

Pressure Differential Reducing Control Valve (PDRCV)

Model 42T-06

The BERMAD model 42T-06 is an elastomeric hydraulic line pressure driven differential reducing valve, specifically designed for advanced fire protection systems and the latest industry standards. The 42T-06 is equipped with an adjustable differential pilot valve and is used to maintain a set pressure differential between two different points. When the differential between the two sensed pressures approaches the pre-set maximum the pilot valve starts to close the main valve regulating the pressure and preventing the differential from rising further. The 42T-06 is ideal for balanced foam proportioning systems, also as a safeguard for dosing pump flow overload. As an option the 42T-06 can be fitted with a valve position indicator that can include a limit switch suitable for Fire & Gas monitoring systems.



(for illustration only)

Benefits and Features

- **Safety and reliability**
 - Time tested, simple, fail-safe actuation
 - Single piece, rugged elastomeric diaphragm seal - VRSD technology
 - Obstacle-free, uninterrupted flow path
 - No mechanical moving parts
- **High performance**
 - Very high flow efficiency
 - Exceptional proportioning accuracy
 - Straight through flow Y-type body
 - Rated up to PN25 / 365 psi
- **Quick and easy maintenance**
 - In-line serviceable
 - Fast and easy cover removal

Typical Applications

- Pump overload & cavitation protection
- Balanced pressure proportioning systems
- Pump flow safeguard
- Foam concentrate injection systems

Approvals



ABS
American Bureau of Shipping
Type Approval



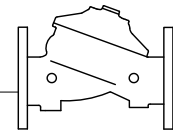
Lloyd's Register
Type Approval



Det Norske Veritas
Type Approval

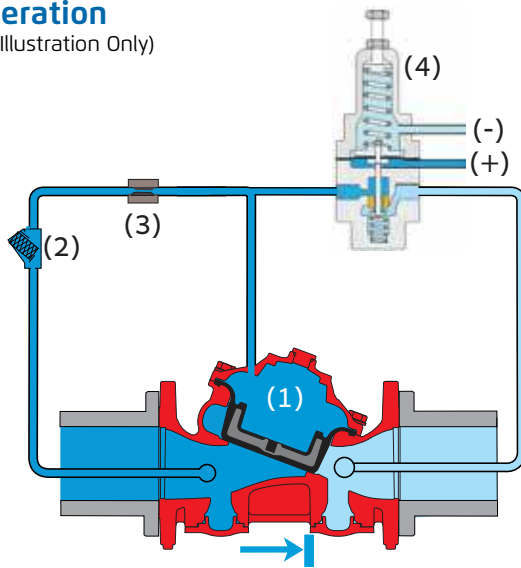
Additional Features

- High Build epoxy coating
- Stainless steel seat ring
- Linear valve position indicator
- Pressure Gauges

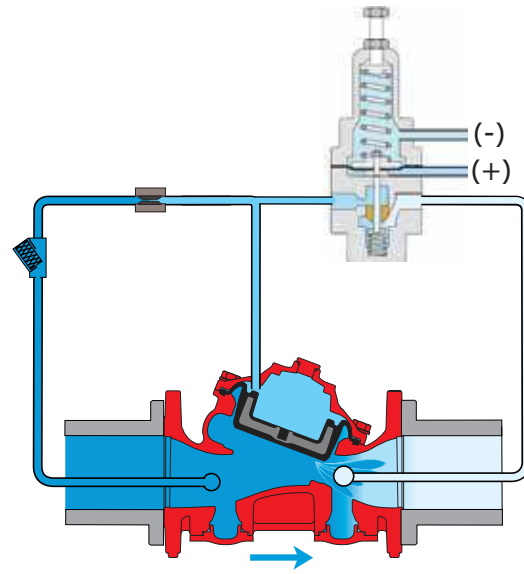


Operation

(for Illustration Only)



Valve Closed (static condition)



