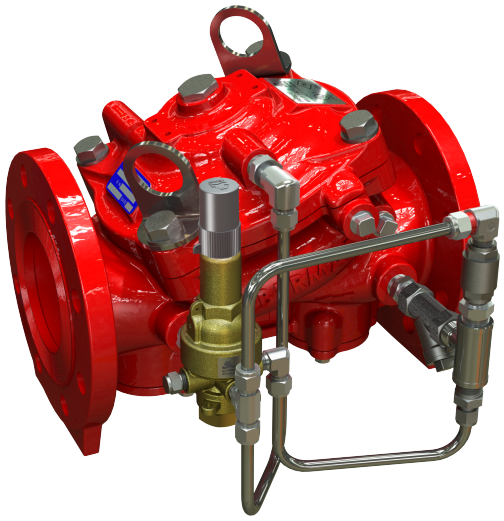
PRESSURE RELIEF VALVE

Model FP-43T

The BERMAD model 43T is an elastomeric, pilot operated, pressure- pressure-relief valve. Designed specifically for advanced fire protection systems and the latest industry standards.
The 43T prevents damage from over-pressure in piping systems, maintaining a preset upstream pressure limit regardless of pressure peaks and fluctuating conditions.
Due to exceptional reliability and low head loss, it is ideal for relief of fire pump discharge. The 43T dependably relieves excess system pressure to sump or atmosphere, meeting all NFPA, UL, and FM requirements for fire pump service.
The 43T is also well-suited for maintaining foam concentrate discharge pressure for a balanced proportioning system.
As an option the 43T can be fitted with a valve position indicator that can include a limit switch suitable for Fire & Gas monitoring systems.



Features & Benefits

- Safety and reliability
  - Time proven, simple design with a fail safe actuation
  - Single piece rugged elastomer, VRSD technology
  - Obstacle-free, uninterrupted flow path
  - High discharge capacity
  - No mechanical moving parts
- High performance
  - Fast, smooth response to pressure fluctuations
  - Very high flow efficiency
  - Approved for PN25 / 365 psi
  - Straight through Y type body
- Specifically-designed for fire protection
  - Face-to-face length standardized to ISO 5752 EN 558-1
  - Meets the requirements of the industry standards
- Quick and easy maintenance
  - In-line serviceable
  - Fast and easy cover removal

Approvals

c UL us LISTED	UL-Listed Fire Pump Relief Valves Sizes 1½"- 10"
FM APPROVED	FM Approved Water Pressure Relief Valves Sizes 1.5 - 10"
DNV	Det Norske Veritas Type Approval
ABS TYPE APPROVED PRODUCT	ABS American Bureau of Shipping Type Approval
Lloyd's Register TA TYPE APPROVED	Lloyd's Register Type Approval

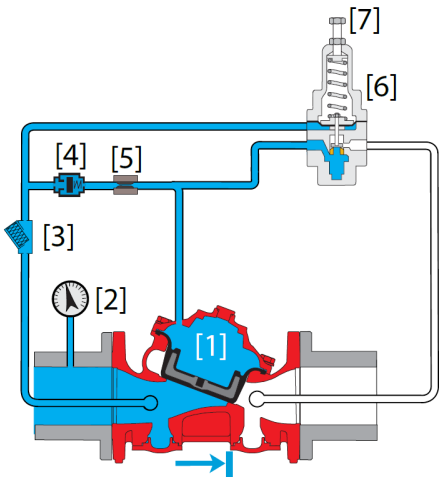
Typical Applications

- Fire pump pressure relief
- Foam concentrate recirculation
- Centralized thermal pressure relief
- Zonal safety relief

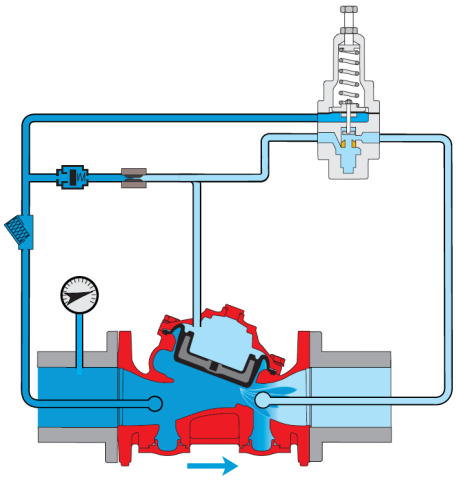
Additional Features

- Seawater compatibility
- Large control filter
- Valve position limit switches
- Corrosion resistant zinc based high build epoxy coating

