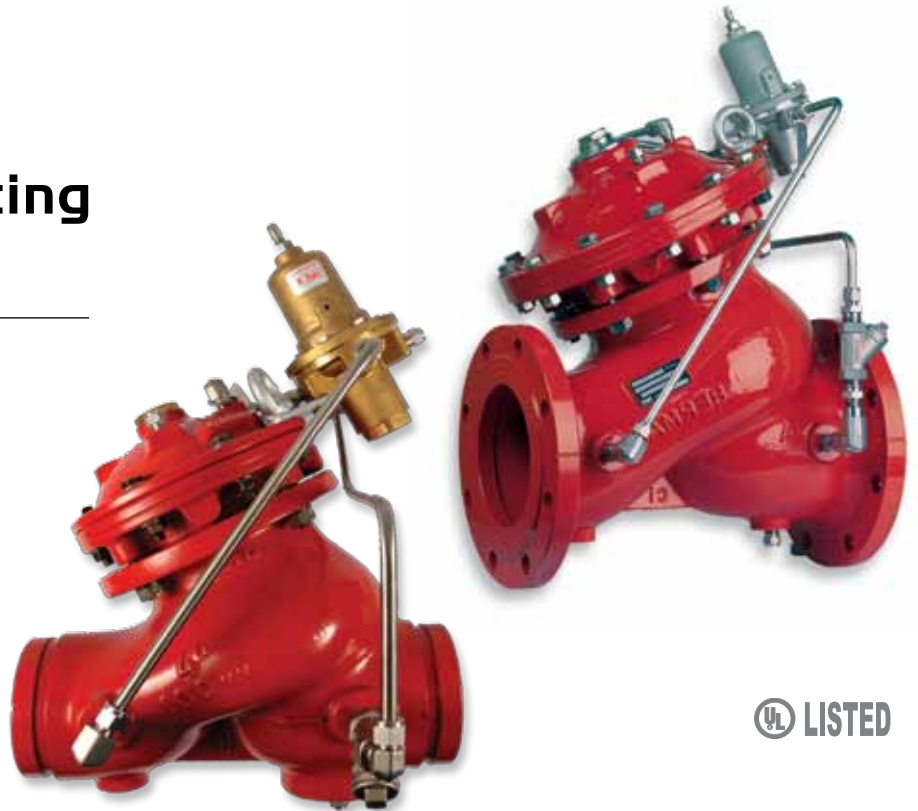


## Pressure Reducing Valve

Model: FP 720-UL



UL LISTED

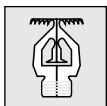
### Description

The Model FP 720-UL reduces high, unstable upstream pressure to maintain precise stable downstream pressure, regardless of changing upstream pressure or flow, and requires only existing line pressure to operate.

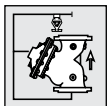
### Typical Applications



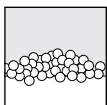
Hose station feeds



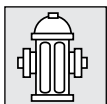
Sprinkler systems with over pressure



Deluge systems with over pressure



Foam systems



Fire hydrant water supply

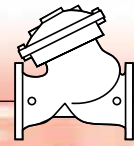
### Features and Benefits

- **Minimized pressure loss**
  - Unobstructed flow path
  - Advanced “Y”, or angle pattern
  - Wide range flow V-Port Throttling Plug
- **Advanced pilot system with adjustable closing speed** – Accurately maintains static and dynamic pressure
- **Double chambered unitized actuator**
  - Easy, in-line inspection ensures minimal down time
  - Quick and smooth valve action
- **Replaceable stainless steel valve seat** – Long valve life

### Optional Features

- **Large control filter** (code: F)
- **Seawater service FS** as prefix to model

