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Product Bulletin

ACVxx-HF-EOSS

**Electric Override
Safety Shut-Off**

The Issue

Reduced Pressure Zone (RPZ) Backflow Preventers provide maximum protection to Drinking Water Supply. However, often installed indoors in Basement Level Mechanical Rooms and Upper-Level Floors, they can pose a serious risk of catastrophic water damage to property and equipment.

RPZ Relief Valve Discharge rates can reach several hundred GPM, and left unchecked can easily overwhelm a 2" 3" 4" or even 5" drain. Debris fouling the First Check, a blocked Relief Valve Sense Line, a stuck or failed Relief Valve or a continuous actual Backflow event can cause atmospheric RPZ Relief Valve discharge. The high volume of water discharged can create large-scale pooling and vortices, drawing debris (insulation, cardboard, newspapers) into Floor Drains creating partial or total blockage.

The Problem

Catastrophic indoor flooding may remain unchecked for hours, or even days. The problem is not apparent until Mechanical Rooms are flooded or water is seen running down a hallway or pouring from the ceiling. Upsizing Drains to accept full RPZ Discharge Capacity is simply not a cost effective option and creates velocity problems within Sanitary Drain systems.

The Solution

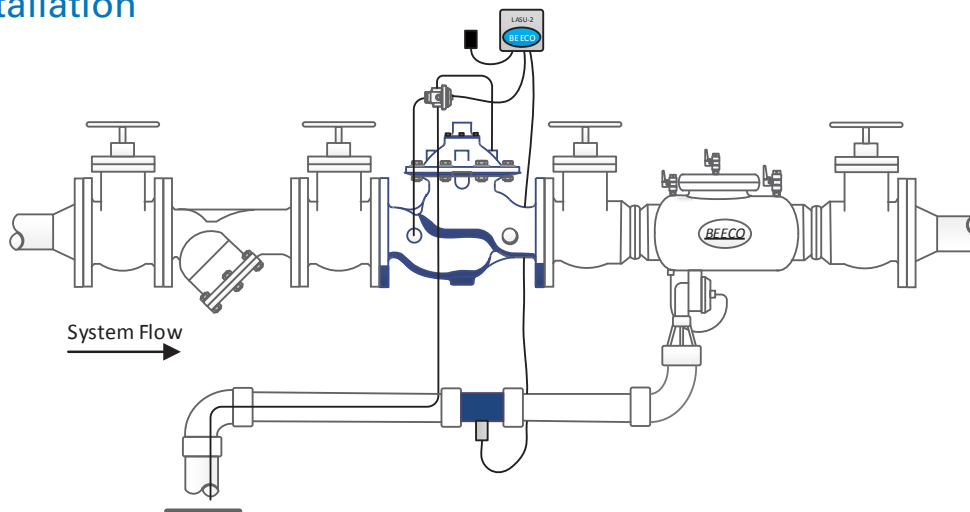
The BEECO EOSS Electric Override Safety Shut-Off Valve provides protection from catastrophic flood damage caused by any combination of the above scenarios.

The EOSS is installed upstream of the RPZ Backflow Device, and uses a unique Flow Sensor to detect the slightest discharge from the Relief Valve. Once detected, the Flow Sensor immediately sends a signal to the LASU-2 Electronic Controller, which has a user-friendly, programmable time delay system to identify minor discharges from potentially catastrophic events. The time-delay system activates the EOSS to close when the event exceeds the adjustable timeframe, and isolates the incoming water supply preventing further Relief Valve Discharge.

The EOSS remains closed, and must be manually reset, insuring maintenance personnel visit the location to assess the situation. It has a large, easy to read pressure gauge to indicate "Valve Closed", and a built-in pressure switch indicating valve closure or Diaphragm failure to the Building Management System.

The state-of-the-art LASU-2 Electric Valve Controller operates on standard 110-120 VAC power supply, and immediately switches to an integral Battery Back-Up System to maintain protection in the event of a power failure/interruption.

