DIFFERENTIAL PRESSURE SUSTAINING VALVE

Model FP-436-00

The Model FP 436 Differential Pressure Sustaining Valve is a hydraulically operated, diaphragm actuated, control valve that sustains a minimum pre-set, differential pressure between two points regardless of fluctuating flow or varying upstream pressure.

Features & Benefits

- Safety and reliability
  - Low headloss design - Increased safety at reduced pressure supply
  - Time proven, simple design with a fail safe actuation
  - Single piece rugged elastomer, VRSD technology
  - Obstacle-free, uninterrupted flow path
  - No mechanical moving parts
- High performance
  - Fast, smooth stabilizing response to pressure fluctuations
  - Very high flow efficiency
- Quick and easy maintenance
  - In-line serviceable
  - Fast and easy cover removal

Approvals

ABS
American Bureau of Shipping
Type Approval

Lloyd's Register
Type Approval

Typical Applications

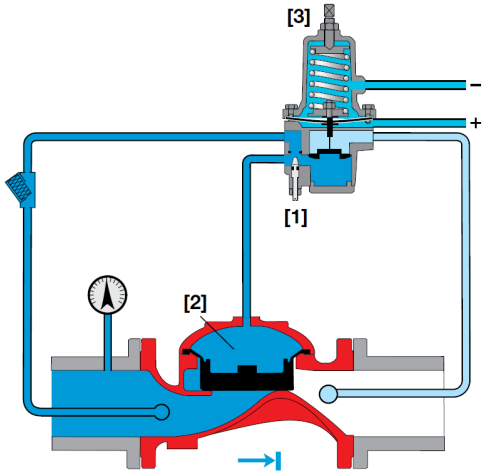
- Pump overload & cavitation protection
- Emergency filter by-pass
- Balanced pressure proportioning systems
- Foam concentrate recirculation

Additional Features

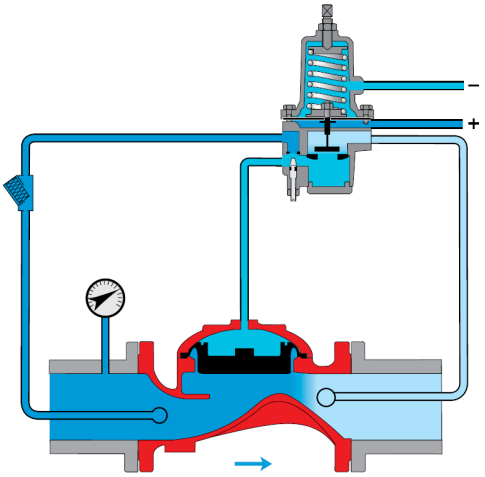
- Seawater compatibility
- Large control filter
- Valve position limit switches

All images in this catalog are for illustration only

Operation



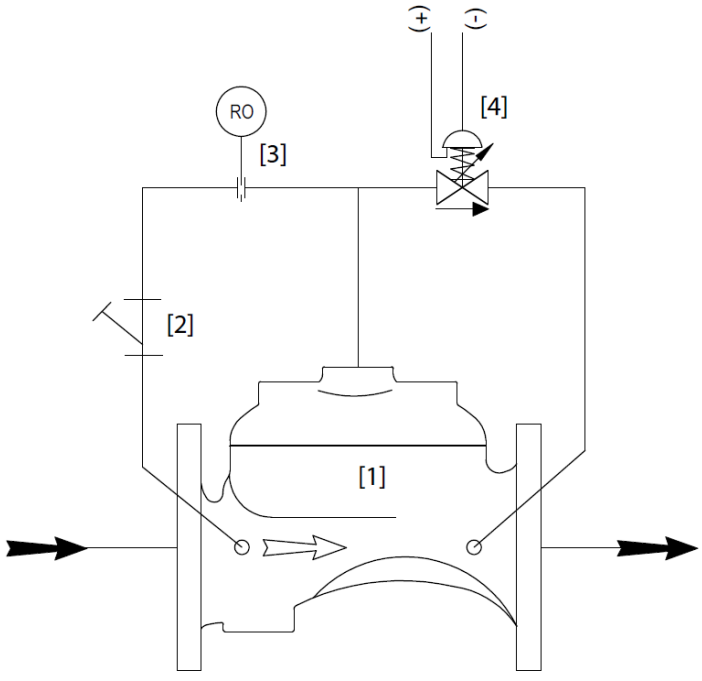
Valve Closed (static condition)



