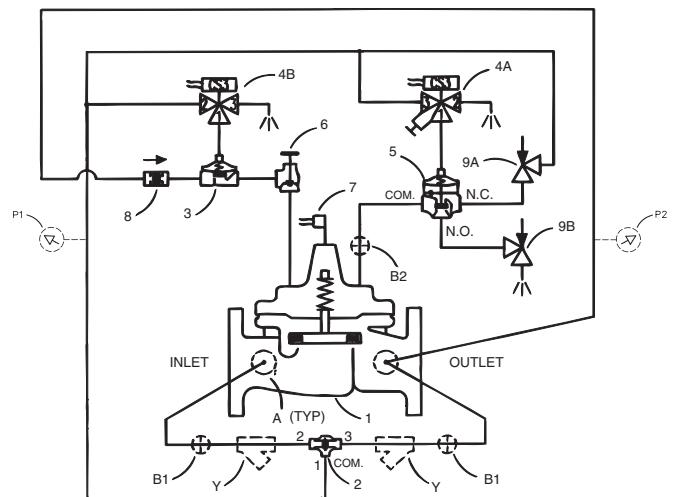
In the event of a power failure both solenoid controls are de-energized, allowing highest pressure available from each solenoid control into the cover chamber of the main valve, rapidly closing the main valve to prevent back spin of pump.

Schematic Diagram

Item	Description
1	100-20 Hytrol Main valve
2	CVS-1 Shuttle Valve
3	100-01 Hytrol (Reverse Flow)
4A	CS3SM Solenoid Control
4B	CS3S Solenoid Control
5	102C-3H 3-Way Valve
6	CGA Angle Valve (Closing)
7	X105LCW Switch Assembly
8	CDC/CSC Check Valve
9	CV/CNA Opening/Closing Flow Control

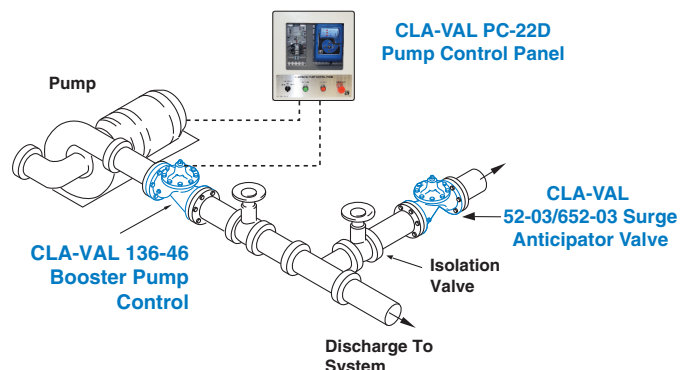
Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
Y	X43 "Y" Strainer



Typical Applications

Install Model 136-46 valve as shown. Flexible conduit should be used for electrical connections to the solenoid controls and the limit switch. The recommended Cla-Val UP-22D Universal Control Panel sequences the pump and control valve during all modes of operation. A Model 52-03/652-03 Surge Anticipator Valve is recommended for power failure protection.



Model 636-46 (Uses 100-20 Hytrol Main Valve)

Pressure Ratings (Recommended Maximum Pressure - psi)

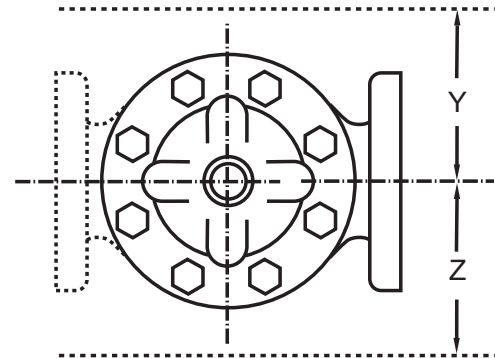
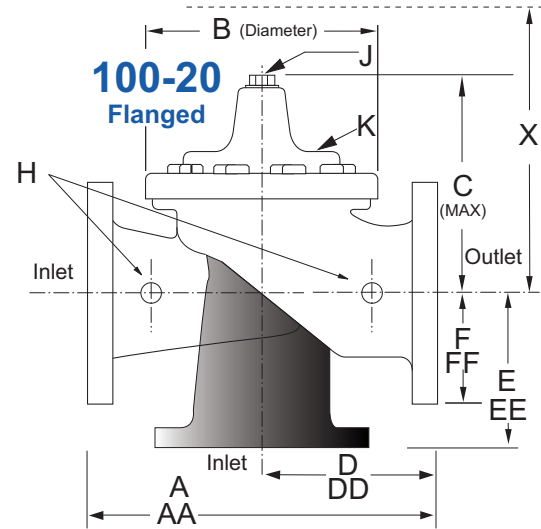
Valve Body & Cover		Pressure Class		
		Flanged		
Grade	Material	ANSI Standards*	150 Class	300 Class
ASTM A536	Ductile Iron	B16.42	250	400
ASTM A216-WCB	Cast Steel	B16.5	285	400
UNS 87850	Bronze	B16.24	225	400

