

# Series 825YA

## Angle Pattern Reduced Pressure Zone Assemblies

Size: 3/4" - 2" (20mm - 50mm)

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

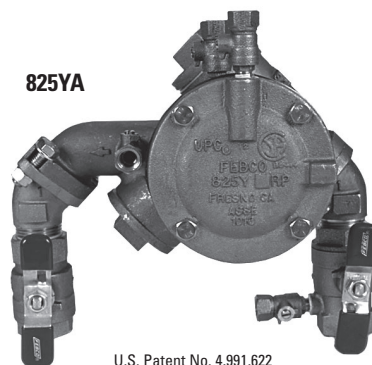
In a flow condition, the check valves are open with the pressure between the checks, called the zone, being maintained at least 5psi (34 kPa) lower than the inlet pressure. The relief valve is held closed by the pressure differential.

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



U.S. Patent No. 4,991,622

### 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)

Job Name \_\_\_\_\_

Contractor \_\_\_\_\_

Job Location \_\_\_\_\_

Approval \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor's P.O. No. \_\_\_\_\_

Approval \_\_\_\_\_

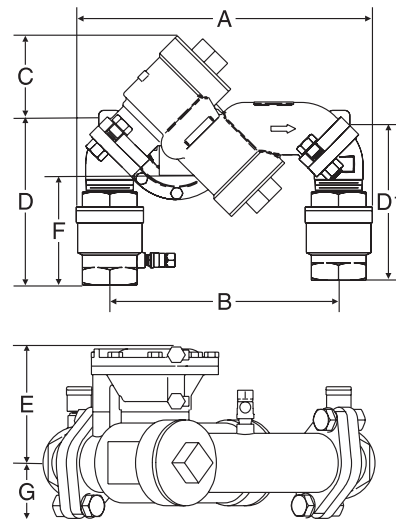
Representative \_\_\_\_\_

FEBCO product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact FEBCO. 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.

## 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" (20 - 50mm)

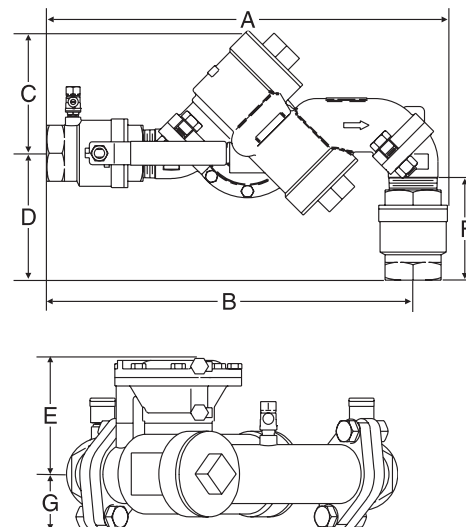
SIZE (DN)		DIMENSIONS														WEIGHT			
		A		B		C		D		D1		E		F		G*		lbs.	kgs
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
3/4	20	10	254	8 1/2	216	3 1/4	83	4 7/8	124	4 5/8	118	4 1/8	105	3 1/2	89	1 5/8	41	15.0	6.8
1	25	10 1/4	260	8 1/2	216	3 1/4	83	5 1/4	133	5	127	4 1/8	105	3 7/8	98	1 5/8	41	16.5	7.5
1 1/2	40	14 1/4	362	11 1/2	292	4 1/2	114	6 7/8	175	6 1/2	165	5	127	4 5/8	118	2 5/8	67	38.0	17.2
2	50	14 7/8	378	11 1/2	292	4 1/2	114	7 1/2	191	7 1/2	181	5	127	5 1/4	133	2 5/8	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" (20 - 50mm)

