S.S 316 ELECTRICALLY CONTROLLED VALVE FOR HIGH VISCOSITY FOAM CONCENTRATE, UL-LISTED.

Model FC-700E-3U-BN

The BERMAD FC 700E-3U-BN is a Double Chambered hydraulically powered foam-concentrate valve, controlled electrically by a solenoid valve.
The FC 700E-3U-BN is hydraulically actuated by existing fire water pressure, independent from the foam pressure enabling functionality at very low foam concentrate pressure or even non-pressurized foam concentrate.
This makes it highly suited for installation at the discharge of atmospheric tanks.
The BERMAD FC 700E-3U-BN replaces mechanically actuated valves or pilot-operated solenoid valves, providing safer operation for modern foam systems, assuring maximum reliability of the entire firefighting system.

Features & Benefits

- Features
  - Double chambered Actuation – Zero Line Pressure
  - In-line serviceable
  - Obstacle-free, uninterrupted flow path
  - UL-Listed, United States and Canada
  - UL429A Listed 3-Way Solenoid Valve

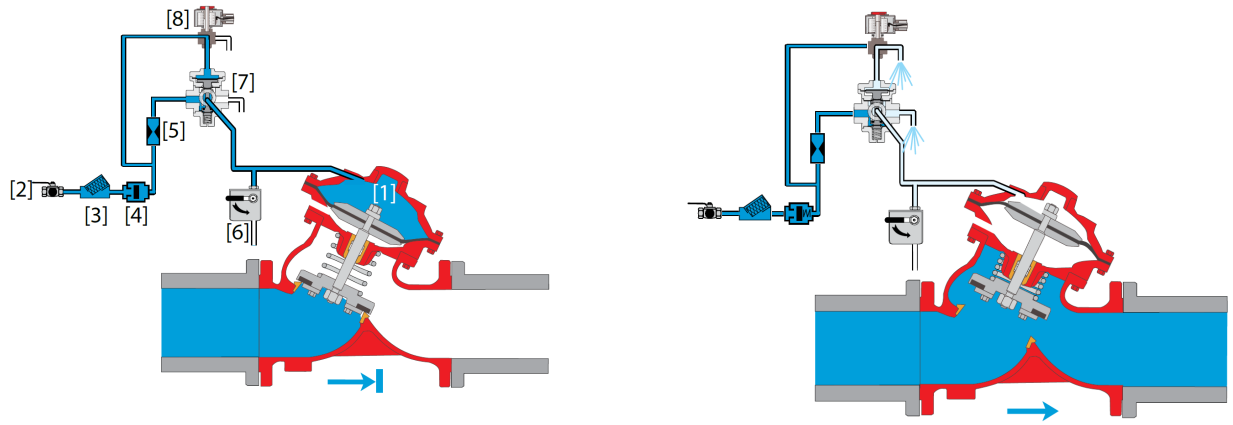
Typical Applications

- Foam applications
- Fire monitor installations
- Oil & Gas storage tanks
- Remote Control Monitors
- Power plants and transformers

Additional Features

- Hazardous locations solenoid
- Full 316 Stainless Steel Construction
- Valve position limit switches

Operation

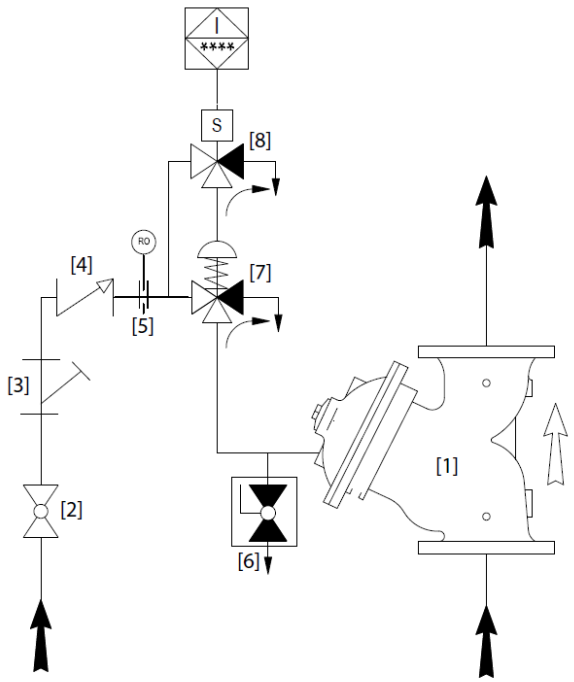


The BERMAD model 700E-3U-BN is held closed by fluid pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

