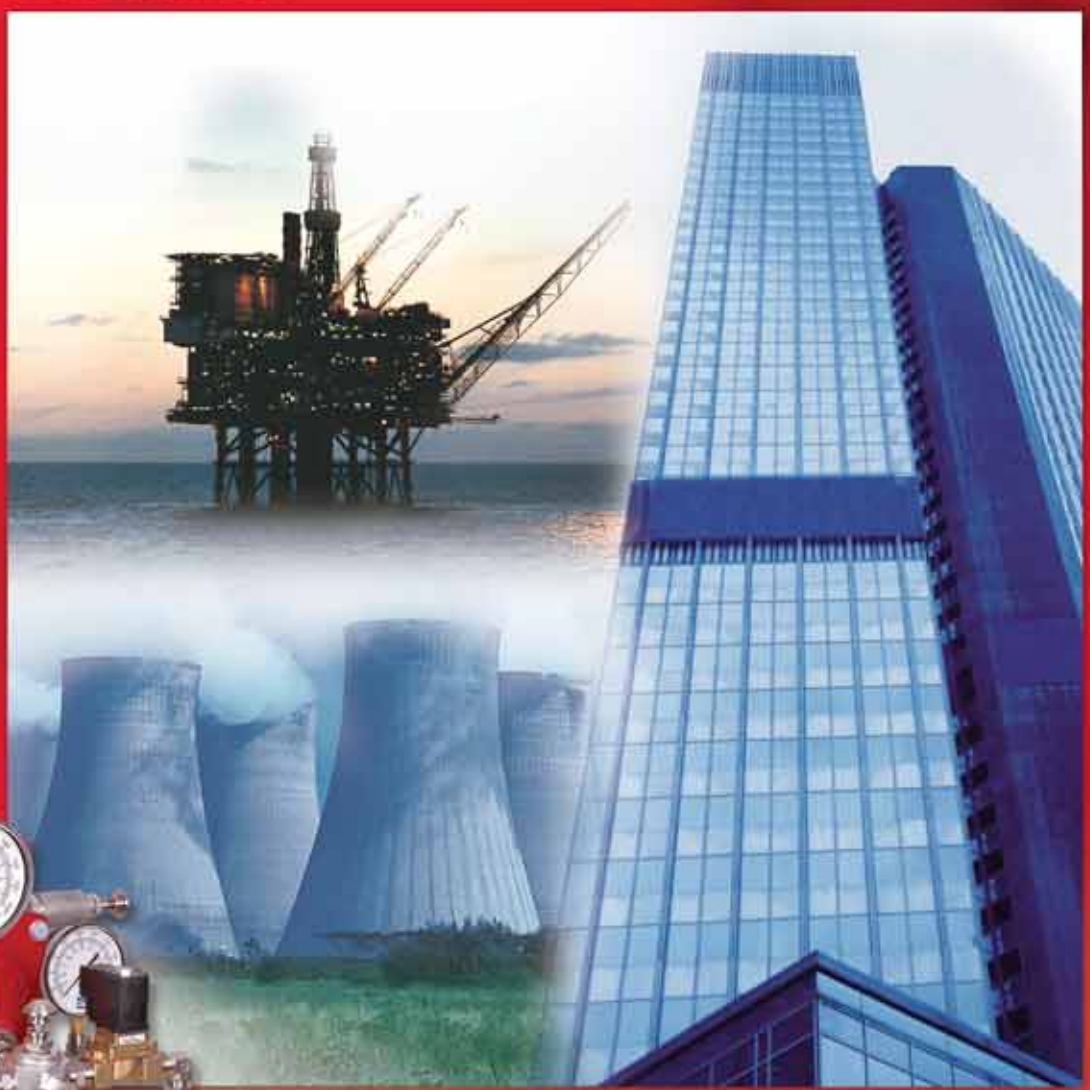
Fire Protection



BERMAD Fire Protection Catalog

BERMAD

BERMAD Fire Protection

Table of Contents

- Pictures and drawings are for presentation only
- Bermad reserves the right to make any product changes without prior notice
- For further details please see our Comprehensive Fire Protection Catalog
- Special technical documentation must be requested seperately

Helping to protect your most precious resources

Efficient, smart, and reliable solutions for protecting your most precious resources are as vital as the resources themselves.

BERMAD Fire Protection Solutions offer nothing less!

Founded in 1965, BERMAD knows the value of reliable protection and how best to harness it to customers' full advantage.

Today, BERMAD serves global customers in a wide range of fire protection applications. Bringing together its expertise and know-how, leading-edge technology, and precision engineering, BERMAD provides comprehensive customized solutions for fire protection systems in petrochemical plants - offshore & onshore, refineries, power stations, and public buildings.

BERMAD - in any location throughout the world

Fire Protection

BERMAD Fire Protection

Managing the world's most precious resource

Efficient, smart management of our planet's most precious resources is as vital as the resource itself. BERMAD water management solutions offer nothing less.

Founded in 1965, BERMAD knows the value of a single drop of water and how best to reap its full advantage. Today BERMAD serves global customers in a wide range of fields. Bringing together its expertise and know-how, leading-edge technology and precision engineering, BERMAD provides comprehensive customized solutions for the control and management of water supply anywhere in the world.

BERMAD - Provider of Solutions

Based on expertise that comes from years of hands-on experience, BERMAD has developed state-of-the-art control valves and related products, along with comprehensive system solutions for a range of water management needs. Its main areas of activity include:

Fire Protection

Automatic control valves with a range of operation modes are the vital components in fire protection systems for oil refineries, petro-chemical plants and public buildings.

Waterworks

BERMAD offers management systems for the supply and treatment of water and wastewater covering a range of applications from high-rise buildings and whole municipalities, to comprehensive water systems for industrial facilities, hydroelectric power stations, and private sector projects.

Petroleum

BERMAD is a major supplier of automatic, self actuated control valves for the petroleum industry. These components are used in distribution terminals, cross-country pipelines, and petroleum tank farms.

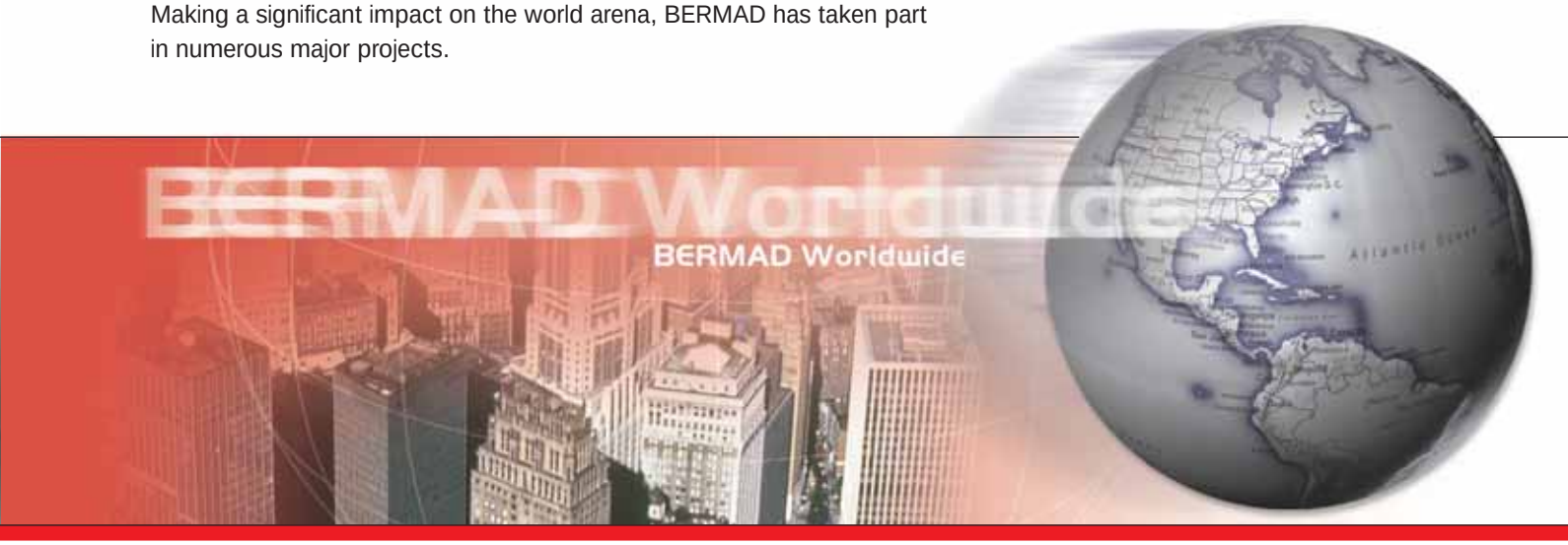
Irrigation

A comprehensive line of water control products provides system solutions for the full range of agricultural irrigation applications including drip irrigation, pivot systems, sprinklers, micro-jets and greenhouse irrigation, as well as covering commercial and residential gardening irrigation needs.

BERMAD - A Worldwide Presence

With 9 subsidiaries throughout the world, and operations in over 80 countries on 6 continents, BERMAD has a formidable global presence. Its worldwide customer training facilities and parts distribution networks ensure uninterrupted customer service.

Making a significant impact on the world arena, BERMAD has taken part in numerous major projects.



Project references:

Fire Protection:

- Euro-Tunnel - La Manche tunnel
- Troll Project - The largest gas supply project in Europe
- Malpensa - Milan International Airport
- Mount Piper - Power Station, Sydney, Australia
- Guangzhou - Exhibition Center, China

Waterworks:

BERMAD has been supplying hydraulic control valves and system solutions to private water companies and municipalities worldwide. Among BERMAD's regular municipal clientele are Los Angeles (CA), Sydney (Australia), Manchester (UK), Milan (Italy), Jerusalem (Israel), Scottsdale (AZ), Sao Paulo (Brazil), Mexico City and many others. In addition, BERMAD has supplied water management solutions based on its hydraulic control valves to high-rise buildings, hotels, shopping malls, office complexes, hospitals, and industrial facilities in major cities throughout the world, including Las Vegas, London, Brisbane, Manila, Bangkok, Shanghai, Eilat and more.

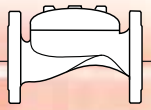
Petroleum:

- Man-Made Project in India - The world's biggest white oil terminal
- Integrator - ABB Norway - 450 units of BERMAD digital control valves

Irrigation:

- Car Boy Project, Sicily - 30,000 Ha = 30,000 irrigation valves
- C.R-Genil Cabra, Spain - Large scale irrigation scheme
- Masangano, Brazil - Water distribution network and large-scale irrigation project

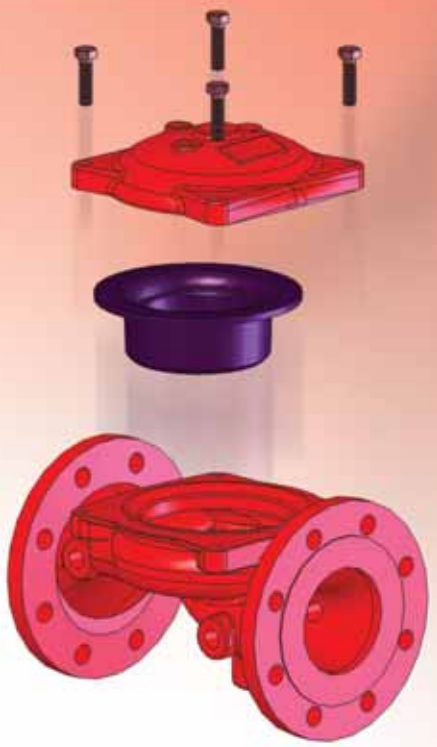
Other large-scale international irrigation projects have been executed in the USA, Spain, Morocco, Italy, Brazil, South Africa, Australia, Japan and more.



Fire Protection Approvals & Certifications

UL LISTED	UNDERWRITERS LABORATORIES	Special System Water Control Valves, Deluge Type (VLFT) Special System Water Control Valves, Pressure Reducing Type (VLMT) Special System Water Control Valves, Double Interlock Type (VLJH)
FM APPROVED	FACTORY MUTUAL RESEARCH CORPORATION	Pressure Relief Valves Process Control Valves
VdS	VDS SCHADENVERHUETUNG	German Testing
Lloyd's Register TA TYPE APPROVED	LLOYD'S REGISTER	Type Approval for Hydraulically Operated Valves for Fire Protection System Fire Test Certificate
NFPA®	NATIONAL FIRE PROTECTION ASSOCIATION	NFPA 11 Low-Expansion Foam NFPA 13 Sprinkler System Installation NFPA 15 Water Spray Fix System NFPA 16 Deluge Foam-Water System NFPA 20 Centrifugal Fire Pumps NFPA 24 Private Fire Service Mains NFPA 25 Water-Based Fire Protection Systems
ABS TYPE APPROVAL PROGRAM	AMERICAN BUREAU OF SHIPPING	Type Approval (RQS) Type Approval for Hydraulically Operated Valves for Fire Protection System Fire Test Certificate
CERTIFIED QUALITY SYSTEM CQS ISO 9000/EN 29002	INTERNATIONAL	Quality Management and Quality Assurance Standards

400E Deluge Valve



Description

BERMAD 400E Deluge Valves are elastomeric type globe valves that are rolling-diaphragm actuated, with an integral, solid, resilient seal. These automatic water control valves are designed for vertical or horizontal installation and are available in diameter sizes from 2” to 12”; DN50 to DN300.

The BERMAD 400E valves are used for water flow control in Deluge, Combination Pressure Control Deluge, Pre-action or Water/Foam systems, and are manufactured from materials suitable for seawater and freshwater applications.

The 400E Deluge Valve is held closed by system water pressure trapped in the control chamber. When the releasing system operates, pressure is released from the control chamber, and the seal disc opens to allow water to flow into the system.

The design of the 400E valve body includes a single, full bore seat with unobstructed flow path, free of any in-line ribs, supporting cage, or shafts.

The unique hydro-dynamic globe design provides high flow capabilities with minimum head loss. The cover is removable via four (4) fastening bolts (up to 10”) for quick in-line inspection and servicing.

The internal design of the 400E valve is based on innovative technology using advanced rubber-based materials to achieve a solid, one-piece, elastomeric assembly including flexible fiber reinforced diaphragm, vulcanized with a rugged radial seal disk, and together providing resilient, drip tight sealing. The elastomeric assembly is carefully balanced and peripherally supported to avoid tension and protect the elastomer, resulting in long-life and controlled actuation even under harsh conditions.

The elastomeric assembly can be easily removed from the valve body with no need for disassembling the valve from the line.

Main Features

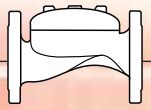
- One-piece, solid, elastomeric assembly with single moving part
- In-line serviceable, field replaceable internal parts
- Obstacle free, full bore
- Available in corrosion resistant materials
- Designed to be reset without opening the valve
- Compatible with electric/hydraulic/pneumatic release and pressure control trim systems

Approvals

- UL Listed to UL 260 from 5 to 250 psi; 0.3 to 17.2 bar WP, 2” through 8”; DN50 through DN200
- VdS Certified to 16 bar WP, 2 through 8”; DN50 through DN200
- ABS Approved for 250 psi; 17.2 bar WP, 2” through 12”; DN50 through DN300
- Lloyd’s Register Type Approval for 250 psi; 17.2 bar WP, 2” through 12”; DN50 through DN300.
  Fire Test Certified to ISO 6182 part 5, 2” through 12”; DN50 through DN300

Note:

1. The 400E valve shall be trimmed with specific components and accessories.
2. The 400E valve must be installed and maintained in compliance with the specific system requirements, and to the BERMAD most recent publications, data sheet and Installation, Operation & Maintenance for specific model required.



