

700 Series

Pressure Relief/Sustaining Valve with Solenoid Control

Mod∈l 730-55

- Prioritizing pressure zones
- Pump overload & cavitation protection
- Backup for reservoir supply valves
- Safeguarding pump minimum flow
- Switching between pressure regimes

The Model 730-55 Pressure Relief/Sustaining Valve with Solenoid Control is a hydraulically operated, diaphragm actuated control valve that sustains minimum pre-set, upstream (back) pressure regardless of fluctuating flow or varying downstream pressure. It also either opens or closes in response to an electric signal. When installed as a circulation valve, the Model 730-55 relieves excessive line pressure when above maximum pre-set.



Features and Benefits

- Line pressure driven Independent operation
- Solenoid controlled
 - Low power consumption
 - Wide ranges of pressures and voltages
 - Normally Open, Normally Closed, or Last Position
- Balanced seal disk High relief flow capacity
- In-line serviceable Easy maintenance
- Double chamber design
 - Moderated valve reaction
 - Protected diaphragm
- Flexible design Easy addition of features
- Variety of accessories Perfect mission matching
- "Y" or angle, wide body Minimized pressure loss
- Semi-straight flow Non-turbulent flow
- Stainless Steel raised seat Cavitation damage resistant
- Obstacle free, full bore Uncompromising reliability
- V-Port Throttling Plug Low flow stability

Major Additional Features

- Pressure sustaining and reducing with solenoid control – 723-55
- Electrically selected multi-level settings 730-45
- High sensitivity pilot **730-55-12**
- Electric override for fire protection **FP-730-59**
- Level-control & pressure sustaining with bi-level electric float – 753-65
- Pump circulation & pressure sustaining valve 748
- Electronic pressure sustaining valve **738-03**

See relevant BERMAD publications.





Model 730-55 700 Series

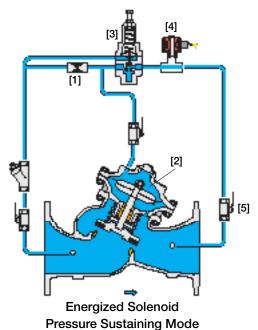
Operation

The Model 730-55 is a pilot controlled valve equipped with an adjustable, 2-Way, pressure sustaining pilot and a solenoid pilot.

The restriction [1] continuously allows flow from the valve inlet into the upper control chamber [2]. The pilot [3] senses upstream pressure, and the solenoid [4] together control outflow from the upper control chamber. Should this pressure fall below pilot setting, the pilot closes, enabling pressure to accumulate in the upper control chamber, and causing the main valve to throttle thereby sustaining upstream pressure at pilot setting. Should upstream pressure rise above pilot setting, the pilot releases accumulated pressure and the main valve modulates open.

Should the solenoid pilot close, pressure in the upper control-chamber accumulates causing the main valve to shut off. The downstream cock valve [5] enables manual closing.

Normally closed, normally open and last position models are available.



Pilot System Specifications

Standard Materials:

Pilot:

Body: Stainless Steel 316 or Bronze Elastomers: Synthetic Rubber

Spring: Galvanized Steel or Stainless Steel

Solenoid:

Body: Brass or Stainless Steel Elastomers: NBR or FPM Enclosure: Molded epoxy

Tubing & Fittings:

Stainless Steel 316 or Copper & Brass

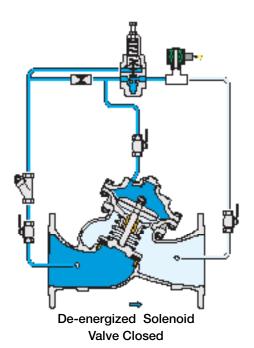
Accessories:

Stainless Steel 316, Brass and Synthetic

Rubber Elastomers

Pilot Adjustment Range:

0.5 to 3.0 bar; 7 to 40 psi 0.8 to 6.5 bar; 11 to 95 psi 1 to 16 bar; 15 to 230 psi 5 to 25 bar; 70 to 360 psi



