FEBCO is an ISO 9001 Certified manufacturer of high quality fluid control products. For over 80 years FEBCO has been committed to manufacturing excellence and innovative design and dedicated to the improvement of our industry.

This catalog is presented to assist our customers, design engineers, municipal officials, contractors and installers with the dimensional and technical data needed to use and specify FEBCO. Due to our commitment to product refinement and improvement, specific details of our products may change. We make every effort to ensure that our dimensions and technical data are as accurate as possible. Please contact your local FEBCO representative for our latest product information. A list of representatives as well as helpful, in-depth information about our products can be found at our web site: www.FEBCOonline.com

We thank you, our customers, for your continued support and for making our success possible. The employees and representatives of FEBCO look forward to serving you.

ISO 9001 Certified
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Note: 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.
Why Work with FEBCO?

Safeguarding the drinking water supply is critical to protecting human health. For 50+ years FEBCO has designed and manufactured innovative and patented assemblies for this critical purpose. FEBCO’s backflow prevention assemblies, which prevent the backward flow of contaminated water into the potable water supply, are reliable and easily serviced. What’s more, they offer one of the lowest total installed costs in the industry.

From FEBCO’s earliest days, experienced engineers have combined expert knowledge, technological advances, industry innovation, and broad manufacturing experience to design and manufacture one of the widest lines of top-quality backflow prevention assemblies available.

FEBCO works closely with municipalities, engineers, architects, and contractors to solve their unique backflow prevention issues, and provides educational materials to the general public for building awareness around the importance of safeguarding potable water.

Why work with FEBCO? Simple. Superior designs, innovative technology, state-of-the-art manufacturing facilities, and a commitment to keeping all drinking water clean and safe with reliable and trusted backflow prevention assemblies.

Lead Free Transition

With the changeover to lead free in the United States that became effective January 4, 2014, lead free backflow prevention devices are required in certain applications and/or settings. The FEBCO backflow preventer line includes top-quality, fully-tested Lead Free* versions of our standard backflow products.

**Standard Material Products (not Lead Free*) CONTAIN MORE THAN 0.25% LEAD.**

Effective January 4, 2014, 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.

Industry Terms

**Backpressure:** Pressure, higher than the supply pressure, caused by a pump, elevated tank, boiler, or other means that can cause backflow.

**Backsiphonage:** Backflow caused by negative or reduced pressure in the supply piping.

**Cross-connection:** A connection or potential connection between any part of the potable water system and another environment where undesirable substances could enter the potable water system. Contaminated or undesirable substances can include gases, liquids, or solids, such as chemicals, waste products, steam, water from other sources (potable or non-potable), or any other matter that can change the color of or add odor to the water. Bypass arrangements, jumper connections, removable sections, swivel or changeover assemblies, or any other temporary or permanent connecting arrangement where backflow can occur are considered cross-connections.

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.
## Degrees of Health Hazard

**Health hazard:** A cross-connection or potential cross-connection where any substance that could cause death, illness, or spread disease, or have a high probability of causing such effects, could be introduced into the potable water supply.

**Non-health hazard:** A cross-connection or potential cross-connection where any substance introduced into the potable water supply would generally not be considered a health hazard, but would constitute a nuisance or be aesthetically objectionable.

### Application

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**WARNING**

You are required to consult the local building and plumbing codes prior to installation. If the information in this manual is not consistent with local building or plumbing codes, the local codes should be followed. Inquire with governing authorities for additional local requirements.
Features
- UL listed and FM approved for horizontal or vertical installation.
- Spring-loaded swing check for reliability and minimum head loss
- 250psi (17.2 bar) working pressure for superior strength
- DuraCast ductile iron body for superior strength and lighter weight
- Fully rubber encapsulated ductile iron disc for strength
- Fusion epoxy coated, inside and out, for corrosion protection
- Simple service procedures
- Cast lifting ring for ease of installation
- 4", 6", 8", and 10" Sizes
- ¾" standard bypass; optional sizes 1", 1½", 2"
- End Connections – Flanged ANSI B16.42, Class 150

Dimensions — Weights

The FEBCO Series 800 is used in the protection of water supplies from unauthorized usage. This requires installation of the proper valving to measure water loss. The Series 800 Detector check is not a backflow prevention assembly and should not be used as such.

Pressure – Temperature
Max. Working Pressure: 250psi (17.2 bar)
Hydrostatic Test Pressure: 500psi (34.5 bar)
Temperature range: 32°F to 110°F (0°C to 60°C)

Materials
Main valve body: Ductile iron Grade 65-45-12, Fusion Epoxy coated, Internal and External, AWWA C550-90
Trim: Bronze
Elastomers: Nitrile
Spring: Stainless Steel
Bypass: Copper alloy tube and fittings
Bypass meter: Totalizing type GPM/CFM
Size: ¾" x ¾"

Approvals
4", 6", 8" and 10"

Dimensions shown are nominal.
Series 406

Detector Check for Automatic Fire Sprinkler Systems
Size: 2" (50mm)

Features
- Meter detects leakage and/or theft of water from Automatic Fire Sprinkler Systems
- Can be installed horizontally or vertically (up or down)
- Center-stem-guided, spring-loaded check for more positive seating
- Replaceable bronze seat ring
- Reversible seat disc for ease of service
- Bronze body and cover
- End Detail – 2 Bolt Meter Flange

The FEBCO Series 406 Detector Check is designed for automatic fire sprinkler systems (non-potable applications).

Materials
Main Valve Body: Bronze
Seat Ring: Bronze
Disc Holder: Delrin
Spring: Stainless Steel
By-pass Meter: Bronze Totalizing Water Meter
Optional (gpm or cfm)

Operation
In a non-flowing condition, the mainline check and by-pass check are closed and the meter is stopped. When water begins to flow, the bypass check opens and the meter begins to register. When the pressure drop across the valve approximates 1.5psi (10.3 kPa), the mainline check opens and allows full flow of water.

The bypass meter and check remain operating and open at all flow rates.

Pressure – Temperature
Sizes:
Mainline: 2" (50mm)
Bypass: ¾" (20mm) IPS
Maximum Working Pressure: 175psi (12.1 bar)
Hydrostatic Test Pressure: 350psi (24.1 bar)
Temperature Range: 32°F to 110°F (0°C - 43°C)

Dimensions

NOTICE
Inquire with governing authorities for local installation requirements.

For additional information, reference literature ES-F-406. Flow Chart on p. 60.
Series 850/LF850

Double Check Valve Assemblies
Size: ½” – 2” (15 – 50mm)

The FEBCO Series 850 Double Check Valve Assemblies are designed for non-health hazard applications. End Connections – NPT ANSI/ASME B1.20.1. They are designed to protect drinking water supplies from dangerous cross connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing.

Materials
Valve Body: Bronze
Elastomers: Silicone
Springs: Stainless Steel

Models
• Wye - Strainer

Pressure – Temperature
Max. Working Pressure: 175psi (12.1 bar)
Hydrostatic Test Press: 350psi (24.1 bar)
Temperature Range: 32°F to 140°F (0°C to 60°C)

Approvals – Standards
• ANSI/AWWA Conformance (C510-92)
• Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Materials
Valve Body: Lead Free* cast copper silicon alloy
Elastomers: Silicone
Springs: Stainless Steel

Models
• LF850 - Standard Assembly with Ball Valves

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.
Dimensions — Weights

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<th>SIZE (DN)</th>
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Dimensions are nominal.

**NOTICE**

Inquire with governing authorities for local installation requirements.
Double Check Valve Assemblies
Size: 2½” – 10” (65 – 250mm)

**Features**
- Inline Serviceable Assembly
- No Special Tools Required for Servicing
- Captured Modular Spring Assembly
- Reversible & Replaceable Discs
- Field Replaceable Seats
- Ductile Iron Valve Body Design
- Stainless Steel Check Components
- Winterization feature with disc retainers and valve body drain ports
- Clapper Check Assembly
- Commonality between 1st & 2nd Check Components
- Captured O-ring Design

**Pressure-Temperature**
Max. Working Pressure: 175psi (12.1 bar)
Min. Working Pressure: 10psi (0.7 bar)
Hydrostatic Test Pressure: 350psi (24.1 bar)
Hydrostatic Safety Pressure: 700psi (48.3 bar)
Temperature Range: 33°F - 140°F (0.5°C - 60°C) Continuous

**LEAD FREE**
The FEBCO Master Series® 850 Double Check Valve Assemblies are designed for non-health hazard applications. End Connections – Flanged ANSI B16.1 Class 125. The FEBCO Master Series LF850 Double Check Assembly is specifically designed to protect against possible backpressure and backsiphonage conditions for non-health hazard (i.e., pollutant) application in accordance with Local Governing Water Utility Code. This Backflow Assembly is primarily used on potable drinking water systems where Local Governing Code mandates protection from non-potable quality water being pumped or siphoned back into the potable water system.

The LF850 features Lead Free* construction to comply with low lead installation requirements. The Lead Free* Double Check Assemblies shall comply with state codes and standards, where applicable, requiring reduced lead content.

**Options**
OSY: UL/FM Approved OS&Y Gate Valves (ANSI/AWWA C515 Compliant)
NRS: Non-Rising Stem Gate Valves (ANSI/AWWA C509 Compliant)
LG: Less Shut-off valves; This is NOT an APPROVED ASSEMBLY

Example Ordering Descriptions:
4" LF850-OSY - Valve Assembly fitted with OS&Y Shutoff Valves
4" LF850-NRS - Valve Assembly fitted with NRS Shutoff Valves

**Materials**
Below is a general materials list of the Model LF850. All assemblies size 2½" through 10" is similar in materials and construction. Please contact your local FEBCO Representative if you require further information.
Main Valve Body: Ductile iron Grade 65-45-12
Coating: Fusion epoxy coated internal and external AWWA C550
Shutoff Valves: NRS resilient wedge gate valves AWWA C509 (Standard) OSY resilient wedge gate valves AWWA C515 (UL/FM)
Check Seats: Stainless Steel
Disc Holder: Stainless Steel
Elastomer Disc: Silicone
Spring: Stainless Steel
Clamp: AWWA C606 (10" Only)

**Approvals**
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at The University of Southern California (FCCCHR-USC)
- ASSE 1015 Listed
- UL Classified (US & Canada)†
- FM Approved†
- IAPMO
- CSA Listed
- AWWA Standard C510 Compliant
- End Connections: Compliant to ASME B16.1 Class 125 & AWWA Class D Flange
† Assembly configured with UL/FM Approved OS&Y RW Gate Valves. Less gate valve assemblies are not UL/FM approved configurations.

