



Heavy Duty Dual Probe RTD for Autoclave Service

APPLICATION



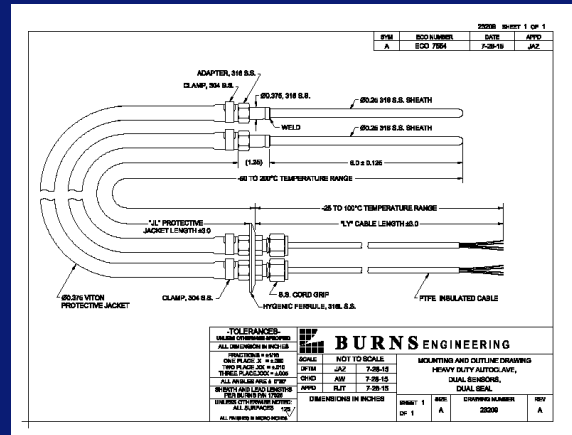
Steam autoclaves used to sterilize medical and pharmaceutical equipment require accurate and repeatable temperature measurements. These measurements are critical to the effectiveness of the sterilization process so the temperature measurement and control system has to be accurate, repeatable and durable. In addition to monitoring the temperature inside the autoclave, a separate temperature probe may be placed on the equipment being sterilized to insure that it has reached the correct temperature, usually 121°C.

CHALLENGE



The harsh environment inside a steam autoclave of alternating vacuum and steam, causes standard RTDs to fail quickly. The vacuum pulls the air out of the probe and when the vacuum is removed the steam rushes in and causes low insulation resistance and a corresponding low temperature reading. A pressure and water tight seal is an absolute necessity on the probe and also where the lead wires exit the autoclave. Durability is also very important especially in the larger autoclaves where carts full of equipment to be sterilized are wheeled in and out frequently. The temperature probes are frequently dropped, run over, or the cable gets caught on things and pulled. Any of these can cause damage to the cable jacket and the moisture and pressure seal for the probe is lost.

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Dual RTD probe for steam autoclave service

SOLUTION



Several years ago, Burns developed a group of RTDs for autoclave service that are designed to withstand the harsh environment and handling. Four models cover the common applications from small autoclaves Model SAC, a load cell RTD Model SAL, to a couple versions for large autoclaves Model SAH and the SAX which features a replaceable sensing element. For this application the customer required a variation of the Model SAH to include a dual probe configuration and a Viton® hose covering over the cable for additional protection and flexibility. Also, a cord grip was added to the hygienic ferrule as a secondary vacuum seal in case the Viton® hose becomes damaged. The hygienic ferrule provides a reliable vacuum seal and when modified with a hose barb connector and the cord grip, makes a durable and reliable pass-through for the RTD cables. Each probe can be replaced individually, or the hose covering can be easily replaced if it becomes damaged. This serviceability reduces the lifetime cost of the measurement point and reduces downtime.