



# Submittal Data Information

101-177

## 007e™ ECM High-Efficiency Circulator

Effective: March 22, 2018

Supersedes: April 20, 2017

Job: \_\_\_\_\_ Engineer: \_\_\_\_\_ Contractor: \_\_\_\_\_ Rep: \_\_\_\_\_

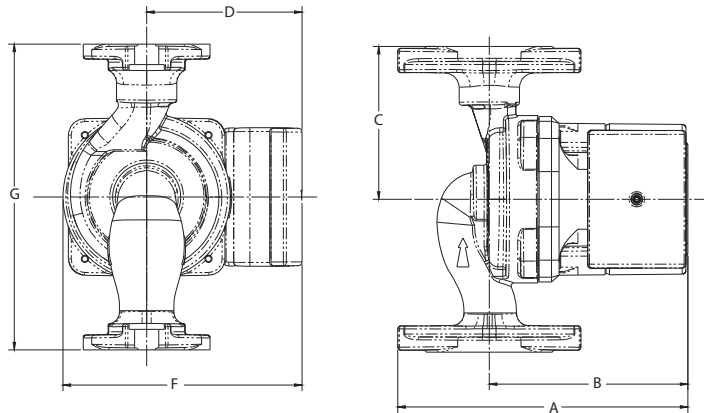
ITEM NO.	MODEL NO.	

### Specifications

- Max. Shut-off Head: 10 feet
- Max. Flow: 16 gpm
- Max. Operating Pressure: 125 psi (8.6 bar)
- Max. Water Temp: 230°F (110°C)
- Min. Water Temp: 36°F (2°C)
- Electrical specifications:
  - Voltage: 120V, 60 Hz
  - Single phase
  - Max. Operating Power: 44W
  - Max. AMP Rating: 0.54
- Equipped with a cast iron casing and should be used for closed loop systems only
- Not suitable for chilled water or open loop potable water systems
- Taco circulator pumps are for indoor use only
- Acceptable for use with water or maximum of 50% water/glycol solution

### Applications

The 007e is a high-efficiency wet rotor circulator with an ECM permanent magnet motor. Its ECM performance is equivalent to the legendary 007 circulator and is ideal for hydronic systems zoned with circulators or zone valves. The 007e is not suitable for chilled water or open loop potable water systems.



### Pump Dimensions & Weights

Model (Part Number)	Flange Type	A		B		C		D		F		G		Ship Wt.	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	Kg
007e-F2 (VB1016-HY2-FC2A00)	S	6	152	4-1/8	104	3-3/16	80	3-1/4	82	5	126	6-3/8	161	5.8	2.6
007e-F4 (VB1016-HY2-4C2A00)	U	6	152	4-1/8	104	3-3/16	80	3-1/4	82	5-1/8	130	6-3/8	161	6	2.7

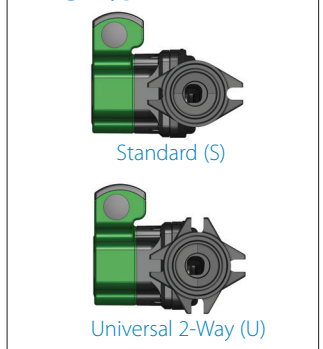
### Materials of Construction:

Casing: .....Cast Iron  
 Stator Housing:.....Composite  
 Cartridge:.....Composite  
 Impeller:.....Composite  
 Shaft:.....Ceramic  
 Bearings:.....Carbon  
 Thrust Bearing:.....Ceramic  
 O-Ring & Gaskets:.....EPDM

### Mounting Positions



### Flange Type



### Electrical Data

Model	Volts	Hz	Ph	Max.Amps	Max. Watts	RPM
Both Models	120	60	1	.54	44	4830
Motor Type	ECM, Permanent Magnet, Thermally Protected					



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## For Residential and Commercial Applications

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

Contractor \_\_\_\_\_

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

Approval \_\_\_\_\_

Engineer \_\_\_\_\_

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

Approval \_\_\_\_\_

Representative \_\_\_\_\_

# Series IPF

## Isolation Pump Flanges for Circulator Pumps

Sizes:  $\frac{3}{4}$ " – 2"

Series IPF Isolation Pump Flanges are designed to isolate circulator pumps to facilitate circulator pump replacement or repair.

### Features

- Fits most circulator pumps
- Includes mounting nuts and bolts
- Durable brass body and flange
- High Pressure Rating (600 WOG for solder and threaded and 250 WOG for Press)
- Adjustable packing gland
- EPDM O-Rings to avoid leaks at installation
- Optional Tee handle included

### Models

- IPF-T-M1       $\frac{3}{4}$ " – 2" NPT threaded end connection  
 IPF-S-M1       $\frac{3}{4}$ " – 2" Solder end connection  
 IPF-Press-M1     $\frac{3}{4}$ " - 1 $\frac{1}{4}$ " Press end connection

### Specifications

Approved isolation pump flange of 2-piece design constructed of brass body and end adapter. Pump flange shall have adjustable PTFE packing and a Buna-N O-ring on a brass stem with virgin PTFE seats. Threaded and Solder valves to be pressure rated to 600psi (41.4 bar) WOG. Press valves to be pressure rated to 250psi (18 bar) CWP. Valves with lower pressure ratings are not acceptable. Approved valve is a Watts Series IPF-T-M1 (threaded) or IPF-S-M1 (solder) or IPF-PRESS-M1 (Press).



\*This valve is designed to be soft soldered into lines without disassembly, using a low temperature solder to 420°F (216°C). Higher temperature solders may damage the seat material.

Apply heat with the flame directed AWAY from the center of the valve body. Excessive heat can harm the seats.

### 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.

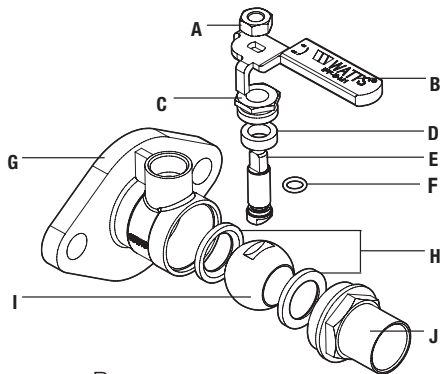
### NOTICE

Inquire with governing authorities for local installation requirements

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts 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 Watts products previously or subsequently sold.



## Materials



A	Handle nut:	Brass
B	Handle:	Steel with vinyl insulator
C	Packing Nut:	Brass
D	Stem Packing:	Virgin PTFE
E	Stem:	Brass
F	Stem O-ring:	EPDM
G	Body/Flange:	Brass
H	Seats:	Virgin PTFE
I	Ball:	Chrome-plated Brass
J	Adapter:	Brass

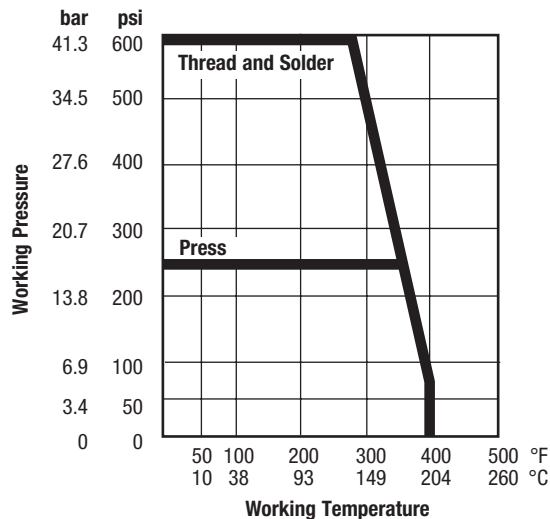
## Pressure – Temperature

Maximum Working Pressure:

Thread and Solder: 600psi (41.4 bar) WOG  
Press - 250psi (18 bar) CWP

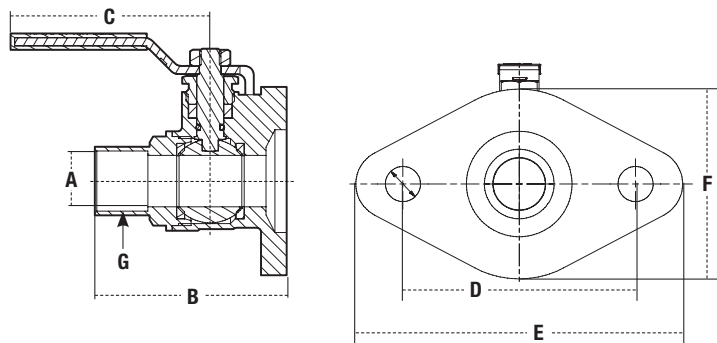
Maximum Temperature: 406°F (208°C) at 100psi (6.9 bar)

## Temperature – Pressure Rating



\* See applicable note on reverse side for solder end valves with regards to pressure/temperature rating.

