Basic Deluge Valve

700E

Typical Applications

- Petrochemical facilities
- Tunnels
- Power plants & Transformers
- Off-shore platforms
- Flammable materials storage
- Aviation & Airports
- Marine environments
- Gas & Oil storage tanks

Features and Benefits

- **Minimized pressure loss**
  - Unobstructed flow path
  - Advanced globe "Y", or angle, pattern
  - Wide-body design
- **Automatic reset** – "hands free" return to stand-by
- Double-chambered actuator – **reliable drip-tight seal**
  - Only one moving assembly
  - Hydraulically-powered positive closure
- Replaceable stainless steel valve seat – **lifetime valve**

Optional Features

A wide variety of control trim components, including:

- **Latched open** – manual reset to close
- **Alarm pressure-switch**
- **Explosion-proof** for hazardous zones
- **Seawater service**
- **Pressure-reducing** add-on trim
- **Electric, Hydraulic or Pneumatic** UL-listed trim
- **Fail-safe open** (upon electrical failure) energized to close main valve

UL LISTED EX5092

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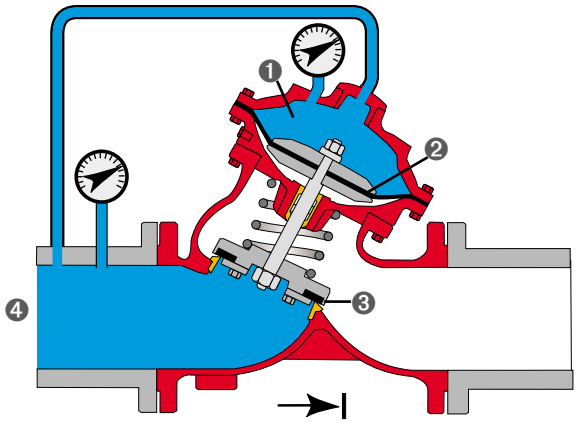
Operation

Deluge valves are required to operate independently, regardless of failures in other systems or other sources of energy. In emergency situations, these valves should be driven by the line water pressure.

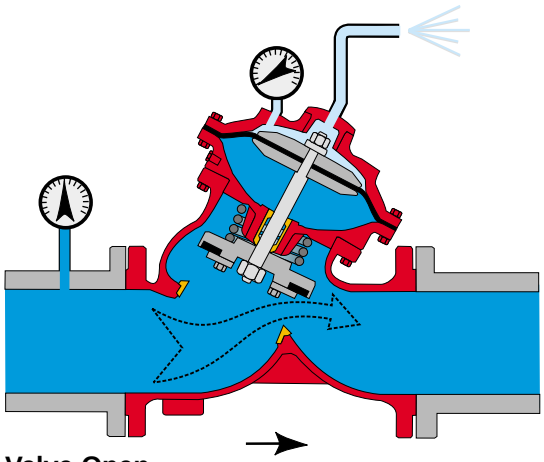
In the closed, SET condition, the Bermad 700E Deluge Valves are held closed by line pressure applied and trapped in the upper chamber ❶. This water pressure, multiplied by the surface area of the diaphragm ❷, creates a closing force resulting in the valve remaining sealed drip-tight ❸ until a control device activates. The greater the pipeline water pressure ❹, the greater the effective closing force. The closed valve prevents the water (or foam) from entering the system.

During a FIRE or TEST condition, the water pressure is released ❺ from the upper control-chamber. Line water pressure, without assistance from any outside source, forces the seal-disk open, enabling full, unobstructed, full-bore clear flow.

For RESET, line pressure is re-introduced into the upper chamber, closing the valve.



Valve Closed
(set condition)



Valve Open
(operating condition)

Tender Specifications

The deluge valve shall be a hydraulically-operated, diaphragm-actuated, globe "Y" pattern (or angle) valve.

Valve actuation shall be accomplished by one moving assembly containing a double-chambered actuator, which shall include a stainless steel stem and a resilient elastomeric seal held by a flat seal-disk and creating a drip-tight seal against the seat.