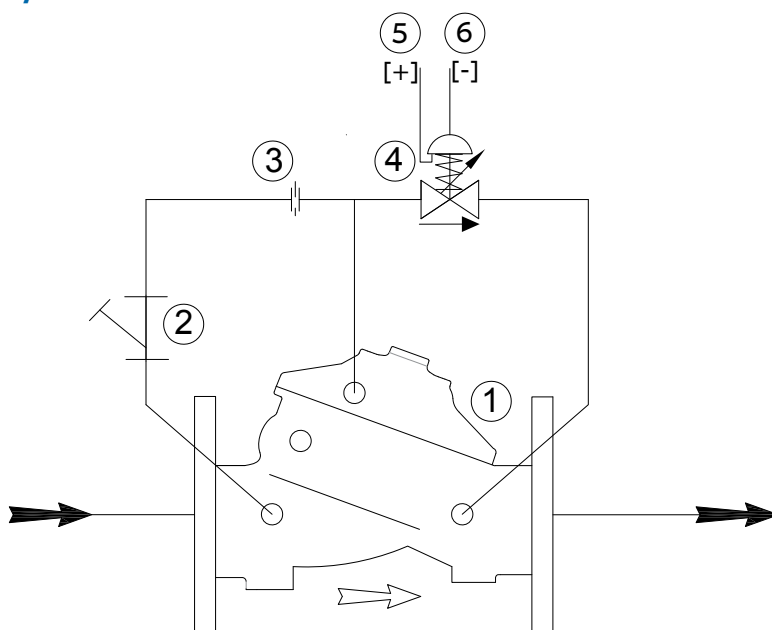
Valve Open (flowing condition)

The BERMAD model 42T-06 is held closed by inlet pressure in the control chamber [1] supplied via the pilot line filter [2] and the restriction orifice [3]. To open the valve the pressure in the control chamber must be released to the outlet by way of the pilot [4] opening.

The pilot senses two pressures, a higher pressure (+) and a lower pressure (-). Should the differential between these two pressures approach the set maximum (determined by the pilot adjusting screw) the pilot will tend to close, thus allowing pressure to accumulate in the valve control chamber causing the main valve to throttle. This regulates the pressure in the downstream pipeline keeping the differential pressure below the set maximum.

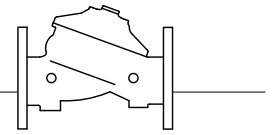
Should the differential pressure fall, the pilot will open, releasing pressure in the valve control chamber thereby causing the main valve to open and maintain the differential pressure.

System P&ID



Components

1. BERMAD 400Y Main Valve
2. Priming strainer
3. Restriction orifice
4. Differential pressure reducing pilot valve
5. High pressure sensing
6. Low pressure sensing

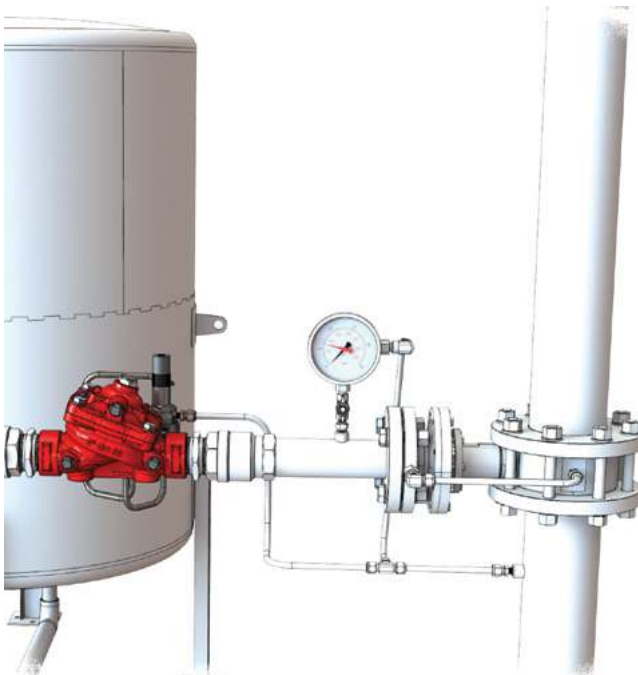


System Installation

A typical installation of the BERMAD model 400Y 42T-06 features valve actuation via pilot control to regulate the 42T-06 in response to an increase in differential pressure between two points. The 42T-06 is ideally suited for regulation in balanced pressure proportioning systems or foam dosing applications.

Balanced Pressure Proportioning System

A typical installation in a Balanced Pressure Proportioning System is where the BERMAD 42T-06 is installed on the foam concentrate supply pipe and is used to maintain the correct pressure differential between the firewater system pressure and the foam supply pressure. This ensures accurate and steady foam to water ratio regardless of fluctuations of service/concentrate flow or pressure.



Foam Concentrate Dosing System

By sensing the differential pressure across the dosing pump the 42T-06 tends to throttle when the maximum allowable flow rate for the dosing pump has been reached, regulating and preventing the flow from exceeding the recommended maximum for the dosing pump, avoiding dangerous pump overload. When flow is lower than the pre-set maximum the 42T-06 fully opens. The exceptionally low pressure loss of the 42T-06 allows reliable full functioning system performance.