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

12 For additional information, reference literature ES-F-850L Flow Charts on p. 61.
## Dimensions — Weights

**MasterSeries® LF850**

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Dimensions are nominal.

** Indicates nominal dimensions with NRS Gate Valves

*** Indicates nominal dimensions

**** Indicates weight of complete Backflow Assemblies with specified Gate Valves with OSY Gate Valves (Full Open Position)

**NOTICE**

Inquire with governing authorities for local installation requirements.
Double Check Valve Assemblies with Union End Ball Valves

Size: ½” – 2” (15 – 50mm)

The FEBCO Series 850U Double Check Valve Assemblies are designed for non-health hazard applications. Series 850U are designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing. End Connections – NPT ANSI/ASME B1.20.1.

Materials
Valve Body: Bronze
Elastomers: Silicone
Springs: Stainless Steel

Approvals – Standards
- ANSI/AWWA Conformance (C510-92)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Pressure – Temperature
Max. Working Pressure: 175psi (12.1 bar)
Hydrostatic Test Press: 350psi (24.1 bar)
Temperature Range: 32°F to 140°F (0°C to 60°C)

The FEBCO Series LF850U Double Check Valve Assemblies are designed for non-health hazard applications. End Connections – NPT ANSI/ASME B1.20.1. The LF850U features Lead Free* construction to comply with Lead Free* installation requirements. End Connections – NPT ANSI/ASME B1.20.1. The Lead Free* Double Check Valve Assemblies with Union End Ball Valves shall comply with state codes and standards, where applicable, requiring reduced lead content.

Materials
Valve Body: Bronze
Elastomers: Silicone
Springs: Stainless Steel

Approvals – Standards
- ANSI/AWWA Conformance (C510-92)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

For additional information, reference literature ES-F-850U and ES-F-LF850U. Flow Charts on p. 61.
## Dimensions — Weights

**SERIES 850U/LF850U**

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Dimensions are nominal.

**NOTICE**

Inquire with governing authorities for local installation requirements.
Double Check Valve Assemblies
Size: 2½” – 8” (65 – 200mm)

Features
- Inline Serviceable Assembly
- Horizontal “N-Pattern” Installations
- Vertical-Up “Z-Pattern” Installations
- No Special Tools Required for Servicing
- Captured Modular Spring Assembly
- Reversible & Replaceable Discs
- Field Replaceable Seats
- Ductile Iron Valve Body Design
- Stainless Steel Check Components
- Winterization feature with disc retainers and valve body drain ports
- Clapper Check Assembly
- Commonality between 1st & 2nd Check Components
- Captured O-ring Design

Pressure — Temperature
Max. Working Pressure: 175 psi (12.1 bar)
Min. Working Pressure: 10 psi (0.7 bar)
Hydrostatic Test Pressure: 350 psi (24.1 bar)
Hydrostatic Safety Pressure: 700 psi (48.3 bar)
Temperature Range: 33°F - 140°F (0.5°C - 60°C) Continuous

Assembly Flow Orientation
Horizontal (N-Pattern 2½” – 8”) Approved by FCCCHR-USC, ASSE, cULus, FM, IAPMO
Vertical Up (Z-Pattern 2½” – 8”) Approved by FCCCHR-USC, ASSE, cULus, FM, IAPMO

Options - Suffix
OSY: UL/FM Approved OS&Y Gate Valves [ANSI/AWWA C515 Compliant]
NRS: Non-Rising Stem Gate Valves [ANSI/AWWA C509 Compliant]
LG: Less Shut-off valves; This is NOT an APPROVED ASSEMBLY

Example Ordering Description:
4” LF870V-OSY - Valve Assembly fitted with OS&Y Shut-off Valves

Available Components
Wye Strainer: FDA Approved [ASME B16.1 Class 125 & AWWA Class D Flange]
Series 611 Valve Setter: MJ x MJ - Mechanical Joint x Mechanical Joint
[AWWA C111/A21.11]
MJ x FL - Mechanical Joint x Flange
[AWWA C111/A21.11; ASME B16.1 Class 125/AWWA Class D Flange]
FL x FL – Flange x Flange
[ASME B16.1 Class 125 & AWWA Class D Flange]

Materials
Below is a general materials list of the Model LF870V. All assemblies size 2½” through 8” is similar in materials and construction. Please contact your local FEBCO Representative if you require further information.
Main Valve Body: Ductile iron Grade 65-45-12
Coating: Fusion epoxy coated internal and external AWWA C550-90

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

For additional information, reference literature ES-LF-870V. Flow Charts on p. 62.
Dimensions — Weights

**Series LF870V**

<table>
<thead>
<tr>
<th>SIZE (DN)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>NRS</th>
<th>OSY</th>
</tr>
</thead>
<tbody>
<tr>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>lbs</td>
<td>kg</td>
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<tr>
<td>2½</td>
<td>65</td>
<td>25¼</td>
<td>64</td>
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<td>159</td>
<td>24¼</td>
<td>616</td>
<td>16½</td>
<td>422</td>
<td>13½</td>
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<tr>
<td>3</td>
<td>80</td>
<td>25¼</td>
<td>64</td>
<td>12½</td>
<td>318</td>
<td>6¼</td>
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<td>200</td>
<td>37½</td>
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<td>235</td>
<td>36½</td>
<td>324</td>
<td>24½</td>
<td>632</td>
<td>20½</td>
</tr>
</tbody>
</table>

Dimensions are nominal.

** Indicates nominal dimensions with NRS Gate Valves

*** Indicates nominal dimensions with OSY Gate Valves (Full Open Position)

**** Indicates weight of complete Backflow Assemblies with specified Gate Valves

10" sizes are available in standard materials. Consult factory.

**NOTICE**

Inquire with governing authorities for local installation requirements.
Features
Mains Valve:
- Inline Serviceable Assembly
- No Special Tools Required for Servicing
- Captured Modular Spring Assembly
- Reversable & Replaceable Discs
- Field Replaceable Seats
- Ductile Iron Valve Body Design
- Stainless Steel Check Components
- Winterization feature with disc retainers and valve body drain ports
- Clapper Check Assembly
- Commonality between 1st & 2nd Check Components
- Captured O-ring Design

Auxiliary Bypass:
- Compact Bypass Design; Remains within Main Valve Assembly Profile
- Inline Serviceable ¾” Backflow Assembly
- No Special Tools Required for Servicing
- Field Replaceable Seats & Discs
- Detect Potential Underground Water Leaks
- Detect Unauthorized Water Usage

Pressure – Temperature
Max. Working Pressure: 175psi (12.1 bar)
Min. Working Pressure: 10psi (0.7 bar)
Hydrostatic Test Pressure: 350psi (24.1 bar)
Hydrostatic Safety Pressure: 700psi (48.3 bar)
Temperature Range: 33°F - 140°F (0.5°C- 60°C)
Continuous

Options - Suffix
OSY: UL/FM Approved OS&Y Gate Valves [ANSI/AWWA C515 Compliant]
NRS: Non-Rising Stem Gate Valves [ANSI/AWWA C509 Compliant]
LG: Less Shut-off valves; This is NOT an APPROVED ASSEMBLY

Example Ordering Description:
4” LF870V-OSY - Valve Assembly fitted with OS&Y Shutoff Valves

Available Components
Wye Strainer:
FDA Approved [ASME B16.1 Class 125 & AWWA Class D Flange]
Series 611 Valve Setter:
MJ x MJ - Mechanical Joint x Mechanical Joint [AWWA C111/A21.11]
MJ x FL - Mechanical Joint x Flange [AWWA C111/A21.11; ASME B16.1 Class 125/AWWA Class D Flange]
FL x FL – Flange x Flange [ASME B16.1 Class 125 & AWWA Class D Flange]
## Dimensions — Weights

**MasterSeries® 856ST**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A (in., mm)</th>
<th>B (in., mm)</th>
<th>C (in., mm)</th>
<th>E (in., mm)</th>
<th>F (in., mm)</th>
<th>G (in., mm)</th>
<th>H (in., mm)</th>
<th>OSY (lbs., kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2½</td>
<td>65</td>
<td>40½</td>
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<tr>
<td>3</td>
<td>80</td>
<td>41¼</td>
<td>1064</td>
<td>25½</td>
<td>651</td>
<td>10</td>
<td>254</td>
<td>22½</td>
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<td>28</td>
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<td>10½</td>
<td>257</td>
<td>23¼</td>
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<td>150</td>
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<td>1422</td>
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<td>15¼</td>
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<td>48</td>
</tr>
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</table>

Dimensions are nominal.

** Indicates nominal dimensions with OSY Gate Valves (Full Open Position)

*** Indicates weight of complete Backflow Assemblies with specified Gate Valves

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**NOTICE**

Inquire with governing authorities for local installation requirements.
The FEBCO MasterSeries 876VST Double Check Detector Assembly is specifically designed to protect against possible backpressure and backspinhage conditions for non-health hazard (i.e., pollutant) application in accordance with Local Governing Water Utility Code.

This Backflow Assembly is designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fire line, or industrial processing.

### Materials

Below is a general materials list of the Model 876VST. All assemblies size 2½” through 10” is similar in materials and construction. Please contact your local FEBCO Representative if you require further information.

