

## Engineering Specification

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

Contractor \_\_\_\_\_

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

Approval \_\_\_\_\_

Engineer \_\_\_\_\_

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

Approval \_\_\_\_\_

Representative \_\_\_\_\_

# LEAD FREE\*

## MasterSeries® LF880V

### Reduced Pressure Zone Backflow Prevention Assembly

2½" – 10"

MasterSeries LF880V Reduced Pressure Zone assembly is designed to protect against backpressure and backsiphonage conditions for high hazard/toxic application in accordance with Local Governing Water Utility Code. Used primarily 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 ductile iron body is fused with ArmorTek® technology to resist corrosion due to microbial induced corrosion (MIC) or exposed metal substrate. The series features Lead Free construction to comply with low lead installation requirements. The Lead Free Reduced Pressure Zone assemblies shall comply with state codes and standards, where applicable, requiring reduced lead content.

The series include a flood sensor to detect excessive water discharges from the relief valve. The flood sensor relays a signal that triggers a multichannel alert (call, email, text) to notify personnel about potential flooding.

#### NOTICE

An add-on connection kit is required to activate the flood sensor. Without the connection kit, the flood sensor is a passive component that does not communicate with any other device. (A retrofit sensor connection kit is also available for existing installations. For more information, download RP/IS-F-880V-RP/RPDA.)

#### NOTICE

Use of the flood sensor does not replace the need to comply with all required instructions, codes, and regulations related to installation, operation, and maintenance of this product, including the need to provide proper drainage in the event of a discharge.

Watts® is not responsible for the failure of alerts due to connectivity issues, power outages, or improper installation.

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



LF880V-NRS with flood sensor

#### Features

- Stainless steel relief valve seat and stainless steel check components for maximum performance and durability
- Inline serviceable assembly
- Horizontal N-pattern or vertical up Z-pattern installation
- No special tools required for servicing
- Captured modular spring assembly
- Reversible and replaceable discs
- Field replaceable seats
- Ductile iron valve body design
- Advanced ArmorTek coating technology to resist corrosion of internal components
- Modular and repairable pressure differential relief valve
- Clapper check assembly
- Captured O-ring design
- Sensor on relief valve for flood detection, activated by add-on connection kit for BMS or cellular network communication

#### NOTICE

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

Inquire with governing authorities for local installation requirements.



## Specification

FEBCO MasterSeries LF880V Reduced Pressure Zone assembly shall be installed on the potable water supply and at each point of cross-connection to protect against possible backpressure and backsiphonage conditions for high hazard/toxic applications. The assembly shall consist of a main line valve body composed of a pressure differential relief valve located in a zone between two (2) independently acting approved clapper style check modules with replaceable seats and disc rubbers. Servicing of the pressure differential relief valve and both check modules does not require any special tools; both check modules are accessed through independently top entry covers. This assembly shall be fitted with AWWA Compliant inlet/outlet resilient seated shutoff valves; when used on a Fire-Sprinkler application, the assembly shall be fitted with UL Classified and FM Approved inlet/outlet resilient seated shutoff valves and contain four (4) properly located resilient seated test cocks as specified by AWWA Standard C511. The valve body shall incorporate a coating system with built-in electrochemical corrosion inhibitor and microbial inhibitor. Flow and pressure loss performance parameters shall meet the requirements of AWWA Standard C511. The assembly shall be FEBCO MasterSeries LF880V and shall include a sensor on the relief valve for flood detection.

## Model/Option

FS	Sensor on relief valve for flood detection
OSY	UL Classified and FM Approved OS&Y gate valves (ANSI/AWWA C515 Compliant)
NRS	Non-rising stem gate valves (ANSI/AWWA C509 Compliant)
LG	Less shutoff valves (This is NOT an APPROVED ASSEMBLY.)

## Example Ordering Description

4" LF880V-OSY-FS - Valve assembly fitted OS&Y shutoff valves and flood sensor

## 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)

## 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



## Assembly Flow Orientation

Horizontal (N-Pattern 2½" – 10") - Approved by FCCCHR-USC, ASSE, cULus, FM, IAPMO/cUPC

Vertical Up (Z-Pattern 2½" – 10") - Approved by FCCCHR-USC, ASSE, cULus, FM, IAPMO/cUPC

\*\*Assemblies configured with UL Classified and FM Approved OS&Y RW gate valves. Less gate valve assemblies are not UL Classified and FM Approved configurations.

