

# Pressure Relief Valve

## with Electric Override

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### Model: FP 430-59



### Description

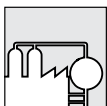
The BERMAD Model FP 430-59 combines fire pump relief with a pre-opening feature to anticipate pump start-up surge. The valve opens fully by means of electric override upon pump start-up, and continues to function as a pressure relief valve.

The valve performs reliably in high capacity fire pump systems.

### Typical Applications



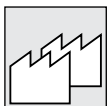
Individual high capacity fire-pumps



Petrochemical complexes and refineries



Harbors and Airports



Foam recirculation; maintains required foam pressure

### Features and Benefits

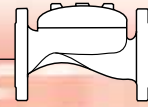
- **Hydraulically powered valve design** –  
Eliminates jamming problems
- **Closes drip-tight time after time**
- **One-piece molded elastomeric moving part** –  
No maintenance required
- **Dual pilot valve parallel system, hydraulic & electric**
- **Quick response with minimal power requirement**
- **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**
- **Valve Position Single/Double Limit Switches**

**Note:** Optional features can be mixed and matched.

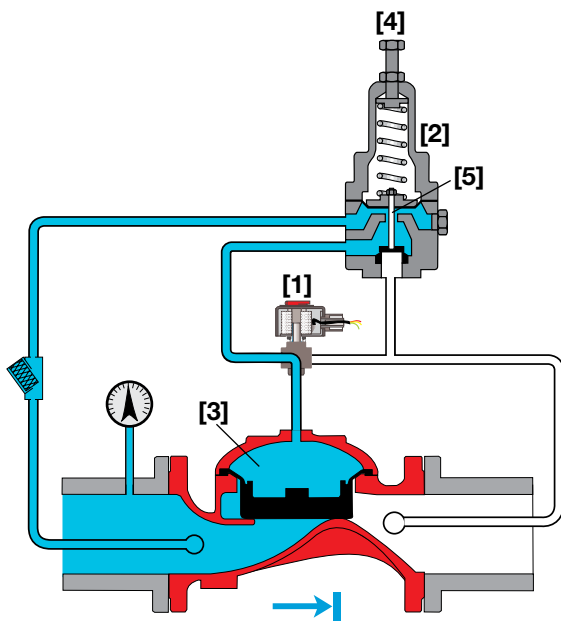
Consult your local BERMAD representative for full details



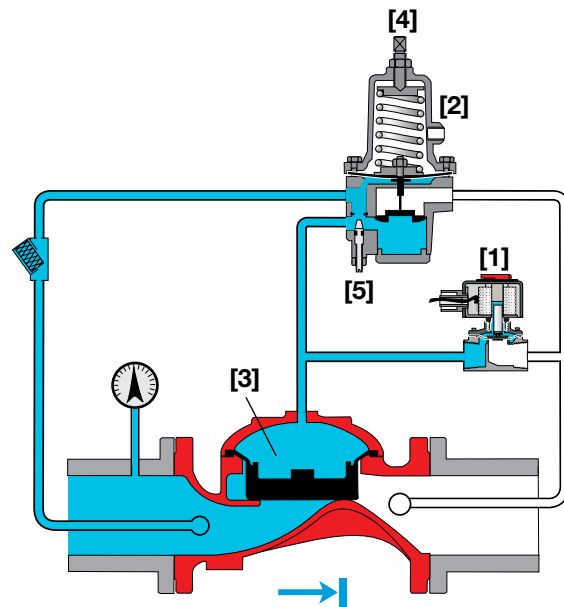
## Operation

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.



1.5 - 4" Configuration (Close)



6" - 12" Configuration (Close)

## 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.

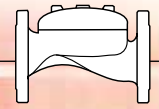
The valve shall have an unobstructed flow path, with no stem guide or supporting ribs.

