

Pressure Relief Valve

with Electric Override

Model: FP 430-59



Description

The BERMAD Model FP 430-59 combines fire pump relief with a pre-opening feature to anticipate pump start-up surge. The valve opens fully by means of electric override upon pump start-up, and continues to function as a pressure relief valve.

The valve performs reliably in high capacity fire pump systems.

Typical Applications



Individual high capacity fire-pumps



Petrochemical complexes and refineries



Harbors and Airports



Large-scale industrial plants

Features and Benefits

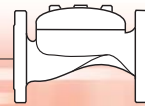
- **Hydraulically powered valve design** –
Eliminates jamming problems
- **Closes drip-tight time after time**
- **One-piece molded single moving part** –
No maintenance required
- **Dual pilot valve parallel system, hydraulic & electric**
- **Quick response with minimal power requirement**
- **Continues to act as relief valve upon electric failure**
- **Hydro-efficient body design**
 - Wide rangeability
 - Unrestricted flow path
- **In-line servicable** – minimal down time

Optional Features

- Hazardous locations solenoid
- Electric limit-switch and/or valve position flow indicator
- Large control filter (code: F)
- Seawater service construction

Note: Optional features can be mixed and matched.

Consult your local BERMAD representative for full details

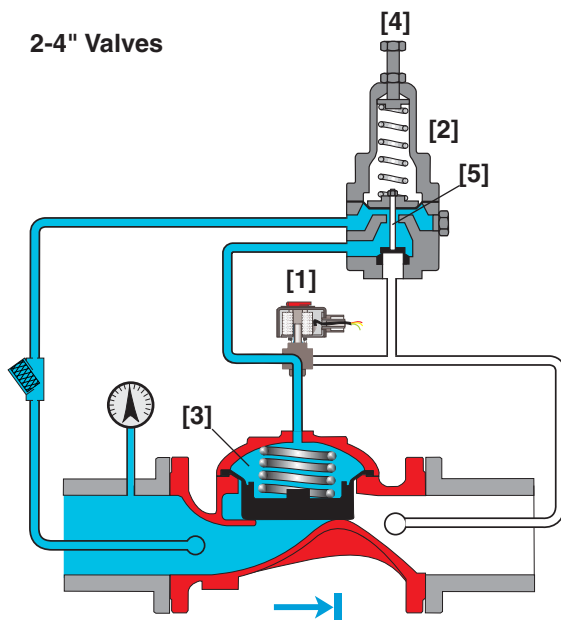


Operation

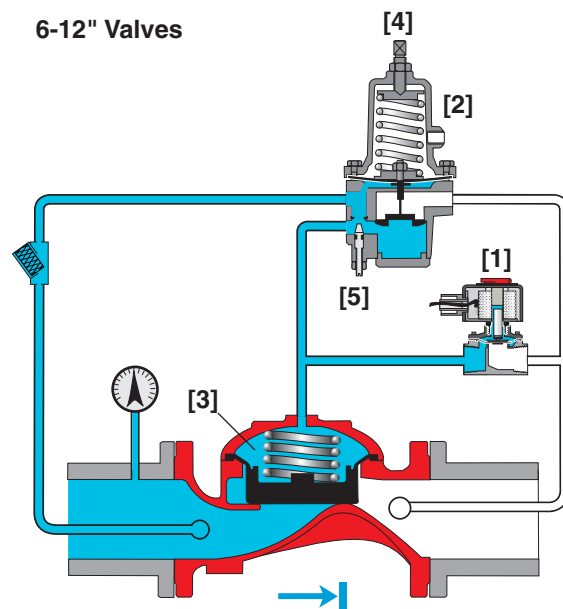
The BERMAD Model FP 430-59 is equipped with 2 parallel control systems to provide both pressure relief (via hydraulic pilot valve) and pump start-up surge anticipation (via solenoid valve):

- Simultaneously with electrically powering the pump to start, an electric command is sent to the Solenoid Valve [1]. This fully opens the main valve, ensuring that pump start-up sudden flow and pressure surge will be relieved and will not cause a water hammer effect. Via a timer, the electric power is kept active long enough to ensure functionality. After the electric command is turned off, the pump pressure relief feature remains active.
- When the Pressure Sustaining (PS) Pilot [2] senses upstream pressure that is higher than its set point, it acts upon the main valve control chamber [3] causing the main valve to modulate open, relieving excess pressure to either a reservoir or sump. The PS Pilot is equipped with an adjusting screw [4] to preset the desired upstream pressure and an integral needle valve [5] to control the main valve closing speed.

