

# Engineering Specification

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

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

## Series 765 Pressure Vacuum Breakers

1/2" - 2"

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

**⚠ WARNING**  
 Freeze sensor solely provides alerts about a possible freeze event and cannot prevent a freeze event from occurring. User action is required to prevent freeze conditions from causing product and/or property damage.

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

Series 765 includes a freeze sensor to indicate when temperature nears the freezing point. The sensor relays a signal that triggers notification to facility personnel to take preventive action, thus reducing or eliminating equipment replacement or repair.

**NOTICE**

An add-on connection kit is required to activate the freeze sensor. Without the connection kit, the sensor is a passive component that has no communication with any other device. (For more information download RP/IS-FZ-765.)

### 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



765-FZ

- End connections NPT ANSI/ASME B1.20.1
- Sensor included to indicate temperature at freeze threshold
- Freeze alerts feature activated with add-on sensor connection kit, compatible with building/irrigation management systems

### Operation

Series 765 consists of a spring-loaded check valve which closes tightly when the pressure in the assembly drops below 1 psi or when zero flow occurs, and an air relief valve that opens to break a siphon when the pressure in the assembly drops to 1 psi.

**NOTICE**

Use of the freeze 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 protection against a freeze event.

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

**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.



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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.

## Specification

Pressure Vacuum Breaker assemblies shall be installed to withstand pressure for long periods and to prevent backflow of contaminated water into the potable water system in backsiphonage conditions. The Pressure Vacuum Breaker assembly shall consist of a single spring loaded check valve which closes tightly when water flow through the assembly drops to zero, and a single air relief valve that opens to break the siphon when pressure drops to 1 psi. The assembly shall include two resilient seated shutoffs and two resilient seated test cocks, considered integral to the assembly. Assemblies must be factory backflow tested. The check valve and air inlet valve must be constructed to allow in-line servicing of the assembly. The valve body shall be constructed of bronze. The check, poppet, and bonnet assembly shall be constructed of engineered plastic to protect the valve body from freeze damage.

Pressure Vacuum Breaker assemblies shall be installed a minimum of 12" above the highest downstream outlet, and the highest point in the downstream piping. The assembly shall be rated to 150 psi working pressure and water temperature from 32°F to 140°F. The assembly shall meet the specifications of the USC FCCC & HR Manual.

Pressure Vacuum Breaker assemblies shall be FEBCO Series 765, or prior approved equal, and shall include a freeze sensor.

## Model/Option

FZ	Freeze sensor
U	Union end ball valves

## Materials

Main Valve Body:	Bronze
Elastomers:	Nitrile

## Pressure – Temperature

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

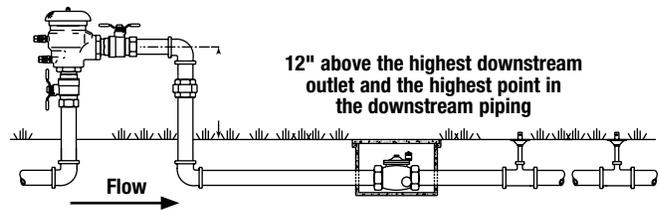
## Standards – Approvals

Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California



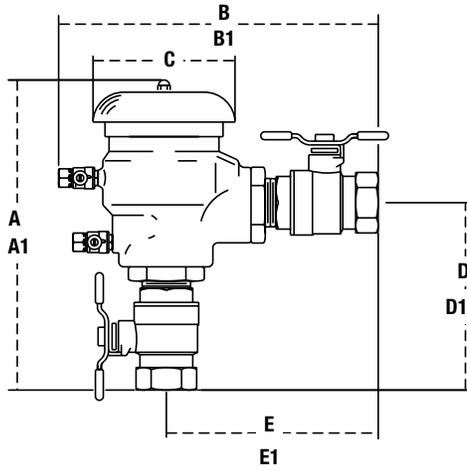
## Typical Installation

Pressure Vacuum Breaker assemblies require at least 12" above the highest piping and outlet downstream of the assembly to preclude backpressure. Assemblies must be installed in locations that are easily accessible for maintenance, periodic testing, and where discharge is not objectionable. Freeze protection is also required. 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 3.0 psi on sizes 1/2" to 1 1/4" and 5.0 psi on sizes 1 1/2" to 2" to ensure seating of the spring-loaded air inlet poppet.



Thermal water expansion and/or water hammer downstream of the backflow preventer can cause pressure increases. Eliminate excessive pressure to avoid possible damage to the system and assembly.