Operation

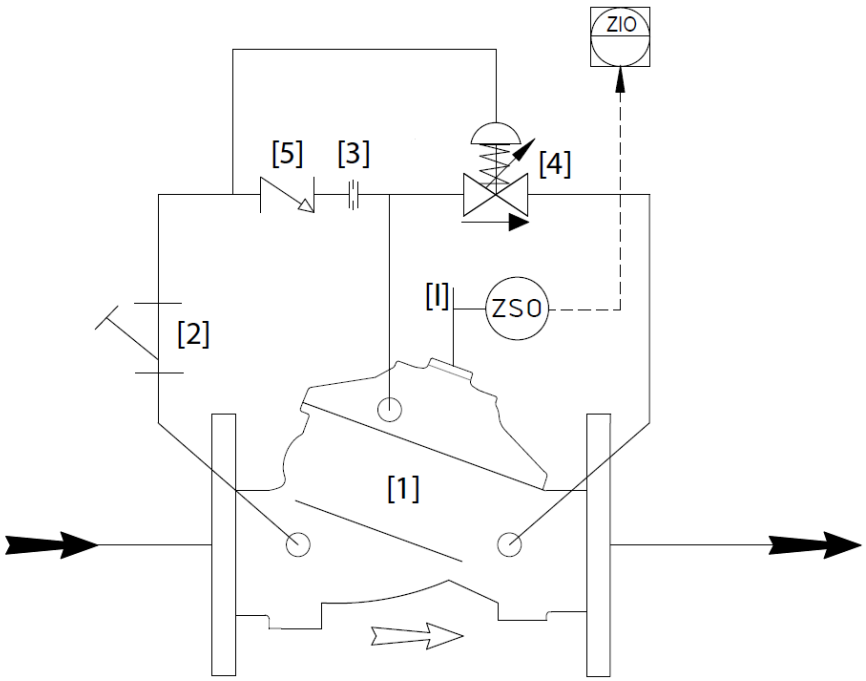


Valve Closed (normal conditions)


Valve Open (pressure relief)

The BERMAD Model 43T pressure control valve remains closed as long as system pressure remains lower than the preset value. The preset pressure can be adjusted by way of the pilot adjusting screw [7] When the pilot valve [6] senses upstream pressure [2] higher than the preset value it opens releasing water pressure from the main valve control chamber [1] thus causing the 43T to open and thereby relieving excess system pressure to a reservoir or sump, preventing system overpressure.
When inlet pressure falls, the pilot valve throttles, enabling pressure to accumulate in the control chamber. This causes the main valve to close further and sustain upstream pressure. An integral restrictor [5] controls the valve's closing speed. The non-return valve [4] ensures the valve remains closed when priming pressure falls.

System P&ID



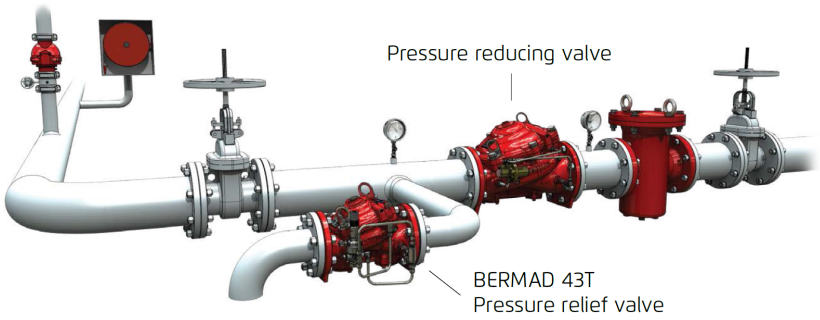
	Components
1	BERMAD 400Y Water Control Valve
2	Y Strainer
3	Restriction Orifice
4	Pressure Relief Pilot Valve
5	Check Valve

System Installation

A typical installation of the BERMAD model 43T features a pilot valve for the automatic and accurate maintenance of a constant preset maximum upstream pressure, regardless of fluctuating demand. The fast opening 43T reliably relieves excess system pressure to sump or atmosphere, meeting NFPA, UL, and FM requirements for fire pump service. A unique actuator design ensures quick and smooth valve action.