## Dimensions – Weights



SIZE		ORDERING CODE		DIMENSIONS								WEIGHT			
in.		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	kg
<b>IPF-T-M1</b>															
3/4	0068090	3/4	19	2 1/4	54	3	77	3 3/16	80	4 5/8	118	2 11/16	69	3/4" NPT	.61
1	0068091	1	25	2 5/8	63	3	77	3 3/16	80	4 5/8	118	2 11/16	69	1" NPT	.72
1 1/4	0068092	1 1/4	31	2 13/16	72	4	107	3 3/16	80	4 5/8	118	2 11/16	69	1 1/4" NPT	.97
1 1/2	0068093	1 1/2	39	3 1/4	79	4	107	3 3/16	80	4 5/8	118	2 11/16	69	1 1/2" NPT	1.13
2	0068094	1 7/8	47	3 3/4	90	4	107	3 7/16	87	4 5/8	118	2 11/16	69	2" NPT	1.16
<b>IPF-S-M1</b>															
3/4	0068095	3/4	19	2 1/8	54	3	77	3 3/16	80	4 5/8	118	2 11/16	69	—	.60
1	0068096	1	25	2 1/2	63	3	77	3 3/16	80	4 5/8	118	2 11/16	69	—	.72
1 1/4	0068097	1 1/4	31	2 13/16	72	4	107	3 3/16	80	4 5/8	118	2 11/16	69	—	.97
1 1/2	0068098	1 1/2	39	3 1/8	79	4	107	3 3/16	80	4 5/8	118	2 11/16	69	—	1.13
2	0068099	1 7/8	47	3 1/2	90	4	107	3 3/16	87	4 5/8	118	2 11/16	69	—	1.36
<b>IPF-PRESS-M1</b>															
3/4	0068087	3/4	19	3	77	3 5/8	92	3 3/16	80	4 1/8	105	2 11/16	69	Press	.60
1	0068088	1	25	3 5/16	84	4	107	3 3/16	80	4 1/8	105	2 11/16	69	Press	.79
1 1/4	0068089	1 1/4	31	3 5/8	92	5 1/16	137	3 3/16	80	4 1/8	105	2 11/16	69	Press	.97



USA: T: (978) 689-6066 • F: (978) 975-8350 • Watts.com

Canada: T: (905) 332-4090 • F: (905) 332-7068 • Watts.com

Latin America: T: (52) 81-1001-8600 • Watts.com



# Submittal Data Information

101-005

## Boiler Feed Valves, Dual Controls, Backflow Preventers & Combination Boiler Feed & Backflow Preventer Valves

Effective: April 5, 2019

Supersedes: January 26, 2018

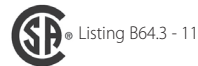
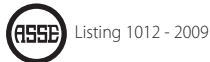
Job: \_\_\_\_\_ Engineer: \_\_\_\_\_ Contractor: \_\_\_\_\_ Rep: \_\_\_\_\_

ITEM NO.	MODEL NO.	

### Features

- Fast Fill Rate on All Models
- Exclusive Fast Fill Lever Lock
- Built-In Check to Prevent Emptying the System if Incoming Pressure Fails
- Adjustable Set Pressure of 10 to 25 psi
- Pressure Setting Adjustment Separated from Fast Fill Lever for Easy, Fast Adjustment

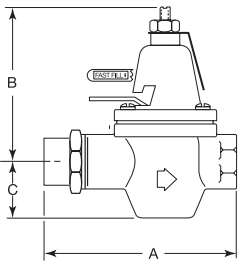
- Both the Backflow Preventer and the Combination Boiler Feed & Backflow Preventer Valve Carry These Certifications:



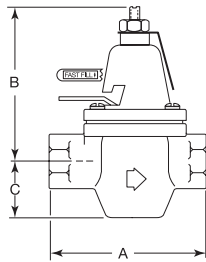
### Purpose

To automatically feed water to a system whenever pressure in the system drops below the pressure setting of the valve. The dual control combines the boiler feed valve with an in-line pressure relief valve connected at the outlet end. The backflow prevents contamination of the potable water if supply pressure should fail.

### Boiler Feed Valve



Models 329 & 329-T/H

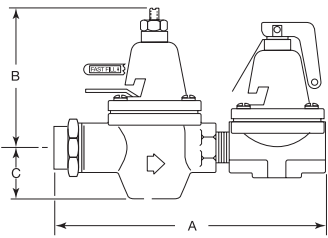


Model 335

\* Dimensions for reference purposes only.

Models	Performance Data								Body	Inlet	Outlet	A		B		C		Ship Wt.	
	Max Fluid Temp		Max Supply Press.		Pressure Range		Factory Setting					in.	mm	in.	mm	in.	mm	lbs.	Kg
	F°	C°	psi	kPa	psi	kPa	psi	kPa											
329									Cast Iron	1/2" Union SWT	1/2" NPT	4-1/4	108	3-3/4	95	1-3/8	35	1.75	1.1
329-T									Cast Iron	1/2" Union NPT	1/2" NPT	4-3/4	111	3-3/4	95	1-3/8	35	1.75	1.1
329-H									Cast Iron	1/2" Union Press	1/2" NPT	5-1/2	140	3-3/4	95	1-3/8	35	1.75	1.1
335									Brass	3/4" NPT	3/4" NPT	3-3/4	95	3-3/4	95	1-3/8	35	2.4	1.1
335U-050-C	212*	100*	100	689	10-25	69-172	12	83	Brass	1/2" Union SWT	1/2" NPT	4-1/4	108	3-3/4	95	1-3/8	35	2.5	1.2
335U-050-T									Brass	1/2" Union NPT	1/2" NPT	4-1/4	108	3-3/4	95	1-3/8	35	2.5	1.2
335U-050-H									Brass	1/2" Union Press	1/2" NPT	5-1/4	133	3-3/4	95	1-3/8	35	2.5	1.2
335U-075-C									Brass	3/4" Union SWT	3/4" NPT	4-1/2	114	3-3/4	95	1-3/8	35	2.5	1.2
335U-075-T									Brass	3/4" Union NPT	3/4" NPT	4-1/4	108	3-3/4	95	1-3/8	35	2.5	1.2

## Dual Controls

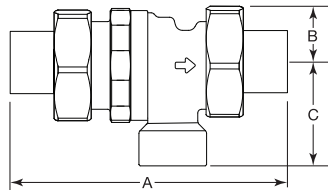


Models 334 & 334-T/H

\* Dimensions for reference purposes only.

Models	Performance Data						Body	Inlet	Outlet	A		B		C		Ship Wt.	
	Max Fluid Temp		Max Supply Press.		Relief Valve Setting					in.	mm	in.	mm	in.	mm	lbs.	Kg
	F°	C°	psi	kPa	psi	kPa											
334	212°	100°	100	689	30	207	Cast Iron	1/2" Union SWT	1/2" NPT	7-1/4	184	3-3/4	95	1-3/8	35	3.9	1.8
334-T							Cast Iron	1/2" Union NPT	1/2" NPT	7-3/8	187	3-3/4	95	1-3/8	35	3.9	1.8
334-H							Cast Iron	1/2" Union Press	1/2" NPT	8-3/8	213	3-3/4	95	1-3/8	35	3.9	1.8

## Backflow Preventer



Models 3192 & 3193



Listing 1012 - 2009

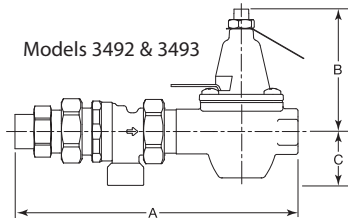


Listing B64.3 - 11

\* Dimensions for reference purposes only.

Models	Performance Data						Body	Inlet	Outlet	A		B		C		Ship Wt.	
	Max Temp		Max Working Press.		Design Pressure Range					in.	mm	in.	mm	in.	mm	lbs.	Kg
	F°	C°	psi	kPa	psi	kPa											
3192-C	250°	121°	175	1206	25-250	172-1724	Brass	1/2" Union SWT	1/2" Union SWT	4-1/4	108	7/8	25	1-5/8	41	1.5	0.7
3192-T							Brass	1/2" Union NPT	1/2" Union NPT	4-1/8	105	7/8	25	1-5/8	41	1.5	0.7
3193-C							Brass	3/4" Union SWT	3/4" Union SWT	4-7/8	124	7/8	25	1-5/8	41	1.5	0.7
3193-T							Brass	3/4" Union NPT	3/4" Union NPT	4-1/8	105	7/8	25	1-5/8	41	1.5	0.7

## Combination Boiler Feed & Backflow Preventer Valve



Models 3492 & 3493



Listing 1012 - 2009



Listing B64.3 - 11

\* Dimensions for reference purposes only.

Models	Performance Data						Body	Inlet	Outlet	A		B		C		Ship Wt.	
	Max Fluid Temp		Max Supply Press.		Max Working Press.					in.	mm	in.	mm	in.	mm	lbs.	Kg
	F°	C°	psi	kPa	psi	kPa											
3492-050-C	212°	100°	100	689	25	172	Cast Iron/Brass	1/2" Union SWT	1/2" NPT	8-1/8	206	3-3/4	95	1-5/8	41	4	1.8
3492-050-T							Cast Iron/Brass	1/2" Union NPT	1/2" NPT	8-1/4	211	3-3/4	95	1-5/8	41	4	1.8
3492-050-H							Cast Iron/Brass	1/2" Union Press	1/2" NPT	9-3/8	238	3-3/4	95	1-5/8	41	4	1.8
3492-050-BC							Brass	1/2" Union SWT	1/2" NPT	7-7/8	199	3-3/4	95	1-5/8	41	4	1.8
3492-050-BT							Brass	1/2" Union NPT	1/2" NPT	8	203	3-3/4	95	1-5/8	41	4	1.8
3492-050-BH							Brass	1/2" Union Press	1/2" NPT	9-1/8	232	3-3/4	95	1-5/8	41	4	1.8
3493-075-BC							Brass	3/4" Union SWT	3/4" NPT	7-1/2	191	3-3/4	95	1-5/8	41	4	1.8
3493-075-BT							Brass	3/4" Union NPT	3/4" NPT	7-1/4	183	3-3/4	95	1-5/8	41	4	1.8

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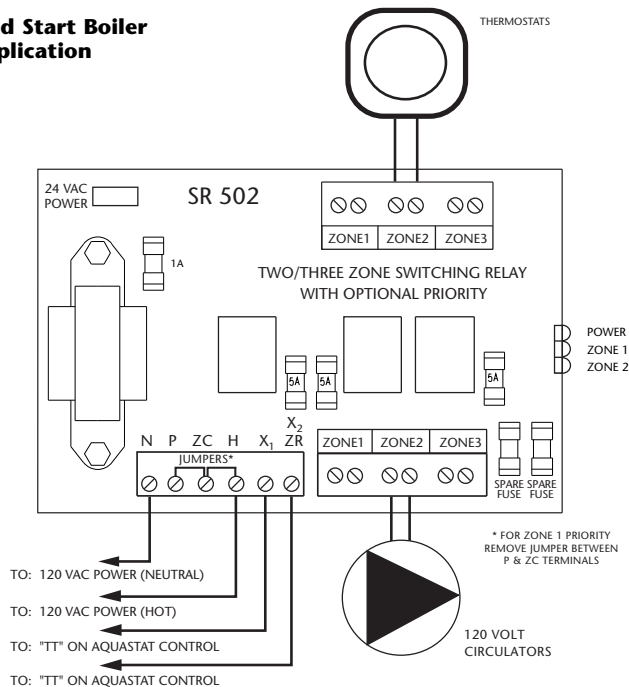
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### Cold Start Boiler Application

