



# SmartPlus®

HOT WATER RECIRCULATION

The smart way to instant **hot water** comfort.



Patent# US 8, 594, 853 B2

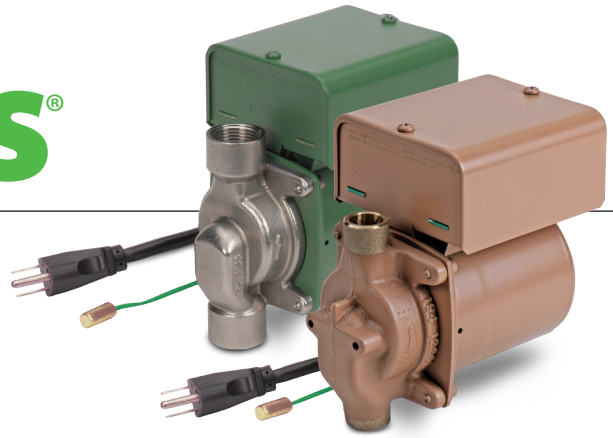


**Taco**  
Comfort Solutions®  
A Taco Family Company

# SmartPlus®

## The Problem: Waiting for Hot Water

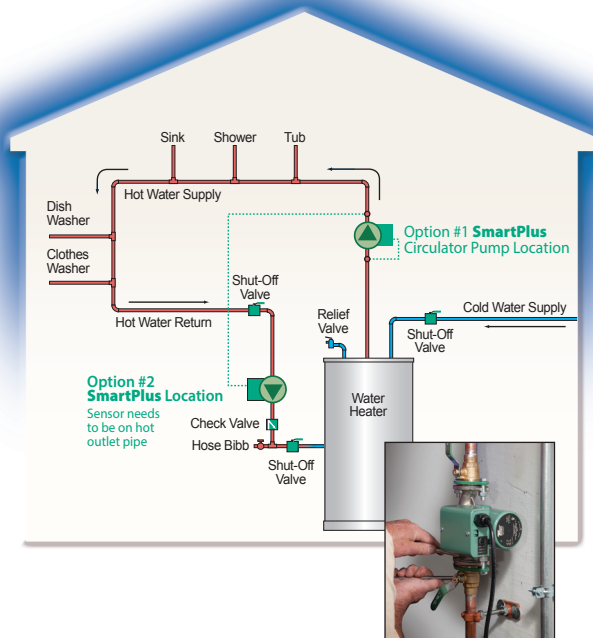
It's a common problem: turn on the faucet or shower for hot water, then wait for it to arrive. In fact, the wait can be up to two minutes in larger homes with multiple bathrooms and long runs of pipe between the plumbing fixtures and the water heater! With a Taco SmartPlus circulator in place, there's no more wait. Instant hot water!



## Estimated Annual Water Savings

Pipe Type	Hot Water Supply Length (ft.)	Pipe Water Volume (gallons)	Daily Water Volume Wasted (gallons)*	Annual Water Volume Saved (gallons)
1/2" Copper Type "L"	100	1.2 per 100'	12	4,400
	150		18	6,600
	200		24	8,800
	250		30	11,000
	300		36	13,200
3/4" Copper Type "L"	100	2.5 per 100'	25	9,200
	150		37	13,700
	200		50	18,300
	250		62	23,000
	300		75	27,500

\* Assume average of 10 cycles per day.



## Waiting Means Wasting

Waiting for hot water sends millions of gallons of cooled water down the drain each year. In fact, an average family of four wastes up to 12,000 gallons of water each year waiting for hot water.\* Water conservation is so important that many US states and municipalities routinely impose watering bans and offer rebate incentives to help conserve this natural resource.

\*Source: Dept. of Energy

## Energy Down The Drain

Of course, all that "waiting water" contains some heat energy (BTU's), even if it's only room temperature. Wasting those BTU's and starting over with fresh, cold water to heat up requires even more heat energy. So in addition to wasting water, millions of BTU's and energy dollars are wasted, too.

