



# CONDENSED CATALOG

*Hydronic Systems & Components*



**Mondale & Associates, Inc.**

Phone: (952) 888-1770 / Fax: (952) 888-9636

Web: [www.mondale.biz](http://www.mondale.biz)



*Mondale & Associates is proud to offer quality products manufactured by Taco.*

This catalog contains only a fraction of all of the products and parts that are locally stocked and available to order in our Eden Prairie, MN warehouse.

In addition to stocking an expansive selection of Taco residential products and parts, the Taco commercial product line is also sold through Mondale & Associates. This includes commercial pumps (based mounted, vertical, close-coupled, in-line, variable speed, etc.), air separators, expansion tanks, heat transfer products, suction diffusers and more!

**Please contact us at (952) 888-1770 for more information, availability and pricing on our locally stocked items or entire product line!**

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## How To Select a Circulator...

### ► Step 1: Establish the "Target Flow Rate" for the system.

Calculate the amount of heat the fluid will need to carry and the temperature drop across the heat load or circuit. Determine this by performing a heat loss calculation on the zone that the circulator is serving. Once the heat loss is determined, enter the Btu/hr heat loss load and the desired temperature drop into the following formula.

$$\text{Flow (GPM)} = \text{Btu's} \div (500 \times \Delta T)$$

**\*Note:** 500 is the constant for 100% water. Use 479 for 30% glycol & 450 for 50% glycol.

**\*Note:** If unsure which  $\Delta T$  to use then try 20°F for hydronic systems, 20°F for non-condensing boiler pump, 30°F for condensing boiler pump and 30° for snowmelt.

### ► Step 2: Establish the resistance in the system that the circulator will need to overcome.

Determine the resistance or pressure drop in the piping, heat source, valves, fittings and any other devices in the system. This resistance is measured in either psi or ft of head.

**\*Note:** To convert psi to ft of head just multiply the psi x 2.31 OR divide ft of head by 2.31 to convert to psi

### Let's break this down by the major components...

**Heat Source:** This could be a boiler, water heater or heat exchanger. Consult the manufacturer for these pressure drops.

**Piping:** All pipe presents resistance to the fluid flowing through it. The faster the water flows, the greater the resistance. Add the various lengths of pipe runs in the circuit served by the circulator. In the case of parallel circuits, like a radiant floor manifold, use the loop with the greatest resistance, typically the longest length.

**Fittings and Valves:** Don't forget to add fittings and valves into the calculations. It is accepted practice to add up the fittings and valves in the piping circuit then consult a fitting equivalent length chart to assign the appropriate pipe length to the number of fittings or valves used. "Rule of Thumb": multiply the total footage of pipe times 1.5.

**Miscellaneous Devices:** Includes items like mixing valves, air separators, filters, wye-strainers, flow meters, heat exchangers, coils or anything else the fluid flows through. Some items will have a pressure drop chart to refer to, others will publish a Cv rating. Cv is short for coefficient of velocity (gpm that flows through the valve to produce 1 psi of pressure drop). For example, a mixing valve with a Cv rating of 3.5 has a 1 psi pressure drop at 3.5 gpm of flow. If the flow is different than the stated Cv rating, then use this formula to find the pressure drop that corresponds to the actual flow.

### ► Step 3: Add it all up.

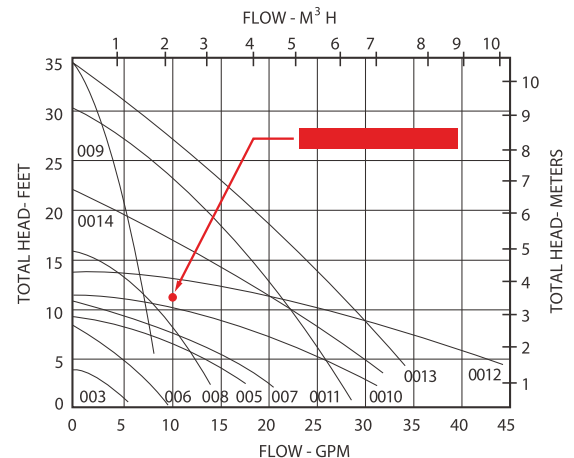
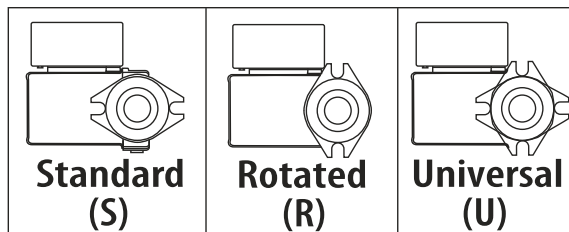
Now that all the pressure drops through the various piping and components are known, the pump can be sized. To do this, consult the pump curves provided in this catalog or use the sizing wizard on Taco's website:

[www.taco-hvac.com/wizard\\_pumps.html#](http://www.taco-hvac.com/wizard_pumps.html#). For a quick search, enter your flow and head into the web sizing program and click search.

### Example

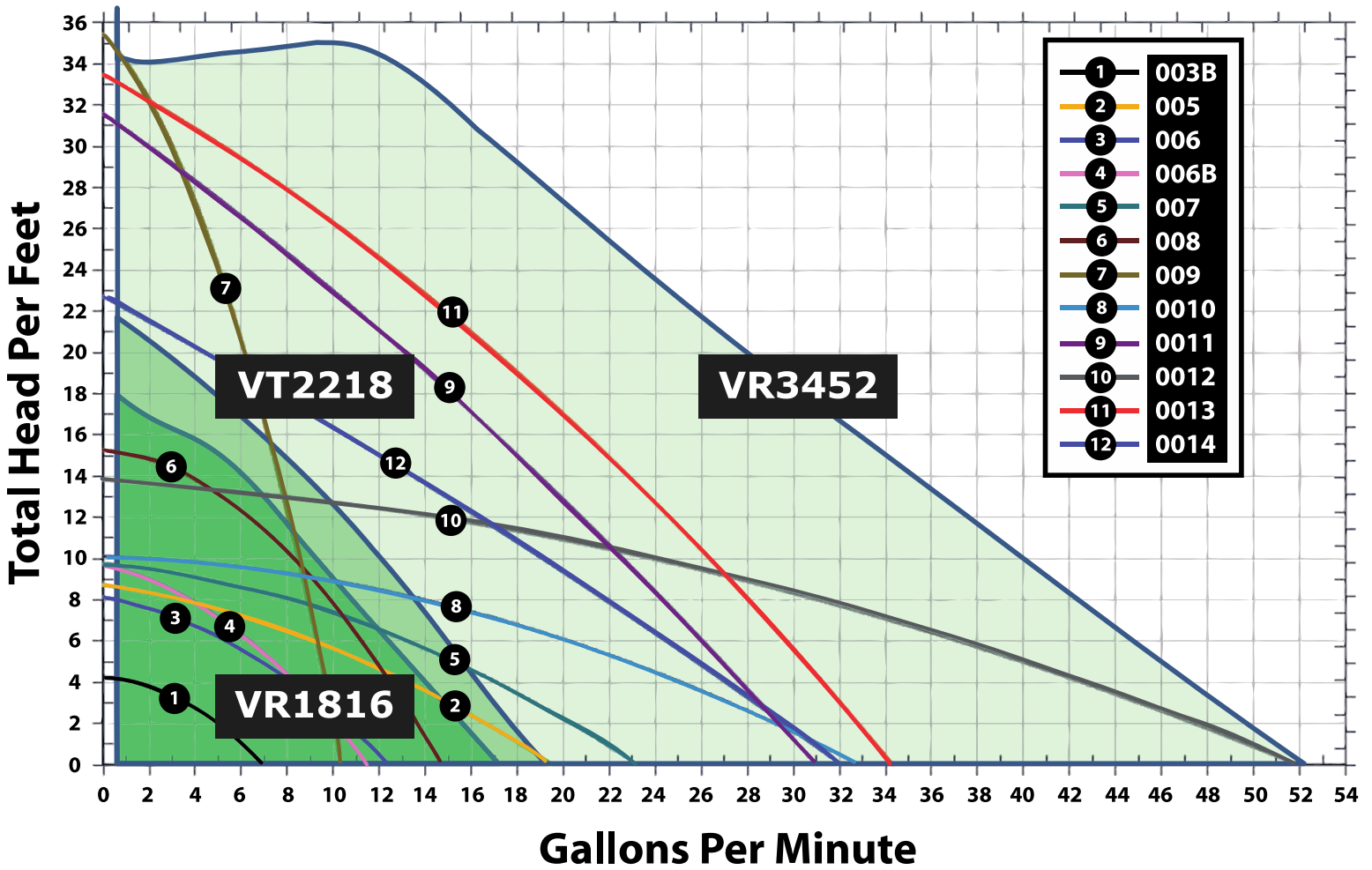
System parameters are 10 gpm @ 11.3 ft of head. To select the ideal curve, draw a line starting at 0 through the selection parameters. Chose the curve that intersects somewhere in the middle of the third curve. In this scenario, the pumps that satisfy the requirements include 0011, 0012, 0013 or 0014.

### Flange Orientation 3-Speed, 00-Series Circulators



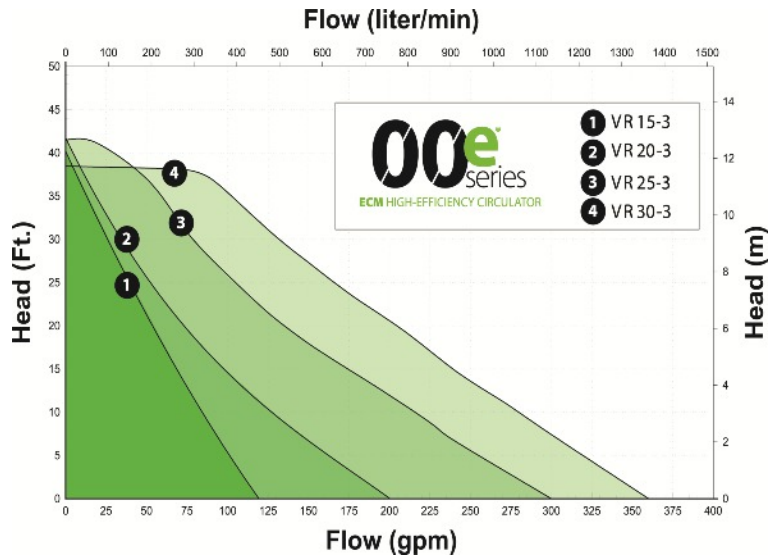
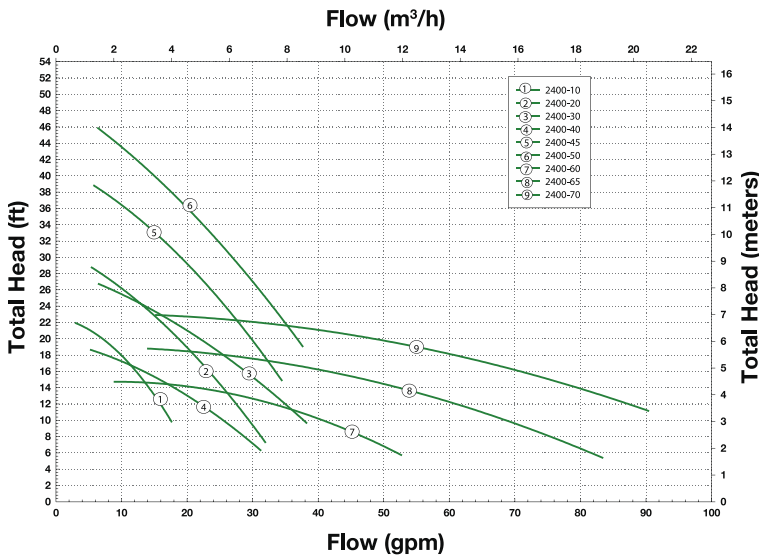
# Pump Curves

VR1816, VT2218, VR3452  
ECM vs Single Speed



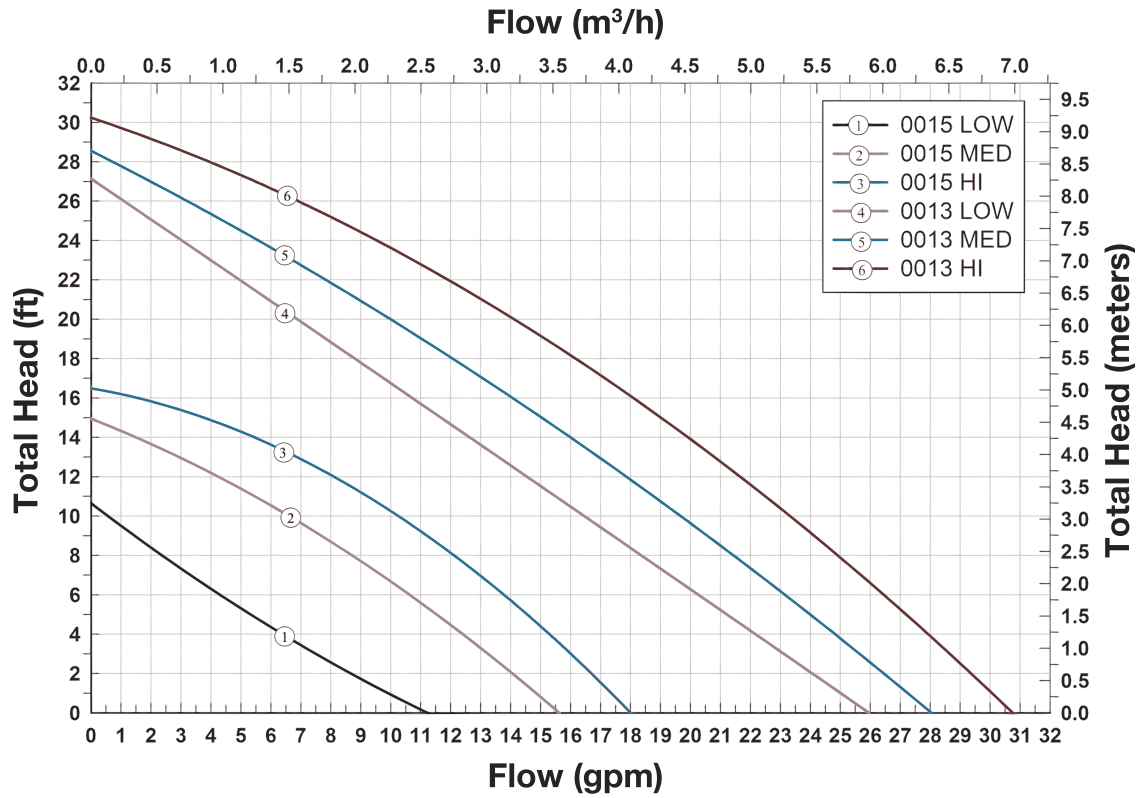
2400 Series (60Hz)  
10 - 70

VR15, VR20, VR25 and VR30  
Performance Field

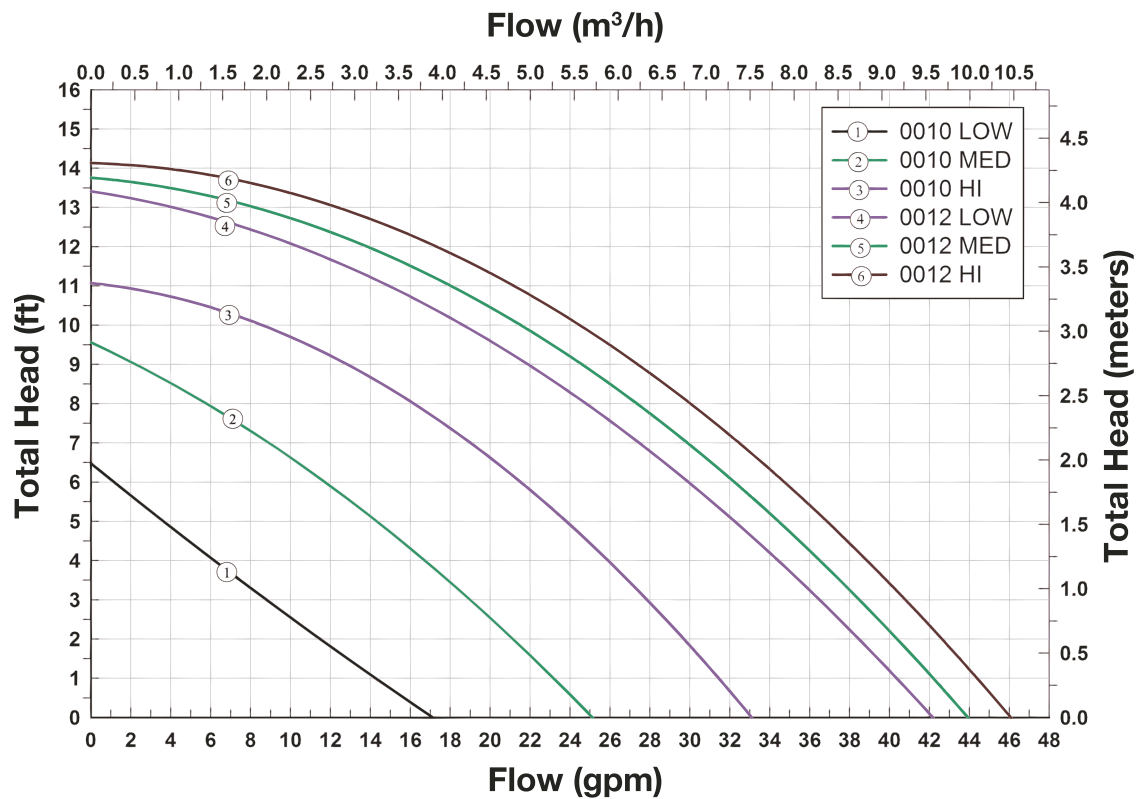


## Pump Curves

### 3-Speed, 00<sup>®</sup>-Series (60Hz) (0013 & 0015)



### 3-Speed, 00<sup>®</sup>-Series (60Hz) (0010 & 0012)



# 1915e™ ECM High-Efficiency Circulators

The ECM 1915e™ is a self-sensing, close coupled, mechanically sealed in-line pump that exceeds industry and efficiency standards with an advanced hydraulic design. It features a high-efficiency volute, ECM motor and integrated frequency drive. Simple yet versatile control options include constant pressure, constant speed, proportional pressure, 0-10 Vdc and parallel pump alternation. These standard features combined with the intuitive user interface allow for quick start-ups achieving optimum system efficiency and maximum comfort. The 1915e™ is available in cast iron for closed loop hydronic heating and cooling systems or stainless steel, NSF Commercial Hot Certified for DHW applications.