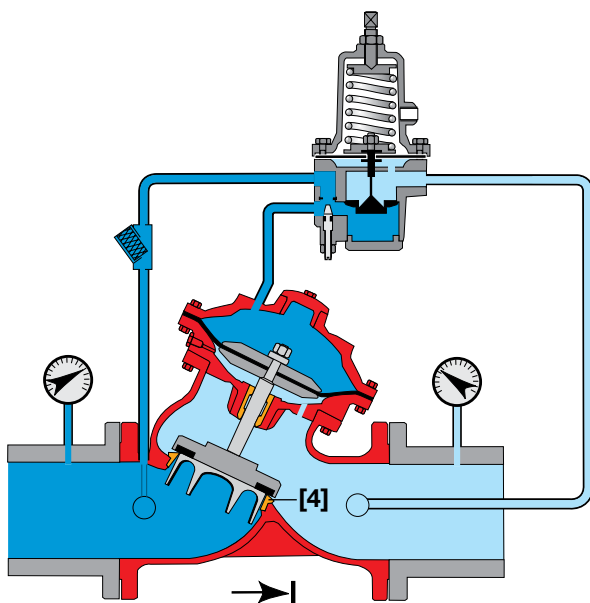
**Note:** Optional features can be mixed and matched. Consult your Bermad representative for full details.



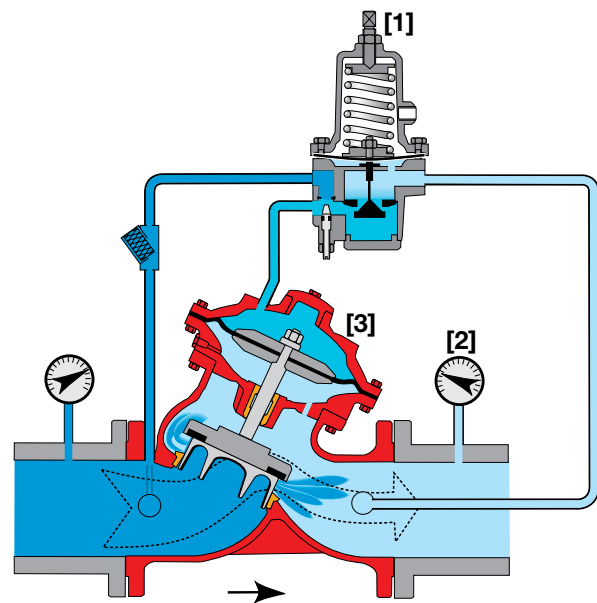
## Operation

The BERMAD Model FP 720-UL, pilot operated pressure reducing valve automatically and accurately reduces downstream water pressure to a specific, adjustable value. The FP 720-UL 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 a 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 sealing [4] to maintain the allowable downstream pressure.



Valve Closed (static condition)



Valve Open (flowing condition)

## Engineer Specifications

The Pressure Reducing Valve shall be UL Listed for fire protection. It shall eliminate downstream over-pressure, maintaining a constant downstream delivery pressure, regardless of varying pressures and/or flows.

The main valve shall be a diaphragm actuated, "Y" pattern (or angle) valve.

Valve actuation shall be accomplished by one moving assembly containing a double chambered actuator, which shall include a stainless steel stem and a resilient elastomeric seal held by a flat seal disk and creating a drip tight seal against the seat.

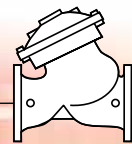
The valve seat shall be removable and made of stainless steel. The seat bore net area shall be no less than that of the valve nominal diameter and shall have an **unobstructed flow path** with no stem guide or **supporting ribs**.

All necessary inspection and servicing shall be possible in-line.

The valve shall be UL-Listed as a pressure controlling water control valve.

The Pressure Reducing Pilot Valve shall be UL-Listed as part of the assembly.

