

# Taco Variable Speed *Delta-T* vs. *Delta-P* Competition

## Why Use a Variable Speed Circulator?

First understand that the heating load literally changes with the weather. As the outdoor Temperature changes, the overall heating load of the structure changes. In addition, when you have multiple zones in a heating system, the load at any given point in time will change based on how many zones happen to be calling at that moment. By varying the speed of the pump, the specific amount of heat delivered to the structure can be optimized to match the heating load requirements of the structure.

## And Why Delta-T?

There are two kinds of variable speed circulators on the market today-one that varies its speed based on ***Delta-P, or measured change in system pressure***, and one that varies its speed based on ***Delta-T, or design water temperature differential between two points***. **What's the difference?** Well, ***Delta-T*** is part of the Universal Hydronics Formula, which governs all system design - It states:  $GPM=BTUH/(DeltaT \times 500)$ . GPM is flow rate required at a given point in time, while BTUH is the heating load at a given point in time...***Delta-T*** is the designed-for temperature drop across the piping circuit, with 500 a constant representing 100% water. **Notice that pressure (Delta-P) is not part of the equation!** Where ***Delta-T*** is directly related to flow rates and heat loads, **Delta-P does little to improve system comfort.** **Delta-P** only knows if a zone has opened or closed to create a pressure differential, and as a result **can over or under pump a zone.**

### Taco VDT

### Grundfos Alpha

### Wilco Stratos ECO

Mode of Operation:	Delta-T	Delta-P	Delta-P
Country of Origin:	USA-Cranston, RI	Denmark	Germany
Electronic Control:	Replaceable	Non-Replaceable	Non-Replaceable
Power Consumption:	On/Off	Always at least 5 watts	On/Off
Delta-T Range:	5-50 degrees	N/A	N/A
LED Status Panel:	PWR/Heat Req/% out	Watts/GPM	None
Pump Exercise Function:	Yes	No	No
IFC:	Compatible	Compatible	Not Compatible

