



Pressure Relief/Sustaining Valve with Solenoid Control

Model 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.



Operation

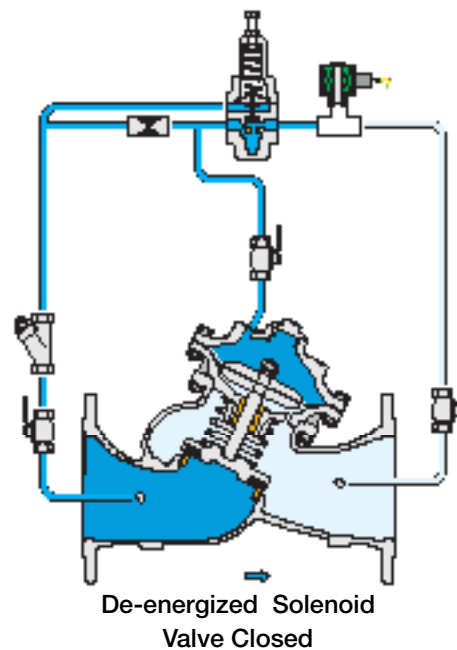
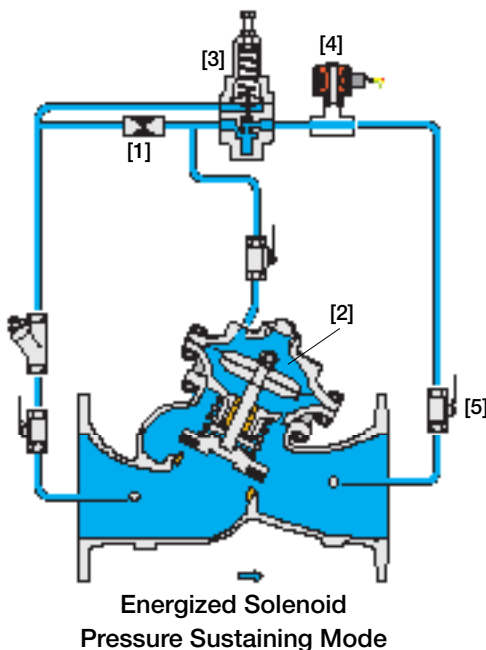
The Model 730-55 is a pilot controlled valve equipped with an adjustable, 2-Way, pressure sustaining pilot and a solenoid pilot.

