

Electrically Controlled On-Off Deluge Valve

Model FP 400E - 3D

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

The 400E-3D is activated by a 3-way solenoid valve, suitable for electric fire detection systems.

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

The 400E-3D 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 design with a fail safe actuation
- Single piece, rugged elastomeric diaphragm seal - VRSD technology
- Obstacle-free, uninterrupted flow path
- No mechanical moving parts
- UL429A Listed 3-Way Solenoid Valve
- Valve position limit switches (optional)
- Meets the requirements of industry standards

■ Quick and easy maintenance

- Designed for high reliability and easy maintenance
- In-line serviceable
- Fast and easy cover removal

Typical Applications

- Electric fire detection systems with control panels
- Remote control water spray systems
- Foam applications
- Corrosive water supplies

Approvals



UL-Listed
Special System Water Control
Valves, Deluge Type (VLFT)
Sizes 1½" - 10"



Det Norske Veritas
Type Approval
Sizes 1½" - 12"



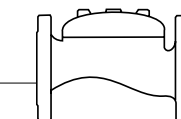
American Bureau of Shipping
Type Approval
Sizes 1½" - 12"



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

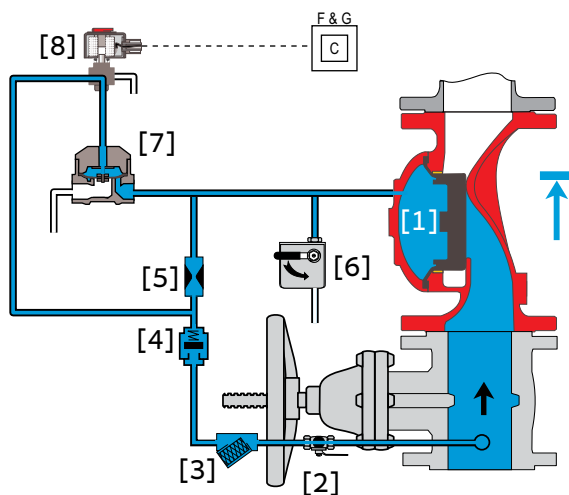
Additional Features

- Valve position limit switches
- Sea water compatibility
- Alarm pressure switch
- For "automatic activation" select BERMAD local or remote reset model

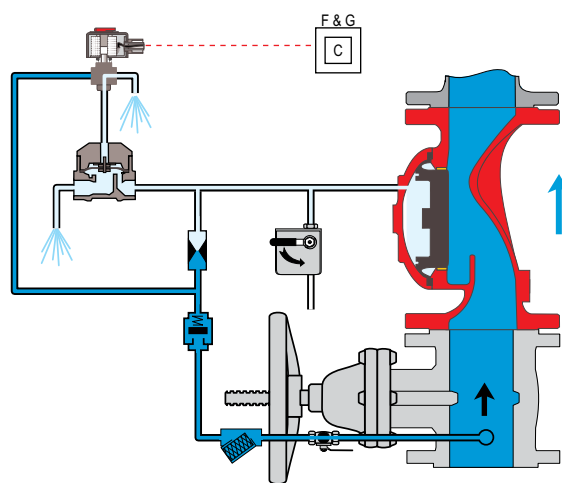


Operation

(for Illustration Only)



Valve Closed (normal condition)