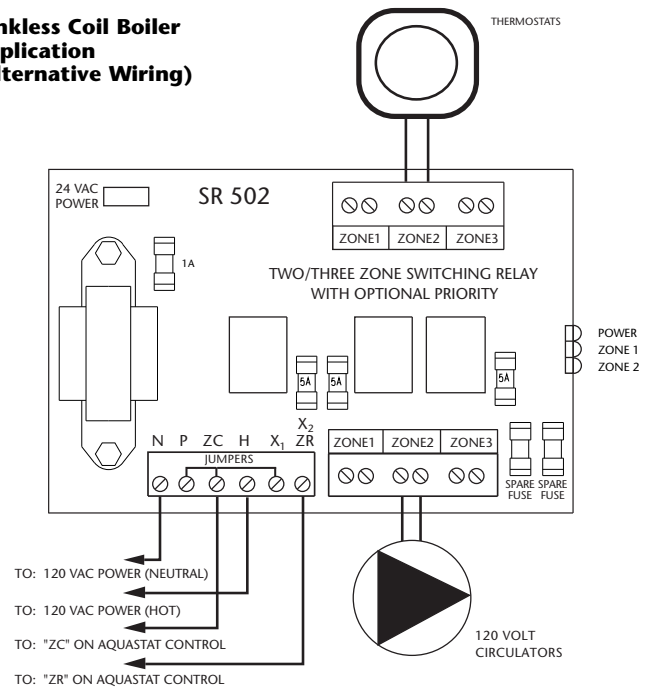


**Operation:** When the thermostat calls for heat, the appropriate circulator is energized and the isolated end switch ( $X_1$  and  $X_2$ ) will start the boiler.

**Jumper Placement:** The jumper should be placed between terminals ZC and H. Connect the isolated end switch,  $X_1$  and  $X_2$  to the boiler aquastat control. **For zone 1 priority, remove jumper between terminals P and ZC.**

**Power Input:** Connect 120 volt ac power input to terminals N and H. Neutral wire to terminal N. Hot wire to terminal H.

### Tankless Coil Boiler Application (Alternative Wiring)



**Operation:** When any thermostat calls for heat, the boiler is given a signal to start. The appropriate circulator is energized only when the boiler temperature is above the set low limit.

**Jumper Placement:** The jumper should be placed between terminals ZC and  $X_1$ . Connect terminal ZC to ZC terminal on the aquastat control. Connect terminal ZR to ZR terminal on the aquastat control. Confirm polarity is consistent between boiler aquastat and switching relay. **For zone 1 priority, remove jumper between terminals P and ZC.**

**Power Input:** Connect 120 volt ac power input to terminals N and H. Neutral wire to terminal N. Hot wire to terminal H.

**Note:** When using Alternative Wiring diagram, the boiler operating control's ZC terminal will see the load of the circulator(s).

**Warning:** When using Alternative Wiring diagram, wiring instructions must be followed so power originates from the boiler aquastat. Failure to follow these wiring instructions may result in a secondary source of power being connected to the boiler that may activate it under certain circumstances, causing injury or death.

### The Taco Connection:

Combine the reliability of the Taco Zone Valves, Priority Zoning Circulators, Thermostats, and the "00" family of circulators with the advanced features of the Taco Zone Controls to achieve total system integration. No matter the application, Taco now provides the products to maximize system performance while simplifying both installation and service.

### External Diagnostics:

Externally visible lights show full functionality of the switching relay. The green light should always be on, indicating that power is connected. When the thermostat calls for heat, both the appropriate circulator and red indicating light is energized.

### Specifications:

PRODUCT NUMBER	NUMBER OF ZONES	TRANSFORMER VOLTAGE	MAXIMUM COMBINED LOAD	DIMENSIONS OF ENCLOSURE		
				WIDTH	HEIGHT	DEPTH
SR502	2 with Priority	120 VAC Input	15 amps	10 1/4"	6 3/4"	2 3/4"

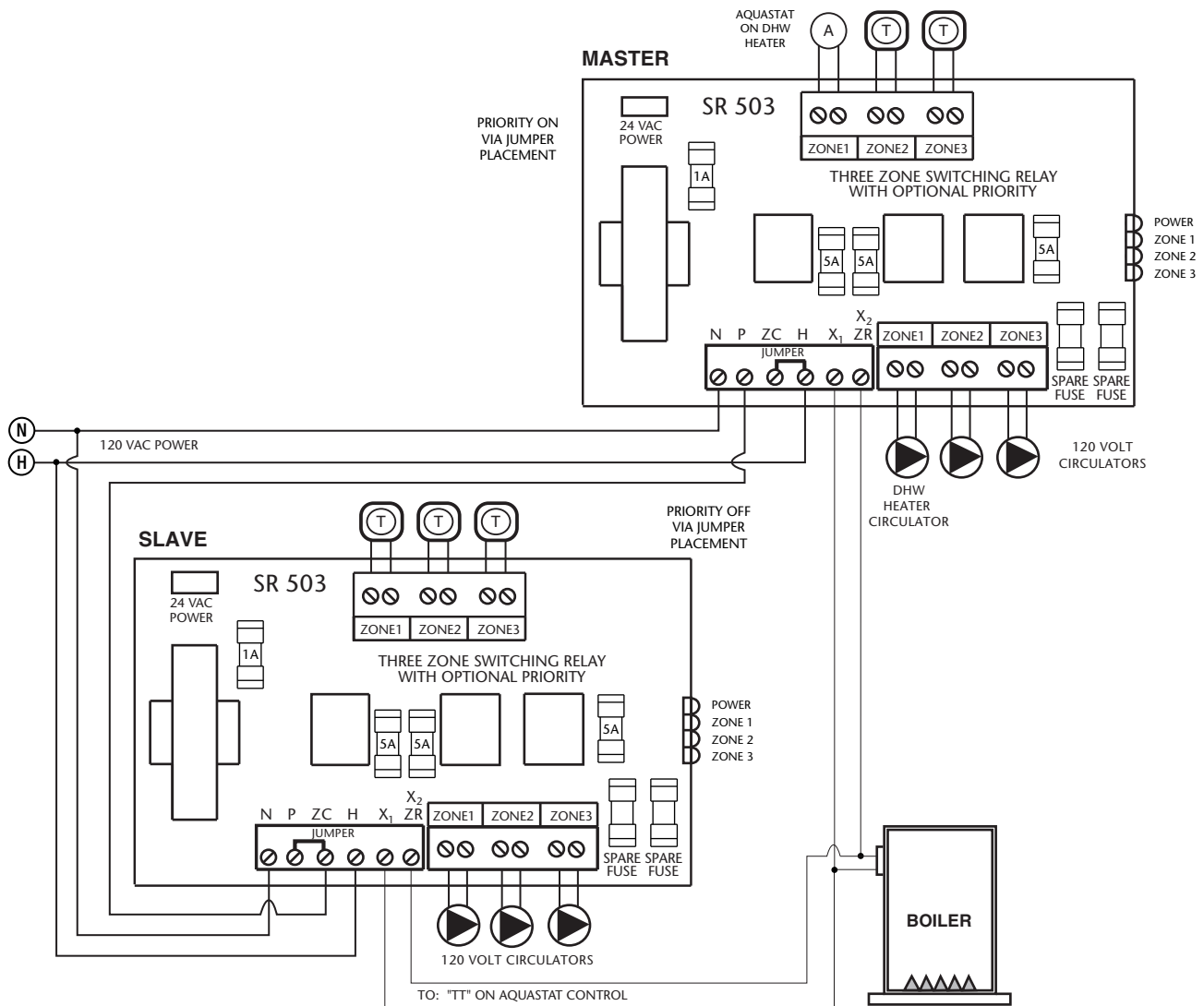
All Switching Relays are relay type DPST, have a thermostat current of .18, and have a single phase motor rating per zone of 1/3 hp (5.0A) @ 120 VAC.

### Features:

- External Indicator Lights
- Priority
- Simplified Wiring
- Fully Enclosed Snap-Out Relays
- Compact Design
- Fuse Protected Outputs
- 100% Factory Tested
- Isolated End Switch
- Contractor Friendly PC Board Layout
- Universal Thermostat Compatibility
- UL Approved
- 24 volt Power Input or Output Terminal
- Extended 3 Year Warranty
- Made in the USA

**Warning:** Wiring connections must be made in accordance with all applicable electrical codes. Use copper wire only with a minimum temperature rating of 60/75°C. Failure to follow this instruction can result in personal injury or death and/or property damage. 12-18 gauge wire recommended for 120 VAC connections, 14-22 gauge wire for thermostat connections, and 14-22 gauge wire for 24 VAC source connections.

# SR502/503 Switching Relay Controlling Another SR502/503 Switching Relay



## LIMITED WARRANTY STATEMENT

Taco, Inc. will repair or replace without charge (at the company's option) any product or part which is proven defective under normal use within three (3) years from the date of start-up or three (3) years and six (6) months from date of shipment (whichever occurs first).

In order to obtain service under this warranty, it is the responsibility of the purchaser to promptly notify the local Taco stocking distributor or Taco in writing and promptly deliver the subject product or part, delivery prepaid, to the stocking distributor. For assistance on warranty returns, the purchaser may either contact the local Taco stocking distributor or Taco. If the subject product or part contains no defect as covered in this warranty, the purchaser will be billed for parts and labor charges in effect at time of factory examination and repair.

