



Electrically Controlled Deluge Valve with Local Reset

Model FP 400Y - 3UM

The BERMAD model 400Y-3UM is an elastomeric, hydraulic, line pressure operated deluge valve, designed specifically for advanced fire protection systems, and the latest industry standards.

The 400Y-3UM is activated by a 3-way solenoid valve, which actuates a latching relay valve, to open the main valve. Once open the main valve will not close until locally reset.

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

The 400Y-3UM is ideal for systems with open nozzles for water or foam discharge, available with electric components to suit any hazardous location.



(for Illustration Only)

Benefits and Features

■ Safety and reliability

- Time proven, Simple, fail-safe actuation
- Single piece, rugged elastomeric diaphragm seal - VRSD technology
- Obstacle-free, uninterrupted flow path
- No mechanical moving parts
- Latches open: remains open until reset locally
- Valve position limit switches (optional)
- Local valve position indicator beacon (optional)

■ High performance

- Very high flow efficiency
- Straight through flow Y- type body
- Approved for PN25 / 365 psi

■ Specifically designed for fire protection

- Face-to-face length standardized to ISO 5752, EN 558-1
- Meets the requirements of industry standards

■ Quick and easy maintenance

- In-line serviceable
- Fast and easy cover removal
- Swivel mounted drain valves for quick and efficient installation*

* not including 1½" & 2" valves

Typical Applications

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



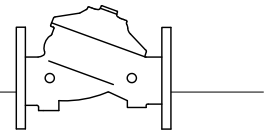
ABS
American Bureau of Shipping
Type Approval



Lloyd's Register
Type Approval

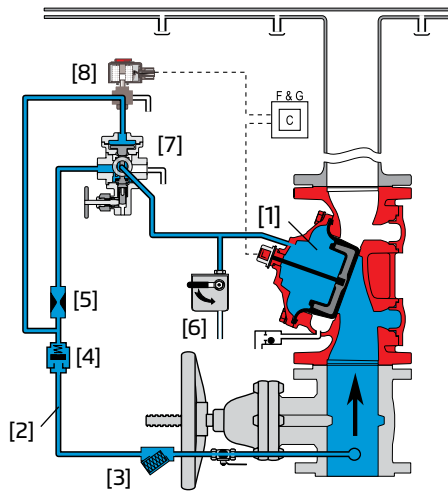
Additional Features

- Valve position limit switches
- Local valve position indicator beacon
- Alarm pressure switch
- Sea water compatibility
- Drain valve/s inlet/outlet

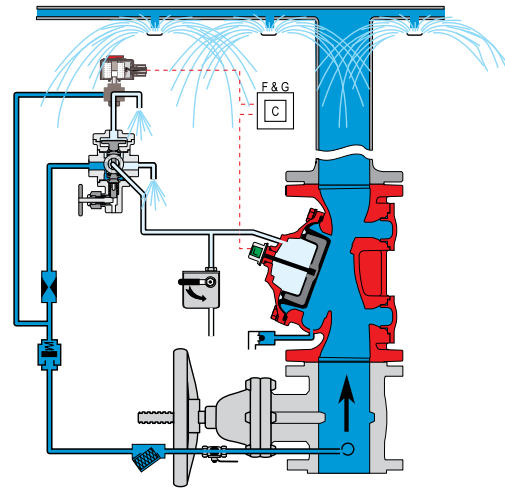


Operation

(for Illustration Only)



Valve Closed (normal conditions)



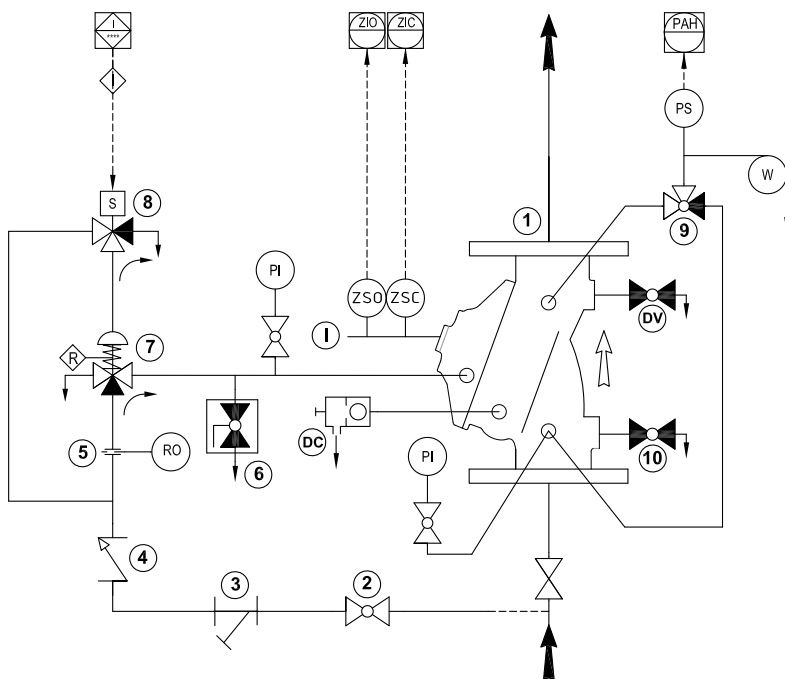
Valve Open (fire conditions)

