



ESA-VSC LABORATORIES

(VALENCIA-SPAIN)

VACUUM AND THERMAL CHAMBERS



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY



VACUUM CHAMBER 1

CHAMBER DIMENSIONS (INTERNAL):

- Diameter: 1200 mm
- Depth: 2700 mm

PRESSURE RANGE:

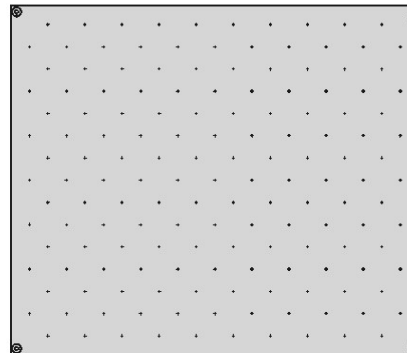
- Maximum: ambient
- Minimum: 10^{-6} mbar
- Pressure profile: manual

TEMPERATURE RANGE (in base-plate):

- Shroud: yes
- Maximum: +135 °C
- Minimum: -70 °C

BASE-PLATE DIMENSIONS:

- Length: 1100 mm
- Width: 930 mm
- Maximum height from base-plate to chamber: 710 mm
- Drill hole pattern: 100 mm x 120 mm
- Drill hole metric: M5



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY



VACUUM CHAMBER 2

CHAMBER DIMENSIONS (INTERNAL):

- Diameter: 595 mm
- Height: 360 mm

PRESSURE RANGE:

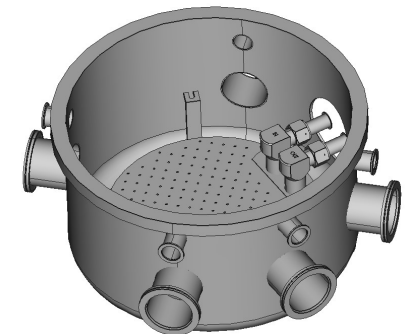
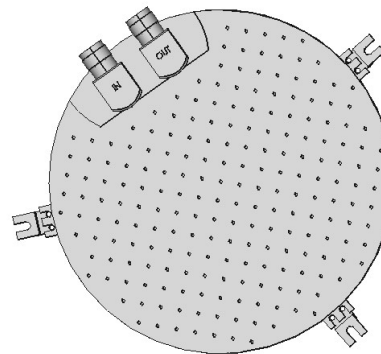
- Maximum: ambient
- Minimum: 10^{-6} mbar
- Pressure profile: manual

TEMPERATURE RANGE (in base-plate):

- Shroud: no
- Maximum: +150 °C
- Minimum: -70 °C

BASE-PLATE DIMENSIONS:

- Diameter: 480 mm
- Maximum height from base-plate to chamber: 290 mm
- Drill hole pattern: 50 mm x 50 mm
- Drill hole metric: M5



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY

VSC[®]
VAL SPACE
CONSORTIUM



VACUUM CHAMBER 3

CHAMBER DIMENSIONS (INTERNAL):

- Diameter: 595 mm
- Depth: 940 mm

PRESSURE RANGE:

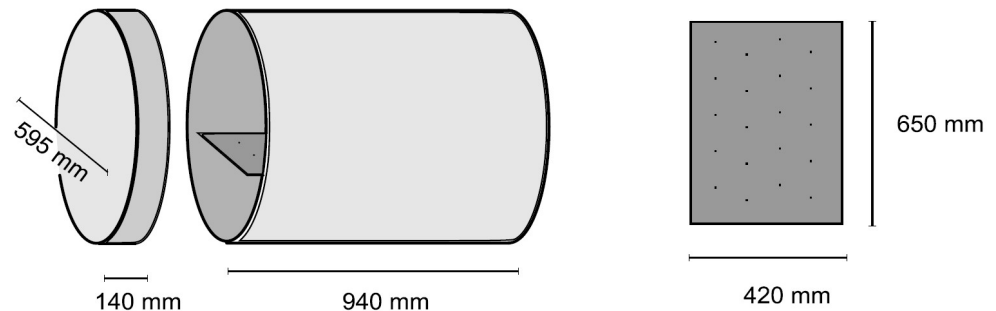
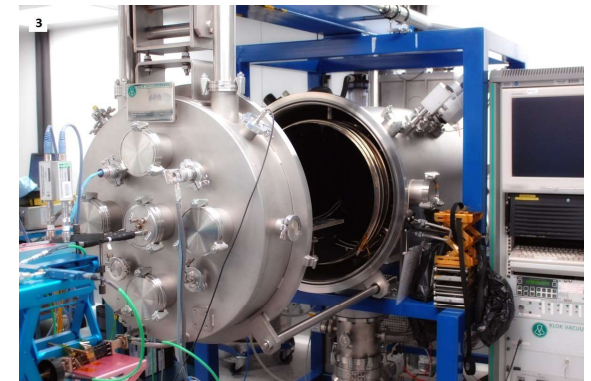
- Maximum: ambient
- Minimum: 10^{-6} mbar
- Pressure profile: programmable

TEMPERATURE RANGE (in base-plate):

- Shroud: yes
- Maximum: +150 °C
- Minimum: -70 °C

BASE-PLATE DIMENSIONS:

- Length: 650 mm
- Width: 420 mm
- Maximum height from base-plate to chamber: 350 mm
- Drill hole pattern: 50 mm x 50 mm
- Drill hole metric: M5



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY



VACUUM CHAMBER 4

CHAMBER DIMENSIONS (INTERNAL):

- Diameter: 830 mm
- Depth: 730 mm

PRESSURE RANGE:

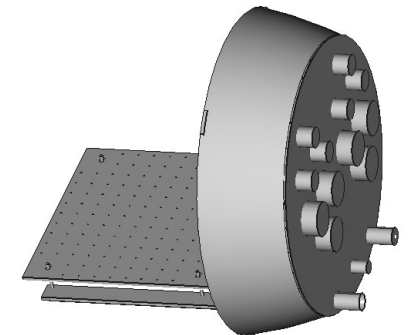
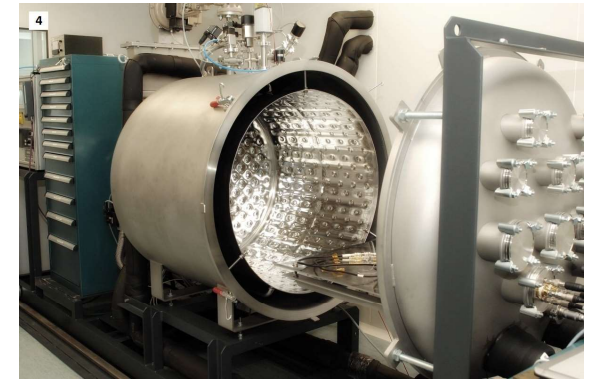
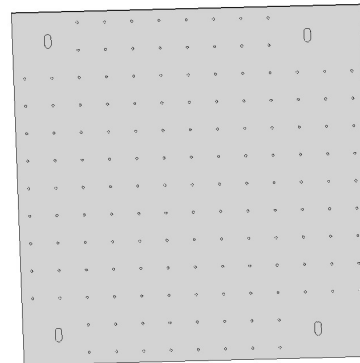
- Maximum: ambient
- Minimum: 10^{-6} mbar
- Pressure profile: programmable

TEMPERATURE RANGE (in base-plate):

- Shroud: yes
- Maximum: +150 °C
- Minimum: -70 °C

BASE-PLATE DIMENSIONS:

- Length: 640 mm
- Width: 640 mm
- Maximum height from base-plate to chamber:
- Drill hole pattern: 50 mm x 50 mm
- Drill hole metric: M5



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY

VSC[®]
VAL SPACE
CONSORTIUM



VACUUM CHAMBER 5

CHAMBER DIMENSIONS (INTERNAL):