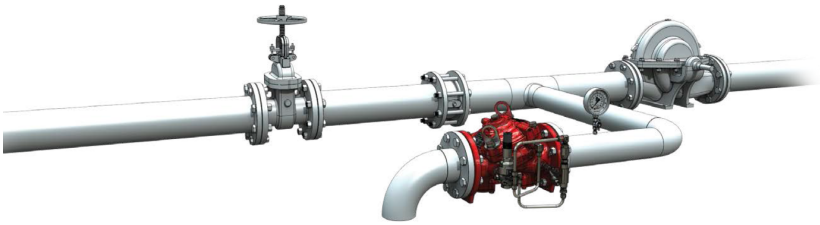
Pressure reducing systems

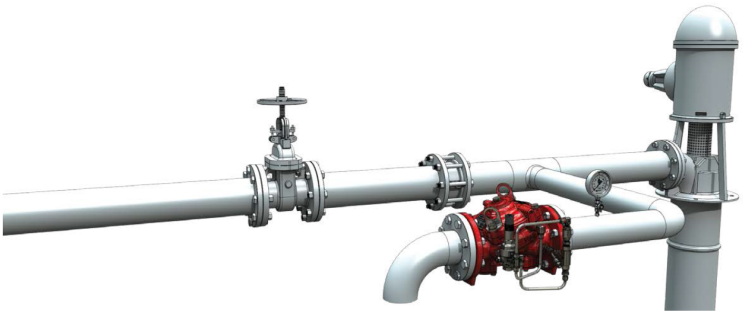
- The fast response of the 43T preempts pressure reducing valve reaction preventing overpressure peak damage to sensitive equipment
- Backup/redundancy for reducing valve to ensure pressure zone rating at all times
- Thermal relief: Relieves overpressure caused by changes in temperature.



Fire pump relief

- Pressure relief for individual diesel fire pumps, in accordance with the NFPA 20 guidelines
- Suitable for a vertical turbine and horizontal fire pumps





Suggested Specifications

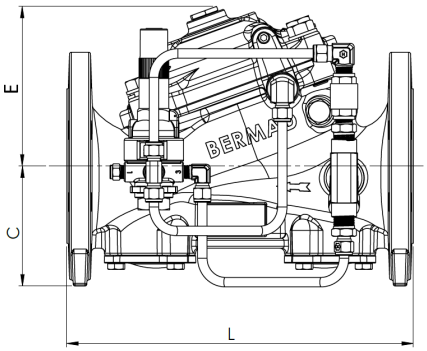
The valve shall be UL-listed and FM-approved, 365-psi/25-bar rated, with a straight-through Ytypebody.
The valve shall have an unobstructed flow path, with no stem guide or supporting ribs.
The main valve shall have no mechanical moving parts, and the actuation shall utilize a single-piece diaphragm 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.

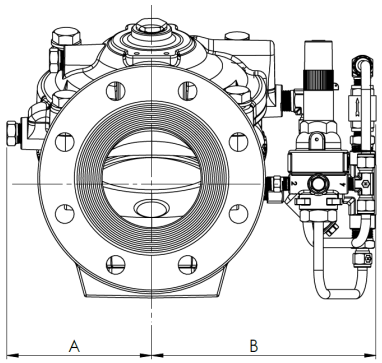
Technical Data

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
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

FP | 6" | 43T | H | C | A5 | ER | NN | N6n

Category	Code
Standard	FP
Seawater	FS
Foam	FC

Valve Size	
1½"	40 mm
2"	50 mm
2½"	65 mm (6)
3"	80 mm
4"	100 mm
6"	150 mm
8"	200 mm
10"	250 mm
12"	300 mm
14"	350 mm
16"	400 mm

Installation	Code
Horizontal / Vertical	H

Material Body & Cover (1)	Code
Ductile Iron A356 (2)	C
Steel ASTM A216 WCB (2)	S
Stainless Steel 316	N
Nickel Al Bronze C95800	U
Super Duplex Grade 5A	D

End Connection	Code
ANSI#150RF	A5
ANSI#150FF	a5
ANSI#300RF	A3
ANSI#300FF	a3
ISO PN16	16
ISO PN25	25
Grooved 235psi/PN16 ANSI C606	VI
Grooved 365psi/PN25ANSI C606	V2

Factory Supplied Additional Items*	Code
Pressure Gauge Assembly (3)	6
S.S Glycerin Pressure Gauge Assembly (3)	6n
Monel Pressure Gauge Assembly (3)	6m
Special Elastomer (4)	E
Large Control Filter	F
Valve Position Indicator	I
S.S 316 Trim Accessories	N
Pressure Transmitter (3)	Q

*More options available – consult BERMAD

Coating	Code
High Build Epoxy	ER
Zinc Based High Build Epoxy (5)	ZR
Uncoated	UC

Tubing & Fittings	Code
Stainless Steel 316	NN
Monel 400	MM
Super Duplex	DD

Notes:
(1) Other materials available see engineering data
(2) Coated internally and externally
(3) Supplied loose
(4) Consult BERMAD for availability
(5) For valves up to and including 10"
(6) Available in Ductile Iron only

Pressure Relief Sizing for Pressure Reducing Valves

42T Pressure Reducing Valve Size in. (mm)	1½" (40)	2" (50)	2½" (65)	3" (80)	4" (100)	6" (150)	8" (200)	10" (250)	12" (300)	14" (350)	16" (400)
Recommended Relief valve size, in. (mm)	¾" (20)	¾" (20)	¾" (20)	¾" (20)	2" (50)	3" (80)	3" (80)	4" (100)	2 x 4" (2x100)	2 x 4" (2x100)	2 x 4" (2x100)