Solenoid Electrical Data:

Voltages:

(ac): 24, 110-120, 220-240, (50-60Hz)

(dc): 12, 24, 110, 220

Power Consumption:

(ac): 30 VA, inrush; 15 VA (8W), holding or 70 VA, inrush; 40 VA (17.1W), holding

(dc): 8-11.6W

Values might vary according to specific solenoid model

Notes:

- Inlet pressure, outlet pressure and flow rate are required for optimal sizing and cavitation analysis
- Recommended continuous flow velocity:
 0.3-6.0 m/sec; 1-20 ft/sec
- Minimum operating pressure: 0.7 bar; 10 psi. For lower pressure requirements consult factory





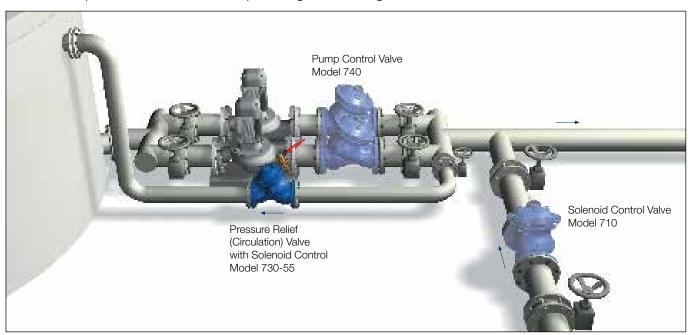
Model 730-55 700 Series

Typical Applications

Circulating Valve with Reservoir Overflow Protection

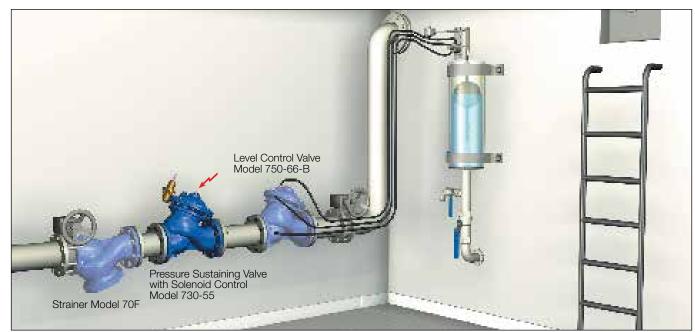
Water is supplied to the consumer network from the reservoir or directly from the major supply network:

- During pumping from the reservoir, the Normaly Closed Model 730-55, with energized solenoid, serves as a circulation valve.
- During direct supply, pressure might be higher than pilot setting, possibly causing reservoir overflow. The de-energized solenoid keeps the Model 730-55 closed, preventing reservoir filling from this source.



Reservoir Level Control Backup

To sustain minimum network pressure, the Normaly Open Model 730-55 prioritizes consumers before supply to the reservoir. In addition, this valve provides electric control backup protection (solenoid & float switch) should the hydraulic level control fail.







700 Series

Technical Data

Size Range: DN40-900 ; 11/2-36" End Connections (Pressure Ratings):

Flanged: ISO PN16, PN25 (ANSI Class 150, 300)

Threaded: BSP or NPT Others: Available on request

Valve Patterns: "Y" (globe) & angle, globe (DN600-900; 24"-36")

Working Temperature: Water up to 80°C; 180°F

Standard Materials:

Body & Actuator: Ductile Iron

Internals: Stainless Steel, Bronze & coated Steel Diaphragm: Synthetic Rubber Nylon fabric-reinforced

Seals: Synthetic Rubber

W (mm / inch) h (mm / inch)

H (mm / inch)

Weight (Kg/lb)

L (mm / inch)

W (mm / inch)

R (mm / inch)

h (mm / inch)

H (mm / inch)

H (mm / inch)

Weight (Kg/lb)

