

Infrared Temperature Measurement in Aluminium Extrusion





Calex has achieved good results in measuring the temperature of extruded aluminium profiles with a leading manufacturer, using low-cost pyrometers.

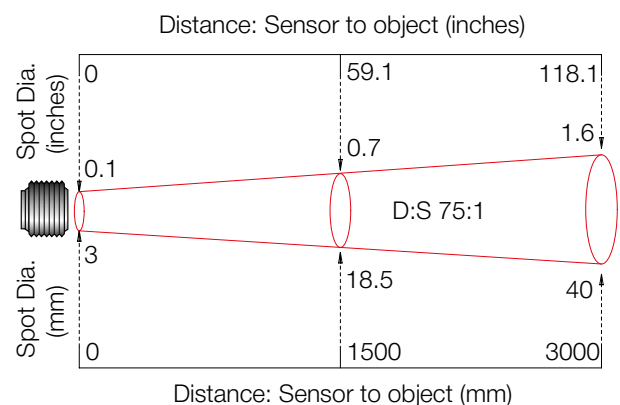
Profile Temperature at Press Exit

[FibreMini](#) model FM2.2-751-MT-CRT-10M was mounted above the extrusion press exit. The fibre optic sensing head contains no electronics, and withstands ambient temperatures of 200°C with no need for cooling. Built-in laser sighting shows the exact position and size of the measurement area, for an easy visual check that the sensor is correctly aimed.

The 10-metre fibre optic cable provides plenty of length for the display module to be mounted in a safe, accessible location. Air purging is used to help keep the pyrometer's lens clean.

The FibreMini makes low-temperature measurements down to 250°C (482°F) possible, and its precise 75:1 optics allow narrow profiles to be measured.

A 4-20 mA output is available from the interface module for connection to on-site instrumentation.



-751

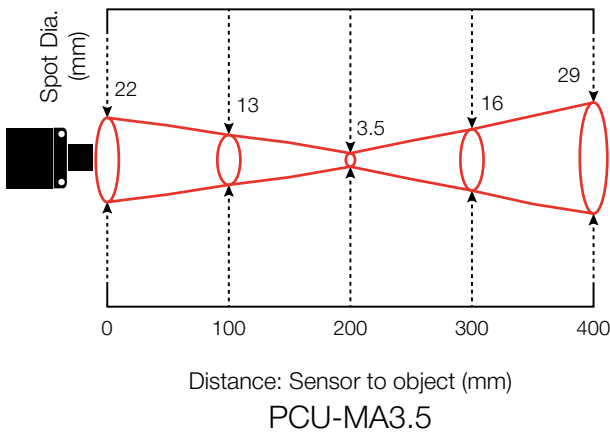


Profile Temperature at Quench Exit

[PyroCube](#) model PCU-MA3.5-10M-1V was used in conjunction with the PM030 touch screen terminal. It is capable of measuring down to 100°C, or 50°C with reduced stability.

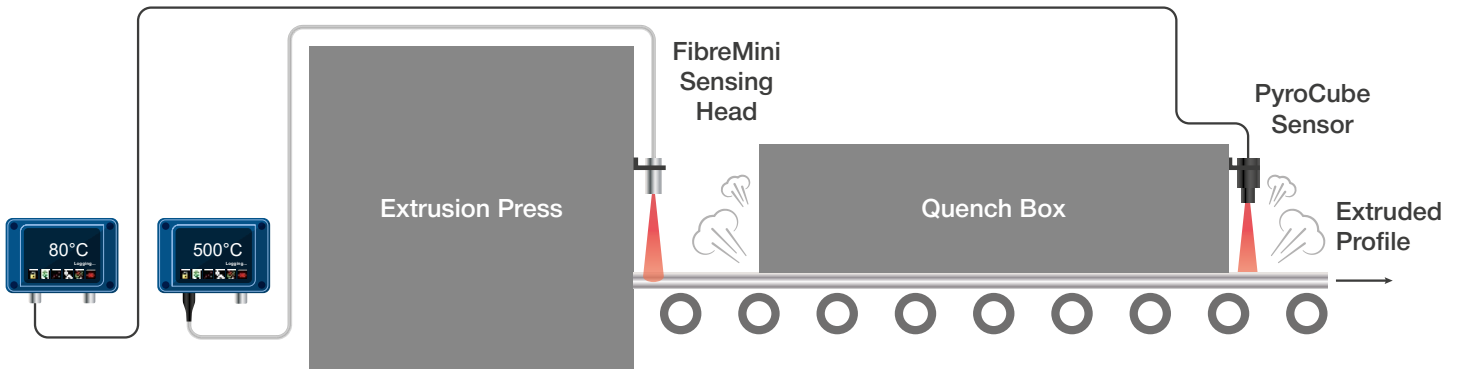
The sensor can be positioned up to 400 mm from the profile, with the smallest possible measurement spot size of 3.5 mm achieved when the sensor is mounted at a distance of 200 mm. Built-in LED sighting shows the location and size of the measured spot.

There is a large amount of steam at the exit of the water quench box, and the PyroCube was found to produce consistent and reliable measurements even in this situation. The sensor's 10 metre cable was connected to a PM030 display and configuration module, providing analogue and relay outputs.



In both locations an emissivity setting of 0.15 was used.

Because the surface finish of the profile and the temperature were both consistent, it was found that the low-cost, short-wavelength Calex sensors gave good performance, even with the amount of steam present at the quench exit.



Other applications in aluminium extrusion

A general-purpose PyroMini is used to check the temperature of the die as it is loaded into the extrusion press. The outer surface of the die is not usually reflective, and therefore has a high enough emissivity, allowing easy and reliable measurements between -20 and 1000°C.