## How a Domestic Hot Water Recirculation System Works

A standard DHW system requires a dedicated return line from the furthest fixture back to the water heater. The return line is connected to a tee at the tank drain valve or to the tank's cold water supply line. A Taco SmartPlus circulator pump is installed on the hot water supply line, or on the hot water return line, and controlled by the SmartPlus electronic control board.

## How the SmartPlus Circulator Works

The SmartPlus circulator has a mode select toggle switch on the electronic control board that allows for 2 operation modes. "Pulse" or "Smart" mode can be selected using the toggle switch located on the

# FOR HOT WATER RECIRCULATION

electronic control board. Pulse mode is indicated by a flashing yellow LED light. A solid yellow LED light indicates the pump is set to Smart mode. All operation is automatic, no manual timer or temperature setting is required.

## Pulse Mode

When set for Pulse mode, the SmartPlus circulator will run automatically every 10 minutes to maintain hot water at all fixtures. The run time is adjustable from 1 to 10 minutes.

## Smart Mode

The run time is adjustable from 1 to 10 minutes. When set for Smart mode, the circulator will run in Pulse mode as above for the first 7 days. During the first 7 days, the SmartPlus will monitor and record the household's hot water usage pattern. For the next 7 days, the SmartPlus will use the preceding week's usage pattern to cycle the pump. This process will be repeated every 7 days.

## MATERIALS OF CONSTRUCTION

Stator Housing .....	Steel
Cartridge .....	Stainless Steel
Impeller .....	Noryl
Shaft .....	Ceramic
Bearings .....	Carbon
O-Ring .....	EPDM
Casing (Volute) .....	Bronze, sweat, 1/2" & 3/4" (006) Stainless Steel, 3/4" NPT (006) Stainless Steel, flanged (008)

## Features & Benefits

**Smart Mode** — When set to Smart mode the pump will automatically learn the weekly household hot water usage patterns.

**Variable Run Time Setting** — Adjustable run time can be set between 1 to 10 minutes for varying domestic hot water pipe sizes and loop length.

**72 Hour Memory Backup** — Should a power outage occur, the SmartPlus (in Smart mode only) will retain its recorded settings and internal timer for 72 hours. When power is restored, the SmartPlus will return to its programmed mode setting, either "Pulse" or "Smart."

**Vacation Function** — After 36 hours of inactivity the pump will automatically TURN OFF and remain off until hot water usage is detected again.

**Exercise Function** — While in vacation mode the pump will cycle on once every 7 days and run for 10 seconds to prevent any corrosion or scale buildup.

**Factory Installed 6' Line Cord**

**Remote Sensor Included**

**Optional IFC® (Integral Flow Check)**

**Unmatched Reliability-Maintenance Free**

**Water Conservation** — The average residence can save up to 12,000 gallons of water per year-water that normally goes down the drain while waiting for hot water.

**Comfort and Convenience** — Once the pump is set to the desired operating mode it never needs to be set again. Hot water is always available in seconds.

**Efficiency** — Smart/Pulse operation maximizes hot water comfort and energy savings

**Reliability** — SmartPlus provides quiet operation and industry leading electronics with Taco 006 and 008 circulators for proven performance & dependability.

**3 Year Warranty**

**LED Indicator lights**

- GREEN — Power
- YELLOW — Mode
- RED — Error code diagnostics



## Choosing the Correct SmartPlus Circulator for the Job

### Pump Selection Charts

This information is provided as a guide only. Find the table below that best describes the design you plan to use. Select the circulator based on the supply and return pipe size, pipe line length, and circulator model. Do not oversize the pump or high velocity noise and erosion corrosion of the system piping may result.

#### 1/2" Supply and Return Lines

Model Number	Supply Pipe Maximum Length (ft.)	Total Maximum Pipe Length (ft.)
006	100	250
008	250	450
006-IFC*	100	250
008-IFC*	250	450

\*With Optional Integral Flow Check

#### 3/4" Supply and Return Lines

Model Number	Supply Pipe Maximum Length (ft.)	Total Maximum Pipe Length (ft.)
006	150	300
008	300	600
006-IFC*	150	300
008-IFC*	300	600

\*With Optional Integral Flow Check

### Assumptions

Flow = 1 GPM

Max. Velocity = 3 ft./sec.