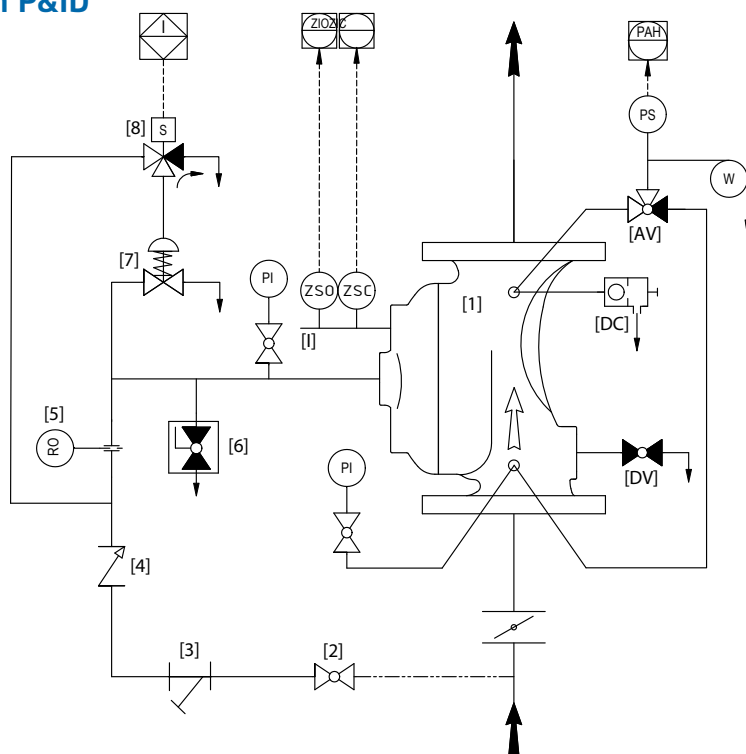
Valve Open (fire condition)

The BERMAD model 400E-3D 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], restriction orifice [5] and strainer [3], and is then trapped in the control chamber by a check valve [4], manual emergency release [6], and a relay valve (HRV) [7] that is held closed by hydraulic pressure supplied through a three-way solenoid valve [8]. The water pressure trapped in the main valve 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 HRV opening in response to the solenoid valve being activated by the fire & gas control system [C]. This opens the 400E-3D deluge valve, allowing water to flow into the system piping.

System P&ID



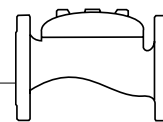
Components

- 1 BERMAD 400E Deluge Valve
- 2 Priming Ball Valve
- 3 Priming Strainer
- 4 Check valve
- 5 Restriction Orifice
- 6 Manual Emergency Release
- 7 HRV-Hydraulic Relay Valve
- 8 3-Way Solenoid Valve

Optional System Items

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

* Included in code suffix A "Drain and Indicating Components". See code designations and additional Factory Fitted Options on page 4



System Installation

A typical installation of the BERMAD model 400E-3D features actuation via a hydraulic relay valve and three-way solenoid valve, triggered by a signal from a fire & gas control system or an on-site emergency pushbutton. 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