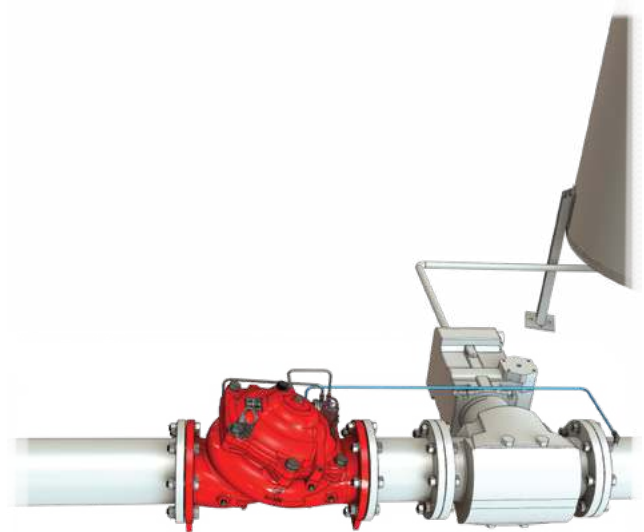


Illustration for demonstrational purposes only

Engineering Specifications

The differential regulating valve shall be 25-bar/365-psi rated, with a straight-through Y-type body.

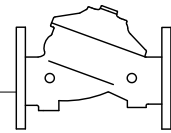
The valve shall have an unobstructed flow path, with no stem guide or supporting ribs.

Valve actuation shall be accomplished by a single-piece, rolling diaphragm bonded with a rugged radial seal disk.

The diaphragm assembly shall be the only moving part.

Removing the valve cover for inspection or maintenance shall not require removal of the control trim.

The valve and its entire control trim shall be supplied pre-assembled and hydraulically tested by a factory certified to ISO 9000 and 9001 standards.



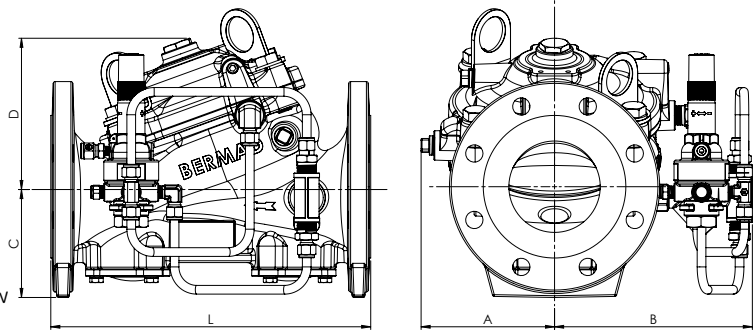
Technical Data

Available Sizes (inch)

- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

Pressure Rating

- ANSI#150 - 16 bar / 235psi
- ANSI#300 - 1½" to 10" 25 bar/365 psi
12" to 16" 20 bar/300 psi
- Grooved/Threaded - Refer to Code Designations table below
- Pressure differential setting range: 0.5-3 bar/7-43 psi
- Maximum recommended pressure differential across the valve: 12 bar / 175 psi



Elastomer

- HTNR - Fabric Reinforced High Temperature Compound - See engineering data

| Valve Size | 1½" DN40 | | 2" DN50 | | 3" DN80 | | 4" DN100 | | 6" DN150 | | 8" DN200 | | 10" DN250 | | 12" DN300 | | 14" DN350 | | 16" DN400 | | |
|---------------------------|----------|-------------|---------|-------------|---------|-----------|----------|-----------|----------|------------|----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-------|
| | Unit | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| L ⁽¹⁾ | | 230 | 9.1 | 230 | 9.1 | 310 | 12.2 | 350 | 13.8 | 480 | 18.9 | 600 | 23.6 | 730 | 28.7 | 850 | 33.5 | 980 | 38.6 | 1100 | 43.3 |
| L ⁽²⁾ | | 230 | 9.1 | 238 | 9.4 | 326 | 12.8 | 368 | 14.5 | 506 | 19.9 | 626 | 24.6 | 730 | 28.7 | 888 | 35 | 980 | 38.6 | 1100 | 43.3 |
| A | | 77.5 | 3 | 77.5 | 3 | 100 | 3.94 | 115 | 4.53 | 140 | 5.51 | 172 | 6.77 | 204 | 8 | 242 | 9.53 | 242 | 9.53 | 242 | 9.53 |
| B | | 155 | 6.1 | 155 | 6.1 | 251 | 9.88 | 266 | 10.47 | 372 | 14.65 | 490 | 19.29 | 490 | 19.29 | 656 | 25.83 | 656 | 25.83 | 656 | 25.83 |
| C | | 64 | 2.52 | 77 | 3.03 | 106 | 4.17 | 121 | 4.76 | 140 | 5.51 | 172 | 6.77 | 204 | 8.03 | 247 | 9.72 | 272 | 10.71 | 316 | 12.44 |
| D | | 120 | 4.69 | 120 | 4.69 | 146 | 5.75 | 158 | 6.22 | 228 | 9 | 295 | 11.65 | 296 | 11.65 | 441 | 17.36 | 441 | 17.36 | 415 | 16.3 |
| Kv / Cv ⁽⁴⁾ | | 68 / 79 | | 80 / 92 | | 190 / 219 | | 345 / 398 | | 790 / 912 | | 1160 / 1340 | | 1355 / 1565 | | 2370 / 2737 | | 2850 / 3292 | | 3254 / 3758 | |
| Leq ⁽³⁾ : m/ft | | 2 / 7 | | 5 / 16 | | 7 / 23 | | 9 / 30 | | 15 / 49 | | 27 / 89 | | 62 / 203 | | 52 / 171 | | 59 / 194 | | 88 / 289 | |
| Kg/lb flanged#150/ISO16 | | 17.9 / 39.4 | | 19.3 / 42.5 | | 34 / 74.8 | | 44 / 95.8 | | 87.3 / 192 | | 150 / 331 | | 180 / 397 | | 323 / 712 | | 356 / 784 | | 403 / 886 | |

