

Engineering Specification

Job Name _____
 Job Location _____
 Engineer _____
 Approval _____

Contractor _____
 Approval _____
 Contractor's P.O. No. _____
 Representative _____

Series 825YA Angle Pattern Reduced Pressure Zone Assemblies

Size: 3/4" - 2"

The FEBCO Series 825YA Reduced Pressure Zone Assemblies are used to protect against toxic fluids in water services to industrial plants, hospitals, morgues, mortuaries, and chemical plants. They are also used in irrigation systems, boiler feeds, water lines and other installations requiring the highest level of mechanical protection. End connection – NPT ANSI/ASME B1.20.1

Features

- Installation versatility simplifies new and retrofit installations
- Eliminates pipe elbows, nipples and unions from the installation
- Reduces installation time, labor costs and materials
- Compact design simplifies retrofit
- Integral flanged union connections allow assembly to be removed from the line for freeze protection or maintenance without the danger of spool substitution
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California
- Modular relief valve and check valve internal components for ease of maintenance
- Smaller, less costly protective enclosures can be used to provide freeze and vandalism protection due to compact size of valve
- Field tested design for reliability and performance
- Replaceable seat rings for longer valve life
- Low head loss for optimum performance

Operation

In a flow condition, the check valves are open with the pressure between the checks, called the zone, being maintained at least 5psi (34 kPa) lower than the inlet pressure. The relief valve is held closed by the pressure differential.

Should abnormal conditions arise under no flow or reversal of flow, the differential relief valve will open and discharge to maintain the zone at least 2psi (14 kPa) lower than the supply.

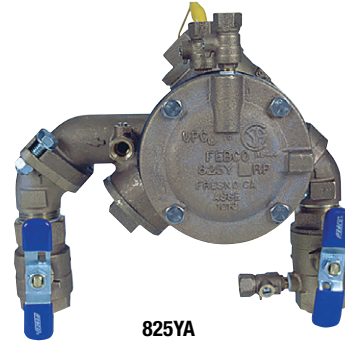
When normal flow resumes, the zone's differential pressure will return and the relief valve will close.

Approvals – Standards

- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
- ANSI/AWWA C511 Conformance



FEBCO product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact FEBCO Technical Service. FEBCO reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on FEBCO products previously or subsequently sold.



825YA

Specifications

The reduced pressure zone assemblies shall consist of two independently operating, spring loaded, "Y" pattern check valves and one hydraulically dependent differential relief valve. Should the differential between the upstream and the zone of the unit drop to 2psi (14 kPa), the differential relief valve shall open and maintain the proper differential.

Mainline valve body and caps including relief valve body and cover shall be bronze. Check valve moving members shall be center stem guided. Relief valve shall have a removable seat ring. Check valve and relief valve components shall be constructed so they may be serviced without removing the valve body from the line. All seat discs shall be reversible.

The assembly shall include flanged unions located between the mainline valve body and the ball valve shutoffs to allow for field removal for freeze protection or maintenance without danger of spool replacement.

The assembly shall be rated to 175psi (12.1 bar) water working pressure and water temperature range from 32°F to 140°F (0°C – 60°C). The assembly shall meet the requirements of the USC Foundation of Cross-connection Control and Hydraulic Research, Eighth Edition.

The assembly shall be a FEBCO Series 825YA or prior approved equal.

Materials

Main valve body:	Bronze
Relief valve body:	Bronze
Elastomers:	Nitrile Seat Discs
Diaphragms:	Nitrile, fabric reinforced
Springs:	Stainless Steel

Pressure – Temperature

Maximum working pressure:	175psi (12.1 bar)
Hydrostatic test pressure:	350psi (24.1 bar)
Temperature range:	32°F to 140°F (0°C to 60°C)

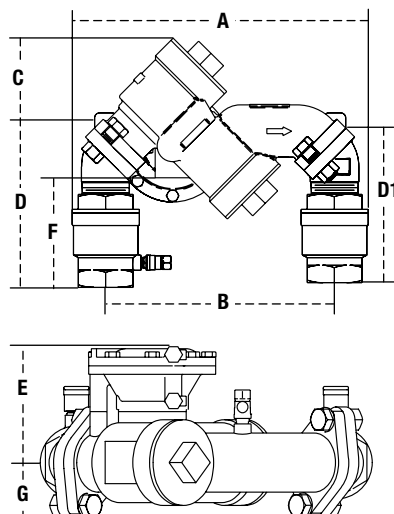


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Series 825YA / Vertical Up Flow In - Vertical Down Flow Out

