

Testing Thermal Efficiency in Boilers

► The Challenge

An Italian manufacturer of boilers needed to test the efficiency of the boilers once they had been produced. In order to do this, the boilers were connected to an automatic test bench.

Apart from pressure and flow transmitters, each bench was equipped with four pt100 ohm 0°C sensors, which measured the input and output temperatures of the water of the sanitary circuit along with the input and output temperatures of the water of the heating circuit

The boiler manufacturer needed to be able to measure the temperature chain of 15-150°C.

Due to ISO 9001 requirements, the quality department at the boiler manufacturer verified the accuracy of the temperature chain every three months.



► The Solution

By using the CTC-155 temperature calibrator from JOFRA, it was possible to calibrate the temperature chain that consisted of two elements; the pt100 sensors and the input channel of the data acquisition system.

Aside from measuring the temperature chain in the production, the research and development laboratory had an additional two test benches similar to the one in the production that they would like to use the same calibrator for. However, in addition to the needs in production, the research and development laboratory also needed to measure the in/out cooling water and the natural gas temperature.

Lastly, the temperature switch of the boilers needed to be calibrated seeing that every Italian boiler had a switch that cuts the electrical power if the heated water reaches 82°C.

The CTC-155 calibrator offers a wide temperature range from -25 to 155°C, fast heating and cooling times, short stabilization time and is easy to carry due to its light weight. With this calibrator at hand, the boiler manufacturer found a flexible and cost effective solution that could be used in all of the three places that required calibration.