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CMI In-house Designed High-Temperature Guarded Hot Plate

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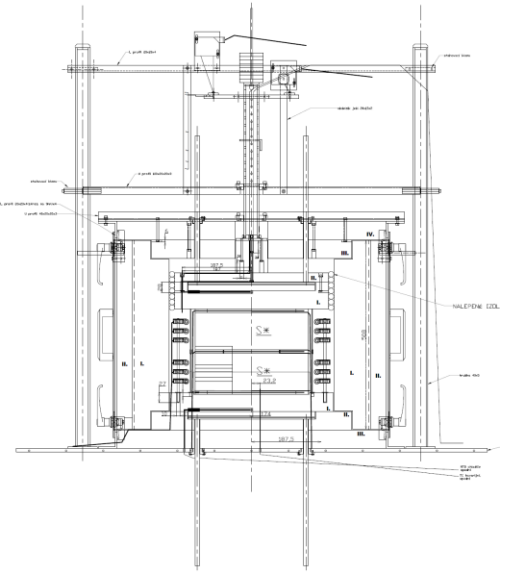
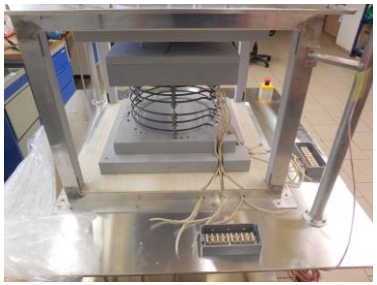
EMRP SIB52 Thermo Stakeholder Meeting
6th November 2014, NPL, Teddington

CMI HTGHP

- Double specimen apparatus
- Sample diameter: 306 mm
- Sample height: (18 to 60) mm
- Temperature range (50 to 850) °C
- λ: (0.02 to 1) $Wm^{-1}K^{-1}$
- Specimen thickness
- ΔT: 40 K
- 3 round edge guard heaters for each specimen
- Adjustable compressive load
- Thickness of specimen measured in-situ by laser distance meter
- Shunt resistor for power measurement (accuracy 0.02%, R = 1 Ω)
- Overall uncertainty: not assessed yet





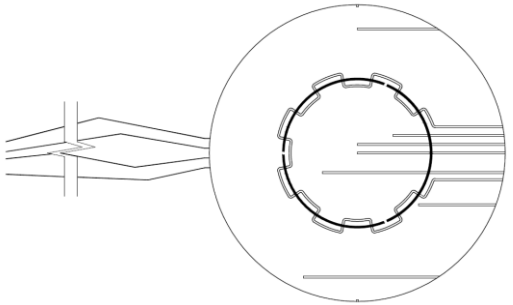
CMI HTGHP

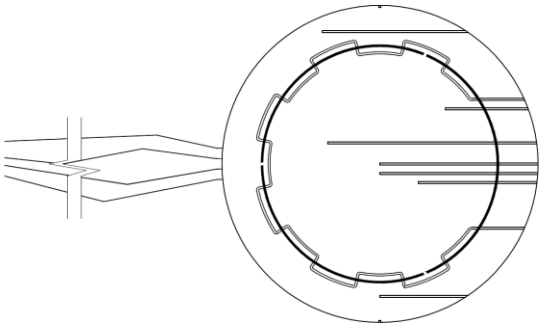
- Hot plate dimensions:
  - Overall lateral: diameter 306 mm
  - Metering section: diameter 150 mm
  - Center-guard gap: 1.8 mm
- Material of plates: stainless steel
- Temperature sensors (placed in grooves):
  - Type N MIMS thermocouple, Ø 1.5 mm

  (plates: 4x5, edge guard heaters: 6, in total: 26 pcs)
  - Type S MIMS thermocouple, Ø 1.5 mm

  (plates: 4x2, in total: 8 pcs)
  - Differential type N thermocouple

  (in total 3 pcs)
- Heaters: MIMS heating wires welded into grooves

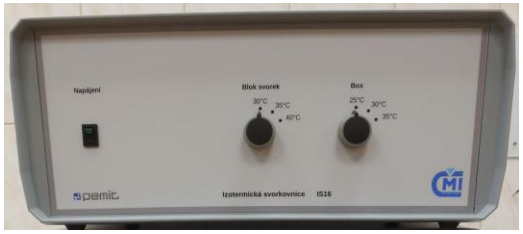




CMI HTGHP

- Adjustable and removable edge guard heaters (2x3 pcs)

- In-house designed temperature-controlled junction box for thermocouples (3 pcs)
  - Temperature monitored by Pt100 sensors
  - Temperature regulated at two places (central aluminum block, inside case wall)



Temperature stability of prototype