The BERMAD model 400Y-3UM 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] and is then trapped in the control chamber by a check valve [4], manual emergency release [6], and a relay valve (URV-M) [7] that is held in the supply position by hydraulic pressure supplied through a three-way solenoid valve [8]. 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-M switching to the release position in response to the solenoid valve being activated by the fire & gas control system [C]. This latches the 400Y-3UM deluge valve open, allowing water to flow into the system piping and the alarm device.

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-3-M Relay Valve
- 8 3-Way NO Solenoid Valve

Optional System Items

- ZS Limit Switch Assembly
- I Visual Indicator
- DC Automatic Drip Check Valve
- DV Additional Drain Valve
- PI Pressure Indicator*
- PS Pressure Switch
- W Water Motor Alarm
- 9 3-Way Alarm Valve*
- 10 Drain Valve*

See also Factory Fitted Options under the Valve Code Designations on the last page

*Mandatory for FM approval
(suffix A in code designations on page 4)





System Installation

A typical installation of the BERMAD model 400Y-3UM features automatic actuation via a relay valve and three-way solenoid valve, triggered by a signal from a fire & gas control system or an on-site emergency pushbutton. When fitted with a limit switch, the valve can send a feedback signal to a remote valve position monitoring system.

Optional System Items



Water Motor Alarm



Pressure Switch



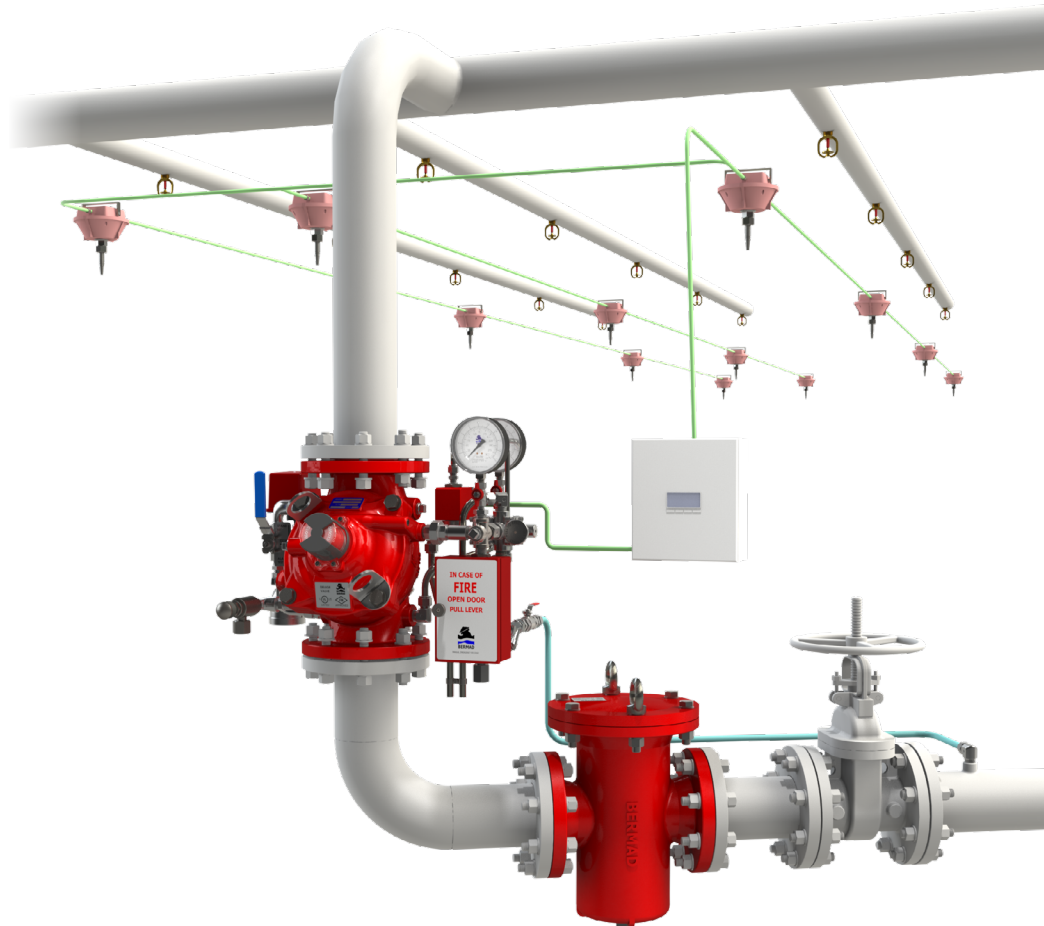
Valve Position Indicator



Limit Switch



Strainer



(for Illustration Only)

