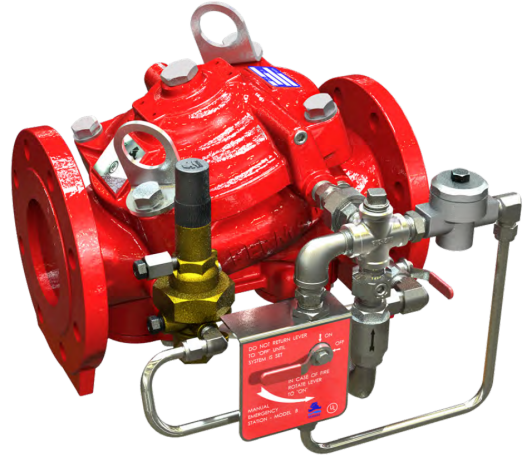


FLOW CONTROL - PRESSURE DIFFERENTIAL CONTROL VALVE (PDCV)

Model FP-400Y-06

The BERMAD model 400Y-*-06 is a self operated Pressure Differential Control Valve (PDCV) for flow control, designed specifically for advanced fire protection systems and the latest industry standards. The 400Y-*-06 uses a unique differential sensing pilot to control the differential pressure between two chosen points, typically a foam proportioning pump. The valve can be activated by means of an electric, hydraulic or pneumatic signal. Refer to the "Valve Code Designations" on page 4, under the Activation Code section to specify the required valve configuration.



Features & Benefits

- Safety and reliability
 - Fast response to flow changes during pipe filling
 - Time proven, simple design with a fail safe actuation
 - Obstacle-free, uninterrupted flow path
 - No mechanical moving parts
 - Single piece, rugged elastomeric diaphragm seal - VRSD technology
- High performance
 - Efficient Straight through flow
 - Very high flow efficiency
 - 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 the industry standards
- Quick and easy maintenance
 - In-line serviceable
 - Fast and easy cover removal

Typical Applications

- Foam applications
- Flow regulation for foam proportioning pumps
- Dosing pump flow control
- Remote control

Approvals



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



Det Norske Veritas
Type Approval



ABS
American Bureau of Shipping
Type Approval

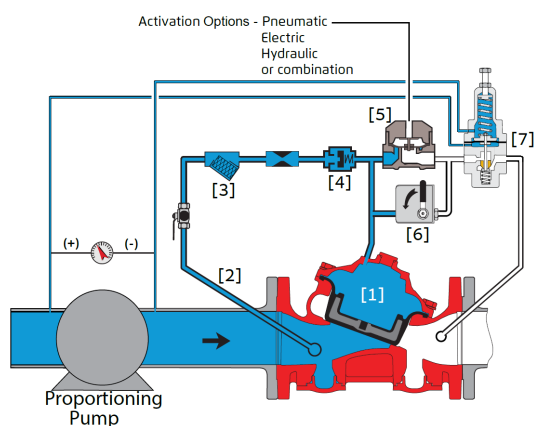


Lloyd's Register
Type Approval

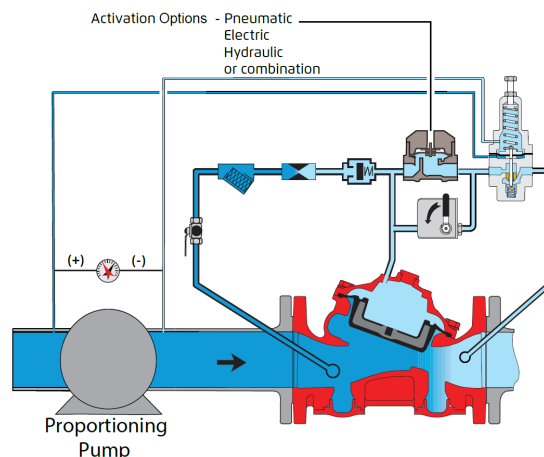
Optional Features

- Valve position limit switches ☒
- Valve Position Indicator
- Seawater compatibility
- Opening and/or closing speed control ☒