Legend:

- A Overall lay length, outside dimension
- B Centerline of inlet shutoff to centerline of outlet shutoff
- C Centerline of assembly to top
- D End of inlet shutoff to centerline of assembly
- D1 Centerline of assembly to end of outlet shutoff
- E Centerline of assembly to outside of relief valve
- F Bottom of relief port to end of inlet shutoff
- G Centerline of assembly to outside of flange



Dimensions – Weights

Size: 3/4" - 2"

SIZE		DIMENSIONS														WEIGHT		
	A		B		C		D		D1		E		F		G*			
<i>in.</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>lbs.</i>	<i>kgs</i>
¾	10	254	8½	216	3¼	83	4⅞	124	4⅝	118	4⅞	105	3½	89	1⅝	41	15.0	6.8
1	10¼	260	8½	216	3¼	83	5¼	133	5	127	4⅞	105	3⅞	98	1⅞	41	16.5	7.5
1½	14¼	362	11½	292	4½	114	6⅞	175	6½	165	5	127	4⅞	118	2⅞	67	38.0	17.2
2	14⅞	378	11½	292	4½	114	7½	191	7½	181	5	127	5¼	133	2⅞	67	41.0	18.6

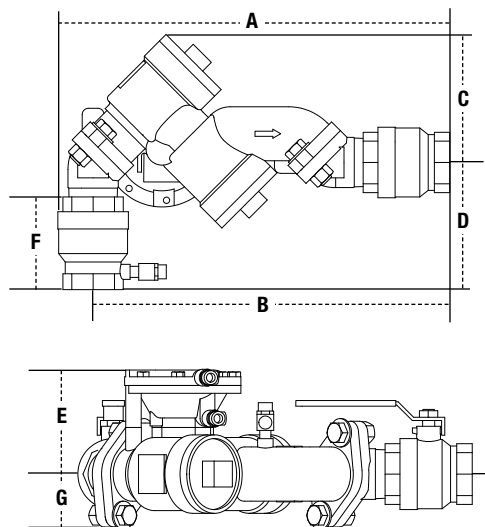
*G Dimension are based on standard vertical flow in / vertical flow out configuration.

Note: All dimensions are approximate. Allowances must be made for normal manufacturing tolerances.

Series 825YA / Vertical Up Flow In - Horizontal Flow Out

Legend:

- A Overall lay length, outside dimension
- B Centerline of inlet shutoff to centerline of outlet shutoff
- C Centerline of assembly to top
- D End of inlet shutoff to centerline of assembly
- E Centerline of assembly to outside of relief valve
- F Bottom of relief port to end of inlet shutoff
- G Centerline of assembly to outside of flange



Dimensions – Weights

Size: 3/4" - 2"

SIZE		DIMENSIONS														WEIGHT		
	A		B		C		D		D1		E		F		G*			
<i>in.</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>lbs.</i>	<i>kgs</i>
¾	12⅝	321	11⅞	302	4½	114	3⅝	92	n/a	n/a	4⅞	105	3½	89	1⅝	41	15.0	6.8
1	13⅓	339	12¼	311	4½	114	4	102	n/a	n/a	4⅞	105	3⅞	98	1⅝	41	16.5	7.5
1½	18	457	16⅝	422	6	152	5¼	133	n/a	n/a	5	127	4⅝	118	2⅝	67	38.0	17.2
2	19	483	17¼	438	6	152	5⅞	149	n/a	n/a	5	127	5¼	133	2⅝	67	41.0	18.6

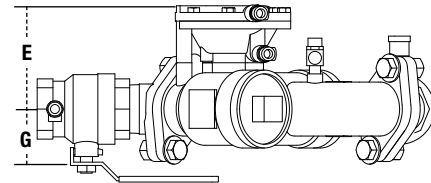
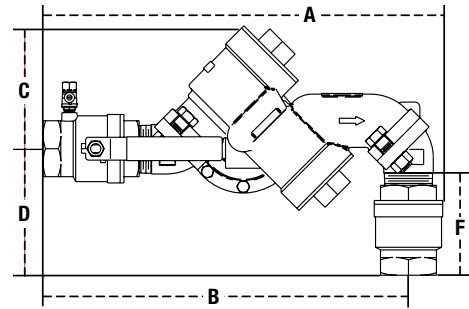
*G Dimension are based on standard vertical flow in / vertical flow out configuration.

