# Variable Speed Delta-T 00® Circulators

Taco Variable Speed Delta-T Circulator's all-in-one design combines a microprocessor based variable speed differential controller with the reliability and convenience of our 00® Cartridge Circulators. Simply dial in the design Delta-T of the system or zone (from 5 – 50°F) and then sit back and watch the circulator automatically adjust its performance to match the systems ideal BTU/hr output, while conserving energy and eliminating velocity noise.

comfort made **easy**®

Pump Dimensions & Weights

Model	Casing	A		B		C		D		E		F		Ship Wt.	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	Kg
008-VDTF6	Cast Iron	5-15/16	151	4-1/2	114	3-3/16	81	2-15/16	75	5-9/16	143	6-3/8	162	9	4.0
0012-VDTF4	Cast Iron	8-1/16	205	6-3/8	162	4-1/4	108	4	102	6-5/8	168	8-1/2	216	13	5.8
0013-VDTF3	Cast Iron	7-1/2	191	6-3/8	162	3	76	3-7/8	98	6	152	6-1/2	165	14	6.2
008-VDTSF6	Stainless Steel	6	152	4	102	3-3/16	81	2-15/16	75	5-9/16	143	6-3/8	162	8	3.6
0012-VDTSF4	Stainless Steel	8-5/8	219	6-3/8	162	4-1/4	108	4	102	6-5/8	168	8-1/2	216	12	5.4
0013-VDTSF3	Stainless Steel	7-1/2	191	6-3/8	162	3	76	3-7/8	98	6	152	6-1/2	165	14	6.2

Mounting Positions

Standard   Optional   OK if over 20 psi
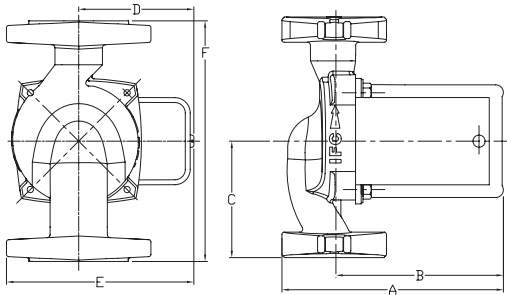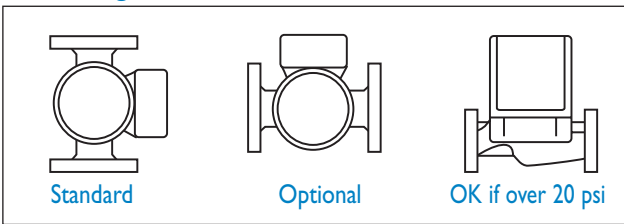
Electrical Data

Model	Volts	Hz	Ph	Amps		HP
				C.I.	S.S.	
008	115	60	1	.79	.84	1/25
0012	115	60	1	1.33	1.33	1/8
0013	115	60	1	2.0	2.0	1/6
Motor Type	Permanent Split Capacitor Impedence Protected					

Flange Orientation

Standard

Stainless Steel (008 & 0012 Only)
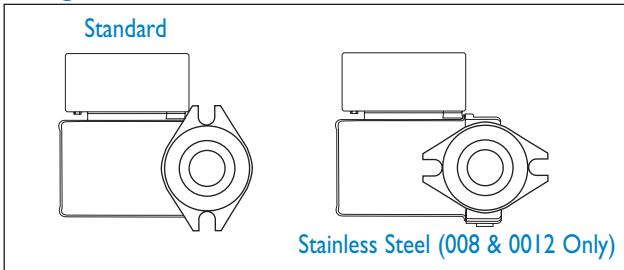
Performance Field - 60Hz

Taco 00 CIRCULATORS

Legend:
- ① 003B
- ② 005
- ③ 006
- ④ 006B
- ⑤ 007
- ⑥ 008
- ⑦ 009
- ⑧ 0010
- ⑨ 0011
- ⑩ 0012
- ⑪ 0013
- ⑫ 0014