Installation

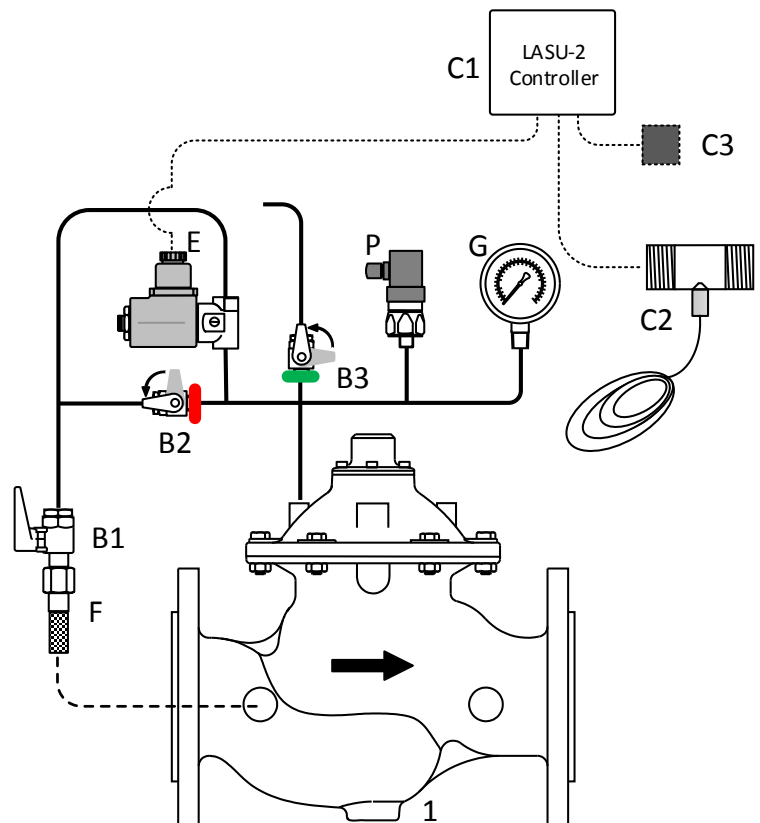


The BEECO EOSS immediately senses Relief Valve discharge and shuts-off the incoming water supply to prevent catastrophic water damage from excessive flooding. The built-in time delay is user adjustable. The EOSS comes with a Pressure Switch that can be connected to the BMS, Audible or Visual Strobe Alarm. A large Pressure Gauge is included to indicate valve closed. When closed, the EOSS must be manually reset.

- Valve is normally open and is installed upstream of an RPZ Backflow Assembly
 - Valve closes when RPZ Relief Valve discharge exceeds adjustable Time Delay or by engaging Manual Closing Valve
 - Valve must be manually reset to open position
 - Pressure Switch provides remote electrical indication of valve closure and diaphragm integrity
 - Large Pressure Gauge provides local visual indication of valve position
 - Integral Battery Back-Up maintains valve service up to 48 hours in case of power outage
- Plug-n-Play component system
 - Discharge Fitting with Pre-Installed Flow Sensor makes installation quick and easy
 - LASU-2 Control Panel is easily remote mounted up to 10 Feet from Valve
 - Power Supply makes electrical connection fast and simple
- All Stainless Steel Main Valve Internal Components provide long life and superior wear resistance
 - 100% Epoxy Coating Inside and Outside extend Diaphragm life
 - Stainless Steel External Fasteners simplify maintenance procedures
 - Stainless Steel Body and Cover Port Sleeves provide corrosion resistant service
 - EPDM Rubber Components offer high resistance to Chlorine / Chloramines in today's water systems

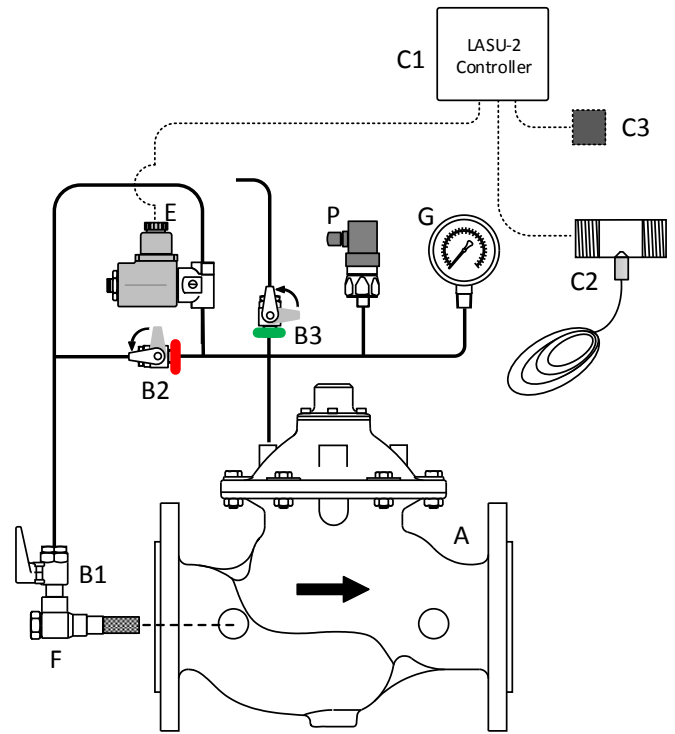
Full Port: 1.50" -2.50"

