

PNEUMATIC PRESSURE CONTROL DELUGE VALVE WITH LOCAL RESET

Model FP-400Y-4DC-H

The BERMAD model 400Y-4DC-H is an elastomeric hydraulic, line pressure operated, deluge valve, designed specifically for advanced fire protection systems and the latest industry standards. The 400Y-4DC-H is activated by a latching pneumatic relay valve that latches the main valve open until locally reset. An integrated pressure reducing pilot valve ensures a stable and precise pre-set downstream water pressure. An optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems. The 400Y-4DC-H is ideal for open-nozzle systems with a high pressure water supply and/or relatively low flow. The pneumatic control makes the 400Y-4DC-H suitable for freezing environments and corrosive water supplies.



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
 - Accurate and stabilizing pressure control
 - Valve position limit switches (optional)
- High performance
 - Very high flow efficiency
 - Straight through Y type body
 - Approved for PN25 / 365 psi
- Specifically-designed for fire protection
 - Face-to-face length standardized to ISO 5752 EN 558-1
 - Suitable for corrosive fluids and freezing temperatures
 - Meets the requirements of the industry standards
- Quick and easy maintenance
 - In-line serviceable
 - Fast and easy cover removal
 - Swivel mounted drain valves (for valves 3" and larger)

Typical Applications

- Fusible plug loops
- Automatic water spray systems
- Foam applications
- Corrosive water systems
- High Pressure Water Supply
- Freezing Environments

Approvals



UL-Listed
Special System Water Control
Valves, Deluge Type (VLFT)
Sizes 1½" - 16"



FM Approved
for Deluge Sprinkler Systems
Sizes 1½" - 8"



Det Norske Veritas
Type Approval
Sizes 1½" to 16"



ABS
American Bureau of Shipping
Type Approval
Sizes 1½" - 12"

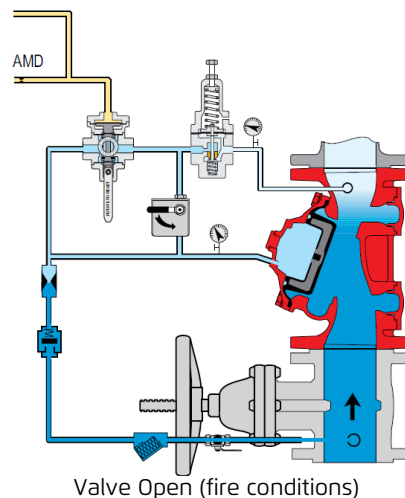
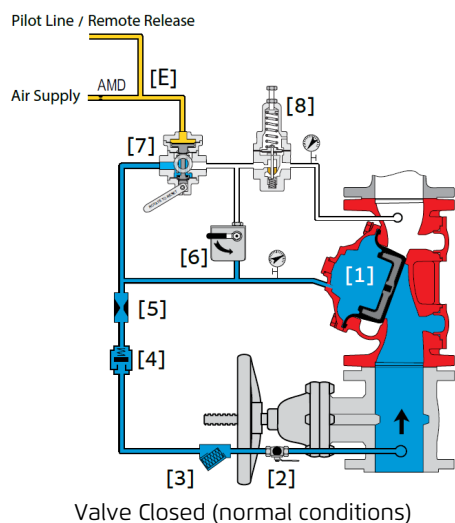


Lloyd's Register
Type Approval
Sizes 1½" - 10"

Additional Features

- Valve position limit switches
- Seawater compatibility
- Drain valve/s inlet/outlet
- Air Maintenance Device
- Corrosion resistant zinc based high build epoxy coating