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	6" - 48" 150 - 1200mm	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		

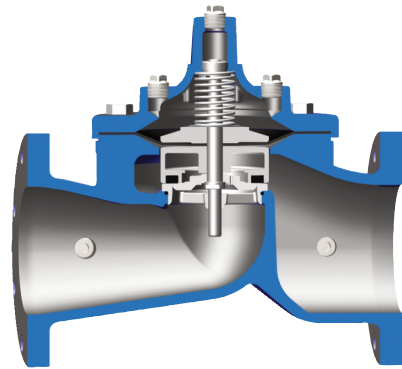
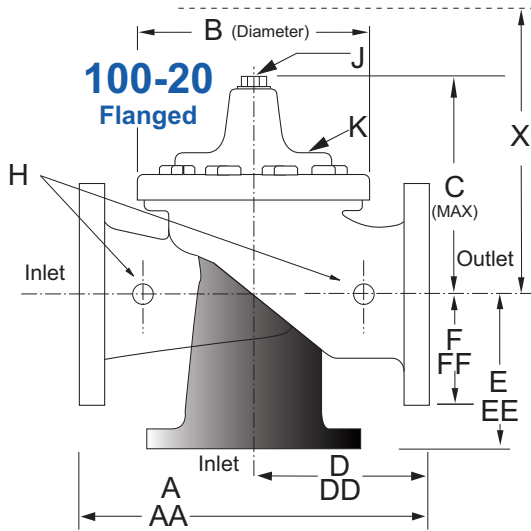
For material options not listed, consult factory.
Cla-Val manufactures valves in more than 50 different alloys.



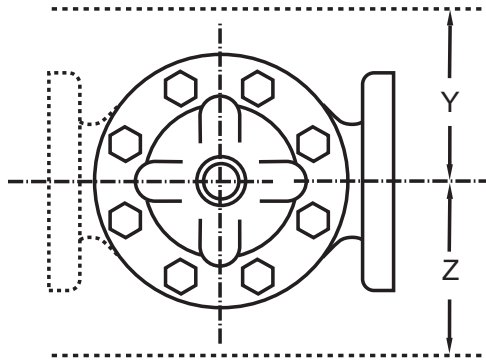
Model 636-46 Dimensions (inches)

Valve Size (Inches)	6	8	10	12	14	16	18	20	24	30	36	48
A 150 ANSI	17.75	21.38	26.00	30.00	34.25	35.00	42.12	48.00	48.00	63.25	65.00	88.0
AA 300 ANSI	18.62	22.38	27.38	31.50	35.75	36.62	43.63	49.62	49.75	63.75	67.00	90.62
B Diameter	11.50	15.75	20.00	23.62	27.47	28.00	35.44	35.44	35.44	53.19	56.00	66.00
C Maximum	11.62	15.00	17.88	21.00	20.88	25.75	25.00	31.50	31.50	43.94	54.75	59.00
D 150 ANSI	8.88	10.69	CF*	17.00	CF*	CF*	CF*	CF*	CF*	21.06	—	—
DD 300 ANSI	9.38	11.19	CF*	17.75	CF*	CF*	CF*	CF*	CF*	—	—	—
E 150 ANSI	6.75	7.25	CF*	13.75	CF*	CF*	CF*	CF*	CF*	15.94	—	—
EE 300 ANSI	7.25	7.75	CF*	14.75	CF*	CF*	CF*	CF*	CF*	—	—	—
F 150 ANSI	5.50	6.75	8.00	9.50	11.00	11.75	15.88	14.56	17.00	19.88	25.50	34.00
FF 300 ANSI	6.25	7.50	8.75	10.25	11.50	12.75	15.88	16.06	19.00	22.00	27.50	38.50
H NPT Body Tapping	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
J NPT Cover Center Plug	0.75	0.75	1.00	1.00	1.25	2.00	2.00	2.00	2.00	2.00	2.00	2.00
K NPT Cover Tapping	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Stem Travel	1.10	1.70	2.30	2.80	3.40	4.50	4.50	4.50	6.50	7.50	7.50	8.50
Approx. Ship Weight (lbs)	195	330	625	900	1250	1380	2365	2551	2733	6500	8545	13100
Approx. X Pilot System	27	30	33	36	36	41	40	46	55	68	79	86
Approx. Y Pilot System	18	20	22	24	26	26	30	30	30	39	40	47
Approx. Z Pilot System	18	20	22	24	26	26	30	30	30	39	42	49

