

PRESSURE RELIEF VALVE WITH ELECTRIC OVERRIDE

Model FP-43T-59

The BERMAD model FP 43T-59 is an elastomeric hydraulic line pressure operated relief valve, combining pressure relief with a pre-opening feature. The 43T-59 has been specifically designed for advanced fire protection systems and the latest industry standards, preventing damage from overpressure in piping systems, ensuring a preset upstream pressure limit regardless of pressure peaks and fluctuating conditions. Due to exceptional reliability and low pressure loss it is ideal for the relief of fire pump discharge.

The 43T-59 includes a pre-opening feature, whereby full opening of the valve can be achieved by electric command. This function may be used to relieve and quell anticipated surge such as might occur during pump start-up.

After the anticipated surge has passed, signal termination returns the valve to normal pressure relief duty.

As an option the 43T-59 can be fitted with a valve position indicator that can include a limit switch suitable for Fire & Gas monitoring system



Features & Benefits

- Safety and reliability
 - Time proven, simple design with a fail safe actuation
 - Single piece, rugged elastomeric diaphragm seal - VRSD technology
 - Obstacle-free, uninterrupted flow path
 - No mechanical moving parts
 - Continues to act as relief valve upon electric failure
- High performance
 - Very high flow efficiency
 - Straight through Y type body
 - Quick response with minimal power requirement
 - Approved for PN25 / 365 psi
- Quick and easy maintenance
 - In-line serviceable
 - Fast and easy cover removal

Typical Applications

- Fire pump pressure relief
- Surge prevention on pump start up.
- Centralized thermal pressure relief
- Zonal safety relief

Approvals



ABS
American Bureau of Shipping
Type Approval



Det Norske Veritas
Type Approval

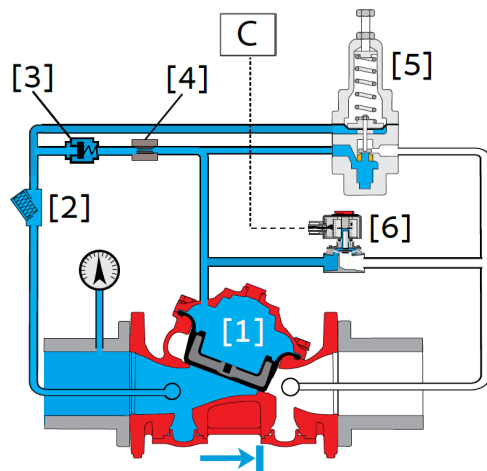


Lloyd's Register
Type Approval

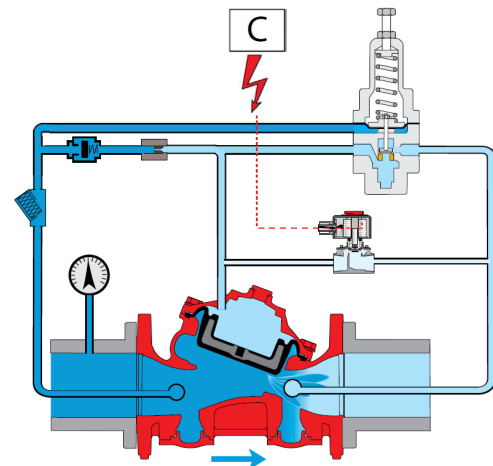
Additional Features

- Corrosion resistant zinc based high build epoxy coating
- Hazardous locations solenoid
- Large control filter
- Valve position limit switches

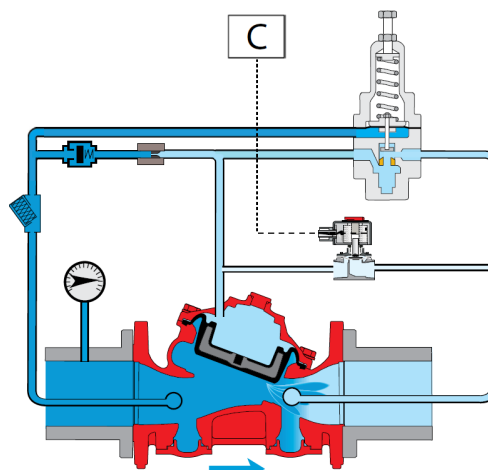
Operation



Valve Closed – Inlet pressure below set relief pressure



Valve Open 1 - Relief opening by way of electric command, regardless of inlet pressure



