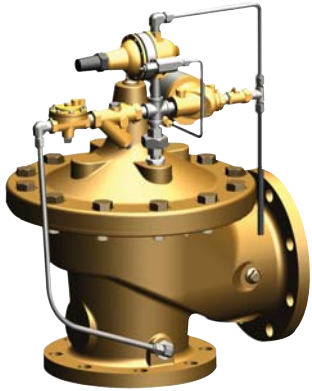


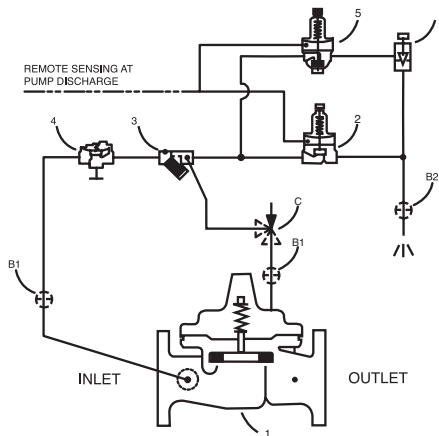


— MODEL — **50-49**

# Seawater Service Pump Start Pressure Relief Valve



50A-49



## Schematic Diagram

### Item Description

- 1 100S/2100S Hytrol (Main Valve)
- 2 CRL Pressure Relief Control
- 3 X44A Strainer & Orifice Assy
- 4 81-01 Check Valve
- 5 CRA Pressure Reducing Control
- 6 CNA Needle Valve (Opening)

## Optional Features

### Item Description

- B CK2 (Isolation Valves)
- C CV Flow Control (Closing)

- Seawater Service Materials
- Reduced Cavitation Design
- Drip-tight, Positive Seating Action
- Globe or Angle Pattern for Model 50-49
- Every Valve Factory-Tested
- Three Year Warranty

Cla-Val Model 50-49 Pump Start / Pressure Relief Valve provides pump and pipeline protection during pump start sequence and pump operation when discharge pressure rises to unsafe levels.

Cla-Val Model 50-49 Pump Start / Pressure Relief Valve available in sizes 2" - 36" in both globe and angle pattern.

## Operation:

The Model 50-49 has both a normally open and normally closed pilot controls. The valve mounts on a pipe tee at the pump discharge and provides pipeline protection at pump start-up through the normally open pilot control. This pilot will be open to vent the relief valve cover chamber and enable the relief valve to be open at pump start. When the pump first starts, the relief valve relieves both air and start-up water pressure to atmosphere and protects the pump discharge piping from accelerated pressure spikes. The spring loaded pilot with adjustable spring range will slowly close and divert the system pressure into system eliminating unsafe pressure spikes which can damage or rupture discharge piping.

Should the discharge pump pressure continue to rise due to little or no system demand the normally closed pilot provides over pressure protection by relieving excess pressure to atmosphere as long as the relief valve inlet pressure is greater than the pilot pressure setting. This pilot has various adjustable spring ranges to meet the system pressure requirements.

## Materials:

### Main Valve Body & Cover:

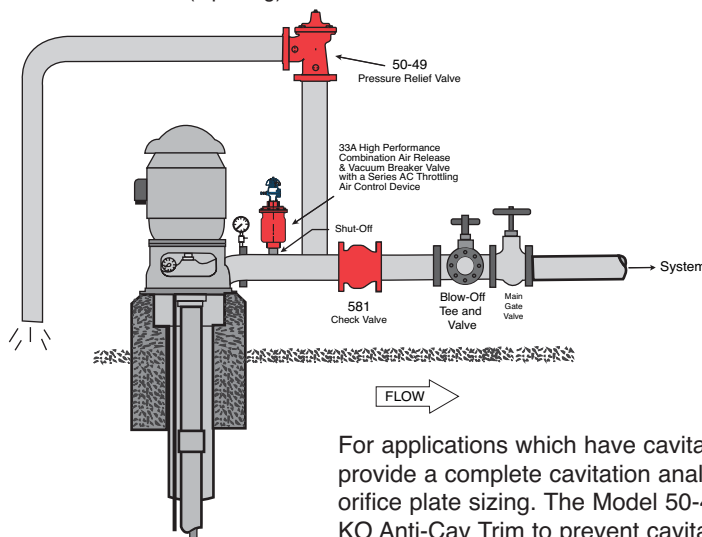
Ductile Iron ASTM A-536  
 Cast Steel ASTM A216-WCB  
 Naval Bronze ASTM B61  
 Stainless Steel ASTM A743-CF-8M  
 Ni. AL. Bronze ASTM B148