40 1.6 40 1.6 48 1.9 56 2.2

201

5.5 | 12

7.9 202

5.5 12 8 18

121

40 1.6 48 1.9 55 2.2

83

Coating: Fusion Bonded Epoxy, RAL 5005 (Blue) approved for drinking water or Electrostatic Polyester Powder

Differential Pressure Calculation

$$\Delta P = \left(\frac{Q}{(Kv;Cv)}\right)^2$$

 ΔP = Differential Pressure for fully open valve (bar; psi)

Q = Flow rate (m³/h; gpm)

Kv = Metric system - valve flow coefficient (flow in m³/h at 1 bar ΔP with 15°C water)

Cv = US system - Valve flow coefficient (flow in gpm at 1 psi ΔP with 60°F water) Cv = 1.155 Kv

Flow Data & Dimensions Table

		DN / Size	40	1.5"	50	2"	65	2.5"	80	3"	100	4"	150	6"	200	8"	250	10"	300	12"	350	14"	400	16"	450	18"	500	20"
ū	ES	Kv / Cv - Flat	54	62	57	66	60	69	65	75	145	167	395	456	610	705	905	1,045	1,520	1,756	-	-	2,250	2,599	-	-	4,070	4,701
Flow Data	700ES	Kv / Cv - V-Port	46	53	48	56	51	59	55	64	123	142	336	388	519	599	769	888	1,292	1,492	-	-	1,913	2,209	-	-	3,460	3,996
	700 & 700EN	Kv / Cv - "Y" Flat	42	49	50	58	55	64	115	133	200	230	460	530	815	940	1,250	1,440	1,850	2,140	1,990	2,300	3,310	3,820	3,430	3,960	3,550	4,100
	7007	Kv / Cv - "Y" V-Port	36	41	43	49	47	54	98	113	170	200	391	450	693	800	1,063	1,230	1,573	1,820	1,692	1,950	2,814	3,250	2,916	3,370	3,018	3,490
	PN16; 25	L (mm / inch)	230	9.1	230	9.1	290	11.4	310	12.2	350	13.8	480	18.9	600	23.6	730	28.7	850	33.5	-	-	1,100	43.3	-	-	1,250	49.2
တ္သ		W (mm / inch)	150	5.9	165	6.5	185	7.3	200	7.9	235	9.3	300	11.8	360	14.2	425	16.7	530	20.9	-	-	626	24.6	-	-	838	33
700-ES		h (mm / inch)	80	3.1	90	3.5	100	3.9	105	4.1	125	4.9	155	6.1	190	7.5	220	8.7	250	9.8	-	-	320	12.6	-	-	385	15.2
12		H (mm / inch)	240	9.4	250	9.8	250	9.8	260	10.2	320	12.6	420	16.5	510	20.1	605	23.8	725	28.5	-	-	895	35.2	-	-	1,185	46.7
		Weight (Kg/lb)	10	22	10.8	23.8	13.2	29	15	33	26	57.2	55	121	95	209	148	326	255	561	-	-	437	960	-	-	1,061	2,334
		L (mm / inch)	-	-	-	-	-	-	310	12.2	350	13.8	480	18.9	600	23.6	730	28.7	850	33.5	-	-	-	-	-	-		-
Z	25	W (mm / inch)	-	-	-	-	-	-	200	7.9	235	9.3	320	12.6	390	15.4	480	18.9	550	21.7	-	-	-	-	-	-	-	-
700-EN	PN16;	h (mm / inch)	-	-	-	-	-	-	100	3.9	118	4.6	150	5.9	180	7.1	213	8.4	243	9.6	-	-	-	-	-	-	-	-
2	줍	H (mm / inch)	-	-	-	-	-	-	305	12	369	14.5	500	19.7	592	23.3	733	28.9	841	33.1	-	-	-	-	-	-	-	-
		Weight (Kg/lb)	-	-	-	-	-	-	21	46.2	31	68.2	70	154	115	253	198	436	337	741	-	-	-	-	-	-	-	-
		L (mm / inch)	205	8.1	210	8.3	222	8.7	250	9.8	320	12.6	415	16.3	500	19.7	605	23.8	725	28.5	733	28.9	990	39	1,000	39.4	1,100	43.3
	N16 150	W (mm / inch)	155	6.1	165	6.5	178	7	200	7.9	223	8.8	320	12.6	390	15.4	480	18.9	550	21.7	550	21.7	740	29.1	740	29.1	740	29.1
	G SS	h (mm / inch)	78	3.1	83	3.3	95	3.7	100	3.9	115	4.5	143	5.6	172	6.8	204	8	242	9.5	268	10.6	300	11.8	319	12.6	358	14.1
ed		H (mm / inch)	239	9.4	244	9.6	257	10.1	305	12	366	14.4	492	19.4	584	23	724	28.5	840	33.1	866	34.1	1,108	43.6	1,127	44.4	1,167	45.9
Flanged		Weight (Kg/lb)	9.1	20	10.6	23	13	29	22	49	37	82	75	165	125	276	217	478	370	816	381	840	846	1,865	945	2,083	962	2,121
E		L (mm / inch)	205	8.1	210	8.3	222	8.7	264	10.4	335	13.2	433	17	524	20.6	637	25.1	762	30	767	30.2	1,024	40.3	1,030	40.6	1,136	44.7
700	PN25	W (mm / inch)	155	6.1	165	6.5	185	7.3	207	8.1	250	9.8	320	12.6	390	15.4	480	18.9	550	21.7	570	22.4	740	29.1	740	29.1	750	29.5
		h (mm / inch)	78	3.1	83	3.3	95	3.7	105	4.1	127	5	159	6.3	191	7.5	223	8.8	261	10.3	295	11.6	325	12.8	357	14.1	389	15.3
	Clas	H (mm / inch)	239	9.4	244	9.6	257	10.1	314	12.4	378	14.9	508	20	602	23.7	742	29.2	859	33.8	893	35.2	1,133	44.6	1,165	45.9	1,197	47.1
		Weight (Kg/lb)	10	22	12.2	27	15	33	25	55	43	95	85	187	146	322	245	540	410	904	434	957	900	1984	967	2,132	986	2,174
	رم و	L (mm / inch)	155	6.1	155	6.1	212	8.3	250	9.8																		