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

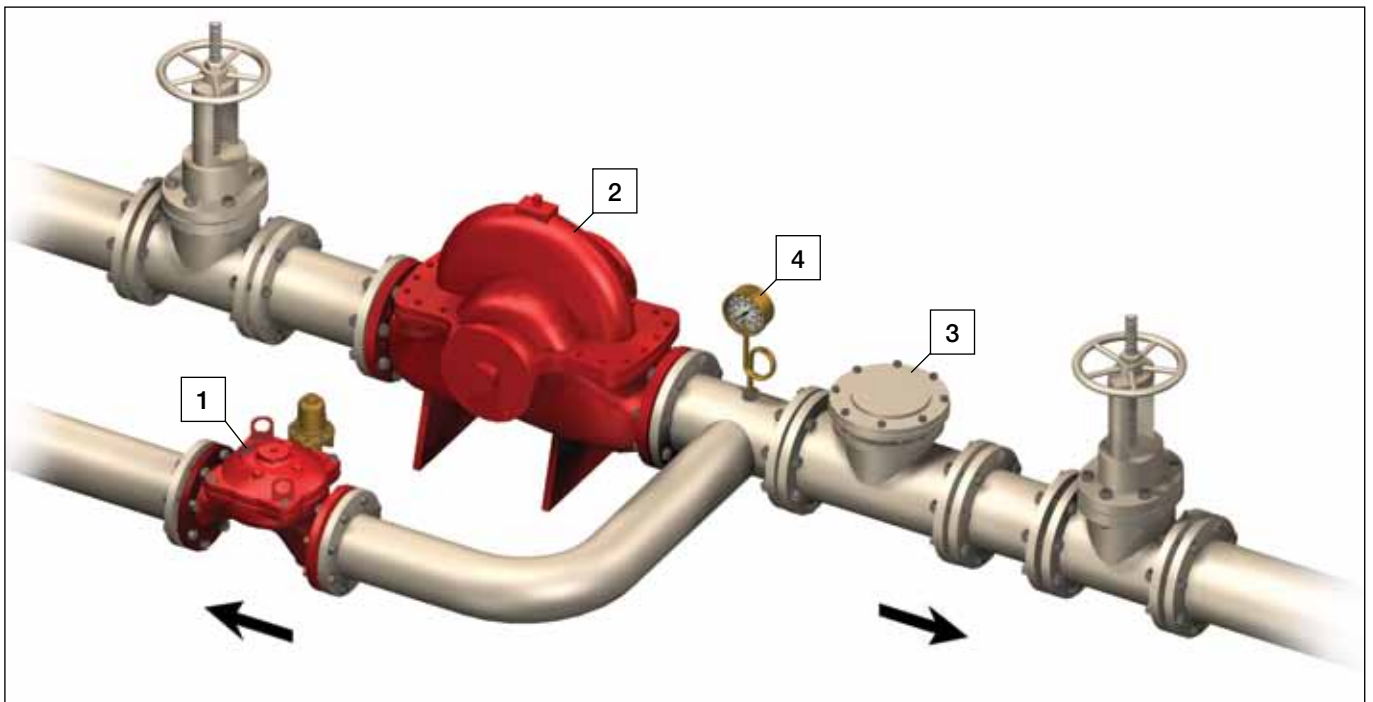
The control line shall be supplied as an assembly, pre-assembled and hydraulically tested at an ISO 9000 and 9001 certified factory.



## Typical Installations

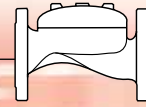
### System Components

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

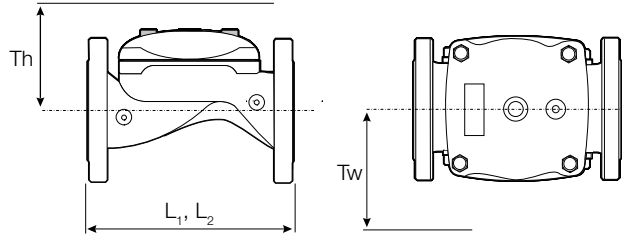


## Installation Considerations

- 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, pipeline is flushed at full flow.



## Technical Data



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	
Dimensions	L <sub>1</sub> <sup>(1)</sup>	205	8½	205	8½	257	10⅛	320	12 <sup>9</sup> / <sub>16</sub>	415	16 <sup>5</sup> / <sub>16</sub>	500	19 <sup>11</sup> / <sub>16</sub>	605	23 <sup>13</sup> / <sub>16</sub>	725	28½
	L <sub>2</sub> <sup>(2)</sup>	180	7 <sup>1</sup> / <sub>16</sub>	210	8¼	255	10 <sup>1</sup> / <sub>16</sub>	N/A	N/A	N/A	N/A	500	19 <sup>11</sup> / <sub>16</sub>	N/A	N/A	N/A	N/A
	Tw	284	11 <sup>3</sup> / <sub>16</sub>	284	11 <sup>3</sup> / <sub>16</sub>	300	11 <sup>3</sup> / <sub>16</sub>	313	12 <sup>5</sup> / <sub>16</sub>	341	13 <sup>7</sup> / <sub>16</sub>	415	16 <sup>5</sup> / <sub>16</sub>	443	17 <sup>7</sup> / <sub>16</sub>	481	18 <sup>15</sup> / <sub>16</sub>
	Th	210	8¼	210	8¼	215	8 <sup>7</sup> / <sub>16</sub>	243	9 <sup>9</sup> / <sub>16</sub>	315	12 <sup>3</sup> / <sub>8</sub>	350	13¾	382	15	430	6 <sup>15</sup> / <sub>16</sub>

### Notes:

- L<sub>1</sub> is for flanged valves.
- L<sub>2</sub> is for threaded NPT or ISO-7-Rp.
- Tw & Th are max. for pilot system.
- Data is for envelope dimensions, component positioning may vary.
- 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 ISO-7-Rp for 2, 2½ & 3"
- Grooved: ANSI/AWWA C606 for 2, 3, 4, 6 & 8"

### Water Temperature

- 0.5 – 50°C (33 – 122°F)

### Available Sizes

- Globe: 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)

\* Pressure rating might be limited due to solenoid valve rating

### 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

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

#### Control Trim

- Stainless Steel 316

#### Coating

- Fusion-Bonded Epoxy with UV Protection, Anti-Corrosion
- High Build Epoxy

### 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)