### Main Valve Trim:

ASTM B61 Bronze Seat, Monel Trim

### Pilot Control System:

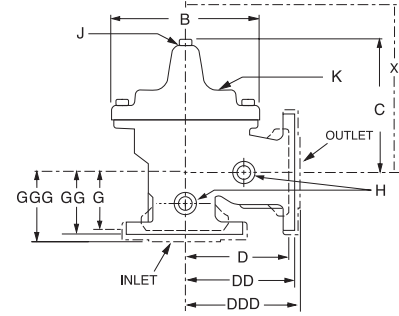
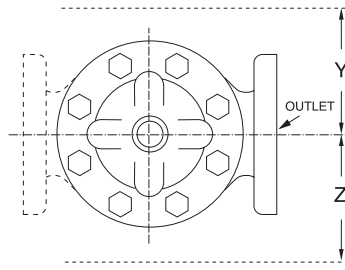
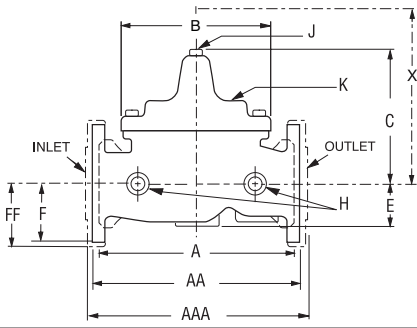
Cast Bronze with Monel Trim  
 Monel, Super Duplex Stainless Steel Optional  
 Stainless Steel 316 Tubing & Fittings



For applications which have cavitation issues, Cla-Val can provide a complete cavitation analysis and recommend orifice plate sizing. The Model 50-49 can be fitted with KO Anti-Cav Trim to prevent cavitation.