Operation



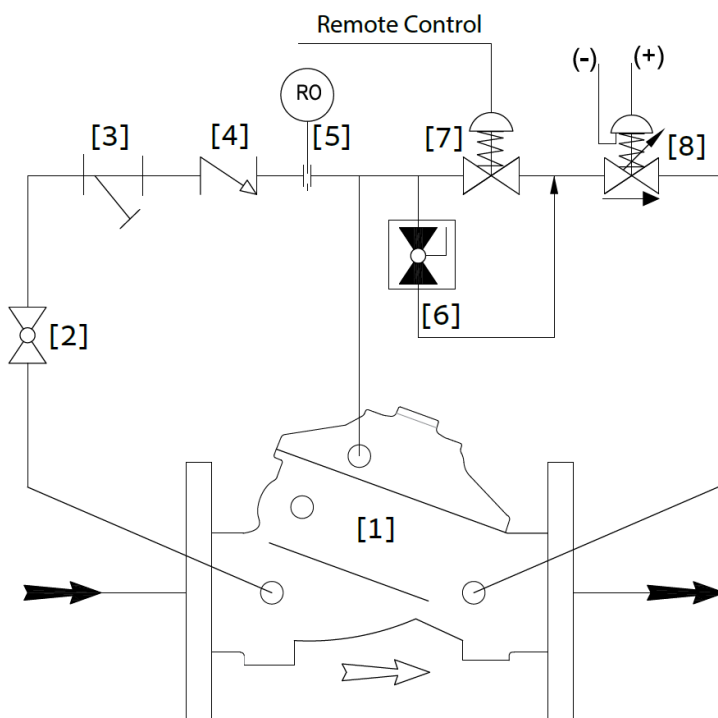
Valve Closed (normal conditions)



Valve Open (fire conditions)

The BERMAD 400Y is held closed by water pressure in the main valve control chamber [1]. Upon release of pressure from the control chamber, the valve will open. Under NORMAL conditions, water pressure is supplied to the control chamber [1] via the priming line [2] and strainer [3], and is then trapped in the control chamber by a check valve [4], the closed relay pilot valve [5] and the manual release override valve [6]. The water pressure trapped in the control chamber of the main valve 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 release [6], or by the relay pilot valve opening. Once open the differential pressure pilot [7] will modulate the main valve to maintain a preset differential pressure between the pilot sensing points. In this way keeping the flow below the allowable maximum. When fitted with a local reset the valve will remain open until manually and locally reset.

System P&ID



Components	
1	Bermad 400Y Valve
2	Priming Ball Valve
3	Priming Strainer
4	Check valve
5	Restriction Orifice
6	Manual Release
7	Relay Valve
8	Pressure Differential Pilot Valve

System Installation

The differential pressure sensing of the 400Y-*-06 enables the accurate flow regulation required for dosing and foam proportioning.

Activation of the valve maybe remote or local, electric, pneumatic or hydraulic.

Foam Concentrate Proportioning

- The BERMAD model 400Y-*-06 is ideally suited for foam concentrate proportioning (Fig. 1), regulating the differential pressure between the foam and the water to ensure accurate foam to water ratio, regardless of changes in the water flow or pressure.

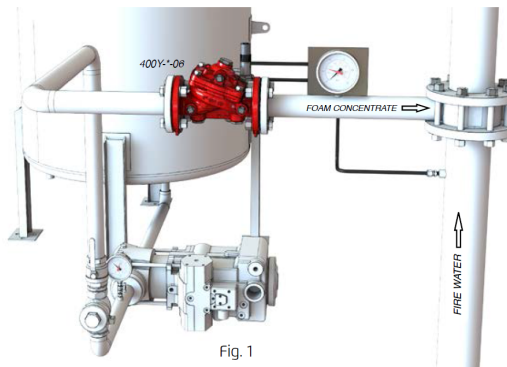


Fig. 1

Dosing Flow Control

- In Fig. 2 the 400Y-*-06 is installed to prevent excessive flow, protecting the dosing pump from overflow damage often experienced during pump start up and during initial system pipe filling.
- By sensing the differential pressure across the pump the 400Y-*-06 will modulate, preventing the flow from exceeding the recommended maximum.
- When the differential pressure is lower than the pre-set maximum the 400Y-*-06 fully opens. The exceptional flow efficiency of the 400Y-*-06 ensures a reliable and fully functioning system performance.