The valve seat shall be removable and made of stainless steel. The seat bore net area shall be no less than that of the valve nominal diameter, and shall have an unobstructed flow path with no stem guide or supporting ribs.

All necessary inspection and servicing shall be possible in-line.

The valve shall be UL-listed as a water control valve - deluge type.

The manufacturer shall be certified according to ISO 9001 standards.

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Models

700E Type 1:
Hydraulically-Controlled Deluge Valve
For wet pilot line sprinkler systems, simplest and least costly of deluge actuation systems

700E Type 2:
Electrically-Controlled Deluge Valve
Quick-opening, large-bore servo-solenoid activated, optimized for industrial applications, offers the greatest number of features and design flexibility

700E Type 3:
Electrically-Controlled, PORV-Activated, Deluge Valve
Ideal for corrosive water. Pneumatic actuator isolates corrosive media from the solenoid valve, keeps solenoid dry

700E Type 3D:
Solenoid-Controlled Valve
Smooth acting, on/off cycling, combines hydraulic relay and solenoid pilot valve for added system design alternatives

UL-Listed
The BERMAD Model 700E Deluge Valve is UL-listed, as a unit, when installed with specific components and accessories.

700E Type 4:
Pneumatically-Controlled Deluge Valve
Dry pilot line, suited for freezing environments and corrosive media

700E Type 5:
Hydraulically-Controlled, PORV-Activated, Deluge Valve
Local release compensates for long release lines with adjustablepilot sensing trip point

700E Type 5D:
Hydraulically-Controlled Deluge Valve with HRV
Hydraulic-relay local release for long release lines and quick opening

700E Type 6:
Dry Pilot & Electrically-Controlled Deluge Valve
Combination of solenoid activation and dry pilot line for dual-redundant systems

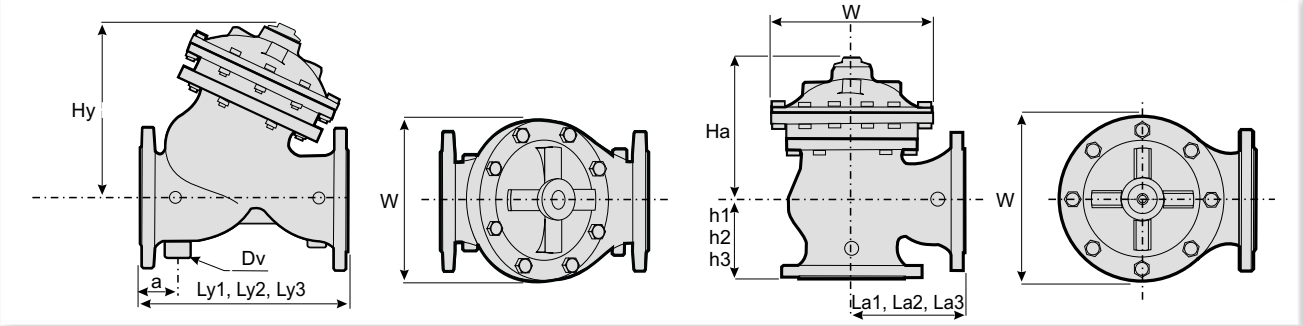
Notes
1. Photos show typical orientation.
2. All models can be installed vertically or horizontally.
3. Angle valves are also available.