	4 O	Weight (Kg/lb)	-	-	5.5	12	7	15	15	33			
		DN / Size	600	24"	700	28"	750	30"	800	32"	900	36"	
	9	L (mm / inch)	1,450	57.1	1,650	65	1,750	68.9	1,850	72.8	1,850	72.8	
	PN1 150	W (mm / inch)	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	
	Globe F Class	h (mm / inch)	470	18.5	490	19.3	520	20.5	553	21.8	600	23.6	
		H (mm / inch)	1,965	77.4	1,985	78.1	2,015	79.3	2,048	80.6	2,095	82.5	
		Weight (Kg/lb)	3,250	7,150	3,700	8,140	3,900	8,580	4,100	9,020	4,250	9,350	
	5	L (mm / inch)	1,500	59.1	1,650	65	1,750	68.9	1,850	72.8	1,850	72.8	
	PN25 300	W (mm / inch)	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	
	SS	h (mm / inch)	470	18.5	490	19.3	520	20.5	553	21.8	600	23.6	

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225 8.9 242 9.5 294 11.6

1,965 77.4 1,985 78.1 2,015 79.3 2,048 80.6 2,095 82.5

3,500 7,700 3,700 8,140 3,900 8,580 4,100 9,020 4,250 9.370

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264 10.4

115 4.5

17 37





Specify when ordering:

- Size
- Main model
- Additional features
- Pattern
- Body material
- End connection
- Coating
- Voltage & main valve position
- Tubing & Fittings materials
- Operational data (according to model)
- Pressure data
- Flow data
- Reservoir level data
- Settings
- Use Bermad's Waterworks Ordering Guide