Limit switch



Water Motor Alarm



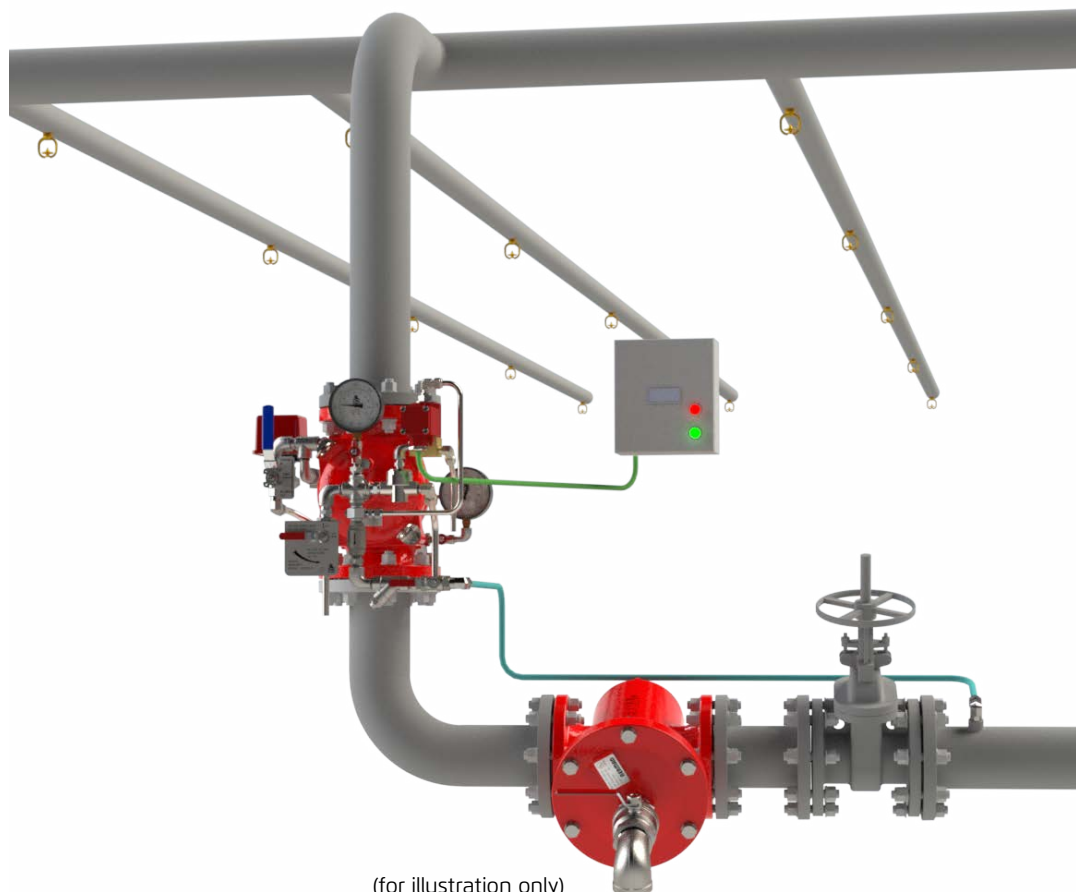
Pressure Switch



Pressure Gauges



60F
Basket Strainer



(for illustration only)

Suggested Specifications

The deluge valve shall be UL-listed.

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 relay valve, a 3-Way UL429A Listed solenoid valve rated to 25 bar/365 psi working pressure with a tolerance of 35% below the rated voltage.

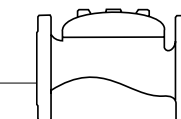
The valve will also include a Y-type strainer, a ball drain valve, an automatic drip-check with manual override, 4-inch pressure gauges and a manual emergency release housed in a 316 stainless steel box.

Removing the valve cover for inspection and full maintenance shall be in line and not require removal of the valve from the piping line.

The deluge valve and its entire control trim shall be supplied pre-assembled and hydraulically tested in compliance to the UL 260 standard, by a factory certified to ISO 9000 and 9001 quality assurance standards.

BERMAD Fire Protection

Model FP 400E - 3D



400E Series

Technical Data

Available Sizes (inch)

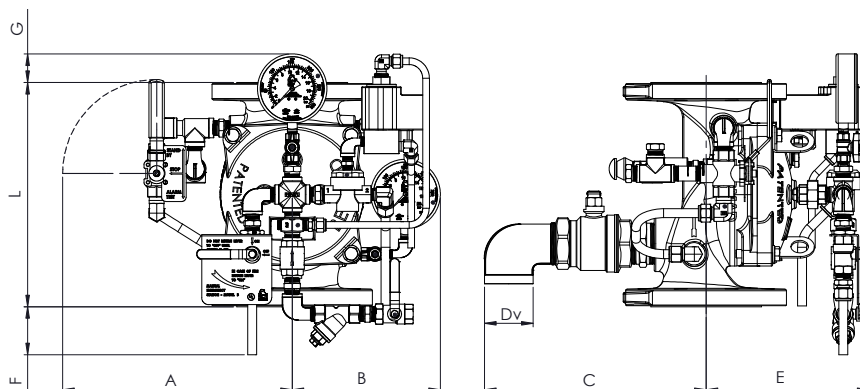
- Flanged - 1½, 2, 2½, 3, 4, 6, 8, 10 & 12"
- Grooved - 2, 3, 4, 6 & 8"

