Pressure Reducing Valve

Model: FP 420-00

Description

The Model FP 420-00 Pressure Reducing Valve is a hydraulically self operated, diaphragm actuated control valve that reduces high, unstable upstream pressure to maintain precise stable downstream pressure, regardless of flactuating demand or varying upstream pressure.

Typical Applications

- Hose station feeds
- Sprinkler systems with over pressure
- Deluge systems with over pressure
- Foam systems
- Fire hydrant water supply

Features and Benefits

- **Advanced Elastomeric Globe type –** Low pressure loss
- **One-piece molded elastomeric moving part –** No maintenance required
- **Simple design –** Cost effective
- **Factory pre-assembled trim –** Out-of-Box Quality
- **In-line serviceable –** Minimal down time

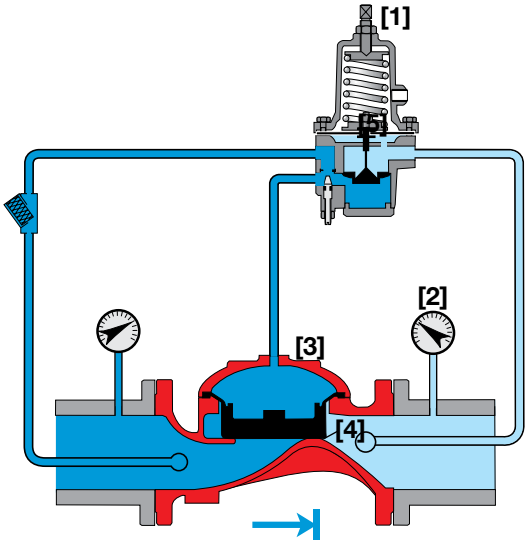
Optional Features

- **Large control filter** (code: F)
- **Seawater service**
- **Valve Position Single/Double Limit Switches**

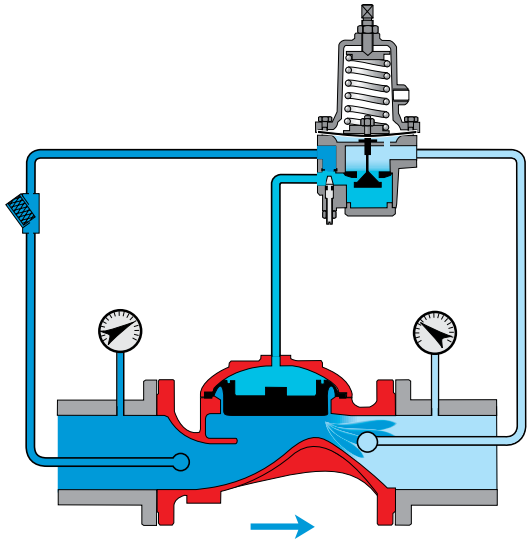
Note: Optional features can be mixed and matched. Consult your Bermad representative for full details

Operation

The BERMAD Model FP 420-00, pilot operated pressure reducing valve automatically and accurately reduces upstream water pressure to a specific, adjustable value. The FP 420-00 operates under both flowing and non-flowing (static) conditions. The Pressure Reducing Pilot **[1]** senses downstream pressure **[2]** and in real time modulates the main valve **[3]** to maintain the constant downstream pressure.
In no-flow static conditions, should the downstream pressure start rising above pilot setting, the pilot closes, shutting the main valve drip-tight **[4]** to maintain the allowable downstream pressure.



Valve Closed (static condition)



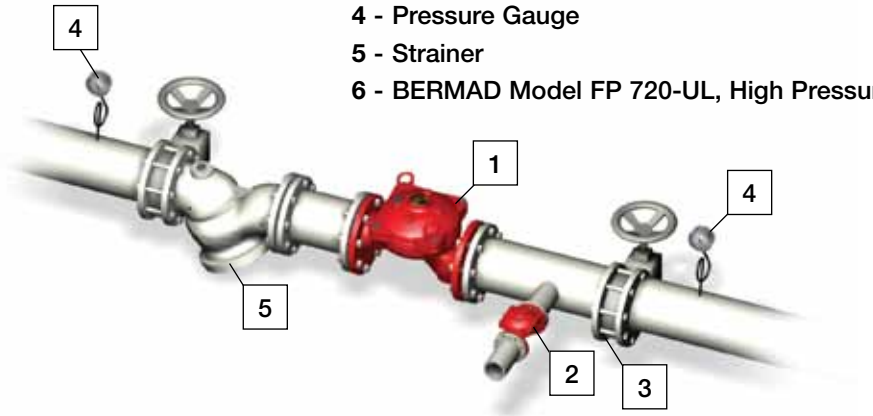
Valve Open (flowing condition)

Engineer Specifications

The pressure reducing valve shall eliminate downstream over-pressure, maintaining a constant downstream delivery pressure, regardless of varying pressures and/or flows.
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 control trim shall be supplied as an assembly, pre-assembled and hydraulically tested at an ISO 9000 and 9001 certified factory.