- **Main Valve Body:** Ductile iron Grade 65-45-12
- **Coating:** Fusion epoxy coated internal and external AWWA C550-90
- **OSY:** Resilient wedge gate valve AWWA C515 (UL/FM)
- **Check Seats:** Stainless Steel
- **Disc Holder:** Stainless Steel
- **Elastomer Disc:** Silicone
- **Spring:** Stainless Steel
- **Clamp:** AWWA C606

### Approvals – Standards

- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at The University of Southern California [FCCCHR-USC]
- ASSE 1048 Listed
- UL Classified [US & Canada]
- FM Approved
- IAPMO/cUPC
- AWWA Standard C510 Compliant
- End Connections: Compliant to AWWA C111/A21.11 Class 125 & Class D Flange

Assembly configured with UL/FM Approved OS&Y RW Gate Valves. Less gate valve assemblies are not UL/FM approved configurations.
### Dimensions — Weights

Model 876VST Standard Orientation (N-Pattern)

![Diagram of Model 876VST Standard Orientation](image)

Model 876VST Vertical Orientation (Z-Pattern)

![Diagram of Model 876VST Vertical Orientation](image)

Note: The Series 876VST is shipped in the standard (N-Pattern) orientation as shown above.

**MasterSeries® 876VST**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>OSY</th>
</tr>
</thead>
<tbody>
<tr>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>in.</td>
</tr>
<tr>
<td>2½</td>
<td>65</td>
<td>25½</td>
<td>654</td>
<td>12¼</td>
<td>318</td>
<td>6¼</td>
<td>159</td>
<td>24¼</td>
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<td>40½</td>
<td>1035</td>
<td>27½</td>
<td>699</td>
</tr>
</tbody>
</table>

Dimensions are nominal.

* Indicates nominal dimensions with OSY Gate Valves (Full Open Position)

**Indicates weight of complete Backflow Assemblies with specified Gate Valves

**NOTICE**

Inquire with governing authorities for local installation requirements.
Reduced Pressure Zone Assemblies

The FEBCO Series 825Y Reduced Pressure Zone Assemblies are used to protect against high hazard (toxic) fluids in water services to industrial plants, hospitals, morgues, mortuaries, and chemical plants. These valves are designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing. They are also used in irrigation systems, boiler feed, water lines and other installations requiring maximum protection.

Features
- Ultimate mechanical protection of potable water, against hazards of cross-connection contamination.
- Meets all specifications of AWWA, ASSE, CSA and approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
- Approved by the Foundation of Cross-Connection Control and Hydraulic Research at the University of Southern California.
- Modular relief valve for ease of maintenance.
- Simple Service procedures. All internal parts serviceable in line.
- Low head loss.
- Spring loaded "Y" type check valves.
- Internal relief valve pressure sensing passages.
- Replaceable seat rings on all sizes.
- End connection – NPT ANSI / ASME B1.20.1

Pressure – Temperature
Max. 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)

Materials
Main valve body: Bronze
Relief valve body: Bronze
Elastomers: Nitrile Seat Discs
Diaphragms: Nitrile, fabric reinforced
Springs: Stainless Steel
** Can be supplied with optional silicone seat disc.

Operation
In a flow condition the check valves are open with the pressure between the checks, called the zone, being maintained at least 5.0psi lower than the inlet pressure and the relief valve is maintained closed.
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 lower than the supply.
When normal flow resumes, the zone’s differential pressure will resume and the relief valve will close.

Materials
Main valve body: Lead Free* Cast Copper Silicon Alloy
Relief valve body: Lead Free* Cast Copper Silicon Alloy
Elastomers: Nitrile Seat Discs
Diaphragms: Nitrile, fabric reinforced
Springs: Stainless Steel

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

LSB E The FEBCO Series LF825Y Reduced Pressure Zone Assemblies are used to protect against high hazard (toxic) fluids in water services to industrial plants, hospitals, morgues, mortuaries, and chemical plants. They are also used in irrigation systems, boiler feed, water lines and other installations requiring maximum protection. The LF825Y features Lead Free* construction to comply with Lead Free* installation requirements.

Materials
Main valve body: Lead Free* Cast Copper Silicon Alloy
Relief valve body: Lead Free* Cast Copper Silicon Alloy
Elastomers: Nitrile Seat Discs
Diaphragms: Nitrile, fabric reinforced
Springs: Stainless Steel

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

* The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

For additional information, reference literature ES-F-825Y and ES-F-LF825Y. Flow Charts on p. 64.
### Dimensions — Weights

**Series 825Y/LF825Y**

<table>
<thead>
<tr>
<th>SIZE (DN)</th>
<th>A</th>
<th>B*</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>WEIGHT</th>
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<tbody>
<tr>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
</tr>
<tr>
<td>3/4</td>
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<td>305</td>
<td>7 3/4</td>
<td>197</td>
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<td>4 1/2</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
<td>17 3/4</td>
<td>451</td>
<td>10 1/2</td>
<td>267</td>
<td>4 1/2</td>
</tr>
</tbody>
</table>

*Dimensions are nominal.*

**NOTICE**

Inquire with governing authorities for local installation requirements.
The FEBCO Series 825YA Reduced Pressure Zone Assemblies are designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing, including 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 connections – NPT ANSI/ASME B1.20.1

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

**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.

**Materials**
- Main valve body: Lead Free* Cast Copper Silicon Alloy
- Relief valve body: Lead Free* Cast Copper Silicon Alloy
- Elastomers: Nitrile Seat Discs
- Diaphragms: Nitrile, fabric reinforced
- Springs: Stainless Steel

**Approvals – Standards**
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
- AWWA C511 Conformance

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.
### Dimensions — Weights

#### Vertical Up Flow In - Vertical Down Flow Out

<table>
<thead>
<tr>
<th>SIZE (DN)</th>
<th>DIMENSIONS</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>in.</td>
<td>mm</td>
<td>in. mm</td>
</tr>
<tr>
<td>¾</td>
<td>20</td>
<td>10</td>
</tr>
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<td>50</td>
<td>141⁄4</td>
</tr>
</tbody>
</table>

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

#### Vertical Up Flow In - Horizontal Flow Out

<table>
<thead>
<tr>
<th>SIZE (DN)</th>
<th>DIMENSIONS</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>in.</td>
<td>mm</td>
<td>in. mm</td>
</tr>
<tr>
<td>¾</td>
<td>20</td>
<td>121⁄2</td>
</tr>
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<td>50</td>
<td>19</td>
</tr>
</tbody>
</table>

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

**NOTICE**

Inquire with governing authorities for local installation requirements.

*Continued on next page*
## Dimensions — Weights

**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

### Horizontal Flow In - Vertical Down Flow Out 825YA/LF825YA

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<th>SIZE (DN)</th>
<th>A (in.)</th>
<th>B (in.)</th>
<th>C (in.)</th>
<th>D (in.)</th>
<th>D1 (in.)</th>
<th>E (in.)</th>
<th>F (in.)</th>
<th>G (in.)</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
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<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
<td>lbs. kgs</td>
</tr>
<tr>
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<td>308 114</td>
<td>3⁄8 92</td>
<td>n/a n/a</td>
<td>4⁄5 105</td>
<td>3⁄8 89</td>
<td>1⁄4 41</td>
<td>15.0 6.8</td>
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</tr>
<tr>
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<td>340 114</td>
<td>4⁄5 102</td>
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<td>4⁄5 105</td>
<td>3⁄8 98</td>
<td>1⁄4 41</td>
<td>16.5 7.5</td>
<td></td>
</tr>
<tr>
<td>1 1⁄2</td>
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<td>n/a n/a</td>
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</table>

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

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For additional information, reference literature ES-F-825YA and ES-F-LF825YA. Flow Charts on p. 64.
### Reduced Pressure Zone Assemblies

**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

### Horizontal 825YA/LF825YA

<table>
<thead>
<tr>
<th>SIZE (DN)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>D1</th>
<th>E</th>
<th>F</th>
<th>G*</th>
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</thead>
<tbody>
<tr>
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*G Dimension are based on standard vertical flow in / vertical flow out configuration.

All dimensions are nominal.

**NOTICE**

Inquire with governing authorities for local installation requirements.
Reduced Pressure Zone Assemblies

The FEBCO Series 860 Reduced Pressure Zone Assemblies are designed for use in health-hazard applications. End Connections – NPT ANSI/ASME B1.20.1. This assembly is designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing.

Materials
Valve Body: Bronze
Elastomers: Silicone
Springs: Stainless Steel

Models
• Wye - Strainer

Pressure – Temperature
Max. 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)

Approvals – Standards
• ANSI/AWWA Conformance (C511)
• Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Series 860/LF860

Reduced Pressure Zone Assemblies
Size: ½” – 2” (15 – 50mm)

The FEBCO Series 860 Reduced Pressure Zone Assemblies are designed for use in health-hazard applications. End Connections – NPT ANSI/ASME B1.20.1. This assembly is designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing.

Materials
Valve Body: Bronze
Elastomers: Silicone
Springs: Stainless Steel

Models
• Wye - Strainer

Approvals – Standards
• ANSI/AWWA Conformance (C511)
• Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

LEAD FREE The FEBCO Series LF860 Reduced Pressure Zone Assemblies are designed for use in health-hazard applications. The LF860 features Lead Free* construction to comply with Lead Free* installation requirements. End Connections – NPT ANSI / ASME B1.20.1. The Lead Free* Reduced Pressure Zone Assemblies shall comply with state codes and standards, where applicable, requiring reduced lead content.