2-4" Valves



6-12" Valves



Engineer Specifications

The pressure relief valve shall be both solenoid pilot and hydraulic pilot controlled. The main valve shall be an elastomeric type globe valve with a rolling-diaphragm.

Valve actuation shall be accomplished by a fully peripherally supported, one-piece balanced rolling-diaphragm vulcanized with a rugged radial seal disk. The diaphragm assembly shall be the only moving part.

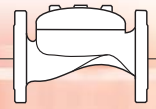
The valve shall have an **unobstructed flow path**, with no stem guide or **supporting ribs**.

The valve shall have a removable cover for quick in-line service enabling all necessary inspection and servicing.

The pilot system shall be field adjustable, with adjustable valve closing speed, integrated into the main valve, hydraulically-tested and supplied as an assembly consisting of:

- Relief pilot valve with built-in, internal needle valve (6"-12" only)
- Solenoid valve
- "Y" strainer

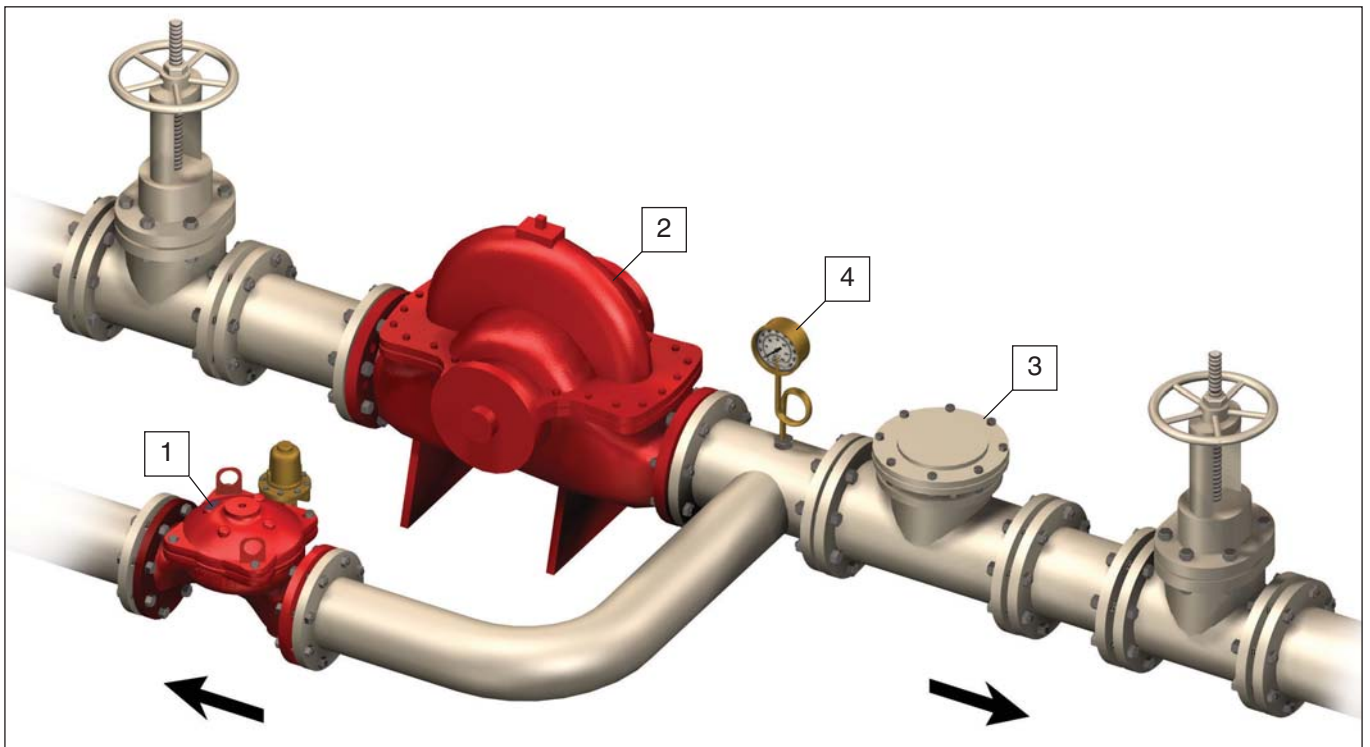
The control trim shall be supplied as an assembly, pre-assembled and hydraulically tested at an ISO 9000 and 9001 certified factory.