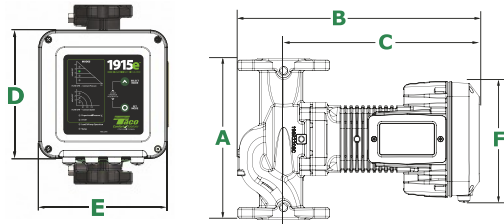


**Cast Iron Model**

## Applications

**Cast Iron Model:** Closed loop, pressurized heating and chilled water HVAC systems

**Stainless Steel Model:** Potable water systems (DHW recirculation, pressure boosting)



## Top Features

- Easy-to-program pump interface
- High-efficiency ECM motor uses up to 85% less electricity
- Constant speed, constant pressure, or proportional pressure modes
- BMS 0-10V
- 2-pump operation

## Durability & Convenience

- 65' Shut-off head, 120 USGPM max flow
- ECM brushless DC, high-efficiency, soft start, high starting torque motor
- Easy to program pump interface
- Self-sensing
- Multiple Operating Modes
  - 4 Constant Pressure
  - 3 Constant Speed
  - 1 Proportional Pressure
- LED Status Light
- Error Diagnostics
  - Locked Rotor
  - Over Current
  - Over & Under Voltage
  - Over Temperature
  - Communications Failure
- External Inputs/Outputs
  - 0-10Vdc external speed control
  - Remote enable
  - Overload relay output
  - Parallel pump control
- High quality mechanical seal
  - Carbon/Silicon-Carbide/EPDM for CI Model
  - Carbon/Silicon-Carbon/Viton for SS Model

## Pump Dimensions & Weights

Model Number Part Number	Type	Flange Size	A	B	C	D/E	F	Weight lbs.
			Inches [mm]					
<b>1915e-F</b>	Cast Iron	1-1/2 [38]	10.4 [264]	15.6 [397]	12.7 [322]	7.5 [190.5]	7.8 [199]	30.5
<b>1915e-SF</b>	Stainless Steel	1-1/2 [38]	10.4 [264]	15.6 [397]	12.7 [322]	7.5 [190.5]	7.8 [199]	30.5

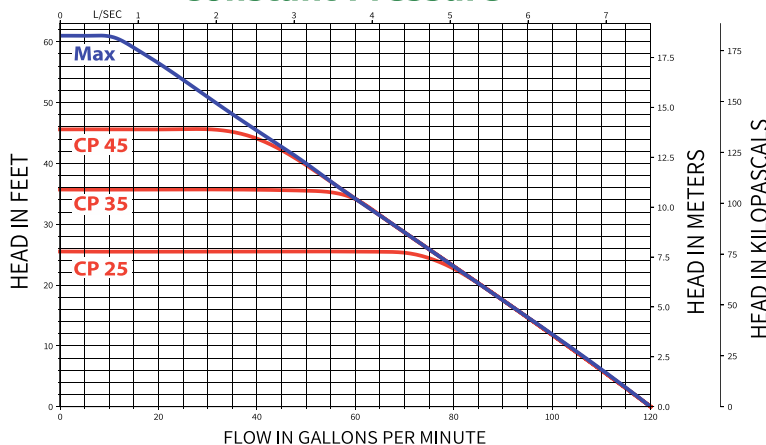
## Electrical Specifications

Pump Ratings	200-240/ 1 volt, 47 - 63Hz
Power Consumption (HP)	0.027 - 0.75 HP
Power Consumption (W)	20 - 650 W
Rated Current (1 phase, 230V)	.25A - 3.8A
Relay Output:	30VDC Max. load up to 2A 12VAC Max. load up to 3A
Analog Inputs:	Input Voltage : 0-10VDC, 10mA Output Voltage : 0-10VDC, 10mA

Minimum static inlet pressure at pump suction port (PSI / bar) to avoid cavitation at fluid temperatures

Fluid Temperatures	PSI / bar
112°F (50°C)	7.3 / 0.5
176°F (80°C)	11.6 / 0.8
230°F (110°C)	20.3 / 1.4

## Constant Pressure



## Order Flanges Separately

1600-031RP	2- 1 1/2" Flanges, 2 Gaskets, 4 Nuts & Bolts
1600-032RP	2- 2" Flanges, 2 Gaskets, 4 Nuts & Bolts
1600-031SRP	2- 1 1/2" SS Flanges, 2 Gaskets, 4 Nuts & Bolts
1600-032SRP	2- 2" SS Flanges, 2 Gaskets, 4 Nuts & Bolts
198-3084RP	2- 1 1/2" SS Flanges, 2 Gaskets, 4 SS Nuts & Bolts

## 0015e3™ ECM High-Efficiency Circulator

Taco 0015e3™ is a variable speed, high-efficiency wet rotor circulator with an ECM permanent magnet motor. It's ideal for hydronic systems zoned with circulators or zone valves. With 3 easy settings, the 0015e3 delivers performance, reliability and ease of installation that made the 00® famous.

# Install it, forget it.™ 0015e3™

### Features

- Replaces ALL 3-speed hydronic circulators in its class
- BIO Barrier® protects pump from system contaminants
- SureStart™ automatic unblocking and air purging mode
- High-efficiency ECM motor uses up to 85% less electricity
- Integral Flow Check (IFC®) included
- 3 easy settings:
  - LOW (5 feet head)
  - MEDIUM (10 feet head)
  - HIGH (18 feet head), 16 gpm max flow
- Dual electrical knockouts, 6" stranded wire leads included for easy wiring
- Use with a Taco ZVC Zone Valve Control or SR Switching Relay for ON/OFF operation
- 2-way flange model reduces SKU's and provides universal fit-up to any flange position; nut capture feature
- Double insulated. No ground wire required
- Whisper quiet operation



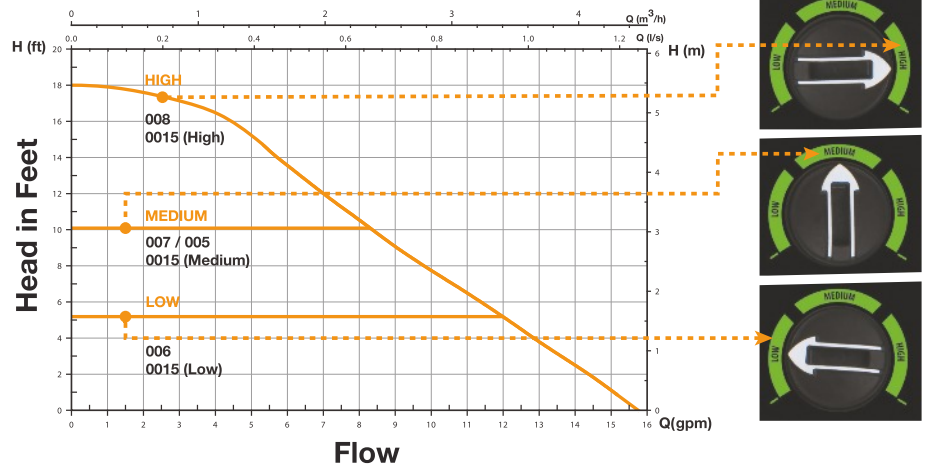
00e series



**Orange LED:**  
Indicates 0015e3 running normally.



**SureStart™ LED:**  
The White LED indicates that the innovative **SureStart** automatic unblocking and air purge is active. **SureStart** gives you the confidence that you'll never get a locked rotor with the 0015e3. **Install it, forget it.™**



6-3/8" flange-to-flange dimension. Drop-in-place replacement of any standard circulator.

Taco 00e	Taco	Grundfos	Xylem/B & G	Wilco
0015e	005	UP 15-10F	ecocirc 19-14 auto	Star S 16F
	006	UP 15-10FR UP	ecocirc 19-14 vario	Star S 16FX
	007	15-42F	NRF-22	Star S 21RFC
	008	UP 15-42FR	NRF-25	Star S 21FX
	00R	UPS 15-42F	NRF-9F/LW	Star S 21F Stratos
	0015 (3-Speed)	UPS 15-58FC		ECO 16RFC
	3-Speed	UPS 15-58FRC ALPHA 15-55F ALPHA 15-55FR		



## 007e™ ECM High-Efficiency Circulator

Taco 007e™ is a high-efficiency wet rotor circulator with an ECM permanent magnet motor. The 007e™ is everything you love about the 007. It is ideal for hydronic systems zoned with circulators or zone valves. The 007e™ delivers the performance equivalent to the 007 plus the reliability and easy installation that made the 00® famous. **Install it, forget it.™**

### Features

- ECM performance equivalent to the legendary 007 circulator
- High-efficiency ECM motor uses up to 85% less electricity
- Ideal for hydronic systems zoned with circulators or zone valves
- **BIO Barrier®** protects pump from system contaminants
- Integral Flow Check (IFC®) included
- Dual electrical knockouts, 6" stranded wire leads included for easy wiring
- Use with a Taco ZVC Zone Valve Control or SR Switching Relay for ON/OFF operation
- 10' Shut-off head, 16 gpm max flow
- 2-way flange model reduces SKU's and provides universal fit-up to any flange position; nut capture feature
- Double insulated, no ground wire required
- Whisper quiet operation

### Pump Specifications

- Max. Water Temp: 230°F (110°C)
- Min. Water Temp: 36°F (2°C)
- Electrical Rating:
  - Voltage: 120V, 60 Hz
  - Single phase
  - Max. Operating Power: 44W
  - Max. AMP Rating: 0.54

**Runs Cooler... Lasts Longer!**

**6-3/8" flange-to-flange dimension. Drop-in-place replacement of any standard circulator.**

Taco 00e	Taco	Grundfos
007e-F4	007	Alpha 15-55F UP15-42 UPS15-58
	Xylem/ B & G	Wilco
	eco Auto eco Vario NRF-22 NRF-25	Stratos-ECO Star S-16F Star S-21F

# Install it, forget it.™

# 007e™



Orange LED

**Orange LED:**  
Indicates 007e is running normally.



SureStart LED

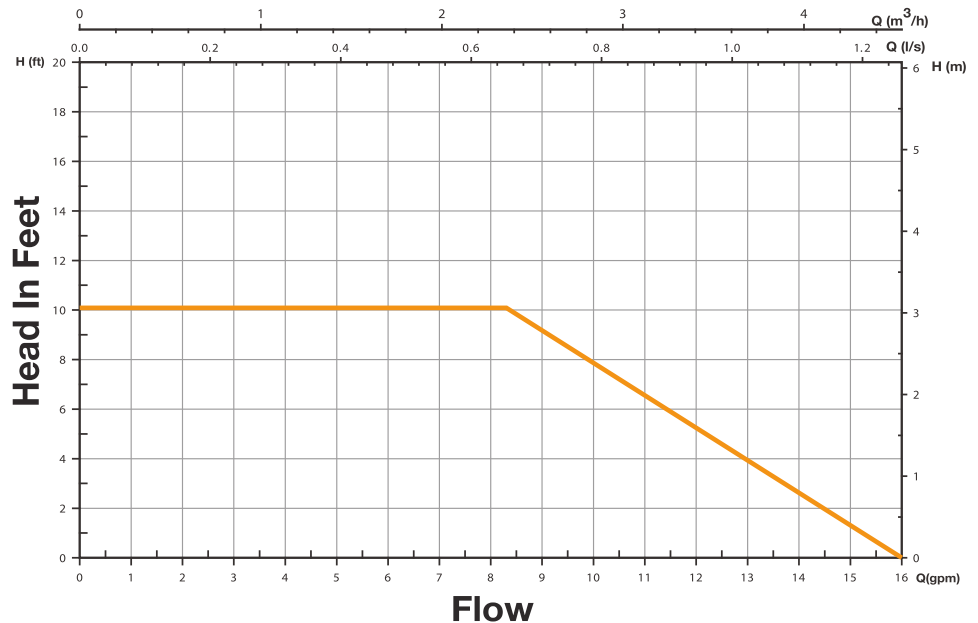
**SureStart LED:**  
Indicates the innovative **SureStart** automatic unblocking and air purge is active.



2-Way Flange



### 007e™ Performance Curve



The 007e performance is ideal for hydronic zoning to reduce velocity noise or banging of zone valves closing against high head pressure circulators.

## VT2218 ECM High-Efficiency Circulator

Taco 00e™ series — VT2218 Delta-T Variable Speed circulator is a temperature sensing, self-adjusting, variable speed, high-efficiency wet rotor circulator with an ECM permanent magnet motor. Operating modes include Delta-T differential temperature, 4 fixed speeds, set point heat, set point cool and boiler protection.

### Features

- 22' shut-off head, 18 gpm max flow
- ECM high-efficiency motor
- Easy to use 3 button programming to change modes and temp/speed settings
- Power range from 9-58 watts
- Nut capture feature on flanges
- Full speed over-ride For system fill and purging
- Full LCD display showing:
  - Mode, speed or temperature setting, watts, supply and return temperatures
  - Error code diagnostics
- Sensors and Integral Flow Check (IFC®) included
- **BIO Barrier™** filter protects pump from system contaminants
- **SureStart™** automatic unblocking and air purging mode
- Universal flange configuration

### 5 Operating Modes

- **Delta-T** — Differential Temperature with settings from 5-50°F (20°F factory pre-set)
- **Constant Speed** — 4 fixed speed settings
- **Set Point Heat** — Increases speed to increase temperature - Range = 50-220°F
- **Set Point Cool** — Increases speed to lower temperature - Range = 32-100°F
- **Boiler Protection** — Used as a bypass pump to maintain a minimum boiler return temperature to prevent flue gas condensation - Range = 100-160°F



Model #	Description
VT2218-HY2-4FC1A00	Taco Variable Speed, ECM High-Efficiency Delta-T Circulator, 115/60/1

## 0018e™ ECM High-Efficiency Circulator

The 00e™ series — 0018e™ circulator is an infinitely variable speed, high-efficiency wet rotor circulator with an ECM permanent magnet motor. Operating modes include infinitely variable fixed speed and self-adjusting constant pressure or proportional pressure variable speed. Now with 1 and 2-way Bluetooth® Communication using the Taco 0018e™ ECM Circulator Mobile App.

### Features

- 18' shut-off head, 16 gpm max flow
- **SureStart™** automatic undocking and air purging mode
- Multi-color LED displays
- Simple mobile application for reading diagnostic data and setting operating modes
- **BIO Barrier™** filter protects pump from system contaminants
- 2-way flange model

### Model #

0018e-2F4

### Description

Taco Variable Speed, ECM, High-Efficiency Delta-P Circulator



### Operating Modes

#### Infinitely Variable Fixed Speed (Min/Max):

— Ideal for zoning with circs, fine tune to GPM required

#### Constant Pressure, Variable Speed:

— Best suited for zone valve jobs

#### Proportional Pressure, Variable Speed :

— Best suited for panel radiators with thermostatic radiator valves (TRV's)

## 0034e™

The 0034e™ is a high-performance, variable speed, wet-rotor circulator with high-efficiency ECM permanent magnet technology. With 5 easy settings, its variable speed performance curves are equivalent to the Taco 009, 0010, 0011, 0012, 0012 3-Speed, 0013, 0013 3-Speed & 0014. Ideal for large residential and light commercial hydronic heating, chilled water cooling and domestic hot water systems. The 0034e™ reduces power consumption by up to 85% compared to equivalent AC permanent split capacitor circulators. With a maximum of 34 feet of head and 50 gpm, it is available in either Cast Iron or NSF certified Stainless Steel.

## 0034ePlus™

An intuitive digital user interface lets you choose between a variety of operating modes; activeADAPT™, five Constant Pressure curves, five Proportional Pressure curves, Min/Max fixed speed or speed control through 0-10V DC or PWM external input.