Classic Deluge Valves

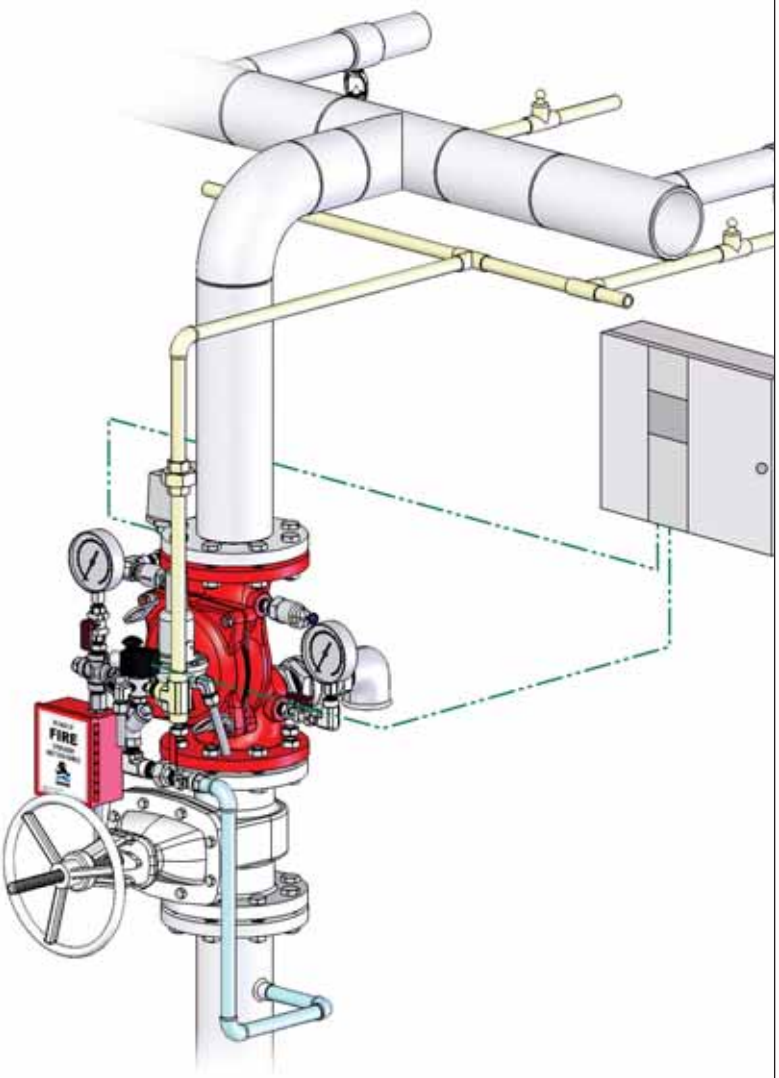
These BERMAD Classic Deluge Valves include Manual EasyLock™ Reset for latching the valve open in response to an electric, hydraulic, pneumatic, or electro-pneumatic signal.
The Deluge Valve resets to the closed position only upon local manual reset activation.

Typical Applications

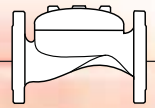
- Automatic spray or foam systems
- Water curtain systems
- Shopping centers & public buildings
- Flammable materials & gas storage
- Roads and rail tunnels
- Power plants & transformers
- Aviation and airports
- Petrochemical facilities

Features and Benefits

- PORV – Enables pneumatic actuation
- One-piece molded single moving part – No maintenance required
- Simple design – Cost effective
- Obstacle free, full bore – Free flow pass
- Factory pre-assembled trim – Out-of-box quality
- In-line serviceable – Minimal downtime



Electro-Pneumatically Controlled
BERMAD Deluge System with Manual Reset



For Fire Water & Foam Solution, UL Listed

Electrically Controlled BERMAD Deluge Valve with EasyLock™ Manual Reset

FP 400E-2M

The BERMAD Model FP 400E-2M is suitable for systems that include electric fire detection. The Deluge Valve latches open in response to an electric signal.

Electro-Pneumatically Controlled BERMAD Deluge Valve with EasyLock™ Manual Reset

FP 400-3M

The BERMAD Model FP 400E–3M is suitable for systems that include electric or electric-pneumatic fire detection. The Deluge Valve latches open in response to an electric signal and/or pneumatic pressure drop in the dry pilot line.

Pneumatically Controlled BERMAD Deluge Valve with EasyLock™ Manual Reset

FP 400-4M

The BERMAD Model FP 400E–4M is suitable for systems that include dry pilot lines with closed pneumatic fusible plugs.
The Deluge Valve latches open in response to pneumatic pressure drop in the dry pilot line.

Hydraulically Controlled BERMAD Deluge Valve with EasyLock™ Manual Reset

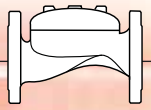
FP 400-1M

The BERMAD Model FP 400E–1M is suitable for systems that include wet pilot lines with closed fusible plugs.
The Deluge Valve latches open in response to hydraulic pressure drop in the wet pilot line.

Hydraulically Controlled, Anti-Columning BERMAD Deluge Valve with EasyLock™ Manual Reset

FP 400-5M

The BERMAD Model FP 400E–5M is suitable for systems that include wet pilot lines with closed fusible plugs. Providing boosted local opening, it is recommended for systems with elevated fusible plugs.
The Deluge Valve latches open in response to hydraulic pressure drop in the wet pilot line.



Combination Pressure Control Deluge Valves

The BERMAD Pressure Control Deluge Valves are suitable for flow control in large scale firewater systems. The valves can be activated in response to an electric, hydraulic, pneumatic, or electro-pneumatic signal. When open, the valves continuously reduce higher upstream pressure to a lower pre-set downstream pressure, preserving system designed flow.

Typical Applications

Flow control in large scale firewater systems

Offshore platforms & installations

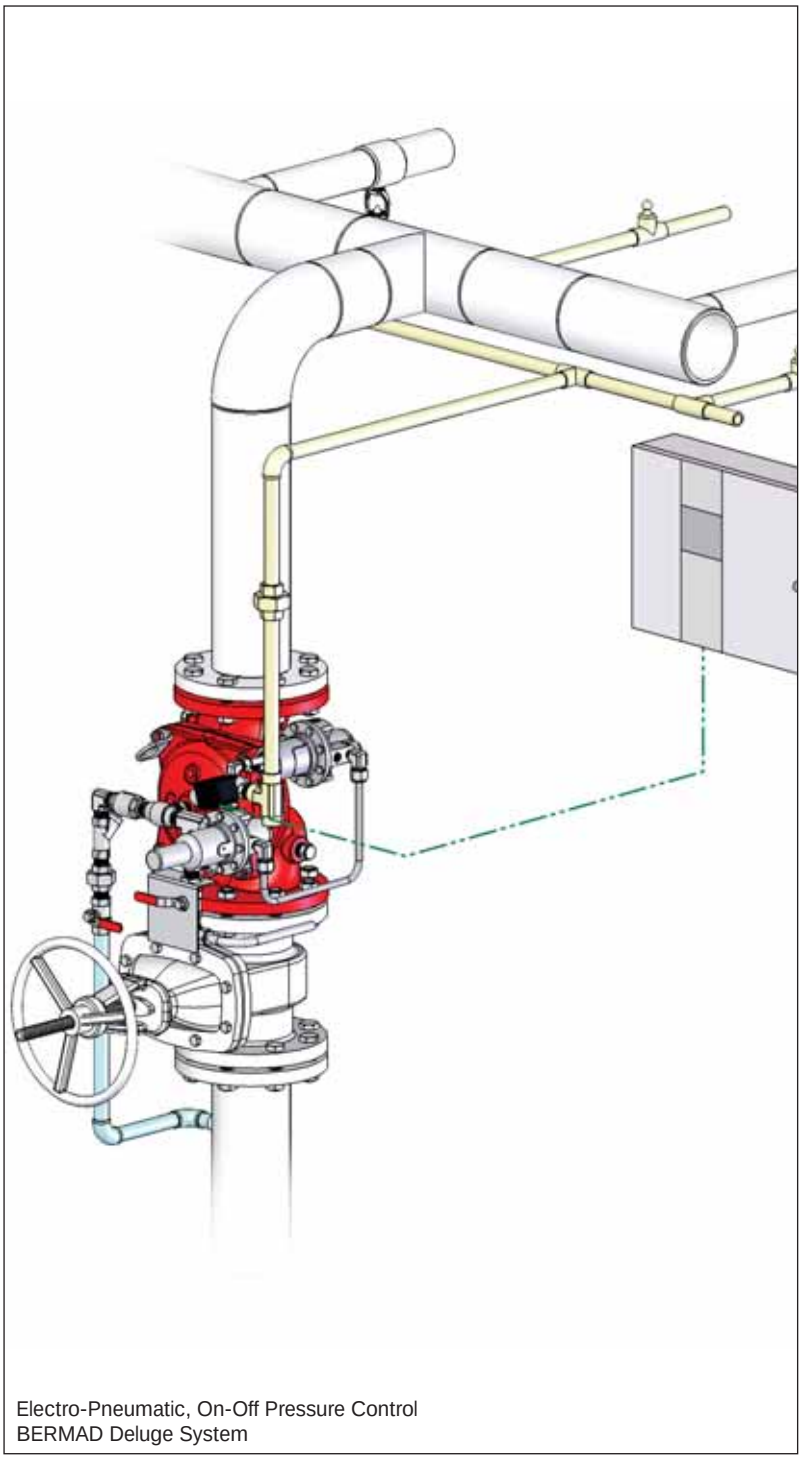
Tunnels with long supply lines

Petrochemical facilities

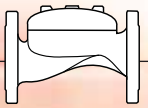
Power plants & transformers

Features and Benefits

- Pressure control function – Preserves designed flow
- Remote reset – Shut-off on remote command
- PORV – Enables pneumatic actuation
- One-piece molded single moving part – No maintenance required
- Obstacle free, full bore – Free flow pass
- In-line serviceable – Minimal downtime



Electro-Pneumatic, On-Off Pressure Control
BERMAD Deluge System



For Fire Water & Foam Solution, UL Listed

Electric Pressure Control BERMAD DelugeValve with Manual Reset

FP 400E-2MC

The BERMAD Model FP 400E-2MC is suitable for flow control in firewater systems that include electric fire detection.
It latches open in response to an electric signal, reducing the pressure to preserve the system maximum designed flow.

Electric Pressure Control, On-Off BERMAD Deluge Valve

FP 400E-3DC

The BERMAD Model FP 400E-3DC is suitable for flow control in firewater systems that include electric fire detection. It opens and closes in response to an electric signal. When open, it reduces the pressure to preserve the system maximum designed flow.

Electro-Pneumatic Pressure Control, On-Off BERMAD Deluge Valve

FP 400E-6DC

The BERMAD Model FP 400E–6DC is suitable for flow control in firewater systems that include electric or reduntant (electric and pneumatic) fire detection. It opens, preserving system designed flow, in response to an electric signal and/or a pneumatic pressure drop in the dry pilot line. It closes in response to cessation of the electric signal, as long as the dry pilot line is pressurized.

Pneumatic Pressure Control, On-Off BERMAD Deluge Valve

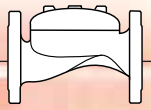
FP 400E-4DC

The BERMAD Model FP 400E–4DC is suitable for flow control in firewater systems that include dry pilot lines with closed fusible plugs. It opens, preserving system designed flow, and closes in response to pneumatic pressure status in the dry pilot line.

Hydraulic Pressure Control, On-Off BERMAD Deluge Valve

FP 400E-5DC

The BERMAD Model FP 400E–5DC is suitable for flow control in firewater systems that include wet pilot lines with closed fusible plugs. Providing boosted local opening, it is recommended for systems with elevated fusible plug lines. It opens, preserving system designed flow, and closes in response to hydraulic pressure status in the wet pilot line.



For Fire Water & Foam Solution, UL Listed

On-Off Deluge Valves

The BERMAD On-Off Deluge Valves are intended for use in industrial remote resetting systems.
The Deluge Valves can be remotely controlled electrically, hydraulically, pneumatically or electro-pneumatically to open and to reset closed.

Typical Applications


Remote operated deluge spray or foam systems


Petrochemical facilities


Offshore platforms


Power plants & transformers


Roads and rail tunnels


Flammable materials & gas storage

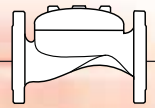

Remote operated monitors

Features and Benefits

- Remote reset – Shut-off upon remote command
- Dry solenoid – Suitable for corrosive water or foam
- PORV – Enables pneumatic actuation
- One-piece molded single moving part – No maintenance required
- Obstacle free, full bore – Free flow pass
- In-line serviceable – Minimal downtime

Electrically Controlled, On-Off
BERMAD Deluge System

Hydraulically Controlled, On-Off
BERMAD Deluge System



For Fire Water & Foam Solution, UL Listed

Electrically Controlled, On-Off BERMAD Deluge Valve

FP 400E-3D

The BERMAD Model FP 400E-3D is suitable for systems that include electric fire detection. The Deluge Valve opens and closes drip tight in response to an electric signal.

Electro-Pneumatically Controlled, On-Off BERMAD Deluge Valve

FP 400E-6D

The BERMAD Model FP 400E–6D is suitable for systems that include electric or redundant (electric and pneumatic) fire detection. It opens in response to an electric signal and/or pneumatic pressure drop in the dry pilot line. It closes in response to cessation of the electric signal, as long as the dry pilot line is pressurized.

Pneumatically Controlled, On-Off BERMAD Deluge Valve

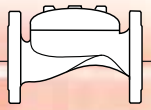
FP 400E-4D

The BERMAD Model FP 400E–4D is suitable for systems that include dry pilot lines with closed pneumatic fusible plugs. The valve is closed as long as the dry pilot line is pressurized. It opens in response to a pneumatic pressure drop in the dry pilot line.

Hydraulically Controlled, On-Off BERMAD Deluge Valve

FP 400E-5D

The BERMAD Model FP 400E–5D is suitable for systems that include wet pilot lines with closed fusible plugs. Providing boosted local opening, it is recommended for systems with elevated fusible plugs. The valve is closed as long as the wet pilot line is pressurized. It opens in response to a hydraulic pressure drop in the wet pilot line.



Classic Deluge Valves - VdS Certified

These BERMAD VdS Certified Classic Deluge Valves include Manual EasyLock® Reset for latching the valve open in response to an electric, hydraulic, pneumatic, or electro-pneumatic signal.
The Deluge Valve resets to the closed position only upon local manual reset activation.