Fire Protection

CONTROL VALVES BERMAD

700E — Basic Deluge Valve

Specifications



Valve Size		1½"		2"		2½"		3"		4"		6"		8"		10"		12"		14"		16"	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
Dimensions	(1)Ly1	205	8 1/16	205	8 1/16	209	8 1/4	250	9 7/8	320	12 5/8	415	16 3/8	500	19 11/16	605	23 13/16	725	28 9/16	733	28 7/8	990	39
	(2)Ly2	155	6 1/8	155	6 1/8	212	8 3/8	250	9 13/16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	(3)Ly3	210	8 1/4	210	8 1/4	212	8 3/8	264	10 7/16	335	13 1/4	433	17 1/16	524	20 5/8	637	25	762	30	767	30 3/16	1024	40 3/4
	(1)La1	121	4 3/4	121	4 3/4	140	5 1/2	152	6	190	7 1/2	225	8 7/8	265	10 7/16	320	12 5/8	396	15 9/16	400	15 3/4	450	17 3/4
	(2)La2	120	4 3/4	120	4 3/4	140	5 1/2	159	6 1/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	(3)La3	127	5	127	5	149	5 7/8	159	6 1/4	200	7 7/8	234	9 3/16	277	10 7/8	336	13 1/4	415	16 5/16	419	16 1/2	467	18 3/8
	Hy	157	6 3/16	157	6 3/16	157	6 3/16	209	9 13/16	250	9 13/16	350	13 13/16	411	16 3/16	484	19	580	22 7/8	580	22 7/8	798	31 5/16
	Ha	146	5 3/4	146	5 3/4	153	6	181	7 1/16	227	8 15/16	301	11 7/8	375	14 3/4	436	17 1/8	537	21 1/8	515	20 1/4	783	30 3/4
	(1)h1	82	3 1/4	82	3 1/4	102	4	102	4	127	5	152	6	203	8	219	8 5/8	275	10 13/16	275	10 13/16	369	14 1/2
	(2)h2	82	3 1/4	82	3 1/4	102	4	114	4 1/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	(3)h3	89	3 1/2	89	3 1/2	109	4 5/16	108	4 1/4	135	5 5/16	165	6 1/2	216	8 1/2	235	9 1/4	294	11 1/2	294	11 1/2	386	5 3/16
	W	165	6 1/2	165	6 1/2	185	7 5/16	207	8 1/8	250	9 7/8	320	12 5/8	390	15 3/8	480	18 7/8	550	21 5/8	570	22 7/16	740	29 1/8
	a	N/A	N/A	59	2 5/16	67	2 5/8	70.5	2 3/4	85	3 3/8	100	3 15/16	100	3 15/16	117	4 5/8	148	5 13/16	N/A	N/A	N/A	N/A
	(4)Dv	3/8"		3/4"		1 1/2"		1 1/2"		2"		2"		2"		2"		2"		N/A		N/A	
	(5)kg	12.2		12.2		15		25		43		85		146		245		410		434		900	

Notes:
1. Ly1, La1 & h1 are for flanged ANSI #150 and ISO PN16
2. Ly2, La2 & h2 are for threaded female, NPT or BSP
3. Ly3, La3 & h3 are for flanged ANSI #300 and ISO PN25
4. Dv is for threaded female NPT or BSP
5. kg is maximum shipping weight (ANSI # 300 - "Y")
6. Dimensions are maximum
7. Provide adequate clearance around valve for maintenance

Connection Standard
- Flanged: ANSI B16.42 (Ductile iron), B16.5 (Steel & Stainless), B16.24 (Bronze), ISO PN16 & PN25
- Threaded: NPT or BSP 2, 2½ & 3"

Sizes ("Y" & Angle")
- Available: 1½, 2, 2½, 3, 4, 6, 8, 10, 12, 14 & 16"
- UL-listed: 2, 2½, 3, 4, 6, 8 & 10"

Water Temperature
- 0.5 - 80°C (33 - 180°F)

Working pressure
- Max working pressure
  #150: 250 psi (17 bar)
  #300: 400 psi (27 bar)
- UL-rated working pressure
  175 psi (12 bar)

Materials

Manufacturers Standard Materials

Valve body and cover
- Ductile iron ASTM 536(1)
- Carbon steel ASTM A216-WCB(1)

Valve wetted parts (internals)
- Stainless steel 304 and coated steel

Elastomers
- NBR

Notes:
1. Epoxy coated, fusion bonded - standard. Other coatings available on request.
2. For seawater service see BERMAD publication "Seawater and Corrosive Media".

Optional Materials

Valve body
- Stainless steel 316
- Marine bronze
- NiAl-bronze
- Titanium
- Duplex and Super-duplex

Valve wetted parts (internals)
- Stainless steel 316
- Bronze
- Titanium
- Copper-nickel
- Hastalloy

Control Trim System
- Brass ASTM B21
- Forged brass fittings & copper tubing
- Stainless steel 316
- Copper-nickel

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