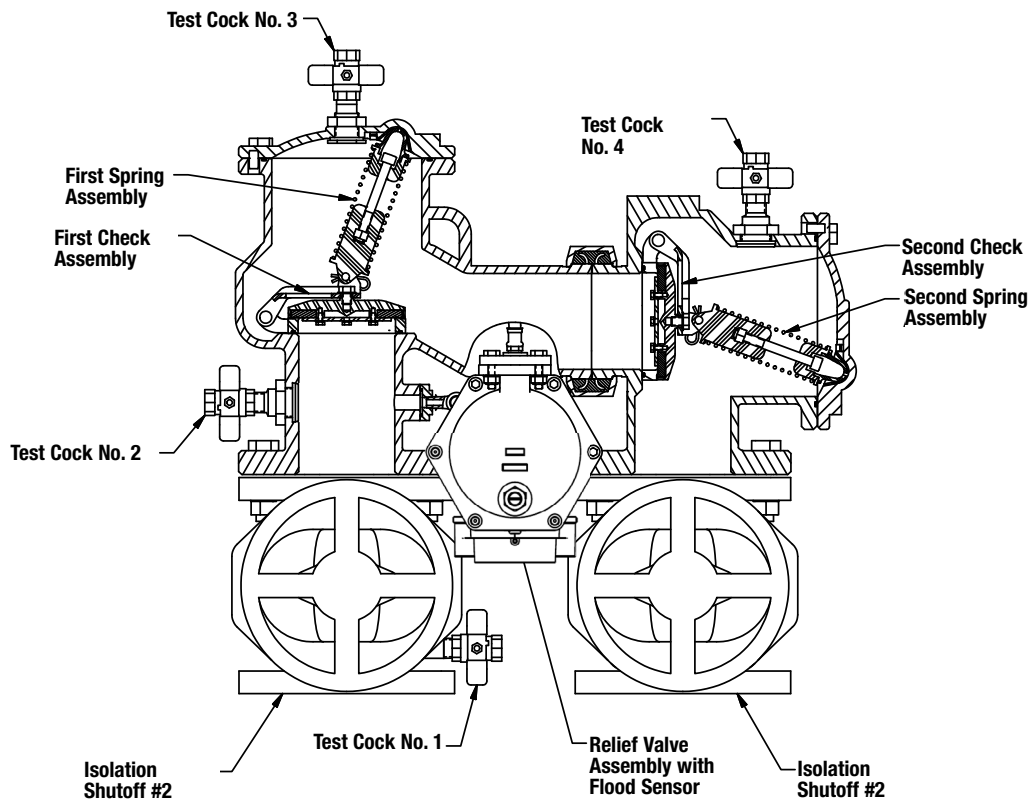
## Materials

All assemblies (sizes 2½" to 10") are similar in materials and construction. 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 Classified and FM Approved)
Check Seats	Stainless steel
Relief Valve Seat	Stainless steel
Disc Holder	Stainless steel
Elastomer Disc	Silicone
Spring	Stainless steel
Clamp	AWWA C606

## Pressure - Temperature

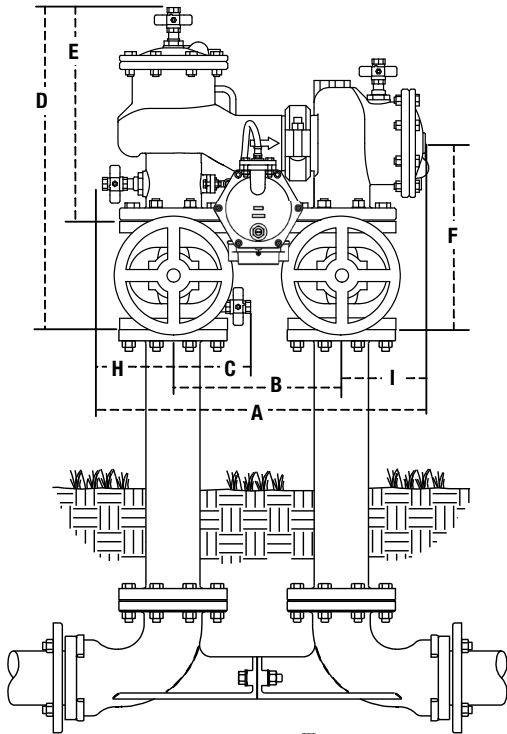
Max. Working Pressure	175 psi (12.1 bar)
Min. Working Pressure	20 psi (1.4 bar)
Hydrostatic Test Pressure	350 psi (24.1 bar)
Hydrostatic Safety Pressure	700 psi (48.3 bar)
Temperature Range	33°F – 140°F (0.5°C – 60°C) continuous