Typical Applications


Automatic spray or foam systems


Water curtain systems


Shopping centers & public buildings


Flammable materials & gas storage


Roads and rail tunnels

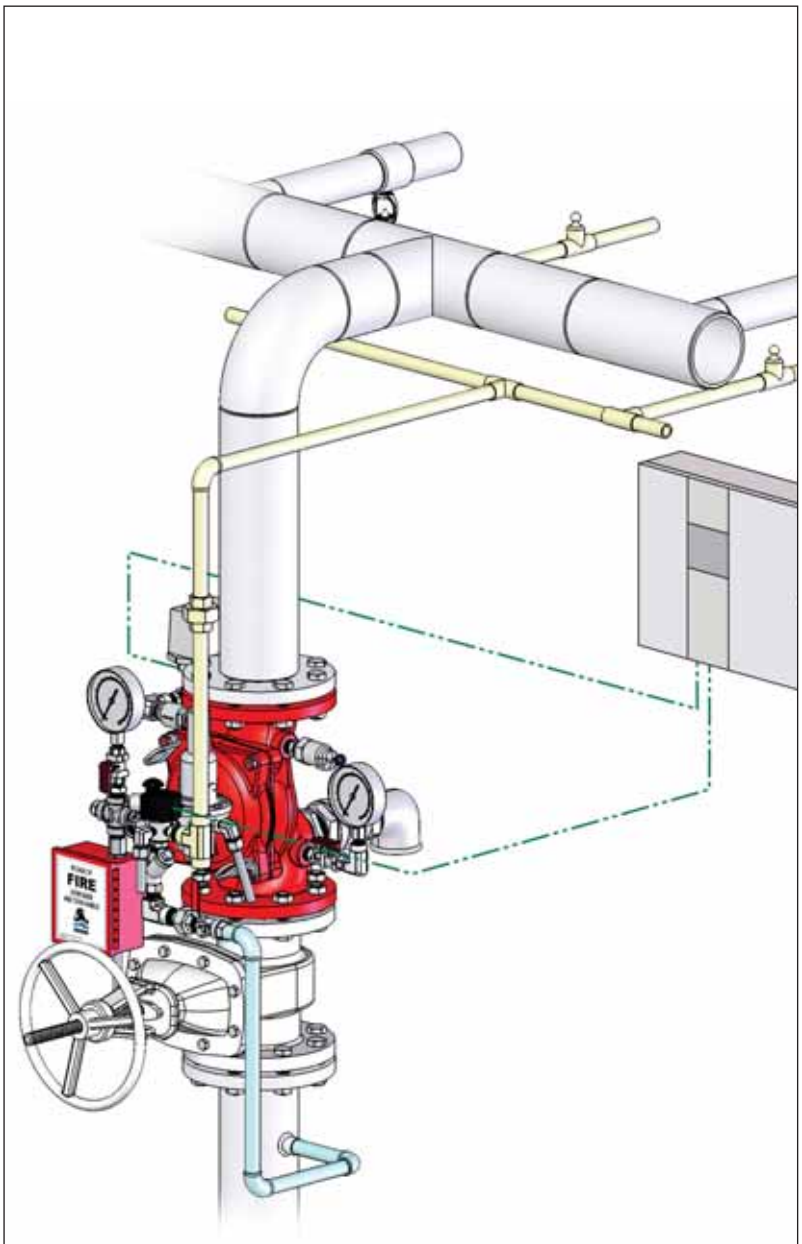

Power plants & transformers


Aviation and airports

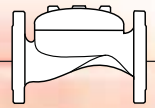

Petrochemical facilities

Features and Benefits

- PORV – Enables pneumatic actuation
- One-piece molded single moving part – No maintenance required
- Simple design – Cost effective
- Obstacle free, full bore – Free flow pass
- Factory pre-assembled trim – Out-of-box quality
- In-line serviceable – Minimal downtime



Electro-Pneumatically Controlled
BERMAD Deluge System with Manual Reset



For Fire Water & Foam Solution, VdS Certified

Electrically Controlled BERMAD Deluge Valve - VdS with EasyLock™ Manual Reset

FP 400E-2M-VDS

The BERMAD Model FP 400E-2M-VDS is suitable for systems that include electric fire detection.
The Deluge Valve latches open in response to an electric signal.

Electro-Pneumatically Controlled BERMAD Deluge Valve - VdS with EasyLock™ Manual Reset

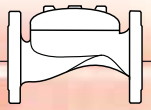
FP 400E-3M-VDS

The BERMAD Model FP 400E–3M-VDS is suitable for systems that include electric or electric-pneumatic fire detection. The Deluge Valve latches open in response to an electric signal and/or a pneumatic pressure drop in the dry pilot line.

Pneumatically Controlled BERMAD Deluge Valve - VdS with EasyLock™ Manual Reset

FP 400E-4M-VDS

The BERMAD Model FP 400E–4M-VDS is suitable for systems that include dry pilot lines with closed pneumatic fusible plugs.
The Deluge Valve latches open in response to a pneumatic pressure drop in the dry pilot line.



On-Off Deluge Valves - VdS Certified

The BERMAD VdS Certified Remote Reset Valves are activated to open and to close by electric, hydraulic, pneumatic or electro-pneumatic signal.
They provide secured actuation when open, and smooth closing.

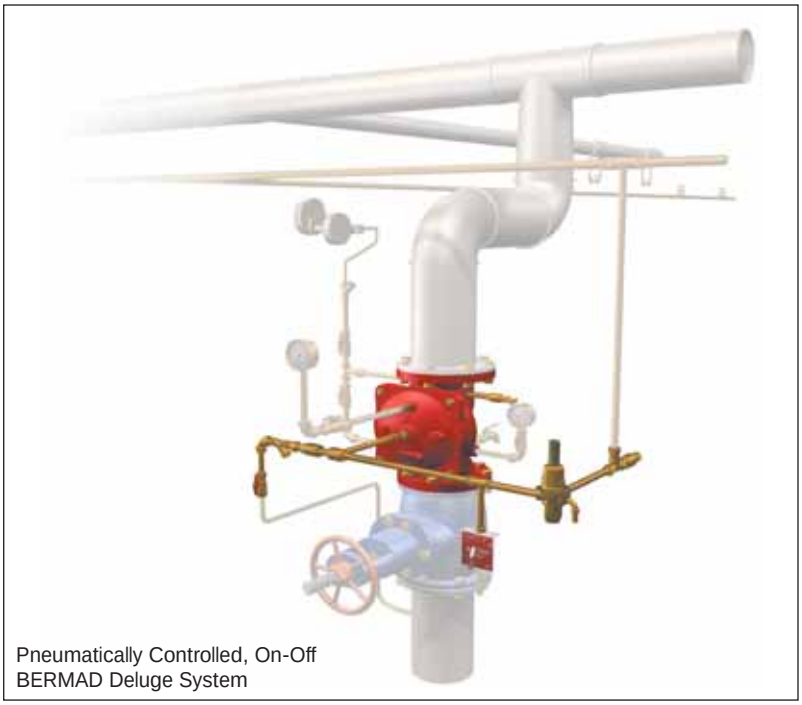
Typical Applications

- Automatic spray or foam systems
- Petrochemical facilities
- Power plants & transformers
- Roads and rail tunnels
- Aviation and airports

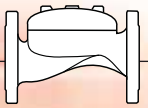
Features and Benefits

- **Remote reset** – Shut-off upon remote command
- **Dry solenoid** – Suitable for corrosive water or foam
- **PORV** – Enables pneumatic actuation
- **One-piece molded single moving part** – No maintenance required
- **Obstacle free, full bore** – Free flow pass
- **In-line serviceable** – Minimal downtime

Electrically Controlled, On-Off
BERMAD Deluge System



Pneumatically Controlled, On-Off
BERMAD Deluge System



For Fire Water & Foam Solution, VdS Certified

Electrically Controlled - VdS
BERMAD Deluge Valve with Remote Reset

FP 400E-2-VDS

The BERMAD Model FP 400E-2-VDS is a line pressure driven, solenoid controlled valve suitable for systems that include electric fire detection. It opens in response to an electric pulse, and resets to close in response to an ensuing electric pulse.
The hydraulic actuation by a magnetic latch solenoid provides maximum safety in open position.

Electro-Pneumatically Controlled - VdS
BERMAD Deluge Valve with Remote Reset

FP 400E-3-VDS

The BERMAD Model FP 400E-3-VDS is a line pressure driven, solenoid controlled valve suitable for systems that include electric or redundant (electric and pneumatic) fire detection. It opens in response to an electric pulse or a pneumatic pressure drop in the dry pilot line.It resets to close in response to an ensuing electric pulse as long as the dry pilot line is pressurized.

Pneumatically Controlled - VdS
BERMAD Deluge Valve with Remote Reset

FP 400E-4-VDS

The BERMAD Model FP 400E-4-VDS is a line pressure driven control valve suitable for systems that include dry pilot lines with closed pneumatic fusible plugs.
The valve is closed as long as the dry pilot line is pressurized. It opens in response to a pneumatic pressure drop in the dry pilot line.

Remote Controlled Monitor Valves

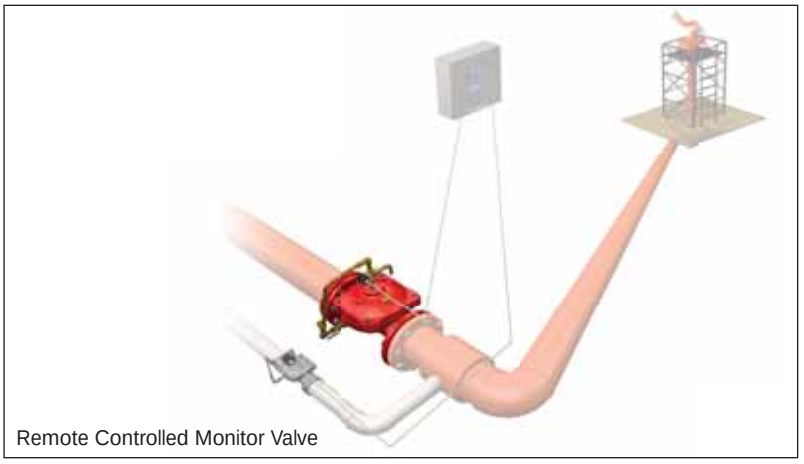
These BERMAD Remote Controlled Valves are especially suitable for oscillating or remote controlled monitors and for installation in modern fire systems where a shut-off function is required.
They are activated to open and to close by electric, hydraulic, pneumatic or electro-pneumatic signal, providing secured actuation with smooth opening and closing.

Typical Applications

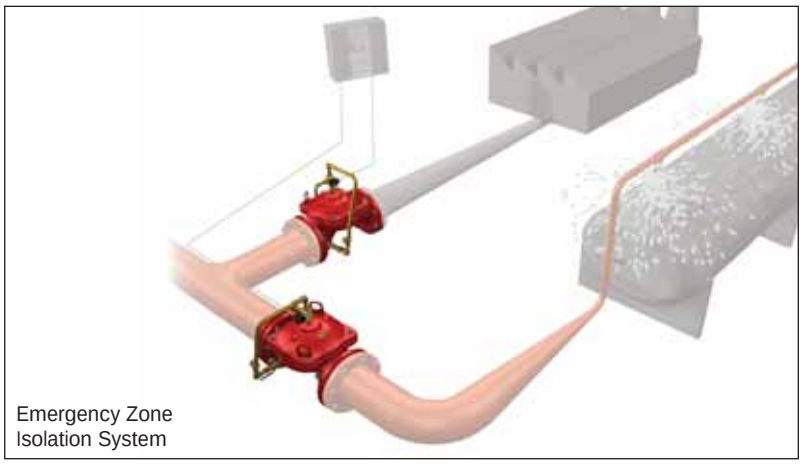
- Remote monitors
- Zone isolating, on-off remote control
- Emergency low powered shut-off valves
- Petrochemical facilities
- Offshore platforms & installations
- Marine fire systems

Features and Benefits

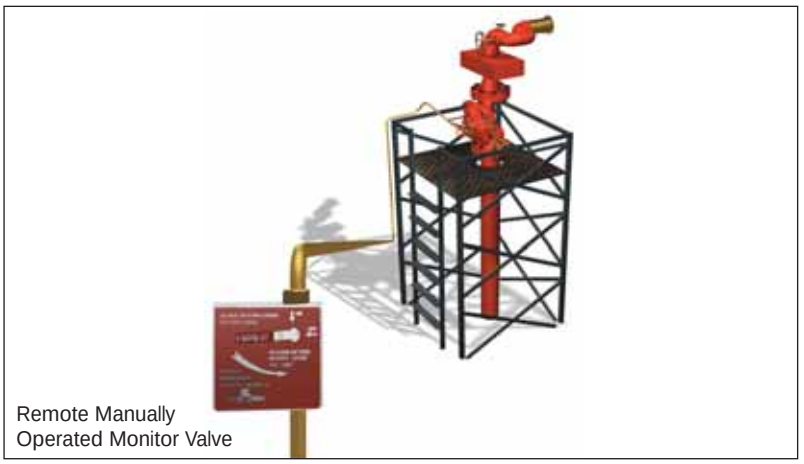
- Remote reset – Shut-off upon remote command
- Hydraulically powered valve design
  - Eliminates jamming problems
  - Low power operation
  - Closes drip tight time after time
- One-piece molded single moving part – No maintenance required
- Obstacle free, full bore – Free flow pass
- In-line serviceable – Minimal downtime



Remote Controlled Monitor Valve



Emergency Zone Isolation System



Remote Manually Operated Monitor Valve

Solenoid Activated, Remote Controlled BERMAD Monitor Valve

FP 400E-3X

The BERMAD Model FP 400E-3X is a line pressure driven, solenoid controlled valve that opens and closes drip tight in response to an electric signal.
The hydraulic actuation by a compact solenoid is resource saving, while providing maximum safety.

Electro-Pneumatically Operated, Remote Controlled BERMAD Monitor Valve

FP 400E-6X

The Model FP 400E-6X is a line pressure driven, solenoid controlled valve that opens and closes drip tight in response to an electric signal, using external pneumatic control pressure.

Pneumatically Operated, Remote Controlled BERMAD Monitor Valve

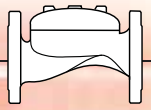
FP 400E-4X

The Model FP 400E-4X is a line pressure driven control valve that opens and closes drip tight in response to an external pneumatic pressure command.

Hydraulically Operated, Remote Controlled BERMAD Monitor Valve

FP 400E-5X

The Model FP 400E-5X is a line pressure driven control valve that opens and closes drip tight in response to an external hydraulic pressure command.
Its boosted local opening provides maximum safety also in systems with long and/or elevated hydraulic remote control piping lines.



Foam Concentrate Valves

The BERMAD Foam Concentrate Valves are built of high-grade materials to meet the aggressive ingredients of the foam concentration. The valves can be activated by electric, hydraulic, pneumatic or electro-pneumatic signal. On-Off Valves, Pressure Reducing On-Off Valves - for low injection pressure systems and Zero Pressure, On-Off Valves - for atmospheric foam concentrate reservoirs, are available.

