



Modification for Short Immersion Application

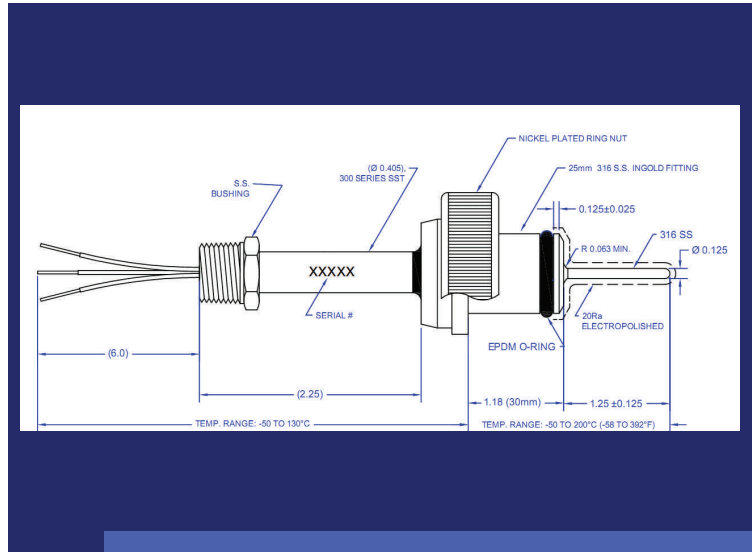
APPLICATION

Bioreactor tanks are fitted with an array of connections for sensors one of which is the Ingold style port. The port is a smooth bore cylinder welded to the tank into which a plug with an O-ring seal is installed. The plug can be fitted with an RTD, thermocouple, or other measurement device.

Most tanks are large enough to accommodate a direct immersion sensor of 1/4" diameter or a thermowell and removable sensor. Occasionally an application may require a short immersion length (less than 3.5") to avoid a mixing blade or other obstruction in the tank. For those applications a special short immersion length design is required to avoid stem conduction error. Stem conduction error is caused by heat transfer along the external and internal components of the temperature sensor.

CHALLENGE

The standard SPA model with the Ingold style process connection has a probe diameter of 1/4" which requires at least 3.5" of immersion length to avoid stem conduction error and insure an accurate measurement. An obstruction in the tank would not allow for an immersion greater than 1.5". There are other sensor types available for short immersion but they did not connect to the tank's only empty port which was the Ingold style.



Short Immersion Ingold Style 22070

SOLUTION

Solution was to borrow the short immersion stem design from the Model S01 mini sanitary and adapt it to the Model SPA Ingold style process connection housing. A few modifications to the housing were necessary and the result was a sensor that will install into a 25 mm Ingold port and read accurately with just a 1.25" immersion length. Other design features from standard sensors can be combined to produce a sensor for a difficult application. As you may have seen mentioned on our website, "Custom is the new standard".

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