### Features

- 5 easy dial settings to match system requirements - activeADAPT™, LOW, MEDIUM, HIGH or 0-10V DC analog or PWM digital signal external input
- **BIO Barrier®** protects the pump from system contaminants
- **SureStart®** automatic unblocking and air purging mode
- Replaces all single speed and 3-speed circulators in its class
- Multi-color LED: power on, mode setting and error code diagnostics
- Use with a Taco ZVC Zone Valve Control or SR Switching Relay for ON/OFF operation
- Nut-grabber feature on flanges for easier fit up
- Dual electrical knockouts and removable quick-connect terminal strip for easy wiring
- Double insulated
- Whisper quiet operation
- Rotatable control cover to simplify installation

### Additional features for the Plus model

- Simple 3-button control
- Digital LED screen displays; Watts, GPM, Head, RPM and diagnostic error codes
- Five operating modes to match any system requirements — activeADAPT™, Constant Pressure, Proportional Pressure, Min/Max Fixed Speed or speed control through 0-10V DC or PWM external input

### Electrical Data

Model	Volts	Hz	Ph	Max Amps	Watts	RPM
<b>All Models</b>	115/208/ 230	50/ 60	1	1.48	10-170	830- 4300
<b>Motor Type</b>	ECM, Permanent Magnet, Electronically Protected					

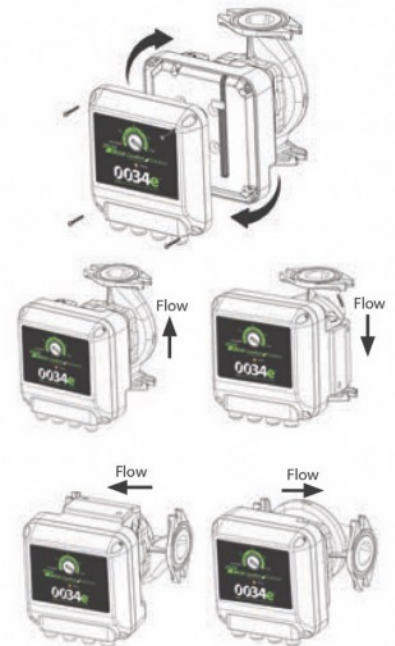


Certified to  
NSF/ANSI 61 & 372

Stainless Steel  
Model Only

### Rotatable Control Cover to allow mounting in any orientation

Pump Model #	
Part #	Casing
<b>0034e</b>	
<b>0034e-F2</b> VM3450-HY1-FC2A00	Cast Iron
<b>0034e-SF2</b> VM3450-HY1-FS2A00	Stainless Steel
<b>0034ePlus</b>	
<b>0034eP-F2</b> VR3450-HY1-FC2A00	Cast Iron
<b>0034eP-SF2</b> VR3450-HY1-FS2A00	Stainless Steel



### Pump Replacement Chart (6-1/2" Flange-to-Flange Dimension)

Taco	Bell & Gossett	Armstrong	Grundfos	Wilco
2400-10	PL 50	E 11	TP(E) 32-40	<b>Stratos:</b>
2400-20	PL 45	E 10	UP 50-75	1.25 x 3 – 35
2400-30	PL 36	E 8	UPS 43-100	1.25 x 3 – 30
2400-40	PL 30	E 7	UPS 50-44	1.25 x 3 – 25
110	E90 1AAB	S 25	UP 43-75	1.25 x 3 – 20
111	Series 60 (601)	H 63	UP(S) 43-44	----
112	Series HV	H 52	UP 26-116	<b>Top S:</b>
113	Series PR	H 51	UP(S) 26-99	1.25 x 15
009	Series HV	Astro 290	UP 26-96	1.25 x 25
0010	Series 100	Astro 280	UP 26-64	1.25 x 35
0011	NRF 45	Astro 210	UPS 32-40	1.50 x 20
0012	NRF 36	1050 1B	UPS 32-80	----
0013	ECOCirc XL 36-45	1050 1 1/4B	Magna 32-100	<b>Top Z:</b>
0014	----	Compass ECM	Magna 32-60	1.50 x 15
VR3452	----	----	Alpha2 26-99	1.50 x 20

**NOTE:** Flange size and flange-to-flange dimensions will vary by competitive model and may require some piping changes.

## VR ECM High-Efficiency Circulators

The 00e<sup>®</sup> series — These are browser accessible, high-efficiency, wet rotor, variable speed, sensorless commercial pumps for chilled and hot water applications. Available in four sizes (VR 15-3, 20-3, 25-3 and 30-3), the sensorless 00e<sup>®</sup> VR line provides differential head pressures up to 42 ft. and flows up to 360 GPM. The ECM motor provides up to 85% electrical energy savings compared with conventional pumps and its multiple operating modes fit most applications.



**Web Connections  
Are A Snap!**

**00e<sup>™</sup>**  
series

### Pump Specifications

- Max. operating pressure: 175 PSI (12 bar)
- Water temperature range: 14° - 230°F (-10° - 104°C)
- Ambient operation temperature range: 32° - 104°F (0° - 40°C)
- Designed for closed loop heating and cooling systems pumping water or a water/glycol mixture (wet rotor design)
- Utilizes standard ANSI class 125 flanges

### Materials Of Construction

- Casing:** Cast iron
- Impeller:** Stainless steel
- Shaft:** Stainless steel
- Bearing:** Metal impregnated carbon

### Features

- Simple user interface to enable setting changes on the face of the pump, eliminating the need for laptop setup
- Real-time performance readouts for flow, power consumption, speed and head values
- Self Sensing Dynamic Auto (factory default), Proportional & Constant Pressure plus Manual Variable Speed modes provide for extremely extensive application flexibility
- On board 0-10Vdc two way control adjusts speed or head to meet system demands from external control inputs
- ModBus control and performance feedback for advanced Building Management / Building Automation Systems
- RJ 45 input / output for ease of networking
- Relay outputs for remote monitoring of pump status and digital inputs for external enable / disabling
- Simple Main / Standby and Parallel Pump operation (parallel pumps run together as needed) via standard Ethernet cabling

Fluid Temperatures	VR15 & VR20 (PSI)	VR25 & VR30 (PSI)
112° F (50°C)	7.3	4.35
176° F (80°C)	11.6	14.5
230° F (110°C)	20.3	23.2

**Minimum static inlet pressure a pump suction port (PSI/bar) to avoid cavitation at fluid temperatures.**

Model Number	Flange Size (ANSI)	Voltage Pump Ratings	Power (HP)	Power Consumption (W)	Weight
					lbs.
VR15	1-1/2"	115-240/1	0.027 - 0.680	20-500 W	57
VR20	2"	115-240/1	0.035 - 1.088	26-800 W	71
VR25	2-1/2"	208-240/1	0.054 - 1.496	46-1100 W	82
VR30	3"	208-240/1	0.054 - 2.175	40-1600 W	99

## 3-Speed, 00<sup>®</sup>-Series Circulators

**The 0015 IFC, 3-Speed Radiant Pump** is specifically designed for the flow and head requirements of today's radiant heating systems. The 0015 delivers the highest starting torque in its class and a removable, high-flow Integral Flow Check (IFC<sup>®</sup>) that prevents gravity flow, reduces installation costs and improves pump performance.

**The 0013 IFC, 3-Speed Pump** is specifically designed for a wide range of high flow/high head requirements. Its' 3-Speed switching capability provides fine tuning control to meet system design conditions.

**The 0012 IFC, 3-Speed Pump** is designed for high flow/low head applications, it's ideal for large BTU boilers, primary boiler loops and large recirculation systems.

**The 0010 IFC, 3-Speed Service Pump** is designed as an ideal replacement circulator for service contractors to use on any emergency "no-heat" call. Simply install it and set the speed to match the original pump performance. This pump features the Universal Flange Design.



### Features

- 3-speed switch
- Fine tune to system requirements
- Highest performance & starting torque in class
- Heavy duty construction for longer life
- Removable high-flow Integral Flow Check (IFC<sup>®</sup>)
  - Prevents gravity flow
  - Reduces installation costs
  - Improves pump performance
- Replaceable cartridge design
- Quiet, efficient operation
- Self lubricating, no mechanical seal
- Wide range of applications
- Cast iron or stainless steel, flanged construction

### Pump Models

Taco 3-Speeds	Flange Orientation		Flange-to-Flange	Grundfos	B & G
0015-MSF3-IFC	CI	S	6-3/8"	UPS15-58FC	NRF-25
0015-MSF3-1IFC	CI	R			
0015-MSSF2-IFC	SS	S			
0015-MSSF3-1IFC	SS	R			
0010-MSF2-IFC	CI	U	6-3/8"	----	NRF-9F/LW LRF-20 100, NRF-22/23
0012-MSF1-IFC	CI	S	8-1/2"	UPS43-44FC	HV NRF-33
0012-MSSF1-IFC	SS	S		----	
0013-MSF1-IFC	CI	R	6-1/2"	UPS26-99FC UPS26-150F UPS26-100F UPS50-44F	NRF-36 NRF-45 PR, PL-30
0013-MSSF1-IFC	SS	R		----	

## 00® - Series Cartridge & Priority Zoning Circulators

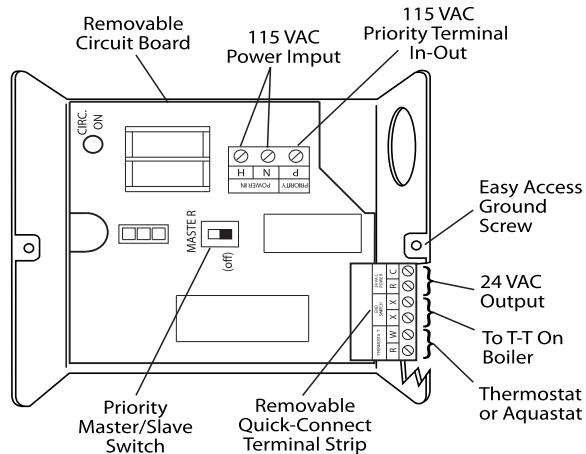
The Taco Priority Zoning Circulator combines the reliability of the "00®" circulator with the convenience and efficiency of a PC board mounted switching relay package. Each zoning circulator has low and high voltage terminal strips for ease of electrical hookup, as well as a built-in priority switch. The priority switch allows the installer to choose the zone that requires the most attention and, when activated, runs only that circulator. It is ideal for indirect hot water heaters, adding another zone, zoning with circulators, and for prioritizing undersized zones.

Every Taco "00®" cartridge circulator is designed to make the job easier. With no mechanical seal, the self-lubricating design provides unmatched reliability. **Every "00®" features a field-replaceable cartridge** that contains all the moving parts. Replacing the cartridge rebuilds the circulator! Our IFC® Cartridge Circulators feature an Integral Flow Check, eliminating additional installation costs associated with separate in-line flow checks.



**"00®" Series Cartridge Circulator**

### PC Board Layout and Electrical Hook-Up



**Priority Zoning Circulator**

### "00®" Series Cartridge Circulator Features

- Standard high capacity output-compact design
- Direct drive-low power consumption
- Unique replaceable cartridge design-field serviceable
- Self-lubricating
- No mechanical seal
- Universal flange-to-flange dimension
- Anti-condensate baffle (ACB) to protect motor windings (0011, 0012, 0013)
- Integral Flow Check (IFC)™ (optional)
- Priority zoning relay (optional)
- Most available in 230 volt

### Priority Zoning Circulator Features

- Snap-in PC board
- Removable, quick-connect low voltage terminal strip
- Simplified wiring
- LED power light
- Works with other circulators or zone valves
- Universal thermostat compatibility

### "00®" - Series Circulators (Models and Applications)

"00®" - Series Circulators (Models and Applications)					Priority Zoning Circulators		
Stainless Steel	Cast Iron Without Check Valve	Cast Iron With Check Valve	Flange Orientation	Application	Without Check Valve	With Check Valve	Flange Configuration
005-SF2	005-F2	005-F2-2IFC	S	Small Residential	005-ZF2-6	005-ZF2-2IFC	S
----	006-F4	006-F6-IFC	R	DHW Recirculation / Air Handlers	007-ZF5-9	007-ZF5-3IFC	S
007-SF5	007-F5	007-F5-7IFC	S	Residential	007-ZF5-10	----	R
----	007-F5-5	007-F5-8IFC	R	Residential	008-ZF6-6	----	S
008-SF6	008-F6	----	S	Radiant	----	008-ZF6-2IFC	R
008-SF6-2	----	00R-F6-1IFC	R	Radiant	009-ZF5-2	009-ZF5-1IFC	R
009-SF5	009-F5	009-F5-IFC	R	High Head Pressure	0010-ZF3-2	0010-ZF3-1IFC	S
0010-SF3	0010-F3	0010-F3-1IFC	S	Light Commercial	0011-ZF4-2	0011-ZF4-IFC	R
0011-SF4	0011-F4	0011-F4-2IFC	R	High Velocity / Head Pressure	0012-ZF4-4	0012-ZF4-IFC	S (1-1/2") Incl.
0012-SF4	0012-F4	----	S	High Velocity	0012-ZF4-5	----	S (2") Incl.
0012-SF4-1	0012-F4-1	----	S	High Velocity	----	----	----
0013-SF3	0013-F3	0013-F3-1IFC	R	High Velocity / Head Pressure	0013-ZF3	----	R
0014-SF1	0014-F1	0014-F1-1IFC	R	Medium Velocity	0014-ZF1-2	0014-ZF1-1IFC	R

\* Replacement Gaskets: Part #007-007RP for all models except 0012. For 0012 models, use 0012-020RP.

## 2400 Enhanced Series High Capacity Circulators

The enhanced 2400 Series High Capacity Circulators include a new 3 piece, carbon/silicon-carbide, rotating mechanical seal configuration and a pressure-balanced impeller. Typical applications include hydronic heating, in-floor radiant, snow melt, high pressure drop boilers, outdoor wood boilers, chilled water cooling, geothermal heat pumps, primary / secondary loops and hydro air fan coils. The Stainless Steel 2400 Series should be used for open, domestic water re-circulation systems.

### Features

- Compact, space saving design
- Powerful close-coupled, maintenance free motor
- Superior efficiency, high starting torque
- Permanently lubricated, sealed for life bearings
- Rugged 1/2" stainless steel shaft
- Carbon/silicon-carbide mechanical seal for long life
- Noryl® impeller
- Universal flange to flange dimensions (Ideal for retrofits)
- Anti-condensate design for chilled water
- Dual electrical knock-outs
- Dual pressure taps, suction / discharge



### Models And Electrical Data

Cast Iron	Stainless Steel	Hz	Ph	115V Amps	230V Amps	RPM	HP
2400-10-3P	2400-10S-3P	60	1	1.4	.54	3450	1/10
2400-20-3P	2400-20S-3P	60	1	1.9	1.0	3450	1/6
2400-30-3P	2400-30S-3P	60	1	1.9	1.0	3450	1/6
2400-40-3P	2400-40S-3P	60	1	1.9	1.0	3450	1/6
2400-45-3P	2400-45S-3P	60	1	3.6	1.7	3450	1/3
2400-50-3P	2400-50S-3P	60	1	4.9	2.4	3450	1/2
2400-50/2-3P	2400-50S/2-3P	60	1	4.9	2.4	3450	1/2
2400-60-3P	2400-60S-3P	60	1	1.9	1.0	3450	1/6
2400-65-3P	2400-65S-3P	60	1	3.6	1.7	3450	1/3
2400-70-3P	2400-70S-3P	60	1	4.9	2.4	3450	1/2
2400-70/3-3P	2400-70S/3-3P	60	1	4.9	2.4	3450	1/2
<b>Motor Type</b>	<b>Open Drip Proof, Permanent Split Capacitor, Thermally Protected</b>						

### Model Nomenclature

**S:** Stainless steel, flanged NF372

**Y:** 230V / 60 / 1 Motor

### Performance Data

**Maximum Flow:** 90 GPM

**Maximum Head:** 46 Feet

**Minimum Fluid Temp:** 40°F (4°C)

**Maximum Fluid Temp:** 225°F (107°C)

**Maximum Working Pressure:** 150 psi

## Shut-off Freedom Flanges

**Taco's Shut-Off Freedom Swivel Flanges** combine a full-port, ball valve and companion flange to isolate system circulators for easy removal and service, without draining the system. Solid brass uni-body construction, available in 1/2" - 1 - 1/2" NPT or Sweat connections. The Swivel Flange provides easier installation and positioning of the pump and lever handle in the most convenient locations.