Valve Open (flowing condition)

The BERMAD Model FP 436 is a pilot controlled valve equipped with an adjustable, 2-Way, Differential Pressure Sustaining Pilot. The needle valve [1] which controls the closing speed, continuously allows flow from valve inlet into the control chamber [2]. The pilot [3], locally or remotely, senses both high pressure below its diaphragm and low pressure above it.Should differential pressure fall below pilot setting, the pilot throttles, enabling pressure to accumulate in the control chamber, causing the main valve to throttle, sustaining differential pressure at the pilot setting.
Should differential pressure rise above pilot setting, the pilot releases accumulated pressure causing the main valve to modulate open.

System P&ID



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

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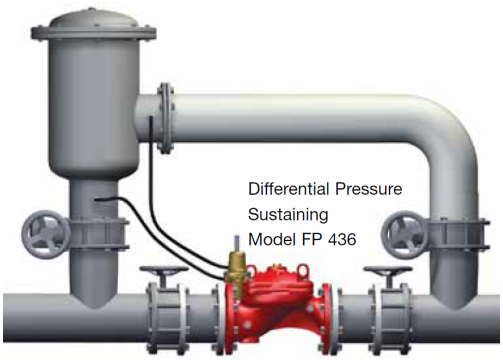
System Installation

The FP-436 differential pressure sustaining valve will open as differential pressure rises above the set point. This valve is typically installed for controlling differential pressures across filters, pumps or any other installation where differential pressure should be controlled.

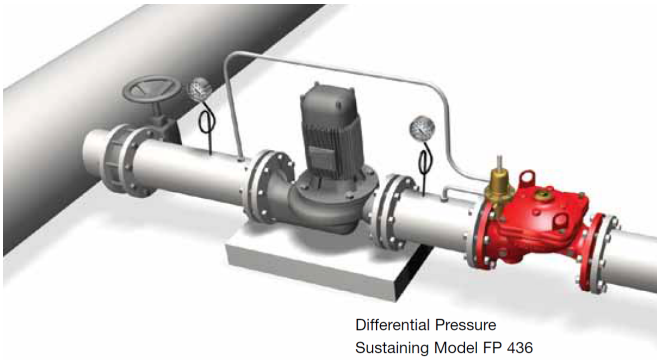
Emergency Filter By-pass

- Bypass installation, the FP-436 relieves damaging exaggerated differential from excessive emergency fire water demand or a blocked filter.



Pump Overload & Cavitation Protection

- Where suction pressure regimes vary, the Model FP 436 is needed to limit pump flow by sustaining pump differential pressure, and preventing pump overload and cavitation damage caused by excessive demand. Adding check feature "20", saves the cost of a line sized check valve.


Differential Pressure
Sustaining Model FP 436

Suggested Specifications

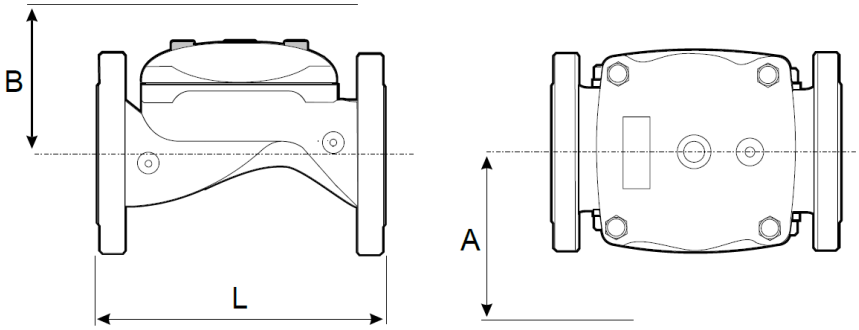
The Differential Pressure Sustaining Valve shall sustain a minimum pre-set, differential pressure between two points regardless of fluctuating flow or varying upstream pressure.
The main valve shall be an elastomeric type globe (or angle) valve with a rolling-diaphragm. Valve actuation shall be accomplished 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 pilot system shall be field adjustable integrated into the main valve, hydraulically tested and supplied as an assembly consisting of:
■ Differential Pressure Sustaining Pilot Valve as part of the assembly.
■ "Y" strainer
The control trim shall be supplied as an assembly, pre-assembled and hydraulically tested at an ISO 9000 and 9001 certified factory.