- A - Main Valve
- B1 - Ball Valve (NO)
- B2 - Manual Closing Valve (NC)
- B3 - Manual Opening/Reset Valve (NC)
- C1 - LASU-2 Controller
- C2 - Flow Sensor Assembly
- C3 - Power Adaptor
- E - 2-Way Solenoid w/ M.O. (NC)
- F - Strainer (self-flushing)
- G - Pressure Gauge (3-1/2" Face)
- P - Pressure Switch



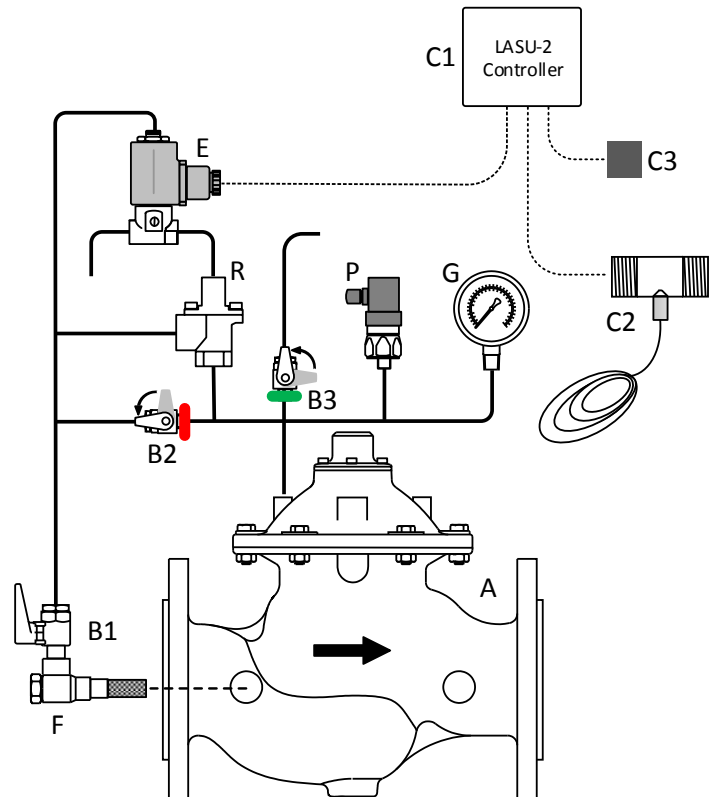
Full Port: 3"-6"

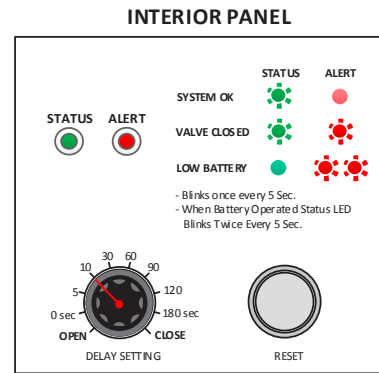
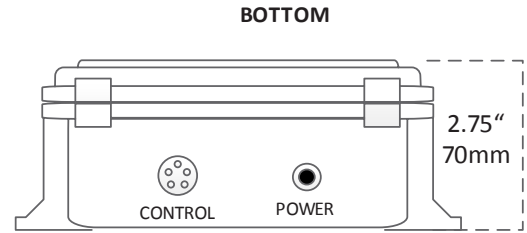
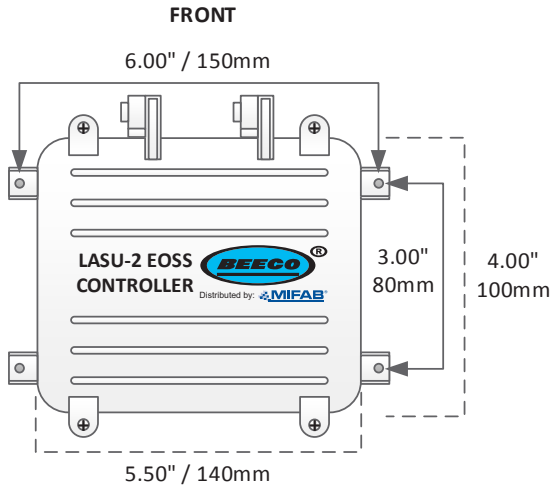
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- C1 - LASU-2 Controller
- C2 - Flow Sensor Assembly
- C3 - Power Adaptor
- E - 2-Way Solenoid w/ M.O. (NC)
- F - Strainer (removable, self-flushing)
- G - Pressure Gauge (3-1/2" Face)
- P - Pressure Switch