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

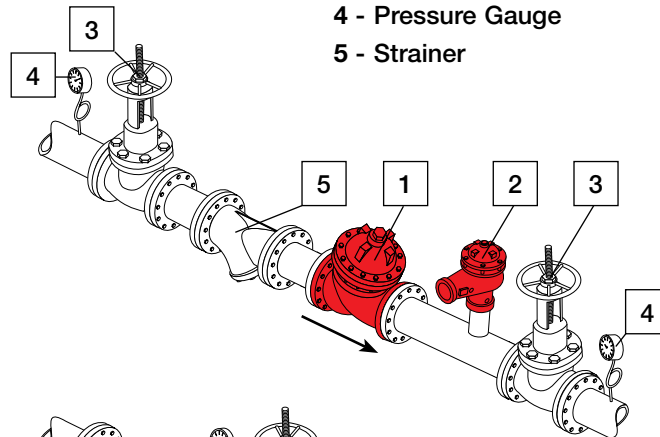


## Typical Installations

## System Components

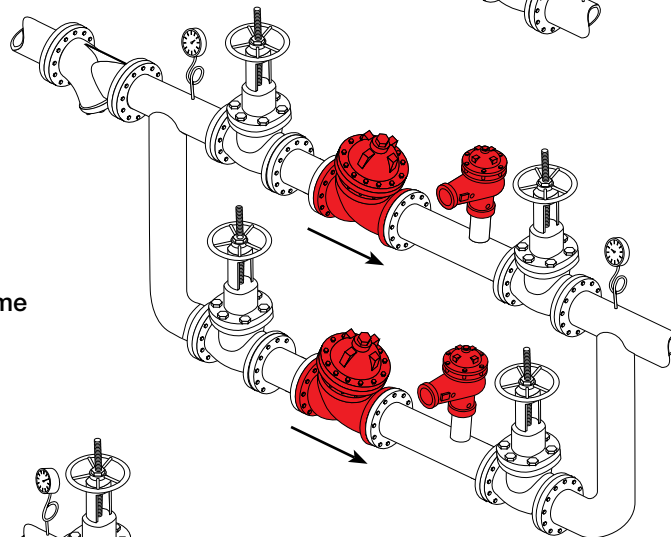
- 1 - BERMAD Model FP 720-UL
- 2 - Pressure Relief Valve (BERMAD Model FP 730-UF)
- 3 - Isolating Valve
- 4 - Pressure Gauge
- 5 - Strainer

### Standard Pressure Reducing System



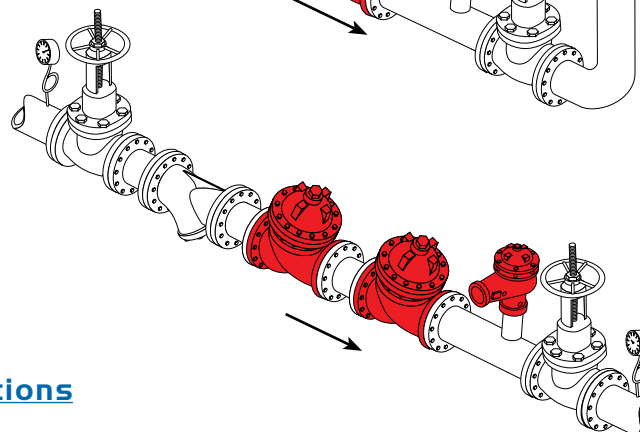
### Parallel Pressure Reducing System

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



### Two-Stage Pressure Reducing System

- High pressure differential
- Added reduced pressure zone protection



## Installation Considerations

- Allow enough room around the valve assembly for any future maintenance.
- Install isolating valves upstream and downstream of the valve system.
- Install the valve horizontally with the cover facing up.
- Install a UL-Listed relief valve (recommended: BERMAD Model FP 730-UF) of the appropriate size on the downstream side of the FP 720-UL, as required by NFPA-20 standard.
- Install a UL-Listed pressure gauge on both sides of the valve.

### UL Listed

The BERMAD Model FP 720-UL is UL-Listed when installed as a unit.