Operation



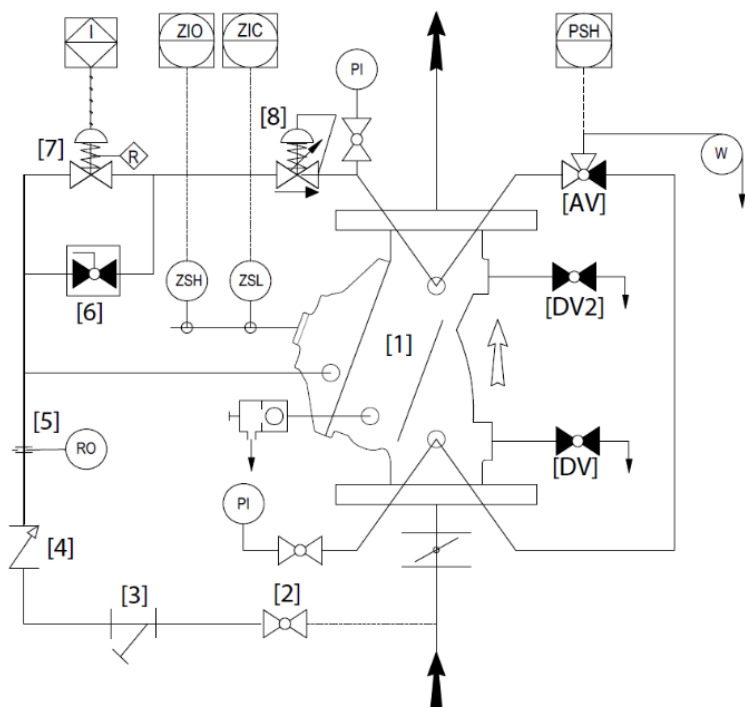
The BERMAD model 400Y-4DC-H is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

Under NORMAL conditions, water pressure is supplied to the control chamber via the priming line [2] strainer [3] and restriction orifice [5], it is then trapped in the control chamber by a check valve [4], manual emergency release [6], and a latching relay valve (URV-M) [7] that is held closed by pneumatic pressure in the dry pilot line [E]. The water pressure trapped in the main valve control chamber holds the diaphragm against the valve seat, sealing driptight.

Under FIRE conditions, water pressure is released from the control chamber, either with the manual emergency release, or by the URV-M opening automatically in response to a decrease in pneumatic pilot-line pressure. This opens the 400Y-4DC-H deluge valve, allowing water to flow into the system piping and to the alarm device. Once open the valve latches until reset locally.

The pressure-reducing pilot valve [8] senses changes in outlet pressure and modulates the main valve to maintain the set downstream pressure.

System P&ID



Components	
1	BERMAD 400Y Deluge Valve
2	Priming Ball Valve
3	Priming Strainer
4	Check Valve
5	Restriction Orifice
6	Manual Emergency Release
7	URV-2-M Relay Valve
8	Pressure Reducing Pilot Valve

Optional System Items	
PS	Pressure Switch
W	Water Motor Alarm
ZS	Limit Switch Assembly
AMD	Air Maintenance Device
I	Visual Valve Position indicator
DV2	Downstream Drain valve
DV	Drain Valve*
PI	Pressure Gauge*
AV	3-way Alarm Test Valve*
DC	Automatic Drip Check Valve*

* Included with suffix A in valve code (drain and indicating components)
See code designations and "factory supplied additional items" on page 4

System Installation

A typical installation of the BERMAD model 400Y-4DC-H features automatic actuation via a pneumatic universal relay valve, triggered by a fusible plug loop. Once open the relay pilot URV-M will latch mechanically keeping the 400Y 4DC-H open, until locally reset. A pressure reducing pilot valve within the trim controls the main valve to ensure a precise, pre-set, stable downstream water pressure. When fitted with a limit switch the valve can send a feedback signal to a remote valve position monitoring system.