Model 636-46 Metric Dimensions (Uses 100-20 Hytrol Main Valve)



Model 100-20 Reduced Port Hytrol Main Valve



Model 636-46 Dimensions (mm)

Valve Size (mm)	150	200	250	300	350	400	450	500	600	750	900	1200
A 150 ANSI	451	543	660	762	870	889	1070	1219	1219	1607	1651	2235
AA 300 ANSI	473	568	695	800	908	930	1108	1260	1263	1619	1702	2302
B Diameter	292	400	508	600	698	711	900	900	900	1351	1422	1676
C Maximum	295	381	454	533	530	654	635	800	800	1116	1391	1499
D 150 ANSI	226	272	CF*	432	CF*	CF*	CF*	CF*	CF*	535	—	—
DD 300 ANSI	238	284	CF*	451	CF*	CF*	CF*	CF*	CF*	CF*	—	—
E 150 ANSI	171	184	CF*	349	CF*	CF*	CF*	CF*	CF*	405	—	—
EE 300 ANSI	184	197	CF*	368	CF*	CF*	CF*	CF*	CF*	CF*	—	—
F 150 ANSI	140	171	203	241	279	289	403	370	432	505	648	864
FF 300 ANSI	159	191	222	260	292	324	403	408	483	559	699	978
H NPT Body Tapping	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
J NPT Cover Center Plug	0.75	0.75	1.00	1.00	1.25	2.00	2.00	2.00	2.00	2.00	2.00	2.00
K NPT Cover Tapping	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Stem Travel	28	43	58	71	86	86	114	114	114	165	191	216
Approx. Ship Weight (kgs)	89	150	284	409	568	627	681	1157	1249	2951	3876	5942
Approx. X Pilot System	686	762	839	915	915	1042	1016	1169	1397	1728	2007	2185
Approx. Y Pilot System	458	508	559	610	661	661	762	762	762	991	1016	1194
Approx. Z Pilot System	458	508	559	610	661	661	762	762	762	991	1067	1245

636-46 Valve Selection	100-20 Pattern: Globe (G), Angle (A), End Connections: Flanged (F) Indicate Available Sizes													
	Inches	6	8	10	12	14	16	18	20	24	30	36	42	48
	mm	150	200	250	300	350	400	450	500	600	750	900	1000	1200
Main Valve 100-20	Pattern	G, A	G, A	G	G	G	G	G	G	G	G	G	G	G
	End Detail	F	F	F	F	F	F	F	F	F	F	F	F	F
Suggested Flow (gpm)	Maximum	1025	2300	4100	6400	9230	9230	16500	16500	16500	28000	33500	33500	33500
	Minimum	4	10	15	35	50	50	95	95	95	275	450	450	450
Suggested Flow (Liters/Sec)	Maximum	65	145	258	403	581	581	1040	1040	1040	1764	2115	2115	2115
	Minimum	.25	.63	.95	2.2	3.2	3.2	6.0	6.0	6.0	17.4	28.4	41.0	41.0

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

Pilot System Specifications

Temperature Range

Water: to 180°F/82°C

Fluids

Water

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.

Rubber Parts

Buna-N® Synthetic Rubber

Solenoid Control

Body: Brass ASTM B283

Enclosure:

NEMA Type 1,2,3,3S,4,4X
general purpose watertight
NEMA Type 6,6P,7,9
watertight explosion proof
available at extra cost

Voltages:

110, 220 -50Hz AC
24, 120, 240, 480 -60Hz AC
6, 12, 24, 120, 240 - DC
Others available at extra cost.
Max. operating pressure differential:
200 psi

Coil:

Insulation molded Class F
Watts AC 6
AC Volt Amps Inrush 30

When Ordering, Specify

1. Catalog No. 636-46
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. Materials Desired
7. Solenoid Selection
8. When Vertically Installed

Valve Options



X141 Pressure Gauge



X101 Valve Position Indicator



X43H Strainer

PC-22D -- Optional Electronic Control



The Cla-Val PC-22D provides control of the pump and pump control valve, preventing surges in the system when the pump starts or stops. It consists of a pre-wired electrical control panel employing a programmable valve controller to sequence the pump and pump control valve during all modes of operation. Provides added protection to the pumping system from damage caused by mechanical, hydraulic or power failure.

The PC-22D offers all the control features found in the recommended wiring diagrams for Cla-Val pump control valves, plus alarms, automatic shutdown and adjustable timers.