Typical Applications


Remote foam concentrate injection


"Slave" foam valve automatic actuation


Balanced pressure control foam systems


Electric, pneumatic and hydraulic automated systems


Low injection pressure systems

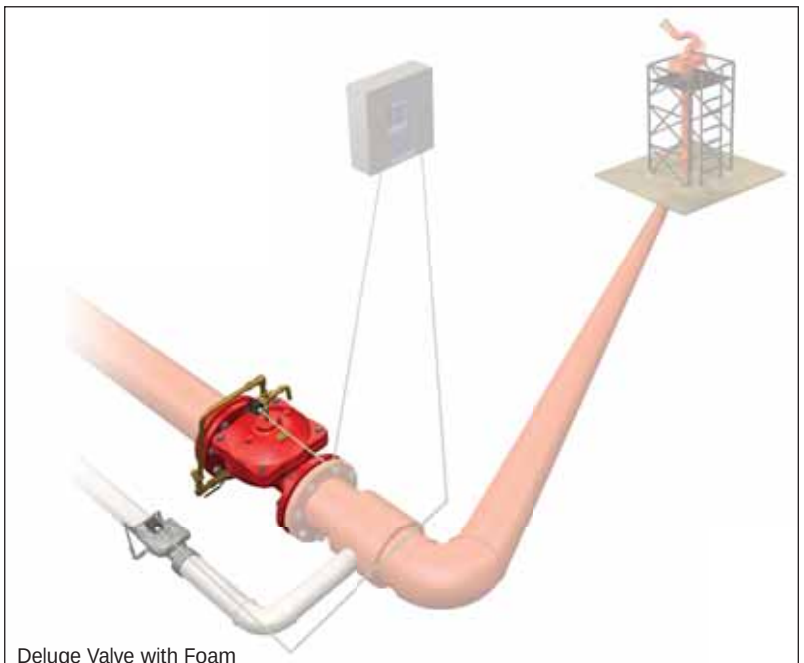

Petrochemical facilities


Offshore platforms & installations

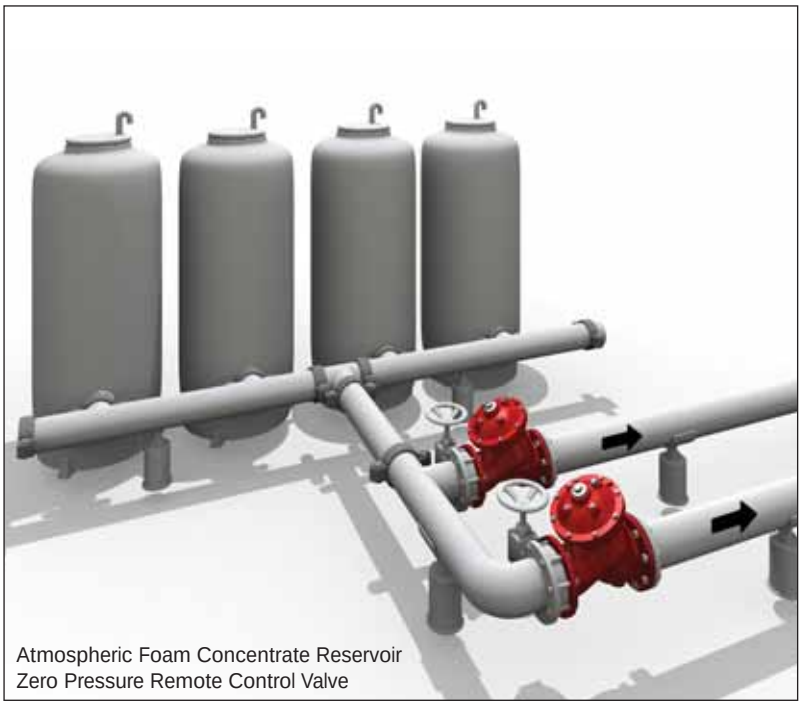

Flammable materials & gas storage

Features and Benefits

- High-Grade construction materials – Suits all approved concentrations available
- Remote reset – Shut-off on remote command
- PORV – Enables pneumatic actuation
- Simple design – Cost effective
- Obstacle free, full bore – Free flow pass
- In-line serviceable – Minimal downtime



Deluge Valve with Foam Concentrate "Slave" Valve



Atmospheric Foam Concentrate Reservoir Zero Pressure Remote Control Valve

Foam Concentrate, Stainless Steel Valve

Electro-Pneumatically Operated, Remote Control BERMAD Foam Concentrate Valve

FC 400E-6X-N

The Model FC 400E-6X-N is a line pressure driven, solenoid controlled valve suitable for systems with remote control foam concentrate injection. It opens and closes drip tight in response to an electric signal, using external pneumatic control pressure.

Electro-Pneumatic Pressure Control, On-Off BERMAD Foam Concentrate Valve

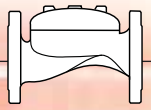
FC 400E-6DC-N

The BERMAD Model FC 400E–6DC-N is suitable for systems with remote control foam concentrate injection, initiated by electric or electric-pneumatic fire detection, that require low foam injection pressure. It opens, reducing the pressure, and closes in response to an electric signal using external pneumatic control pressure.

Zero Pressure, Electro-Pneumatically Operated, Remote Control BERMAD Foam Concentrate Valve

FC 700E-3X-N-BO

The Model FC 700E-3X-N-BO is a powered opening, double chambered, solenoid controlled valve suitable for installation in atmospheric foam concentrate reservoir outlet. It opens and closes drip tight in response to an electric signal, using external control pressure. Pressure applied to its lower control chamber while draining its upper control chamber, powers the valve to fully open also when line pressure is zero.



Manually Operated & Hydrant Valves

The BERMAD Manually Operated Hydraulic Valves and Hydrant Valves provide easy operation, on-call reliability, and smooth opening and closing.
They are particularly suited for monitors and industrial high capacity hydrants.

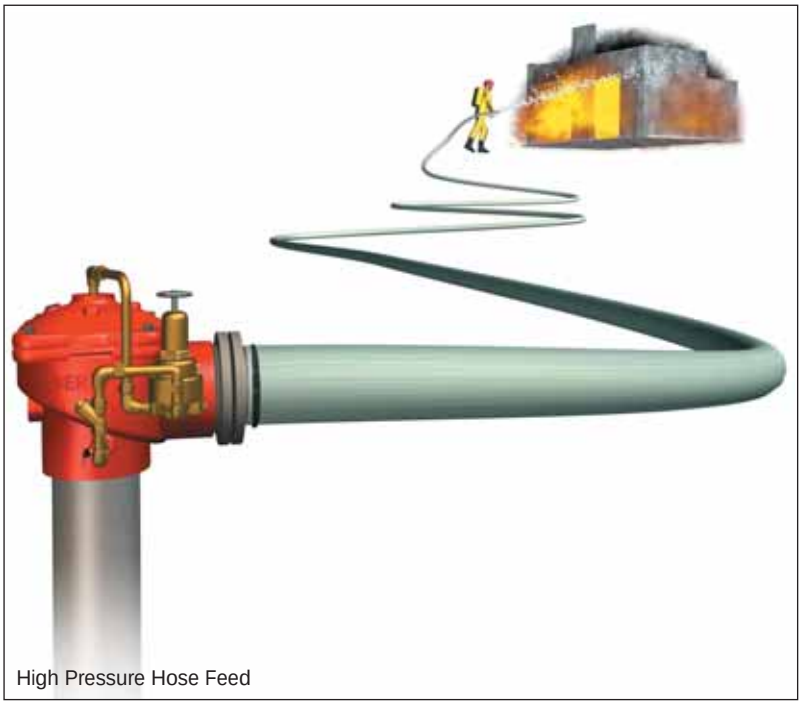
Typical Applications

- Fire hydrants and monitor valves
- Industrial fire fighting hydrants
- Petrochemical facilities
- Flammable materials & gas storage
- Aviation and airports
- Quick manual zone isolating valves
- Marine environments

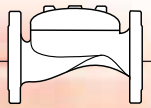
Features and Benefits

- **Easy manual opening** – Safe, quick and simple
- **Opening speed control** – Protects downstream systems.
- **Intermediate lock position** – ensures drip tight sealing.
- **Never "sticks" closed** – Reliability
- **Standard or angel body patterns** – Installation flexibility
- **One-piece molded single moving part** – No maintenance required
- **Obstacle free, full bore** – Free flow pass
- **In-line serviceable** – Minimal downtime

Local Manually Operated Monitor



High Pressure Hose Feed



For Fire Water & Foam Solution

Locally Operated BERMAD Monitor Valve

FP 405-II

The BERMAD Model FP 405-11 is a line pressure driven valve that opens and closes smoothly and safely, following any passage of time. It consists of a “Check Lock” feature that traps high pressure peaks ensuring that the valve remains locked in the closed position to maintain drip tight sealing.

Hydraulic BERMAD Hydrant Valve

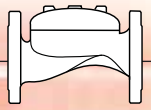
FP 405-02

The BERMAD Model FP 405-02 is a line pressure driven valve that opens and closes smoothly and safely, following any passage of time. It consists of a restriction that limits the valve opening speed, protecting downstream systems.

Pressure Regulating BERMAD Hydrant Valve

FP 420-HY

The BERMAD Model FP 420-HY serves as a pressure reducing valve connection between a high pressure water supply and fire hoses. It limits outlet pressure to 100 psi; 6.9 bar, regardless of varying pressure and/or flow, according to NFPA-14 regulations.



Pre-action Systems & Dry Pipe Valves

The BERMAD Pre-action Systems and Dry Pipe Valves provide drip tight sealing at all times. They are best suited to systems where water must be kept out of the sprinkler piping except under conditions of fire.
Single Interlock Pre-action, Double Interlock Pre-action and Dry Pipe Control Valves are available.

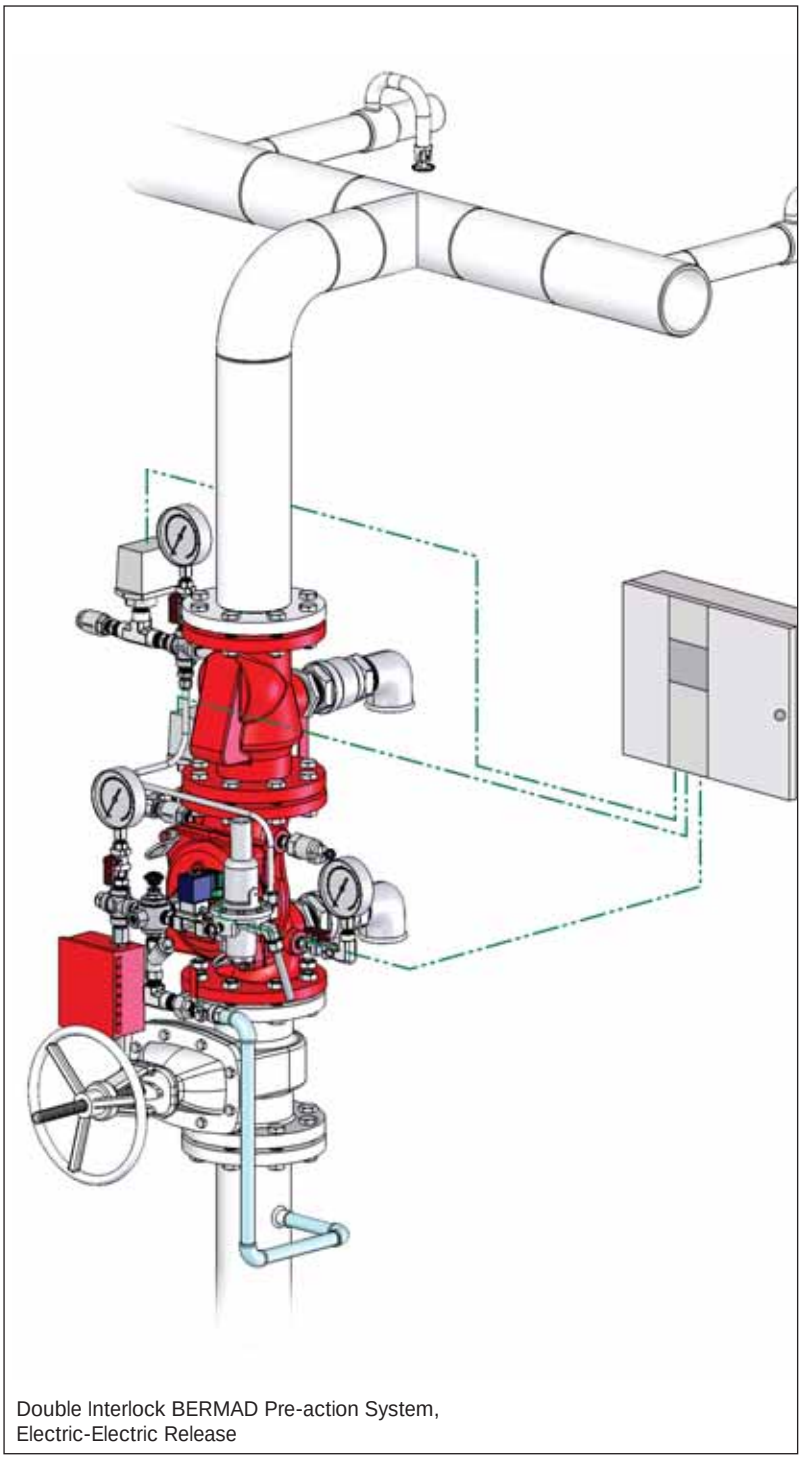
Typical Applications

Water damageable material storage:
- Computer & electronics rooms
- Libraries, museums & archives
- Telecommunications equipment
- Cable spreading rooms
- Oil-filled transformer rooms

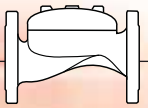
Systems installed in freezing conditions

Features and Benefits

- Hydraulically powered valve design
  - Easy reset
  - Closes drip tight time after time
  - Eliminates jamming problems
  - Smooth opening
- One-piece molded single moving part – No maintenance required
- Obstacle free, full bore – Free flow pass
- Factory pre-assembled trim – Out-of-box quality
- In-line serviceable – Minimal downtime



Double Interlock BERMAD Pre-action System, Electric-Electric Release



For Fire Water & Foam Solution, UL Listed

Single Interlock BERMAD Pre-action System Electric Release

FP 400E-7M

The BERMAD Model FP 400E-7M Single Interlock Pre-action Release System admits water into the sprinkler piping only upon operation of the electric detection system.

Double Interlock BERMAD Pre-action System Electric-Electric Release

FP 400E-7BM

The BERMAD Model FP 400E–7BM Double Interlock Pre-action, Electric-Electric Release System admits water into the sprinkler piping only when both the detection and the supervised systems simultaneously signal the control panel to trigger the solenoid.

Double Interlock BERMAD Pre-action System Electric-Pneumatic Release

FP 400E-7DM

The BERMAD Model FP 400E-7DM Double Interlock Pre-action, Electric-Pneumatic Release System admits water into the sprinkler piping only when the detection system through the control panel triggers the solenoid while simultaneously the PORV is activated due to the supervised system pressure drop.

BERMAD Dry Pipe Control Valve

FP 400E-DP

The BERMAD Model FP 400E-DP, Dry Pipe Control Valve admits water into the sprinkler piping only when the PORV is activated due to the supervised system pressure drop.

Pressure Reducing Valves

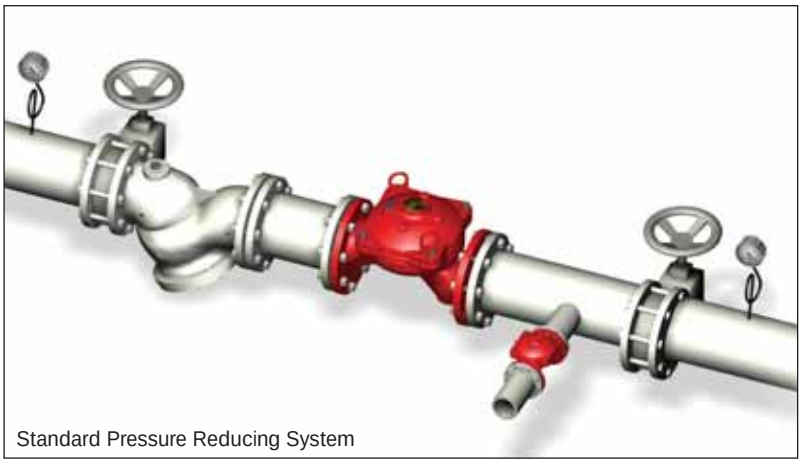
BERMAD Pressure Control Valves are automatically self-operated by the hydraulic line pressure, requiring no external energy source. Pressure Reducing Valves help to establish pressure zones, maintaining hydraulic balance in firewater distribution systems. They continuously reduce higher inlet pressure to lower constant predetermined delivery pressure.