Any Taco product or part not installed or operated in conformity with Taco instructions or which

has been subject to misuse, misapplication, the addition of petroleum-based fluids or certain chemical additives to the systems, or other abuse, will not be covered by this warranty.

If in doubt as to whether a particular substance is suitable for use with a Taco product or part, or for any application restrictions, consult the applicable Taco instruction sheets or contact Taco at [401-942-8000].

Taco reserves the right to provide replacement products and parts which are substantially similar in design and functionally equivalent to the defective product or part. Taco reserves the right to make changes in details of design, construction, or arrangement of materials of its products without notification.

TACO OFFERS THIS WARRANTY IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY WARRANTY IMPLIED BY LAW INCLUDING WARRANTIES OF MERCHANTABILITY OR FIT-

NESS IS IN EFFECT ONLY FOR THE DURATION OF THE EXPRESS WARRANTY SET FORTH IN THE FIRST PARAGRAPH ABOVE.

THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR STATUTORY, OR ANY OTHER WARRANTY OBLIGATION ON THE PART OF TACO.

TACO WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF ITS PRODUCTS OR ANY INCIDENTAL COSTS OF REMOVING OR REPLACING DEFECTIVE PRODUCTS.

This warranty gives the purchaser specific rights, and the purchaser may have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts or on the exclusion of incidental or consequential damages, so these limitations or exclusions may not apply to you.

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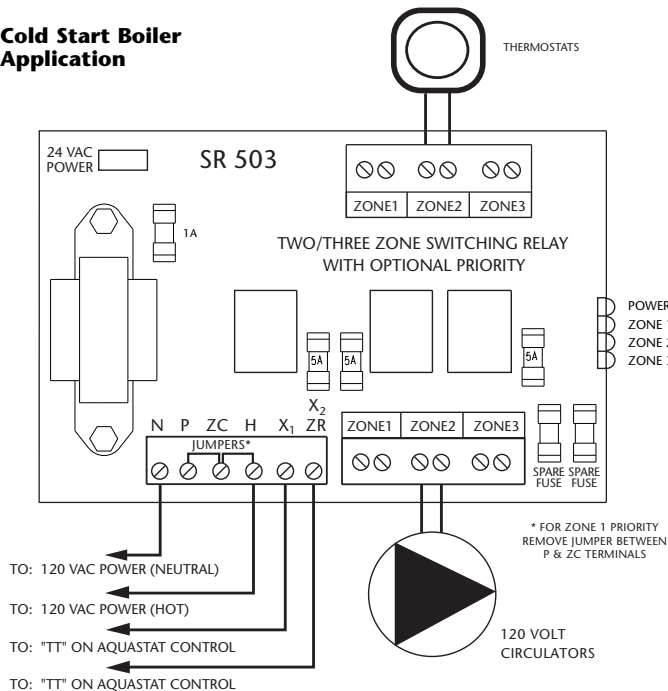


SUPERSEDES: New

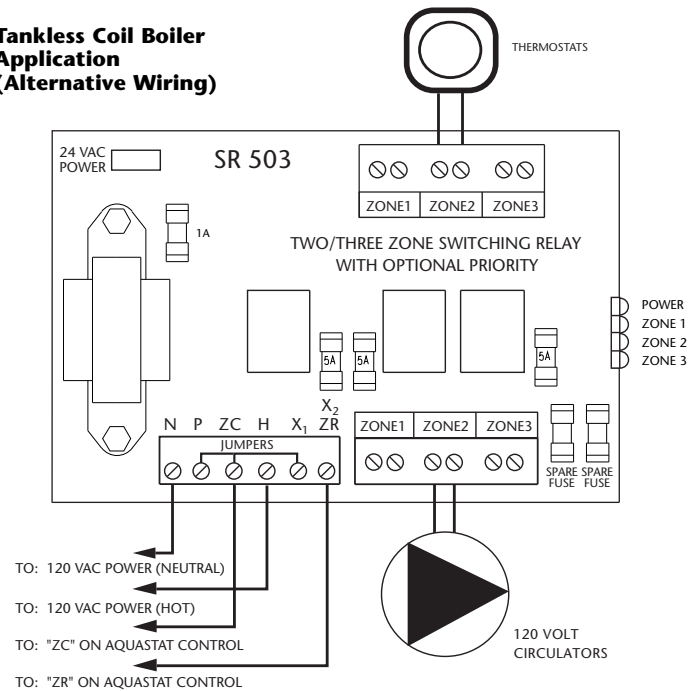
EFFECTIVE: June 1, 2006

Plant ID# 9300-2094

### Cold Start Boiler Application



### Tankless Coil Boiler Application (Alternative Wiring)



**Operation:** When the thermostat calls for heat, the appropriate circulator is energized and the isolated end switch ( $X_1$  and  $X_2$ ) will start the boiler.

**Jumper Placement:** The jumper should be placed between terminals ZC and H. Connect the isolated end switch,  $X_1$  and  $X_2$  to the boiler aquastat control. **For zone 1 priority, remove jumper between terminals P and ZC.**

**Power Input:** Connect 120 volt ac power input to terminals N and H. Neutral wire to terminal N. Hot wire to terminal H.

**Operation:** When any thermostat calls for heat, the boiler is given a signal to start. The appropriate circulator is energized only when the boiler temperature is above the set low limit.

**Jumper Placement:** The jumper should be placed between terminals ZC and  $X_1$ . Connect terminal ZC to ZC terminal on the aquastat control. Connect terminal ZR to ZR terminal on the aquastat control. Confirm polarity is consistent between boiler aquastat and switching relay. **For zone 1 priority, remove jumper between terminals P and ZC.**

**Power Input:** Connect 120 volt ac power input to terminals N and H. Neutral wire to terminal N. Hot wire to terminal H.

**Note:** When using Alternative Wiring diagram, the boiler operating control's ZC terminal will see the load of the circulator(s).

**Warning:** When using Alternative Wiring diagram, wiring instructions must be followed so power originates from the boiler aquastat. Failure to follow these wiring instructions may result in a secondary source of power being connected to the boiler that may activate it under certain circumstances, causing injury or death.

### The Taco Connection:

Combine the reliability of the Taco Zone Valves, Priority Zoning Circulators, Thermostats, and the "00" family of circulators with the advanced features of the Taco Zone Controls to achieve total system integration. No matter the application, Taco now provides the products to maximize system performance while simplifying both installation and service.

### External Diagnostics:

Externally visible lights show full functionality of the switching relay. The green light should always be on, indicating that power is connected. When the thermostat calls for heat, both the appropriate circulator and red indicating light is energized.

### Specifications:

PRODUCT NUMBER	NUMBER OF ZONES	TRANSFORMER VOLTAGE	MAXIMUM COMBINED LOAD	DIMENSIONS OF ENCLOSURE		
				WIDTH	HEIGHT	DEPTH
SR503	3 with Priority	120 VAC Input	15 amps	10 1/4"	6 3/4"	2 3/4"

All Switching Relays are relay type DPST, have a thermostat current of .18, and have a single phase motor rating per zone of 1/3 hp (5.0A) @ 120 VAC.

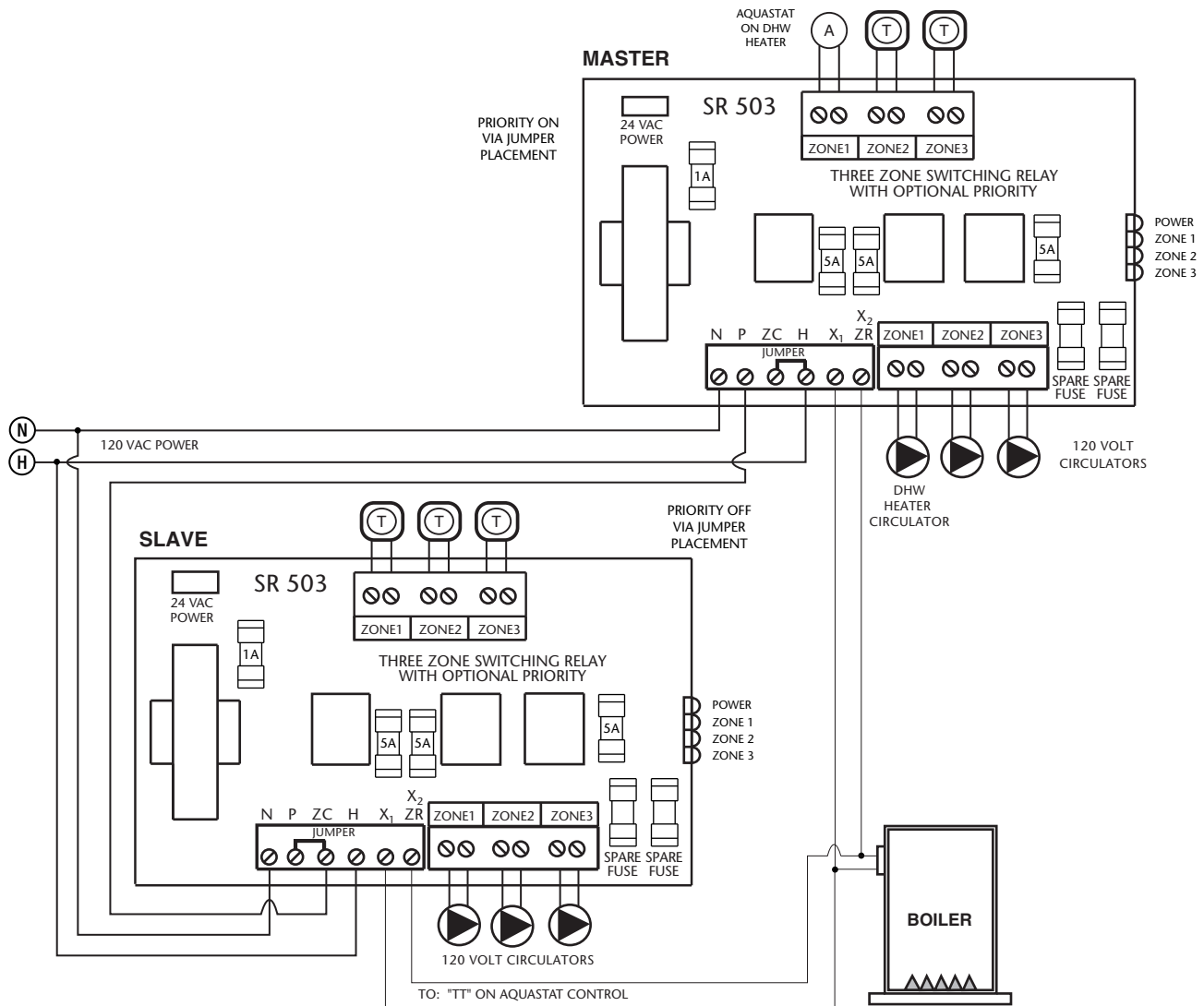
### Features:

- External Indicator Lights
- Priority
- Simplified Wiring
- Fully Enclosed Snap-Out Relays
- Fuse Protected Outputs
- Compact Design
- 100% Factory Tested
- Isolated End Switch
- Contractor Friendly PC Board Layout
- Universal Thermostat Compatibility
- UL Approved
- 24 volt Power Input or Output Terminal
- Extended 3 Year Warranty
- Made in the USA

**Warning:** Wiring connections must be made in accordance with all applicable electrical codes. Use copper wire only with a minimum temperature rating of 60/75°C. Failure to follow this instruction can result in personal injury or death and/or property damage. 12-18 gauge wire recommended for 120 VAC connections, 14-22 gauge wire for thermostat connections, and 14-22 gauge wire for 24 VAC source connections.



# SR502/503 Switching Relay Controlling Another SR502/503 Switching Relay



## LIMITED WARRANTY STATEMENT

Taco, Inc. will repair or replace without charge (at the company's option) any product or part which is proven defective under normal use within three (3) years from the date of start-up or three (3) years and six (6) months from date of shipment (whichever occurs first).

In order to obtain service under this warranty, it is the responsibility of the purchaser to promptly notify the local Taco stocking distributor or Taco in writing and promptly deliver the subject product or part, delivery prepaid, to the stocking distributor. For assistance on warranty returns, the purchaser may either contact the local Taco stocking distributor or Taco. If the subject product or part contains no defect as covered in this warranty, the purchaser will be billed for parts and labor charges in effect at time of factory examination and repair.

Any Taco product or part not installed or operated in conformity with Taco instructions or which

has been subject to misuse, misapplication, the addition of petroleum-based fluids or certain chemical additives to the systems, or other abuse, will not be covered by this warranty.

If in doubt as to whether a particular substance is suitable for use with a Taco product or part, or for any application restrictions, consult the applicable Taco instruction sheets or contact Taco at [401-942-8000].

Taco reserves the right to provide replacement products and parts which are substantially similar in design and functionally equivalent to the defective product or part. Taco reserves the right to make changes in details of design, construction, or arrangement of materials of its products without notification.

TACO OFFERS THIS WARRANTY IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY WARRANTY IMPLIED BY LAW INCLUDING WARRANTIES OF MERCHANTABILITY OR FIT-

NESS IS IN EFFECT ONLY FOR THE DURATION OF THE EXPRESS WARRANTY SET FORTH IN THE FIRST PARAGRAPH ABOVE.

THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR STATUTORY, OR ANY OTHER WARRANTY OBLIGATION ON THE PART OF TACO.

TACO WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF ITS PRODUCTS OR ANY INCIDENTAL COSTS OF REMOVING OR REPLACING DEFECTIVE PRODUCTS.

This warranty gives the purchaser specific rights, and the purchaser may have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts or on the exclusion of incidental or consequential damages, so these limitations or exclusions may not apply to you.

**Taco Comfort Solutions™** A Taco Group Company

Taco, Inc., 1160 Cranston Street, Cranston, RI 02920 | Tel: (401) 942-8000 | FAX: (401) 942-2360

Taco (Canada), Ltd., 8450 Lawson Road, Suite #3, Milton, Ontario L9T 0J8 | Tel: (905) 564-9422 | FAX: (905) 564-9436

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# Instruction Sheet

## SR504 Switching Relay

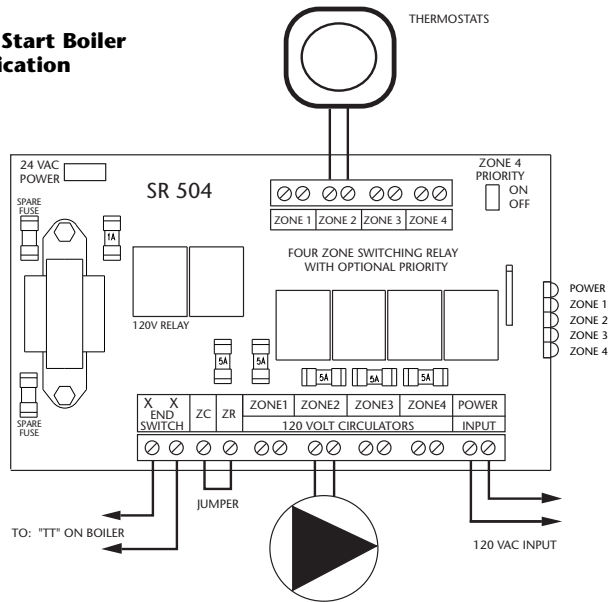
102-166

SUPERSEDES: New

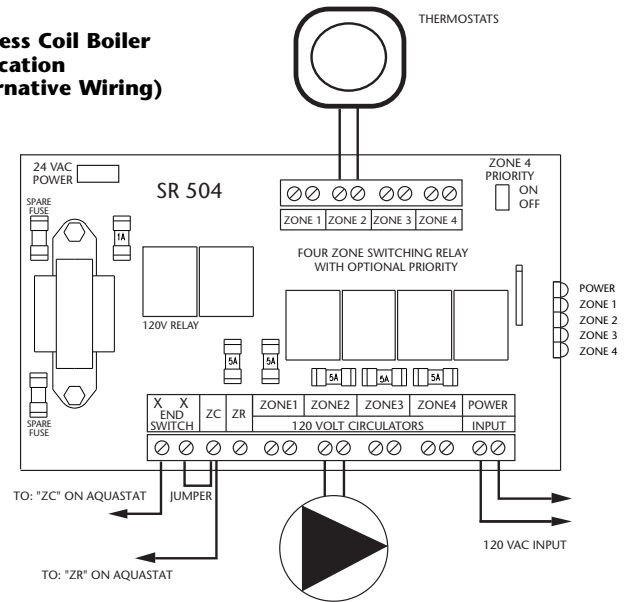
EFFECTIVE: June 1, 2006

Plant ID# 9300-2084

### Cold Start Boiler Application



### Tankless Coil Boiler Application (Alternative Wiring)



**Operation:** When any thermostat calls for heat, the appropriate circulator is energized and the isolated end switch (X and X) will start the boiler.

**Priority Operation:** When zone 4 is switched to the priority setting and is actuated, all other zones will stop operation until zone 4 is satisfied. When zone 4 is not switched to priority, all zones will operate independently.

**Jumper Placement:** The jumper should be placed between terminals ZC and ZR. Connect the isolated end switch to the aquastat control on the boiler.

**Power Input:** Connect 120 volt ac power input to terminals N and H. Neutral wire to terminal N. Hot wire to terminal H.

**Operation:** When any thermostat calls for heat, the boiler is given a signal to start. The appropriate circulator is energized only when the boiler temperature is above the set low limit.

**Priority Operation:** When zone 4 is switched to the priority setting and is actuated, all other zones will stop operation until zone 4 is satisfied. When zone 4 is not switched to priority, all zones will operate independently.

**Jumper Placement:** MOVE the jumper between terminals ZC and ZR to end switch X and ZC. Connect terminal ZC to ZC terminal on the aqua-stat control. Connect the other end switch X to ZR terminal on the aqua-stat control. Confirm polarity is consistent between boiler aquastat and switching relay.

**Power Input:** Connect 120 volt ac power input to terminals N and H. Neutral wire to terminal N. Hot wire to terminal H.

**Warning:** When using Alternative Wiring diagram, wiring instructions must be followed so power originates from the boiler aquastat. Failure to follow these wiring instructions may result in a secondary source of power being connected to the boiler that may activate it under certain circumstances, causing injury or death.

### The Taco Connection:

Combine the reliability of the Taco Zone Valves, Priority Zoning Circulators, Thermostats, and the "00" family of circulators with the advanced features of the Taco Zone Controls to achieve total system integration. No matter the application, Taco now provides the products to maximize system performance while simplifying both installation and service.

### External Diagnostics:

Externally visible lights show full functionality of the switching relay. The green light should always be on, indicating that power is connected. When the thermostat calls for heat, both the appropriate circulator and red indicating light is energized.