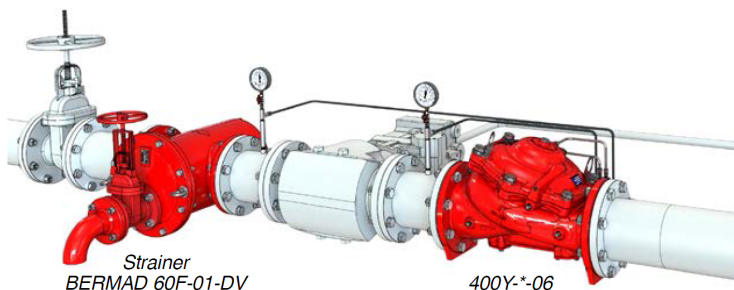


Fig. 2

Suggested Specifications

The pressure control valve shall be a UL-listed, 25-bar/365-psi rated, straight-through, Y-type-body valve.

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 valve shall include a Y-type strainer, and a local manual release, and shall be equipped with a linear valve position indicator.

Removing the valve cover for inspection or maintenance shall not require removing the control trim.

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

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

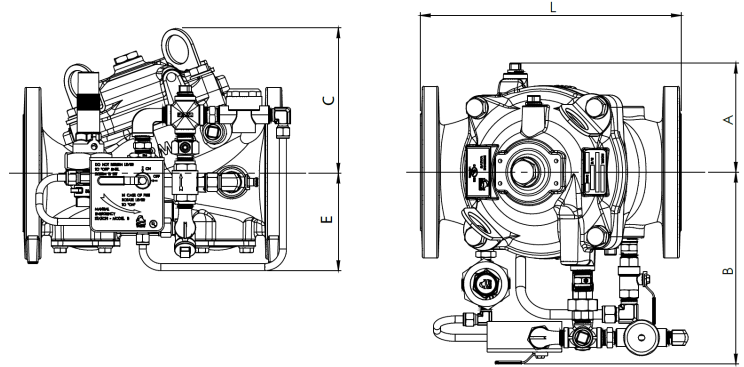
Grooved - 17.2 bar | 250 psi

Setting range: 0.5 - 3 bar | 7 - 43 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	77.5 3	155 6.1	64 2.5	-	120 4.7	-	-	18 39	21 44
DN50 2"	230 9.1	230 9.1	238 9.4	77.5 3	155 6.1	11 3	-	120 4.7	-	-	20 43	21 47
DN65 2½"	235 9.3	235 9.3	241 9.5	-	-	-	-	-	-	-	25 55	27 59
DN80 3"	310 12.2	310 12.2	326 12.8	100 4	251 9.9	106 4.2	-	146 5.8	-	-	34 75	39 76
DN100 4"	350 13.8	350 13.8	368 14.5	115 4.5	266 10.5	121 4.8	-	158 6.2	-	-	44 96	51 102
DN150 6"	480 18.9	480 18.9	506 19.9	140 5.5	372 14.7	140 5.5	-	228 9	-	-	87 192	107 235
DN200 8"	600 23.6	600 23.6	626 24.7	172 6.8	490 19.3	172 6.8	-	295 11.7	-	-	150 331	170 400
DN250 10"	730 28.7	730 28.7	730 28.7	204 8	490 19.3	204 8	-	296 11.7	-	-	180 397	216 477
DN300 12"	850 33.5	-	888 35	242 9.5	656 25.8	247 9.7	-	4.41 17.4	-	-	323 712	363 822
DN350 14"	980 38.6	-	980 38.6	242 9.5	656 25.8	272 10.7	-	441 17.4	-	-	356 784	428 943
DN400 16"	1100 43.3	-	1100 43.3	242 9.5	656 25.8	316 12.4	-	415 16.3	-	-	403 886	523 1150