Materials
Valve Body: Lead Free* Cast Copper Silicon Alloy
Elastomers: Silicone
Springs: Stainless Steel

Models
• LF860 - Standard Assembly with Ball Valves

Approvals – Standards
• ANSI/AWWA Conformance (C511)
• Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.
The gap drain is not designed to catch the maximum discharge possible from the relief valve. The installation of FEBCO air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

**NOTICE**
Inquire with governing authorities for local installation requirements.
Reduced Pressure Zone Assemblies
Size: 2½" – 10" (65 – 250mm)

Features
- Inline Serviceable Assembly
- No Special Tools Required for Servicing
- Captured Modular Spring Assembly
- Reversible & Replaceable Discs
- Field Replaceable Seats
- Ductile Iron Valve Body Design
- Stainless Steel Check Components
- Modular Pressure Differential Relief Valve
- Repairable Pressure Differential Relief Valve
- Clapper Check Assembly
- Captured O-ring Design

Pressure - Temperature
Max. Working Pressure: 175psi (12.1 bar)
Min. Working Pressure: 20psi (1.4 bar)
Hydrostatic Test Pressure: 350psi (24.1 bar)
Hydrostatic Safety Pressure: 700psi (48.3 bar)
Temperature Range: 33°F - 140°F (0.5°C - 60°C) Continuous

Options - Suffix
OSY: UL/FM Approved OS&Y Gate Valves (ANSI/AWWA C515 Compliant)
NRS: Non-Rising Stem Gate Valves (ANSI/AWWA C509 Compliant)
LG: Less Shut-off valves: This is NOT an APPROVED ASSEMBLY

Example Ordering Descriptions:
4" LF860-OSY - Valve Assembly fitted with OS&Y Shutoff Valves
4" LF860-NRS - Valve Assembly fitted with NRS Shutoff Valves

Materials (cont.)
Disc Holder: Stainless Steel
Elastomer Disc: Silicone
Spring: Stainless Steel
Clamp: AWWA C606 (10" Only)

Approvals - Standards
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at The University of Southern California (FCCCHR-USC)
- ASSE 1013 Listed
- UL Classified (US & Canada)
- FM Approved
- IAPMO
- AWWA Standard C511 Compliant
- End Connections: Compliant to ASME B16.1 Class 125 & AWWA Class D Flange

Assembly Flow Orientation
- Horizontal (2½" – 10") - Approved by FCCCHR-USC, ASSE, cULus, FM, IAPMO and CSA

Materials
- Main Valve Body: Ductile iron Grade 65-45-12
- Relief Valve Body: Ductile iron Grade 65-45-12
- Coating: Fusion epoxy coated internal and external AWWA C550
- Shutoff Valves: NRS resilient wedge gate valve AWWA C509 (Standard) OSY resilient wedge gate valve AWWA C515 (UL/FM)
- Check Seats: Stainless Steel

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

For additional information, reference literature ES-F-LF860L. Flow Charts on p. 65.
Dimensions — Weights

Below are the nominal dimensions and physical weights for the Series LF860 size 2-1/2" through 10". Allowances must be made for normal manufacturing tolerances. Please visit our website to download a copy of this product’s installation instructions, or contact your local FEBCO Representative for more information.

** Indicates nominal dimensions with NRS Gate Valves
*** Indicates nominal dimensions with OSY Gate Valves (Full Open Position)
**** Indicates weight of complete Backflow Assemblies with specified Gate Valves

The gap drain is not designed to catch the maximum discharge possible from the relief valve. The installation of the FEBCO air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

### LF860

<table>
<thead>
<tr>
<th>SIZE (DN)</th>
<th>A (in. mm)</th>
<th>B (in. mm)</th>
<th>C (in. mm)</th>
<th>D (in. mm)</th>
<th>E** (in. mm)</th>
<th>F*** (in. mm)</th>
<th>G (in. mm)</th>
<th>H (in. mm)</th>
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<th>OSY (lbs. kg)</th>
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<td>397</td>
<td>12 1/2</td>
<td>314</td>
<td>27 1/2</td>
</tr>
</tbody>
</table>

Dimensions are nominal.

** Notice **
Inquire with governing authorities for local installation requirements.
Series 860U/LF860U

Reduced Pressure Zone Assemblies with Union End Ball Valves
Size: ½" – 2" (15 – 50mm)

The FEBCO Series 860U Reduced Pressure Zone Assemblies are designed for and suitable for use in health hazard applications. Series 860U are designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing. End Connections – NPT ANSI / ASME B1.20.1

**Approvals – Standards**
- ANSI/AWWA Conformance (C511)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

**Pressure – Temperature**
Max. Working Pressure: 175psi (12.1 bar)
Hydrostatic Test Press: 350psi (24.1 bar)
Temperature Range: 32°F to 140°F (0°C to 60°C)

**Materials**
- Valve Body: Lead Free* Cast Copper Silicon Alloy
- Elastomers: Silicone
- Springs: Stainless Steel

The FEBCO Series LF860 Reduced Pressure Zone Assemblies are designed for use in health-hazard applications. The LF860S features Lead Free* construction to comply with Lead Free* installation requirements. End Connections – NPT ANSI / ASME B1.20.1. The Lead Free* Reduced Pressure Zone Assemblies shall comply with state codes and standards, where applicable, requiring reduced lead content.

**Approvals – Standards**
- ANSI/AWWA Conformance (C511)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

For additional information, reference literature ES-F-860U and ES-F-LF860U. Flow Charts on p. 66.
The gap drain is not designed to catch the maximum discharge possible from the relief valve. The installation of FEBCO air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

**NOTICE**

Dimensions are nominal.

Inquire with governing authorities for local installation requirements.
Reduced Pressure Zone Assemblies
Size: 2½” – 10” (65 – 250mm)

**Features**
- Inline Serviceable Assembly
- Horizontal “N-Pattern” Installations
- Vertical-Up “Z-Pattern” Installations
- No Special Tools Required for Servicing
- Captured Modular Spring Assembly
- Reversible & Replaceable Discs
- Field Replaceable Seats
- Ductile Iron Valve Body Design
- Stainless Steel Check Components
- Modular Pressure Differential Relief Valve
- Repairable Pressure Differential Relief Valve
- Clapper Check Assembly
- Captured O-ring Design

**Materials**
Below is a general materials list of the Model LF880V. All assemblies size 2½” through 10” is similar in materials and construction. Please contact your local FEBCO Representative if you require further information.

- **Main Valve Body:** Ductile iron Grade 65-45-12
- **Relief Valve Body:** Ductile iron Grade 65-45-12
- **Coating:** Fusion epoxy coated internal and external AWWA C550-90
- **Shutoff Valves:** NRS resilient wedge gate valve AWWA C509 (Standard) OSY resilient wedge gate valve AWWA C515 (UL/FM)
- **Check Seats:** Stainless Steel
- **Disc Holder:** Stainless Steel
- **Elastomer Disc:** Silicone
- **Spring:** Stainless Steel
- **Clamp:** AWWA C606

**Options - Suffix**
- **OSY:** UL/FM Approved OS&Y Gate Valves (ANSI/WWA C509 Compliant)
- **NRS:** Non-Rising Stem Gate Valves (ANSI/WWA C509 Compliant)
- **LG:** Less Shut-off valves; This is NOT an APPROVED ASSEMBLY

**Example Ordering Description:**
4” LF880V-OSY - Valve Assembly fitted with OS&Y Shutoff Valves

**LEAD FREE**
The FEBCO MasterSeries LF880V Reduced Pressure Zone Assembly is specifically designed to protect against possible backpressure and backsiphonage conditions for high hazard [i.e. toxic] applications in accordance with Local Governing Water Utility Code. This Backflow Assembly is primarily used on potable drinking water systems where Local Governing Code mandates protection from non-potable quality water being pumped or siphoned back into the potable water system.

The LF880V features Lead Free* construction to comply with Lead Free* installation requirements. The Lead Free* Reduced Pressure Zone Assemblies shall comply with state codes and standards, where applicable, requiring reduced lead content.

**Available Components**
- **Wye Strainer:** FDA Approved (ASME B16.1 Class 125 & AWWA Class D Flange)
- **Series 611 Valve Setter:**
  - MJ x MJ - Mechanical Joint x Mechanical Joint (AWWA C111/A21.11)
  - MJ x FL - Mechanical Joint x Flange (AWWA C111/A21.11; ASME B16.1 Class 125/WWA Class D Flange)
  - FL x FL – Flange x Flange (ASME B16.1 Class 125 & AWWA Class D Flange)

**Approvals – Standards**
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at The University of Southern California [FCCCHR-USC]
- **ASSE 1013 Listed**
- **UL Classified [US & Canada]**
- **FM Approved**
- **IAPMO/cUPC**
- **AWWA Standard C511 Compliant**
- **End Connections:** Compliant to ASME B16.1 Class 125 & AWWA Class D Flange

**Pressure - Temperature**
- **Max. Working Pressure:** 175psi (12.1 bar)
- **Min. Working Pressure:** 20psi (1.4 bar)
- **Hydrostatic Test Pressure:** 350psi (24.1 bar)
- **Hydrostatic Safety Pressure:** 700psi (48.3 bar)
- **Temperature Range:** 33°F - 140°F (0.5°C- 60°C) Continuous

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.
## Dimensions — Weights

### LF880V Standard Orientation

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<th>D</th>
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**OS&Y OPEN**

Weights do not include risers or optional valve setter.

Dimensions shown are nominal.

Refer to Specification Sheet ES-F-611 for details on valve setter.

**NOTICE**

Inquire with governing authorities for local installation requirements.
Reduced Pressure Detector Assemblies
Size: 2½” – 10” (65 – 250mm)

Features
- The DuraCheck, features all stainless steel check assemblies for corrosion resistance, reduced fouling and longer valve life.
- DuraGast, ductile iron body for superior strength, corrosion resistance and lighter weight. By-pass line has water meter in series with approved reduced pressure assembly.
- Low Head Loss
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
- End Detail is Flanged

The FEBCO Series 826YD Reduced Pressure Detector Assemblies designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications specifically for use with Automatic fire sprinkler systems containing toxic substances.

Installation
The Reduced Pressure Detector Assembly should be installed horizontally with a suggested minimum clearance of 12” (300mm) between the assembly and the floor or grade. They must be installed where discharge from the relief valve 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 assembly.