Typical Installations

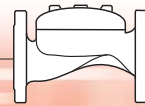
System Components

1. BERMAD Model FP 430-59
2. Fire Pump
3. Check Valve
4. Pressure Gauge

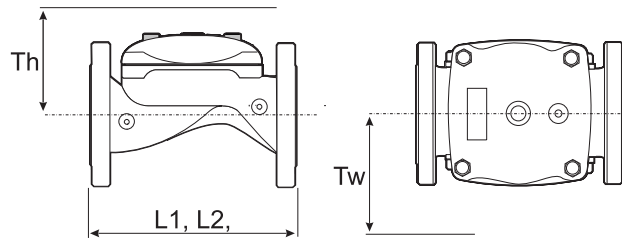


Installation Considerations

- Valve size should be no less than NFPA-20 requirements.
- Provide adequate clearance around valve for maintenance, ensuring that the actuator can be easily removed.
- Design installation with the valve cover up for best performance.
- Ensure that before the valve is installed, instructions are given to flush the pipeline at full flow.



Technical Data



Valve Size		2"		2½"		3"		4"		6"		8"		10"		12"	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
Dimension	(1)L1	205	8½	205	8½	250	9⅜	320	12⅞	415	16⅝	500	19⅞	605	23⅜	725	28½
	(2)L2	180	7⅛	210	8¼	255	10⅛	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tw	284	11⅜	284	11⅜	300	11⅜	313	12⅝	341	13⅞	415	16⅝	443	17⅞	481	18⅝
	Th	210	8¼	210	8¼	215	8⅞	243	9⅞	315	12⅜	350	13¾	382	15	430	6⅝

Notes:

1. L1 & is for flanged.
2. L2 & La2 are for threaded NPT or BSP.
3. Tw & Th are max for pilot system.
4. Data is for envelope dimensions, component positioning may vary.
5. Provide space around valve for maintenance.

Connection Standard

- Flanged: ANSI B16.42 (Ductile Iron), B16.5 (Steel & Stainless Steel), B16.24 (Bronze)
- ISO PN16
- Threaded: NPT or BSP for 2, 2½ & 3"
- Grooved: ANSI/AWWA C606 for 2, 3, 4 & 6"

Water Temperature

- 0.5 – 50°C (33 – 122°F)

Available Sizes

- Globe: 1½, 3, 2, 2½, 3, 4, 6, 8, 10 & 12"
 - Angle: 2, 3 & 4"
- ### Standard Pressure Rating
- Max. inlet: 175 psi (12 bar)
 - Set: 30 - 175 psi (2 - 12 bar)
 - Test: 365 psi (25 bar)

Approvals

- ABS
- Lloyd's Registered

Manufacturers Standard Materials

Main valve body and cover

- Ductile Iron ASTM A-536

Main valve internals

- Stainless Steel & Elastomer

Control Trim System

- Brass control components/accessories
- Stainless Steel 316 tubing & fittings

Elastomers

- Polyamide fabric reinforced Polyisoprene, NR

Coating

- Electrostatic Powder Coating Polyester, Red (RAL 3002)

Optional Materials

Main valve body and accessories

- Carbon Steel ASTM A-216-WCB
- Stainless Steel 316
- Ni-Al-Bronze ASTM B-148

Control System

- Stainless steel 316

Coating

- Fusion Bonded Epoxy with UV Protection, Anti-Corrosion

Solenoid Pilot Valve

Standard

- 2-way (6-12") / 3-way (2-4"), direct type
- Brass body
- Main valve closed when de-energized
- Enclosure: General purpose watertight, NEMA 4 and 4X / IP65, Class F
- Power: 24VDC, 8 watts
- UL - Listed

Options (see also ordering guide)

- Hazardous locations:
 - Class I Division 1, Gr. A, B, C, D, T4 (code 7)
 - Class I Division 2, Gr. A, B, C, D, T4
 - ATEX, EEx d IIC T5 (code 9)
- Voltage: see ordering guide (voltage option table)
- Stainless steel 316 body material (code K)