Suggested Specifications

The deluge valve shall be UL-listed and FM-approved, 25-bar/365-psi rated, with a straight-through, Y-type-body. The valve shall have an unobstructed flow path, with no stem guide or supporting ribs.

Valve actuation shall be accomplished by a single-piece, rolling diaphragm bonded with a rugged radial seal disk. The diaphragm assembly shall be the only moving part.

The deluge valve shall include a latching relay pilot valve, a 3-Way solenoid valve FM approved for 25 bar/365 psi working pressure with a tolerance of 35% below of the rated voltage, a Y-type strainer, a ball drain valve, an automatic drip-check with manual override, 4-inch pressure gauges, and a manual emergency release housed in a stainless steel box.

The valve shall be equipped with a protective-covered, dual-color, rotational position indicator visible readable 50 meters, and with two limit switches enclosed in a protective switch box.

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

The deluge valve and its entire control trim shall be supplied pre-assembled and hydraulically tested by a factory certified to ISO 9000 and 9001 quality assurance standards.

BERMAD Fire Protection



Model FP 400Y-3UM

400Y Series

Technical Data

Available Sizes (inch)

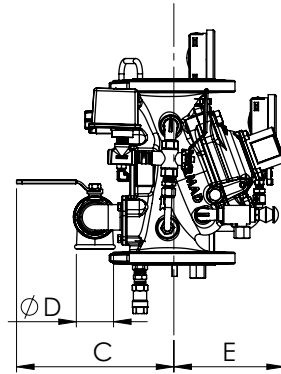
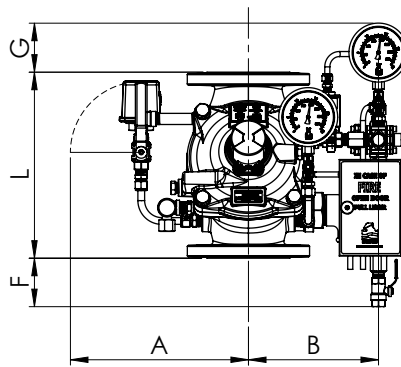
- Flanged - 1½, 2, 3, 4, 6, 8, 10, 12, 14 & 16"
- Grooved - 1½, 2, 3, 4, 6 & 8"
- Threaded - 1½ & 2"

Pressure Rating

- ANSI#150 - 16 bar / 235 psi
- ANSI#300 - 1½" to 10" 25 bar / 365 psi
12" to 16" 20 bar / 300 psi
- Grooved - 25 bar / 365 psi
- Threaded - 25 bar / 365 psi

Elastomer

- HTNR - Fabric Reinforced High Temperature Compound - See engineering data



| Valve Size | 1½" DN40 | 2" DN50 | 3" DN80 | 4" DN100 | 6" DN150 | 8" DN200 | 10" DN250 | 12" DN300 | 14" DN350 | 16" DN400 |
|--------------------------------------|-------------|-------------|-------------|-------------|--------------|---------------|---------------|---------------|---------------|---------------|
| ⁽¹⁾ L' ANSI #150 mm (in.) | 230(9.06) | 230(9.06) | 310(12.21) | 350(13.79) | 480(18.91) | 600(23.64) | 730(28.76) | 850(33.49) | 980(38.61) | 1100(43.34) |
| L ² ANSI #300 mm (in.) | 230(9.06) | 238(9.37) | 326(12.84) | 368(14.50) | 506(19.94) | 626(24.66) | 730(28.76) | 888(34.96) | 980(38.61) | 1100(43.34) |
| A mm (in.) | 330(13.0) | 330(13.0) | 390(15.4) | 398(15.7) | 451(17.8) | 481(18.9) | 481(18.9) | 594(23.4) | 594(23.4) | 594(23.4) |
| B mm (in.) | 249(9.8) | 249(9.8) | 307(12) | 317(12.5) | 372(14.64) | 400(15.7) | 400(15.7) | 513(20.2) | 513(20.2) | 513(20.2) |
| C mm (in.) | 241(9.5) | 241(9.5) | 274(10.8) | 290(11.4) | 304(12.0) | 320(12.6) | 320(12.6) | 383(15.1) | 383(15.1) | 408(16.1) |
| ØD | ¾" | ¾" | 1½" | 2" | 2" | 2" | 2" | 2" | 2" | 2" |
| E mm (in.) | 167(6.6) | 167(6.6) | 191(7.5) | 205(8.1) | 273(10.7) | 338(13.3) | 338(13.3) | 490(19.3) | 490(19.3) | 465(18.3) |
| F mm (in.) | 189(7.4) | 189(7.4) | 119(4.7) | 92(3.6) | 10(0.4) | - | - | - | - | - |
| G mm (in.) | 121(4.8) | 121(4.8) | 111(4.4) | 98(3.8) | 49.5(1.9) | 25(1) | - | - | - | - |
| Kv m ³ /h (Cv gpm) | 68(79) | 80(92) | 190(219) | 345(398) | 790(912) | 1160(1340) | 1355(1565) | 2370(2737) | 2850(3292) | 3254(3758) |
| ⁽²⁾ Leq m (ft) | 2(7) | 5(16) | 7(23) | 9(30) | 15(49) | 27(89) | 62(203) | 52(171) | 59(194) | 88(289) |
| Weight, flanged kg (lbs) | 15.26(33.5) | 16.66(36.6) | 31.36(69.0) | 41.36(91.0) | 84.66(186.3) | 147.86(325.3) | 177.86(391.3) | 320.86(705.9) | 353.86(778.5) | 399.86(879.7) |