Operation
In a nonflow condition, check valves on the by-pass and mainline units are closed with pressure between the checks, called the zone, being maintained at least 5psi (35 kPa) lower than the inlet pressure and the relief valve is maintained closed. If the differential between the zone and the upstream pressure drops to 2psi (14kPa), the differential relief valve will open, maintaining proper zone differential. The by-pass reduced pressure backflow preventer will operate identically to the mainline assembly.
The by-pass opens to detect initial flow and the mainline opens for all other flows.

Models
- Less Gates
- Left hand by-pass
- Meter CFM/GPM

Approvals
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
- UL and FM Listings only applicable with approved OS&Y gates.

† Valves must be supplied with resilient seated shut off valves for USC and FM approvals to be in effect.
### Dimensions — Weights

#### Series 826YD

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<th>D</th>
<th>E</th>
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<td>in.</td>
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<td>in.</td>
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</table>

Dimensions shown are nominal.

**NOTICE**

Inquire with governing authorities for local installation requirements.
**Series 710, 715**

**Atmospheric Vacuum Breakers**

*Size: ½” – 2” (15 – 50mm)*

The FEBCO Series 710, 715 Atmospheric Vacuum Breakers are designed for use in multiple non-potable water applications such as hose bibbs, chemical vats, x-ray tanks, turf irrigation systems and laboratory sinks.

**Features**
- Meets all specifications of ASSE
- Documented flow curves established by The Twining Labs, Inc.
- Simple service procedures.
- Light weight plastic poppets.
- Resilient rubber poppet discs designed for positive closure.
- Cold water applications.
- End Connections – NPT ANSI/ASME B1.20.1

**Pressure – Temperature**

Max. Working Pressure: 150psi (10.3 bar)

Hydrostatic Test Press: 150psi (10.3 bar)

Temperature Range:
- 710: 32°F to 110°F (0º - 43ºC)
- 715: 32°F to 180°F (0º - 82ºC)

**Materials**

Valve Body: Bronze

Elastomers: Nitrile

Poppet: Acetal/Polypropylene

**Operation**

FEBCO Series 710, 715 assures positive protection against backspiphonage of impure water into the main supply in the event that pressure loss causes vacuum conditions. A poppet seals the air inlet when the unit is pressurized. When a backspiphonage occurs, the poppet drops to allow air to enter the downstream piping. At the same time the poppet shields the water inlet to prevent foreign materials from entering the upstream piping. Restoration of pressure (flow) lifts the poppet to seal the air inlet.

**Typical Installation**

An Atmospheric Vacuum Breaker may be used to protect a cross-connection against backspiphonage, where the vacuum breaker is not subjected to back pressures due to pumps or any other conditions which may cause backpressure, no matter how slight. It must be installed on the discharge side of the last shutoff valve. Code requirements vary as to the height this vacuum breaker must be installed above the highest overflow level but a minimum of 6" (150mm) is required. The atmospheric vacuum breaker must be installed with the air inlet in a level position.

*NOTICE*

No valve of any type may be installed on the discharge side of an atmospheric vacuum breaker.

**Approvals – Standards**

[ASSE, UL, UPC logos]
## Dimensions — Weights

### Series 710, 715

<table>
<thead>
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<th>B (in.)</th>
<th>C (in.)</th>
<th>D (in.)</th>
<th>WEIGHT (lbs.)</th>
<th>WEIGHT (kgs.)</th>
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</table>

Weights shown are approximate. Dimensions shown are nominal.

**NOTICE**

Inquire with governing authorities for local installation requirements.
Series 765
Pressure Vacuum Breakers
Size: ½” – 2” (15 – 50mm)

Features
- All bronze body for durability. One check valve and an air opening port in one assembly.
- Lightweight poppet seals air opening under minimum flow conditions.
- Simple service procedures. All internal parts serviceable in line from the top of the unit.
- Designed for minimum head loss.
- Engineered plastic bonnet protect valve bodies from freeze damage.
- Optional union end ball valves for easy removal and ultimate freeze protection.
- End Connections – NPT ANSI/ASME B1.20.1

Pressure – Temperature
Max. Working Pressure: 150psi (10.3 bar)
Hydrostatic Test Press: 300psi (20.7 bar)
Temperature Range: 32°F to 140°F (0°C to 60°C)

The FEBCO Series 765 Pressure Vacuum Breakers are used to protect non-potable water applications against health hazard and non-health hazard backsiphonage conditions in industrial plants, cooling towers laboratories, laundries, swimming pools and lawn sprinkler systems.

Materials
Main Valve Body: Bronze
Elastomers: Nitrile

Models
- Union End Ball Valves

Applications
PVB assemblies are used to protect non-potable water applications against health hazard and non-health hazard backsiphonage conditions for non-potable applications in industrial plants, cooling towers laboratories, laundries, swimming pools and lawn sprinkler systems.

Typical Installation
Pressure Vacuum Breaker assemblies should be installed at least 12” (300mm) above the highest piping and outlet downstream of the assembly to preclude backpressure. Assemblies should be installed so they are easily accessible for maintenance, periodic testing, and where discharge will not be objectionable. They should be protected from freezing. If the assemblies are subject to freezing temperatures, the freeze protection procedures outlined in “Service Instruction Freeze Protection Model 765” must be followed. Assemblies must not be installed where backpressure could occur.

The discharge pressure shall be maintained above 3.0psi on ½” - 1½” (15 - 32mm) sizes and 5.0psi on 1½” - 2” (40 - 50mm) sizes to insure seating of the spring loaded air inlet poppet.

Approvals – Standards
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
### Dimensions — Weights

**Series 765**

<table>
<thead>
<tr>
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<td>343</td>
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</table>

Weights shown do not include union end ball valves and are approximate. Dimensions shown are nominal.

**NOTICE**

Inquire with governing authorities for local installation requirements.
Series LF767FR

Freeze-Resistant Pressure Vacuum Breakers
Sizes: ½” – 2” (15 – 50mm)

Features
- Unique built-in relief valve relieves pressure caused by ice formation
- Replaceable plastic seat
- Easy maintenance of internal parts
- O-ring bonnet seal for less possibility of fouling
- Silicone seat disc for durability
- Test cocks positioned for easy testing and winterization
- Compact space saving design
- Standardly equipped with tee handle quarter turn ball valve shut-offs ½” – 1” (15-25mm)**. The 1 ¼” – 2” (32-50mm)** feature lever handles
- No special tools required for servicing
- Lead Free* cast silicon copper alloy

Pressure - Temperature
Temperature Range: 33°F to 140°F
(0.5°C to 60°C)
Max. Working Pressure: 150psi
(10.3 bar)
Min. Working Pressure: 15psi
(103 kPa)

Materials
Springs: Stainless Steel
Bonnet: Celcon®
Vent Disc: Silicone Rubber
Disc Holder Float: Polypropylene
Check Valve Disc: Silicone Rubber
Check Valve Seat: Noryl Plastic
Body: Lead Free* cast copper silicon alloy

Celanese is a registered trademark of Celanese Limited.

*LEAD FREE* Series LF767FR is designed to prevent backsiphonage of contaminated water under continuous pressure into the potable water supply. Its superior design protects the valve body and internal components during sudden freeze conditions. Water inside the PVB freezes from the outside-inward.

As the ice forms and expands causing a buildup of pressure, the LF767FR relieves the pressure through a unique relief valve built into the plastic float.

Test cocks are positioned at the lowest point of the valve for winterization draining. The LF767FR is reusable with the relief valve designed to automatically re-seat. It will not discharge through the relief valve during normal operation. (The built-in relief valve is not designed to provide freeze protection for the entire irrigation system.) The LF767FR features Lead Free* construction to comply with Lead Free* installation requirements.

Materials
Springs: Stainless Steel
Bonnet: Celcon®
Vent Disc: Silicone Rubber
Disc Holder Float: Polypropylene
Check Valve Disc: Silicone Rubber
Check Valve Seat: Noryl Plastic
Body: Lead Free* cast copper silicon alloy

Celanese is a registered trademark of Celanese Limited.

Approvals
Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California, Manual Section 10.

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

For additional information, reference literature ES-F-767FR. Flow Charts on p. 70.
Dimensions — Weights

**LF767FR**

<table>
<thead>
<tr>
<th>SIZE (DN)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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<td>mm</td>
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<td>mm</td>
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<td>mm</td>
<td>in.</td>
<td>lbs</td>
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</table>

Dimensions shown are nominal.

**NOTICE**

Inquire with governing authorities for local installation requirements.
Series 601-P

Air Gap Drain for Use with 860/860U/LF860/LF860U
Size: $\frac{1}{2}'' - 2''$ (15 – 50mm)

Features
- Reduces amount of water splashing in area around reduced pressure assemblies.
- Funnels moderate relief valve discharge into drain.
- Designed to fit standard 2" pipe.

The air gap drain is designed to be installed under the 860/LF860, 860U/LF860U $\frac{1}{2}'' - 2''$ reduced pressure assemblies to catch moderate relief valve discharge due to pressure fluctuations and/or minor check valve fouling.

Materials
Funnel: Corrosion resistant ABS
Mounting fasteners: Stainless Steel.

NOTICE
The gap drain is not designed to catch the maximum discharge possible from the relief valve. The installation of FEBCO air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

Dimensions

<table>
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<tr>
<th>Size</th>
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<tbody>
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<td>2''</td>
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</table>

Dimensions are nominal.

NOTICE
Inquire with governing authorities for local installation requirements.
Air Gap Drains for Use with 860/860U/LF860/LF860U
Size: ½" – 2" (15 – 50mm)

Features
- Reduces amount of water splashing in area around reduced pressure assemblies.
- Funnels moderate relief valve discharge into drain.
- Designed to fit standard 1" and 2" pipe.

The air gap drain is designed to be installed under the 860/LF860, 860U/LF860U ½" - 2" (15-50mm) reduced pressure assemblies to catch moderate relief valve discharge due to pressure fluctuations and/or minor check valve fouling.