### Operating Data

**Maximum WP:** 150 psi / 600 WOG

**Maximum Operating Temp:** 240°F (115°C)



### Features

- Easy 1/4-turn open/close operation
- Positive shut-off, leak free design
- Swivel flange allows 360° rotation
- Solid brass construction
- Chrome/brass valve ball
- High quality Teflon® seats
- Full-port ball valve for unrestricted flow
- 150# working pressure
- Includes nuts and bolts

## Companion Flange Chart

Size	# of Bolts	Standard or High Velocity	Bronze NPT	Bronze SWT	Stainless NPT	Ductile Cast Iron NPT	SWT Isolation Flange	NPT Isolation Flange	Pumps Covered
1/2"	2	STD	----	110-522BSFL	----	----	SFL-050S	SFL-050T	005, 007-0011, 0013-0015, 110-113, 2400-10, -20, -45, -50
3/4"	2	STD	----	110-523BSFL	110-251SF	110-251F	SFL-075S	SFL-075T	VR3452, 007e, VT2218, VR1816, 005, 007-0011, 0013-0015, 110-113, 2400-10, -20, -45, -50
1"	2	STD	----	110-524BSFL	110-252SF	110-252F	SFL-100S	SFL-100T	VR3452, 007e, VT2218, VR1816, 005, 007-0011, 0013-0015, 110-113, 2400-10, -20, -45, -50
1-1/4"	2	STD	----	110-525BSFL	110-253SF	110-253F	SFL-125S	SFL-125T	VR3452, 007e, VT2218, VR1816, 005, 007-0011, 0013-0015, 110-113, 2400-10, -20, -45, -50
1-1/4"	2	HV	----		194-1540SF	194-1540F	SFL-125S-0012	SF-125T-0012	VR3452, 007e, VT2218, VR1816, 2400-30, -40
1-1/2"	2	STD	----	110-526BSFL	110-254SF	110-254F	SFL-150S	SFL-150T	VR3452, 007e, VT2218, VR1816, 005, 007-0011, 0013-0015, 110-113, 2400-10, -20, -45, -50
1-1/2"	2	HV	----	----	194-1542SF	194-1542F	SFL-150S-0012	SFL-150T-0012	VR3452, 007e, VT2218, VR1816, 0012, 2400-30, -40
2"	2	HV	----	----	194-2124SF	194-2124F	----	----	00(2-F4-1 & 2400-50)
2"	4	HV	185-086S	----	----	185-086C	----	----	2400-60, -65, -70
2-1/2"	4	HV	185-112S	----	----	185-112C	----	----	2400-70/3
3"	4	HV	185-113S	----	----	185-113C	----	----	2400-70/3

### Freedom Flanges Including Bronze Half-Unions

The Taco freedom FLANGE® fits 00®, 110 Series, 2400 Series and all small 00e™ ECM high-efficiency circulators. Be free from scraped knuckles and jury-rigged tools of yesteryear! Their Easy-On / Easy-Off and sweat designs make quick work of pump installation and maintenance. Available in Cast Iron, Stainless Steel or Bronze.



**Cast Iron Freedom Flange®**  
(US Patent # 6, 742, 816)



**Stainless Steel Freedom Flange®**



**Bronze Freedom Flange®**



**Shut-off Swivel Freedom Flange®**

# freedom FLANGE®



## 5000 Series Mixing Valves

Control hot water temperatures to your domestic system with mixing valves available for point of use (ASSE1017) and point of distribution (ASSE1070) installations. The expanded line up of 5000 and 5120 series is the ultimate performer for increasing domestic hot water availability and safety. Additional versions and sizes also available!



**5000 Lead-Free Series**



**5120 Lead-Free High Flow Series**



**5120 Lead-Free Low Flow Series**



**5123-WH-N Series (Direct Mount)**



**All union models are available with a Stainless steel Temperature gauge as shown here.**



Thermostatic Mixing Valves						
Model #	Description	Size	Connection	Cv		
<b>MIXING VALVES (ASSE 1017) Adjustment 85-176F- All Union Valves include built-in check valves</b>						
5002-C3	Mixing Valve	1/2"	Union Sweat	2.3		
5002-P3	Mixing Valve	1/2"	Union Pex	2.3		
5002-T3	Mixing Valve	1/2"	Union NPT	2.3		
5002-H3	Mixing Valve	1/2"	Union Press	2.3		
5003-C3	Mixing Valve	3/4"	Union Sweat	2.3		
5003-N3	Mixing Valve	3/4"	NPT Female	2.3		
5003-P3	Mixing Valve	3/4"	Union Pex	2.3		
5003-T3	Mixing Valve	3/4"	Union NPT	2.3		
5003-H3	Mixing Valve	3/4"	Union Press	2.3		
5004-C3	Mixing Valve	1"	Union Sweat	2.3		
5004-H3	Mixing Valve	1"	Union Press	2.3		
5004-P3	Mixing Valve	1"	Union Pex	2.3		
5003-C3-G	Mixing Valve w/ Temp Gauge	3/4"	Union Sweat	2.3		
5004-C3-G	Mixing Valve w/ Temp Gauge	1"	Union Sweat	2.3		
5002-002RP	Gasket Set (3) for 5000 Mixing Valves					
<b>MIXING VALVES HEATING ONLY - Adjustment 85-176F - All union valves including built-in check valves</b>						
5002-HX-C3	Mixing Valve	1/2"	Union Sweat	2.3		
5003-HX-C3	Mixing Valve	3/4"	Union Sweat	2.3		
5004-HX-C3	Mixing Valve	1"	Union Sweat	2.3		
5003-HX-C3-G	Mixing Valve w/ Temp Gauge	3/4"	Union Sweat	2.3		
5004-HX-C3-G	Mixing Valve w/ Temp Gauge	1"	Union Sweat	2.3		
<b>MIXING VALVES HIGH FLOW (ASSE 1017) Adjustment to 85-176F - Includes Build-in check valves</b>						
5124-HF-C1	Mixing Valve, High Flow	1"	Union Sweat	4.1		
5125-HF-C1	Mixing Valve, High Flow	1-1/4"	Union Sweat	4.1		
<b>MIXING VALVES HEATING ONLY (DUAL 1070 ND ASSE 1017) Adustment 85-120F - All union valves including built-in check valves</b>						
5122-C2	Thermostatic Mixing / Tempering Valve	1/2"	Union Sweat	2.12		
5123-C2	Thermostatic Mixing / Tempering Valve	3/4"	Union Sweat	1.63		
5124-C2	Thermostatic Mixing / Tempering Valve	1"	Union Sweat	1.37		
5123-C2-G	Thermostatic Mixing / Tempering Valve w/Temp Gauge	3/4"	Union Sweat	1.63		
5124-C2-G	Thermostatic Mixing / Tempering Valve w/Temp Gauge	1"	Union Sweat	1.37		
<b>MIXING VALVES DIRECT MOUNT (ASSE 1070 &amp; 1017) Adjustment 90-130F - Includes Built-in Check Valve and Recirc Connections</b>						
5123-WH-N3	Direct Mount Thermostatic /Tempering Valve	3/4" NPT x 3/4"NPT x 3/4"NPSH	3/4"	NPT	1.2	
5120G-1	Outlet Adaptor, Union and Temperature Gauge					

## Near Boiler Trim Kits

Save time purchasing the parts & pieces for your next boiler job. With a Taco® Near Boiler Trim Kit, everything you need is included in one easy-to-carry box. All three configurations, Premium, Deluxe & Standard are available in 1" or 1 1/4" connection sizes. Each comes with an air separator, combination boiler feed valve & backflow preventer, 4 1/2 gallon expansion tank, and the brass nipples and connections needed for assembly.

### Features

- Select kit combinations suit all preferences
- All fittings & connections included
- Designed for easy installation
- 1" & 1 1/4" sizes available
- 4 1/2 gallon expansion tank included
- Suitable for use in closed loop systems with water or up to 50% water / glycol solution
- Warranty protection
  - Expansion tank.....5 year
  - All other parts.....1 year

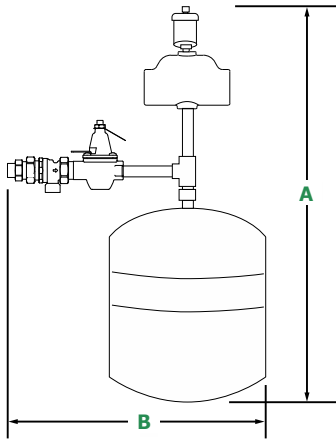


**Premium**

**Deluxe**

**Standard**

The standard option shown here is for illustration purposes only.



Mondale will be happy to build custom kits to suit your needs!

### Dimensions

Model Name	Size	Model Number	Height A (Inches)	Height B (Inches)	Shipping Wt. (Lbs.)
Premium	1"	TTK-100C-PRM	25.50	19.00	17.51
	1-1/4"	TTK-125C-PRM	25.75	19.00	18.49
Deluxe	1"	TTK-100T-DLX	25.50	17.50	18.40
	1-1/4"	TTK-125T-DLX	26.60	17.50	18.84
Standard	1"	TTK-100T-STD	25.25	17.50	18.70
	1-1/4"	TTK-125T-STD	25.50	17.50	18.35

Dimensions for reference purposes only.

## Configurations & Materials of Construction

### Premium

#### 4900 Series™ Air Separator (1" or 1 1/4" SWT)

- Housing ..... Brass
- PALL Rings ..... Stainless Steel
- Venting unit components ..... Stainless Steel, EPDM, Viton, Brass & Engineered Plastics

#### 3450 Combi Valve (1/2" SWT)

- Body ..... Forged Brass
- Cartridge Components ..... Brass, EPDM, Hi-Temp Engineered Plastics & Stainless Steel

#### Gaskets ..... EPDM

#### Dual Shut-off Isolation Valve (1/2" NPT) ..... Forged Brass

#### Expansion Tank (1/2" NPT) ..... Cold Rolled Steel, Butyl, Welded Steel, Brass

#### Fittings & Connections ..... Brass

- 1 x 4" 1/2" x 1/2" NPT Nipple
- 1 x 9" 1/2" x 1/2" NPT Nipple
- 1 x 1/2" x 1/2" FNPT Coupling

### Deluxe

#### 4900 Series™ Air Separator (1" or 1 1/4" NPT)

- Housing ..... Brass
- PALL Rings ..... Stainless Steel
- Venting unit components ..... Stainless Steel, EPDM, Viton, Brass & Engineered Plastics

#### 3490 Boiler Feed Valve/Backflow Preventer (1/2" SWT)

- Body ..... Brass
- Internal Components ..... Brass, EPDM,

#### Expansion Tank (1/2" NPT) ..... Cold Rolled Steel, Butyl, Welded Steel, Brass

#### Fittings & Connections ..... Brass

- 2 x 4" 1/2" x 1/2" NPT Nipple
- 1 x 1/2" Tee
- 1 x 1/2" NPT Service Check Valve

### Standard

#### Air Scoop® (1" or 1 1/4" NPT) ..... Cast Iron

#### 400 Hy-Vent®

- Body ..... Nickel Plated Brass
- Internal Components ..... Stainless Steel, BUNA N, Polypropylene, Noril, Acetal

#### 3490 Boiler Feed Valve/ Backflow Preventer (1/2" SWT)

- Body ..... Brass
- Internal Components ..... Brass, EPDM,

#### Expansion Tank (1/2" NPT) ..... Cold Rolled Steel, Butyl, Welded Steel, Brass

#### Fittings & Connections ..... Brass

- 2x 4" 1/2" x 1/2" NPT Nipple
- 1x 1/2" Tee
- 1 x 1/2" NPT Service Check Valve

## 4900 Series Air Separator

Taco's family of air elimination products delivers the most complete and effective means of air removal on the market. The ultimate micro bubble separation of the 4900 Series Air Separator eliminates the damaging effects and irritating noise caused by unwanted system air. Available in 3/4" – 2" sizes, they require no minimum run of pipe and have a convenient 1/2" tapping for easy installation of an expansion tank.

### How It Works

#### Stainless Steel Pall Rings

An optimum coalescence effect is achieved by the 4900 Series' use of the patented pall ring process. The PALL Ring chamber is engineered to optimize the collision of the flowing system water with the PALL Rings. As a result of this collision, all of the gas containing water particles are brought into contact with the entire pall ring surface area. Even the smallest micro- bubble present in the water will adhere to the surface of a pall ring, allowing coalescence to occur and air to be removed.

#### Conical Venting Chamber

The advantage of the conical venting shape is that the distance between the water level and the venting valve is greater than that of a straight air chamber, due to the effects of pressure. Thus any dirt or impurities floating on the fluid within the air separator will remain well clear of the venting mechanism during normal operating conditions. This means that fouling of the gearing and venting valve is reduced to a minimum.

#### The Coalescence Effect

Both small air bubbles and micro-bubbles will adhere to a surface and join together to form larger air bubbles. These combined bubbles then traverse up through the water and into the air chamber to be released by the vent.



*4900 Series Air Separator now also available in press connect!*

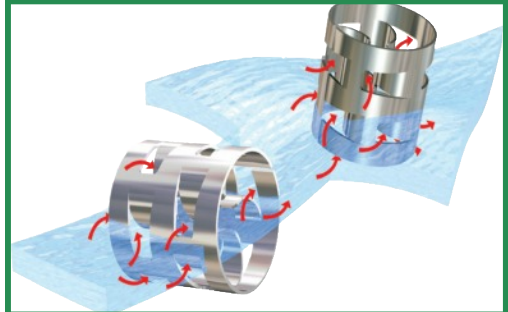
### Features

- Patented Pall Ring design
- Eliminates air induced system noise
- Minimal pressure loss
- Vent can be closed
- Large surface contact area
- Protective vent plate
- Rugged dependability
- Maximum air removal
- Convenient expansion tank connection tapping
- No minimum run of pipe requirement
- Bi-directional flow

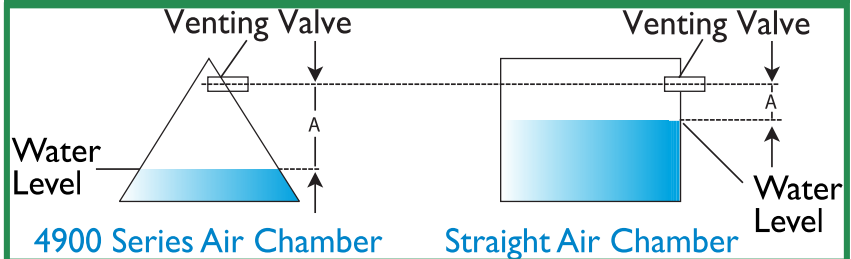
### Ratings

**Maximum Operating Pressure:** 150 psi  
**Maximum Operating Temperature:** 240°F  
**Minimum Operating Temperature:** 25°F  
**Media:** Water or water / glycol  
**Maximum Velocity:** 5 ft. / sec.

### Pall Rings



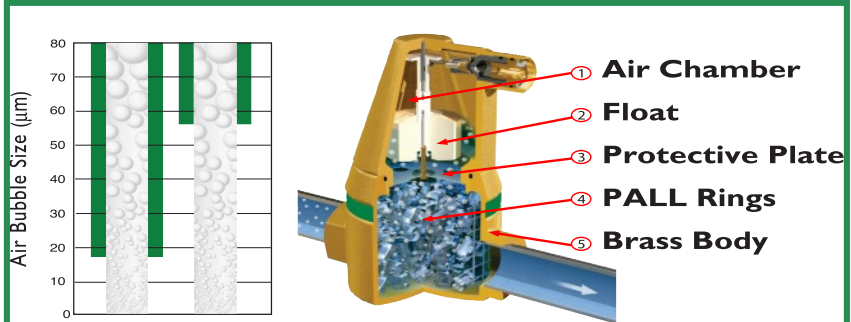
### Water Level



4900 Series Air Chamber

Straight Air Chamber

### Air Removal



### Available Models

Size	NPT	Sweat	Press
3/4"	49-075T	49-075C	49-075P
1"	49-100T	49-100C	49-100P
1-1/4"	49-125T	49-125C	49-125P
1-1/2"	49-150T	49-150C	----
2"	49-200T	N/A	----

## Automatic Air Vents



Taco automatic air vents have been the industry standard for over 30 years. No matter the application, Taco has the size and style vent to provide unmatched reliable service. Attached to the boiler or used throughout the system, Taco vents automatically purge unwanted air from any hydronic installation, allowing the system to run more efficiently. Taco also offers the 415-1 check valve for the 1/8" connections for the 400-4 and 416-2.

**\*Suitable for use in low pressure steam systems.**  
**\*\*Outlet connection fits 3/4" ID Flex tubing.**

### Dimensions

Product Number	Description	A	Bubble Breaker	Max. System Conditions	Max. Venting Pressure
417-3	*Taco-Vent® Coin Vent	1/8" NPT	No	*125 psi, 240°F	125 psi
400-4	Hy-Vent®	1/8" NPT	Yes	150 psi, 240°F	50 psi
416-2	Slim-Line Hy-Vent®	1/8" NPT	Yes	150 psi, 240°F	115 psi
426-3	Hy-Vent®	1/4" NPT	Yes	150 psi, 240°F	50 psi
418-4	Hy-Vent®	1/2 x 3/4" NPT	No	150 psi, 240°F	50 psi
419-1	High Pressure Hy-Vent®	1/2 x 3/4" NPT	No	250 psi, 240°F	150 psi
409-3	**Commercially Rated Brass Vent	3/4" NPT	No	150 psi, 240°F	150 psi
414-1	Waste Connector	1/4" NPT	---	150 psi, 240°F	---

## 4900 Series™ Magnetic Dirt Separators

Taco's 4900 Series™ of magnetic dirt separators increase system life and efficiency by removing ferrous material and other harmful, loose particles from closed loop hydronic heating systems. A powerful, service-free magnetic ring and convenient blow down valve are included for quick and easy system maintenance. Available with Sweat or NPT connections in sizes ranging from 3/4" – 2".



