



AW-LAKE
PROCESS FLOW MEASUREMENT



APPLICATION SPOTLIGHT
Tankless Water Heater Manufacturing



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APPLICATION:

Tankless water heaters are used in industrial applications for numerous purposes. In this instance, the heaters supply hot water to emergency showers and eye wash stations. The customer needed to incorporate a better means of detecting the optimal time to turn the heaters on and off.

The customer had been using a simple flow switch to turn heaters on and off, but the data supplied was restricted to flow and no flow at one specific flow rate. To improve efficiency and save energy, they wanted to be able to set a specific flow rate to trigger heaters to turn on. Additionally, in larger systems multiple heaters can be used to heat the water more efficiently and then turn off, instead of having heaters running constantly. By knowing the actual rate, they could specify when to turn heaters on and off based on their desired water consumption, not based on a fixed flow meter switch point.

PRODUCT SUPPLIED:

Stainless steel FlowStat paddle wheel flow meter with custom features.

CHALLENGE:

The customer needed a way to gain better control of their heaters in both large and small systems. They had a budget and certain accuracies they

desired which was the challenge, particularly at the very low flow rates. In addition, the space they had to allocate to the flow meter was limited within their panel.

SOLUTION:

The stainless steel FlowStat was chosen for its low pressure drop and low cost, but customizations were needed. First, to increase the resolution, design engineers doubled the number of magnets on the impeller vanes. That easily doubled the FlowStat's resolution, but there were still performance issues at the very low end of their flow range. By changing to a curved vane impeller design, engineers were able to both improve the meters' low flow performance, but also further increase the rotational speed of the impeller. By doing these customizations, we were able to **quadruple** the output signal! To solve the tight space challenge, designers fitted the meter with a 3-pin connector for easy installation and changed the signal cable location to the back of the unit.

RESULT:

The FlowStat flow meter has now made the tankless water heaters more efficient, both saving money and also making the water temperature control more precise.