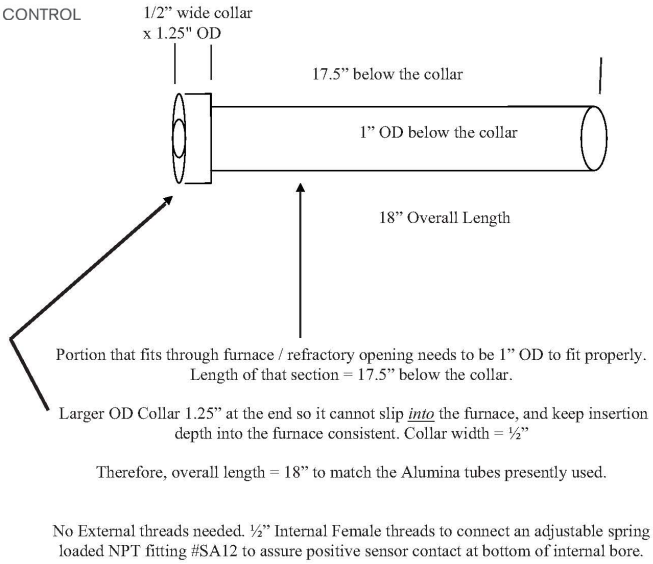
MEASUREMENT AND CONTROL

Application Note



Previous industrial thermocouple that needed to be replaced

Submitted by
Dave Relyea from
Applied Measurement & Control
Thanks, Dave!

Product **Smart Sensors #1100 and Protection Tubes**

Application **High Temperature Belt Furnace**

Industry **Other: Metals**

Challenge

Customer had used Industrial Grade K-Type thermocouple inside Ceramic/ Alumina protection tubes for almost 20 years with very inconsistent results. It got to the point where the operators would change the sensor depth inside the protection tube to get the readings they wanted to see, instead of getting actual temperature readings inside the Tempering Furnace. The protection tubes just sat loose through the side of the furnace, with no way of preventing them from falling inside.

Solution

By working with the Smart Sensors group, and finding that Hexoloy® protection tubes rated to 2,900°F (1,593°C) could handle the 2,100°F (1,149°C) furnace temperatures, we were able to give them a metallic protection tube (see drawing above).

Matched with a spring-loaded fitting and metal-sheathed K-Type thermocouple (Series 1100), we could give them assurance the sensor was making positive contact in the bottom of the protection tube, yet consistent readings they could trust with all sensors at exactly the same depth, and better control over the zones inside the furnace. Removing the human "operator adjustment factor" was a big deal in improving the tempering, and leads to less waste and faulty product.

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