Pressure Rating

- 17.2 bar / 250 psi

Elastomer

- HTNR with VRSD - Fabric Reinforced High Temperature, see engineering data



| Valve Size | 1½" DN40 | | 2" DN50 | | 2½" DN65 | | 3" DN80 | | 4" DN100 | | 6" DN150 | | 8" DN200 | | 10" DN250 | | 12" DN300 | |
|------------|----------|------|---------|------|----------|------|---------|------|----------|------|----------|------|----------|------|-----------|------|-----------|------|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| L #150 | 205 | 8.1 | 205 | 8.1 | 205 | 8.1 | 257 | 10.1 | 320 | 12.6 | 415 | 16.3 | 500 | 19.7 | 605 | 23.8 | 725 | 28.5 |
| L Grooved | - | - | 205 | 8.1 | - | - | 250 | 9.8 | 320 | 12.6 | 415 | 16.3 | 500 | 19.7 | - | - | - | - |
| A | 117 | 12.3 | 313 | 12.3 | 325 | 12.8 | 345 | 13.6 | 328 | 12.9 | 349 | 13.7 | 383 | 15.1 | 396 | 15.6 | 438 | 17.2 |
| B | 158 | 7.5 | 191 | 7.5 | 196 | 7.7 | 205 | 8.1 | 212 | 8.3 | 204 | 8.0 | 270 | 10.6 | 280 | 11.0 | 333 | 13.1 |
| C | 217 | 7.8 | 199 | 7.8 | 253 | 10.0 | 266 | 10.5 | 316 | 12.4 | 347 | 13.7 | 364 | 14.3 | 384 | 15.1 | 422 | 16.6 |
| ØDv | ¾" | | ¾" | | 1½" | | 1½" | | 2" | | 2" | | 2" | | 2" | | 2" | |
| E | 203 | 8.0 | 203 | 8.0 | 205 | 8.1 | 238 | 9.4 | 258 | 10.2 | 334 | 13.1 | 385 | 15.2 | 382 | 15.0 | 513 | 20.2 |
| F | 157 | 6.2 | 157 | 6.2 | 157 | 6.2 | 131 | 5.2 | 99 | 3.9 | 52 | 2.0 | - | - | - | - | - | - |
| G | 100 | 3.9 | 100 | 3.9 | 100 | 3.9 | 74 | 2.9 | 43 | 1.7 | - | - | - | - | - | - | - | - |
| Kg / lb | 14/31 | | 15/33 | | 17/37 | | 28/62 | | 40/88 | | 84/185 | | 147/323 | | 162/356 | | 242/532 | |

IMPORTANT: Dimensions for the trim envelope or extents refer to a vertical orientation and may vary with specific component positioning - allow a tolerance of at least ±10%.