Typical Applications

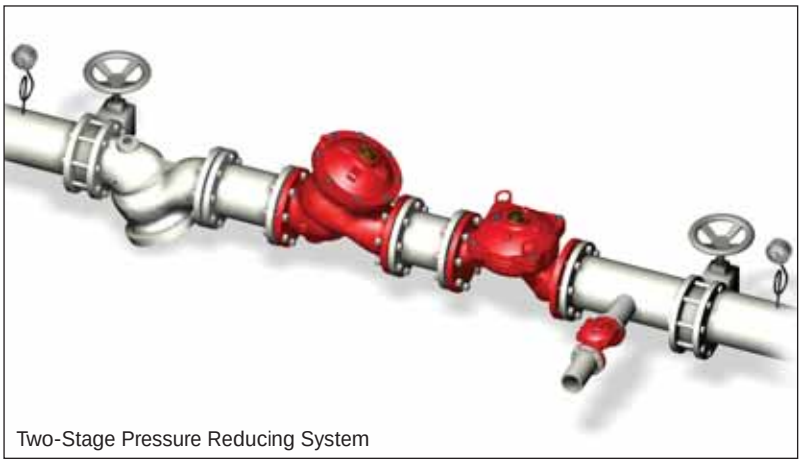
- Sprinkler system with over pressure
- High-rise buildings
- Hose station feeds
- Flow control in large scale firewater system
- Tunnels with long supply lines
- Fire hydrant water supply

Features and Benefits

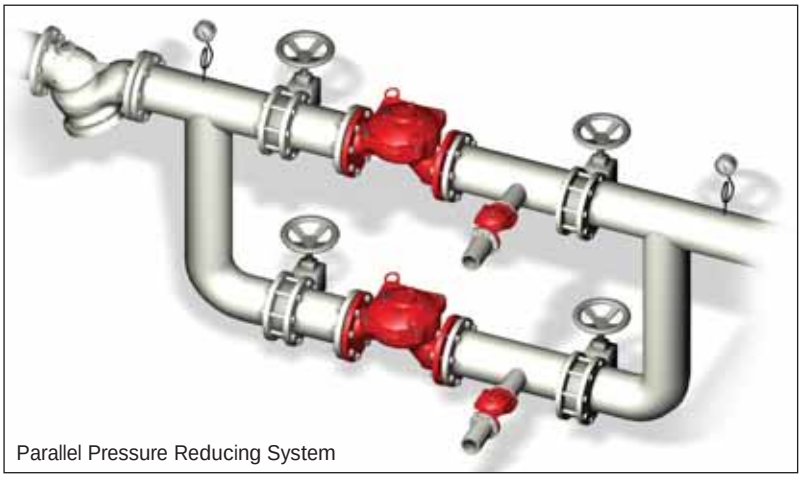
- Line pressure driven – Independent operation
- Hydraulic actuation
  - Drip tight sealing under static pressure
  - High flow capacity
- Pilot operated – Easy setting
- Obstacle free, full bore – Free flow pass
- Factory pre-assembled trim – Out-of-box quality
- In-line serviceable – Minimal downtime



Standard Pressure Reducing System



Two-Stage Pressure Reducing System



Parallel Pressure Reducing System

Pressure Reducing BERMAD Valve

FP 720-UL-A5

FP 720-UL-A3

The BERMAD Model FP 720-UL Pressure Reducing Valve is a hydraulically self operated, diaphragm actuated control valve that reduces high, unstable, upstream pressure to maintain precise, stable, downstream pressure, regardless of fluctuating demand or varying upstream pressure.
Model FP 720-UL-A5 is UL Listed up to 175 psi (2-8"; DN50-200).
Model FP 720-UL-A3 is UL Listed up to 300 psi (2-6"; DN50-150).

Pressure Reducing BERMAD Valve

FP 420-00

The BERMAD Model FP 420-00 Pressure Reducing Valve is a hydraulically self operated, diaphragm actuated control valve that reduces high, unstable, upstream pressure to maintain precise, stable, downstream pressure, regardless of fluctuating demand or varying upstream pressure.

Pump Pressure Control Valves

BERMAD Pump Pressure Control Valves are hydraulic line pressure driven control valves designed to protect pumps and water distribution systems from two extreme situations:

- When installed off-line, they relieve damaging excessive pressure.
- When installed in-line, they sustain minimum backpressure, thus preventing pump overload and prioritizing pressure zones.

Typical Applications

Pump Protection:
- Pump Relief
- Pump overload & cavitation protection
- Safegaurding pump minimum flow

Zone safety pressure relief

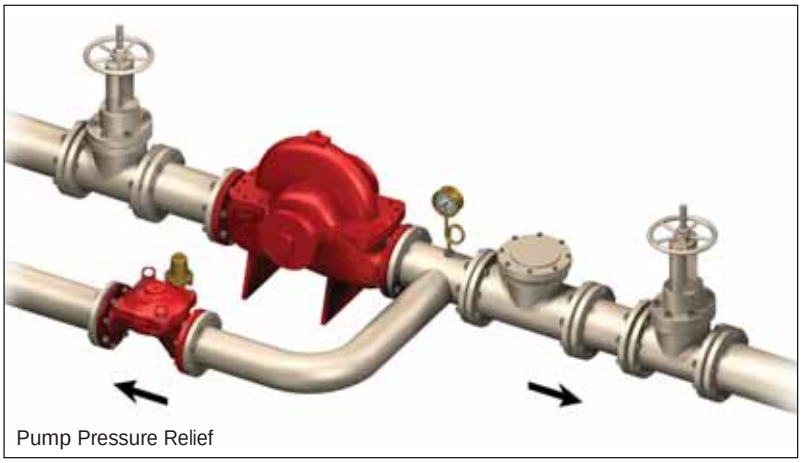
Firewater supplied from municipal source

Foam pump re-circulation

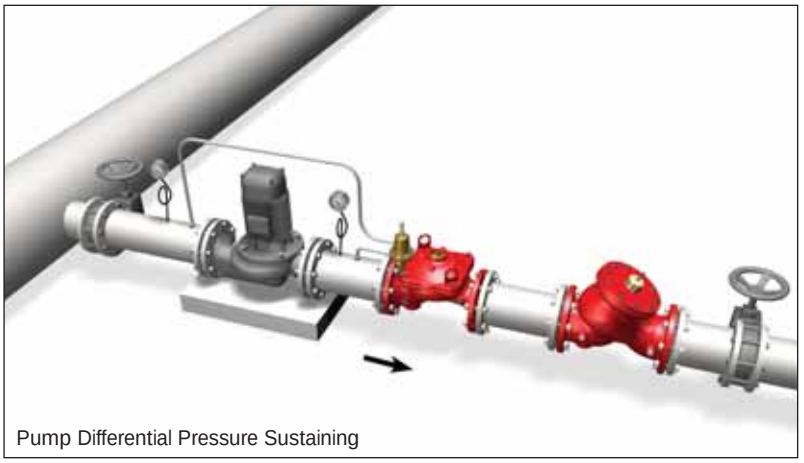
Centralized thermal pressure relief

Features and Benefits

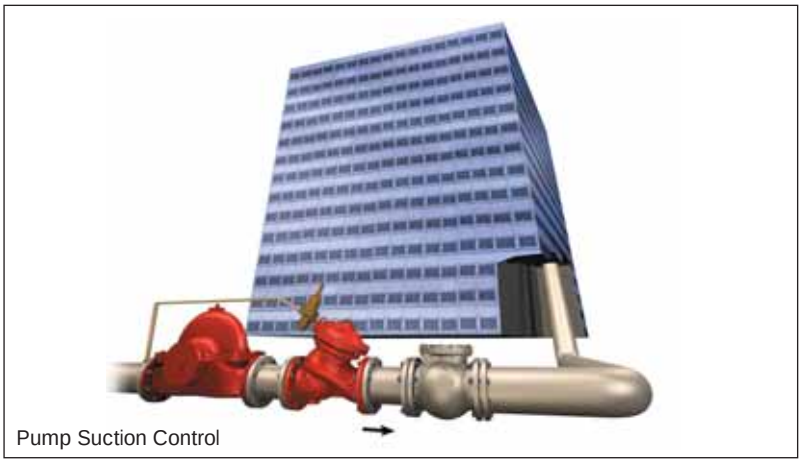
- Hydraulically powered valve design
  - Quick response
  - Closes drip tight time after time
  - Eliminates jamming problems
- Advanced pilot system
  - Easy pressure & closing speed setting
  - Eliminates closing surges
  - Dual parallel pilot system
- One-piece molded single moving part – No maintenance required
- Obstacle free, full bore – Free flow pass
- In-line serviceable – Minimal downtime



Pump Pressure Relief



Pump Differential Pressure Sustaining



Pump Suction Control

Pressure Relief BERMAD Valve

FP 430-UF
FP 730-UF

The BERMAD Models FP 430-UF and FP 730-UF are pilot operated valves that prevent over pressure, maintaining a constant preset system pressure regardless of fluctuating demands. They are FM Approved and UL Listed up to 175 psi (FP 430-UF) & 350 psi (FP 730-UF) according to NFPA-20.

Pressure Relief BERMAD Valve with Electric Override

FP 430-59
FP 730-59

The BERMAD Models FP 430-59 and FP 730-59 combine fire pump relief with a pre-opening feature to anticipate pump start-up surge. The valve opens fully by means of electric override upon pump start-up. It continues to function as a pressure relief valve after the electric override is shut off.

Differential Pressure Sustaining BERMAD Valve

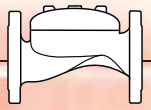
FP 436

The Model FP 436 Differential Pressure Sustaining Valve is a hydraulically operated, diaphragm actuated, control valve that sustains minimum pre-set, differential pressure between two points such as pump suction and discharge, filter upstream and downstream, etc.

Pump Suction Control BERMAD Valve

FP 730-R-UL

The BERMAD Model FP 730-R-UL is a pilot operated, line pressure driven valve that senses booster pump suction pressure and modulates to sustain it above the preset Net Positive Suction Head (NPSH) required by the pump.
It is UL Listed according to NFPA standards.



Level Control Valves

BERMAD Level Control Valves combine hydraulic line pressure control for secured and smooth opening and closing with the simplicity of a float or level control pilot.
External installation of the main valve facilitates maintenance.

Typical Applications

Automatic filling of firewater storage

High volume firewater reservoirs

High level reservoirs & water towers

Large surface emergency reservoirs

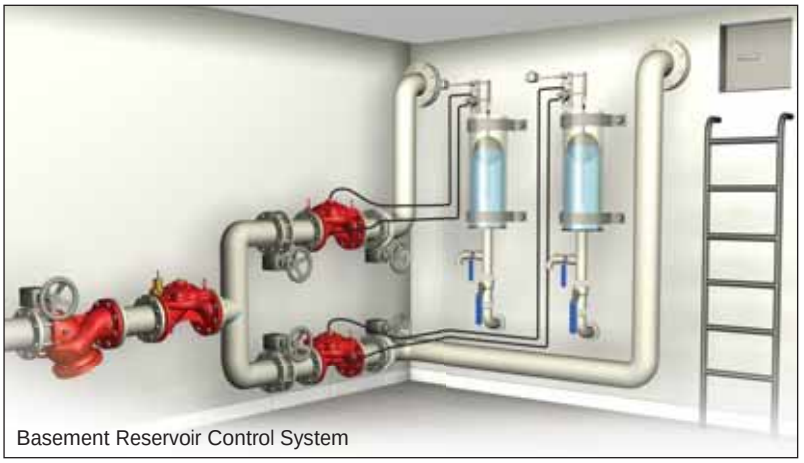
DC controlled emergency water supply systems

Level sustaining

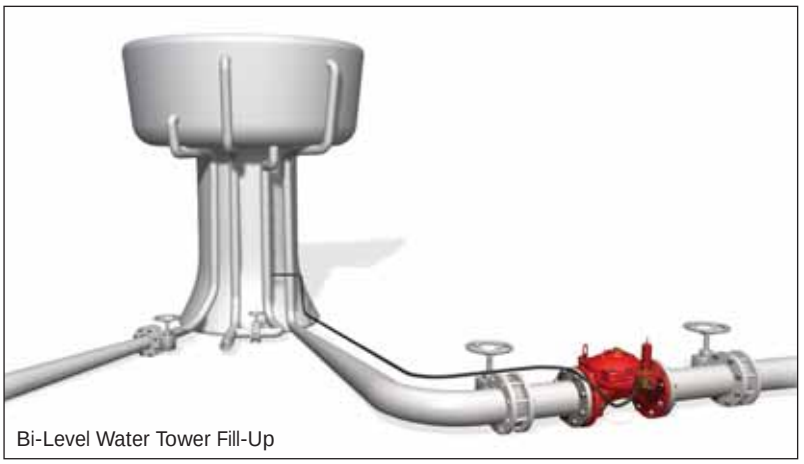
Features and Benefits

- Line pressure driven – Independent operation
- Balanced rolling diaphragm
  - High flow capacity
  - Very low opening and closing pressure requirements
- Dynamically restrained actuation
  - Moderate valve reaction
  - Non-slam closing
- Obstacle free, full bore – Free flow pass
- External installation
  - Easy access to valve & float
  - Less wear and tear
- In-line serviceable – Minimal downtime

Rooftop Reservoir Control



Basement Reservoir Control System



Bi-Level Water Tower Fill-Up

Level Control BERMAD Valve with Modulating Horizontal Float

FP 450-60

The Model FP 450-60 Level Control Valve with Modulating Horizontal Float is a hydraulically controlled, diaphragm actuated, control valve that controls reservoir filling to maintain constant water level, regardless of fluctuating demand.

Level Control BERMAD Valve with Bi-Level Electric Float

FP 450-65

The Model FP 450-65 Level Control Valve with Bi-Level Electric Float is a hydraulically operated, diaphragm actuated, control valve that controls reservoir filling in response to an electric float switch signal. The valve opens at pre-set low level and shuts off at pre-set high level.

Level Control BERMAD Valve with Bi-Level Vertical Float

FP 450-66

The Model FP 450-66 Level Control Valve with Bi-Level Vertical Float is a hydraulically controlled, diaphragm actuated control valve that controls reservoir filling in response to a hydraulic on/off float pressure command. The valve opens at pre-set low level and shuts off at pre-set high level.

Level Control BERMAD Valve with Altitude Pilot

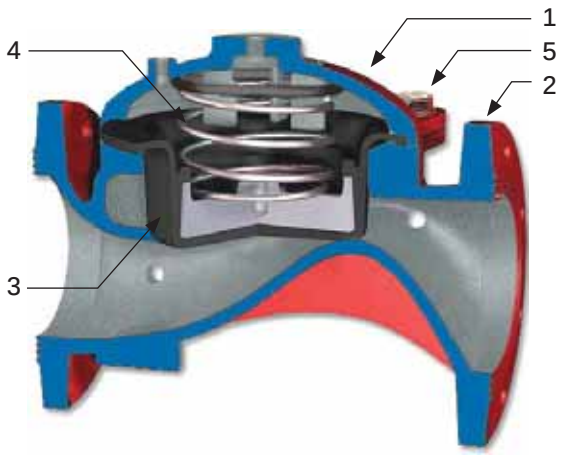
FP 450-80-M6

The Model FP 450-80 Level Control Valve is a hydraulically controlled, diaphragm actuated, control valve that shuts off at pre-set reservoir high level and fully opens in response to an approximately one-meter (three foot) level drop, as sensed by the 3-Way altitude pilot mounted on the main valve.