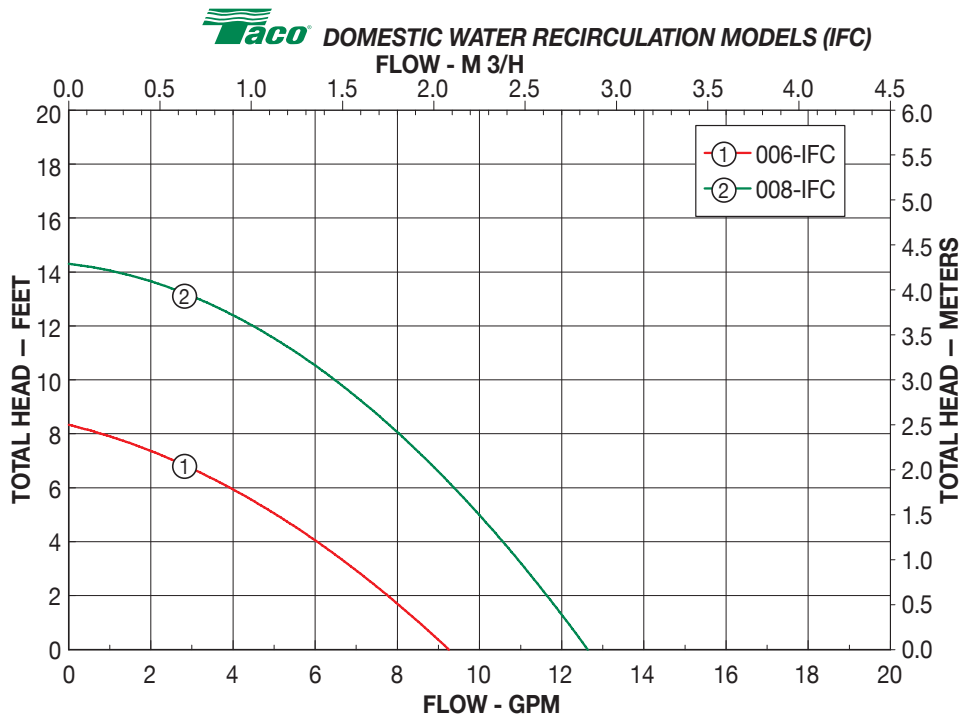
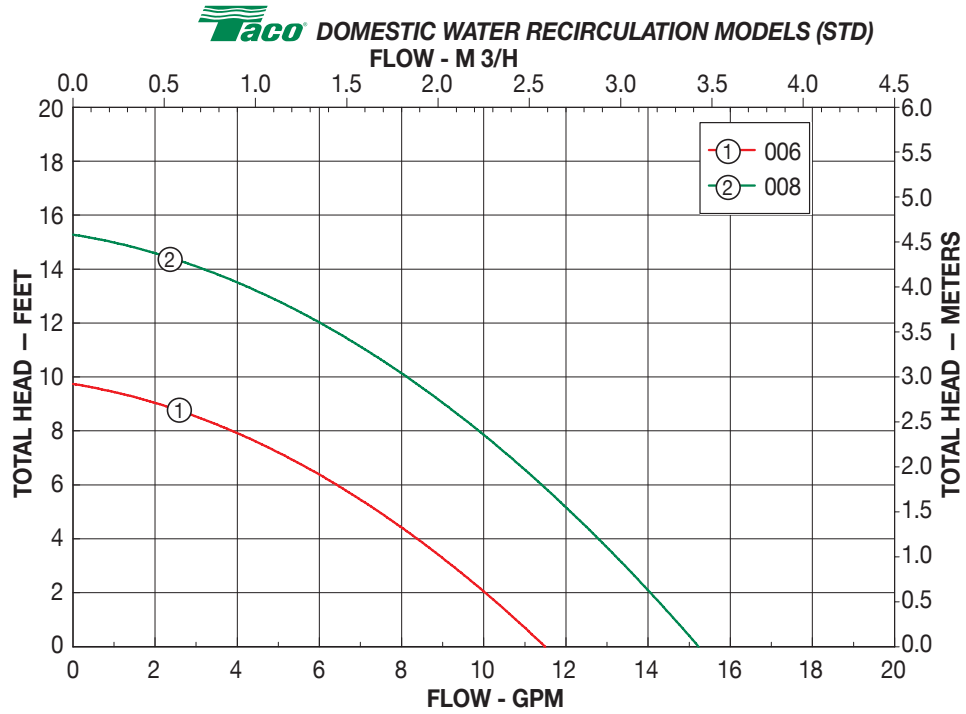
Allowances have been added for pressure drop of other typical system components