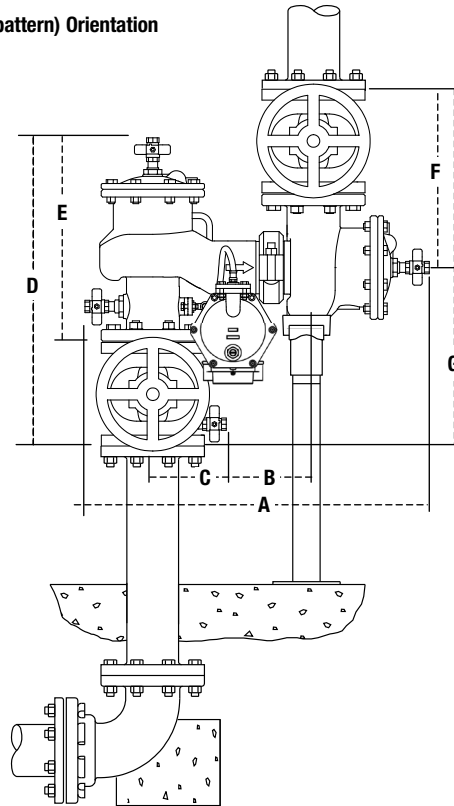
## Dimensions and Weights

Below are the nominal dimensions and physical weights for LF880V, sizes 2½" to 10". Allowances must be made for normal manufacturing tolerances. Download installation instructions at watts.com, or contact your local FEBCO representative for more information.

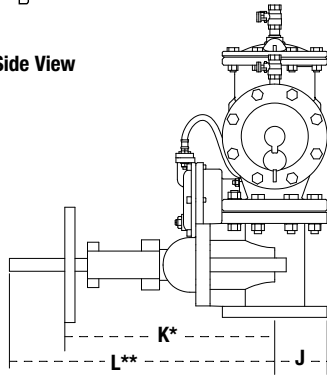
### Standard (N-pattern) Orientation



### Vertical (Z-pattern) Orientation

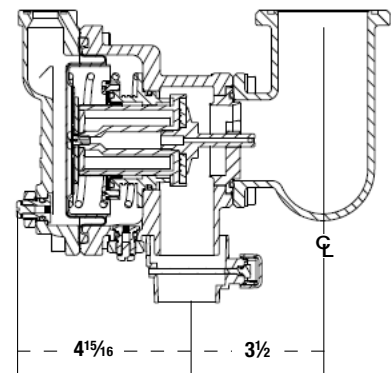


### Gate Valve Side View



### Relief Valve Detail

Relief valve with flood sensor shipped on right side (shown) field reversible to left side



Call customer service if you need assistance with technical details.

SIZE	DIMENSIONS												WEIGHT***															
	A		B		C		D		E		F		G		H		I		J		K*		L**		NRS		OSY	
in.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb	kg	lb	kg
2½	25½	654	12½	318	6¼	159	24¼	616	16⅝	422	13⅝	346	27¼	692	5½	140	7¼	184	3½	89	12⅝	321	16⅝	416	221	100	225	102
3	25¾	654	12½	318	6¼	159	24¼	629	16⅝	422	14⅝	359	28¼	718	5½	140	7¼	184	3¾	95	12⅞	327	22¼	565	247	112	251	114
4	27⅞	708	14	356	7	178	26¼	680	17¾	451	15½	394	31	787	6	152	7¼	184	4½	114	14⅝	365	23¼	591	344	156	356	162
6	32¼	819	16	406	8	203	32¼	819	21⅝	548	18⅝	473	37¼	946	7½	191	9½	241	5½	140	18⅞	479	30⅞	765	517	235	537	244
8	37½	953	18½	470	9¼	235	36⅝	324	24⅞	632	20¾	527	41½	1054	8¾	222	10¼	260	6¾	172	23½	597	37¾	959	808	366	836	379
10	42¼	1068	21	533	10⅞	264	40⅝	1032	27½	699	23¼	601	47⅞	1202	9⅝	238	11¼	298	8	203	27½	699	45¾	1162	-	-	1344	610

\* Indicates nominal dimensions with NRS gate valves.

\*\* Indicates nominal dimensions with OSY gate valves (full open positions).

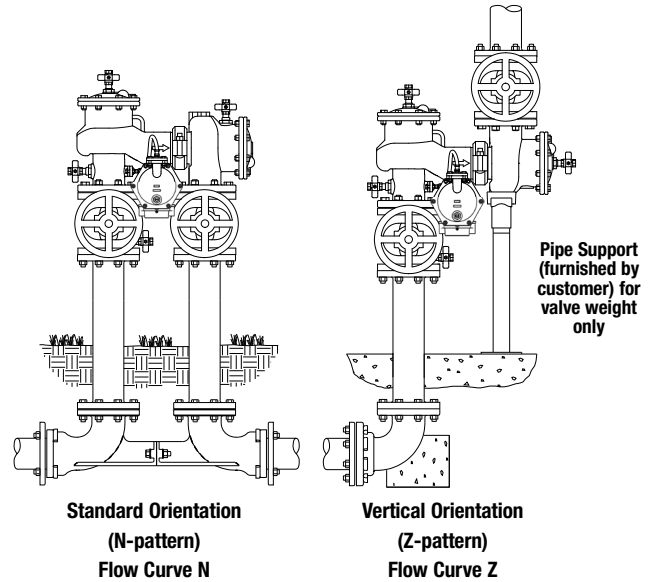
\*\*\* Indicates weight of complete backflow assemblies with specified gate valves.