Materials
- Funnel: ASTM A48
- Funnel Connectors: ASTM B26 Alloy 356
- Coating: Vitralon polyurethane, black

NOTICE
The gap drain is not designed to catch the maximum discharge possible from the relief valve. The installation of FEBCO air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

Dimensions

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<th>'C'</th>
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<td>in.</td>
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<td>1</td>
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<td>2</td>
<td>50</td>
<td>121</td>
<td>1¼</td>
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</table>

Dimensions are nominal.

NOTICE
Inquire with governing authorities for local installation requirements.
The FEBCO Series 601 Air Gap Drains is constructed of coated aluminum. The air gap drain is designed to be attached to the relief valve of MasterSeries® reduced pressure assemblies, sizes 2½” – 10” (65 – 250mm). Four inch drainage piping may be attached to drain, creating a system that catches and removes minor relief valve discharges due to pressure fluctuations and/or minor check valve fouling.

Note: The gap drain is not designed to catch the maximum discharge possible from the relief valve. The installation of FEBCO air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

Features
- Nozzle design directs flow directly into funnel, reducing side spray
- Funnels minor relief valve discharges into drains
- Lightweight for easy installation
- Coated for corrosion resistance
- 4” funnel outlet is designed to accept a hubless pipe coupling for simple drain pipe installation

Materials
Nozzle: ASTM B26 Alloy 356
Funnel: ASTM B26 Alloy 356
Rods: ASTM B241 Alloy 6063
Vitralon polyurethane coating black

Dimensions — Weights

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<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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Dimensions are nominal.

Inquire with governing authorities for local installation requirements.
Series AGD

Air Gap Drains for Use With 825Y, LF825Y, 825YD and 826YD Reduced Pressure Assemblies
AGD-Y: ¾" – 2" (20 - 50mm) / AGD-L: 2½" – 10" (65 - 250mm)

Features
- Reduces amount of water splashing in area around reduced pressure assemblies.
- Funnels minor relief valve discharge into drain.
- Conforms to air gap installation requirements.

The FEBCO Air Gap Drain is designed to be installed under the 825Y/LF825Y ¾" - 2" and 825YD/826YD 2½" - 10" reduced pressure assemblies to catch minor relief valve discharge due to pressure fluctuations and/or minor check valve fouling.

Materials
Funnel: Corrosion resistant
Mounting Fasteners: Stainless Steel

NOTICE
The gap drain is not designed to catch the maximum discharge possible from the relief valve. The installation of FEBCO air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

Dimensions – Weights

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<td>B (in.)</td>
<td>C (lbs)</td>
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<td>4</td>
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<tr>
<td>6</td>
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</tr>
<tr>
<td>8</td>
<td>200</td>
<td>13½</td>
</tr>
<tr>
<td>10</td>
<td>250</td>
<td>13½</td>
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</table>

Dimensions are nominal.

Inquire with governing authorities for local installation requirements.

For additional information, reference literature ES-F-AGD.

47
**Series 611**

Valve Setter - Flange by Flange
Used with MasterSeries® N-Shape Assemblies
Sizes: 2½" – 10" (65 – 250mm)

**Features**
- Corrosion resistant fusion epoxy coated.
- Eliminates the need for thrust blocks or other restraints at the point of installation.
- Flanges:
  - ANSI B16.1 Class 125 (Standard)
  - ISO 7005-2 (Optional. Contact factory for dimensions.)
  - AS 2129 (Optional. Contact factory for dimensions.)

**Pressure – Temperature**
Max. Working Pressure: 175psi (12.1 bar)
Temperature Range: 32º to 140º (0ºC to 60º)

**Materials**
Body: Ductile iron A536 GR 65-45-12
Coating: Fusion epoxy coated internal and external AWWA C550
Bolts & Nuts: Stainless steel

**Dimensions – Weights**

<table>
<thead>
<tr>
<th>SIZE (DN)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>DIMENSIONS</th>
<th>WEIGHTS</th>
</tr>
</thead>
<tbody>
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<td>in.</td>
<td>mm</td>
<td>in.</td>
<td>mm</td>
</tr>
<tr>
<td>2½</td>
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<td>1092</td>
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<td>533</td>
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</table>

Dimensions shown are nominal.

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

**LEAD FREE**
The FEBCO Series 611 Flange by Flange Valve Setter is constructed of fusion epoxy coated ductile iron. Valve setters are designed to augment the installation of the "N" series backflow prevention valves. Integral ductile iron support between elbow transfers thrust downstream, thus eliminating thrust block requirements between elbows. The 611 features Lead Free* construction to comply with Lead Free* installation requirements.

**Materials**
Body: Ductile iron A536 GR 65-45-12
Coating: Fusion epoxy coated internal and external AWWA C550
Bolts & Nuts: Stainless steel

**NOTICE**
Flange bolts and gaskets are not included (except for center joint).

Inquire with governing authorities for local installation requirements.
Valve Setter - Mechanical Joint by Flange
Used with MasterSeries® N-Shape Assemblies
Sizes: 3" – 10" (80 – 250mm)

Features
- Corrosion resistant fusion epoxy coated.
- Eliminates the need for thrust blocks or other restraints at the point of installation.
- Flanges: ANSI B16.1 Class 125 (Standard)
  ANSI AWWA C153 A21.53-88

Pressure – Temperature
Max. Working Pressure: 175psi (12.1 bar)
Temperature Range: 32º to 140º (0ºC to 60º)

Dimensions – Weights

<table>
<thead>
<tr>
<th>SIZE (IN)</th>
<th>A (in)</th>
<th>B (in)</th>
<th>C (in)</th>
<th>WEIGHTS (lbs)</th>
<th>WEIGHTS (kgs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>80</td>
<td>21½</td>
<td>546</td>
<td>69</td>
<td>31.3</td>
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<td>4</td>
<td>100</td>
<td>24</td>
<td>610</td>
<td>96</td>
<td>43.5</td>
</tr>
<tr>
<td>6</td>
<td>150</td>
<td>29</td>
<td>737</td>
<td>152</td>
<td>68.9</td>
</tr>
<tr>
<td>8</td>
<td>200</td>
<td>33½</td>
<td>851</td>
<td>216</td>
<td>98.0</td>
</tr>
<tr>
<td>10</td>
<td>250</td>
<td>40</td>
<td>1016</td>
<td>288</td>
<td>130.6</td>
</tr>
</tbody>
</table>

Dimensions shown are nominal.

NOTICE
Inquire with governing authorities for local installation requirements.

Materials
Body: Ductile iron A536 GR 65-45-12
Coating: Fusion epoxy coated internal and external AWWA C550
Bolts & Nuts: Stainless steel

NOTICE
Mechanical joint accessories, flange bolts and gaskets are not included (except for center joint).

LEAD FREE® The FEBCO Series 611 mechanical joint by flange valve setter is constructed of fusion epoxy coated ductile iron. Valve setters are designed to augment the installation of the "N" series backflow prevention valves. Integral ductile iron support between elbows transfers thrust downstream, thus eliminating thrust block requirements between elbows. Mechanical joint restraint devices may be used at pipe connections, depending on local conditions. The 611 features Lead Free® construction to comply with Lead Free® installation requirements.

The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.
**Accessories**

**Series 611**

**Valve Setter - Mechanical Joint by Mechanical Joint**

**Used with MasterSeries® N-Shape Assemblies**

Sizes: 3” – 10” (80 – 250mm)

---

**Features**
- Corrosion resistant fusion epoxy coated.
- Eliminates the need for thrust blocks or other restraints at the point of installation.

**Pressure – Temperature**

Max. Working Pressure: 175psi (12.1 bar)

Temperature Range: 32º to 140º (0ºC to 60º)

---

**Materials**

**Body:** Ductile iron A536 GR 65-45-12

**Coating:** Fusion epoxy coated internal and external AWWA C550

**Bolts & Nuts:** Stainless steel

---

**Dimensions – Weights**

**Series 611 Size: 3” - 10” (80 - 250mm)**

<table>
<thead>
<tr>
<th>SIZE (DN)</th>
<th>DIMENSIONS</th>
<th>WEIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in.</td>
<td>mm</td>
</tr>
<tr>
<td>3</td>
<td>80</td>
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<td>4</td>
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<td>331⁄2</td>
</tr>
<tr>
<td>10</td>
<td>250</td>
<td>40</td>
</tr>
</tbody>
</table>

Dimensions shown are nominal.

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**NOTICE**

Mechanical joint accessories, flange bolts and gaskets are not included (except for center joint).

---

**LEAD FREE**

The FEBCO 611 Series Mechanical Joint by Mechanical Joint valve setter is constructed of fusion epoxy coated ductile iron. Valve setters are designed to augment the installation of the “N” series backflow prevention valves. Integral ductile iron support between elbows transfers thrust downstream, thus eliminating thrust block requirements between elbows. Mechanical joint restraint devices may be used at pipe connections, depending on local conditions. The 611 features Lead Free* construction to comply with Lead Free* installation requirements.

---

**NOTICE**

Inquire with governing authorities for local installation requirements.
Series FPTC-1

Thermostatic Freeze Relief Kits
Sizes: ⅛” – ¾” (3 – 20mm)

Features
- Compact
- Easy to Install
- Low Maintenance
- Controlled by Water Temperature vs. Air Temperature
- IAPMO Approved

Pressure – Temperature
Max. Pressure: 175psi (12.1 bar)
Working Temperature: 35°F (1.6°C)

Series FPTC-1 Thermostatic Freeze Relief Kits are designed to keep water from freezing in the backflow preventer, while avoiding discharges based on the air temperature dropping below freezing. Series FPTC-1 thermostatically measures the water temperature and opens at 35°F (1.6°C) and closes at 40°F (4.4°C). The series FPTC-1 are for use in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation and industrial processing.

Materials
Body: Bronze
Springs: Stainless Steel
Internals: DZR Brass

Approvals
Care should be given to ensure that discharged water will be adequately piped away from areas where slipping on ice could be a danger, such as roadways and pathways.