Valve Open 2 - Inlet pressure above set relief pressure, regulation by way of the pilot valve

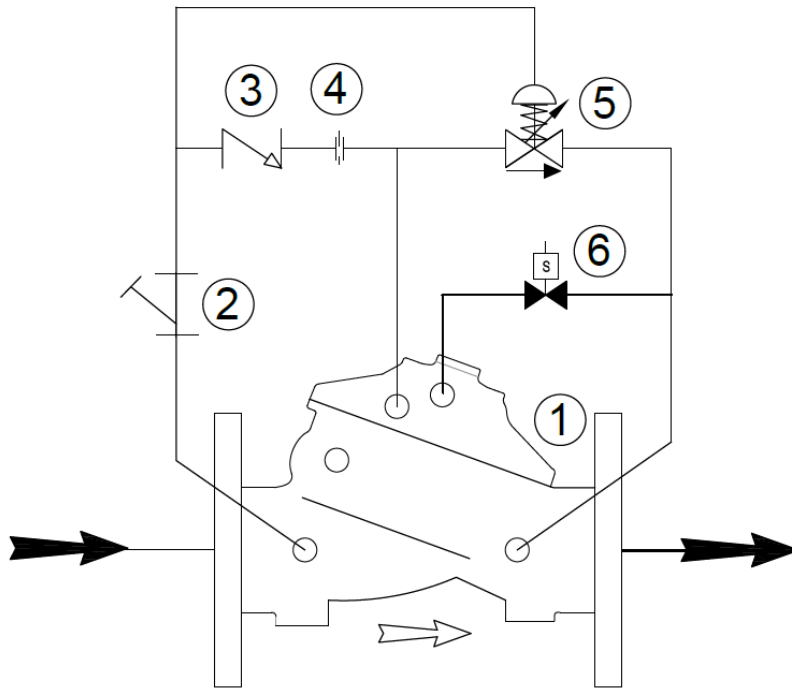
The BERMAD model FP 43T-59 is equipped with two parallel control systems to provide both pressure relief (via the relief pilot valve) and anticipated surge relief during pump start up (via the solenoid valve).

Valve Closed – Pressure Relief – When the inlet pressure is below the set relief pressure the BERMAD model FP 43T-59 is held closed by inlet pressure fed to the control chamber [1] supplied via the pilot line filter [2] a check valve [3] and a restriction orifice [4] and is held in the control chamber by the closed solenoid [6] and the closed relief pilot valve [5]

Valve Open 1 – Surge Anticipating – Activated simultaneously with the pump start up, the open solenoid bypasses the relief pilot valve to forcibly release pressure from the valve control chamber opening the main valve. The valve will fully open releasing surge overpressure. When the solenoid is deactivated the valve will return to pressure relief duty.

Valve Open 2 – Pressure Relief – When the anticipated surge has passed and the solenoid has been deactivated the valve returns to a normal pressure relief function. When inlet pressure reaches the set pressure, the relief pilot valve will open releasing pressure from the control chamber and opening the main valve, relieving upstream overpressure.

System P&ID



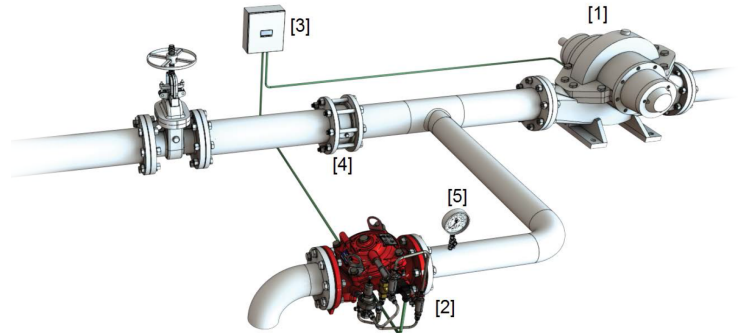
Components	
1	BERMAD 400Y valve
2	Priming strainer
3	Check valve
4	Restriction orifice
5	Pressure relief valve
6	2-Way override solenoid

System Installation

A typical installation of the BERMAD model FP 400Y-43T-59 valve features a pilot valve for fast reaction and the automatic and accurate maintenance of a constant preset maximum upstream pressure, regardless of fluctuating demand. When overpressure or surge is anticipated as in a fire pump start-up, the electric override can be used to momentarily fully open the 43T-59 valve simultaneously with the pump start-up, preempting and preventing potential surge damage. The valve will return to normal pressure relief mode when the electric override command is turned off via the timer.