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 handles 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 complete failure condition. Do not reduce the size of the drain line from the air gap fitting.

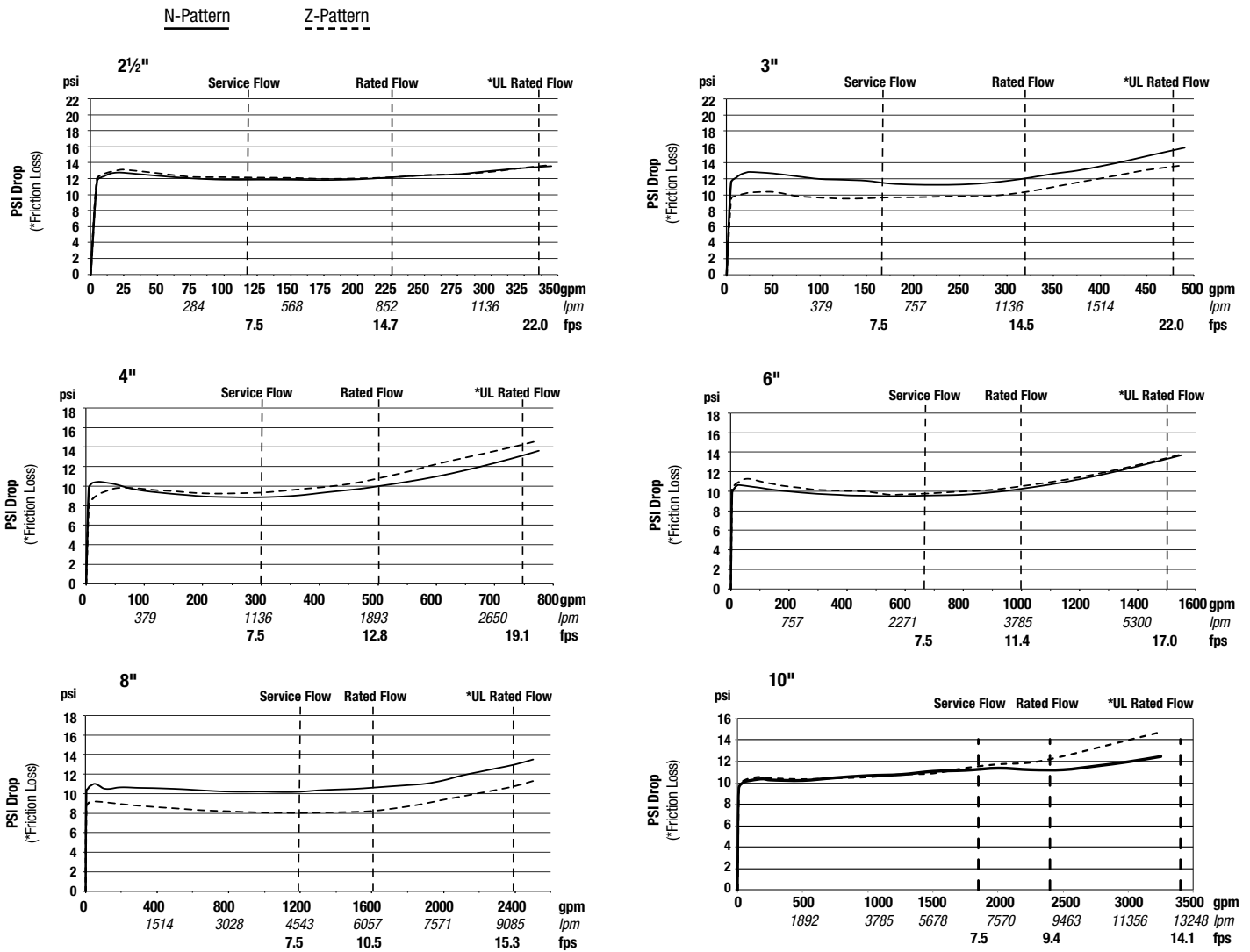
# Performance

The flow capacity chart identifies valve performance based upon rated water velocity up to 20 fps.

- Maximum service flow rate is determined by maximum rated velocity of 7.5 fps.
- AWWA Manual M-22 (Appendix C) recommends that the maximum water velocity in the services be not more than 10 fps.
- UL flow rate is determined by typically rated velocity of 15 ft/s.



# Capacity



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