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"	400Y	1MC	06	03	H	C	A5	PR	4DC	NN	P6W																																																																																																																																																																			
<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</td><td>FC</td></tr></table>		Category	code	Standard	FP	Seawater	FS	Foam	FC	<table><tr><th>Activation</th><th>code</th></tr><tr><td>Hydraulic local reset</td><td>1MC</td></tr><tr><td>Electric On-Off 2-Way SOV</td><td>2DC</td></tr><tr><td>Electric local reset 3-Way SOV</td><td>2MC</td></tr><tr><td>Electric On-Off 3-Way SOV</td><td>3DC</td></tr><tr><td>Pneumatic On-Off</td><td>4DC</td></tr><tr><td>Hydraulic On-Off</td><td>5DC</td></tr><tr><td>Electro-Pneumatic On-Off</td><td>6DC</td></tr></table>		Activation	code	Hydraulic local reset	1MC	Electric On-Off 2-Way SOV	2DC	Electric local reset 3-Way SOV	2MC	Electric On-Off 3-Way SOV	3DC	Pneumatic On-Off	4DC	Hydraulic On-Off	5DC	Electro-Pneumatic On-Off	6DC	<table><tr><th>Speed Controls</th><th>code</th></tr><tr><td>Closing speed control</td><td>01</td></tr><tr><td>Opening speed control</td><td>02</td></tr><tr><td>Opening & Closing speed control</td><td>03</td></tr><tr><td>None</td><td></td></tr></table>		Speed Controls	code	Closing speed control	01	Opening speed control	02	Opening & Closing speed control	03	None		<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>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>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>ANSI#300RF</td><td>A3</td></tr><tr><td>ANSI#300FF</td><td>a3</td></tr><tr><td>ISO PN16</td><td>16</td></tr><tr><td>ISO PN25</td><td>25</td></tr><tr><td>Grooved 235psi/PN16, ANSI C606</td><td>VI</td></tr><tr><td>Grooved 365psi/PN25, ANSI C606</td><td>V2</td></tr><tr><td>Threaded 235psi/PN16, ISO-7-Rp</td><td>BP</td></tr><tr><td>Threaded 365psi/PN25, ISO-7-Rp</td><td>PH</td></tr><tr><td>Threaded 235psi/PN16, NPT</td><td>NP</td></tr><tr><td>Threaded 365psi/PN25, NPT</td><td>NH</td></tr></table>		End Connections	code	ANSI#150RF	A5	ANSI#150FF	a5	ANSI#300RF	A3	ANSI#300FF	a3	ISO PN16	16	ISO PN25	25	Grooved 235psi/PN16, ANSI C606	VI	Grooved 365psi/PN25, ANSI C606	V2	Threaded 235psi/PN16, ISO-7-Rp	BP	Threaded 365psi/PN25, ISO-7-Rp	PH	Threaded 235psi/PN16, NPT	NP	Threaded 365psi/PN25, NPT	NH	<table><tr><th>Coating</th><th>code</th></tr><tr><td>Polyester Red</td><td>PR</td></tr><tr><td>High Build Epoxy</td><td>ER</td></tr><tr><td>Uncoated</td><td>UC</td></tr></table>		Coating	code	Polyester Red	PR	High Build Epoxy	ER	Uncoated	UC	<table><tr><th>Voltage (N.O. or N.C.)*</th><th>code</th></tr><tr><td>24VDC - N.C.</td><td>4DC</td></tr><tr><td>24VDC - N.O.</td><td>4DO</td></tr><tr><td>24VDC - Latch</td><td>4DS</td></tr><tr><td>110VDC - N.C.</td><td>5DC</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 (N.O. or N.C.)*	code	24VDC - N.C.	4DC	24VDC - N.O.	4DO	24VDC - Latch	4DS	110VDC - N.C.	5DC	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>Factory Fitted Options*</th><th>Code</th></tr><tr><td>Mechanical Latching Pilot</td><td>H</td></tr><tr><td>General Purpose Pressure Switch</td><td>P</td></tr><tr><td>Ex Proof NEC, Div.1 Pressure Switch</td><td>P7</td></tr><tr><td>Ex d ATEX Pressure Switch</td><td>P9</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>Pressure Gauge Assembly</td><td>6</td></tr><tr><td>S.S Glycerin Pressure Gauge Assembly</td><td>6n</td></tr><tr><td>Monel Pressure Gauge Assembly</td><td>6m</td></tr><tr><td>Ex Proof NEC Class 1 Div 1 Solenoid</td><td>7</td></tr><tr><td>Ex. d Atex Solenoid</td><td>9</td></tr><tr><td>Water Motor Alarm Assembly</td><td>W</td></tr><tr><td>Drain Valve</td><td>DV</td></tr><tr><td>Special Elastomer EPDM</td><td>E1</td></tr><tr><td>Large Control Filter</td><td>F</td></tr><tr><td>Valve Position Indicator</td><td>I</td></tr><tr><td>Stainless Steel 316 Trim Accessories</td><td>N</td></tr><tr><td>Stainless Steel Solenoid Valve</td><td>K</td></tr><tr><td>Pressure Transmitter</td><td>Q</td></tr><tr><td>Drain and Indicating Components</td><td>A</td></tr></table>		Factory Fitted Options*	Code	Mechanical Latching Pilot	H	General Purpose Pressure Switch	P	Ex Proof NEC, Div.1 Pressure Switch	P7	Ex d ATEX Pressure Switch	P9	Single Limit Switch, General Purpose	S	Single Ex d Proximity Limit Switch	S9	Double Ex d Proximity Limit Switch	SS9	Pressure Gauge Assembly	6	S.S Glycerin Pressure Gauge Assembly	6n	Monel Pressure Gauge Assembly	6m	Ex Proof NEC Class 1 Div 1 Solenoid	7	Ex. d Atex Solenoid	9	Water Motor Alarm Assembly	W	Drain Valve	DV	Special Elastomer EPDM	E1	Large Control Filter	F	Valve Position Indicator	I	Stainless Steel 316 Trim Accessories	N	Stainless Steel Solenoid Valve	K	Pressure Transmitter	Q	Drain and Indicating Components	A	<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>NM</td></tr><tr><td>Super Duplex</td><td>DD</td></tr></table>		Tubing & Fittings	code	Stainless Steel 316	NN	Monel 400	NM	Super Duplex	DD
Category	code																																																																																																																																																																														
Standard	FP																																																																																																																																																																														
Seawater	FS																																																																																																																																																																														
Foam	FC																																																																																																																																																																														
Activation	code																																																																																																																																																																														
Hydraulic local reset	1MC																																																																																																																																																																														
Electric On-Off 2-Way SOV	2DC																																																																																																																																																																														