**Longer system life, better performance!**

### Materials Of Construction

**Housing:** Brass  
**PALL Rings:** Stainless Steel  
**O-Ring:** EPDM  
**Additional materials:** PTFE, NBR

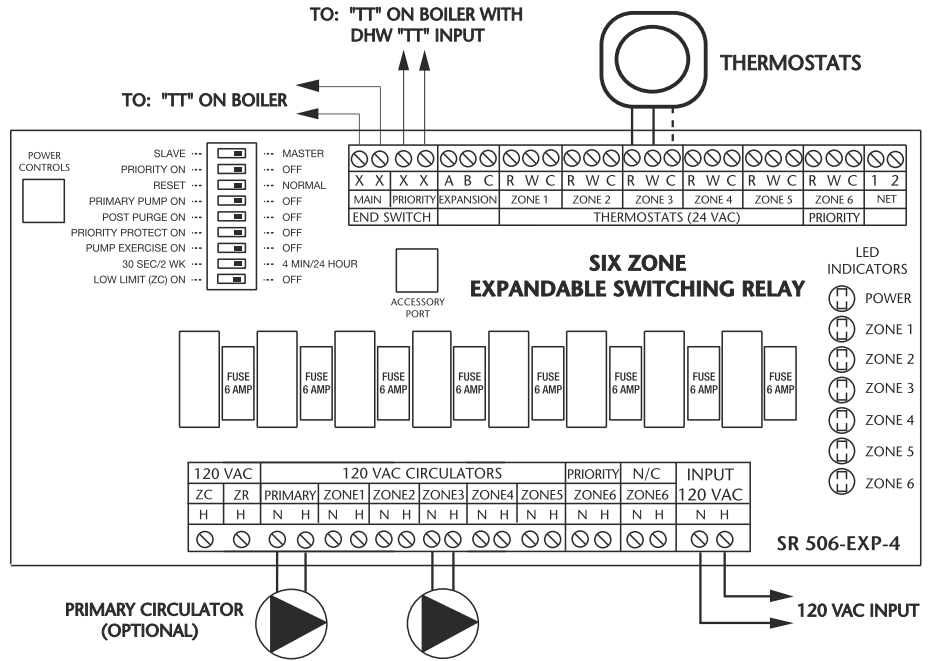
### Specifications

**Max. Operating Pressure:** 150 psi  
**Max. Operating Temperature:** 240°F  
**Min. Operating Temperature:** 35°F  
**Media:** Water or Water/Glycol up to 50%  
**Max. Velocity:** 5 feet/sec

Size	NPT	Sweat	Cv
3/4"	49MD-075T-2	49MD-075C-2	12
1"	49MD-100T-2	49MD-100C-2	17
1-1/4"	49MD-125T-2	49MD-125C-2	29
1-1/2"	49MD-150T-2	49MD-150C-2	35
2"	49MD-200T-2	---	71

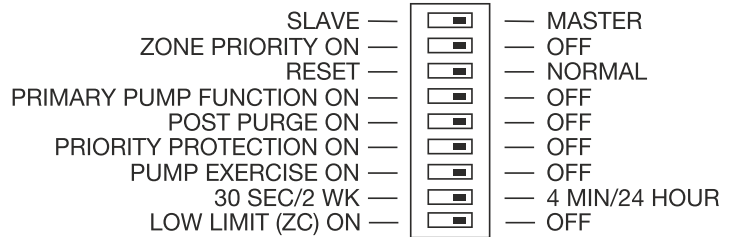
## Zone Control Family (Switching Relays)

The Taco Switching Relay is the best choice for all your zoning needs, with advanced timer and boiler functions, external diagnostic lights, switchable priority and contractor friendly PC board layouts. Combined with the time proven reliability of the 00® family of circulators and thermostats, total system integration is achieved.



**Switching Relay Wiring Diagram  
(Cold Start Boiler)**

### Dip Switch Settings



### Features

- Front diagnostic lights
- Simplified wiring
- Premium sealed relays
- Fuse protected (with spare)
- Isolated end switch
- Contractor friendly PC board layout
- Universal thermostat compatibility
- 24 volt power output for hard-wired thermostats
- Field replaceable transformer
- Made in the USA

### Additional - EXP Features

- Add-on power control plug
- Built-in; post purge and pump exercise functions
- Switchable primary circulator output
- Two boiler contacts, utilizes full functionality of Mod-Con boilers
- Expandable to 20 zoning panels (120 zones if all are 6 zone panels)
- Interface with-EXP Zone Valve controls
- Common contact for simplified powered thermostat wiring

### Switching Relays

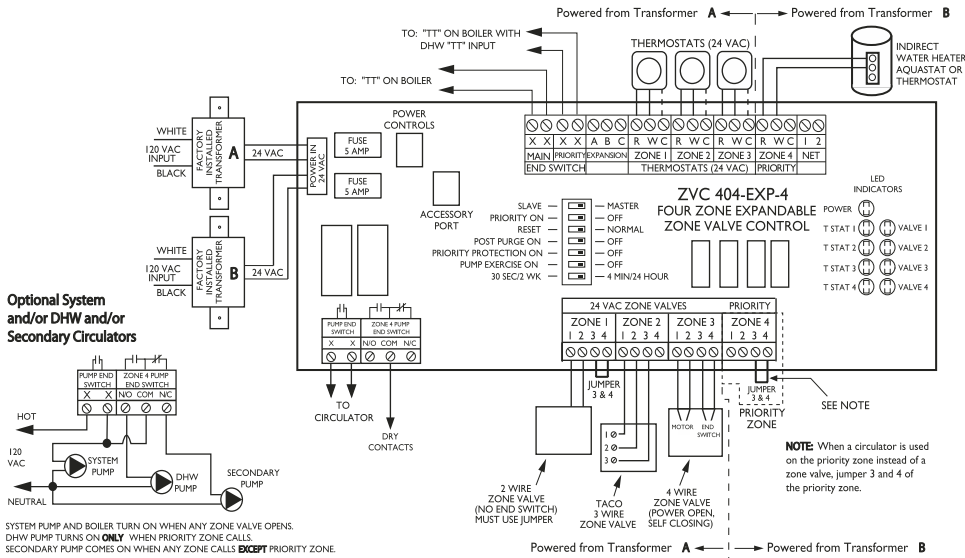
Product #	Description
<b>SR501</b>	1-zone switching relay
<b>SR501-OR</b>	1-zone switching relay with outdoor reset (FuelMizer)
<b>SR501-HC</b>	1-zone high current switching
<b>SR502</b>	2-zone switching relay with priority
<b>SR503</b>	3-zone switching relay with priority
<b>SR504</b>	4-zone switching relay with priority
<b>SR506</b>	6-zone switching relay with priority

### Expandable Switching Relays

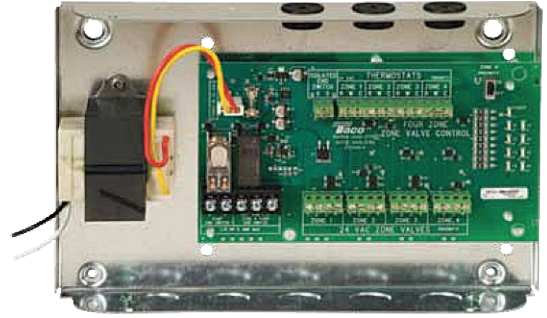
Product #	Description
<b>SR501-EXP</b>	1-zone switching relay
<b>SR503-EXP</b>	3-zone switching relay with priority
<b>SR504-EXP</b>	4-zone switching relay with priority
<b>SR506-EXP</b>	6-zone switching relay with priority

## Zone Control Family (Zone Valve Controls)

Simplify the wiring nightmare! Taco Zone Valve Controls easy-to follow PC board layout eliminates the problems caused by incorrect wiring, while the external indicator lights provide instant diagnostic feedback. Combined with Taco Zone Valves and Thermostats, the system's performance and dependability is maximized.



**ZVC Wiring Diagram**



### Zone Valve Controls

Enclosure Dimensions						
Product Number	Number of Zones	Transformer Rating	Transformer Voltage	Width	Height	Depth
ZVC403	3-zone w/priority	40 VA	120 VAC input	10-1/4"	7"	2-3/4"
ZVC404	4-zone w/priority	40 VA	120 VAC input	10-1/4"	7"	2-3/4"
ZVC405	5-zone w/priority	80 VA	120 VAC input	12-1/4"	8"	3"
ZVC406	6-zone w/priority	80 VA	120 VAC input	12-1/4"	8"	3"

### Expandable Zone Valve Controls

Enclosure Dimensions						
Product Number	Number of Zones	Transformer Rating	Transformer Voltage	Width	Height	Depth
ZVC404-EXP	4-zone w/priority	80 VA	120 VAC input	12-1/4"	8"	3"
ZVC406-EXP	6-zone w/priority	80 VA	120 VAC input	12-1/4"	8"	3"

\* The pump end switches are rated 1/6 hp, 5 amps at 120 VAC. The main and priority end switch connections are rated 24 VAC, 1 amp. All thermostat and zone valve connections supply a 24 VAC class 2 output.

### Add-On Power Controls (For use with all EXP Controls)

Product #	Description
<b>PC700</b>	Boiler Reset Control
<b>PC702</b>	2-Stage Boiler Reset Control
<b>PC705</b>	Variable Speed Pump Injection Mixing Control

### Features

- Front diagnostic lights
- Switchable priority
- Built-in priority protection
- Simplified wiring
- Works with 2, 3, or 4-wire Zone Valves
- Fuse protected
- Two pump end switches can control up to 3 pumps; system, secondary and DHW
- Contractor friendly PC board layout
- Universal thermostat compatibility
- 24 volt power output for hard-wired thermostats
- Field replaceable transformer
- Made in the USA

### Additional - EXP Features

- Add-on power control plug
- Built-in; post purge and pump exercise functions
- Two boiler contacts, utilizes full functionality of Mod-Con boilers
- Expandable to 20 zoning panels (120 zones if all are 6 zone panels)
- Interface with-EXP Switching relays

## Zone Sentry® Zone Valves

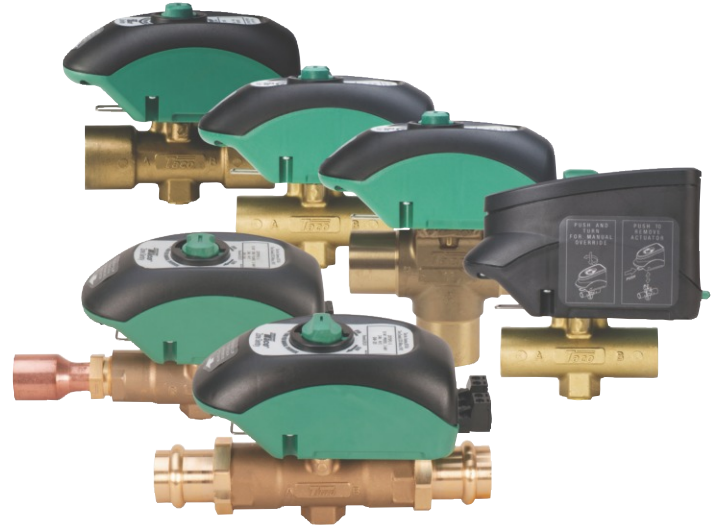
The Taco Zone Sentry® Zone Valve enhances the overall performance of any zone valve system. The unique patented technology in the Zone Sentry® utilizes a microcircuit based logic to control a gear driven electronic actuator which drives a ball valve based body design. All this adds up to a zone valve that leads the industry in energy efficiency, flow capacity (Cv), shutoff pressure rating, ease of installation, diagnostic capability and the number of valves (12) that can be used on a standard 40VA transformer. The Taco Zone Sentry® zone valves are available in sweat, threaded and 3-way configurations. The multi-volt model can be used with 100-277 VAC 50/60 Hz.

### Zone Sentry® Zone Valves (Closed Systems)

Model #	Description	CV	Size
Z050P2-1	1/2" Press, 2-Way	3.4	1/2"
Z075P2-1	3/4" Press, 2-Way	9.5	3/4"
Z100P2-1	1" Press, 2-Way	7.5	1"
Z075F2-1	3/4" Inverted Flare (Includes Fittings), 2-Way	4.4	3/4"
V075C2A2ALNVE2A1	Multi-Volt, 2-Way	10.3	3/4" Sweat
V100C2A2ALNVE2A1	Multi-Volt, 2-Way	8.9	1" Sweat
Z050C2	2-Way	4.9	1/2" Sweat
Z075C2	2-Way	10.3	3/4" Sweat
Z100C2	2-Way	8.9	1" Sweat
Z050T2	2-Way	4.9	1/2" NPT
Z075T2	2-Way	10.3	3/4" NPT
Z100T2	2-Way	8.9	1" NPT
Z050C3	3-Way	1.5	1/2" Sweat
Z075C3	3-Way	3.3	3/4" Sweat
Z100C3	3-Way	3	1" Sweat
Z050T3	3-Way	1.5	1/2" NPT
Z075T3	3-Way	3.3	3/4" NPT
Z100T3	3-Way	3	1" NPT
ZA024Q4A1	Zone Actuator Head (Normally Closed)	---	ALL SIZES
ZB024Q4A1	Zone Actuator Head (Normally Open)	---	ALL SIZES
ZALNVE2A1	Multi-Volt Actuator	---	ALL SIZES

### Features

- Simple to install in any direction or orientation
- Up to 12 zone valves per 40 VA transformer
- Uses only 1.44 watts while power is on
- High flow, low headloss characteristics
- Universal compatibility
- Push-button engage and disengage design eliminates gear and spring damage
- Plug-in screw terminals for easy installation and operation
- External LED status light
- Fewer moving parts for extended product life
- Service... water or water / glycol up to 50% glycol
- Electrical rating... 24 VAC, 60 Hz, 11.4 watts charging 1.44 watts with power on
- Multi-Volt Electrical... 110-277 VAC, 50/60 Hz, 4 watts charging - 1.5 watts with power on



### Geo-Sentry® Zone Valves

Model #	Description NORMALLY CLOSED (A)	CV	Size
V075C2G2ZA024Q4A1	Geo-Sentry / 2-Way	10.3	3/4" Sweat
V100C2G2ZA024Q4A1	Geo-Sentry / 2-Way	8.9	1" Sweat
V075T2G2ZA024Q4A1	Geo-Sentry / 2-Way	10.3	3/4" NPT
V100T2G2ZA024Q4A1	Geo-Sentry / 2-Way	8.9	1" NPT
V075C3G1ZA024Q4A1	Geo-Sentry / 3-Way	3.3	3/4" Sweat
V100C3G1ZA024Q4A1	Geo-Sentry / 3-Way	3	1" Sweat
V075T3G1ZA024Q4A1	Geo-Sentry / 3-Way	3.3	3/4" NPT
V100T3G1ZA024Q4A1	Geo-Sentry / 3-Way	3	1" NPT

### Specifications

- Maximum Operating Pressure:** 300 PSI (2,100 kPa)
- Maximum Shutoff Pressure:** 125 PSI (875 kPa)
- Fluid Temperature Range:** 20° to 240°F, (-7° to 115°C) @135°F
- Heat Anticipator Setting:** 0.5 amps
- End Switch Rating:** 1 amp @ 24 VAC

## QuickTop Zone Valves™

Taco® QuickTop Zone Valves provide a convenient way to create individual zones or equipment isolation in closed loop hydronic systems. Utilizing one pump with multiple zone valves, flow can be started or stopped through the system providing individual room or area comfort, control and energy savings. Taco® QuickTop Zone Valves provide on-off, normally closed control in closed hydronic systems. They are offered with 1/2", 3/4" or 1" sweat connections, can be used in a wide variety of heating & cooling applications and come with Taco's trusted quality & reliability.



### Dimensions

Model #	Connection Size	CV
QT050C2	1/2" Sweat	2.5
QT075C2	3/4" Sweat	3.5
QT100C2	1" Sweat	5.0

Replacement actuator model#: QTA024W4B1

### Specifications and Materials Of Construction

#### Specifications

**Static Pressure Rating:** 300 PSI

**Close-off Pressure:** 15 - 20 PSI

**Ambient Temperature:** 32° - 125° F

**Fluid Temp. Range:** 32° - 200° F

#### Service:

Water or Water/Glycol  
up to 50% Glycol,  
Closed Systems

#### Motor Running Time:

Power On:  
10 - 20 seconds  
Spring Return: 4 - 5 seconds

**Voltage:** 24 VAC ±10%, 60Hz

**Power Consumption :** 5 W, 7.2 VA

**Motor Wire Leads:** 24V, 18", yellow

#### Humidity:

5% - 95%  
non-condensing

**End Switch:** 1 x SPST, red wire

#### Materials of Construction

##### Actuator Housing:

Stainless Steel Base with AL cover

##### Valve:

Body- Forged Brass  
Stem- Brass with Nickel-Plate / Seals- NBR

## Heat Motor Zone Valves

Taco Heat Motor Zone Valves provide a convenient way to create individual zones or equipment isolation in a hydronic heating system. Utilizing one pump along with multiple zone valves, flow can be started, stopped, or diverted through the system to provide individual room or area comfort control. Heat Motor Zone Valves are available in a variety of sizes and styles to meet the broad demands of today's systems.

### Choosing The Right Valve...

#### Geothermal Valves

Designed for high head, open system zone control. The unique end switch design permits control of the heat pump by the valve. This allows movement of cold water into the coil before the heat pump actually starts.

#### 570 Gold Series

The Gold Series is the industry standard for hydronic heating applications. The quiet and dependable operation has made this valve an industry leader for decades. The manual open lever and twist off head makes installation and service easy.