### Features:

- External Indicator Lights
- Switchable Priority
- Simplified Wiring
- Fully Enclosed Snap-Out Relays
- Fuse Protected Outputs
- Compact Design
- 100% Factory Tested
- Isolated End Switch
- Contractor Friendly PC Board Layout
- Universal Thermostat Compatibility
- UL Approved
- 24 volt Power Input or Output Terminal
- Extended 3 Year Warranty
- Made in the USA

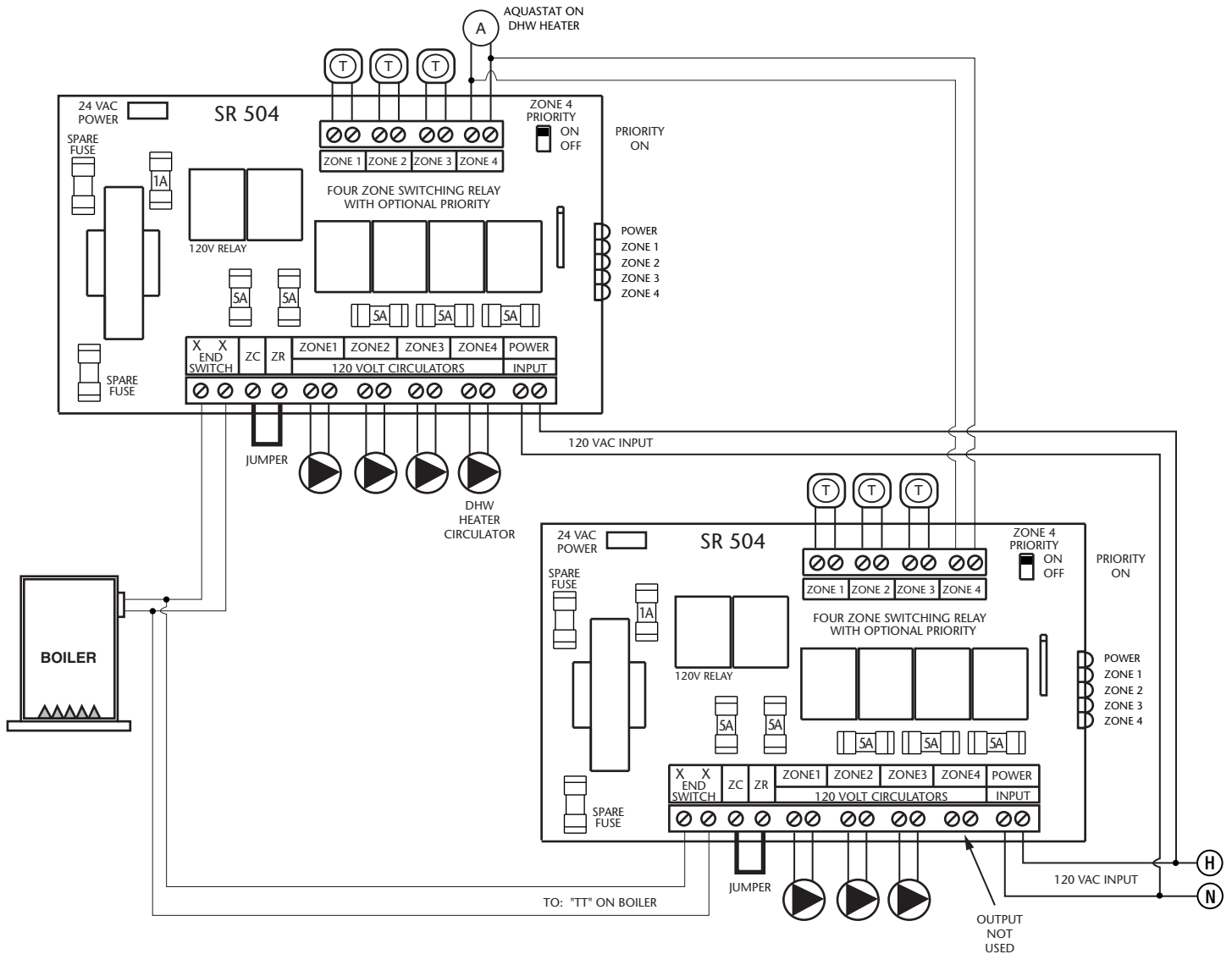
### Specifications:

PRODUCT NUMBER	NUMBER OF ZONES	TRANSFORMER VOLTAGE	MAXIMUM COMBINED LOAD	DIMENSIONS OF ENCLOSURE		
				WIDTH	HEIGHT	DEPTH
SR504	4 with Priority	120 VAC Input	20 amps	10 1/4"	6 3/4"	2 3/4"

All Switching Relays are relay type DPST, have a thermostat current of .18, and have a single phase motor rating per zone of 1/3 hp (5.0A) @ 120 VAC.

**Warning:** Wiring connections must be made in accordance with all applicable electrical codes. Use copper wire only with a minimum temperature rating of 60/75°C. Failure to follow this instruction can result in personal injury or death and/or property damage. 12-18 gauge wire recommended for 120 VAC connections, 14-22 gauge wire for thermostat connections, and 14-22 gauge wire for 24 VAC source connections.

## Two SR504/506 Switching Relays Connected Together



## LIMITED WARRANTY STATEMENT

Taco, Inc. will repair or replace without charge (at the company's option) any product or part which is proven defective under normal use within three (3) years from the date of start-up or three (3) years and six (6) months from date of shipment (whichever occurs first).

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has been subject to misuse, misapplication, the addition of petroleum-based fluids or certain chemical additives to the systems, or other abuse, will not be covered by this warranty.

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TACO OFFERS THIS WARRANTY IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY WARRANTY IMPLIED BY LAW INCLUDING WARRANTIES OF MERCHANTABILITY OR FIT-

NESS IS IN EFFECT ONLY FOR THE DURATION OF THE EXPRESS WARRANTY SET FORTH IN THE FIRST PARAGRAPH ABOVE.

THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR STATUTORY, OR ANY OTHER WARRANTY OBLIGATION ON THE PART OF TACO.

TACO WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF ITS PRODUCTS OR ANY INCIDENTAL COSTS OF REMOVING OR REPLACING DEFECTIVE PRODUCTS.

This warranty gives the purchaser specific rights, and the purchaser may have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts or on the exclusion of incidental or consequential damages, so these limitations or exclusions may not apply to you.

**Do it Once. Do it Right.®**

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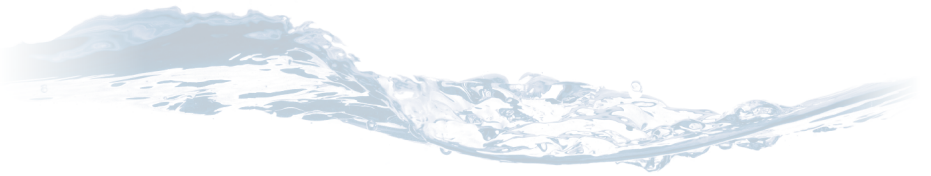
TACO (Canada), Ltd., 6180 Ordan Drive, Mississauga, Ontario L5T 2B3. Telephone: 905/564-9422. FAX: 905/564-9436.

Visit our web site at: <http://www.taco-hvac.com>

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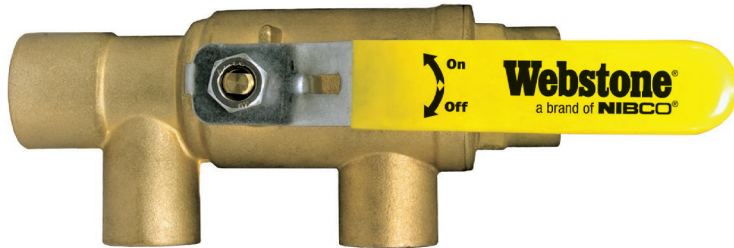
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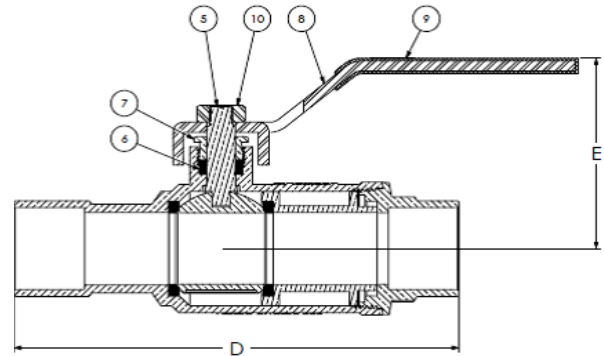
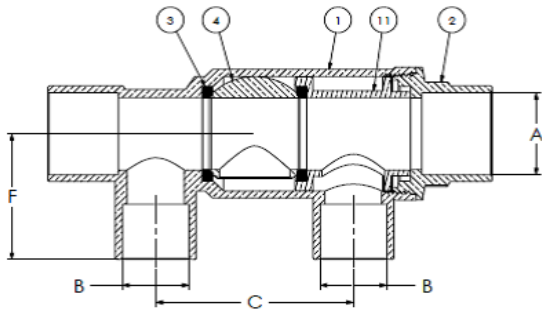
## H-x864 Series

Pro-Pal Primary/Secondary Loop Purge Tee  
 Full Port Forged Brass Ball Valve  
 w/ Reversible Handle  
 & Adjustable Packing Gland



### PATENTED TECHNOLOGY

NO.	DESCRIPTION	MATERIAL
1	BODY	BRASS
2	END CAP	BRASS
3	SEAT	PTFE
4	BALL	BRASS HCP
5	STEM	BRASS
6	STEM SEAL	PTFE
7	PACKING GLAND	BRASS
8	HANDLE	STEEL CP
9	HANDLE JACKET	VINYL
10	HANDLE NUT*	STAINLESS STEEL
11	SEAT RETAINER	BRASS



Designed for residential, commercial or industrial use with water, oil or gas. This approved Webstone valve is actuated by a blowout proof stem and features an adjustable packing gland.