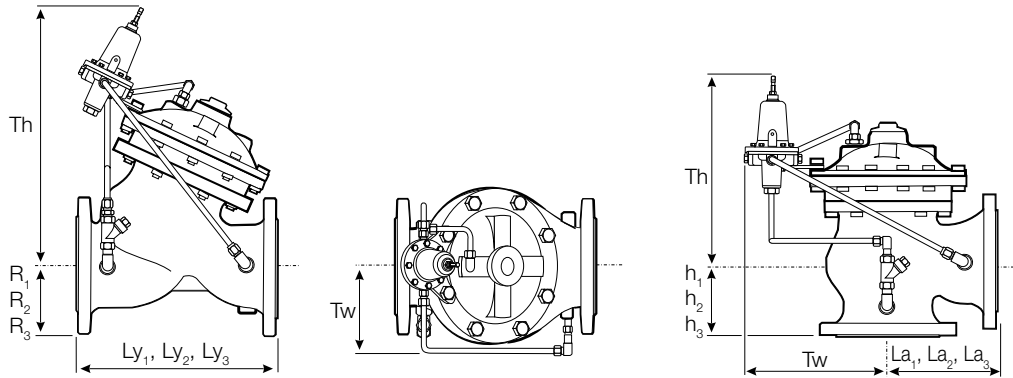
# BERMAD Fire Protection



Model: FP 720-UL

700 Series

## Technical Data



| Size       | 1½"                            |                                 | 2"                              |                                 | 2½"                            |                                 | 3"                             |                                | 4"                              |                                  | 6"                             |      | 8"                              |                                 | 10"                              |                                 | 12"                              |                                  | 14"                              |                                  | 16"                              |                                 |                                |
|------------|--------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------------------------|---------------------------------|--------------------------------|--------------------------------|---------------------------------|----------------------------------|--------------------------------|------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---------------------------------|--------------------------------|
|            | mm                             | inch                            | mm                              | inch                            | mm                             | inch                            | mm                             | inch                           | mm                              | inch                             | mm                             | inch | mm                              | inch                            | mm                               | inch                            | mm                               | inch                             | mm                               | inch                             | mm                               | inch                            |                                |
| Dimensions | Ly <sub>1</sub> <sup>(1)</sup> | 205                             | 8 <sup>1</sup> / <sub>16</sub>  | 205                             | 8 <sup>1</sup> / <sub>16</sub> | 209                             | 8 <sup>1</sup> / <sub>4</sub>  | 250                            | 9 <sup>7</sup> / <sub>8</sub>   | 320                              | 12 <sup>5</sup> / <sub>8</sub> | 415  | 16 <sup>3</sup> / <sub>8</sub>  | 500                             | 19 <sup>11</sup> / <sub>16</sub> | 605                             | 23 <sup>13</sup> / <sub>16</sub> | 725                              | 28 <sup>9</sup> / <sub>16</sub>  | 733                              | 28 <sup>7</sup> / <sub>8</sub>   | 990                             | 39                             |
|            | Ly <sub>2</sub> <sup>(2)</sup> | 155                             | 6 <sup>1</sup> / <sub>8</sub>   | 155                             | 6 <sup>1</sup> / <sub>8</sub>  | 212                             | 8 <sup>3</sup> / <sub>8</sub>  | 250                            | 9 <sup>13</sup> / <sub>16</sub> | N/A                              | N/A                            | N/A  | N/A                             | N/A                             | N/A                              | N/A                             | N/A                              | N/A                              | N/A                              | N/A                              | N/A                              | N/A                             | N/A                            |
|            | Ly <sub>3</sub> <sup>(3)</sup> | 210                             | 8 <sup>3</sup> / <sub>4</sub>   | 210                             | 8 <sup>3</sup> / <sub>4</sub>  | 212                             | 8 <sup>3</sup> / <sub>8</sub>  | 264                            | 10 <sup>7</sup> / <sub>16</sub> | 335                              | 13 <sup>3</sup> / <sub>4</sub> | 433  | 17 <sup>1</sup> / <sub>16</sub> | 524                             | 20 <sup>9</sup> / <sub>8</sub>   | 637                             | 25                               | 762                              | 30                               | 767                              | 30 <sup>9</sup> / <sub>16</sub>  | 1,024                           | 40 <sup>3</sup> / <sub>4</sub> |
|            | La <sub>1</sub> <sup>(1)</sup> | 121                             | 4 <sup>3</sup> / <sub>4</sub>   | 121                             | 4 <sup>3</sup> / <sub>4</sub>  | 140                             | 5 <sup>1</sup> / <sub>2</sub>  | 152                            | 6                               | 190                              | 7 <sup>1</sup> / <sub>2</sub>  | 225  | 8 <sup>7</sup> / <sub>8</sub>   | 265                             | 10 <sup>7</sup> / <sub>16</sub>  | 320                             | 12 <sup>5</sup> / <sub>8</sub>   | 396                              | 15 <sup>9</sup> / <sub>16</sub>  | 400                              | 15 <sup>3</sup> / <sub>4</sub>   | 450                             | 17 <sup>3</sup> / <sub>4</sub> |
|            | La <sub>2</sub> <sup>(2)</sup> | 120                             | 4 <sup>3</sup> / <sub>4</sub>   | 120                             | 4 <sup>3</sup> / <sub>4</sub>  | 140                             | 5 <sup>1</sup> / <sub>2</sub>  | 159                            | 6 <sup>1</sup> / <sub>4</sub>   | N/A                              | N/A                            | N/A  | N/A                             | N/A                             | N/A                              | N/A                             | N/A                              | N/A                              | N/A                              | N/A                              | N/A                              | N/A                             | N/A                            |
|            | La <sub>3</sub> <sup>(3)</sup> | 127                             | 5                               | 127                             | 5                              | 149                             | 5 <sup>7</sup> / <sub>8</sub>  | 159                            | 6 <sup>1</sup> / <sub>4</sub>   | 200                              | 7 <sup>7</sup> / <sub>8</sub>  | 234  | 9 <sup>9</sup> / <sub>16</sub>  | 277                             | 10 <sup>7</sup> / <sub>8</sub>   | 336                             | 13 <sup>3</sup> / <sub>4</sub>   | 415                              | 16 <sup>5</sup> / <sub>16</sub>  | 419                              | 16 <sup>1</sup> / <sub>2</sub>   | 467                             | 18 <sup>3</sup> / <sub>8</sub> |