Under NORMAL conditions, Using an independent pressure source, fluid pressure is supplied to the control chamber via the priming line [2] and strainer [3], and is then trapped in the control chamber by a check valve [4], restriction orifice [5], manual emergency release [6], and a relay valve (URV) [7] that is held in the supply position by line pressure supplied through a three-way solenoid valve [8]. The water pressure trapped in the control chamber of the deluge valve holds the valve closure against the valve seat, sealing drip-tight and keeping the system piping dry.

Under FIRE conditions, water pressure is released from the control chamber, either with the manual emergency release[6], or by the URV switching to the release position in response to the solenoid valve being activated by the fire & gas control system. This opens the deluge valve allowing fluid to flow into the system piping .

System P&ID



	Components
1	Bermad 700E Valve
2	Priming Ball Valve
3	Priming Strainer
4	Check valve
5	Restriction Orifice
6	Manual Emergency Release
7	URV-3 Relay Valve
8	3 way Solenoid Valve

System Installation

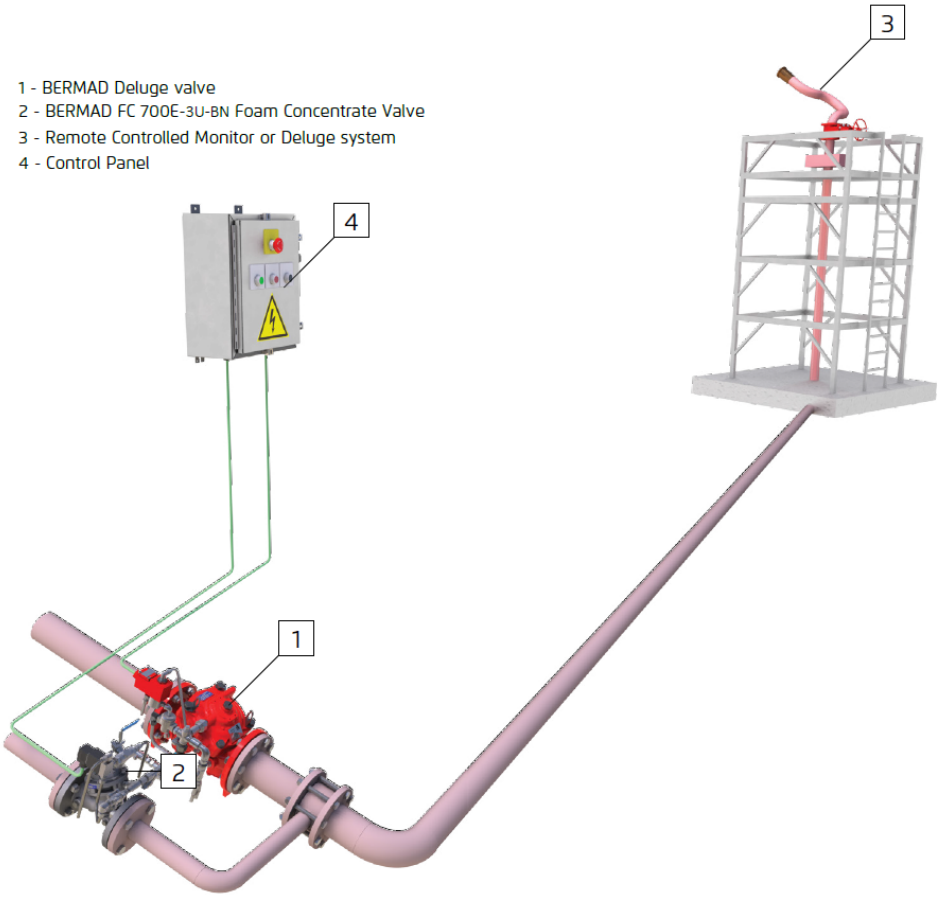
A typical installation of the BERMAD model 700E-3U-BN features automatic actuation via a universal relay valve, triggered electrically by a signal from a fire & gas control system or an on-site emergency pushbutton. When open and fitted with a limit switch the valve can send a feedback signal to a remote valve status monitoring system.

