STI Test Facility

Thermal & Vacuum Chambers
- **Cleanroom G1**
  - ISO 8 Class
  - TV Chambers
  - Integration Areas

- **Thermal Laboratory**
  - Laboratory clean
  - Ambient Pressure Testing
  - Cleaning Area (Ultrasonic Cleaning)
GTV

- Dimensions of Cylinder
  - L = 2300 mm
  - Ø = 1500 mm
- Body is heatable/coolable
  - +70°C to -20°C
- AL Radiator Plates inside
  - +200°C to -180°C
  - Black coated (Solar Black by *enbio*)
  - Temp. levels depend on setup
  - Overheating protection
- Feedthroughs DN 320 – 16 (K-, CF-, Kf-)
- Pressure Level
  - p < 1E-5 mbar
  - Roots Pump
  - Turbo-Molecular Pump
- Cold Trap
- Additional measurements possible
  - RGA, TQCM, optical feedthroughs
- Heritage
  - GRACE-FO: LRI - FM
  - ICARUS: Antenna for ISS - FM
  - C-Sat: Solar Panels - FM
  - Sentinel-3: Baffles - FM
KTV

- **Dimensions**
  - 800 x 620 x 320 mm³

- **Cu Radiator Plates inside**
  - +200°C to -180°C
  - Black coated (Solar Black by *enbio*)
  - Temp. levels depend on setup
  - Overheating protection

- **Feedthroughs DN 100 – 16 (K-, Kf-)**

- **Pressure Level**
  - p < 1E-5 mbar
  - Scroll Pump
  - Turbo-Molecular Pump

- **Cold Trap**

- **Additional measurements possible**
  - RGA, TQCM, optical feedthroughs

- **Heritage**
  - GRFO: CESS - FM
  - Diverse Coupons: i.e. Exomars, Euclid
  - JUICE: RIME
  - HSL2: Optical Components
**α/ε-Tube - Solar Simulator**

- **Dimensions of Cylinder**
  - L = 925 mm
  - Ø = 330 mm
- **Viewport for solar simulator**
- **α/ε measurements possible**
- **Feedthroughs DN40 – 16 (Kf-)**
- **Pressure Level**
  - p < 1E-5 mbar
  - Scroll Pump
  - Turbo-Molecular Pump
- **Heritage**
  - GRACE-FO: CESS
- **Equivalent of one solar constant inside chamber, considering all mirrors and viewports**
TMA Chamber

- **Dimensions**
  - 900 x 350 x 240 mm³
- **Made of one block aluminium**
  - Heavy and massive chamber
  - Very homogeneous temperatures inside
- **Heatable from outside**
  - Temperatures up to +100°C
  - Overheating protection
- **Feedthroughs Dn63 – 25 (K-, Kf-)**
- **Pressure Level**
  - p < 1E-5 mbar
  - Scroll Pump
  - Turbo-Molecular Pump
- **With optical viewports**
- **Heritage**
  - GRACE-FO: LRI
Further Measuring

**TQCM** Thermal-Quartzcrystal-Microbalance

- **Function**
  - Measuring the amount of outgassing
- **Applications**
  - Determine the mass of outgassed particles
  - Success criteria for bakeout tests
- **Operation**
  - Comparing the frequency of 2 identical QC’s
    - One has a view factor onto the hardware to other don’t
    - One collects the particles and changes its frequency

**RGA** Residual Gas Analyzer

- **Functions**
  - Measures the type of atoms in the chamber
- **Applications**
  - Determine the outgassed atoms
  - Determine Helium for leakage tests
  - Measure the partial pressure of atoms
- **Operation**
  - Mass spectrometer
Climate Chamber

- Dimensions of Test Cabin
  - 800 x 500 x 600 mm³
- Objects up to 90 kg
- Temperature Range
  - -70°C to +180°C
- Temperature Ramp
  - 2K/min (max.)
- Can be flushed with dry air to avoid humidity on DUT in cold phase
- Chamber control
  - Internal thermal control of introduced air
  - Temperature logging of DUT via PT-1000
  - Automatic cycling
  - Remote Control
  - Alarm settings for hardware protection
Thermal Shock Chamber

- Dimensions of Test Cabin
  - 600 x 500 x 400 mm³
- For Fast Cycling & Shock
  - Life-Cycle Tests
- Temperature Range
  - -180°C to +200°C
- Duration per cycle
  - 4 - 10 minutes
- Chamber Control
  - TRP on device under test (driver)
  - Temperature logging via PT-1000
  - Automatic cycling
  - Remote control
  - Alarm settings for hardware protection
Thank you very much for your attention

If you have any further questions, feel free to get in touch with:

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