400E Materials Specifications

Construction Materials

The BERMAD 400E valves are available in a variety of materials to ensure optimal suitability for a wide range of applications, when the valve is exposed to internal and/or external corrosive conditions. Corrosion resistant materials available are suitable for use with seawater, brackish water, or corrosive environments such as seashore, or petrochemicals and other industrial processing plants.



Standard Configurations

Item Number	Description	Firewater		Seawater		Foam
		FP-C-PR	FP-S-ER	FS-C-ER	FS-U-UC	FC-N-UC
1	Cover	Ductile Iron	Cast Steel	Ductile Iron	Ni-Al-Bronze	S.S. 316
2	Valve Body	Ductile Iron	Cast Steel	Ductile Iron	Ni-Al-Bronze	S.S. 316
3	Elastomeric Assembly	NR with VRSD*	NR with VRSD*	NR with VRSD*	NR with VRSD*	NR with VRSD*
4	Spring	S.S. 304	S.S. 304	Not Applied	Not Applied	S.S. 316
5	External Bolts / Nuts**	Galvanized Steel	Galvanized Steel	S.S. 316	S.S. 316	S.S. 316
	Coating	Polyester	H.B. Epoxy	H.B. Epoxy	Uncoated	Uncoated

* VRSD - Vulcanized Radial Seal Disk

** Bolts for 2-6"; DN50-150 Valves, Studs & Nuts for 8-12"; DN200-300 Valves.

Specifications

Castings

- Ductile Iron to ASTM A536 65-45-12 (coated)
- Cast Steel ASTM A216 Grade WCB (coated)
- Nickel Aluminum Bronze ASTM B148 C95800
- Stainless Steel 316 ASTM A351 Grade CF8M
- Hastelloy C-276

Elastomer

- NR, (Nylon fabric reinforced Polyisoprene)
- NBR, (Nylon fabric reinforced Nitrile, Buna-N)
- EPDM, (Nylon fabric reinforced, EPDM)

Coating

- Electrostatic Powder Coating Polyester
- High Built Epoxy Fusion-Bonded with UV Protection, Anti-Corrosion.
  Color: Fire Red to RAL 3000

Note: Internal & external coating applied on Ductile Iron or Cast Steel Castings only.

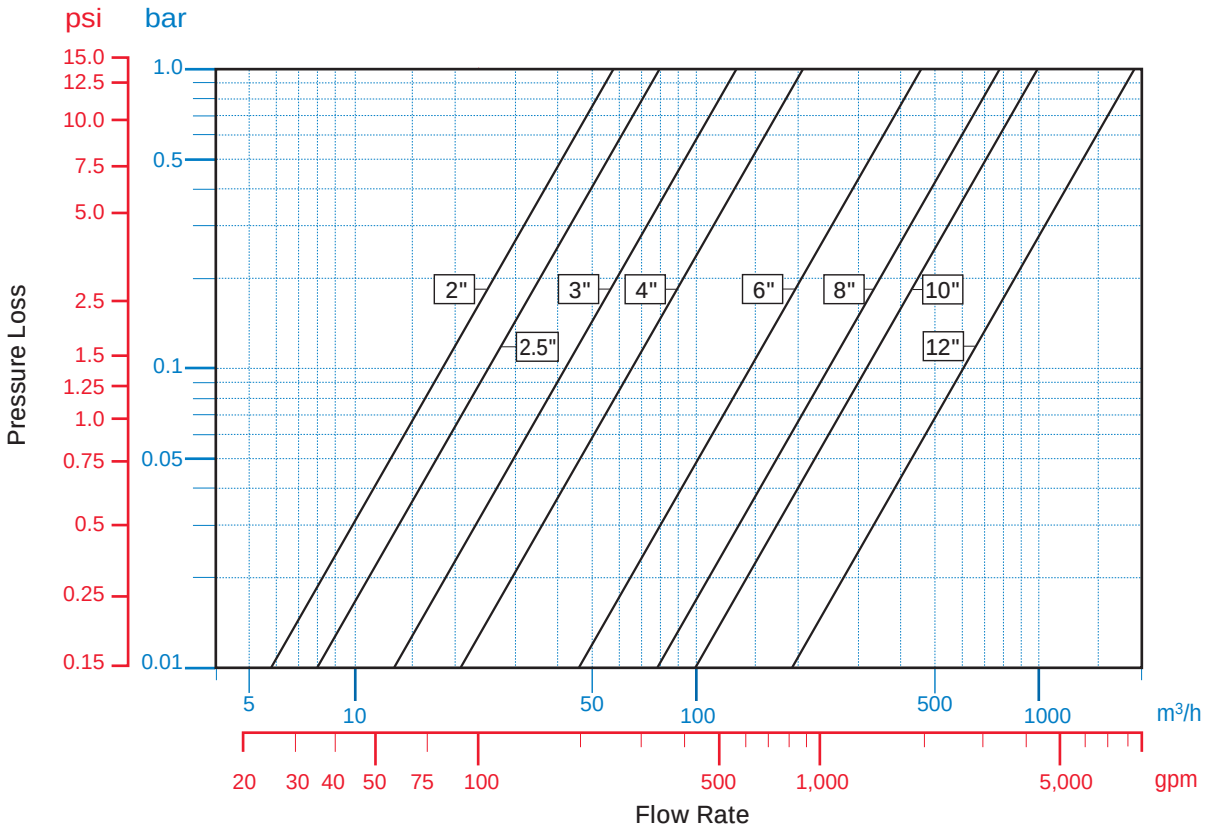
Pressure Reducing

Material	End Connection Standard Inlet & Outlet	Class & Type	Max. working pressure	
			psi	bar
Ductile Iron	Flanged ANSI B16.42	#150RF	250	17.4
	Flanged ISO 7005-2	PN16	235	16
	Grooved ANSI C606	250	250	17.4
	Threaded BSP/NPT	250	250	17.4
Cast Steel	Flanged ANSI B16.5	#150RF	250	17.4
	Flanged ISO 7005-2	PN16	235	16
Stainless Steel	Flanged ANSI B16.5	#150RF	250	17.4
	Flanged ISO 7005-2	PN16	235	16
Ni-Al Bronze	Flanged ANSI B16.24	#150RF	250	17.4
	Flanged ISO 7005-2	PN16	235	16

Note:

1. To attach a grooved valve to flanged line or vice versa, apply a grooved-flange adapter suited to the designated conditions.
2. Factory pressure testing: Each valve is tested at 375 psi (26 bar)
3. Water temperature: 0.5 - 50ºC; 33 - 122ºF
4. Standard flange facing: Raised Face (RF), Serrated Finish. Flat Face (FF) flanges available on request.

Flow Chart



Flow Properties

mm	50	65	80	100	150	200	250	300
inch	2"	2.5"	3"	4"	6"	8"	10"	12"
Kv	57	78	136	204	458	781	829	1,932
Cv	66	90	157	236	529	902	957	2,231
K	3.2	4.2	2.9	4	4	4.4	3.9	3.6
Leq - m	9.1	12.1	13.7	14	27.4	45.8	108	57
Leq - feet	30	40	45	46	90	150	354	187

Valve flow coefficient, Kv or Cv $Kv(Cv)=Q\sqrt{\frac{G_f}{\Delta P}}$

Where:

Kv = Valve flow coefficient (flow in m^3/h at 1bar Diff. Press.)

Cv = Valve flow coefficient (flow in gpm at 1psi Diff. Press.)

Q = Flow rate (m^3/h ; gpm)

ΔP = Differential pressure (bar ; psi)

Gf = Liquid specific gravity (Water = 1.0)

Cv = 1.155 Kv

Flow resistance or head loss coefficient, $K = \Delta H \frac{2g}{V^2}$

Where:

K = Flow resistance or head loss coefficient (dimensionless)

ΔH = Head loss (m ; feet)

V = Nominal size flow velocity (m/sec ; feet/sec.)

g = Acceleration of gravity (9.81 m/sec2 ; 32.18 feet/sec2)

Equivalent Pipe Length, Leq $Leq = Lk \cdot D$

Where:

Leq = Equivalent nominal pipe length (m ; feet)

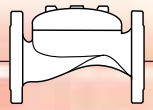
Lk = Equivalent length coefficient for turbulent flow in clean commercial steel pipe (SCH 40)

D = Nominal pipe diameter (m ; feet)

Note:

The Leq values given are for general consideration only.

Actual Leq may vary somewhat with each of the valve sizes.



400E Dimensions & Weights

SI Metric

Flanged

Size mm (inch)		50 (2”)	65 (2½”)	80 (3”)	100 (4”)	150 (6”)	200 (8”)	250 (10”)	300 (12”)
ANSI #150, ISO PN 16	LF (mm)	205	205	250	320	415	500	605	724
	W (mm)	155	178	200	223	306	365	405	580
	H (mm)	77	89	110	130	205	260	258	395
	RF (mm)	78	89	100	112	140	170	202	240
	a(1) (inch)	½	½	½	½	½	½	½	½
	b(1) (inch)	¼	¼	¼	¼	¼	¼	¼	⅜
	c(1) (inch)	½	½	½	½	½	½	½	½
	d(2) (inch)	¾	1½	1½	2	2	2	2	2
	Control Volume(3) (Lit.)	0.12	0.18	0.29	0.67	1.94	3.86	3.86	13.8
	Weight (Kg)	9	10.5	19	28	68	125	140	290

Grooved

Size mm (inch)		50 (2”)	80 (3”)	100 (4”)	150 (6”)
Grooved	LG (mm)	205	250	320	415
	W (mm)	120	175	200	306
	H (mm)	74	110	130	205
	RG (mm)	40	60	74	95
	a(1) (inch)	½	½	½	½
	b(1) (inch)	¼	¼	¼	¼
	c(1) (inch)	½	½	½	½
	d(2) (inch)	¾	1½	2	2
	Control Volume(3) (Lit.)	0.12	0.29	0.67	1.94
	Weight (Kg)	5	10.6	16.2	49

Threaded

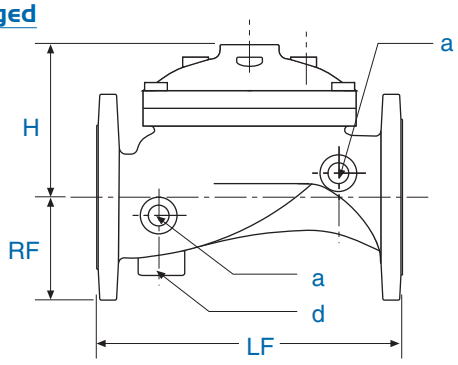
Size mm (inch)		50 (2”)	65 (2½”)
BSP(F) or NPT(F)	LT (mm)	180	210
	W (mm)	120	129
	H (mm)	74	87
	RT (mm)	40	40
	a(1) (inch)	½	½
	b(1) (inch)	¼	¼
	c(1) (inch)	½	½
	d(2) (inch)	¾	1½
	Control Volume(3) (Lit.)	0.12	0.18
	Weight (Kg)	4	5.7

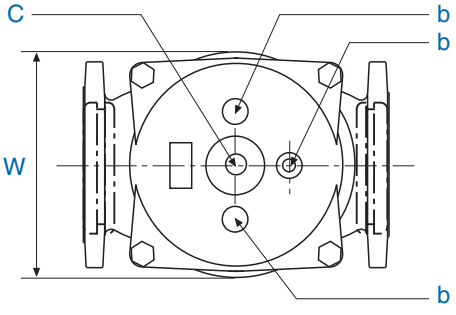
(1) (a), (b), (c) are NPT thread ports

(2) (d) is BSPT threaded drain port

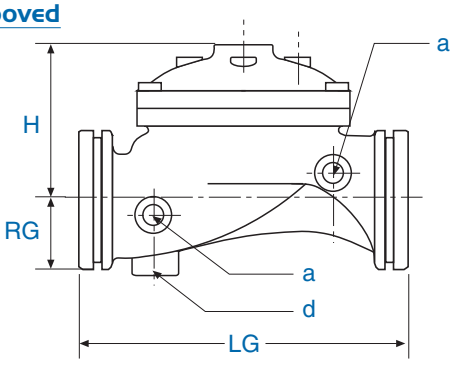
(3) Control Volume is Control Chamber Displacement Volume of Liquid pushed when valve opens

Flanged

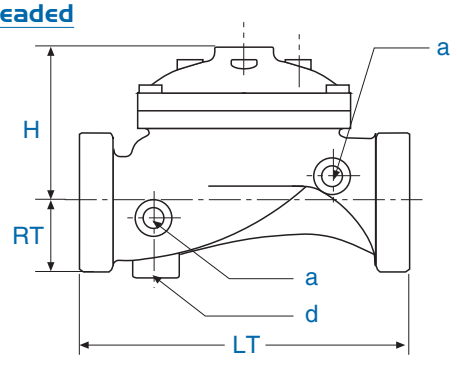




Grooved



Threaded



400E Dimensions & Weights

US English

Flanged

	Size mm (inch)	2”	2 1/2”	3”	4”	6”	8”	10”	12”
ANSI #150, ISO PN 16	LF (inch)	8 1/16	8 1/16	9 13/16	12 5/8	16 5/8	19 11/16	23 13/16	28 1/2
	W (inch)	6 1/8	7	7 7/8	8 3/8	12 1/16	14 3/8	15 15/16	22 13/16
	H (inch)	3 1/16	3 1/2	4 5/16	5 1/8	8 1/16	10 1/4	10 3/16	15 13/16
	RF (inch)	3 1/16	3 1/2	3 15/16	4 7/16	5 1/2	6 11/16	7 15/16	9 7/16
	a(1) (inch)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
	b(1) (inch)	1/4	1/4	1/4	1/4	1/4	1/4	1/4	3/8
	c(1) (inch)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
	d(2) (inch)	3/4	1 1/2	1 1/2	2	2	2	2	2
	Control Volume(3) (Gal.)	0.032	0.048	0.077	0.177	0.512	1.019	1.019	3.643
	Weight (Lbs.)	20	23	42	62	150	276	309	640

Grooved

	Size mm (inch)	2	3	4	6
Grooved	LF (inch)	8 1/16	9 13/16	12 5/8	16 5/16
	W (inch)	4 3/4	6 7/8	7 7/8	12 1/16
	H (inch)	2 15/16	4 5/16	5 1/8	8 1/16
	RF (inch)	1 9/16	2 3/8	2 15/16	3 3/4
	a(1) (inch)	1/2	1/2	1/2	1/2
	b(1) (inch)	1/4	1/4	1/4	1/4
	c(1) (inch)	1/2	1/2	1/2	1/2
	d(2) (inch)	3/4	1 1/2	2	2
	Control Volume(3) (Lit.)	0.032	0.077	0.177	0.512
	Weight (Lbs.)	11	23	36	108

Threaded

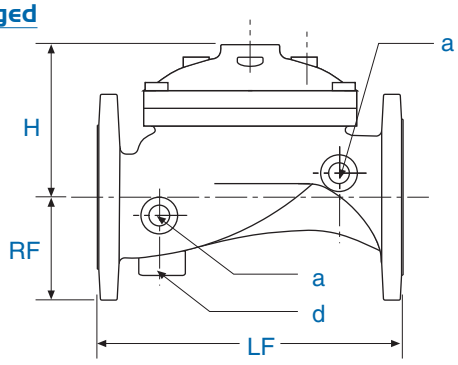
	Size mm (inch)	2	2 1/2
BSP(F) or NPT(F)	LT (inch)	7 1/16	8 1/4
	W (inch)	4 3/4	5 1/16
	H (inch)	2 15/16	3 7/16
	RT (inch)	1 9/16	1 9/16
	a(1) (inch)	1/2	1/2
	b(1) (inch)	1/4	1/4
	c(1) (inch)	1/2	1/2
	d(2) (inch)	3/4	1 1/2
	Control Volume(3) (Lit.)	0.032	0.048
	Weight (Kg)	9	13