Full Port: 8"-12"

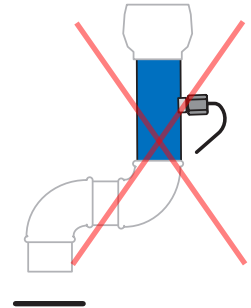
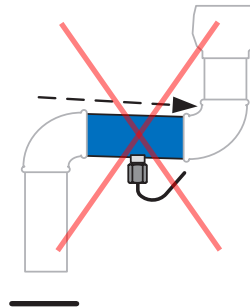
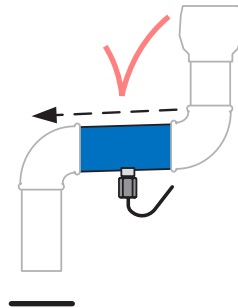
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- B3 - Manual Opening/Reset Valve (NC)
- C1 - LASU-2 Controller
- C2 - Flow Sensor Assembly
- C3 - Power Adaptor
- E - 3-Way Solenoid w/ M.O. (NO)
- F - Strainer (removable, self-flushing)
- G - Pressure Gauge (3-1/2" Face)
- P - Pressure Switch
- R - 2-Way Relay



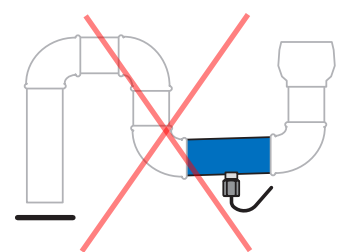
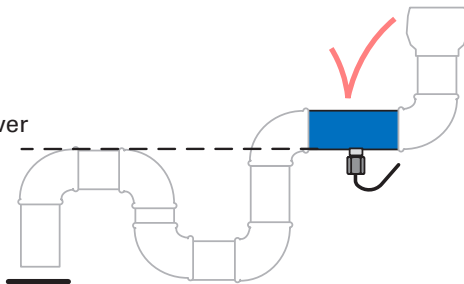


Flow Sensor Installation

Horizontal Discharge piping with 3-4 degree slope away from Flow Sensor Installation Fitting

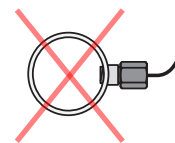
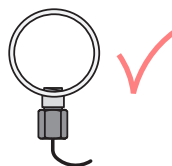


Discharge piping lower than Flow Sensor Installation Fitting



Flow Sensor Position

Flow Sensor Installation Fitting installed with Flow Sensor on **BOTTOM** of discharge piping