|            | h <sub>1</sub> <sup>(1)</sup>  | 82                              | 3 <sup>1</sup> / <sub>4</sub>   | 82                              | 3 <sup>1</sup> / <sub>4</sub>  | 102                             | 4                              | 102                            | 4                               | 127                              | 5                              | 152  | 6                               | 203                             | 8                                | 219                             | 8 <sup>5</sup> / <sub>8</sub>    | 275                              | 10 <sup>13</sup> / <sub>16</sub> | 275                              | 10 <sup>13</sup> / <sub>16</sub> | 369                             | 14 <sup>1</sup> / <sub>2</sub> |
|            | h <sub>2</sub> <sup>(2)</sup>  | 82                              | 3 <sup>1</sup> / <sub>4</sub>   | 82                              | 3 <sup>1</sup> / <sub>4</sub>  | 102                             | 4                              | 114                            | 4 <sup>1</sup> / <sub>2</sub>   | N/A                              | N/A                            | N/A  | N/A                             | N/A                             | N/A                              | N/A                             | N/A                              | N/A                              | N/A                              | N/A                              | N/A                              | N/A                             | N/A                            |
|            | h <sub>3</sub> <sup>(3)</sup>  | 89                              | 3 <sup>1</sup> / <sub>2</sub>   | 89                              | 3 <sup>1</sup> / <sub>2</sub>  | 109                             | 4 <sup>5</sup> / <sub>16</sub> | 108                            | 4 <sup>1</sup> / <sub>4</sub>   | 135                              | 5 <sup>5</sup> / <sub>16</sub> | 165  | 6 <sup>1</sup> / <sub>2</sub>   | 216                             | 8 <sup>1</sup> / <sub>2</sub>    | 235                             | 9 <sup>1</sup> / <sub>4</sub>    | 294                              | 11 <sup>1</sup> / <sub>2</sub>   | 294                              | 11 <sup>1</sup> / <sub>2</sub>   | 386                             | 5 <sup>3</sup> / <sub>16</sub> |
|            | R <sub>1</sub> <sup>(1)</sup>  | 75                              | 2 <sup>15</sup> / <sub>16</sub> | 83                              | 3 <sup>1</sup> / <sub>4</sub>  | 93                              | 3 <sup>5</sup> / <sub>8</sub>  | 100                            | 3 <sup>15</sup> / <sub>16</sub> | 114                              | 4 <sup>1</sup> / <sub>2</sub>  | 140  | 5 <sup>1</sup> / <sub>2</sub>   | 171                             | 6 <sup>3</sup> / <sub>4</sub>    | 203                             | 8                                | 241                              | 9 <sup>1</sup> / <sub>2</sub>    | 267                              | 10 <sup>1</sup> / <sub>2</sub>   | 298                             | 11 <sup>3</sup> / <sub>4</sub> |
|            | R <sub>2</sub> <sup>(2)</sup>  | 40                              | 1 <sup>9</sup> / <sub>16</sub>  | 40                              | 1 <sup>9</sup> / <sub>16</sub> | 48                              | 1 <sup>7</sup> / <sub>8</sub>  | 55                             | 2 <sup>1</sup> / <sub>8</sub>   | N/A                              | N/A                            | N/A  | N/A                             | N/A                             | N/A                              | N/A                             | N/A                              | N/A                              | N/A                              | N/A                              | N/A                              | N/A                             | N/A                            |
|            | R <sub>3</sub> <sup>(3)</sup>  | 78                              | 3 <sup>1</sup> / <sub>16</sub>  | 83                              | 3 <sup>1</sup> / <sub>4</sub>  | 95                              | 3 <sup>3</sup> / <sub>4</sub>  | 108                            | 4 <sup>1</sup> / <sub>4</sub>   | 127                              | 5                              | 159  | 6 <sup>1</sup> / <sub>4</sub>   | 191                             | 7 <sup>1</sup> / <sub>2</sub>    | 222                             | 8 <sup>3</sup> / <sub>4</sub>    | 260                              | 10 <sup>1</sup> / <sub>4</sub>   | 292                              | 11 <sup>1</sup> / <sub>2</sub>   | 324                             | 12 <sup>3</sup> / <sub>4</sub> |
|            | Tw                             | 191                             | 7 <sup>1</sup> / <sub>2</sub>   | 191                             | 7 <sup>1</sup> / <sub>2</sub>  | 191                             | 7 <sup>1</sup> / <sub>2</sub>  | 207                            | 8 <sup>1</sup> / <sub>16</sub>  | 242                              | 9 <sup>1</sup> / <sub>2</sub>  | 290  | 11 <sup>1</sup> / <sub>16</sub> | 325                             | 12 <sup>13</sup> / <sub>16</sub> | 370                             | 14 <sup>9</sup> / <sub>16</sub>  | 515                              | 20 <sup>1</sup> / <sub>4</sub>   | 525                              | 20 <sup>11</sup> / <sub>16</sub> | 610                             | 24                             |
| Th         | 312                            | 12 <sup>5</sup> / <sub>16</sub> | 312                             | 12 <sup>5</sup> / <sub>16</sub> | 312                            | 12 <sup>5</sup> / <sub>16</sub> | 364                            | 14 <sup>1</sup> / <sub>2</sub> | 405                             | 15 <sup>15</sup> / <sub>16</sub> | 505                            | 20   | 566                             | 22 <sup>5</sup> / <sub>16</sub> | 639                              | 25 <sup>3</sup> / <sub>16</sub> | 449                              | 17 <sup>11</sup> / <sub>16</sub> | 449                              | 17 <sup>11</sup> / <sub>16</sub> | 541                              | 21 <sup>5</sup> / <sub>16</sub> |                                |