ITEM#	Connection Type	SIZE (in)	Pressure Rating	Max Temp	A	B	C	D	E
H-58643	SWT	1 × 3/4	600 PSI CWP Max	250°F Max	1.00	0.75	2.69	5.81	2.38
H-58644	SWT	1	600 PSI CWP Max	250°F Max	1.00	1.00	2.88	5.81	2.44
H-58653	SWT	1 1/4 × 3/4	600 PSI CWP Max	250°F Max	1.25	0.75	3.25	6.31	2.25
H-58654	SWT	1 1/4 × 1	600 PSI CWP Max	250°F Max	1.25	1.00	3.25	7.00	2.56
H-58655	SWT	1 1/4	600 PSI CWP Max	250°F Max	1.25	1.25	3.25	7.00	2.63
H-88643	Press	1 × 3/4	250 PSI CWP Max	250°F Max	1.00	0.75	2.60	7.28	2.60
H-88644	Press	1	250 PSI CWP Max	250°F Max	1.00	1.00	2.60	7.28	2.60
H-88654	Press	1 1/4 × 1	250 PSI CWP Max	250°F Max	1.25	1.00	3.11	8.62	2.95
H-88655	Press	1 1/4	250 PSI CWP Max	250°F Max	1.25	1.25	3.11	8.62	2.95

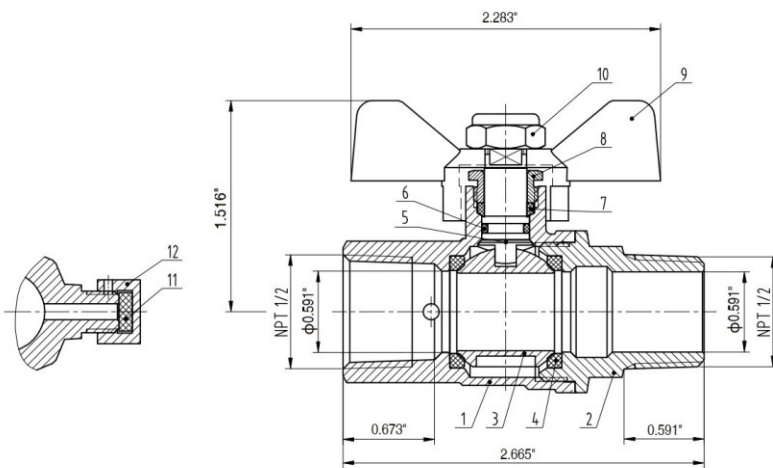


## Features:

- \*Lead Free
- 600 WOG
- 1/2" M X F Ball Valve with Drain
- cUPC Approved
- NSF/ANSI 61 & 372 Certified
- NPT Thread End Comply to ANSI B1.20.1
- Minimum Temperature (Water): -20 °F
- Maximum Temperature (Water): 300 °F
- Blow-out Proof Stem
- Aluminium Butterfly Handle with Red Painting



## Dimensions & Materials List:



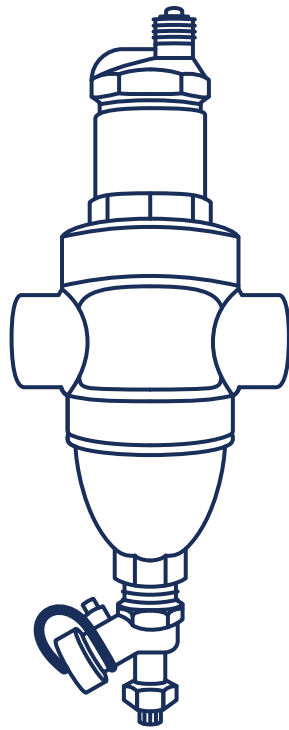
No.	Part	QTY	Material
1	Body	1	Lead Free Brass
2	Bonnet	1	Lead Free Brass
3	Ball	1	Lead Free Brass
4	Seat	2	PTFE
5	Stem	1	Brass
6	O-Ring	1	NBR
7	Packing	1	PTFE
8	Packing Nut	1	Brass
9	Handle	1	Aluminum
10	Lock Nut	1	Stainless Steel
11	Washer	1	EPDM
12	Venting Cap	1	Brass

Part#	Description	Size
4PROETBV	1/2" M x F Expansion Tank Ball Valve with Drain T-Handle	1/2"

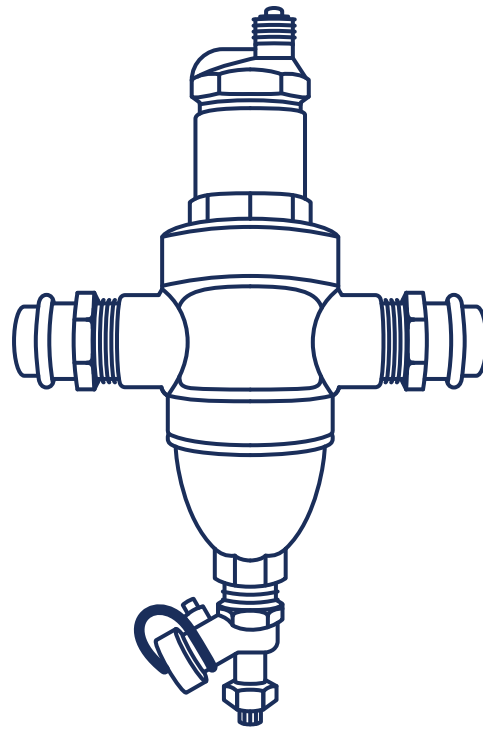
\*Lead Free: weighted average lead content  $\leq 0.25\%$

# Air & Dirt Eliminator with magnet

For models 4PRO1IPSBADWEM | 4PRO1PBADEWM | 4PRO114IPSBADWEM | 4PRO114PBADEWM



IPS



Press

## TECHNICAL SPECIFICATIONS

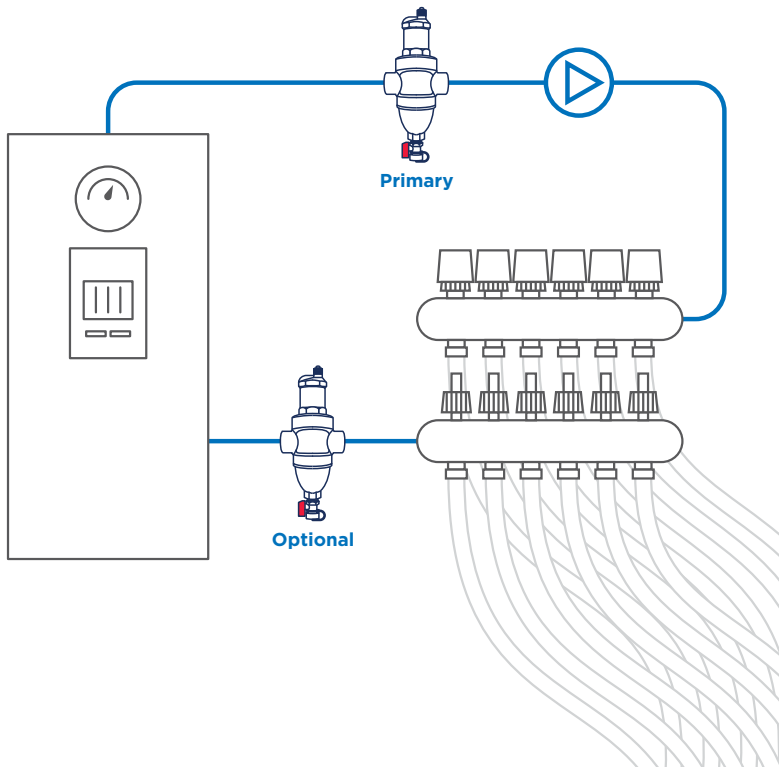
Housing	Brass
Maximum Temperature	250°F
Maximum Design Pressure	150 PSI
Automatic Air Vent	Included
Vent Pipe Connection	Equipped
Connections	IPS or Press, 1" or 1 1/4"
Coalescing Media	316 stainless steel
Adapted Fluids	Water and 50% glycol solution



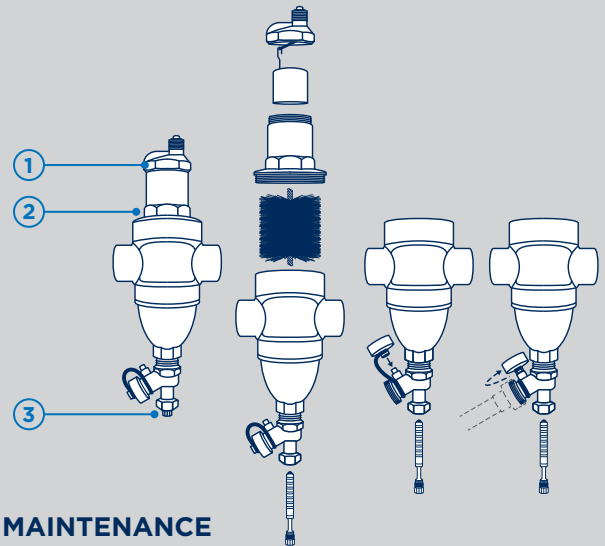
## INSTALLATION

Install the 4Pro Air & Dirt Eliminator in a dry and frost-free environment on horizontal piping making sure that the air separator is placed in the upright position and the drain valve is placed down. Leave at least 100mm (4 in) free on top and on the bottom of the device to have enough space for maintenance.

The 4Pro Air & Dirt Eliminator must be installed after the boiler and preferably before the circulation pump.



## AIR & DIRT ELIMINATOR INSTRUCTION



## MAINTENANCE

- Visually inspect the device periodically.
- Ensure that the installation is cooled down and not under pressure when proceeding maintenance.
- To clean the float, needle and O-ring located inside the automatic air vent, unscrew the top hexagonal head at the top of the unit. ①
- To remove and clean the stainless steel bristles coalescing media, completely remove the automatic air vent from the body of the unit by unscrewing it. ②
- It is important to unscrew the magnet head (not the hexagonal ring) located at the bottom of the unit in order to completely remove the magnet. This step is essential in order to dislodge ferrous impurities. ③
- Unscrew the drain valve cap and connect a garden hose if necessary to collect water and dirt in a container.