#### Available Models - Geothermal

Model #	Description
556-G3	3/4" Sweat Zone Valve 2-Way
557-G3	1" Sweat Zone Valve 2-Way
5101-G3	3/4" NPT Zone Valve 2-Way
555-173RP	Power Unit For Geothermal Valves



#### Available Models - 570

Model #	Description
571-2	3/4" Sweat Zone Valve 2-Way
572-3	1" Sweat Zone Valve 2-Way
573-2	1-1/4" Sweat Zone Valve 2-Way
555-050RP	Power Unit For 570 Series Valves



### Features

- Proven performance – Millions in use
- Patented construction
- Bellows or Globe Valve Construction ensures positive shut-off and leak proof operation
- Rugged dependability
- Easy to install
- Manual open (bypass) lever
- Silent operation
- 100% factory tested
- Made in the USA
- Twist off head
- 24 VAC powered with isolated end switch

#### Eliminated Model

555-2
556-2
557-2
560-5
561-5
562-5

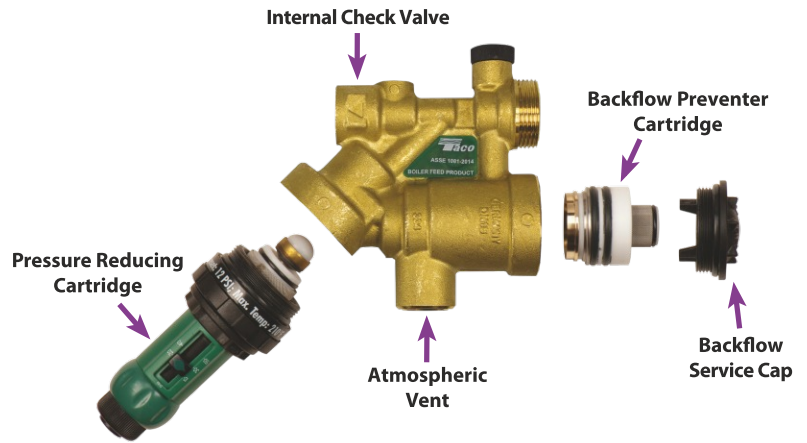
#### Alternate Model

Z050C2-1
Z075C2-1
Z100C2-1
Z050C3-1
Z075C3-1
Z100C3-1



## 3450 Combination Boiler Feed Valve & Backflow Preventer

The integral design of the Taco 3450 Combi-Valve combines a cartridge style backflow preventer with a pressure regulating cartridge style boiler feed valve into a unique one piece body configuration. Taco's 3450 combination dual check backflow with atmospheric vent and boiler feed valve with purge auto-reset, dial in pressure setting and adjustable indicator sets a new standard for performance and serviceability.



Model #	Description
3450-1	1/2" NPT x 1/2" Union Sweat
3450-T	1/2" NPT x 1/2" Union NPT
3450-H	1/2" NPT x 1/2" Union Press

### Features

- Auto reset from fast fill
- ASSE 1081-2014
- Simple pressure adjustment
- Serviceable cartridge for both the backflow and feed valve
- Adjustable 360 view of pressure indicator
- Large adjustment range, 10-50 psi
- Serviceable without draining the system
- One piece body construction
- Stainless steel strainer

## Cartridge Style Pressure Reducing Valve

Taco's cartridge style pressure reducing valve sets a new standard for performance and serviceability. All the parts are contained in a one piece cartridge which can be easily removed and serviced without reducing the system pressure. A fast-fill mode that automatically returns to the normal mode when the set pressure is reached and delivers increased flow to speed system fill times. Its unique dial-in pressure setting allows for easy adjustment throughout the 10-50 psi range, without the need for an external gauge. Now available with 1/2" union press connection.



**Convenient One-Piece Cartridge Design**

### Specifications

**Max. Inlet Pressure:** 250 psi  
**Adjustment Range:** 10-50 psi  
**Max. Temp:** 210° F  
**Factory Setting:** 12 psi  
**Media:** Water

Model #	Description
3350	1/2" NPT x 1/2" Union Sweat
3350-H	1/2" NPT x 1/2" Union Press
3350-T	1/2" NPT x 1/2" NPT

### Features

- Automatic pressure reset from fast fill
- Easy external dial-up pressure setting
- Set pressure indicator
- Simple serviceability with the unique one piece cartridge
- Internal check allows the cartridge to be replaced without draining the system
- Integral strainer
- ASSE 1003

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

The Backflow Preventer offers added protection, preventing the system from emptying if supply pressure should fail. Coupling dependable service with added protection into one quality product is Taco's Combination Boiler Feed & Backflow Preventer Valve. The Dual Control combines the Boiler Feed with an in-line Pressure Relief Valve.



### Features

- 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

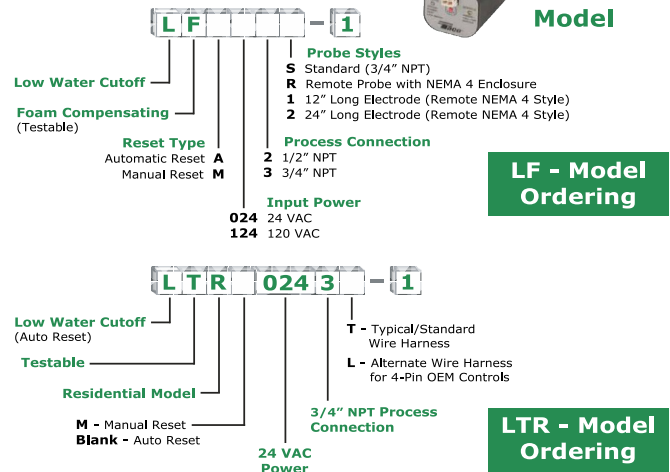
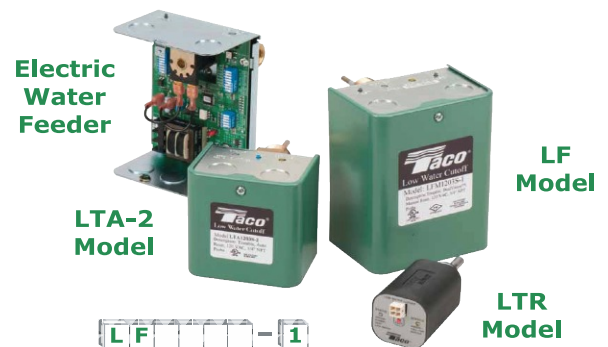
Connection Sizes			
	Model #	Inlet	Outlet
BACKFLOW PREVENTERS	3192-C1	1/2" Union Sweat	1/2" Union Sweat
	3192-T1	1/2" Union NPT	1/2" Union NPT
	3193-C1	3/4" Union Sweat	3/4" Union Sweat
	3193-T1	3/4" Union NPT	3/4" Union NPT
FILL VALVES	329-H3	1/2" Union Press	1/2" NPT
	329-3	1/2" Union Sweat	1/2" NPT
	329-T3	1/2" Union NPT	1/2" NPT
	334-3	1/2" Union Sweat	1/2" NPT Dual Control
	334-T3	1/2" Union NPT	1/2" NPT Dual Control
	335	3/4" Union NPT	3/4" NPT
COMBINATION VALVES	3492-050-H1	1/2" Union Press	1/2" NPT
	3492-050-BH1	1/2" Union Press	1/2" NPT
	3492-050-C1	1/2" Union Sweat	1/2" NPT
	3492-050-T1	1/2" Union NPT	1/2" NPT
	3492-050-BC1	1/2" Union Sweat	1/2" NPT
	3492-050-BT1	1/2" Union NPT	1/2" NPT
	3493-075-BC1	3/4" Union Sweat	3/4" NPT
	3493-075-BT1	3/4" Union NPT	3/4" NPT

## Low Water Cutoff (LWCO)

For accurate and dependable boiler protection, our Low Water Cutoff (LWCO) features the simplicity, reliability and unmatched quality you've come to expect from Taco Electronic Controls. The LWCO is a probe style, microprocessor based control that detects the fluid level in hot water and steam boilers. Patented signal processing technology, external LEDs and simplified wiring make installation and testing a snap.

### Feature Comparisons

Feature	LF	LTA-2	LTR
120 VAC	X	X	
24 VAC	X	X	X
Automatic Reset	X	X	X
Manual Reset	X		
Foam Compensating	X		
Automatic Delay on Make (DOM)	X		
Automatic Delay on Break (DOB)	X		
Direct Probe to Control Connection	X	X	X
NEMA 4 Remote Probe	X		
Extended Length Remote Probes	X		
Steam Applications	X		
Hot Water Boiler Applications	X	X	X
External LEDs	X	X	X
Test Button	X	X	X
Service LED	X	X	X
Tri-barrier Terminal Blocks	X	X	Molex
CSD-1 Compliant	X	X	X
Listings and Approvals	UL, CUL, FM	UL, CUL	UL, CUL
Probe Connections	1/2" & 3/4" NPT	3/4" NPT	3/4" NPT
Electrical Knock-outs	Five	Four	N/A
Made in the USA	X	X	X



## 1600 Series In-line Pumps

Taco 1600 Series In-Line Pumps combine the ultimate in reliability with ease of installation and maintenance, for heating, air conditioning, pressure boosting, cooling water transfer and water supply applications. Quiet, dependable and proven performance makes the 1600 Series Pump the right choice.



**Most models available in single or 3 phase.**

### Features

- Available in cast iron bronze fitted construction or all bronze construction
- Replaceable "cooler running" bearing cartridge extends bearing life
- Designed with permanently sealed greased lubricated ball bearings, making it virtually maintenance free
- Cupro-nickel shaft sleeve
- Standard mechanical seal
- Maximum opening pressure of 175 psi and maximum operating temperature of 300° F.
- One piece enclosed impeller
- Superior parts flexibility
- Flanges included

- English dimensions are in inches.
- Do not use for construction purposes unless certified.

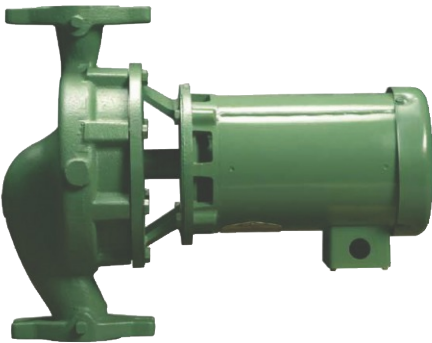
### Pump Dimensions

Model #	Flange Size	Power	
		Stock	60Hz HP (Kw)
1611	1-1/2	1600	1/4*
		1610	1/3
			1/2
1615	1-1/2	1612	1/3
		1614	1/2
			3/4
			1
1619	2		3/4
		1616	1
			1-1/2
			2
1635	2	1630	1/2
		1632	3/4
		1634	1
			1-1/2
1641	2	1636	1-1/2
		1638	2

\* 1/4 HP available in 1 phase only.

## 1900 Series In-Line Pumps

Taco 1900 Series In-Line pumps are compact, energy efficient and can be installed anywhere in the piping layout. The 1900 is designed to be self-supported by the system piping (no additional strapping or external support required) and can be mounted horizontally or vertically. Permanently sealed grease lubricated ball bearings in the motor make it virtually maintenance free. 1900 Series pumps are available with VFD's for variable speed operation.



**Most models available in single or 3 phase.**

### Features

- Cast Iron Bronze Fitted Or All Bronze Construction
- Max Operating Pressure Of 175 PSI And Max Operating Temperature of 300°
- Superior Parts Flexibility. One Seal And One Shaft Extension Fits All Models
- Cupronickel Shaft Sleeve
- "Unitized" Seal Design For Quick And Easy Replacement
- NEMA Standard 56 Frame "C" Motors
- Flanges Included
- Pressure Tappings Included In Flange Casting For Differential Pressure Readings

### Pump Specifications

Model #	Speed	Flange Size	H.P.
1911	1760	1-1/2" (2" OPT)	1/4
			1/3
			1/2
	3500		1
			1-1/2
			2
1915	1760	1-1/2" (2" OPT)	3
			5
			1/3
	3500		1/2
			3/4
			1
1919	1760	2"	1-1/2
			2
			3/4
1935	1760	2"	1
			1-1/2
			3/4
	3500		1
			2
			3
1941	1760	2"	5
			7.5
			1-1/2
			2

**Commercial Products and Replacement Parts**

Taco offers an expansive line of commercial circulators, air separators, expansion tanks, suction diffusers, smart drives and more! Replacement parts are also available and we have many parts stocked locally.

**FI Series Pumps**

**End Suction, Split Coupled  
Base / Frame Mounted**



**CI Series Pumps**

**End Suction, Close Coupled  
Foot Mounted**



**SmartDrive®**

**Basic Drive**



**SmartDrive®**

**HVAC Drive**



**KV Series Pumps**

**Vertical In-Line  
Close Coupled**



**4900 Series  
Air & Air / Dirt  
Separators**

**ASME Designed  
And Constructed**



**CA Style  
Expansion  
Tank**



**CX Style  
Expansion  
Tank**



**PAX Style  
Expansion  
Tank**



**CBX Style  
Expansion  
Tank**



**Optimized Efficiency** **Oe**  
Featuring **ECM** Technology

**SelfSensing** Series  
WITH **ProBalance**

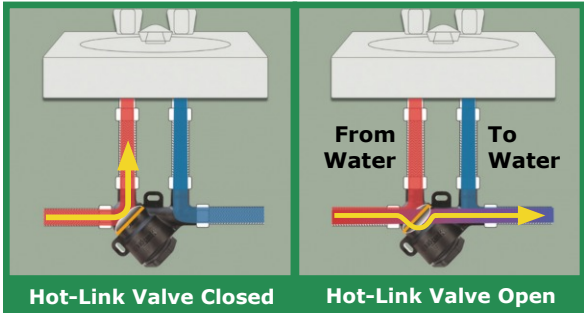
**eLink**<sup>™</sup>  
Taco **Connectivity**

# PLUMBING COMPONENTS



## Hot-LinkPlus-e™ and Hot-Link® Systems

Enjoy instant hot water comfort while avoiding a major renovation. The Hot-LinkPlus-e system installs easily into existing plumbing with a tank water heater. No dedicated hot water return line is needed! The system combines the ECM high-efficiency 006e3 hot water circulator with the award-winning SmartPlug® Instant Hot Water Control® and Hot-Link® Valve for maximum comfort and efficiency. Enjoy water savings of up to 12,000 gallons per year. You can expect trouble-free performance reinforced by SureStart® automatic unblocking and air purging. Ideal for retrofits, the Hot-LinkPlus-e™ requires no programming and is built with the reliability that's made Taco famous. — **Install it, forget it™.**



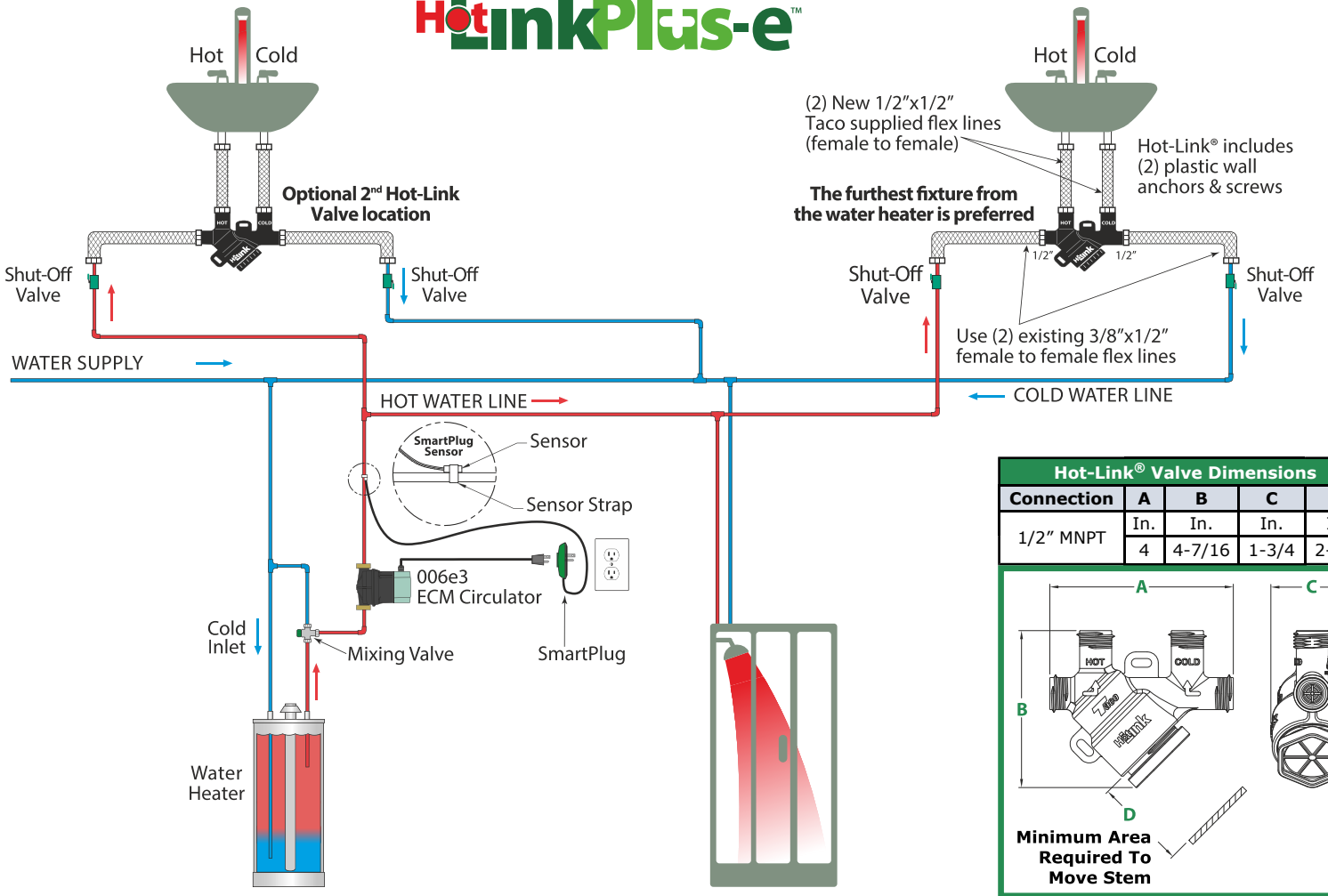
**Exclusive Clean In Place Under-Sink Valve Design**



**Instant hot water for existing plumbing systems; no dedicated return line needed.**

**\*No under-sink electricity is needed. The Hot-Link Pump is mounted at the water heater.**

## Hot-LinkPlus-e™



Hot-Link® Valve Dimensions				
Connection	A	B	C	D
1/2" MNPT	In.	In.	In.	In.
	4	4-7/16	1-3/4	2-1/2

Model #	Description
HLPe-1	HotLinkPlus-e™ (Includes 006e3LC Circulator, Hotlink Valve, Braided Hoses Connections and Half Unions)
HLS-1	Hot-Link® System. (Includes Circulator, Valve, Hoses, 3/4" Bronze Union)
HLV-1	Hot-Link® Valve
HK-1	Hot-Link® Hose Kit

## SmartPlug® Instant Hot Water Control – SP115-1

The patented SmartPlug® lets you upgrade any hot water recirculation pump with a power cord to "Smart" operation. Simply connect the SmartPlug® to any 110V power outlet then plug the circulator power cord into the SmartPlug®. Using a sensor that mounts to the hot water supply pipe, the SmartPlug® will record the daily hot water usage pattern in a home and adjust the circulator run time automatically. Hot water will always be available when needed.