Dimensions

NOTICE
Inquire with governing authorities for local installation requirements.

For additional information, reference literature ES-F-PTC-1. Flow Charts on p. 70.
# Series LF650A

## "Y" Strainers

Size: ½” – 2” (15 – 50mm)

### Features
- Tapped retainer cap with closure plug.
- 304 stainless steel, screen

### Pressure – Temperature

Max. Working Pressure:
- 400psi (27.6 bar) WOG @ 210°F (99°C)
- 125psi (8.6 bar) WSP @ 353°F (178°C)

### Materials

Body: Cast copper silicon alloy
Cap/Cover: Cast copper silicon alloy
Screen: 20 Mesh, 304 stainless steel

### Dimensions – Weights

#### Series LF650A

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimensions</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>in.</td>
<td>mm</td>
<td>in.</td>
</tr>
<tr>
<td>½</td>
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<td>2¾</td>
</tr>
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<td>25</td>
<td>3⅜</td>
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<tr>
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</tr>
<tr>
<td>2</td>
<td>50</td>
<td>5⅜</td>
</tr>
</tbody>
</table>

Dimensions shown are nominal.

---

* The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

**NOTICE**

Inquire with governing authorities for local installation requirements.

For additional information, reference literature ES-F-650A Flow Chart on p. 71.
"Y" Strainers
Size: 2½" – 10" (65 – 250mm)

Features
- Unplugged, NPT blowoff connections are situated on cover
- Recessed screen seats assure accurate screen alignment
- Screens are perforated 304 stainless steel

Pressure – Temperature
Non-Shock, 200psi @ 150° (13.8 bar @ 60°C)

Materials
Body: Cast Iron, ASTM A126-B
Cap/Cover: Carbon Steel, ASTM A36
Gasket: Non-asbestos
Screen: 2½" - 4" (65 - 100mm) (1⁄16" Perf.)
6" - 10" (150 - 250mm) (⅛" Perf.)

Dimensions – Weights

<table>
<thead>
<tr>
<th>SIZE (DN)</th>
<th>DIMENSIONS A</th>
<th>DIMENSIONS B</th>
<th>DIMENSIONS C</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
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<td>in.</td>
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<td>in.</td>
<td>mm</td>
<td>in.</td>
</tr>
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<td>65</td>
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<td>6</td>
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<td>200</td>
<td>21½</td>
<td>549</td>
<td>15½</td>
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<tr>
<td>10</td>
<td>250</td>
<td>26</td>
<td>660</td>
<td>18½</td>
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</table>

Dimensions shown are nominal.

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

NOTICE
Inquire with governing authorities for local installation requirements.

For additional information, reference literature ES-F-758A Flow Chart on p. 71.
Spool Adapters

DuraCheck to MasterSeries® Spacer Spool Adapter Kit
Size: 4" – 8" (100 – 200mm)

Features
- Easy retrofit
- Epoxy coated body
- Adapter Kit Includes: Spool, Gasket, Nuts and Studs
- End Details – Flanged ANSI B16.42, Class 150

Pressure – Temperature
Max. Working Pressure: 175psi (12.1 bar)
Hydrostatic Test Press: 350psi (24.1 bar)
Temperature Range: 33°F to 140°F (0.5°C to 60°C)

Materials
Main Valve Body: Carbon Steel or Ductile Iron (ANSI B16.1)
Coating: Epoxy coated internal and external, AWWA C550
Elastomers: Gaskets
Trim: Hex Nuts & Studs - plated steel

Retrofit Part Number Chart

<table>
<thead>
<tr>
<th>TYPE OF DEVICE</th>
<th>DURACHECK</th>
<th>MASTER SERIES</th>
<th>SPOOL ADAPTER</th>
<th>SPOOL ADAPTER</th>
<th>SPOOL ADAPTER</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Model 805YD</td>
<td>Model 850/LF850</td>
<td>4&quot; (100mm)</td>
<td>6&quot; (150mm)</td>
<td>8&quot; (200mm)</td>
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<td>Double Check</td>
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<td>905523</td>
<td>905524</td>
<td>905525</td>
</tr>
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<tr>
<td>Reduced Pressure</td>
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<td>905523</td>
<td>905524</td>
<td>905525</td>
</tr>
</tbody>
</table>

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

**NOTICE**
Inquire with governing authorities for local installation requirements.

For additional information, reference literature ES-F-SpoolAdapter.
Series LFTC1

Full Port Test Cock
Sizes: 1/8" M x 1/4" F and 1/4" M x 1/4" F

Features
• Lead Free* Cast Copper Silicon Alloy
• Full port design for low pressure drop.
• PTFE stem packing seal, thrust washer and seat.
• Quarter-turn open or close with slot for coin or screw driver to operate.
• Ideal for throttling and balancing applications of non-abrasive fluids where flow is 20% to 100% of valve capacity.
• Low operating torque.

The FEBCO Series LFTC1 is designed for the following applications:
• Test cock for backflow preventers
• Isolation valve for gauges
• Balancing Valve for gauges
• Lead Free* construction to comply with Lead Free* installation requirements

Dimensions and Weights
Series LFTC1

<table>
<thead>
<tr>
<th>SIZE</th>
<th>DIMENSIONS</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8 M x 1/4 F</td>
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</tr>
<tr>
<td>1/4 M x 1/4 F</td>
<td>1 1/4</td>
<td>4 1/4</td>
</tr>
</tbody>
</table>

Dimensions shown are nominal.

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

Inquire with governing authorities for local installation requirements.
Model TK-1

Backflow Preventer Test Kit

Features

- Color-coded valves and hoses for simplified operation
- Top mounted drain/purge valves and conveniently located line pressure gauge for ease of use
- A large 4.5" anti-parallax dial which indicates descending measurement, accurate to ± 1% of full scale
- Conveniently located needle valves for easy access
- Lightweight needle valves encased in a chemical-resistant body for trouble-free operation
- Replaceable hose filters and valve stem seals for field repair
- Complete kit contains gauge with color-coded valves and hoses, hose adapters, shock cord for easy mounting, supply pressure gauge. All contained in a durable carrying case with room for tools

Pressure – Temperature

Max. Working Pressure: 200psi (13.8 bar)

Max. Working Temperature: 200°F (93°C)

The FEBCO Model TK-1 Backflow Preventer Test Kit has been designed for simplified operation and rugged reliability in a compact package. Offering the latest in gauge technology, the FEBCO TK-1 provides dependable accuracy when testing pressure vacuum breakers, anti-spill vacuum breakers, reduced pressure backflow preventers or double check assemblies and is accurate to ±1% of full scale.

NOTICE

Inquire with governing authorities for local installation requirements.
Series FPHB-1 Key Operated Wall Hydrants
Sizes: ¾" – 1" (20 – 25mm)

Features
- Eliminates delays and multiple visits to gain interior access to irrigation equipment
- Standardizes location of supply shutoff valve and drain connection
- Access available anytime for winterizing
- Durable bronze valve body and shaft
- One piece valve plunger
- Tamper resistant key operated hydrant
- Exterior chrome finish
- Resilient seated shutoff
- Union connection for ease of installation of backflow preventer
- Manual drain port

Pressure — Temperature
Maximum Working Pressure: 175psi (12.1 bar)
Temperature Range: 33ºF - 140ºF (0.5ºC - 60ºC) continuous, 180ºF (82ºC) intermittent

Series FPHB-1 Key Operated Wall Hydrants have been specifically designed to provide outside access to a building water supply for start-up, winterizing, and servicing of irrigation sprinkler systems. The FPHB-1 is located outside of the home reducing the time spent on service calls. There is no need to locate the inside shutoff valve or the drain connection. Deploying the FPHB-1 wall hydrant enables the irrigation contractor to winterize an irrigation system at anytime thereby protecting the contractors’ warranty and the homeowners' investment. Non-potable applications.

When used in conjunction with the FEBCO Series 767 Pressure Vacuum Breaker or either a Series 825Y or 860 Reduced Pressure Zone Backflow Preventer, the installing contractor provides affordable freeze protection for both the irrigation system and the backflow preventer.

Materials
- Chrome plated bronze valve head
- Brass shaft with threaded end

Dimensions
Series FPHB-1

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DISTANCE (DN)</th>
<th>PIPE LENGTH</th>
<th>STEM LENGTH</th>
</tr>
</thead>
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<tr>
<td></td>
<td>in. mm</td>
<td>in. mm</td>
<td>in. mm</td>
</tr>
<tr>
<td>FPHB-1-8</td>
<td>8 200</td>
<td>9 229</td>
<td>12 313</td>
</tr>
<tr>
<td>FPHB-1-10</td>
<td>10 250</td>
<td>11 279</td>
<td>14 364</td>
</tr>
<tr>
<td>FPHB-1-12</td>
<td>12 300</td>
<td>13 330</td>
<td>16 389</td>
</tr>
</tbody>
</table>

Dimensions shown are nominal.

NOTICE
Inquire with governing authorities for local installation requirements.

For additional information, reference literature ES-F-FPHB-1 Flow Chart on p. 70.
**Series LF622F/FT/UF/UFT**

**Lead Free* Bronze, Full Port Ball Valves**

Size: ½" - 2" (15mm - 50mm)

![Series LF622UF](image1)

![Series LF622FT](image2)

**Features**

- The FEBCO Series LF622FT/ LF622UFT available with tapped side outlet suitable for installation of pressure gauges or test cocks. LF622UF/UFT with Union Ends.
- Lead Free* construction to comply with Lead Free* installation requirements.
- Tee handle standard on ½" through 1½" sizes (15mm – 32mm).
- Lever handle standard on 1½" through 2" sizes (40mm – 50mm).
- Full port design for low pressure drop.
- Pressure rated at 600psi (41.4 bar) WOG, (non-shock) ½”-2” (15mm – 50mm) (DN15-DN50) and 125psi (8.6 bar) saturated steam.
- Suitable for temperature from 0ºF to +350ºF (-18ºC to 177ºC) at 50psi (345 kPa).
- PTFE stem packing seal, thrust washer and seat.
- Plated carbon steel handle with vinyl insulator.
- Quarter-turn open or close operation.
- Ideal for throttling and balancing applications of non-abrasive fluids where minimum flow is 20% to 100% of valve capacity.
- Low operating torque.
- Adjustable stem packing gland.
- Bottom loaded, pressure retaining stem.