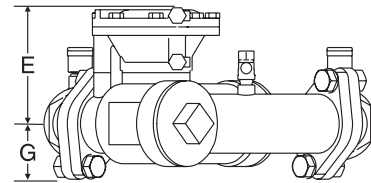
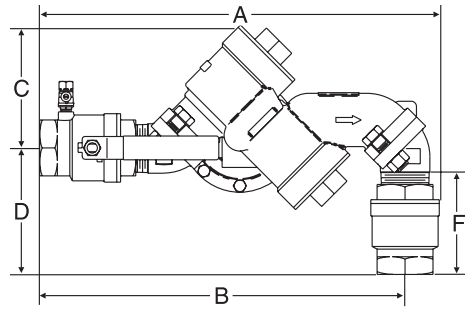
SIZE (DN)		DIMENSIONS														WEIGHT			
		A		B		C		D		D1		E		F		G*		lbs.	kgs
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
3/4	20	12 5/8	321	11 7/8	302	4 1/2	114	3 5/8	92	n/a	n/a	4 1/8	105	3 1/2	89	1 5/8	41	15.0	6.8
1	25	13 1/2	339	12 1/4	311	4 1/2	114	4	102	n/a	n/a	4 1/8	105	3 7/8	98	1 5/8	41	16.5	7.5
1 1/2	40	18	457	16 5/8	422	6	152	5 1/4	133	n/a	n/a	5	127	4 5/8	118	2 5/8	67	38.0	17.2
2	50	19	483	17 1/4	438	6	152	5 7/8	149	n/a	n/a	5	127	5 1/4	133	2 5/8	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 assemble 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" (20 - 50mm)

SIZE (DN)		DIMENSIONS																WEIGHT	
in.	mm	A		B		C		D		D1		E		F		G*		lbs.	kg
3/4	20	12 7/8	327	12 1/8	308	4 1/2	114	3 5/8	92	n/a	n/a	4 1/8	105	3 1/2	89	1 5/8	41	15.0	6.8
1	25	13 3/8	340	12 1/2	318	4 1/2	114	4	102	n/a	n/a	4 1/8	105	3 7/8	98	1 5/8	41	16.5	7.5
1 1/2	40	18 3/8	467	17	432	6	152	5 1/4	133	n/a	n/a	5	127	4 5/8	118	2 5/8	67	38.0	17.2
2	50	19 3/8	492	17 3/8	448	6	152	5 7/8	149	n/a	n/a	5	127	5 1/4	133	2 5/8	67	41.0	18.6

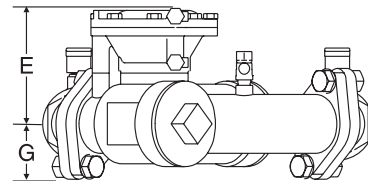
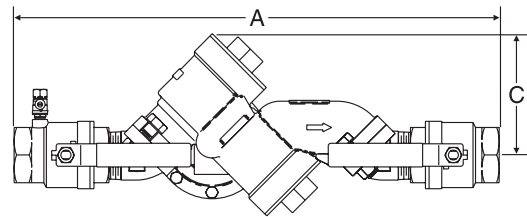
\*G Dimension are based on standard vertical flow in / vertical flow out configuration.

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 assemble 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" (20 - 50mm)

SIZE (DN)		DIMENSIONS																WEIGHT	
in.	mm	A		B		C		D		D1		E		F		G*		lbs.	kg
3/4	20	15 1/2	394	n/a	n/a	4 1/2	114	n/a	n/a	n/a	n/a	4 1/8	105	n/a	n/a	1 5/8	41	15.0	6.8
1	25	16 1/4	413	n/a	n/a	4 1/2	114	n/a	n/a	n/a	n/a	4 1/8	105	n/a	n/a	1 5/8	41	16.5	7.5
1 1/2	40	22	559	n/a	n/a	6	152	n/a	n/a	n/a	n/a	5	127	n/a	n/a	2 5/8	67	38.0	17.2
2	50	23 3/8	594	n/a	n/a	6	152	n/a	n/a	n/a	n/a	5	127	n/a	n/a	2 5/8	67	41.0	18.6