Note: All dimensions are approximate. Allowances must be made for normal manufacturing tolerances.

Series 825YA / Horizontal Flow In - Vertical Down Flow Out

Legend:

- A Overall lay length, outside dimension
- B Centerline of inlet shutoff to centerline of outlet shutoff
- C Centerline of assembly to top
- D End of inlet shutoff to centerline of assembly
- E Centerline of assembly to outside of relief valve
- F Bottom of relief port to end of inlet shutoff
- G Centerline of assembly to outside of flange



Dimensions – Weights

Size: 3/4" - 2"

SIZE		DIMENSIONS																WEIGHT	
	A		B		C		D		D1		E		F		G*				
<i>in.</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>lbs.</i>	<i>kgs</i>	
¾	12⅞	327	12⅛	308	4½	114	3⅝	92	n/a	n/a	4⅞	105	3½	89	1⅝	41	15.0	6.8	
1	13⅜	340	12½	318	4½	114	4	102	n/a	n/a	4⅞	105	3⅞	98	1⅝	41	16.5	7.5	
1½	18⅝	467	17	432	6	152	5¼	133	n/a	n/a	5	127	4⅞	118	2⅝	67	38.0	17.2	
2	19⅝	492	17⅞	448	6	152	5⅞	149	n/a	n/a	5	127	5¼	133	2⅝	67	41.0	18.6	

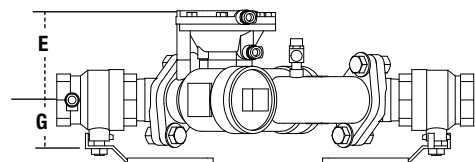
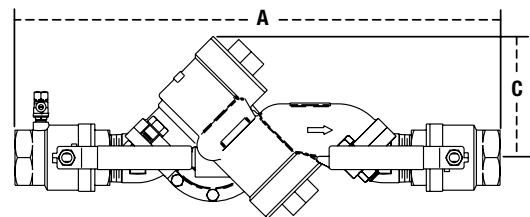
*G Dimension are based on standard vertical flow in / vertical flow out configuration.

Note: All dimensions are approximate. Allowances must be made for normal manufacturing tolerances.

Series 825YA / Horizontal

Legend:

- A Overall lay length, outside dimension
- C Centerline of assembly to top
- E Centerline of assembly to outside of relief valve
- G Centerline of assembly to outside of flange



Dimensions – Weights

Size: 3/4" - 2"

SIZE		DIMENSIONS														WEIGHT		
	A		B		C		D		D1		E		F		G*			
<i>in.</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>lbs.</i>	<i>kgs</i>
¾	15½	394	n/a	n/a	4½	114	n/a	n/a	n/a	n/a	4⅛	105	n/a	n/a	1⅝	41	15.0	6.8
1	16¼	413	n/a	n/a	4½	114	n/a	n/a	n/a	n/a	4⅛	105	n/a	n/a	1⅝	41	16.5	7.5
1½	22	559	n/a	n/a	6	152	n/a	n/a	n/a	n/a	5	127	n/a	n/a	2⅝	67	38.0	17.2
2	23⅜	594	n/a	n/a	6	152	n/a	n/a	n/a	n/a	5	127	n/a	n/a	2⅝	67	41.0	18.6

*G Dimension are based on standard vertical flow in / vertical flow out configuration.

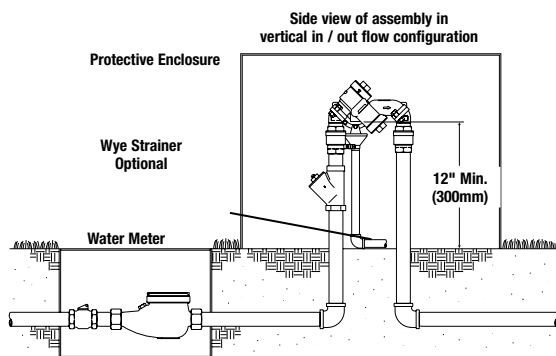
Note: All dimensions are approximate. Allowances must be made for normal manufacturing tolerances.

