

PNEUMATICALLY CONTROLLED ON-OFF DELUGE VALVE

Model FP-400Y-4D

The BERMAD model 400Y-4D is an elastomeric, hydraulic line operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards.

The 400Y-4D is controlled by a pneumatic relay valve, typically activated by a decrease in pressure of a pneumatic pilot line. The 400Y-4D can also be operated remotely.

The optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems.

The BERMAD 400Y 4D is ideal for use in systems with open nozzles for water or foam discharge also well suited for use with corrosive media or where freezing temperatures might be experienced.



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
 - No mechanical moving parts
 - Shuts off on remote command
 - Valve position limit switches (optional)
 - Local valve position indicator beacon (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

- Remote Control Water Spray Systems
- Foam applications
- Corrosive water systems
- Freezing Environments

Approvals



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



Det Norske Veritas
Type Approval
Sizes 1½" to 16"



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

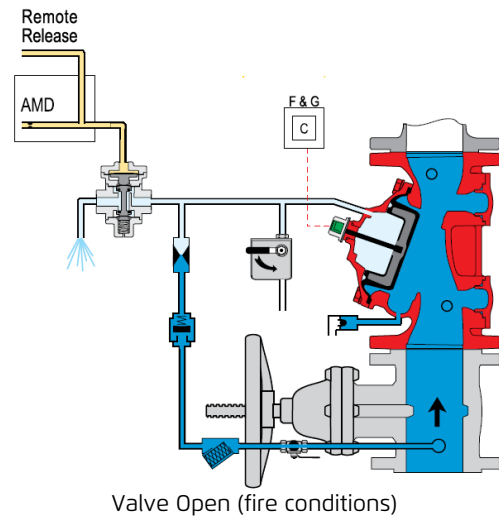
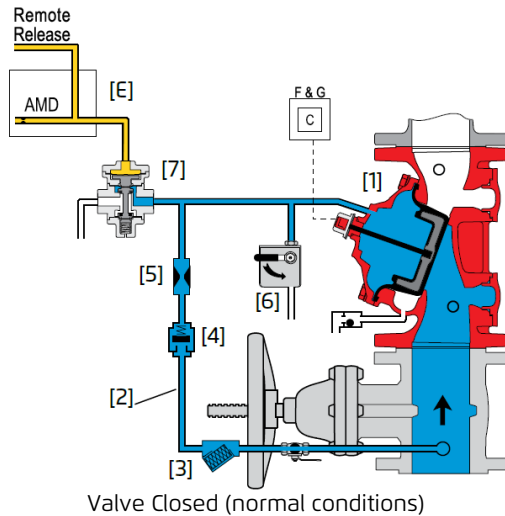


Lloyd's Register
Type Approval
Sizes 1½" - 10"

Additional Features

- Seawater compatibility
- Alarm pressure switch
- Drain valve/s inlet/outlet
- Air Maintenance Device
- Local valve position indicator beacon
- Valve Position Indicator

Operation

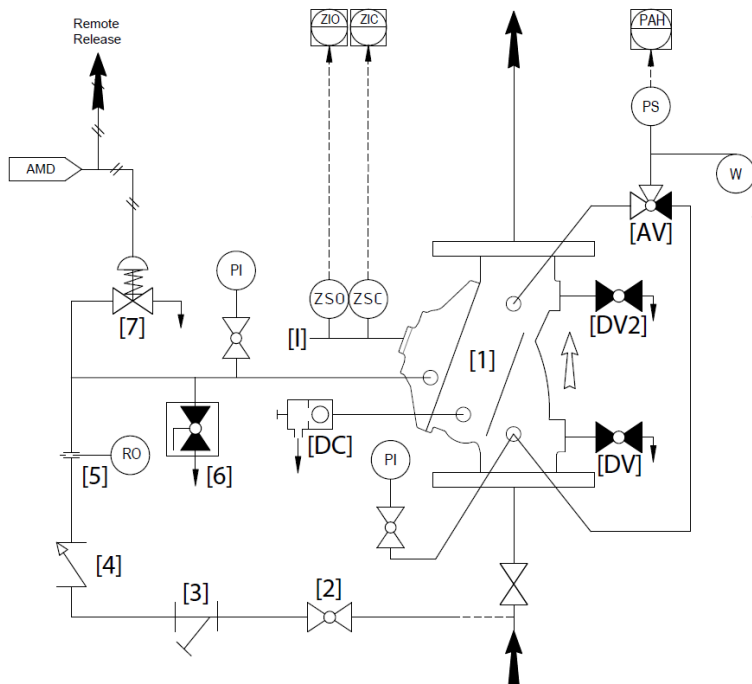


The BERMAD model 400Y-4D is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

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 relay valve (URV) [7] that is held closed by pneumatic pressure in the dry pilot line [E]. The water pressure trapped in the control chamber holds the diaphragm against the valve seat, sealing it drip-tight and keeping the system pipes dry.

