Windridge Sensors

Keyhole Sanitary Sensors

MODEL KAC-RW

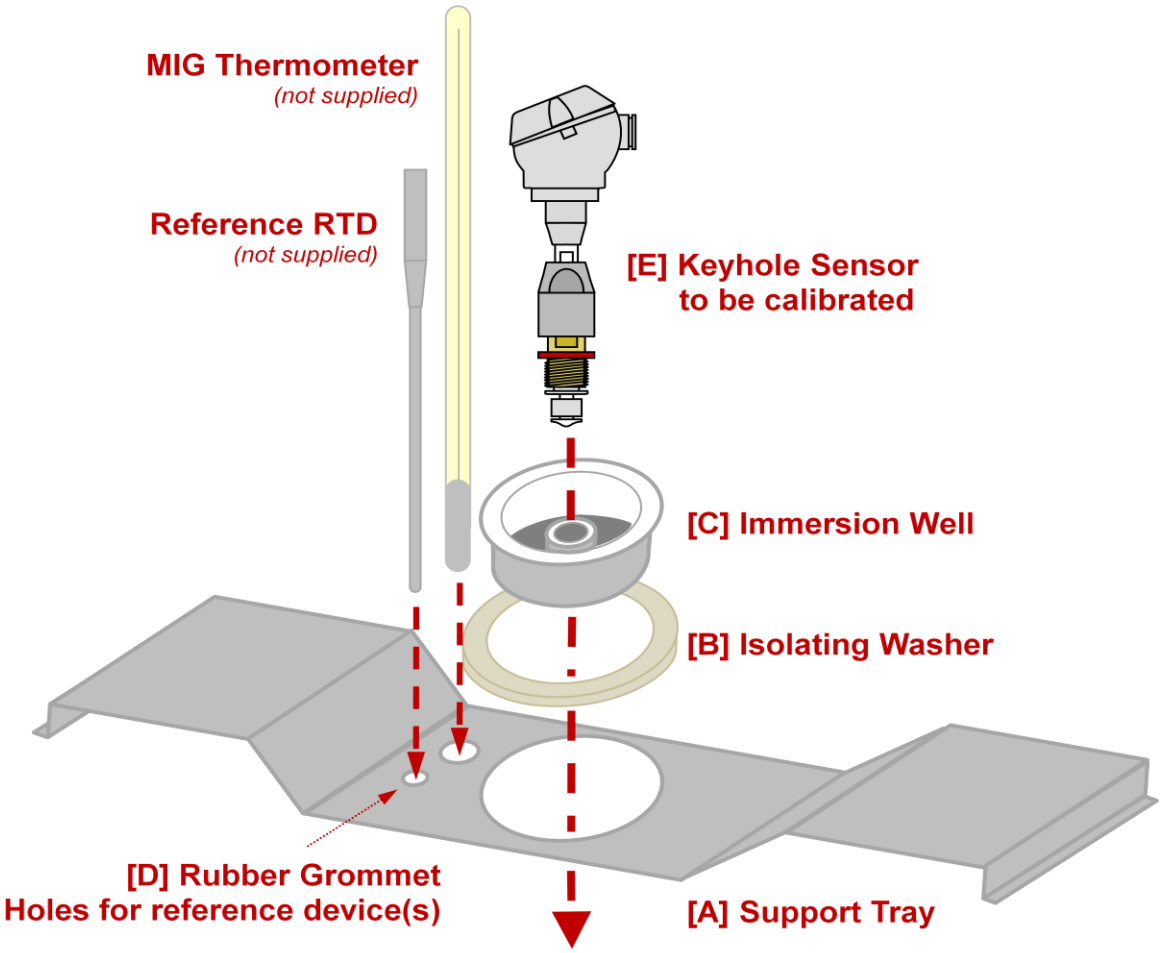
TEMPERATURE CALIBRATION CELL

INSTRUCTIONS FOR USE WITH A TEMPERATURE CONTROLLED OIL BATH

A. PURPOSE

The KAC-RW Keyhole Sanitary Sensor Temperature Calibration Cell provides a method for accurate sensor temperature calibration by replicating the operating conditions when installed in a typical process plant environment.

B. DESCRIPTION OF PARTS



C. ASSEMBLY

i. The **Support Tray [A]** is designed to support the **Immersion Well [C]** by laying across the top surface of a recirculating oil bath such that its center section to dips down towards the surface of the oil. Should the oil level be too high to obtain the required depth of immersion (see section D), the tray may be raised above the top surface of the bath using suitable stable supports under the tray arms.

ii. The **Sensor Under Test [E]** should be installed in the boss in the center of the **Immersion Well [C]** in the same way as it is installed in to its operational process fitting. Refer to the appropriate installation documentation if unsure how that is done. Once installed, the probe tip will protrude beyond the lower surface of the Well, replicating its operational immersion conditions.

iii. The Sensor [E] and Immersion Well [C] are together lowered in to the hole in the Support Tray [A], with the thermal **Isolating Washer [B]** placed in between the lip on the Well [C] and the top surface of the Tray [A]. This washer prevents the Support Tray [A] from conducting too much heat away from the Immersion Well [C] and affecting the sensor measurement conditions.

iv. Reference probes and thermometers can be inserted through the Support Tray [A] adjacent to the Well through pre-drilled holes fitted with rubber retaining **grommets [D]**. The hole sizes are intended to fit ⅛" (3mm) and ¼" (6mm) diameter probes.

D. IMMERSION

i. When the Immersion Well [C] is fully seated on the Isolating Washer [B] in the Support Tray [A], the sensor tip will protrude approximately 2.50" (65mm) below the top surface of the oil bath.

The bottom of the Immersion Well [C] should be between ¼" (5mm) and ¾" (20mm) below the surface of the oil.

This ensures that there is adequate surface area for thermal transfer to occur from the oil to the Well, replicating the temperature of the process pipework when in operation.

ii. To obtain the maximum calibration accuracy, the Calibration Cell assembly, Sensor Under Test and oil bath should be allowed to reach stable thermal equilibrium conditions before obtaining the calibration readings. This will vary with oil bath performance, but will typically take **15 – 20 minutes**.

E. REMOVING THE SENSOR AFTER CALIBRATION

i. The Immersion Well [C] may be removed from the oil bath by holding the Sensor and lifting the sensor and Well out of the Support Tray [A] and carefully placing them on a bench-top.

Care should be taken not to scratch or damage the sensor tip protruding below the bottom of the well.

ii. Alternatively, the complete Calibration Cell Assembly may be lifted as a single piece from the top of the oil bath and its outer arms placed on blocks or some other stable support arrangement that will keep the sensor tip above the bench surface.

iii. Remove the Sensor Under Test [E] according to the installation instructions.

E. PROBLEMS REQUIRING ASSISTANCE

Keyhole Sensors and Fittings are designed to be simple to install and resilient to day-day operation. However, if you encounter any problem with the products that require manufacturer assistance, please contact us via email at: support@windridgesensors.com, or see our web site www.windridgesensors.com for other contact alternatives.