Typical Installations

Standard Pressure Reducing System

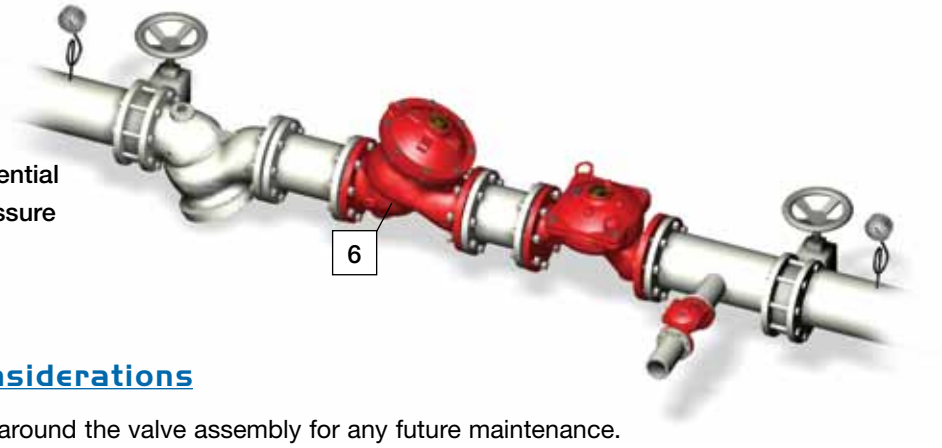


Parallel Pressure Reducing System

- Wide flow range
- Redundant safety
- Serviceable with zero down time

Two-Stage Pressure Reducing System

- High pressure differential
- Added reduced pressure zone protection



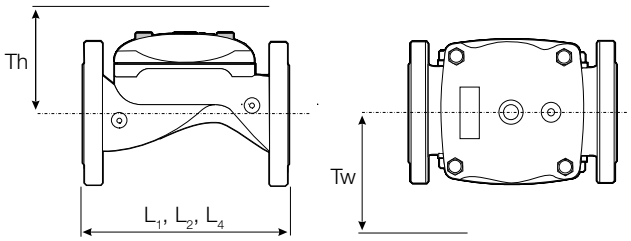
System Components

1 - BERMAD Model FP 420-00
2 - BERMAD Model FP-430-UF Pressure Relief Valve
3 - Isolating Valve
4 - Pressure Gauge
5 - Strainer
6 - BERMAD Model FP 720-UL, High Pressure Reducing Valve

Installation Considerations

- Allow enough room around the valve assembly for any future maintenance.
- Install isolating valves upstream and downstream of the system.
- Install the valve horizontally with the cover facing up (consult Bermad for other configurations).
- Install a relief valve (recommended: BERMAD Model FP 430-UF) of the appropriate size on the downstream side of the FP 420-00, as required by NFPA-20 standard.
- Install a pressure gauge on each side of the system.

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_1 (1)	205	8 1/2	205	8 1/2	257	10 1/8	320	12 9/16	415	16 5/16	500	19 11/16	605	23 13/16	725	28 1/2
	L_2 (2)	180	7 1/16	210	8 1/4	255	10 1/16	N/A	N/A	N/A	N/A	500	19 11/16	N/A	N/A	N/A	N/A
	L_4 (2)	180	7 1/16	210	8 1/4	255	10 1/16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tw	284	11 3/16	284	11 3/16	300	11 3/16	313	12 5/16	341	13 7/16	415	16 5/16	443	17 7/16	481	18 15/16
	Th	210	8 1/4	210	8 1/4	215	8 7/16	243	9 9/16	315	12 3/8	350	13 3/4	382	15	430	6 15/16

Notes:
1. L_1 is for flanged valves.
2. L_2 is for threaded NPT or ISO-7-Rp.
3. L_4 is for grooved end connections (Ductile Iron Only).
4. Tw & Th are max. for pilot system.
5. Data is for envelope dimensions, component positioning may vary.
6. 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"

Pressure Rating
- Max. inlet: 250 psi (17 bar)
- Set: 30 - 165 psi (2 - 11.5 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
- Carbon Steel ASTM A-216 WCB
- Stainless Steel 316
- Ni-Al-Bronze ASTM B-148

Control Trim
- Stainless Steel 316
- Monel® and Al-Bronze
- Hastelloy C-276

Elastomers
- NBR
- EPDM

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