Typical Installation

The FEBCO Series 825YA provides versatility in installation because it can be installed in any of four configurations. The most typical configuration is shown in the vertical up flow in/vertical down flow out diagram. This provides for an extremely short lay length which is advantageous in areas of limited space for installation within a protected enclosure. Cost savings can be realized due to the reduction in materials needed such as nipples, elbows, unions, and size of the enclosure. With the integral flanged union connections, the assembly can be removed from the line for freeze protection without a spool substitution. It is not recommended that any backflow prevention assembly be removed from the line for maintenance unless assurance can be made that a spool cross-connection cannot be substituted. The flanged union connection mounted at 45 degrees will provide this assurance. The FEBCO Series 825YA is shipped in the configuration shown in the vertical up flow/vertical down flow out diagram, but can easily be modified to the three other configurations (shown on inside of this specification sheet) simply by removing the bolts to rotate the end adapters.

With any configuration, material and labor savings can be achieved. The FEBCO Series 825YA is the only Reduced Pressure Zone Assembly which provides these options in a compact, integral assembly. All internal components are interchangeable with the FEBCO Series 825Y providing the same ease of maintenance and reliable operation.

Reduced Pressure Zone Assemblies should be installed with a minimum clearance of 12" (300mm) between port and floor or grade. They must be installed where discharge will not be objectionable and can be positively drained away. They should be installed where easily accessible for testing and maintenance and must be protected from freezing. Thermal water expansion and/or water hammer downstream of the backflow preventer can cause excessive pressure. Excessive pressure situations should be eliminated to avoid possible damage to the system and device.



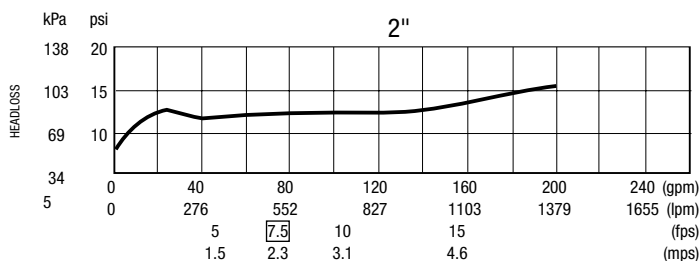
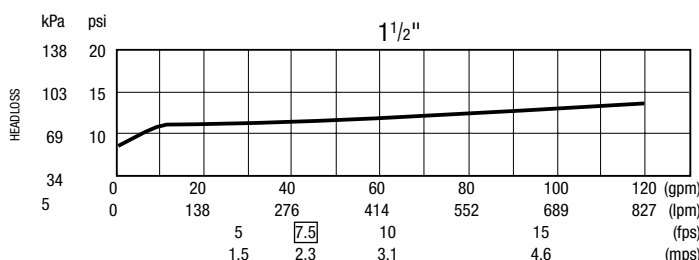
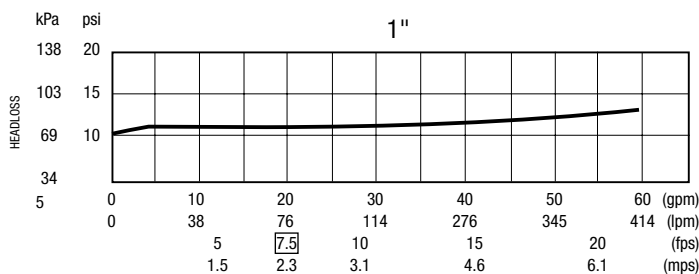
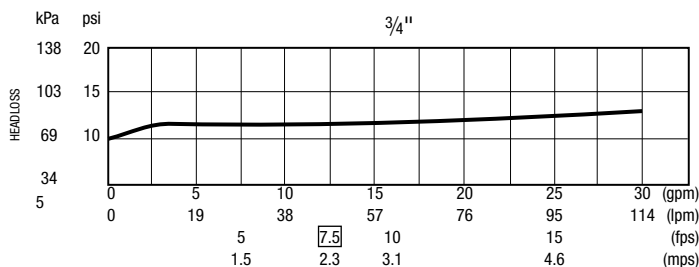
NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.



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Capacity



WARNING

It is illegal to use this product in any plumbing system providing water for human consumption, such as drinking or dishwashing, in the United States. Before installing standard material product, consult your local water authority, building and plumbing codes.