Valve Code Designations

| FP | 6" | 400E-3D | 03 | V | C | A5 | PR | 4DC | NN | N6nW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------------|--|------|--------------------|-------|---------------|-------|------------------|-------|-------------------------|-------|--|--------------|------|----------|--|------------|-------------------|--------|---------------------|--|---|------|--------------------------------------|------|--|----|------------------------------------|----|---------------------|---|--|------------------------|-----------------------|---|---|--|--|--|----|--|------|--|-------|--------------------------------------|-----|------------------------------------|-----|------------------------------------|-----|--|-------|--|-----|---|-----|--|----|----------------------------------|---|-----------------------------|---|------------------------------------|---|-------------|----|---|---|-------------------|------------------|----------------------|---|--------------------------|---|--------------------|---|--------------------------|---|-------------------------------------|---|---------------------------------|---|
| <table><tr><th>Category</th><th>Code</th></tr><tr><td>Standard</td><td>FP</td></tr><tr><td>Seawater</td><td>FS</td></tr><tr><td>Foam Concentrate</td><td>FC</td></tr></table> | | Category | Code | Standard | FP | Seawater | FS | Foam Concentrate | FC | | | <table><tr><th>Installation</th><th>Code</th></tr><tr><td>Vertical</td><td>V</td></tr><tr><td>Horizontal</td><td>H</td></tr></table> | Installation | Code | Vertical | V | Horizontal | H | | | <table><tr><th>Coating</th><th>Code</th></tr><tr><td>High Build Epoxy</td><td>ER</td></tr><tr><td>Zinc Based High Build Epoxy ⁽⁵⁾</td><td>ZR</td></tr><tr><td>Uncoated</td><td>UC</td></tr></table> | Coating | Code | High Build Epoxy | ER | Zinc Based High Build Epoxy ⁽⁵⁾ | ZR | Uncoated | UC | | | <table><tr><th>Factory Fitted Options</th><th>Code</th></tr><tr><td>General Purpose NEMA-4 Pressure Switch ⁽³⁾</td><td>P</td></tr><tr><td>Ex Proof NEC, Div.1 Pressure Switch ⁽³⁾</td><td>P7</td></tr><tr><td>Ex d ATEX Pressure Switch ⁽³⁾</td><td>P9</td></tr><tr><td>Ex d Pressure Switch, SS316 Enclosure ⁽³⁾</td><td>P9Jn</td></tr><tr><td>Ex d Pressure Switch, SS316 Enclosure, Monel Sensor ⁽³⁾</td><td>P9mJn</td></tr><tr><td>Single Limit Switch, General Purpose</td><td>S</td></tr><tr><td>Single Ex d Proximity limit Switch</td><td>S9</td></tr><tr><td>Double Ex d Proximity Limit Switch</td><td>SS9</td></tr><tr><td>Double Ex d Proximity Limit Switch with SS316 Junction Box</td><td>SS9Jn</td></tr><tr><td>Pressure Gauge Assembly ⁽³⁾</td><td>6</td></tr><tr><td>S.S Glycerin Pressure Gauge Assembly ⁽³⁾</td><td>6n</td></tr><tr><td>Monel Pressure Gauge Assembly ⁽³⁾</td><td>6m</td></tr><tr><td>Ex Proof Class I Div. 1 Solenoid</td><td>7</td></tr><tr><td>Ex. d ATEX / IECEx Solenoid</td><td>9</td></tr><tr><td>Stainless steel 316 Solenoid Valve</td><td>K</td></tr><tr><td>Drain Valve</td><td>DV</td></tr><tr><td>Water Motor Alarm Assembly ⁽³⁾</td><td>W</td></tr><tr><td>Special Elastomer</td><td>E ⁽⁴⁾</td></tr><tr><td>Large Control Filter</td><td>F</td></tr><tr><td>Valve Position Indicator</td><td>I</td></tr><tr><td>S.S Solenoid Valve</td><td>K</td></tr><tr><td>S.S 316 Trim Accessories</td><td>N</td></tr><tr><td>Pressure Transmitter ⁽³⁾</td><td>Q</td></tr><tr><td>Drain and Indicating Components</td><td>A</td></tr></table> | Factory Fitted Options | Code | General Purpose NEMA-4 Pressure Switch ⁽³⁾ | 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 | Ex Proof Class I Div. 1 Solenoid | 7 | Ex. d ATEX / IECEx Solenoid | 9 | Stainless steel 316 Solenoid Valve | K | Drain Valve | DV | Water Motor Alarm Assembly ⁽³⁾ | W | Special Elastomer | E ⁽⁴⁾ | Large Control Filter | F | Valve Position Indicator | I | S.S Solenoid Valve | K | S.S 316 Trim Accessories | N | Pressure Transmitter ⁽³⁾ | Q | Drain and Indicating Components | A |
| Category | Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Standard | FP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Seawater | FS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Foam Concentrate | FC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Installation | Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vertical | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Horizontal | H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coating | Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Build Epoxy | ER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Zinc Based High Build Epoxy ⁽⁵⁾ | ZR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Uncoated | UC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Factory Fitted Options | Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| General Purpose NEMA-4 Pressure Switch ⁽³⁾ | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ex Proof Class I Div. 1 Solenoid | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ex. d ATEX / IECEx Solenoid | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stainless steel 316 Solenoid Valve | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drain Valve | DV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Water Motor Alarm Assembly ⁽³⁾ | W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Special Elastomer | E ⁽⁴⁾ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Large Control Filter | F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Valve Position Indicator | I | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S.S Solenoid Valve | K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S.S 316 Trim Accessories | N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pressure Transmitter ⁽³⁾ | Q | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drain and Indicating Components | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table><tr><th>Valve Size</th><th></th></tr><tr><td>1½"</td><td>40 mm</td></tr><tr><td>2"</td><td>50 mm</td></tr><tr><td>3"</td><td>80 mm</td></tr><tr><td>2½"</td><td>65 mm</td></tr><tr><td>4"</td><td>100 mm</td></tr><tr><td>6"</td><td>150 mm</td></tr><tr><td>8"</td><td>200 mm</td></tr><tr><td>10"</td><td>250 mm</td></tr><tr><td>12"</td><td>300 mm</td></tr></table> | | Valve Size | | 1½" | 40 mm | 2" | 50 mm | 3" | 80 mm | 2½" | 65 mm | 4" | 100 mm | 6" | 150 mm | 8" | 200 mm | 10" | 250 mm | 12" | 300 mm | <table><tr><th>Material Body & Cover ⁽¹⁾</th><th>Code</th></tr><tr><td>Ductile Iron A356 ⁽²⁾</td><td>C</td></tr><tr><td>Steel ASTM A216 WCB ⁽²⁾</td><td>S</td></tr><tr><td>Stainless Steel 316</td><td>N</td></tr><tr><td>Nickel Al Bronze C95800</td><td>U</td></tr><tr><td>Super Duplex Grade 5A</td><td>D</td></tr></table> | | 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 | | | <table><tr><th>Voltage - Main Valve N.O or N.C*</th><th></th></tr><tr><td>24VDC - N.C.</td><td>4DC</td></tr><tr><td>24VDC - N.O.</td><td>4DO</td></tr><tr><td>110VDC - N.C.</td><td>5DC</td></tr><tr><td>110VDC - N.O.</td><td>5DO</td></tr><tr><td>110-120/AC - N.C.</td><td>5AC</td></tr><tr><td>110-120/AC - N.O.</td><td>5AO</td></tr><tr><td>220-240/AC - N.C.</td><td>2AC</td></tr><tr><td>220-240/AC - N.O.</td><td>2AO</td></tr></table> | Voltage - Main Valve N.O or N.C* | | 24VDC - N.C. | 4DC | 24VDC - N.O. | 4DO | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Valve Size | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1½" | 40 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2" | 50 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3" | 80 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2½" | 65 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4" | 100 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6" | 150 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8" | 200 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10" | 250 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12" | 300 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Voltage - Main Valve N.O or N.C* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24VDC - N.C. | 4DC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24VDC - N.O. | 4DO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table><tr><th>Additional Feature</th><th>Code</th></tr><tr><td>Closing speed</td><td>01</td></tr><tr><td>Opening speed</td><td>02</td></tr><tr><td>Opening & Closing speed</td><td>03</td></tr><tr><td>None</td><td>-</td></tr></table> | | Additional Feature | Code | Closing speed | 01 | Opening speed | 02 | Opening & Closing speed | 03 | None | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Additional Feature | Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Closing speed | 01 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Opening speed | 02 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Opening & Closing speed | 03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| None | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table><tr><th>End Connections</th><th>Code</th></tr><tr><td>ANSI#150RF</td><td>A5</td></tr><tr><td>ANSI#150FF</td><td>a5</td></tr><tr><td>ISO PN16</td><td>16</td></tr><tr><td>Grooved ANSI C606</td><td>VI</td></tr></table> | | End Connections | Code | ANSI#150RF | A5 | ANSI#150FF | a5 | ISO PN16 | 16 | Grooved ANSI C606 | VI | | | <table><tr><th>Tubing & Fittings</th><th>Code</th></tr><tr><td>Stainless Steel 316</td><td>NN</td></tr><tr><td>Monel 400</td><td>MM</td></tr><tr><td>Super Duplex</td><td>DD</td></tr></table> | | Tubing & Fittings | Code | Stainless Steel 316 | NN | Monel 400 | MM | Super Duplex | DD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| End Connections | Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANSI#150RF | A5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANSI#150FF | a5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO PN16 | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Grooved ANSI C606 | VI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 10" only

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 10" only

* NO or NC refers to the main valve status when the Solenoid is de-energized

* More options available - contact BERMAD



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