Technical Data

Available Sizes:
Flanged- 1½, 2, 2½, 3, 4, 6, 8, 10 & 12"
Grooved- 2, 3, 4, 6, 8 & 10"

Pressure Rating:
ANSI#150 - 17.2 bar | 250 psi
Grooved - 17.2 bar | 250 psi
Setting range: 0.5 - 6 bar | 7 - 90 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	⌀D in	E mm | in	F mm | in	G mm | in	Weight #150 kg | lb	Weight #300 kg | lb
DN40 | 1½"	-	-	-	-	-	-	-	-	-	-	-	-
DN50 | 2"	205 | 8.1	205 | 8.1	-	284 | 11.2	210 | 8.3	-	-	-	-	-	11 | 24.2	| -
DN65 | 2½"	205 | 8.1	-	-	284 | 11.2	210 | 8.3	-	-	-	-	-	11 | 24.2	| -
DN80 | 3"	257 | 10.1	250 | 9.8	-	300 | 11.8	215 | 8.5	-	-	-	-	-	13 | 28.6	| -
DN100 | 4"	320 | 12.6	320 | 12.6	-	313 | 12.3	243 | 9.6	-	-	-	-	-	30 | 66	| -
DN150 | 6"	415 | 16.3	415 | 16.3	-	341 | 13.4	315 | 12.4	-	-	-	-	-	70 | 154	| -
DN200 | 8"	500 | 19.7	500 | 19.7	-	415 | 16.3	350 | 13.8	-	-	-	-	-	128 | 282	| -
DN250 | 10"	605 | 28.7	-	-	443 | 17.4	382 | 15	-	-	-	-	-	145 | 319	| -
DN300 | 12"	725 | 28.5	-	-	481 | 18.9	430 | 16.9	-	-	-	-	-	323 | 712	-

IMPORTANT: Dimensions for the trim envelope or extents refer to a vertical 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"	436	03	V	C	A5	ER	NN	N6n

Category	Code
Standard	FP
Seawater	FS
Foam	FC

Valve Size	
1½"	40 mm
2"	50 mm
2½"	60 mm
3"	80 mm
4"	100 mm
6"	150 mm
8"	200 mm
10"	250 mm
12"	300 mm

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"

Additional Feature	Code
Closing Speed Control	01
Opening Speed	02
Opening & Closing Speed Control	03
None	-

Installation	Code
Vertical	V
Horizontal	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 Connections	Code
ANSI#150RF	A5
ANSI#150FF	a5
ISO PN16	16
Grooved ANSI C606	VI

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

Tubing &	Code
Stainless	NN
Monel 400	MM
Super Duplex	DD

Factory Supplied Additional Items	Code
General Purpose NEMA-4 Pressure Switch	P
Ex Proof NEC, Div.1 Pressure Switch (3)	P7
Ex d ATEX Pressure Switch (3)	P9
Ex d Pressure Switch, SS316 Enclosure (3)	P9Jn
Ex d Pressure Switch, SS316 Enclosure, Monel Sensor (3)	P9mJn
Single Limit Switch, General Purpose	S
Single Ex d Proximity limit Switch	S9
Double Ex d Proximity Limit Switch	SS9
Double Ex d Proximity Limit Switch with SS316 Junction Box	SS9Jn
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