

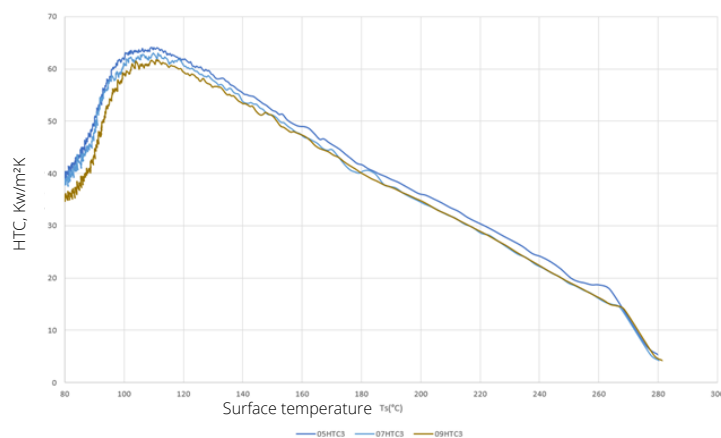
LOW TEMPERATURE COOLING PERFORMANCE SENSOR

Technical data

- Maximum sensor surface temperature: 350°C
- Coolant temperature: 15°C – 55°C
- Coolant pressure up to 8 bar
- Coolant flow rate: 14m³/h
- Coolant liquid: water or stable emulsions

Purpose

This tool, the low temperature “Cryotron” sensor, concerns the measurement of the cooling performance and calculation of the heat transfer coefficient (HTC, Kw/m²K). Two thermocouples are inserted in the core of the probe at 2 different distances from the cooled surface. During the trial, the probe is heated. When the cooling starts, the temperature measurement from the two thermocouples is recorded. From these temperature measurements, the surface temperature is calculated by an inversed model. The knowledge of the surface temperature allows estimating the surface heat flux and consequently the heat transfer coefficient.



Several parameters can be tested like:

- Coolant flow rate
- Coolant composition
- Coolant temperature
- Nozzle type
- Distance nozzle/surface
- Distance from the nozzle to the axe of the probe

Possible other cooling parameters on request.

Results

- Cooling temperature curves
- Heat transfer coefficient (kW/m²K)
- Heat flux (kW/m²)