Electric local reset 3-Way SOV	2MC																																																																																																																																																																														
Electric On-Off 3-Way SOV	3DC																																																																																																																																																																														
Pneumatic On-Off	4DC																																																																																																																																																																														
Hydraulic On-Off	5DC																																																																																																																																																																														
Electro-Pneumatic On-Off	6DC																																																																																																																																																																														
Speed Controls	code																																																																																																																																																																														
Closing speed control	01																																																																																																																																																																														
Opening speed control	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																																																																																																																																																																														
ANSI#300RF	A3																																																																																																																																																																														
ANSI#300FF	a3																																																																																																																																																																														
ISO PN16	16																																																																																																																																																																														
ISO PN25	25																																																																																																																																																																														
Grooved 235psi/PN16, ANSI C606	VI																																																																																																																																																																														
Grooved 365psi/PN25, ANSI C606	V2																																																																																																																																																																														
Threaded 235psi/PN16, ISO-7-Rp	BP																																																																																																																																																																														
Threaded 365psi/PN25, ISO-7-Rp	PH																																																																																																																																																																														
Threaded 235psi/PN16, NPT	NP																																																																																																																																																																														
Threaded 365psi/PN25, NPT	NH																																																																																																																																																																														
Coating	code																																																																																																																																																																														
Polyester Red	PR																																																																																																																																																																														
High Build Epoxy	ER																																																																																																																																																																														
Uncoated	UC																																																																																																																																																																														
Voltage (N.O. or N.C.)*	code																																																																																																																																																																														
24VDC - N.C.	4DC																																																																																																																																																																														
24VDC - N.O.	4DO																																																																																																																																																																														
24VDC - Latch	4DS																																																																																																																																																																														
110VDC - N.C.	5DC																																																																																																																																																																														
110-120/AC - N.C.	5AC																																																																																																																																																																														
110-120/AC - N.O.	5AO																																																																																																																																																																														
220-240/AC - N.C.	2AC																																																																																																																																																																														
220-240/AC - N.O.	2AO																																																																																																																																																																														
Factory Fitted Options*	Code																																																																																																																																																																														