- Diameter: 390 mm
- Height: 400 mm

PRESSURE RANGE:

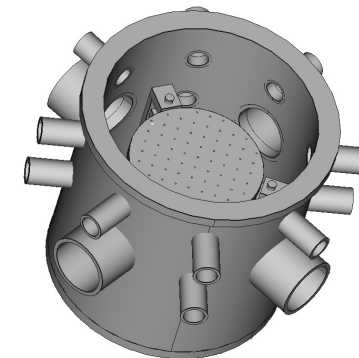
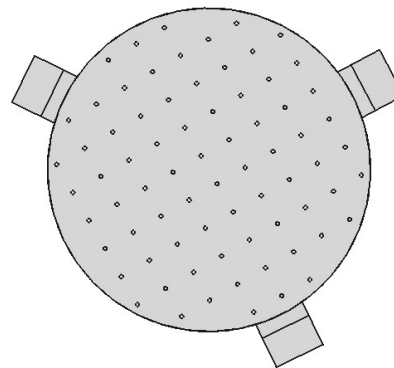
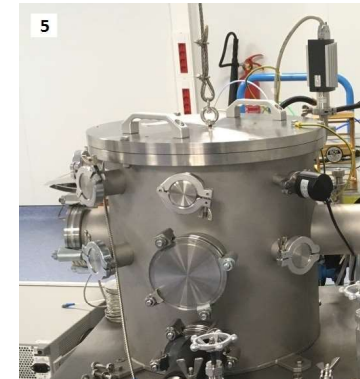
- Maximum: ambient
- Minimum: 10^{-6} mbar
- Pressure profile: manual

TEMPERATURE RANGE (in base-plate):

- Shroud: no
- Maximum: +130 °C
- Minimum: -30 °C

BASE-PLATE DIMENSIONS:

- Diameter: 250 mm
- Maximum height from base-plate to chamber: 250 mm
- Drill hole pattern: 25 mm x 25 mm
- Drill hole metric: M4



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY



VACUUM CHAMBER 6

CHAMBER DIMENSIONS (INTERNAL):

- Diameter: 600 mm
- Height: 295 mm

PRESSURE RANGE:

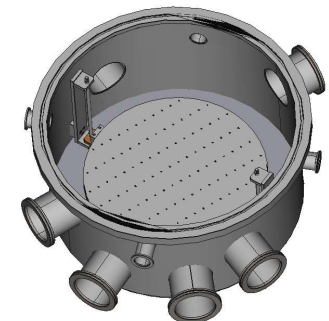
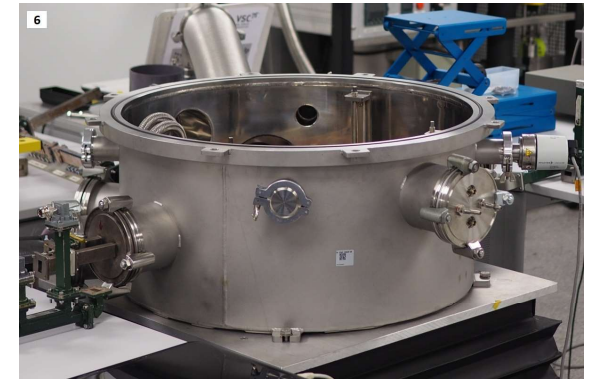
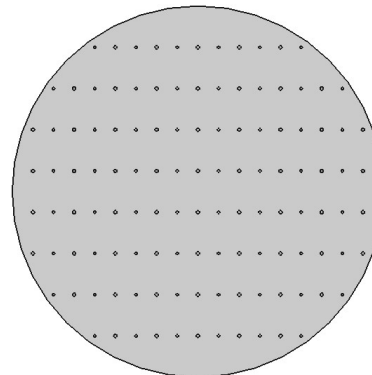
- Maximum: ambient
- Minimum: 10^{-6} mbar
- Pressure profile: programmable

TEMPERATURE RANGE (in base-plate):