Under FIRE conditions, water pressure is released from the control chamber, either with the manual emergency release, or by the URV opening in response to a decrease in pneumatic pilot-line pressure. This opens the 400Y-4D deluge valve, allowing water to flow into the system.

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 Relay Valve

Optional System Items	
I	Visual Valve Position Indicator
AMD	Air Maintenance Device
W	Water Motor Alarm
PS	Pressure Switch
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-4D features actuation via a pneumatic universal relay valve. When open and fitted with a limit switch the valve can send a feedback signal to a remote valve status monitoring system.

Optional System Items



Pressure Gauge



Visual Position Indicator



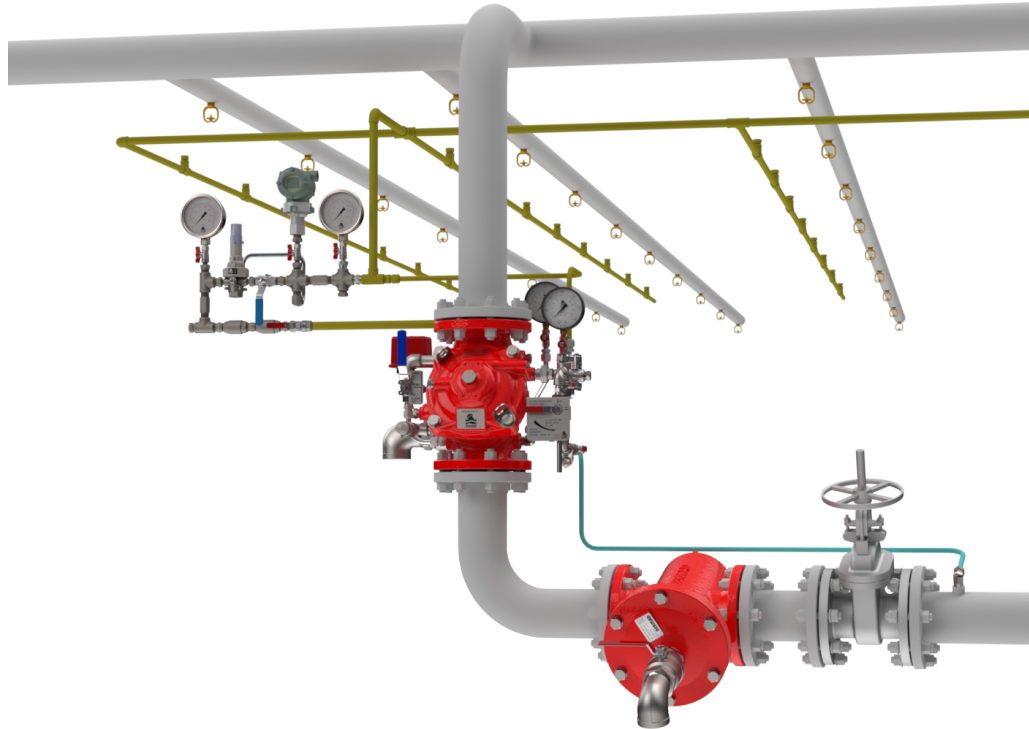
Rotating Limit Switch Box



Exd Pressure Switch - Stainless

Steel Enclosure for Harsh Environments

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 an auxiliary 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:

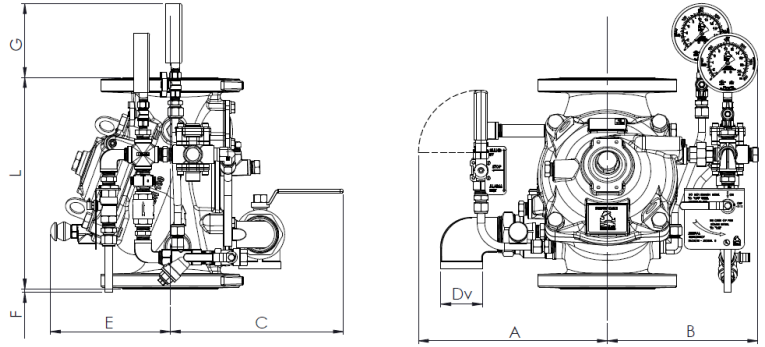
Flanged- 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
Grooved- 1½, 2, 3, 4, 6, 8 & 10"

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

Elastomer:

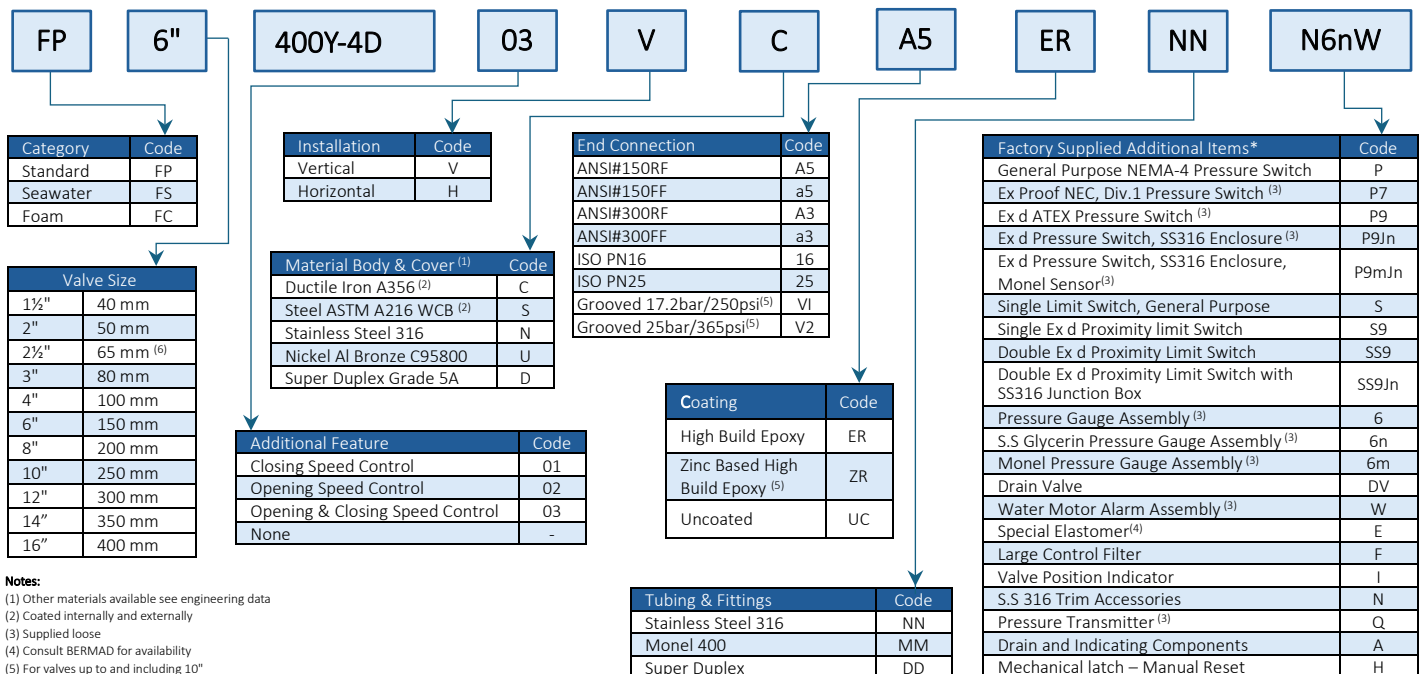
HTNR - Fabric Reinforced High Temperature Compound - See engineering data



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	187 7.4	177 7	¾"	215 8.5	103 4	178 7	17 37	19 42
DN50 2"	230 9.1	230 9.1	238 9.3	293 11.5	187 7.4	177 7	¾"	215 8.5	103 4	178 7	18 40	21 46
DN65 2½"	235 9.3	235 9.3	241 9.5	296 11.6	187 7.4	183 7.2	1½"	215 8.5	100 3.9	157 6.2	22 48	24 53
DN80 3"	310 12.2	310 12.2	326 12.8	313 12.3	246 9.7	221 8.7	1½"	186 7.3	33 1.3	88 3.5	35 77	40 88
DN100 4"	350 13.8	320 12.6	368 14.5	343 13.5	255 10	287 11.3	2"	199 7.8	6 0.2	135 5.3	49 108	56 123
DN150 6"	480 18.9	480 18.9	506 19.9	358 14.1	310 12.2	302 11.9	2"	234 9.2	-	27 1	96 211	116 255
DN200 8"	600 23.6	600 23.6	626 24.6	392 15.4	385 15.2	317 12.5	2"	301 11.9	-	2 0.1	166 365	186 409
DN250 10"	730 28.7	730 28.7	730 28.7	406 16	384 15.1	317 12.5	2"	301 11.9	-	-	199 438	234 515
DN300 12"	850 33.5	-	888 35	478 18.8	451 17.8	380 15	2"	441 17.4	-	-	356 783	396 871
DN350 14"	980 38.6	-	980 38.6	478 18.8	451 17.8	379 15	2"	441 17.4	-	-	392 862	473 1041
DN400 16"	1100 43.3	-	1100 43.3	478 18.8	451 17.8	405 15.9	2"	417 16.4	-	-	392 862	512 1258

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