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

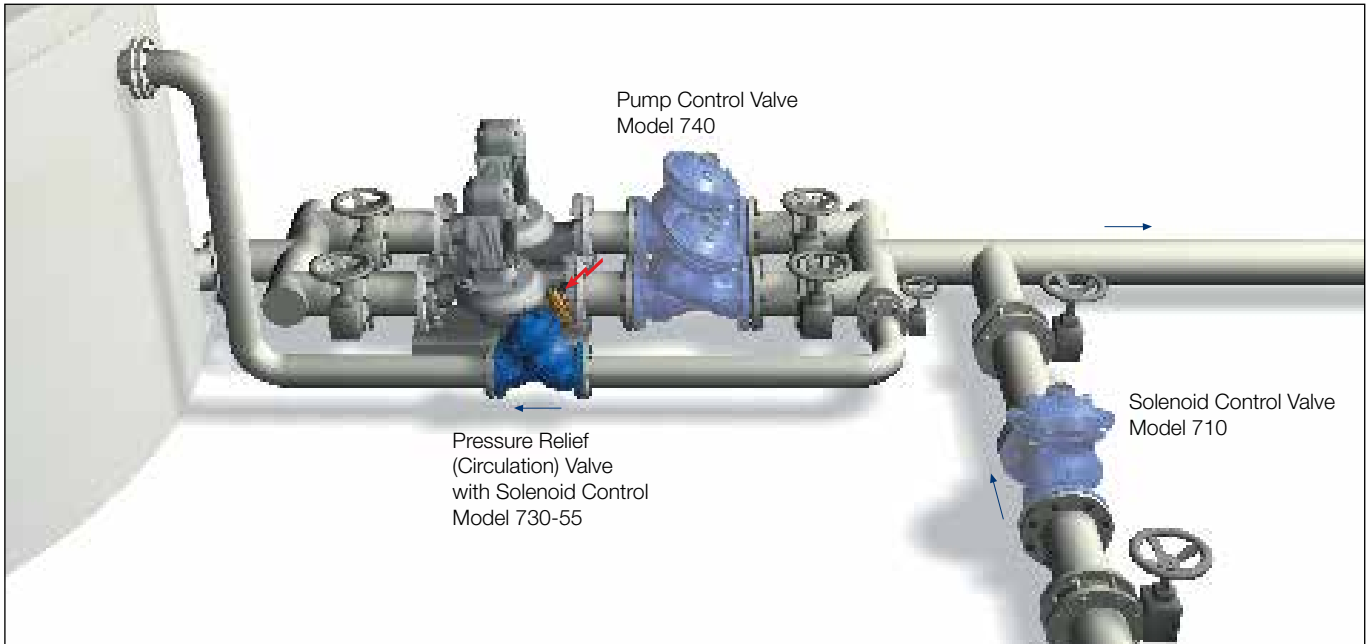


Typical Applications

Circulating Valve with Reservoir Overflow Protection

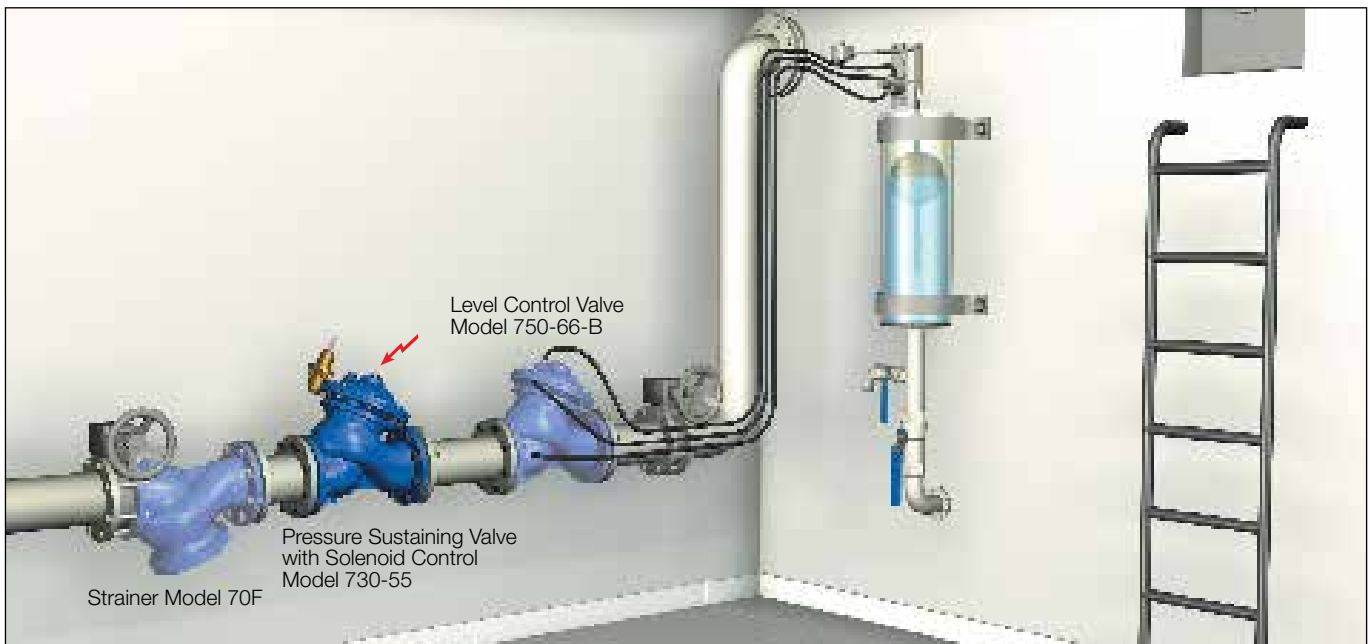
Water is supplied to the consumer network from the reservoir or directly from the major supply network:

- During pumping from the reservoir, the Normally 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 Normally 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.





Technical Data

Size Range: DN40-900 ; 1½-36"

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

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)

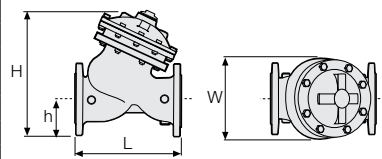
Kv = Metric system - valve flow coefficient
(flow in m³/h at 1 bar ΔP with 15°C water)

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" | | |
|--------------|-------------------------------|----------------------|------|----|----|----|------|----|----|-----|----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Flow Data | 700 & 700ES | Kv / Cv - Flat | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 700 & 700EN | Kv / Cv - "Y" Flat | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 700 & 700EN | Kv / Cv - "Y" V-Port | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 700-ES | PN16; 25 | L (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | PN16; 25 | W (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | PN16; 25 | h (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | PN16; 25 | H (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | PN16; 25 | Weight (Kg/lb) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 700-EN | PN16; 25 | L (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | PN16; 25 | W (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | PN16; 25 | h (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | PN16; 25 | Weight (Kg/lb) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 700 Flanged | "Y" PN16 Class 150 | L (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | "Y" PN16 Class 150 | W (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | "Y" PN16 Class 150 | H (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | "Y" PN16 Class 150 | Weight (Kg/lb) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 700 Flanged | "Y" PN25 Class 300 | L (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | "Y" PN25 Class 300 | W (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | "Y" PN25 Class 300 | h (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | "Y" PN25 Class 300 | H (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | "Y" PN25 Class 300 | Weight (Kg/lb) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 700 Threaded | Angle PN16; 25 Class 150; 300 | L (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Angle PN16; 25 Class 150; 300 | W (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Angle PN16; 25 Class 150; 300 | h (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Angle PN16; 25 Class 150; 300 | H (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Angle PN16; 25 Class 150; 300 | Weight (Kg/lb) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Angle PN16; 25 Class 150; 300 | L (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Angle PN16; 25 Class 150; 300 | W (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Angle PN16; 25 Class 150; 300 | R (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Angle PN16; 25 Class 150; 300 | h (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Angle PN16; 25 Class 150; 300 | H (mm / inch) | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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

| DN / Size | | 600 | 24" | 700 | 28" | 750 | 30" | 800 | 32" | 900 | 36" |
|----------------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Globe PN16 Class 150 | L (mm / inch) | 1,450 | 57.1 | 1,650 | 65 | 1,750 | 68.9 | 1,850 | 72.8 | 1,850 | 72.8 |
| | W (mm / inch) | 1,250 | 49.2 | 1,250 | 49.2 | 1,250 | 49.2 | 1,250 | 49.2 | 1,250 | 49.2 |
| | 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 |
| Globe PN25 Class 300 | L (mm / inch) | 1,500 | 59.1 | 1,650 | 65 | 1,750 | 68.9 | 1,850 | 72.8 | 1,850 | 72.8 |
| | W (mm / inch) | 1,250 | 49.2 | 1,250 | 49.2 | 1,250 | 49.2 | 1,250 | 49.2 | 1,250 | 49.2 |
| | 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) | 3,500 | 7,700 | 3,700 | 8,140 | 3,900 | 8,580 | 4,100 | 9,020 | 4,250 | 9,370 |