Notes: ⁽¹⁾ L' Dimensions are for grooved, threaded and raised face flanged valves

⁽²⁾ Leq (Equivalent Pipe Length) refers to turbulent flow in new steel pipe schedule 40, values given for general consideration only

⁽³⁾ Dimensions for the trim envelope may vary with specific component positioning

Valve Code Designations

FP 6" 400Y-3UM V C A5 PR 4DC NN P77RI

| Category | code |
|------------------|------|
| Standard | FP |
| Seawater | FS |
| Foam Concentrate | FC |

| Installation | code |
|--------------|------|
| Vertical | V |
| Horizontal | H |

| Coating | code |
|------------------|------|
| Polyester Red | PR |
| High Build Epoxy | ER |
| Uncoated | UC |

| Factory Fitted Options | Code |
|---|------|
| General Purpose NEMA-4 Pressure Switch ⁽⁴⁾ | P |
| Ex Proof NEC, Div.1 Pressure Switch ⁽⁴⁾ | P7 |
| Ex d ATEX Pressure Switch ⁽⁴⁾ | P9 |
| Single Limit Switch, General Purpose | RS |
| Single Ex d Proximity limit Switch | RS9 |
| Double Ex d Proximity Limit Switch | RSS9 |
| Pressure Gauge Assembly ⁽⁴⁾ | 6 |
| S.S Glycerin Pressure Gauge Assembly ⁽⁴⁾ | 6n |
| Monel Pressure Gauge Assembly | 6m |
| Ex Proof NEC Class 1 Div 1 Solenoid | 7 |
| Ex. d Atex Solenoid | 9 |
| Drain Valve | DV |
| Water Motor Alarm Assembly ⁽⁴⁾ | W |
| Special Elastomer EPDM | E1 |
| Special Elastomer NBR | E3 |
| Large Control Filter | F |
| Valve Position Indicator | RI |
| S.S Solenoid Valve | K |
| S.S 316 Trim Accessories | N |
| Pressure Transmitter ⁽⁴⁾ | Q |
| 316 Stainless Steel Seat | T |
| Drain and Indicating Components ⁽⁵⁾ | A |

| Valve Size | code |
|------------|--------|
| 1½" | 40 mm |
| 2" | 50 mm |
| 3" | 80 mm |
| 4" | 100 mm |
| 6" | 150 mm |
| 8" | 200 mm |
| 10" | 250 mm |
| 12" | 300 mm |
| 14" | 350 mm |
| 16" | 400 mm |

| 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 |
| ANSI#300RF | A3 |
| ISO PN16 | 16 |
| ISO PN25 | 25 |
| Grooved ANSI C606 16 bar / 235 psi | VI |

| Voltage ⁽³⁾ - Main Valve N.O or N.C | code |
|--|------|
| 24VDC - N.C. | 4DC |
| 24VDC - N.O. | 4DO |
| 24VDC - Latch | 4DS |
| 110VDC - N.C. | 5DC |
| 110VDC - N.O. | 5DO |
| 110-120/AC - N.C. | 5AC |
| 110-120/AC - N.O. | 5AO |
| 220-240/AC - N.C. | 2AC |
| 220-240/AC - N.O. | 2AO |

| 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⁾ Fm approved with 24VDC only
- ⁽⁴⁾ Supplied loose
- ⁽⁵⁾ Mandatory for FM approved valves



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