Notes: ⁽¹⁾ Refers to the length dimensions for Raised Face ANSI #150, ISO 16 Flanged, Threaded and Grooved valves

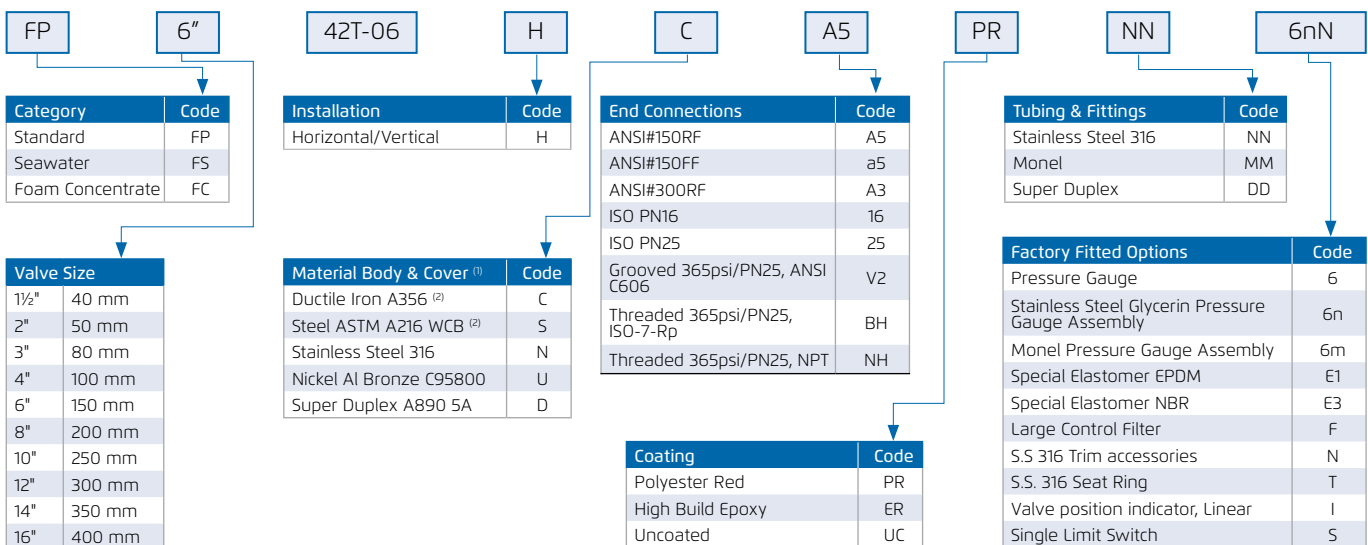
⁽²⁾ Refers to the length dimensions for Raised Face ANSI #300 and ISO 25 Flanged valves

⁽³⁾ Leq (Equivalent Pipe Length) refers to a fully opened valve with turbulent flow in new steel pipe schedule 40, values given for general consideration only

⁽⁴⁾ Kv/Cv values given for a fully opened valve

⁽⁵⁾ Exact dimensions for the trim envelope may vary with specific component positioning

Valve Code Designations



Notes:

⁽¹⁾ Other materials available see engineering data

⁽²⁾ Coated internally and externally