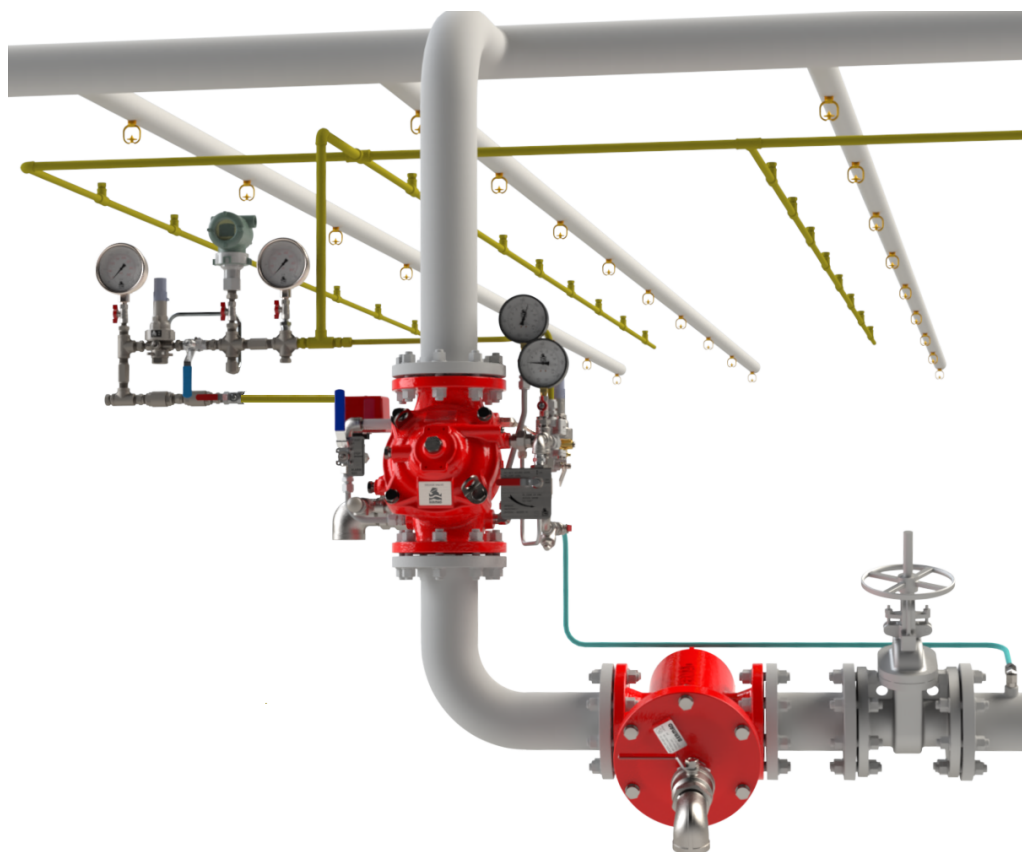
Optional System Items



Single Ex d
Proximity S.S.316
Limit Switch

Exd Pressure
Switch - Stainless
Steel Enclosure for
Harsh
Environments
Pressure Gauge

Basket Strainer -
60F



Suggested Specifications

The deluge valve shall be UL-listed, 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 deluge 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.

The control trim shall include a pressure control pilot valve, an auxiliary latching relay valve, a manual emergency release unit, a Y-type strainer, two 4-inch pressure gauges, an automatic drip-check with manual override, and a ball drain valve with a 360 degree swivel.

A valve position indicator shall be provided, and equipped with two proximity limit switches.

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

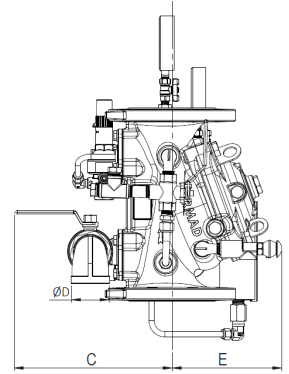
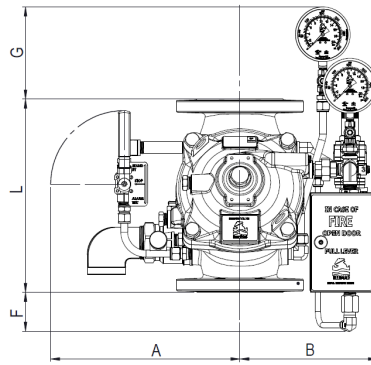
Grooved - 17.2 / 25 bar | 250 / 365 psi

Setting range: 4 -12 bar | 60 - 175 psi

Elastomer:

HTNR - Fabric Reinforced High Temperature

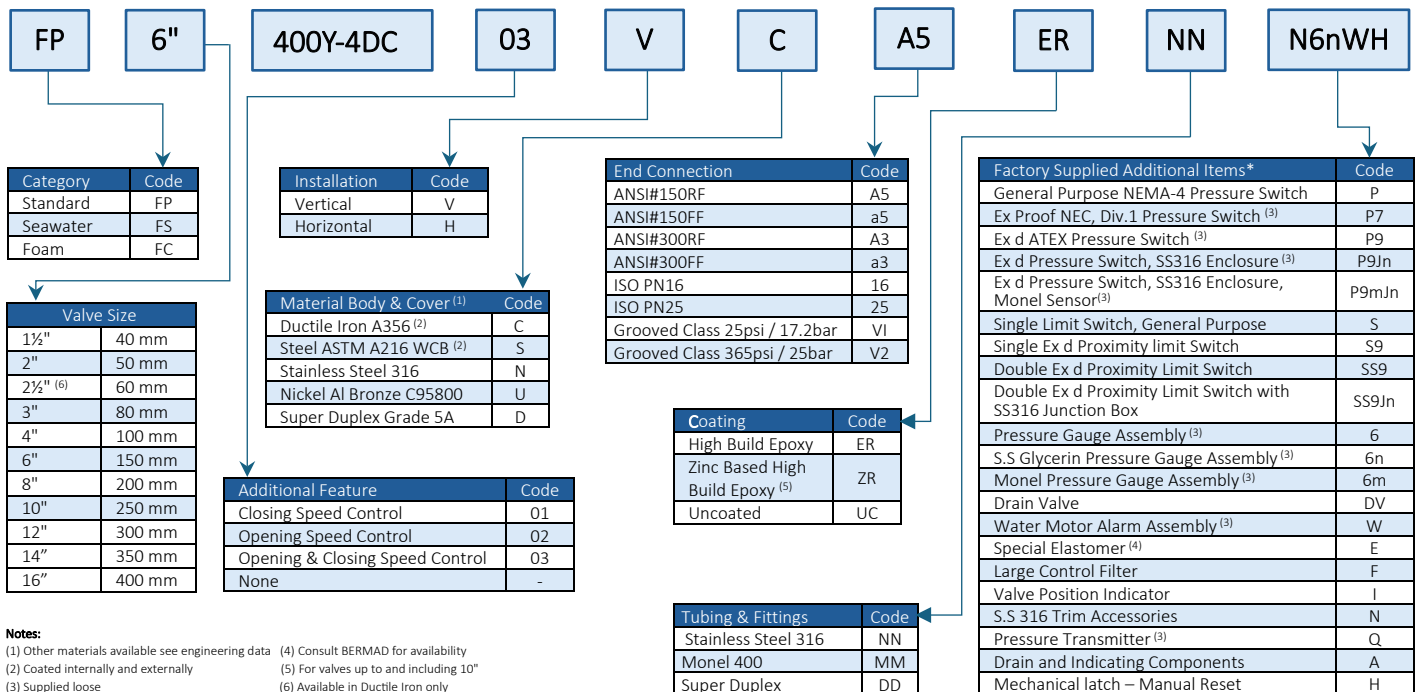
Compound - See engineering data



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	293 11.5	232 9.1	177 7	¾"	215 8.5	166 6.5	130 5.1	19 40	20 45
DN50 2"	230 9.1	230 9.1	238 9.4	293 11.5	232 9.1	177 7	¾"	215 8.5	166 6.5	130 5.1	19 42	20 44
DN65 2½"	235 9.3	235 9.3	241 9.5	296 11.6	233 9.2	183 7.2	1½"	215 8.5	164 6.5	123 4.8	24 53	26 57
DN80 3"	310 12.2	310 12.2	326 12.8	313 12.3	292 11.5	221 8.7	1½"	186 7.3	97 3.8	100 3.9	38 84	39 8.6
DN100 4"	350 13.8	350 13.8	368 14.5	343 13.5	300 11.8	287 9.7	2"	199 7.8	71 2.8	167 6.6	52 114	59 130
DN150 6"	480 18.9	480 18.9	506 19.9	358 14	354 13.9	302 11.9	2"	234 9.2	-	35 1.4	100 220	120 264
DN200 8"	600 23.6	600 23.6	626 24.7	392 15.4	431 17	317 12.5	2"	301 11.8	-	-	169 372	189 416
DN250 10"	730 28.7	730 28.7	730 28.7	406 16	431 17	317 12.5	2"	301 11.8	-	-	202 444	238 524
DN300 12"	850 33.5	-	888 35	478 18.8	496 19.5	380 15	2"	441 17.4	-	-	358 788	398 876
DN350 14"	980 38.6	-	980 38.6	478 18.8	496 19.5	379 14.9	2"	441 17.4	-	-	394 867	454 999
DN400 16"	1100 43.3	-	1100 43.3	478 18.8	496 19.5	405 16.1	2"	417 15.9	-	-	445 980	564 1241

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



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

*More options available – consult BERMAD