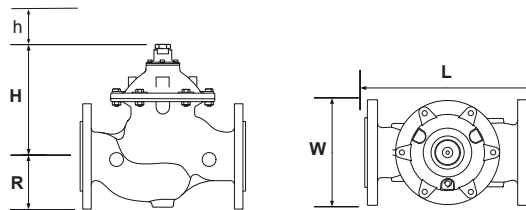


Materials

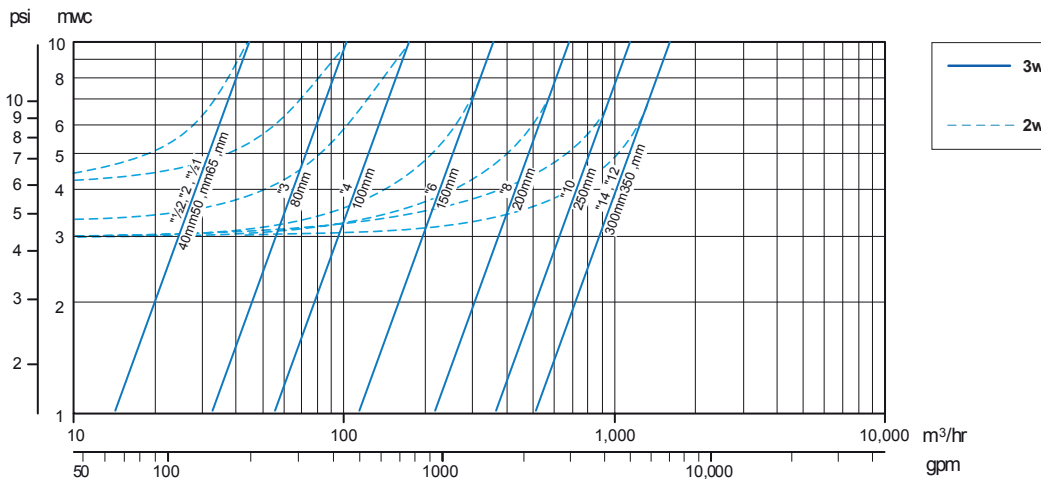
Body & Cover	Ductile Iron ASTM A-536	Control Pilot(s)	Bronze / Brass
Coating	Fusion Bonded Epoxy (RAL 5010)	Tubing	Fiber Reinforced Nylon SAE J844 (std)
Seat & Throttling Guide	304 Stainless Steel		Copper (optional)
Elastomers	Nylon Reinforced EPDM	Fittings	Brass
Diaphragm Washers	304 Stainless Steel	Strainer	Self Cleaning (1.50" – 2.50") Removable Self-Cleaning (3" - 10")
Stem, Spring & Nut	Stainless Steel	Ball Valves	Standard (all sizes)
External Fasteners	Stainless Steel		

Dimensions & Weights

Valve Size	40 (1½")		50 (2")		65 (2½")		80 (3")		100 (4")		150 (6")		200 (8")		250 (10")		300 (12")	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
L	230	9 ¹ / ₁₆	230	9 ¹ / ₁₆	290	11 ³ / ₈	310	12 ³ / ₁₆	350	13 ³ / ₄	480	18 ⁷ / ₈	600	23 ⁵ / ₈	730	28 ³ / ₄	850	33 ⁷ / ₁₆
L (ANSI#300)	230	9 ¹ / ₁₆	235	2 ³ / ₁₆	292	12 ¹ / ₂	345	13 ¹ / ₂	400	15 ¹ / ₁₆	525	20 ⁵ / ₈	605	23 ¹³ / ₁₆	790	31 ¹ / ₈	910	35 ¹³ / ₁₆
H	185	7 ⁵ / ₁₆	185	7 ⁵ / ₁₆	185	7 ⁵ / ₁₆	230	9 ¹ / ₁₆	240	9 ⁷ / ₁₆	330	13	390	15 ³ / ₈	520	20 ¹ / ₂	635	25
h**	140	5 ¹ / ₂	140	5 ¹ / ₂	140	5 ¹ / ₂	170	6 ¹ / ₁₆	180	7	230	9	300	11 ¹³ / ₁₆	390	15 ¹ / ₄	450	17 ¹¹ / ₁₆
W	153	6	170	6 ¹ / ₁₆	185	7 ⁹ / ₁₆	200	7 ⁷ / ₈	235	9 ¹ / ₄	330	13	415	16 ⁵ / ₁₆	525	20 ¹¹ / ₁₆	610	24
R	82.5	3 ¹ / ₄	82.5	3 ¹ / ₄	92.5	3 ⁵ / ₈	100	3 ¹⁵ / ₁₆	110	4 ⁵ / ₁₆	142.5	5 ⁵ / ₈	172.5	6 ³ / ₄	205	8 ¹ / ₁₆	230	9
Weight Kg/lbs*	12 / 26		12 / 26		13 / 29		22 / 49		37 / 82		80 / 176		157 / 346		245 / 540		405 / 893	
Vol.control chamber lit/gal	0.1 / 0.02		0.1 / 0.02		0.1 / 0.02		0.3 / 0.08		0.7 / 0.2		1.5 / 0.4		4.3 / 1.1		9.7 / 2.6		18.6 / 4.9	



Headloss



Specification (Full Port: 1.50"-2.50")

The Electric Override Safety Shut-Off Valve shall be a pilot controlled diaphragm valve installed upstream of the Reduced Pressure Zone Backflow Preventer. It shall be designed to automatically close, isolating incoming water supply pressure, if excessive RPZ Backflow Relief Valve discharge is sensed to prevent catastrophic flooding damage. When closed the valve shall remotely indicate closure by a pressure switch and locally by a large face pressure gauge installed in the pilot control system. The valve shall remain closed until manually reset by qualified maintenance personnel.