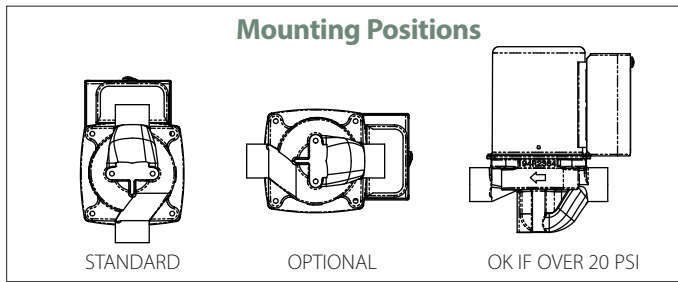
Type L Copper Tubing

Supply & Return Piping are equal in length



## Performance Field Information - 60 Hz





- ### Model Nomenclature
- IQ – SmartPlus
  - B – Bronze
  - BC – Bronze, Panel Mount Tap
  - ST – Stainless Steel, 3/4" FNPT
  - SF – Stainless Steel, Flanged
  - IFC – Integral Flow Check

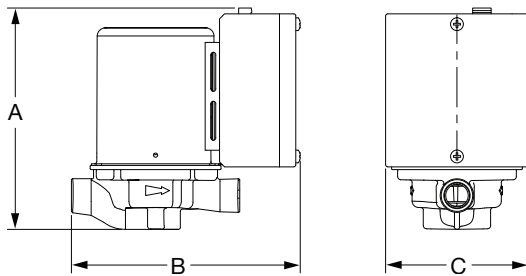
### Performance Data

Model	Flow Range	Head Range
006	0 - 11.5 GPM	0 - 9.5 Feet
008	0 - 15 GPM	0 - 15 Feet
006-IFC	0 - 9 GPM	0 - 8.5 Feet
008-IFC	0 - 13 GPM	0 - 14.5 Feet

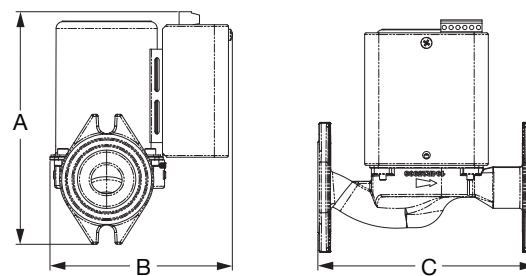
### Electrical Data

Model	Volts	Hz	Ph	Amps	RPM	HP
006	115	60	1	0.52	3250	1/40
008				0.84		1/25

Model 006



Model 008



Model	Connection	Casing	A		B		C		Ship Wt.	
			In.	mm.	In.	mm.	In.	mm.	lbs.	kg
006-IQB4	3/4" Sweat	Bronze	6-1/2	165	6	152	3-3/4	95	7.0	3.2
006-IQBC4	1/2" Sweat									
006-IQBC7-IFC	3/4" Sweat									
006-IQBC7-1IFC	1/2" Sweat									
006-IQST4	3/4" NPT	Stainless Steel	6-1/2	165	5-1/2	140	6-1/2	165	8.0	3.6
008-IQSF6	Flanged		7	177						
008-IQSF6-IFC	Flanged									



Taco Inc., 1160 Cranston Street, Cranston, RI 02920 / (401) 942-8000 / Fax (401) 942-2360  
Taco (Canada) Ltd., 8450 Lawson Road, Unit #3, Milton, Ontario L9T 0J8 / (905) 564-9422 / Fax (905) 564-9436