

Flush Mount RTDs and Thermocouples

APPLICATIONS

It's not always possible to immerse a temperature probe into a process and a surface mount sensor may not provide the needed accuracy or response time. Or there may be an obstruction such as a mixing blade in a tank or a pig for cleaning a pipe. For those applications a sensor that mounts flush to the inside of a tank or pipe wall may be the best solution. Another application is in pipes carrying high velocity fluids that would cause a standard thermowell to vibrate and fail. Or there may be a viscous fluid that causes high drag on the thermowell causing it to bend or break. Any of these can be solved with a flush mount style sensor. Improved accuracy and a faster time response over a surface mount sensor are two features of this style sensor.

CHALLENGES

Isolating the sensor from the vessel or pipe wall temperature to minimize conduction effects was a major design consideration. Other considerations were balancing the material strength to maintain an adequate pressure rating for the process. Some applications require a speedy time constant and that requires a design that minimizes the material surrounding the sensing element. Durability of the sensing element is always an important consideration that factors into the design balancing act of mechanical strength, conduction, and time response.

Sensor mounting configurations vary from threaded to sanitary clamp style configurations. Installation typically requires cutting a hole in the vessel and welding an adaptor to accept either style sensor.

SFM, 15123, 19277



See page two for drawings

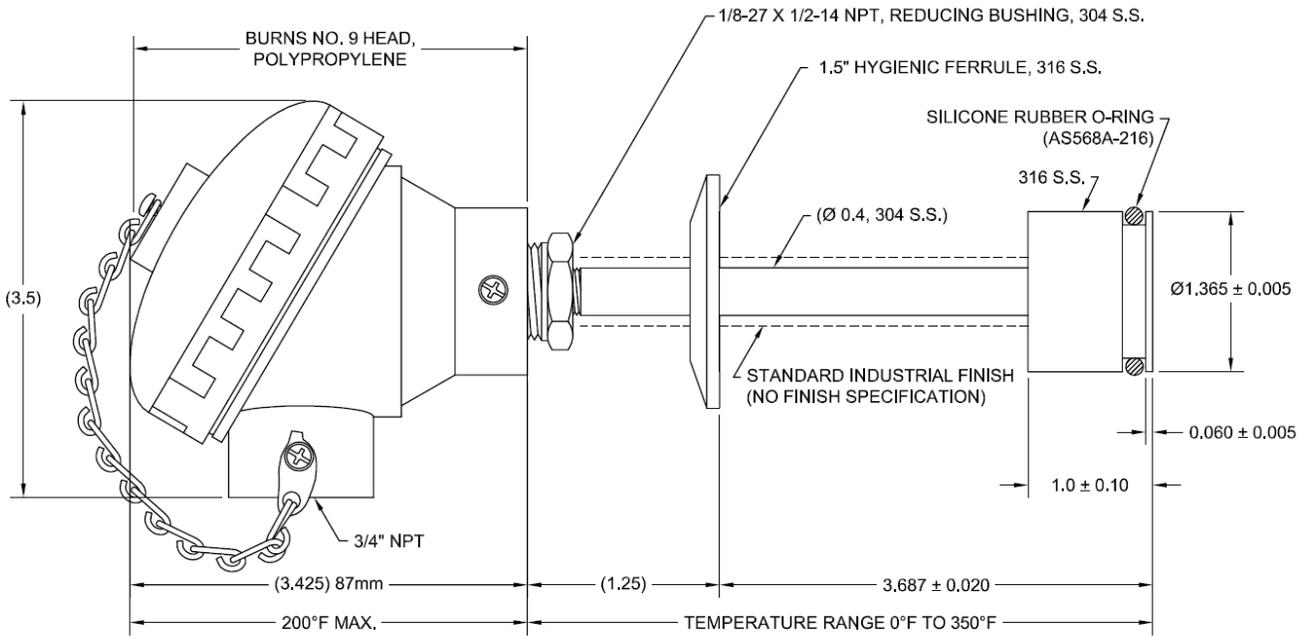
SOLUTIONS

For sanitary applications the SFM assembly was developed which features a Teflon® gasket that seals the probe and acts as a thermal barrier between the sensor housing and vessel. The gasket minimizes thermal conduction from the tank to the sensor allowing the sensor to respond only to the fluid temperature. A similar probe style, 19277, utilizes an O-ring seal and a hygienic ferrule connection to the vessel. The tank adapter can be field fabricated from 1.5" x .065" wall sanitary tubing.

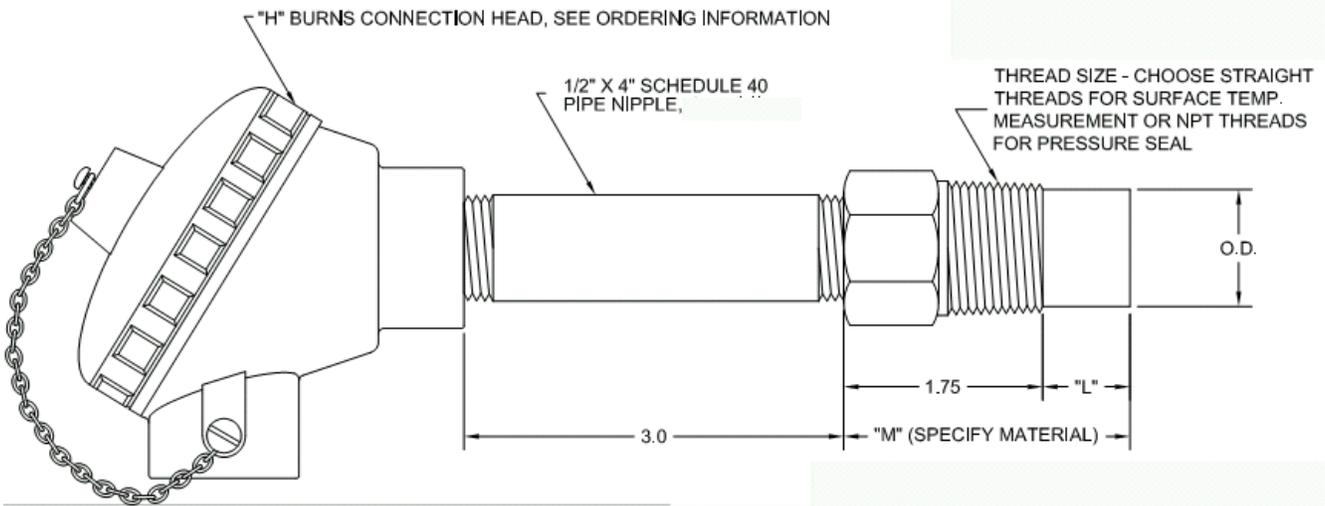
The 15123 assembly was designed with the sensing element residing in a small counter-bore within a threaded housing that keeps it as close as possible to the process fluid while still retaining the required strength. A variable "L" length is selected so that the probe face is flush with the pipe or vessel inside surface when installed. The result is a sensor that is more accurate than a surface mount and responds faster to temperature changes.

For more information or assistance with your application please contact Applications Engineering at 800-328-3871 ext. 6413.

19277



15123



SFM

