CALIBRATION FACILITIES

M390 Cavity Black body:
Range: 500-3000°C,
Accuracy: ±0.25% of reading ±1°C
Stability: ±1°C
Uniformity: ±0.1°C

Pagusus Plus 1200 thermocouple calibrator:
Range: 150-1200°C,
Stability: ±0.05 – 0.2°C

Features of High Heat Flux Diagnostic systems
- Real time data monitoring
- Active Feedback to heat flux test for control and safety purpose
- Sampling rate can be adjusted as per type of experiment
- High Accuracy & repeatability of measured data
- Data can be available in .xls, .csv formats for post processing

Diagnostics of High Heat Flux Test Facility

High Heat flux Measurement Data
- Steady state Heat Flux Measurement data
- Transient Heat Flux Measurement data
- IR Image of Mock up and Tools
- Temperatures showing Uniform Heat flux
- Steady state 100 cycles Measured data

CONTACT
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### HHF TEST PARAMETERS TO BE DIAGNOSED

- Specimen spot surface temperature
- Specimen Bulk Temperature
- Surface temperature Area profiles
- Monitoring of the test object state
- Total absorbed Heat Flux
- Input and Output Coolant temperatures
- Coolant Flow rates
- Critical Heat flux
- Current collected by specimen
- Localized X-ray dose
- Heat Load Pulse duration and Pulse time
- Number of Heatload cycles

### DIAGNOSTICS DEVICE SPECIFICATIONS

**Thermocouples:**
- k type ungrounded (0°C - 1200°C), 1 mm diameter,

**One color pyrometer KLEIBER KMGA 740 LO:**
- Temp Range: 350°C - 3500°C,
- Spectral range: 2.0 ...2.5 μm

**IMPAC Two color pyrometer IGAR12-LO (MB13):**
- Temp. Range: 350°C-1000°C
- Sampling rate: 2 millisecond
- Spectral range: 1.52 μm /1.64 μm

**IMPAC Two color pyrometer ISR12-LO (MB33):**
- Temp. Range: 1000°C-3000°C,
- Sampling rate: 2 millisecond
- Spectral range: 0.8 μm /1.05 μm

**FLIR SC 5200 IR camera:**
- Temp Range: RT-1500°C, 2 – 1000 Fps,
- Frame rate: 320x 256/160 x 128 / 64 x 8 pixels
- Temperature measurement accuracy: ±1 °C or ±1%

**FLIR SC 5200MB IR camera:**
- Temp Range: RT-500, 1000-3000°C, 2 – 1000 Fps,
- Frame Size: 320x 256/160 x 128/64 x 8 pixels
- Temperature measurement accuracy: ±1 °C or ±1%

**Coolant calorimetry:**
- Fast Response RTD Pt 100, 4 mm diameter, 3 - Wire,
- Response less than 1 sec

**Mass Analyzer:**
- Residual Gas Analyzer up to 300AMU

**Photron High Speed Imagining camera (upcoming):**
- Monochrome CMOS sensor
  - 1,280 x 1,024 pixels @ 2,000 fps
  - 640 x 240 pixels @ 10,000fps
  - 12-bit Dynamic Range

**Acoustics sensors for CHF detection (upcoming):**
- Frequency Bandwidth: 5Hz to 300KHz

**Portalok 7s Ultrasonic flow meter:**
- Range: 0.01...25 m/s
- Repeatability: 0.25% of reading +/- 0.02 m/s

**BIDIRECTIONAL CURRENT TRANSDUCER SERIES S273:**
- VOLTAGE SIGNAL: 0 to ±5Vdc FS (Full Scale), ACCURACY: 1% FS

**Safety Devices:**
- X-ray Dosimeter,
- X-ray Area Monitor
- Accuracy: nSv/h