## Model 50-49 Dimensions



Valve Size (Inches)	1 ½	2	2 ½	3	4	6	8	10	12	14	16	18	20	24	30	36
A Threaded	7.25	9.38	11.00	12.50	—	—	—	—	—	—	—	—	—	—	—	—
AA 150 ANSI	8.50*	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00	39.00	41.38	46.00	52.00	61.50	63.00	76.00
AAA 300 ANSI	9.00*	10.00	11.62	13.25	15.62	21.00	26.38	31.12	35.50	40.50	43.50	47.64	53.62	63.24	64.50	78.00
B Dia.	5.62	6.62	8.00	9.12	11.50	15.75	20.00	23.62	28.00	32.75	35.50	41.50	45.00	53.16	56.00	66.00
C Max.	5.50	6.50	7.56	8.19	10.62	13.38	16.00	17.12	20.88	24.19	25.00	39.06	41.90	43.93	54.60	61.50
D Threaded	3.25	4.75	5.50	6.25	—	—	—	—	—	—	—	—	—	—	—	—
DD 150 ANSI	4.00*	4.75	5.50	6.00	7.50	10.00	12.75	14.88	17.00	19.50	20.81	—	—	—	—	—
DDD 300 ANSI	4.25*	5.00	5.88	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62	—	—	—	—	—
E	1.12	1.50	1.69	2.56	3.19	4.31	5.31	9.25	10.75	12.62	15.50	12.95	15.00	17.75	21.31	24.56
F 150 ANSI	2.50	3.00	3.50	3.75	4.50	5.50	6.75	8.00	9.50	10.50	11.75	15.00	16.50	19.25	22.50	28.00
FF 300 ANSI	3.06	3.25	3.75	4.13	5.00	6.25	7.50	8.75	10.25	11.50	12.75	15.00	16.50	—	24.00	—
G Threaded	1.88	3.25	4.00	4.50	—	—	—	—	—	—	—	—	—	—	—	—
GG 150 ANSI	4.00*	3.25	4.00	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69	—	—	—	—	—
GGG 300 ANSI	4.25*	3.50	4.31	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50	—	—	—	—	—
H NPT Body Tapping	¾	¾	½	½	¾	¾	1	1	1	1	1	1	1	1	2	2
J NPT Cover Center Plug	¼	½	½	½	¾	¾	1	1	1¼	1½	2	1½	1½	1½	2	2
K NPT Cover Tapping	¾	¾	½	½	¾	¾	1	1	1	1	1	1	1	1	2	2
Valve Stem Internal Thread UNF	10-32	10-32	10-32	¼-28	¼-28	¾-24	¾-24	¾-24	¾-24	¾-24	¾-24	½-20	¾-16	¾-16	¾-16	¾-16
Stem Travel	0.4	0.6	0.7	0.8	1.1	1.7	2.3	2.8	3.4	4.0	4.5	5.1	5.63	6.75	7.5	10.12
Approx. Ship Wt. Lbs.	15	35	50	70	140	285	500	780	1165	1600	2265	2982	3900	6200	7703	11470
X Pilot System	11.00	13.00	14.00	15.00	17.00	29.00	31.00	33.00	36.00	40.00	40.00	43.00	47.00	68.00	79.00	86.00
Y Pilot System	9.00	9.00	10.00	11.00	12.00	20.00	22.00	24.00	26.00	29.00	30.00	32.00	34.00	39.00	40.00	45.00
Z Pilot System	9.00	9.00	10.00	11.00	12.00	20.00	22.00	24.00	26.00	29.00	30.00	32.00	34.00	39.00	42.00	45.00

## Model 50-49 Functional Data (Uses Basic Valve Model 100-01)

\*Estimated

Valve Size	Inches	1 ½	2	2 ½	3	4	6	8	10	12	14	16	18	20	24	30	36	
	mm.	40	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900	
C <sub>v</sub> Factor	Globe Pattern	Gal./Min. (gpm.)	32	54	85	115	200	440	770	1245	1725	2300	3130	3725	5345	7655	10150	14020
	Angle Pattern	Gal./Min. (gpm.)	29	61	101	139	240	541	990	1575	2500*	3060*	4200*	—	—	—	—	—
Equivalent Length of Pipe	Globe Pattern	Feet (ft.)	37	51	53	85	116	211	291	347	467	422	503	612	595	628	1181	2285
	Angle Pattern	Feet (ft.)	46	40	37	58	80	139	176	217	222*	238*	247*	—	—	—	—	—
K Factor	Globe Pattern	5.9	5.6	4.6	6.0	5.9	6.2	6.1	5.8	6.1	5.0	5.2	5.2	4.6	4.0	5.3	7.8	
	Angle Pattern	7.1	4.4	3.3	4.1	4.1	4.1	3.7	3.6	2.9	2.8	2.6	—	—	—	—	—	
Liquid Displaced from Cover Chamber When Valve Opens	Fl. Oz.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	U.S. Gal.	.02	.03	.04	.08	.17	.53	1.26	2.51	4.0	6.5	9.6	11	12	29	42	90	
	ml	75.7	121	163	303	643	—	—	—	—	—	—	—	—	—	—	—	
	Litres	—	—	—	—	—	2.0	4.8	9.5	15.1	24.6	36.2	41.6	45.4	109.8	197	340	

## Valve Capacity

Valve Size (inches)	1 1/2	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	30	36
Max. Continuous GMP	125	208	300	460	800	1800	3100	4900	7000	8400	11000	14000	17000	25000	42000	50000
Max Surge GPM	280	470	670	1000	1800	4000	7000	11000	16000	19000	25000	31000	39000	56500	63000	85000