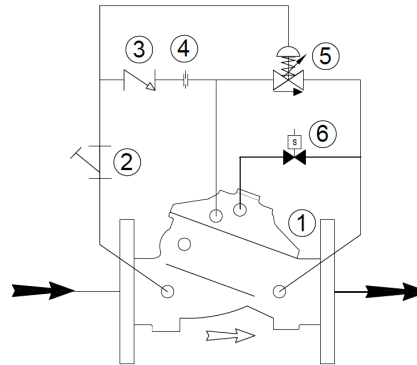
Fire pump relief

- 1. Fire pump
- 2. BERMAD FP 43T-59
- 3. Control panel
- 4. Check valve



System P&ID

- 1. BERMAD 400Y Valve
- 2. Priming strainer
- 3. Check valve
- 4. Restriction orifice
- 5. Pressure relief pilot valve
- 6. 2-Way override solenoid



Suggested Specifications

The valve shall be 365-psi/25-bar rated, with a straight-through Ytypebody.

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

The main valve shall have no mechanical moving parts, and the actuation shall utilize a single-piece diaphragm assembly of VRSD technology.

The valve shall be coated internally and externally with UV protection. Optional: C5-VH grade of ISO-12944 standard against corrosive conditions.

Removing the valve cover for full inspection and maintenance shall be in-line and not require removal of the control trim.

The deluge valve and control trim shall be pre-assembled and hydraulically tested by a UL/FM and ISO 9000, 9001 certified factory.

Technical Data

Available Sizes:

Flanged- 1½, 2, 2½, 3, 4, 6, 8, 10, 12, 14 & 16"

Grooved- 1½, 2, 2½, 3, 4, 6, 8 & 10"

Pressure Rating:

ANSI#150 - 17.2 bar | 250 psi

ANSI#300 - 1½" to 10" - 25 bar | 365 psi

ANSI#300 - 12" to 16" - 20 bar | 300 psi

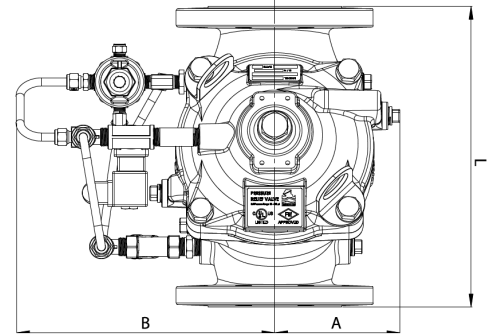
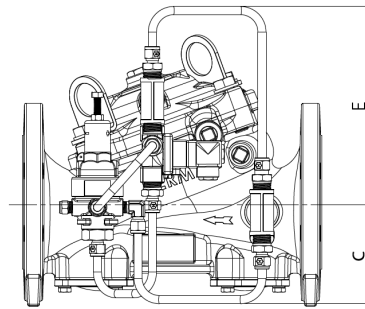
Grooved - 25 bar | 365 psi

Setting range: 4 - 25 bar | 60 - 365 psi

Elastomer:

HTNR - Fabric Reinforced High Temperature

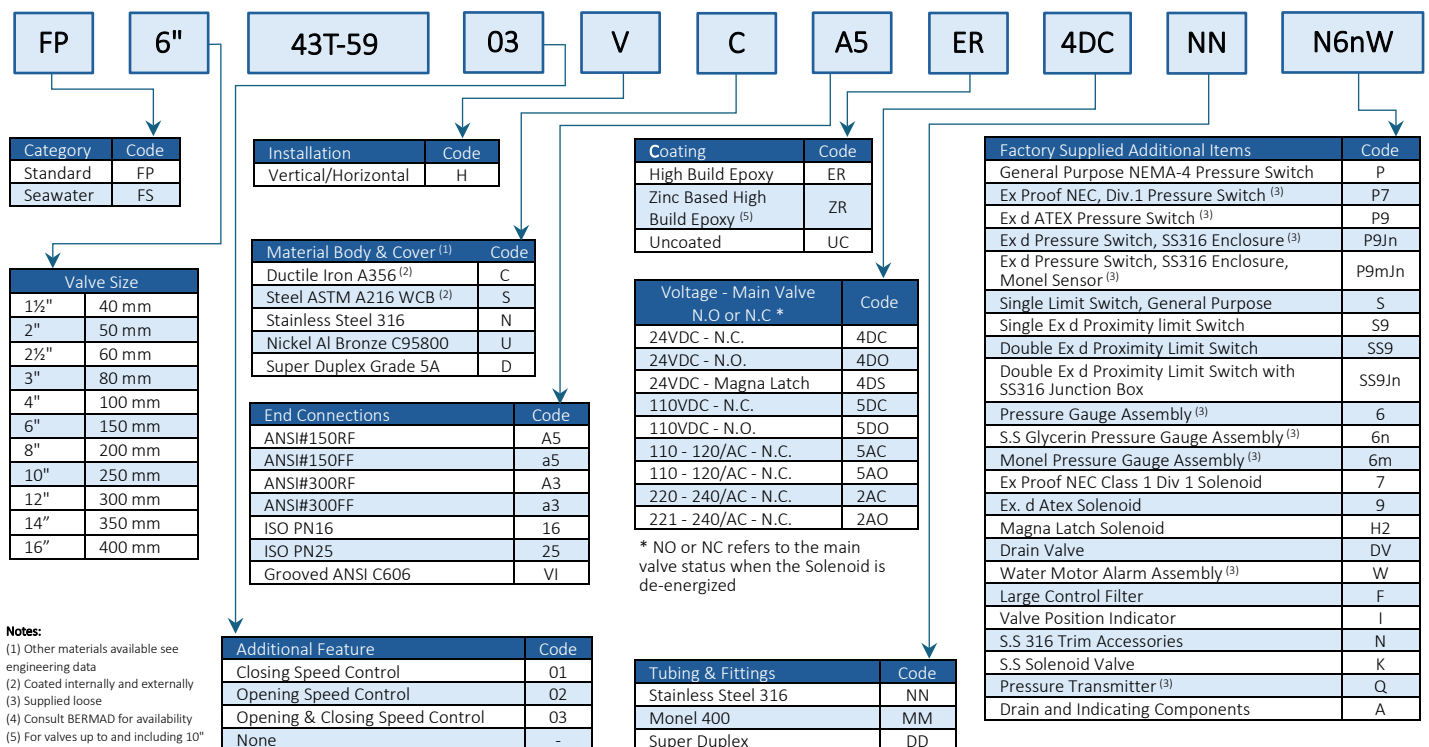
Compound - See engineering data



Valve Size	L #150 mm in	L Grooved mm in	L #300 mm in	A mm in	B mm in	C mm in	øD in	E mm in	F mm in	G mm in	Weight #150 kg lb	Weight #300 kg lb
DN40 1½"	230 9.1	230 9.1	230 9.1	77.5 3	155 6.1	64 2.5	-	120 4.7	-	-	18 40	19 45
DN50 2"	230 9.1	230 9.1	238 9.4	77.5 3	155 6.1	77 3	-	120 4.7	-	-	18 40	19 45
DN65 2½"	235 9.3	235 9.3	241 9.5	82 3.3	187 7.4	92 3.6	-	146 5.8	-	-	23 50	25 54
DN80 3"	310 12.2	310 12.2	326 12.8	100 4	251 9.9	106 4.2	-	146 5.8	-	-	34 75	38 165
DN100 4"	350 13.8	320 12.6	368 14.5	115 4.5	266 10.5	121 4.8	-	158 6.2	-	-	44 96	51 112
DN150 6"	480 18.9	480 18.9	506 19.9	140 5.5	372 14.7	140 5.5	-	228 9	-	-	87 192	107 235
DN200 8"	600 23.6	600 23.6	626 24.6	172 6.8	490 19.3	172 6.8	-	295 11.7	-	-	150 331	170 374
DN250 10"	730 28.7	730 28.7	730 28.7	204 8	490 19.3	204 8	-	296 11.7	-	-	180 397	116 255
DN300 12"	850 33.5	-	888 35	242 9.5	656 25.8	247 9.7	-	441 13.4	-	-	323 712	373 821
DN350 14"	980 38.6	-	980 38.6	242 9.5	656 25.8	272 10.7	-	441 17.4	-	-	356 784	428 942
DN400 16"	1100 43.3	-	1100 43.3	242 9.5	656 25.8	316 12.4	-	415 16.3	-	-	403 886	523 1151

IMPORTANT: Dimensions for the trim envelope or extents refer to a horizontal orientation and may vary with specific component positioning - Apart from the "L" dimension, allow a tolerance of at least ±15%

Valve Code Designations



*More options available – consult BERMAD