- Shroud: no
- Maximum: +80 °C
- Minimum: -30 °C

BASE-PLATE DIMENSIONS:

- Diameter: 440 mm
- Maximum height from base-plate to chamber: 300 mm
- Drill hole pattern: 50 mm x 50 mm
- Drill hole metric: M4&M5 alternated



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY



VACUUM CHAMBER 6 – RF Transparent cap add-on

CHAMBER DIMENSIONS (INTERNAL):

- Diameter: 600 mm
- Height: 1100 mm

PRESSURE RANGE:

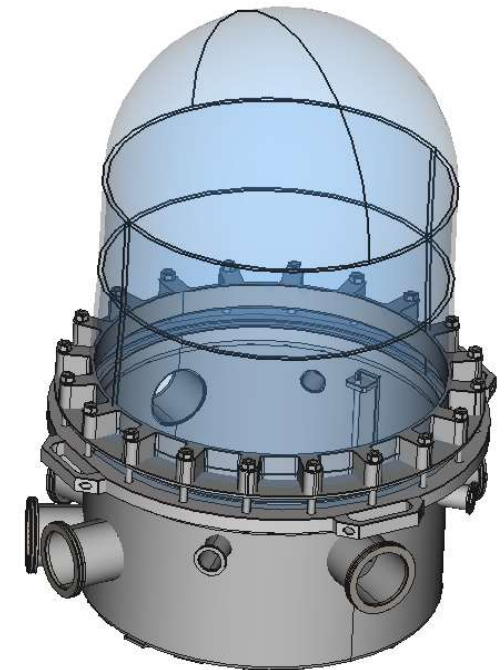
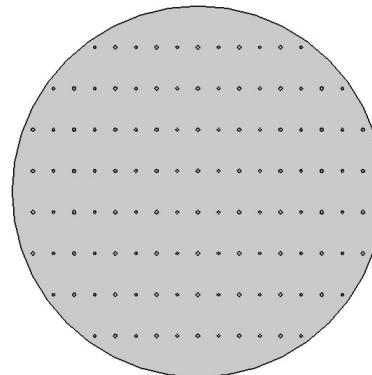
- Maximum: ambient
- Minimum: 10^{-5} mbar
- Pressure profile: programmable

TEMPERATURE RANGE (in base-plate):

- Shroud: no
- Maximum: +80 °C
- Minimum: -30 °C

BASE-PLATE DIMENSIONS:

- Diameter: 440 mm
- Maximum height from base-plate to chamber: 950 mm
- Drill hole pattern: 50 mm x 50 mm
- Drill hole metric: M4&M5 alternated



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY



VACUUM CHAMBER 7

CHAMBER DIMENSIONS (INTERNAL):

- Diameter: 590 mm
- Height: 500 mm

PRESSURE RANGE:

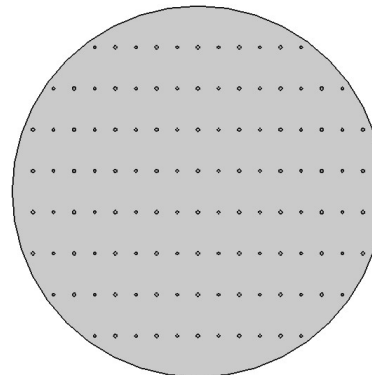
- Maximum: ambient
- Minimum: 10^{-6} mbar
- Pressure profile: programmable

TEMPERATURE RANGE (in base-plate):

- Shroud: no
- Maximum: +150 °C
- Minimum: -75 °C

BASE-PLATE DIMENSIONS:

- Diameter: 480 mm
- Maximum height from base-plate to chamber: 300 mm
- Drill hole pattern: 50 mm x 50 mm
- Drill hole metric: M5



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY



VACUUM CHAMBER 8

CHAMBER DIMENSIONS (INTERNAL):

- Diameter: 600 mm
- Height: 300 mm

PRESSURE RANGE:

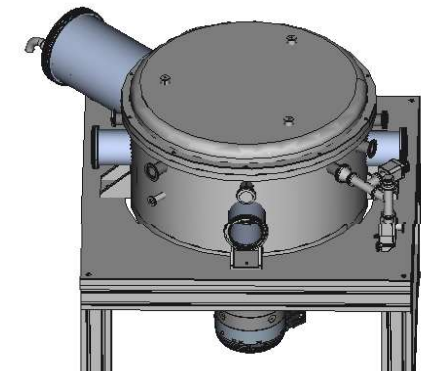
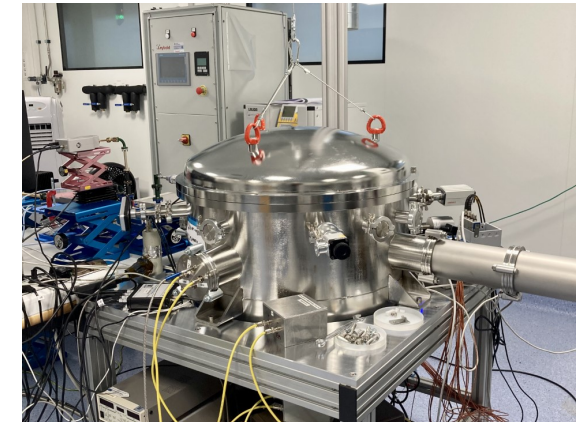
- Maximum: ambient
- Minimum: 10^{-6} mbar (TBC)
- Pressure profile: programmable

TEMPERATURE RANGE (in base-plate):

- Shroud: no
- Maximum: +150 °C (TBC)
- Minimum: -75 °C (TBC)

BASE-PLATE DIMENSIONS:

- Diameter: 550 mm
- Maximum height from base-plate to chamber: 330 mm (TBC)
- Drill hole pattern: 50 mm x 50 mm
- Drill hole metric: M5



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY

CLIMATIC CHAMBER 1



CHAMBER DIMENSIONS (INTERNAL):

- Width: 550 mm
- Height: 550 mm
- Depth: 350 mm

BASE-PLATE DIMENSIONS:

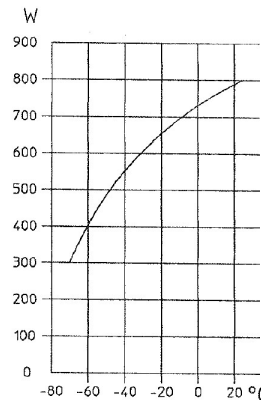
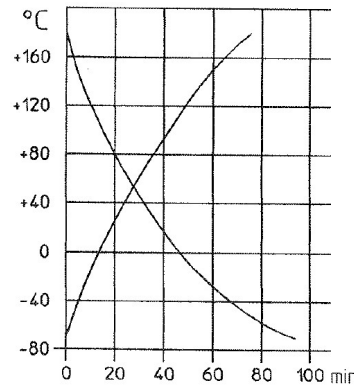
- Size: 500 x 300 mm
- Maximum height from base-plate to chamber: 400 mm
- Drill hole pattern: None

TEMPERATURE RANGE:

- Stability: $< 0.25\text{ }^{\circ}\text{C}$
- Uniformity: $< 2.5\text{ }^{\circ}\text{C}$
- Maximum: $+180\text{ }^{\circ}\text{C}$
- Minimum: $-70\text{ }^{\circ}\text{C}$

HUMIDITY CONTROL:

- Air or dry N_2 injection



ESA-VSC EUROPEAN HIGH POWER RF SPACE LABORATORY

ESA-VSC EUROPEAN HIGH POWER SPACE MATERIALS LABORATORY



IMPORTANT:

**ALL OUR THERMAL VACUUM CHAMBERS ARE INSTALLED IN
CERTIFIED ISO 7 – 10,000 CLASS CLEAN ROOMS**



ESA-VSC LABORATORIES

(VALENCIA-SPAIN)

More information: www.val-space.com

Contact: esa-vsc.labs@esa.int