## Dimensions – Weights

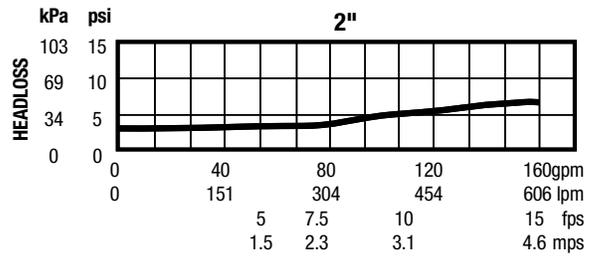
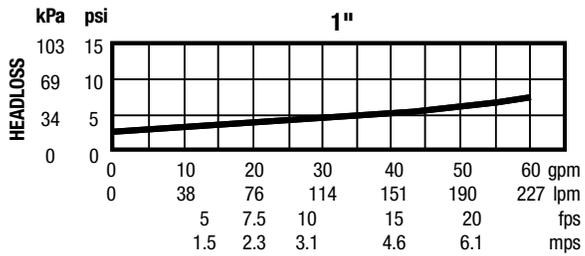
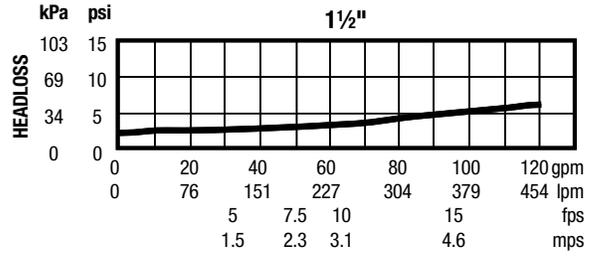
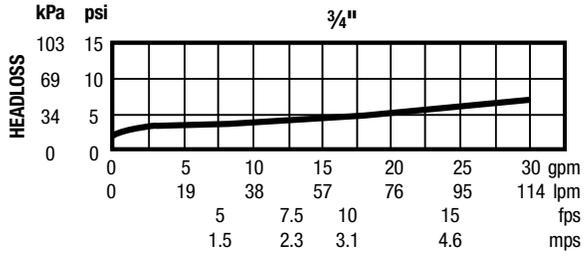
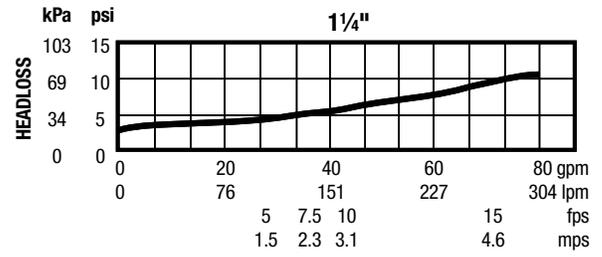
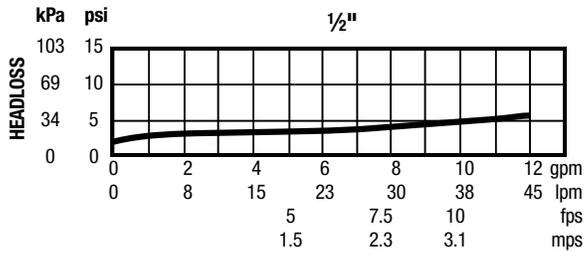


Call customer service if you need assistance with technical details.

SIZE	DIMENSIONS										WEIGHT									
	A		A1 (union)		B		B1 (union)		C		D		D1 (union)		E		E1 (union)		lb	kg
<i>in.</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>		
½	6¼	159	7	178	6¾	172	7½	197	2½	64	3¾	95	4½	114	4¼	108	5	127	2.6	1.2
¾	6½	165	7⅝	187	7	178	7⅞	200	2½	64	4	102	4⅞	124	4½	114	5⅝	137	2.9	1.3
1	8¾	222	9⅝	245	9	229	9 <sup>15</sup> / <sub>16</sub>	252	4	102	5¼	133	6 <sup>3</sup> / <sub>16</sub>	157	6	152	6 <sup>15</sup> / <sub>16</sub>	176	5.9	2.7
1¼	9¼	235	10¼	260	10	254	11	279	4	102	6¼	159	7¼	184	7	178	8	203	7.0	3.2
1½	11¾	299	12⅞	327	11½	292	12 <sup>5</sup> / <sub>8</sub>	321	6½	165	7¼	184	8⅝	213	7¾	197	8¾	225	14.8	6.7
2	12½	318	13¾	349	12¼	311	13½	343	6½	165	8	203	9¼	235	8½	216	9¾	248	16.5	7.5

Note: Weights shown do not include union end ball valves and are approximate.

# Capacity



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