The valve Body and Cover shall be Ductile Iron ASTM A536, (Globe, Angle) Pattern, internally and externally epoxy lined and coated with (Threaded, ANSI 150 Flanged, Grooved) end connections. All control port connections shall be stainless steel to prevent corrosion and blockage. Direction of flow shall be clearly indicated by a large highly visible flow arrow cast into the Valve Body. All external fasteners shall be stainless steel.

The Diaphragm shall be constructed of nylon reinforced EPDM, contour formed and molded to evenly contact the support surfaces of the Body and Cover without buckling or wrinkling when installed. The Disc and Diaphragm Assembly shall contain an EPDM Seal Disc, and must be separately top and bottom guided to avoid deflection and assure positive disc-to-seat contact. All main valve internals and throttling components shall be Stainless Steel.

The Pilot Control System shall contain a Flo-Clean Strainer, 2-Way Solenoid with Manual Operator and prewired Coil, color-coded Manual Opening and Closing Valves, Pressure Switch to remotely indicate valve closure and diaphragm integrity and a pre-installed liquid filled pressure gauge for local closure indication. Control Tubing shall be Type B Nylon Core Fiber Reinforced and Jacketed conforming with SAEJ844 / DOT FMVSS 49CFR 571.106 with Brass Fittings. The Electric Valve Controller, Flow Sensor and Installation Fitting shall be provided with the Valve Assembly.

The Flow Sensor shall be an Optical type sensor. It must be pre-installed in an epoxy coated Installation Fitting that is easily affixed to the RPZ discharge piping. The Optical Flow Sensor and Solenoid Coil shall be provided with a minimum of (10) feet of installation cable terminated with watertight quick-connect fittings to facilitate installation.

The Electric Valve Controller shall be housed in an IP-65 gasket sealed enclosure and include a 0-180 second adjustable time delay, integral battery back-up and manual-electric Valve Open, Close and Reset controls. The integral battery back-up shall automatically assume electronic control mode if the main AC power fails. When main AC power is restored, the battery back-up resumes standby mode. The battery back-up shall provide 48 hours of continuous standby service and have a life expectancy of (3) years minimum. Controller user interface shall include color-coded LED Status and Alert indicators for System integrity, Valve Closed, and Low Battery warning, and an external watertight quick-connect fitting for Solenoid and Flow Sensor connections. A standard plug-in AC Power Supply Adaptor shall be included with the Controller. The Controller shall be capable of remote mounting up to (10) feet from the Valve without field cutting or splicing of control wiring.

The Main Valve with Pilot Control System installed shall be factory hydrostatically tested to 160% of the maximum working pressure and functionally flow tested to assure proper valve performance prior to shipment. The valve shall be certified Lead Free.

The valve will be sized as shown on the plans and associated valve schedules, and shall be BEECO Model ACV-HF-EOSS Electric Override Safety Shut-Off Valve.

Other BEECO Safety Valves

PR	Pressure Reducing Control Valve
PR-Q	Pressure Reducing Control Valve / Quick Closing Feature
QR	Quick Relief Valve
HPSO	High Pressure Safety Shut-Off Valve
FE	Excess Flow Safety Shut-Off Valve

Specification (Full Port: 3"-6")

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The Pilot Control System shall contain a Flo-Clean Strainer which can be removed for cleaning and inspection without disassembling the Pilot Control System, 2-Way Solenoid with Manual Operator and prewired Coil, color-coded Manual Opening and Closing Valves, Pressure Switch to remotely indicate valve closure and diaphragm integrity and a pre-installed liquid filled pressure gauge for local closure indication. Control Tubing shall be Type B Nylon Core Fiber Reinforced and Jacketed conforming with SAEJ844 / DOT FMVSS 49CFR 571.106 with Brass Fittings. The Electric Valve Controller, Flow Sensor and Installation Fitting shall be provided with the Valve Assembly.

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Innovation
Innovation

Expertise
Expertise

Reliability
Reliability

Hundreds of companies in the industrial, commercial mechanical, municipal and fire protection sectors around the world have chosen our innovative and field-proven technologies. Since our establishment we strive to lead the valves market with continued innovation, uncompromising excellence and firm commitment to our customers, consulting and supporting them through all stages of a project and overcoming challenges in R&D, design, implementation, and maintenance.



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BEECO, Inc. 1321 West 119th Street
Chicago Illinois 60643-5109, USA

Toll Free: 1-800-465-2736, Fax: 1-773-341-3049

Canada Toll Free: 1-800-387-3880

www.beecobackflow.com • sales@mifab.com