FLOW-M3/H

TOTAL HEAD-FEET

TOTAL HEAD-METERS

FLOW-GPM

9/09/09
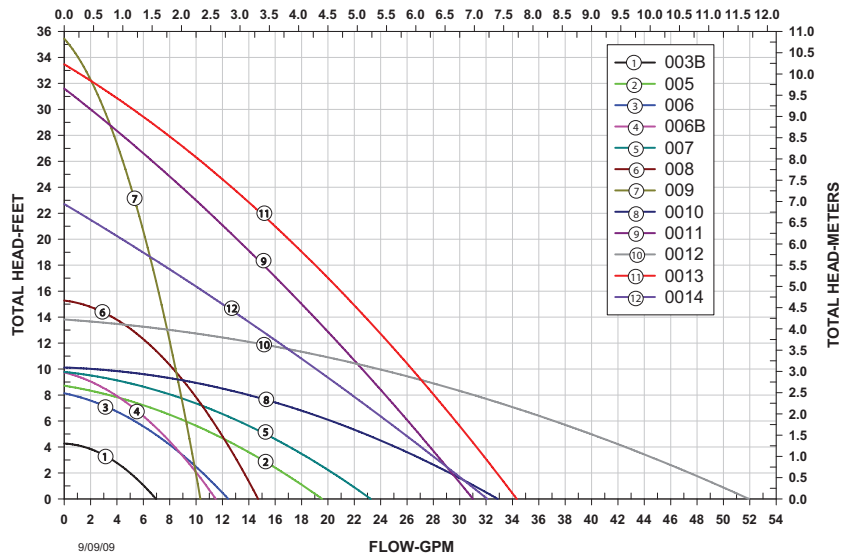
Product Features

- All-in-One Pump & Control
- Sensors Included
- Easy to Install:
     - Attach 2 Sensors
     - Dial in the Desired Delta-T
- UL Approved
- Snap-in PC Board, replaceable
- LED Status Panel
- Fuse Protected
- Plug-in Low Voltage Wiring Terminal
- Optional Integral Flow Check (IFC®)

Operational Benefits

- Increases System Efficiency
- Pump Always Runs at Minimum Required Speed
- Eliminates Velocity Noise
- Eliminates Need for a Pressure By-pass Valve
- Conserves Energy
- Achieves System Design Goals, even when Installed System Varies from Original Design
- Pump Automatically Adjusts to Current System Conditions
- Spend Less Time Figuring Out Pressure Drop (for proper pump sizing) when Servicing Existing Systems.
- Pump Exercise
- Delivers Ideal BTU/hr Heat Transfer for All Styles of Emitters

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FOR INDOOR USE ONLY

Optimal Pumping Simplified

No matter how good your original system design and heat loss calculations were, they included estimates and rules of thumb. What are the design conditions for those systems you "inherited" or have to service? Have a zone valve system or multi-zone radiant manifolds running off a common circulator? Your system needs a circulator that automatically adjusts to deliver the optimal heat transfer based on the actual operation of the system, every day, under all load conditions – even when those conditions change.

With the Taco Variable Speed Delta-T 00® Circulators you simply dial in your desired temperature drop across the system or zone (5-50°F), attach a supply and return sensor directly to the pump and it will automatically vary its performance to deliver optimal heat, efficiency and comfort.

Applications

There are a few hydronic applications that can benefit greatly from the use of a Taco Variable Speed Delta-T Circulator.

Example 1 : Multi-Zone Radiant Manifolds with Loop Actuators

Residential radiant floor heating systems often feature several zones on a single manifold, using manifold valve actuators, designed around a 10° Delta-T. The circulator is sized to provide enough flow and head pressure to satisfy all zones

calling at the same time. At any given point, however, a single, small zone, such as a bathroom or bedroom, may be the only zone calling, with a required flow rate of only, say, 0.4 GPM. The attached 008 circulator, however, can generate over 9 GPM. The result? Poor heat transfer and performance due to a greatly reduced delta T, as well as considerable velocity noise – both likely resulting in callbacks from unsatisfied customers.
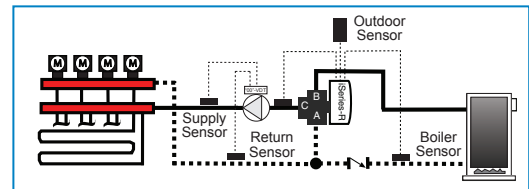
The solution? The 008-VDT or 0013-VDT for larger systems! It will automatically adjust the circulator's speed to maintain the proper heat transfer by maintaining a 10°Delta-T across the radiant zone. The 00-VDT will also eliminate velocity noise by slowing the actual flow rate through the zone to the minimum required to deliver proper heat. If other zones on the manifold open, the 00-VDT will increase its speed to deliver the required BTU's, while at the same time maintaining the designed for 10° Delta-T across the radiant system.

Example 2: Series Loop Systems Using Zone Valves

As with the previous example, the circulator for this system is sized to provide enough flow and head pressure to satisfy all zones calling simultaneously under design conditions. As zone valves close, less heat is required. But with a fixed speed circulator, the open zones will see an increase in flow, with a corresponding drop in the design delta T of 20°. This will result in poor heat transfer and

considerable velocity noise. In addition, when using a cast-iron boiler, the higher return water temperatures may cause the boiler to short-cycle, reducing its overall efficiency and resulting in higher fuel bills for the customer.
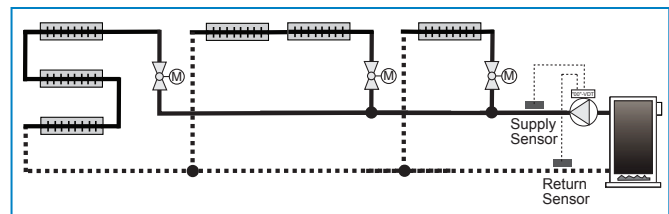
The solution? The Taco 00-VDT circulator will automatically adjust its speed to maintain the designed for 20°delta T across the open zones. The circulator will speed up or slow down as needed, as zones open or close, always maintaining a 20° Delta-T. This will increase overall comfort and sharply reduce boiler short-cycling. The 00-VDT will also control velocity noise issues in the system, eliminating the need for a pressure differential bypass valve.

See **www.taco-hvac.com** for additional applications for the 00-VDT Circulators.

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