### No Programming, Timers or Aquastats Required • Sensor Included

#### Options / Features

**"Smart" Mode:** When set to "Smart" mode, the **SmartPlug®** monitors and records the home's hot water usage pattern over a 7 day period. The **SmartPlug®** will use the preceding week's usage pattern to automatically cycle the circulator ON, so hot water is always available when it's needed. The recording and repeating process is continuous, week after week.

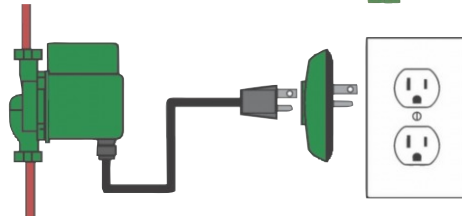
**"Pulse" Mode:** When set to "Pulse" mode, the **SmartPlug®** will continuously cycle the circulator ON for 5 minutes, then OFF for 10 minutes to maintain hot water at all fixtures.

**Vacation Mode:** After 36 hours of no hot water usage, the **SmartPlug®** will automatically turn the circulator OFF and remain off until hot water usage is detected.

**Exercise Function:** While in vacation mode the **SmartPlug®** will cycle the circulator for 10 seconds every 7 days to prevent any corrosion or scale build up.

#### LED Indicator Lights:

- Green:** Power
- Yellow:** Mode Setting
- Red:** Error Code



For use with any domestic water circulator with a 110 volt line cord. Circulator sold separately, or as part of the **SmartPlus-e** recirculation system below.

#### Benefits

- **Easy to install:** Upgrades any recirculation pump to "Smart" operation.
- **Water conservation:** The average residence can save up to 12,000 gallons\* of water per year by eliminating the wait for hot water to arrive at fixtures and taps.
- **Comfort and convenience:** Hot water is available in seconds. No timers or programming required.
- **Efficiency:** "Smart" setting maximizes hot water comfort and energy savings.
- **Reliability:** The **SmartPlug®**, when combined with a Taco domestic hot water circulator, provides whisper quiet operation and industry leading electronics for proven performance and dependability.

\*Source: Department of Energy Study

## SmartPlus-e™ ECM Hot Water Recirculation System - Spe-1

Perfect for systems with a tank water heater and dedicated hot water return line, the SmartPlus-e™ combines the high-efficiency of the 006e3 ECM circulator and the intelligence of the award-winning SmartPlug Instant Hot Water Control®. A one-two punch that delivers instant hot water comfort while saving energy and water – up to 12,000 gallons a year! With SureStart® automatic unblocking and air purging, you can expect years of trouble-free performance from Taco, the leader in reliability. – **Install it, forget it™.**

#### Model: Spe-1

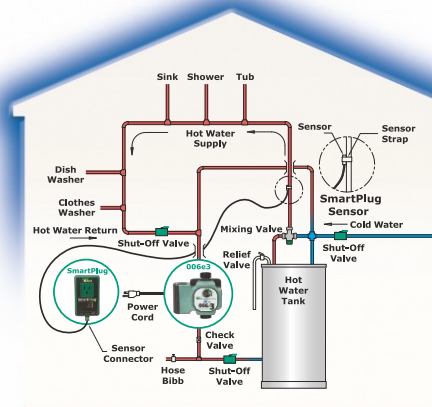
#### Choose The Correct Fitting!

Image	Fitting Assembly Description	Product Code	Image	Fitting Assembly Description	Product Code
	1/2" Union SWT	UFS-050S		3/4" Union SWT	UFS-075S
	1/2" Union FNPT	UFS-050T		3/4" Union FNPT	UFS-075T
	1/2" Union Press	UFS-050P		3/4" Union Press	UFS-075P

Fitting sets include (2) gaskets, (2) union nuts and (2) tail pieces.

#### Replacement Chart

Taco	Grundfos	Armstrong	B&G/Xylem	Laing
003 006	UP 15-18 UP 15-10 UP 10-16	Astro 225 BS Astro 225 SSU Astro 220 SSU	ecocirc e <sup>3</sup> -4 ecocirc e <sup>3</sup> -6 NBF-8, 9, 10, 12 SSF-9, 12	E1 Series E3 Series



Hot water return installation (For reference only.)

Ideal for systems with a **tank water heater & dedicated hot water return line.**

## 006e3™ ECM High-Efficiency Hot Water Circulator

The 006e3™ is an infinitely variable, high-efficiency wet rotor circulator with an ECM permanent magnet motor. It is designed for use in open loop domestic hot water recirculation or closed hydronic systems. A simple 3-setting speed dial allows you to match circulator performance to system requirements. The 006e3LC™ model includes a 6' power cord. The 006e3™ delivers performance, reliability and ease of installation that made the 00® famous.

### Features

- Maximum Shut-off Head: 13 feet
- Maximum Flow: 11 gpm
- Maximum Operating Pressure: 150 psi (10 bar)
- Maximum Water Temp: 203°F (95°C)
- Minimum 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 composite casing designed for open loop potable water systems and closed hydronic systems
- Not suitable for chilled water
- Taco circulator pumps are for indoor use only
- Acceptable for use with water or maximum of 50% water/glycol solution in closed hydronic systems
- Taco trusted 00e® series quality and reliability
  - **Install it, forget it.™**
- Easy to use dial (**3-Speed Setting**):
  - Low, Medium, High
  - 003 & 006 performance point references
  - Infinitely variable fixed speed settings between Min/Max
- Easy installation:
  - Compact design for tight spaces
  - Multiple connection options available
- High-efficiency ECM motor uses up to 85% less electricity
- **SureStart®** automatic unblocking and air purging mode
- 13' Shut-off head, 11 gpm max flow
- Easy to use dial:
  - Low, Medium, High
  - 003 & 006 performance point references
- Rugged high-performance composite casing
- 3 color LED indicator light:
  - Blue: Operating mode
  - White: **SureStart®**
  - Red: Error diagnostic
- Whisper quiet operation
- 1" union connection with optional 1/2" & 3/4" fitting sets sold separately
- Double insulated, no ground wire required

## Install it, forget it.™

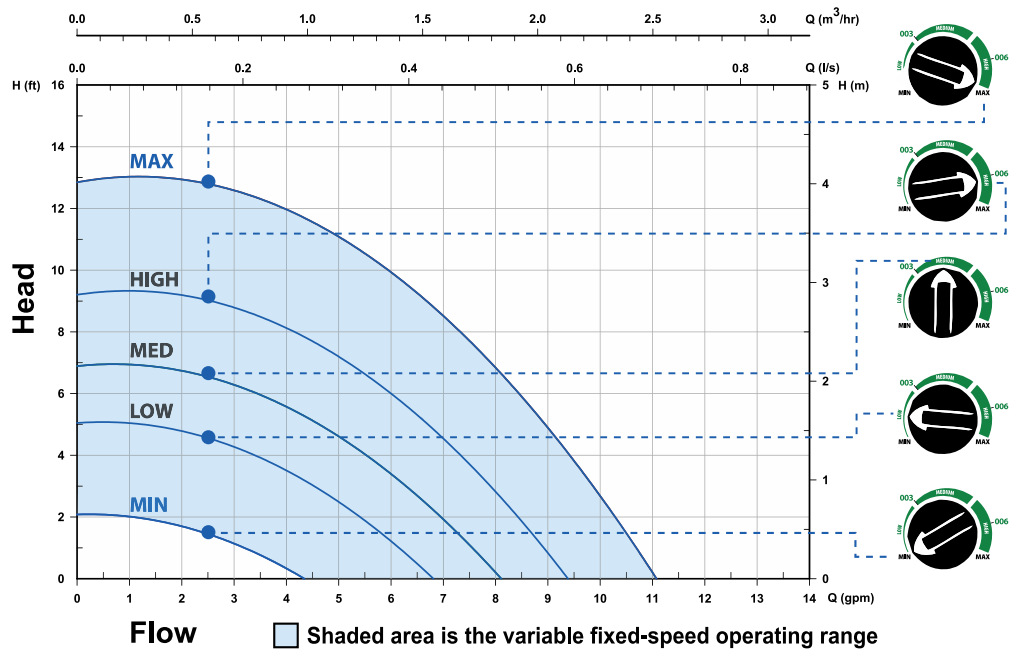
### Three settings... One reputation...



# 006e3™

ECM HIGH-EFFICIENCY  
HOT WATER CIRCULATOR

Performance Curves  
115V / 60Hz



### Setting Selection Guide

Based on 3/4" supply, 1/2" return copper pipe

- HIGH** — 500 ft pipe
- MEDIUM** — 350 ft pipe
- LOW** — 200 ft pipe or less

### Specifications

- Maximum Shut-off Head:** 13 feet
- Maximum Flow:** 11 gpm
- Maximum Operating Pressure:** 150 psi (10 bar)
- Maximum Water Temp:** 203°F (95°C)
- Minimum Water Temp:** 36°F (2°C)
- Electrical Specifications:**
  - Voltage: 120V, 60 Hz
  - Single Phase
  - Max. Operating Power: 44W
  - Max. AMP Rating: 0.54

**NOTE:** Setting Selection Guide figures are for reference purposes only. Refer to ASTM guidelines for piping flow & velocity standards. For PEX, refer to pipe manufacturer

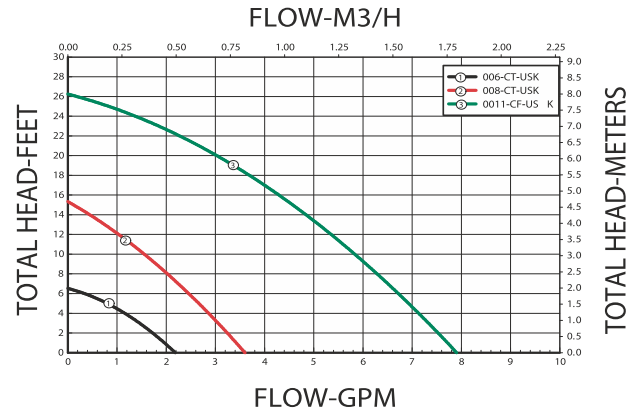


# Taco Genie™ - Hot Water Recirculation

Hot water without the waste! Activate TacoGenie™ only when you need it. It's easy to install- no new piping required. The TacoGenie™ Recirculator operates 24 hours a day, saving water, energy and money. TacoGenie™ only runs when you tell it to, and it's smart enough to know when the water currently in the line is hot enough. TacoGenie™ can be activated with the push of a button, or with an optional wireless remote transmitter/receiver or optional hard-wired motion sensor.



## Performance Field Information - 60 Hz



TacoGenie™ Water Recirculation System				
Product Number	Connection Sizes	Motor		
		Voltage	RPM	HP
006-CT	1/2" Male NPT	115/60/1	3250	1/40
006-CT-USK	1/2" Male NPT, With Plumbing Kit	115/60/1	3250	1/40
008-CT	1/2" Male NPT	115/60/1	3250	1/25
008-CT-USK	1/2" Male NPT, With Plumbing Kit	115/60/1	3250	1/25
0011-CF	3/4" Shut-Off Flange	115/60/1	3250	1/8
0011-CF-USK	3/4" Shut-Off Flange, With Plumbing Kit	115/60/1	3250	1/8

TacoGenie™ — Accessories		
Product Number	Description	What It Does
554-7	Remote Transmitter	To Start System With Wireless Remote Control
554-8	Individual Remote Transmitter	For Wireless Remote Control At Multiple Locations
554-3	Individual Starter Button	For Hard-Wired Starter Control At Multiple Locations
554-4	Motion Sensor Starter Kit	For Automatic Motion Detection Start

SIZING CHART		
Product Number	008-CT-USK	0011-CF-USK
Standard Plumbing And Distance Between Tankless Water Heater And Fixture Where TacoGenie™ Is Installed	Under 60 Ft.	Over 60 Ft.
Re-Circulation Plumbing And Square Footage Of House	Under 2,500 Sq. Ft.	Over 2,500 Sq. Ft.

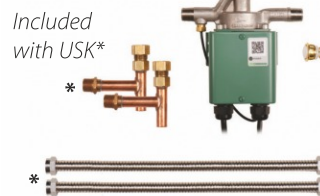
C = TacoGenie™ F = Flanged  
T = Threaded USK = Under Sink Kit



RF Wireless Starter Kit (554-7)



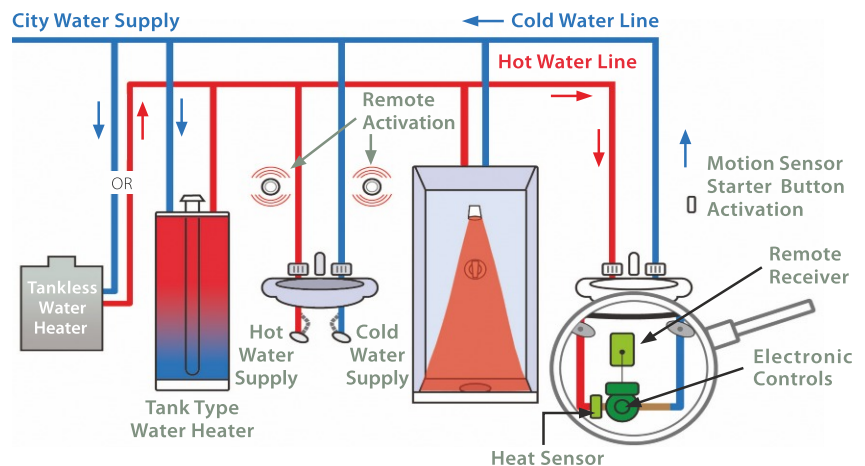
Motion Sensor (554-4)



Standard with USK\* (Under Sink Kit) option



Available in 006, 008 and 0011 circulators



For Standard Piping (Non-ReCirc).

# Plumb n' Plug® Circulators

The Plumb n' Plug® Cartridge Circulators are designed to conserve water, increase comfort and reduce the delivery time of hot water to outlet fixtures by periodically re-circulating hot water through the system. An average residence can save up to 25 gallons of wasted water per day. Factory pre-wired 6 foot line cord with optional 24 hour analog or 7 day digital programmable clock timers allow for easy installation. Simply Plumb it in, then Plug it in.

