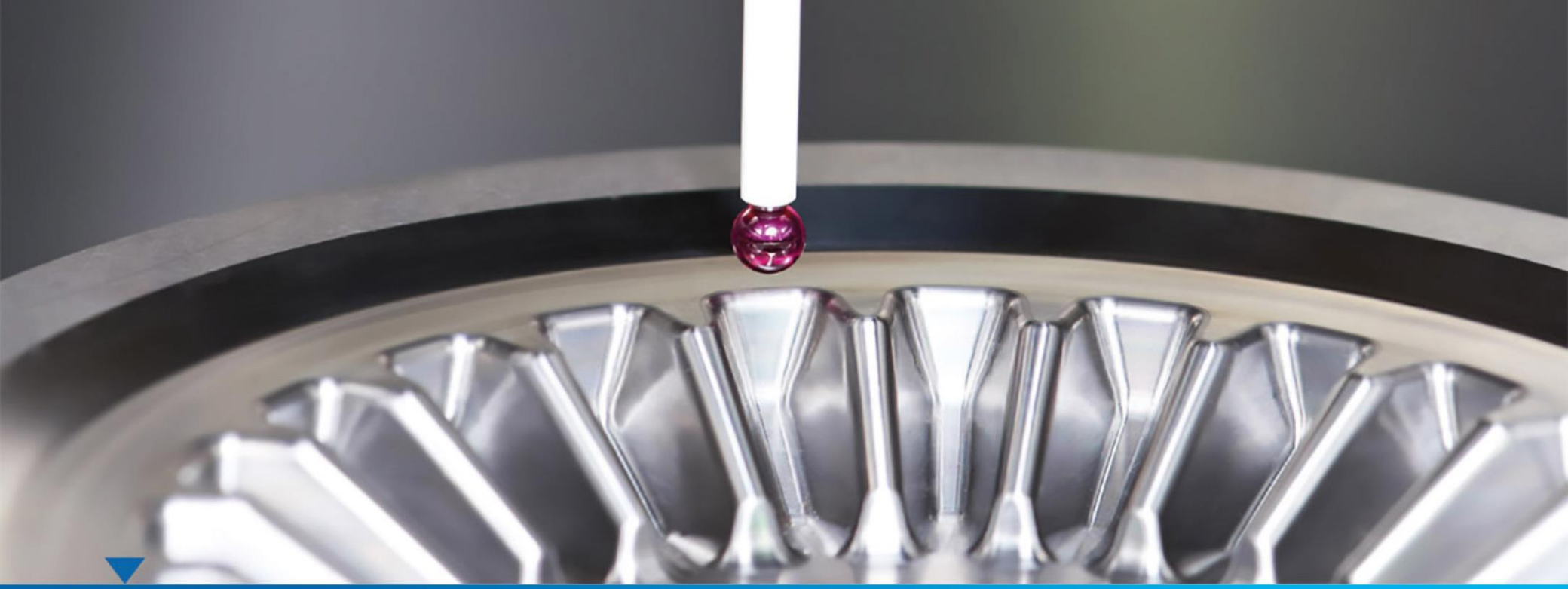


CMI high temperature guarded hot plate

Aleš Blahut, Radek Strnad

EMRP SIB52 Thermo 36M Stakeholder Meeting, NPL, Teddington, 12. 5. 2016

CZECH METROLOGY INSTITUTE

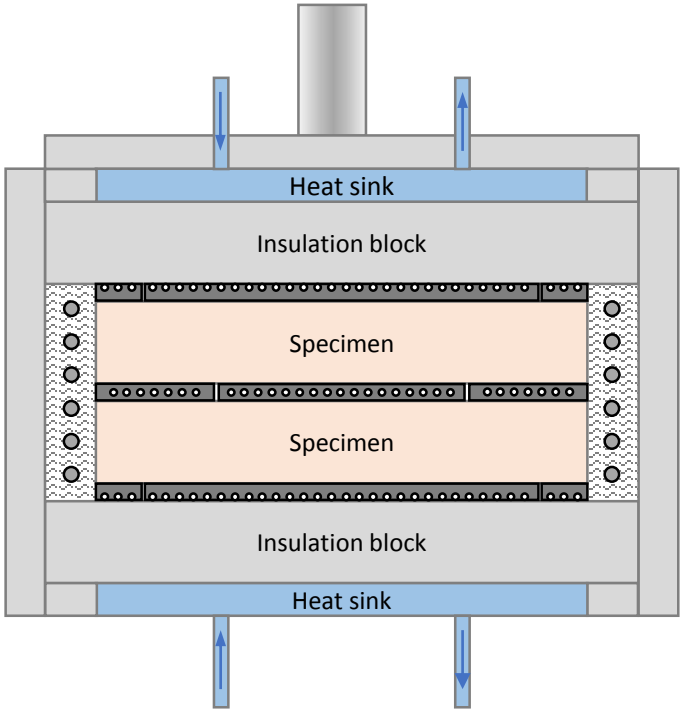
EURAMET

EMRP
European Metrology Research Programme
Programme of EURAMET

The EMRP is jointly funded by the EMRP participating countries within EURAMET and the European Union

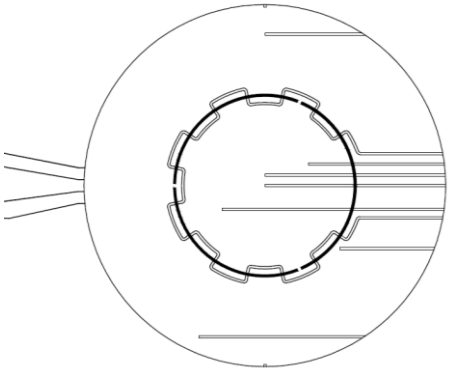
CMI HTGHP, General specifications

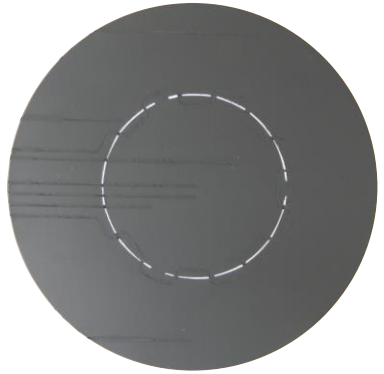
- Double specimen apparatus
- One specimen measurement available
- HP and CP diameter: 306 mm
- Specimen thickness: (18 to 60) mm
- Temperature range: (50 to 850) °C
- Specimen λ: (0.02 to 1) $W \cdot m^{-1} \cdot K^{-1}$
- Adjustable edge heaters (2×3 rings)
- Shunt resistor for power measurement (accuracy 0.02 %, R = 1 Ω)
- El. voltage and el. resistance measurement: DMM HP34401A