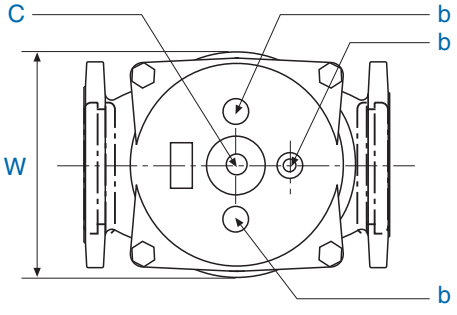
(1) (a), (b), (c) are NPT thread ports

(2) (d) is BSPT threaded drain port

(3) Control Volume is Control Chamber Displacement Volume of Liquid pushed when valve opens

Flanged





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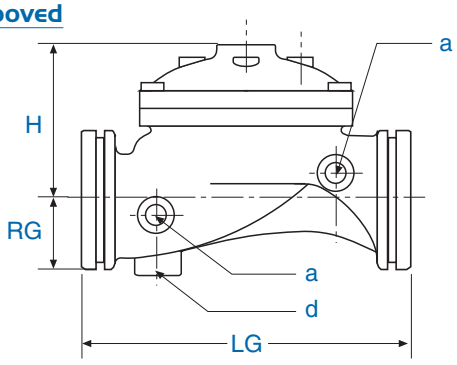

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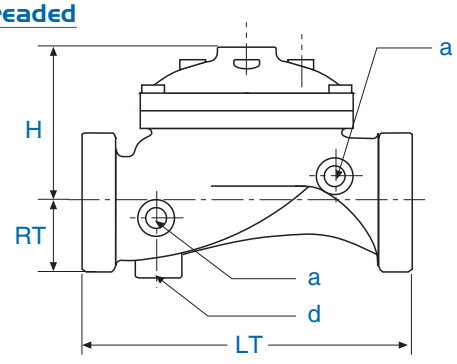


2-Way Solenoid Valve

This Solenoid Valve is suitable for releasing water pressure from the control chamber of BERMAD's Deluge Valves, Pre-action Valves and other Hydraulic Control Valves. It is a 2-way valve with a floating diaphragm requiring a minimum differential pressure to operate properly. It has an internal pilot and a bleed orifice, which enable using line pressure for operation. Its design includes a unique moveable plugnut "caged core" construction, which allows a small envelope size and high flow capacity. This construction, also provides long life and durability.

Model Selection

Model Number	Normally De-Energized	Max. Pressure bar (psi)	Enclosure Type
8210G207	N.C.	12 (175)	Standard
EF8210G207		12 (175)	Ex. Proof
5281-A		16 (230)	Nema, Div.2
5281-A		16 (230)	Standard
5281 Ex-A		16 (230)	EEx m II T4
5404 Ex-A		25 (360)	Standard
EF8210G212	N.O.	10 (150)	Ex. Proof
0281-B		16 (230)	Standard
0404-B		25 (360)	Standard

2-Way Solenoid Valve

with Isolated Membrane

This Solenoid Valve is suitable for releasing water pressure from the control chamber of BERMAD's Deluge Valves and other Hydraulic Control Valves.
It is a 2-way valve with a floating diaphragm and it has a pivoted armature for internal pilot switching.
The Solenoid Valve design includes a membrane that hermetically isolates the solenoid actuator from the fluid, making it less sensitive to abrasive or contaminated fluid than a plunger type system. The Solenoid Valve provides top performance with maximum reliability and a long service life, even in seawater applications. The solenoid epoxy encapsulation efficiently dissipates heat. The valve's construction requires a minimum differential pressure to operate properly.

Model Selection

Model Number	Normally De-Energized	Body Material	Enclosure Type
5282-A	N.C.	Brass	Standard
0282-A		Brass	Standard
5282-A		St.St. 316	Standard
5282-A-UL		St.St. 316	UL
5282-Ex-A		St.St. 316	EEx ed IIC-T5
0282-A	N.O.	Brass	Impulse version
5282-Ex-B		Brass	Standard
5282-B		St.St. 316	Standard
5282-B-UL		St.St. 316	UL
5282-Ex-B		St.St. 316	EEx ed IIC-T5

Note: For additional information refer to BERMAD Comprehensive Fire Protection Catalog

3-Way Solenoid Valve

Plunger Type

This direct acting plunger type, 3-Way Solenoid Valve has a compact construction and is suitable for activating BERMAD's Hydraulic Control Valves using non-corrosive water or air. This Solenoid Valve does not require a minimum operating pressure and is not affected by the mounting position. Its construction provides long-life performance and durability.

Model Selection

Model Number	Normally De-Energized	Max. Pressure bar (psi)	Orifice mm (inch)	Body Material	Enclosure Type
8320G182	N.C.	15.5 (225)	1.5 (1/16)	Brass	Standard
8320G142		14 (200)	1.2 (3/64)	St.St.	Standard
EF8320G142		14 (200)	1.2 (3/64)	St.St.	Ex. Proof
0311-C		14 (200)	1.0 (5/128)	St.St.	IP 65
6014-EX-C		30 (435)	1.5 (1/16)	Brass	EEx m II T4
8320G136	N.O.	16 (245)	1.2 (3/64)	Brass	Standard
EF8320G136		14 (200)	1.2 (3/64)	Brass	Ex. Proof
8320A148		14(200)	1.2 (3/64)	St.St.	Standard
8320G204		20 (290)	2.4 (3/32)	St.St.	Standard
EF8320G204		10 (150)	2.4 (3/32)	St.St.	Ex. Proof
0311-D		30 (435)	1.0 (5/128)	St.St.	IP 65
6014-EX-D		16 (245)	1.5 (1/16)	Brass	EEx m II T4

3-Way Solenoid Valve

with Isolated Membrane

This is a direct acting, 3-Way Solenoid Valve that can also be mounted as a 2-Way Valve. It has a pivoted armature to allow switching. Its design includes a membrane that hermetically isolates the solenoid actuator from the fluid, making it less sensitive to abrasive or contaminated fluid than a plunger type system. This Solenoid Valve provides top performance with maximum reliability and a long service life, even in seawater applications. The epoxy encapsulation efficiently dissipates heat, to suit continuous operation applications.

Model Selection

Model Number	Normally De-Energized	Body Material	Enclosure Type
330-C	N.C.	Brass	Standard
330-C		St.St. 316	Standard
330EX-C		St.St. 316	Ex. Proof
780-C		St.St. 316	EEx ed IIC-75
330-D	N.O.	Brass	Standard
332-D		Brass	Impulse version
330-D		St.St. 316	Standard
330EX-D		St.St. 316	Ex. Proof
780-D		St.St. 316	EEx ed IIC-T5

Note: For additional information refer to BERMAD Comprehensive Fire Protection Catalog

Pressure Reducing Pilot Valve

Model #2UL

This pilot valve integrates all the principal functions of a 2-way control circuit into a single assembly. It is a direct acting valve, actuated by a pressure responsive diaphragm, which tends to reach equilibrium with the set spring force. When used in a pressure reducing circuit, the pilot modulates closed as downstream pressure rises above set point. An integral needle valve acts as an upstream flow restrictor as well as a closing speed control.

Pressure Reducing Pilot Valve

Model #2PB

This is a direct acting valve, actuated by a pressure responsive diaphragm, which tends to reach equilibrium with the set spring force. Its fully balanced trim ensures high accuracy and stability.
When used in a pressure reducing circuit, the pilot modulates closed as downstream pressure rises above set point.

Pressure Sustaining Pilot Valve

Model #3UL

This pilot integrates all the principal functions of a 2-way control circuit into a single assembly. It is a direct acting valve, actuated by a pressure responsive diaphragm, which tends to reach equilibrium with the set spring force.
When used in a pressure relief/sustaining circuit, the pilot modulates open as upstream pressure rises above set point.
An integral needle valve acts as an upstream flow restrictor as well as a closing speed control.

Pressure Sustaining Pilot Valve

Model #3PB

This is a direct acting valve, actuated by a pressure responsive diaphragm, which tends to reach equilibrium with the set spring force.
When used in a pressure relief/sustaining circuit, the pilot modulates open as upstream pressure rises above set point.

Pressure Operated Relief Valve (PORV)

The PORV is a direct acting on/off valve, actuated by a pressure responsive diaphragm, which tends to reach equilibrium with the set spring force.
The PORV is held closed by pneumatic or hydraulic pressure, sensed at its control chamber (under the diaphragm).
It opens in response to a pressure drop of the wet/dry pilot line to below the set point, and/or in response to pressure being drained from its control chamber by a solenoid or other releasing device.
The PORV is UL Listed when installed as part of the control trim of UL Listed deluge valves.

Hydraulic Relay Valve (HRV)

The HRV is used as a hydraulic relay pilot valve for local release of the BERMAD deluge valve control chamber.
It is held closed by the water pressure applied through the solenoid valve or by the wet pilot line. It is UL Listed when installed as part of the control trim of deluge valves.

3-Way Accelerator (3W-HRV)

The 3W-HRV is used to relay and accelerate hydraulic signals, making the opening and closing of large size valves significantly quicker.
In response to pressure status in its control chamber, the 3W-HRV directs flow and pressure between its ports in the following manner:

- In response to pressure applied to its control chamber, the 3W-HRV connects port “0” to port “2”.
- In response to pressure released from its control chamber, the 3W-HRV connects port “2” to port “1”.

Line pressure is applied to the 3W-HRV control chamber through a solenoid or other device.

Air Relay Valve (ARV)

This Air Relay Valve (ARV) is a pneumatically operated, diaphragm actuated, pilot valve that in response to command pressure applied to either its upper or lower control chamber, directs flow and pressure between its ports.

- When forces in the upper control chamber are greater, it connects port “C” to “A”.
- When forces in the lower control chamber are greater, it connects port “A” to “0”.

This pilot valve can be used in 3-way or 2-way installation, to either relay and accelerate a signal (N.O.) or to reverse and accelerate a signal (N.C.).
As a double chambered pilot, it is suitable even when line pressure is very low.

Accelerator with Priming Restriction

As part of the control trim, this Venturi action accelerator speeds up the release of the main valve control chamber enabling faster full opening of the deluge valve.

EasyLock™ Manual Reset

After a main valve has been activated by a release device, this EasyLock™ Manual Reset latches closed, preventing water from entering the control chamber of the main valve and effectively latches the main valve open until reset by pushing.
The EasyLock™ consists of an internal check valve to ensure main valve sealing at set position even when supply pressure fluctuates, and a Safety Ball Drip to vent any accidental leak, ensuring that the main valve remains latched open.

Automatic Drip Check

This Normally Open Drip Check closes upon increase in flow velocity and automatically reopens upon decrease of system pressure. It is desingned for horizontal installation at the low point of the system draining leakage or fluid accumulation from a dry system. A manual release knob enables testing as to whether the piping is drained.

Manual Emergency Release

Model B

Manual Emergency Release is a Normally Closed release device, used for manually opening a deluge valve.
It is connected to the BERMAD on-off deluge valves standard control trim and can also be mounted on the wet or dry pilot line for additional manual remote operation.
It is UL Listed for Special Fire Protection Systems.

Manual Emergency Release

Model D

Manual Emergency Release is a Normally Closed release device, used for manually opening a deluge valve.
It is connected to BERMAD Classic deluge, Pre-action or Dry pipe valves standard control trim and can also be mounted on the wet or dry pilot line, as a remote manual operated station.
The Manual Emergency Release stainless steel 316 assembly version (Model DN) is suitable for corrosion resistent requirements.
It is UL Listed for Special Fire Protection Systems.

"Y" Strainer

The "Y" Strainer with a stainless steel or Monel screen is used in all BERMAD Water Control Valves, including Deluge Valves, Pre-action Valves, Pressure Control Valves, Monitor Valves and Remote Control Valves.
The "Y" Strainer is located at the pressure supply or priming line to protect the control trim components from suspended particles or debris.

Large Control Filter

The large control filter is used for filtration of dirty control fluid that might quickly block standard control filters. This larger filter increases the reliability of the control valve system and aids in eliminating false operation.

Control Spring Loaded Check Valve (CSLC)

These spring loaded, non-return valves provide free flow in one direction, while preventing flow in the opposite direction, and can be installed in any orientation.

Control Swing Check Valve (CSC)

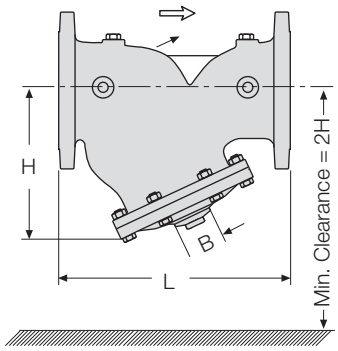
These swing, non-return valves provide free flow in one direction, while preventing flow in the opposite direction. Their hydraulic streamlined body design, together with their swing-type clapper, presents very low friction loss and opening point, and immediate closing.
The CSC can be installed horizontally (clapper shaft – upwards) or vertically (flow arrow - pointing upward).

2-Way Ball Valve

This full bore Ball Valve provides quick and easy on/off manual control for manual release, isolating valves and drains.

3-Way Ball Valve

This 3-Way Valve is used as a local or remote pilot valve, providing quick and easy 2-position on/off manual control.



Strainer

Model: FP 70F

The BERMAD FP 70F Strainer is design to remove foreign matter such as stones, sticks, etc., from the pipeline.
It is recommended to install the strainer upstream from control valves, flow meters and other system appliances. A high pressure strainer model 80F is also available.

- Large trap capacity
- Low pressure loss
- Blow-off port for easy cleaning

Technical Data

Size		L		L1		H		W		W1		B
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
40	1 1/2"	205	8.1	205	8.1	125	4.9	6.5	14.3	7.8	17.2	3/4"
50	2	210	8.3	210	8.3	125	4.9	8	17.6	10	22	
65	2 1/2"	222	8.7	222	8.7	125	4.9	10.4	22.9	12.8	28.2	
80	3"	250	9.8	264	10.4	170	6.7	17	37.5	20	44	1 1/2"
100	4"	320	12.6	335	13.2	210	8.3	28	61.7	34	75	
150	6"	415	16.3	433	17	270	10.6	48	106	58	128	2"
200	8"	500	19.7	524	20.6	330	13	75	165	95	210	
250	10"	605	23.8	637	25.1	420	16.5	125	276	153	337	
300	12"	725	28.5	762	30	480	18.9	225	496	266	586	
350	14"	733	28.9	767	30.2	480	18.9	235	518	288	635	
400	16"	990	39	1024	40.3	620	24.4	535	1180	590	1300	3"
450	18"	1000	39.4	1030	40.5	620	24.4	670	1477	735	1620	
500	20"	1100	43.3	1136	44.7	620	24.4	760	1675	835	1840	

L,W – ISO 10&16; ANSI 150

L1,W1 – ISO 25; ANSI 300

"L", ISO standard lengths available

B – Blow-off port

Basket Hole Diameter (mm)

Stainless Steel 304 (Standard)

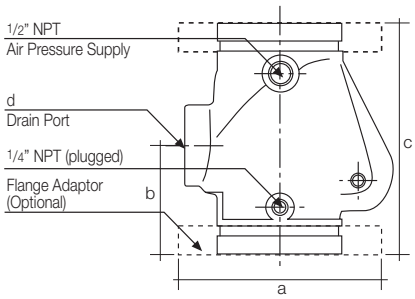
2"	3-4"	6-20"
1.5	3.0	5.0

Stainless Steel 316 (Optional)

2-6"	8-20"
2.0	3.0

Swing Check Valve (SC)

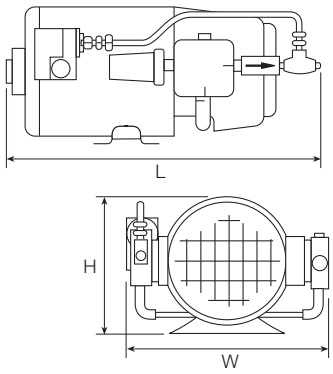
This Swing Check Valve is intended for installation in Pre-action systems using supervisory air as low as 1 psi. The Swing Check Valve provides compact, lightweight design for easy and comfortable installation. Its hydraulic streamlined body design and spring loaded elastomer faced clapper, presents very low friction loss, non-slam closing characteristics, and leak free sealing.