**LEAD FREE**

**Options**

- LF622F: Full Port Thread x Thread Ball Valve
- LF622FT: Full Port Thread x Thread Ball Valve with Tapped Side Outlet
- LF622 UF: Full Port Thread x Thread Ball Valve with (1) Union End
- LF622 UFT: Full port Thread x Thread Ball Valve with (1) Union End with Tapped Side Outlet

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.*

For additional information, reference literature ES-F-622. Flow Chart on p. 70.
# Dimensions — Weights

**LF622FT/LF622UFT**

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<td>16</td>
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<td>.6</td>
<td>.3</td>
<td>.7</td>
</tr>
<tr>
<td>3⁄4</td>
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<td>.4</td>
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<td>79</td>
<td>4 102</td>
<td>17⁄16</td>
<td>36</td>
<td>1 25</td>
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<td>.7</td>
<td>.3</td>
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<tr>
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<td>216</td>
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<td>18</td>
<td>5.6</td>
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<tbody>
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<td>1⁄2</td>
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<td>.3</td>
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<td>116</td>
<td>39⁄16</td>
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<td>99</td>
<td>5 129</td>
<td>8 11⁄16</td>
<td>216</td>
<td>9 3⁄4</td>
<td>241</td>
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<td>18</td>
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<td>3.7</td>
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<td>18</td>
<td>5.6</td>
<td>2.5</td>
<td>6.4</td>
</tr>
</tbody>
</table>

Dimensions shown are nominal.

**NOTICE**

Inquire with governing authorities for local installation requirements.
Flow Charts

Series 800

Series 850S/LF850S

Series 406

Velocities are calculated for flows in Schedule 40 steel pipe.
### Series LF850L

#### 2½" & 3" (65mm & 80mm)

<table>
<thead>
<tr>
<th>Flow Rate (gpm)</th>
<th>Pressure (kPa)</th>
<th>Pressure (psi)</th>
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</thead>
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<td>0</td>
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</tr>
<tr>
<td>30</td>
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<tr>
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<td>150</td>
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<td>75</td>
</tr>
<tr>
<td>180</td>
<td>60</td>
<td>90</td>
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#### 4" & 6" (100mm & 150mm)

<table>
<thead>
<tr>
<th>Flow Rate (gpm)</th>
<th>Pressure (kPa)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td>150</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>300</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>450</td>
<td>150</td>
<td>225</td>
</tr>
<tr>
<td>600</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>750</td>
<td>250</td>
<td>375</td>
</tr>
<tr>
<td>900</td>
<td>300</td>
<td>450</td>
</tr>
</tbody>
</table>

#### 8" & 10" (200mm & 250mm)

<table>
<thead>
<tr>
<th>Flow Rate (gpm)</th>
<th>Pressure (kPa)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<tr>
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<tr>
<td>750</td>
<td>250</td>
<td>375</td>
</tr>
<tr>
<td>900</td>
<td>300</td>
<td>450</td>
</tr>
</tbody>
</table>

### Series 850U/LF850U

#### ½" (15mm)

<table>
<thead>
<tr>
<th>Flow Rate (gpm)</th>
<th>Pressure (kPa)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>70</td>
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</tr>
<tr>
<td>140</td>
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<td>20</td>
</tr>
<tr>
<td>210</td>
<td>15</td>
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<td>280</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>350</td>
<td>25</td>
<td>50</td>
</tr>
</tbody>
</table>

#### ¼" (20mm)

<table>
<thead>
<tr>
<th>Flow Rate (gpm)</th>
<th>Pressure (kPa)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>170</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>340</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>510</td>
<td>45</td>
<td>65</td>
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<tr>
<td>680</td>
<td>60</td>
<td>85</td>
</tr>
<tr>
<td>850</td>
<td>80</td>
<td>115</td>
</tr>
</tbody>
</table>

#### 1" (25mm)

<table>
<thead>
<tr>
<th>Flow Rate (gpm)</th>
<th>Pressure (kPa)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
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<td>25</td>
</tr>
<tr>
<td>460</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>690</td>
<td>45</td>
<td>65</td>
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<td>920</td>
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<td>85</td>
</tr>
<tr>
<td>1150</td>
<td>80</td>
<td>115</td>
</tr>
</tbody>
</table>

#### 1¼" (32mm)

<table>
<thead>
<tr>
<th>Flow Rate (gpm)</th>
<th>Pressure (kPa)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>300</td>
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<tr>
<td>600</td>
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<tr>
<td>900</td>
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<td>65</td>
</tr>
<tr>
<td>1200</td>
<td>60</td>
<td>85</td>
</tr>
<tr>
<td>1500</td>
<td>80</td>
<td>115</td>
</tr>
</tbody>
</table>

#### 1½" (40mm)

<table>
<thead>
<tr>
<th>Flow Rate (gpm)</th>
<th>Pressure (kPa)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
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</tr>
<tr>
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<tr>
<td>600</td>
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<tr>
<td>900</td>
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</tr>
<tr>
<td>1200</td>
<td>60</td>
<td>85</td>
</tr>
<tr>
<td>1500</td>
<td>80</td>
<td>115</td>
</tr>
</tbody>
</table>

#### 2" (50mm)

<table>
<thead>
<tr>
<th>Flow Rate (gpm)</th>
<th>Pressure (kPa)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>300</td>
<td>15</td>
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<tr>
<td>600</td>
<td>30</td>
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<tr>
<td>900</td>
<td>45</td>
<td>65</td>
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<tr>
<td>1200</td>
<td>60</td>
<td>85</td>
</tr>
<tr>
<td>1500</td>
<td>80</td>
<td>115</td>
</tr>
</tbody>
</table>

### Notice

Inquire with governing authorities for local installation requirements.
The 6" curves (N-standard orientation) include the FEBCO valve setter Series 611.
Flow Charts

Series 856ST

[Flow Chart for 2½” & 3” (65 & 80mm)]

[Flow Chart for 4” & 6” (100 & 150mm)]

Series 876VST

[Flow Chart for 2½”]

[Flow Chart for 3”]

[Flow Chart for 4”]

[Flow Chart for 6”]

[Flow Chart for 8”]

[Flow Chart for 10”]

The 6” and 10” flow curves (N-standard orientation) include the FEBCO Valve Setter Series 611.
Flow Charts

Series 860U/LF860U

1/4" (15mm)

1/2" (20mm)

1" (25mm)

1 1/4" (32mm)

1 1/2" (40mm)

2" (50mm)
The 6” and 10” flow curves (N-standard orientation) include the FEBCO valve setter model 611.
## Flow Charts

### 826YD

#### 2 1/2" (65mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>5</td>
</tr>
<tr>
<td>69</td>
<td>10</td>
</tr>
<tr>
<td>103</td>
<td>15</td>
</tr>
<tr>
<td>137</td>
<td>20</td>
</tr>
<tr>
<td>172</td>
<td>25</td>
</tr>
</tbody>
</table>

#### 3" (80mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>5</td>
</tr>
<tr>
<td>69</td>
<td>10</td>
</tr>
<tr>
<td>103</td>
<td>15</td>
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<tr>
<td>137</td>
<td>20</td>
</tr>
<tr>
<td>172</td>
<td>25</td>
</tr>
</tbody>
</table>

#### 4" (100mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>5</td>
</tr>
<tr>
<td>69</td>
<td>10</td>
</tr>
<tr>
<td>103</td>
<td>15</td>
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<tr>
<td>137</td>
<td>20</td>
</tr>
<tr>
<td>172</td>
<td>25</td>
</tr>
</tbody>
</table>

#### 6" (150mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
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<td>5</td>
</tr>
<tr>
<td>69</td>
<td>10</td>
</tr>
<tr>
<td>103</td>
<td>15</td>
</tr>
<tr>
<td>137</td>
<td>20</td>
</tr>
<tr>
<td>172</td>
<td>25</td>
</tr>
</tbody>
</table>

#### 8" (200mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>69</td>
<td>10</td>
</tr>
<tr>
<td>103</td>
<td>15</td>
</tr>
<tr>
<td>137</td>
<td>20</td>
</tr>
<tr>
<td>172</td>
<td>25</td>
</tr>
</tbody>
</table>

#### 10" (250mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
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<tr>
<td>69</td>
<td>10</td>
</tr>
<tr>
<td>103</td>
<td>15</td>
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<td>137</td>
<td>20</td>
</tr>
<tr>
<td>172</td>
<td>25</td>
</tr>
</tbody>
</table>

## 710, 715

#### 1/4" (15mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>5</td>
</tr>
<tr>
<td>69</td>
<td>10</td>
</tr>
</tbody>
</table>

#### 3/4" (20mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 1" (25mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 1 1/4" (32mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 1 1/2" (40mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 2" (50mm)

<table>
<thead>
<tr>
<th>kPa</th>
<th>psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>5</td>
</tr>
</tbody>
</table>

---

**Flow Chart Data:**

- **826YD**
  - 2 1/2" (65mm)
  - 3" (80mm)
  - 4" (100mm)
  - 6" (150mm)
  - 8" (200mm)
  - 10" (250mm)

- **710, 715**
  - 1/4" (15mm)
  - 3/4" (20mm)
  - 1" (25mm)
  - 1 1/4" (32mm)
  - 1 1/2" (40mm)
  - 2" (50mm)
Series LF650A "Y" Strainer

Pressure Drop

Flow Rate

Flow Rate

Series LF758A Screwed End "Y" Type Strainer

Above based on flow of clean water through unplugged screens. Some sizes listed on flow charts are not available from FEBCO.