Mechanical Latching Pilot	H																																																																																																																																																																														
General Purpose Pressure Switch	P																																																																																																																																																																														
Ex Proof NEC, Div.1 Pressure Switch	P7																																																																																																																																																																														
Ex d ATEX Pressure Switch	P9																																																																																																																																																																														
Single Limit Switch, General Purpose	S																																																																																																																																																																														
Single Ex d Proximity Limit Switch	S9																																																																																																																																																																														
Double Ex d Proximity Limit Switch	SS9																																																																																																																																																																														
Pressure Gauge Assembly	6																																																																																																																																																																														
S.S Glycerin Pressure Gauge Assembly	6n																																																																																																																																																																														
Monel Pressure Gauge Assembly	6m																																																																																																																																																																														
Ex Proof NEC Class 1 Div 1 Solenoid	7																																																																																																																																																																														
Ex. d Atex Solenoid	9																																																																																																																																																																														
Water Motor Alarm Assembly	W																																																																																																																																																																														
Drain Valve	DV																																																																																																																																																																														
Special Elastomer EPDM	E1																																																																																																																																																																														
Large Control Filter	F																																																																																																																																																																														
Valve Position Indicator	I																																																																																																																																																																														
Stainless Steel 316 Trim Accessories	N																																																																																																																																																																														
Stainless Steel Solenoid Valve	K																																																																																																																																																																														
Pressure Transmitter	Q																																																																																																																																																																														
Drain and Indicating Components	A																																																																																																																																																																														
Tubing & Fittings	code																																																																																																																																																																														
Stainless Steel 316	NN																																																																																																																																																																														
Monel 400	NM																																																																																																																																																																														
Super Duplex	DD																																																																																																																																																																														
<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>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><tr><td>14"</td><td>350 mm</td></tr><tr><td>16"</td><td>400 mm</td></tr></table>		Valve Size		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																																																																																																																																																								
Valve Size																																																																																																																																																																															
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																																																																																																																																																																														

Notes:

⁽¹⁾ Other materials available see: [400Y engineering](#)

⁽²⁾ Coated internally and externally

* NO or NC refers to main valve status when solenoid de-energized

* For more Factory Fitted Options see: [Ordering Guide](#)

Notes:

- ⁽¹⁾ Other materials available see: [400Y engineering](#)
- ⁽²⁾ Coated internally and externally

* NO or NC refers to main valve status when solenoid de-energized