Technical Data

Valve Size	Dimensions			
	mm			inch
	a	b	c	d
2"; DN50	156	81	172	3/4"
2 1/2"; DN65	178	96	178	1 1/4"
3"; DN80	200	100	193	1 1/4"
4"; DN100	224	101	214	2"
6"; DN150	280	130	260	2"
8"; DN200	340	254	365	2"

UL LISTED



Compact Air Compressor for Dry Sprinkler Systems

This tankless and automatic air compressor provides the air supply needed for dry sprinkler systems. It can be used as a basic supply to fill and maintain small and medium sized systems (see specifications for maximum system size). It can also be used to maintain pressure in systems of larger sizes after the system has been filled by another adequate source. This compressor type is motor mounted, built directly on the outlet shaft of the motor. The compact and light-weight design fits into small areas.

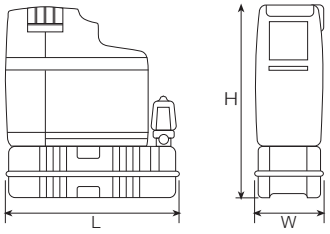
Dimensions

	mm	inch
L	369	$14^{9}/_{16}$
H	223	$17^{13}/_{16}$
W	300	$7^{13}/_{16}$

Specifications

- Max. system size: 350 liter
- Motor size: 1/6 hp
- Consumption: 0.12 kW
- Gross weight: 8.5 kg
- Supplied pressure (adjustable): 0.8 - 3.5 bar
- Includes factory assembled pressure switch and check valve

Note: System size is based on filling the system to 2.0 bar within 30 minutes.



Air Compressor for Dry Sprinkler Systems

This tank mounted automatic air compressor provides the air supply needed for a dry system. It can be used as a basic supply to fill and maintain the medium and large sized systems up to 3200 liters and including the specification as shown.
It may also be used to maintain pressure in systems of larger sizes after the system has been filled by another adequate source. Systems which use this compressor type require installation of an automatic Air Maintenance Device.

Dimensions

	mm	inch
L	410	$16^{11}/_{12}$
H	450	$17^{3}/_{4}$
W	194	$7^{5}/_{8}$

Specifications

- Motor power: 1.5 Hp, 220V/50Hz
- Consumption: 1.1 kW
- Max. system size: 3.2 m^{3}*
- Tank capacity: 6 Liter
- Gross weight: 16.5 kg
- Supplied pressure (adjustable) 0.5 – 7 bar
- Pressure regulator included

Note: System size is based on filling the system to 2.0 bar within 30 minutes.

Air Maintenance Device

Model AMD-7I

The BERMAD Air Maintenance Device is an automatic pressure regulating device that controls the supplied air pressure to maintain a constant preset value.
It is suitable for use in a dry pilot actuated Deluge system, Dry Pipe or Pre-action systems.

Standard Pressure Gauge

This Pressure Gauge provides visual indication of water or air pressure in BERMAD's water control vales, such as Deluge, Preaction, Pressure Control and Remote Control Valves. The core of the Pressure Gauge is a spring suspended movement, which is resistant to reasonable levels of shock, vibration and pulsation, and long lasting performance.
The case provides impact resistance, corrosion resistance and is rated for IP 65 ingress protection.
This Pressure Gauge complied with EN 837-1 & ASME B40.100 design, UL-Listed and FM approved for Fire Protection Systems.

Stainless Steel Pressure Gauge

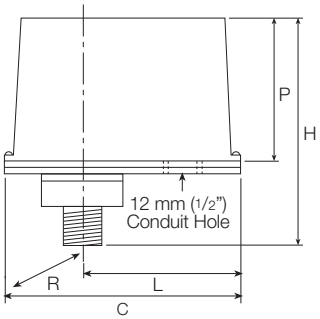
This Stainless Steel Bourdon Tube Pressure Gauge is recomended for corrosive environments and corrosive Liquid media. The Pressure Gauge provides visual indication of water or air pressure in Bermad's water control vales, such as Deluge, Preaction, Pressure Control and Remote Control valves that are intended to be installed in corrosive sites such as chemical, petro-chemical, power plants, mining, is a spring on-shoreand offshore environments. The core of the Pressure Gauge suspended movement, which is resistant to shock, vibration and pulsation, thus assuring accurate and long lasting performance. The Glycerin liquid filled case is suitable for high dynamic pressure pulsations or vibrations, with excellent shock resistance.The pressure gauge utilizes an impact/heat resistant window, rated for IP 65 ingress protection per EN 60 529 / IEC 529 and complies with EN 837-1 design.

Water Motor Alarm

The Water Motor Alarm is a hydromechanical automatic sound warning device actuated by water flow. It sounds a continuous alarm while a Deluge or Water Control Valve operates.
This unit is suitable for wall or pipe mounting and is suited for outdoor installation.
The Water Motor Alarm gong assembly package is supplied loose and includes a 3/4" strainer.

Features

- Self contained, line pressure operated
- Quick and positive operation
- Weather-proof
- No cover needed, suited for outdoor installation



Alarm Pressure Switch

General Purpose PS Series

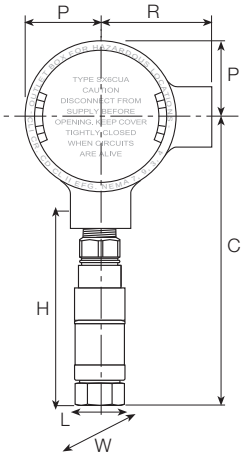
These adjustable, pre-set Pressure Switches are suitable for pressure and/or flow detection in BERMAD valve systems such as Deluge and Pre-action, or with other control valves for non-hazardous locations. The Pressure Switches are also used to provide a low pressure supervisory signal for BERMAD Pre-action Systems or pneumatically controlled deluge valves.

Dimensions

	mm	inch
H	111	4 3/8
P	70	2 3/4
L	81	3 6/16
C	121	4 3/8
R	29	1 1/8

Pressure Setting & Range

- Model PS10 (standard)
  - Factory Set: 0.4 bar (6 psi)
  - Adjusting range: 0.3 - 1.4 bar (4 to 20 psi)
  - Maximum deadband: 0.07 bar (1 psi)
- Model PS40 (optional)
  - Factory Set: 0.4 bar (6 psi)
  - Adjusting Range: 0,7 - 12,1 bar (10 - 175 psi)
  - Maximum deadband 0.14 - 0.35 bar (2 - 5 psi)



Explosion-Proof Pressure Switch

UE-12 Series

The UE-12 Pressure Switch is for use in conjunction with BERMAD Deluge or other types of water control valves, to indicate discharge water pressure.
This Pressure Switch offers reliability, repeatability and durability in a compact design. It is ideal for operation under the harsh conditions of DIV.1 or Zone 1 (II 2 G/D EEx d IIC T6 Certified) hazardous locations.
At the heart of the UE-12 is a snap action Belleville spring assembly, which transfers motion to a hermetically sealed 5 amp vibration resistant microswitch.
Applications: Chemical plants, refineries, gas and petroleum installations, offshore and marine vessels.

Dimensions

	mm	inch
H	124	4 7/8
L	31.7	1 1/4

Model Selection

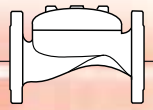
- Model 12-SHSN3C (standard):
  One SPDT, S.S. 316 wetted parts
- Model 12-SHDN3C:
  Two SPDT for DPDT action, S.S. 316 wetted parts
- Model 12-SHDN3C/M:
  Two SPDT for DPDT action, Monel wetted parts

Dimensions with Terminal Box

	mm	inch
P	48	1 7/8
R	70	2 3/4
C	185	7 3/8
W	85	3 3/8

Pressure Setting & Range

- Adjustable range:
  1.8 to 11.7 bar (25 to 170 psi)
- Deadband:
  0.8 bar low to 1 bar high (5 to 15 psi)
- Max. working pressure:
  41 bar (600 psi)
- Set point repeatability:
  ±1% of adjustable range



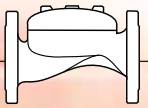
FP **2"** **400E-2M**

Category	Code
Standard	FP
Seawater	FS
Foam Concentrate	FC

Valve Size	
2”	50 mm
2 1/2”	65 mm
3”	80 mm
4”	100 mm
6”	150 mm
8”	200 mm
10”	250 mm
12”	300 mm

Group	Model	Code
Classic Deluge	Electrically Controlled Deluge Valve with EasyLock Manual Reset (1)(2)(3)	400E-2M
	Electro-Pneumatically Controlled Deluge Valve with EasyLock Manual Reset (1)(2)(3)	400E-3M
	Pneumatically Controlled Deluge Valve with EasyLock Manual Reset (1)(2)(3)	400E-4M
	Hydraulically Controlled Deluge Valve with EasyLock Manual Reset (1)(2)	400E-1M
	Hydraulically Controlled, Anti-Columning Deluge Valve with EasyLock Manual Reset (1)(2)	400E-5M
Combination Pressure Control Deluge	Electric Pressure Control Deluge Valve with Manual Reset (1)(2)	400E-2MC
	Electric Pressure Control, On-Off Deluge Valve (2)	400E-3DC
	Electro-Pneumatic Pressure Control, On-Off Deluge Valve (2)	400E-6DC
	Pneumatic Pressure Control, On-Off Deluge Valve (2)	400E-4DC
	Hydraulic Pressure Control, On-Off Deluge Valve (2)	400E-5DC
On-Off Deluge	Electrically Controlled, On-Off Deluge Valve (2)	400E-3D
	Electro-Pneumatically Controlled, On-Off Deluge Valve (2)	400E-6D
	Pneumatically Controlled, On-Off Deluge Valve (2)	400E-4D
	Hydraulically Controlled, On-Off Deluge Valve (2)	400E-5D
Manually Operated	Hydraulic Hydrant Valve	405-02
	Locally Operated Monitor Valve	405-11
	Pressure Regulating Hydrant Valve	420-HY
Remote Control	Solenoid Activated, Remote Controlled Monitor Valve	400E-3X
	Electro-Pneumatically Operated, Remote Controlled Monitor Valve	400E-6X
	Pneumatically Operated, Remote Controlled Monitor Valve	400E-4X
	Hydraulically Operated, Remote Controlled Monitor Valve	400E-5X
Pre-action & Dry Pipe	Single Interlock Pre-action, Electric Release System (2)(6)	400E-7M
	Double Interlock Pre-action, Electric-Electric Release System (2)(6)	400E-7BM
	Double Interlock Pre-action, Electric-Pneumatic Release System (2)(6)	400E-7DM
	Dry Pipe Control Valve (2)(6)	400E-DP
Pressure Control	Pressure Reducing Valve	420-00
	Pressure Reducing Valve (5)	720-UL
	Pressure Relief Valve (4)	430-UF
	Pressure Relief Valve (5)	730-UF
	Pressure Relief Valve with Electric Override	430-59
	Pressure Relief Valve with Electric Override	730-59
	Differential Pressure Sustaining Valve (3)	436-00
	Pump Suction Control Valve (5)	730-R
Level Control	Level Control Valve with Modulating Horizontal Float	450-60
	Level Control Valve with Bi-Level Electric Float	450-65
	Level Control Valve with Bi-Level Vertical Float	450-66
	Level Control Valve with Altitude Pilot (7)	450-80

Note:
(1) Deluge Valves With EasyLock Manual Reset are provided with Full Trim, including drain and indicating components (A items)
(2) UL Listed for sizes 2, 21/2, 3, 4, 6 & 8”
(3) VdS Configuration for sizes 2, 3, 4, 6 & 8”, Add "VDS" Sufix To Type Code (example: 400E-2M-VDS)
(4) UL Listed and FM Approved for 2, 21/2, 3, 4 & 6”
(5) UL Listed for sizes 2, 21/2, 3, 4, 6 & 8”
Max. inlet: 2 to 6”: 350 psi (24 bar), 8”: 175 psi (12 bar), Set: 30 - 165 psi (2 - 11.5 bar).
Order "A3" or "25" End Connections code for pressure rating above 250 psi (17 bar)
(6) Pre-action & Dry Pipe Valves Including Full Trim (A) and Trimmed Check Valve
(7) Altitude pilot adjustment Ranges : “M6” for 2-14 m (standard), “M5” for 5-22 m, “M4” for 15-35 m and “M8” for 25-70 m



G **C** **A5** **PR** **4DC** **NN** **8P7K**

Valve Pattern	Code
Globe Type (400 Standard)	G
Y Type (700 only)	Y
Angle (700 only)	A

Body Material	Code
Ductile Iron (Standard)	C
Cast Steel	S
Stainless Steel 316	N
Bronze	B
Nickel Al. Bronze	U

End Connections	Code
ANSI #150RF (Standard)	A5
ANSI#150FF	a5
ANSI#300RF (1)	A3
ISO-PN16	16
ISO-PN25 (1)	25
Grooved ANSI C-606-81(2)	VI

Coating	Code
Polyester Red (Standard)	PR
High Built Epoxy Red	ER
Uncoated	UC

Voltage - Main Valve Position (When Solenoid De-Energized)	Code
24VDC - N.C. (Standard)	4DC
24VDC - N.O.	4DO
24VDC - Letching	4DS
24V/50 - N.C.	4AC
24V/50 - N.O	4AO
24V/60 - N.C.	46C
24V/60 - N.O	46O
110VDC - N.C.	5DC
110VDC - N.O	5DO
110V/50-60 - N.C.	5AC
110V/50-60 - N.O.	5AO
220V/50-60 - N.C.	2AC
220V/50-60 - N.O.	2AO

Tubing & Fittings	Code
Stainless Steel 316 (Standard)	NN
Monel	MM

Options	Code
Large Control Filter	F
Position Indicator	I
Junction Box	J
S.S. Solenoid Valve	K
Pressure Switch	P
S.S. 316 Trim Accessories*	N
Limit Switch	S
Pressure Gauge Assy.	6
Hazardous Locations NEMA 7 & 9	7
Hazardous Locations	8
EEx m/em ATEX	
Hazardous Locations	9
EEx d/ed ATEX	

Separate Items & System Components	BERMAD Catalog Number
Description	
Water Motor Alarm Assembly (W) with Strainer For Deluge/Pre-action System	9901240028
Air Maintenance Device with Regulator For External Pressure Supply	9901100004
Standard Manual Release Station Assembly Model-D Hosed in Steel Box with S.S. Fittings	29204S0092
S.S. 316 Manual Release Station Assembly Model-DN Hosed in S.S. Box with S.S. Ball & Fittings	29204S0093

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