- Overall uncertainty: being assessed

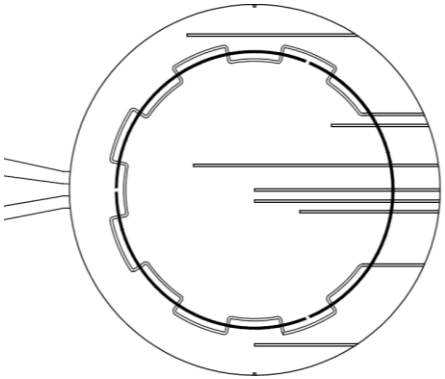


CMI HTGHP, Heater plates

- Material: stainless steel AISI 309
- Coating: VHT Flameproof SP102 Flat black
- Heating wire: Thermocoax MIMS Ni-Cr 80/20
- Hot plate dimensions
  - Overall diameter: 306 mm
  - Metering zone diameter: 150 mm
  - Gap width: 1.8 mm
  - Thickness: 10 mm
- Cold plate dimensions
  - Overall diameter: 306 mm
  - Inner zone diameter: 232 mm
  - Gap width: 1.8 mm







CMI HTGHP, Temperature measurement

- Temperature measurement
  - Thermocouples in heater plate grooves
    - MIMS type S thermocouples (4×2 pcs, diameter 1.5 mm)
    - MIMS type N thermocouples (4×5 pcs, diameter 1.5 mm)
  - Thermocouples for edge heater control
    - MIMS type N thermocouples (6 pcs, diameter 1.5 mm)
  - 4-wire Pt100 sensors in isothermal junction boxes (3 pcs)
- Isothermal cold junction boxes (3 pcs)
- Switchboxes with low parasitic voltage (3 pcs)