### Notes:

1. Ly<sub>1</sub> for ANSI#150, ISO PN16 & Grooved ends (see available sizes below)
2. La<sub>1</sub> & h<sub>1</sub> for Angle body, ANSI#150 and ISO PN16.
3. Ly<sub>2</sub>, La<sub>2</sub> & h<sub>2</sub> for threaded female, NPT or BSP.

4. Ly<sub>3</sub>, La<sub>3</sub> & h<sub>3</sub> for flanged ANSI #300 and ISO PN25.

5. Data is for maximum envelope dimensions, component positioning may vary.
6. Provide adequate space around valve for maintenance.

### Connection Standard

- Grooved: ANSI/AWWA C606 for 2, 3, 4, 6 & 8"
- Flanged: ANSI B16.42 (Ductile Iron), B16.5 (Steel & Stainless Steel), B16.24 (Bronze), ISO PN16
- Threaded: NPT or BSP 2, 2½ & 3"

### Water Temperature

- 0.5 - 80°C (33 - 180°F)

### Sizes ("Y" & Angle)

- Available Y: 1½ - 20"
- Angle: 1½ - 18"
- 24-36" Globe
- UL-Listed: 2, 2½, 3, 4, 6 & 8"

### Pressure Rating

- UL-Listed 2 - 6": 300 psi (21 bar) 8" to : 175 psi (12 bar)
- Max. for Class#150: 250 psi (17 bar)
- Max. for Class#300: 400 psi (28 bar)
- Max. for Grooved ends: 400 psi (28 bar)
- Setting range: 30 - 165 psi (2 - 11.5 bar)
- Test pressure: 450 psi (31 bar)

### 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/internals

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

#### Control Trim

- Stainless Steel 316
- Monel® and Al-Bronze
- Hastalloy C-276

#### Coating

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

### Approvals

- UL Listed for: Special system water control valves (VLMT), Pressure Reducing and Pressure Control type for Fire Protection Systems.
- ABS
- Lloyd's Registered



bermadfire@bermad.com • www.bermad.com

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