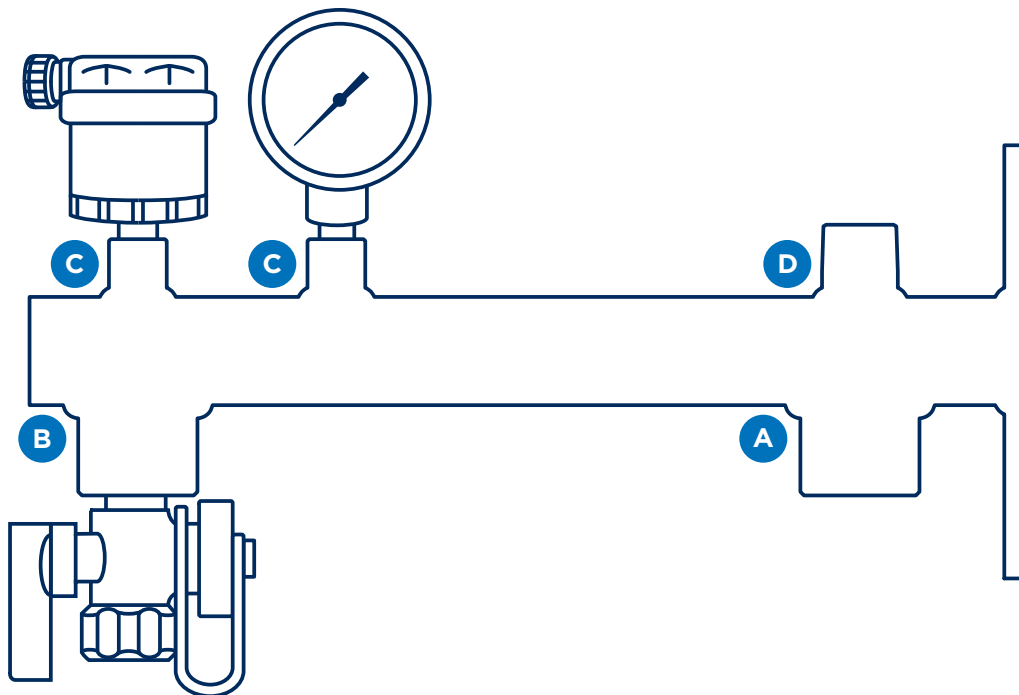
## WARNING

The installation must be performed by qualified professionals in respect with current codes and law. Check that all connections are waterproof.

# Hydronic Expansion Tank Bracket Kit

Model 4PROHETBRACKETKIT

Once the 4Pro Hydronic Expansion Tank Bracket Kit is installed, you have a complete overview of the system. This makes maintenance a lot more easier!

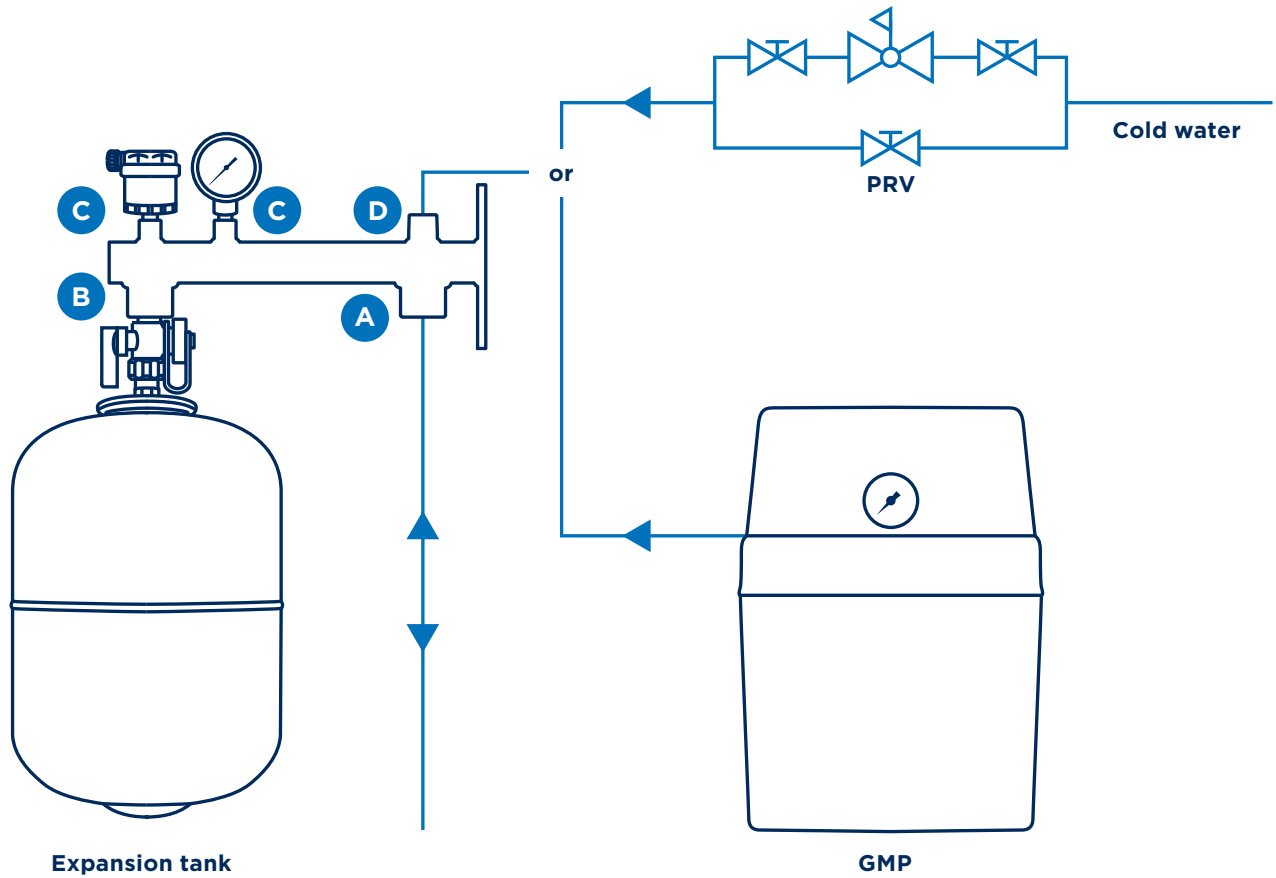


## TECHNICAL SPECIFICATIONS

Length	11 in (27.9 cm)
Width	4.5 in (11.4 cm)
Height	2 3/8 in (6 cm)
Connections	A: 1/2" FNPT    B: 1/2" FNPT    C: 1/8" FNPT    D: 1/2" MNPT



### Installation



- Link your hydronic system to the 1/2" FNPT connection **A**.
- Connect directly a hydronic expansion tank, with the service valve on the 1/2" FNPT connection **B**.
- Then, on connections **C** (1/8" FNPT), connect a hydronic automatic air vent (4PRO18AV) or a pressure gage.
- On connection **D** (1/2" MNPT), you can either connect your GMP or simply the cold water supply.

**THIS SPACE FOR DESIGNER/ENGINEER APPROVAL**

Job/Customer _____	Date _____	Contractor _____
Model Specified _____	Qty _____	Approved By _____
Designer/Engineer _____	Date _____	Contractor's PO# _____
Submitted by _____	Date _____	Other _____

# 8061W Series

**Full Port Forged Brass Ball Valves  
w/ Hi-Flow Hose Drain, Adjustable Packing Gland  
& Reversible Handle - LEAD FREE**

**Press**

**250 CWP / 250°F Max**

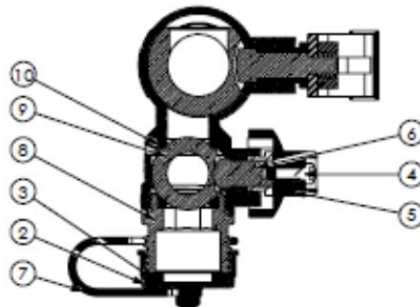
**ISO 9001**



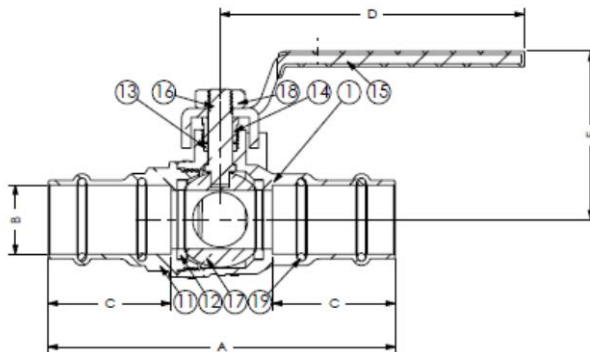
Lead Free Products are  
Certified to NSF/ANSI 61  
& NSF/ANSI 372



STANDARD BRASS ITEM #	LEAD FREE ITEM #	SIZE	CTN	CASE	A	B	C	D	E
80612	80612W	1/2"	4	40	3 3/4	5/8	1 3/8	3 7/8	1 15/16
80613	80613W	3/4"	4	32	4 7/16	7/8	1 9/16	3 7/8	2 1/8
80614	80614W	1"	2	20	4 13/16	1 1/8	1 9/16	4 11/16	2 5/8
80615	80615W	1 1/4"	2	16	5 1/2	1 3/8	1 3/4	4 11/16	3
80616	80616W	1 1/2"	1	8	5 7/8	1 5/8	1 13/16	5 5/8	3 9/16
80617	80617W	2"	1	6	7	2 1/8	2 1/8	5 5/8	3 15/16



NO.	DESCRIPTION	MATERIAL
1	BODY	BRASS
2	DRAIN CAP	BRASS
3	WASHER	EPDM
4	SCREW	STAINLESS STEEL
5	DRAIN HANDLE	ALUMINUM
6	DRAIN STEM	BRASS
7	STRAP	PVC
8	DRAIN END CAP	BRASS
9	DRAIN BALL	BRASS CP
10	SEAT	PTFE
11	END CAP	BRASS
12	SEAT	PTFE
13	PACKING STEM	PTFE
14	PACKING NUT	BRASS
15	HANDLE	STEEL HCP
16	STEM	BRASS
17	TEE BALL	BRASS CP
18	NUT	STAINLESS STEEL
19	O-RING	EPDM



TEMP °F	PSI
100	250
250	200

**Specifications:** Designed for residential, commercial or industrial use with water, oil or gas. This approved Webstone valve is actuated by a blowout proof stem and features an adjustable packing gland



Quality and Commitment Since 1954

www.webstonevalves.com · P: (800) 225-9529 · F: (800) 336-5133

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