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

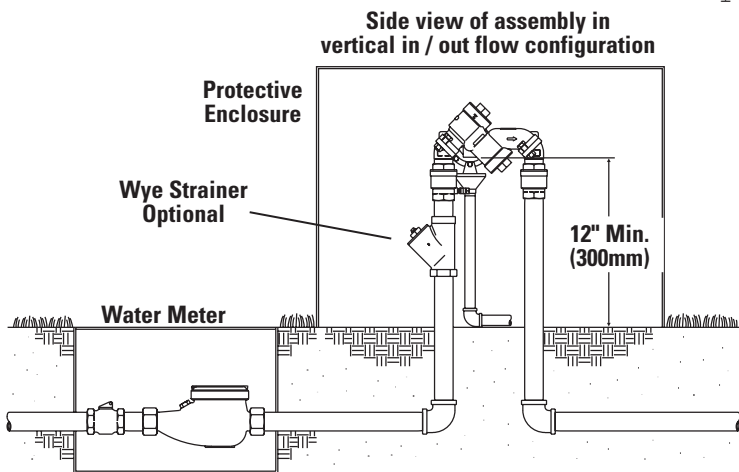
Note: All dimensions are approximate. Allowances must be made for normal manufacturing tolerances.

## Typical Installation

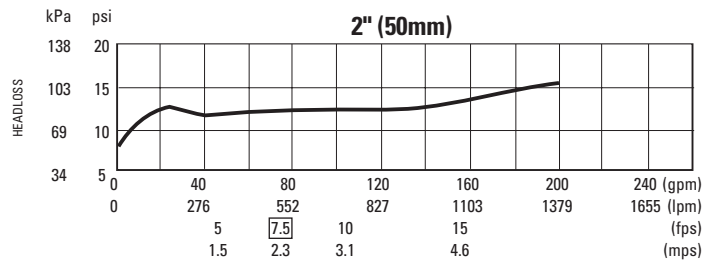
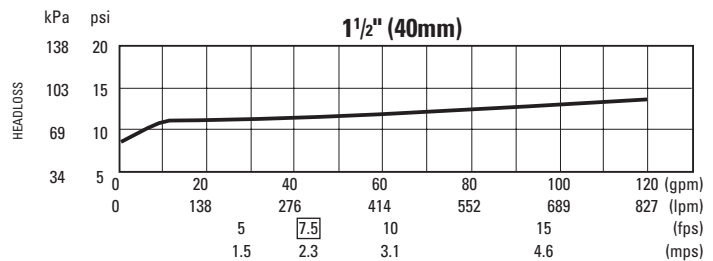
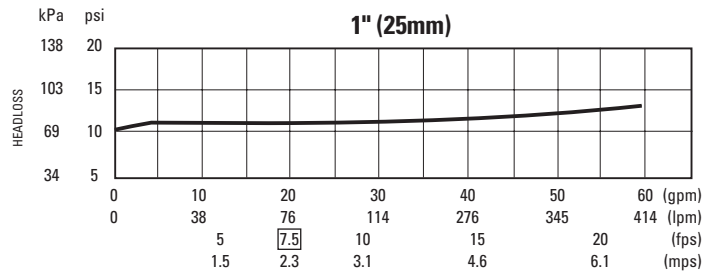
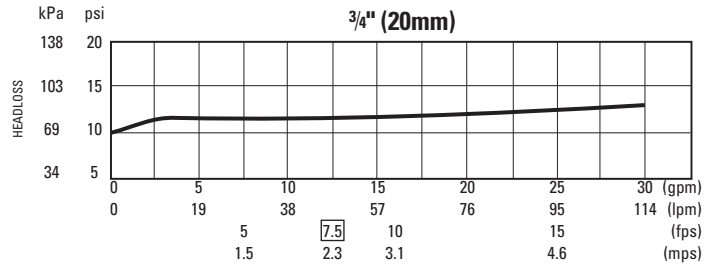
The FEBCO Series 825YA provides versatility in installation because it can be installed in any of four configurations. The most typical configuration is shown in the vertical up flow/vertical down flow out diagram. This provides for an extremely short lay length which is advantageous in areas of limited 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.



## Capacity



A Division of Watts Water Technologies, Inc.

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