## Features and Benefits

- Analog Timer
- Factory installed 6' line cord and 24 hour/15 minute interval analog timer
- Optional 95°F -115°F aquastat available
- Quiet, efficient operation
- Unique replaceable cartridge design-field serviceable
- Unmatched reliability-maintenance free Digital Timer
- Digital timer, 7 day programmable LCD display
- Easy-to-Use program buttons
- On/Off intervals as short as 1 minute
- 2,500 hour capacitor backup, saves settings



Available In Stainless Steel Or Bronze

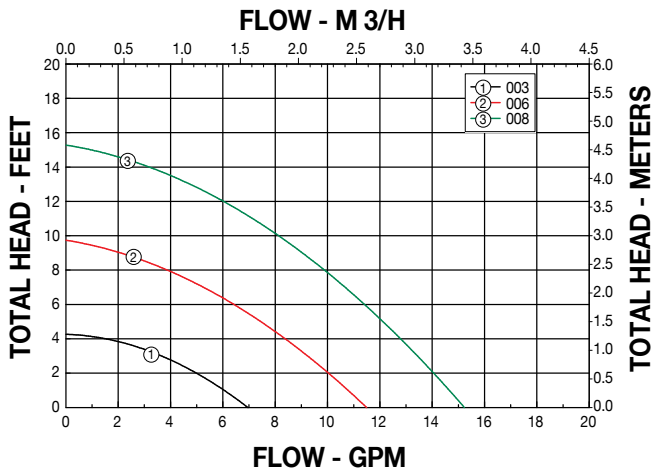
## Model Nomenclature

**BC:** Bronze, 1/2" Sweat  
**B:** Bronze, 3/4" Sweat  
**ST:** Stainless Steel, 3/4" FNPT  
**SC:** Stainless Steel, Union Connection  
**PNP:** Plumb n' Plug  
**SF:** Stainless Steel, Flanged

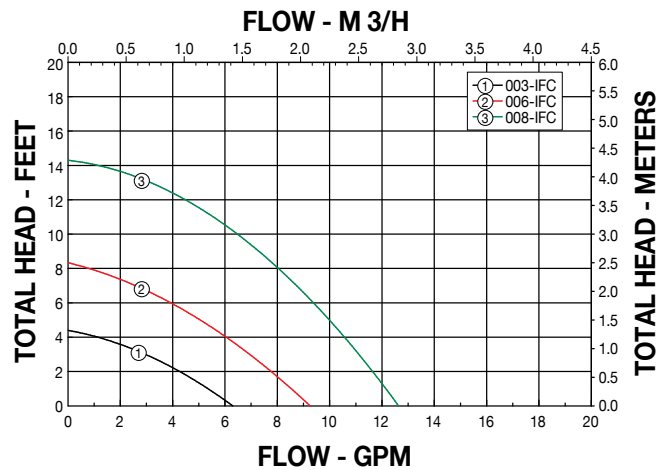
Analog Timer		Digital Timer		Analog Timer		Digital Timer		Electrical Data	
Model #	Connection	Model #	Connection	With Integral Flow Check (IFC)™				HP	Voltage
003-BC4-PNP	1/2" Sweat	003-BC4-8PNP	1/2" Sweat	Model #	Connection	Model #	Connection	1/40	115/60/1
003-B4-PNP	3/4" Sweat	003-B4-2PNP	3/4" Sweat	003-BC4-3PNP	1/2" Sweat	003-BC4-11PNP	1/2" Sweat	1/40	115/60/1
003-ST4-PNP	3/4" FNPT	003-ST4-2PNP	3/4" FNPT	003-BC4-2PNP	3/4" Sweat	003-BC4-10PNP	3/4" Sweat	1/40	115/60/1
003-SC4-1PNP	Union	003-SC4-3PNP	Union	005-SF2-1PNP	SS Flanged	006-BC7-SPNP	1/2" Sweat	1/40	115/60/1
005-SF2-PNP	SS Flanged	006-BC4-4PNP	1/2" Sweat	006-BC7-1PNP	1/2" Sweat	006-BC7-4PNP	3/4" Sweat	1/40	115/60/1
006-BC4-PNP	1/2" Sweat	006-B4-2PNP	3/4" Sweat	006-BC7-PNP	3/4" Sweat	----	----	1/40	115/60/1
006-B4-PNP	3/4" Sweat	006-ST4-2PNP	3/4" FNPT	----	----	----	----	1/40	115/60/1
006-ST4-PNP	3/4" FNPT	006-SC4-3PNP	Union	----	----	----	----	1/40	115/60/1
006-SC4-1PNP	Union	----	----	----	----	----	----	1/40	115/60/1

## Performance Field Information (60-Hz)

(STD) Models



(IFC) Models



## 3-Speed, 00<sup>®</sup>-Series Circulators: Stainless Steel

Taco's 3-Speed Circulators deliver the highest starting torque in their class. They include a removable unibody Integral Flow Check (IFC<sup>®</sup>) that prevents gravity flow, reduces installation cost and improves pump performance. The stainless steel versions should be used on open, fresh water systems.

**The 0015 IFC, 3-Speed Radiant Pump** is specifically designed for the flow and head requirements of today's domestic hot water systems.

**The 0013 IFC, 3-Speed Pump** is specifically designed for a wide range of high flow/high head requirements. Its' 3-Speed switching capability provides fine tuning control to meet system design conditions.

**The 0012 IFC, 3-Speed Pump** is designed for high flow/low head applications, it's ideal for large BTU boilers, primary boiler loops and large recirculation systems.

### Features

- 3-speed switch
- Fine tune to system requirements
- Highest performance & starting torque in class
- Heavy duty construction for longer life
- Removable high-flow Integral Flow Check (IFC<sup>®</sup>)
  - Prevents gravity flow
  - Reduces installation costs
  - Improves pump performance
- Replaceable cartridge design
- Quiet, efficient operation
- Self lubricating, no mechanical seal
- Wide range of applications
- Stainless Steel, flanged construction
- Connection Sizes: 3/4", 1", 1-1/4" and 1-1/2"

## More power to you.

### Pump Models

Model #	Type	Flange
0015-MSSF3-IFC	SS	S
0015-MSSF3-1IFC	SS	R
0012-MSSF1-IFC	SS	S
0013-MSSF1-IFC	SS	R

### Models 0012 & 0013



## 00<sup>®</sup>-Series, Cartridge Circulators: Stainless Steel And Bronze

Every Taco "00<sup>®</sup>" cartridge circulator is designed to make the job easier. With no mechanical seal, the self-lubricating design provides unmatched reliability. **Every "00<sup>®</sup>" features a field-replaceable cartridge** that contains all the moving parts. Replacing the cartridge rebuilds the circulator! Our IFC<sup>®</sup> Cartridge Circulators feature an Integral Flow Check, eliminating additional installation costs associated with separate in-line flow checks.



**007-SF5  
(Stainless Steel)**

Low Lead  
Compliant



### Features

- Standard high capacity output-compact design
- Quiet, efficient operation
- Direct drive-low power consumption
- Unique replaceable cartridge design-field serviceable
- Self-lubricating
- No mechanical seal
- Unmatched reliability-maintenance free
- Universal flange-to-flange dimension
- Integral Flow Check (IFC)<sup>™</sup> (optional)
- Most available in 230 volt
- Connection Sizes: 3/4", 1", 1-1/4" and 1-1/2"

### "00"-Series Stainless Steel Circulators (Models and Applications)

Stainless Steel or Bronze	Connection	Stainless Steel or Bronze	Connection
003-BC4	1/2" Sweat	007-SF5	Flanged-Standard
003-B4	3/4" Sweat	008-SF6	Flanged-Standard
003-ST4	3/4" NPT	008-SF6-2	Flanged-Rotated
003-SC4-1	Union	009-SF5	Flanged-Rotated
005-SF2	Flanged-Standard	0010-SF3	Flanged-Standard
006-BC4	1/2" Sweat	0011-SF4	Flanged-Rotated
006-B4	3/4" Sweat	0012-SF4	Flanged-Standard
006-ST4	3/4" NPT	0012-SF4-1	2" Flanged-Standard
006-BS4-1	Union	0013-SF3	Flanged-Rotated
008-BC6	3/4" NPT	0014-SF1	Flanged-Rotated

## 2400 Stainless Steel Series, High Capacity Circulators

The enhanced 2400 Series High Capacity Circulators include a new 3 piece rotating mechanical seal (carbon/silicon-carbide) configuration and a pressure-balanced impeller. Typical applications include hydronic heating, in-floor radiant, snow melt, high pressure drop boilers, outdoor wood boilers, chilled water cooling, geothermal heat pumps, primary / secondary loops and hydro air fan coils. The Stainless Steel 2400 Series should be used for open, domestic water recirculation systems.

### Features

- Compact, space saving design
- Powerful close-coupled, maintenance free motor
- Superior efficiency, high starting torque
- Permanently lubricated, sealed for life bearings
- Rugged 1/2" Stainless Steel Shaft
- Carbon/Silicon-Carbide mechanical seal for long life
- Universal flange to flange dimensions — Ideal for retrofits
- Anti-Condensate design for chilled water
- Dual electrical knock-outs
- Dual pressure taps, suction / discharge

### Models and Electrical Data

Stainless Steel	Hz	Ph	115V Amps	230V Amps	RPM	HP
2400-10S-3P	60	1	1.4	0.54	3450	1/10
2400-20S-3P	60	1	1.9	1.0	3450	1/6
2400-30S-3P	60	1	1.9	1.0	3450	1/6
2400-40S-3P	60	1	1.9	1.0	3450	1/6
2400-45S-3P	60	1	3.6	1.7	3450	1/3
2400-50S-3P	60	1	4.9	2.4	3450	1/2
2400-50S/2-3P	60	1	4.9	2.4	3450	1/2
2400-60S-3P	60	1	1.9	1.0	3450	1/6
2400-65S-3P	60	1	3.6	1.7	3450	1/3
2400-70S-3P	60	1	4.9	2.4	3450	1/2
2400-70S/3-3P	60	1	4.9	2.4	3450	1/2
<b>Motor Type</b>	<b>Open Drip Proof, Permanent Split Capacitor, Thermally Protected</b>					



Stainless Steel Models Only

### Model Nomenclature

**S:** Stainless Steel, Flanged, NSF372  
**Y:** 230V / 60 / 1 Motor

### Performance Data

**Maximum Flow:** 90 GPM  
**Maximum Head:** 46 Feet  
**Minimum Fluid Temp:** 40°F (4°C)  
**Maximum Fluid Temp:** 225°F (107°C)  
**Maximum Working Pressure:** 150 psi

Noryl® is a registered trademark of General Electric Co.

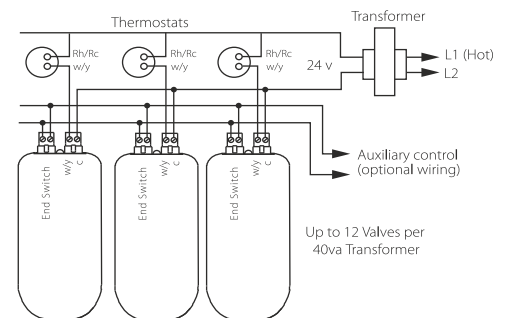


## Potable Water Zone Sentry® Zone Valve

The Taco Potable Water Zone Sentry® Valve is available in a 2-way sweat configuration with either a normally open or normally closed actuator. Some typical installations would include a combination domestic water and hydronic heating system, culinary installation or water shut off to a potable system.



### Typical Potable Water Zone Sentry® Zone Valve



### Available Zone Valve Sizes

Model #	Description	CV	Size
V050C2DZA024AQ4A1	Potable Zone Valve / 2-Way (Closed)	4.9	1/2" Sweat
V075C2DZA024AQ4A1	Potable Zone Valve / 2-Way (Closed)	10.3	3/4" Sweat
V050C2DZB024AQ4A1	Potable Zone Valve / 2-Way (Open)	4.9	1/2" Sweat
V075C2DZB024AQ4A1	Potable Zone Valve / 2-Way (Open)	10.3	3/4" Sweat

## Accessories

The timers and aquastat can be installed on any standard Taco 00® circulator. Adding a timer and aquastat to a Taco domestic hot water recirculation circulator will increase system efficiency and eliminate hot water cycling during “off” hours. **Great for retrofits!**

### 00® Series Aquastat Timers



**Analog Timer  
(265-1)**



**Digital Timer  
(265-3)**

**Aquastat  
(563-2)**

### LeakBreaker® Water Heater Shut-Off

The Taco LeakBreaker® is a water heater leak protection device that protects against flood damage from the containment failure of a water heater. It consists of a control unit, valve with actuator and sensor. This re-settable, testable protection device can be installed on any style water heater to shut-off the incoming water supply, preventing additional water flow to a damaged water heater. The multi-color LED light and audible alarm lets you know the status of LeakBreaker® at all times.



LeakBreaker® with eLink™ uses Wi-Fi® to communicate with the cloud, enabling status alerts to be sent directly to the users whenever a change occurs. eLink™, Taco Comfort Solutions' wireless connectivity platform, provides users with real-time product information, direct to their mobile device or desktop.

*Installation of the control unit,  
valve and sensor is a snap.*

*LeakBreaker® is available  
with and without eLink™ capability.*



#### Features

- eLink™ sends text and/or email alerts
- WLAN 802.11 — b/g/n Compatible
- Re-Settable and Testable
- Quick Connect Wiring
- Operates on Batteries or Power Supply
- - Power Supply with Battery
- Back-up on eLink™ Model
- Multi-Color LED Status Light
- Audible Alarm
- Alarm Mute
- 2 N/O; N/C Dry Contacts
- Full Port Valve
- Easy Removable Actuator

#### Models

Model #	eLink	Description
LBW-075-H-1LF	Yes	3/4" NPT
LB-075-H-1LF	No	3/4" NPT

## Formulas and Reference Information

### Universal Hydronic Formula

$$\text{GPM} = \text{BTU/h} \div (\Delta T \times 500)$$

$$\text{Pipe Head Loss} = \text{Supply} + \text{Return} \times 1.5 \times .04$$

### Hydronic BTUh / Sq Ft    Delta T (ΔT)

Basement .....20	Residential Radiant .....10
1st & 2nd Floor .....25	Commercial Radiant ..... 20
Garage ..... 30	Baseboard ..... 20

$$1/2'' \text{ Pex Hd Loss} = \text{Longest Loop} \times .035$$

(based on 1.0 GPM @ 120° water)

$$\text{Ft Hd. Loss} = (\text{Flow} / \text{Cv})^2 \times 2.31$$

\* NOTE: For Estimating Purposes Only. All sizes should be confirmed by proper design methods.

### Fluid Velocity Calculator Type M Copper Min/Max Velocities within range 2/4 FPS 20° F Delta-T

Pipe Size	GPM	BTU
3/4"	3-6	30,000 - 60,000
1"	6-10	60,000 - 100,000
1-1/4"	9-16	90,000 - 160,000
1-1/2"	12-22	120,000 - 220,000
2"	20-39	200,000 - 390,000
2.5"	32-61	320,000 - 610,000
3"	44-87	440,000 - 870,000
4"	76-152	760,000 - 1,520,000

### Spacing Factors (for use with in-floor tubing)

Spacing	Feet of Tube Per Square Foot of Floor Space
4" O.C.	3.10
6" O.C.	2.10
8" O.C.	1.60
9" O.C.	1.38
12" O.C.	1.05
15" O.C.	0.83
18" O.C.	0.70
24" O.C.	0.55
36" O.C.	0.37
48" O.C.	0.28

$$\text{BTU/hr (water @ 68°F)} = \text{GPM} \times 500 \times \Delta T \text{ (°F)}$$

$$\text{BTU/hr (30\% E. glycol @ 68°F)} = \text{GPM} \times 445 \times \Delta T \text{ (°F)}$$

$$\text{BTU/hr (50\% E. glycol @ 32°F)} = \text{GPM} \times 395 \times \Delta T \text{ (°F)}$$

$$\text{Pressure (PSI)} = \frac{\text{Head (ft.)} \times \text{Specific Gravity}}{2.31}$$

$$\text{Head (Ft.)} = \frac{\text{Head (PSI)} \times 2.31}{\text{Specific Gravity}}$$

### PEX Pressure Drop per/ft of Pipe

GPM	3/8"	1/2"	5/8"	3/4"	1"
8.0	11.31	2.48	0.93	0.44	0.12
7.8	10.61	2.32	0.87	0.41	0.12
7.5	9.94	2.18	0.81	0.39	0.11
7.3	9.29	2.03	0.76	0.36	0.10
7.0	8.66	1.90	0.71	0.34	0.09
6.8	8.05	1.76	0.66	0.31	0.09
6.5	7.46	1.63	0.61	0.29	0.08
6.3	6.90	1.51	0.57	0.27	0.08
6.0	6.36	1.39	0.52	0.25	0.07
5.8	5.84	1.28	0.48	0.23	0.06
5.5	5.34	1.17	0.44	0.21	0.06
5.3	4.87	1.07	0.40	0.19	0.05
5.0	4.42	0.97	0.36	0.17	0.05
4.8	3.99	0.87	0.33	0.15	0.04
4.5	3.58	0.78	0.29	0.14	0.04
4.3	3.19	0.70	0.26	0.12	0.03
4.0	2.83	0.62	0.23	0.11	0.03
3.8	2.55	0.56	0.21	0.10	0.03
3.6	2.29	0.50	0.19	0.09	0.03
3.4	2.04	0.45	0.17	0.08	0.02
3.2	1.81	0.40	0.15	0.07	0.02
3.0	1.59	0.35	0.13	0.06	0.02
2.8	1.39	0.30	0.11	0.05	0.02
2.6	1.19	0.26	0.10	0.05	0.01
2.4	1.02	0.22	0.08	0.04	0.01
2.2	0.86	0.19	0.07	0.03	0.01
2.0	0.71	0.15	0.06	0.03	0.01
1.8	0.57	0.13	0.05	0.02	0.01
1.6	0.45	0.10	0.04	0.02	
1.4	0.35	0.08	0.03	0.01	
1.2	0.25	0.06	0.02	0.01	
1.0	0.18	0.04	0.01	0.01	
0.8	0.11	0.02	0.01		
0.6	0.06	0.01	0.01		
0.4	0.03	0.01			
0.2	0.01				
0.0					

☐ = Velocity over 4 ft./s





**Represented by: Mondale & Associates, Inc.**  
7630 Washington Ave. South / Eden Prairie, MN 55344  
Phone: (952) 888-1770 / Fax: (952) 888-9636  
Web: [www.mondale.biz](http://www.mondale.biz)