Optional System Items

Pressure Gauge

Exd Pressure Switch - Stainless Steel Enclosure for Harsh Environments

1 - BERMAD Deluge valve
2 - BERMAD FC 700E-3U-BN Foam Concentrate Valve
3 - Remote Controlled Monitor or Deluge system
4 - Control Panel



Suggested Specifications

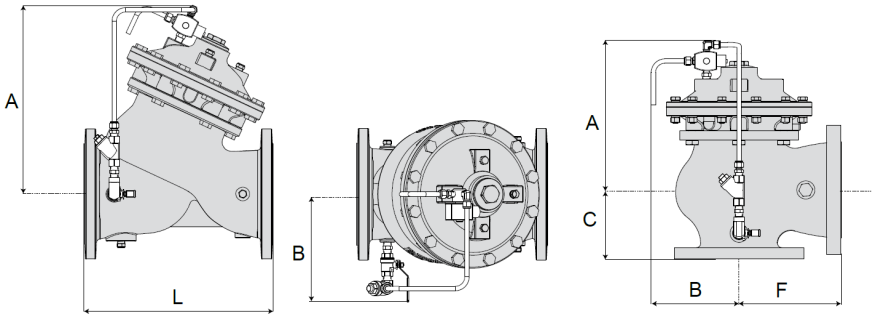
The deluge valve shall be UL-listed, 250-psi/17.2 bar rated, with a straight-through Ytypebody.
The valve shall have an unobstructed flow path.
The solenoid valve shall be a 3-way FM and UL429A-listed for 365 psi/25 bar with 65% of the rated voltage.
The control trim shall include an auxiliary relay valve, a manual emergency release unit, a Y-type strainer, and two 4-inch pressure gauges.
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 valve and the entire 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"
Threaded- 1½, 2, 2½ & 3"

Pressure Rating:
ANSI#150 - 17.2 bar | 250 psi
ANSI#300 - 1½" to 10" - 28 bar | 400 psi

Elastomer:
Nitrile Butadiene Rubber (NBR)



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
DN100 | 4"	320 | 12.6	-	-	405 | 16	242 | 9.5	127 | 5	-	-	200 | 7.9	-	-	-
DN40 | 1½"	205 | 8.1	-	-	312 | 12.3	191 | 7.5	82 | 3.2	-	-	121 | 4.8	-	-	-
DN50 | 2"	205 | 8.1	-	-	312 | 12.3	191 | 7.5	82 | 3.3	-	-	121 | 4.8	-	-	-
DN65 | 2½"	209 | 8.3	-	-	312 | 12.3	191 | 7.5	102 | 4	-	-	140 | 5.5	-	-	-
DN80 | 3"	250 | 9.8	-	-	364 | 14.3	207 | 8.1	102 | 4	-	-	152 | 6	-	-	-

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 | 4" | 700E-3U-BN | A | C | A5 | UC | 4DC | NN | 9K6n

Category	Code
Standard	FP
Seawater	FS
Foam	FC

Valve Size	
1½"	40 mm
2"	50 mm
2½"	60 mm
3"	80 mm
4"	100 mm

Notes:
(1) Other materials available see engineering data
(3) Supplied loose
(4) Consult BERMAD for availability
(5) For valves up to and including 10"

Installation	Code
Oblique "Y" pattern	Y
Angle	A

Material Body & Cover (1)	Code
Stainless Steel 316	N
Nickel Al Bronze C95800	U
Super Duplex Grade 5A	D

End Connections	Code
ANSI#150RF	A5
ANSI#150FF	a5
ISO PN16	16

Coating	Code
High Build Epoxy	ER
Zinc Based High Build Epoxy (5)	ZR
Uncoated	UC

Voltage - Main Valve N.O or N.C *	Code
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.C.	5AO
220 - 240/AC - N.C.	2AC
221 - 240/AC - N.C.	2AO

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

Tubing & Fittings	Code
Stainless Steel 316	NN
Monel 400	MM
Super Duplex	DD

Factory Supplied Additional Items	Code
General Purpose NEMA-4 Pressure Switch	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 NEC Class 1 Div 1 Solenoid	7
Ex. d Atex Solenoid	9
Stainless steel 316 Solenoid Valve	K
Special Elastomer	E
Large Control Filter	F
Valve Position Indicator	I
Pressure Transmitter (3)	Q

*More options available – consult BERMAD