

Thermal Vacuum Chamber

CAPABILITY SHEET - SPACE SIMULATION / TVAC - ENGINEERED TO ORDER

THE CHAMBER

WHAT	A thermal vacuum chamber (TVAC) that reproduces two conditions of space at once - hard vacuum $\sim 10^{-6}$ mbar and radiative hot-cold from LN2/GN2 shrouds, -180 to +150 C.
OUR ROLE	Neometrix engineers and integrates the vessel, door and seals, thermal shrouds, LN2 system, pumping train and controls; the high-vacuum pumps and gauges are bought in.
STATUS	Engineered to order; sized to the article and the qualification standard. No specific delivered chamber is claimed on this sheet.

MAKE SPACE

VACUUM	A staged pumping train - rotary/roots roughing then turbo-molecular or cryogenic high vacuum - reaches $\sim 10^{-6}$ mbar; ultimate pressure and pump-down are proven.
RADIATIVE THERMAL	In vacuum there is no air, so heat moves only by radiation: black LN2/GN2 shrouds take the article -180 to +150 C - coverage and emissivity are everything.
CLEANLINESS	Materials outgas in vacuum and condense on cold optics; a bake-out controls contamination, measured as total mass loss (TML) and condensable material (CVCM).

PROVE THE HARDWARE

THERMAL - VACUUM	Thermal-vacuum qualification and thermal cycling under vacuum, with many-channel thermocouple mapping of the whole article - not one convenient point.
THERMAL - BALANCE	A thermal-balance test balances heat in against heat radiated out to predict the temperatures hardware will reach in orbit and validate its thermal model.
SAFETY	Interlocks throughout: no door-open under vacuum, LN2 oxygen-deficiency and cryo-burn guards, over-temp and vacuum-loss trips, controlled repressurise with dry GN2.

SCOPE & ENGAGEMENT

FRANCHISE FIT	The pressure-vessel, thermal and cryogenic competence behind our hyperbaric, climatic and autoclave lines - turned to hold vacuum and radiate heat - for space.
NOT A CLIMATIC CHAMBER	Distinct from a climatic or environmental chamber, which conditions air temperature and humidity at ordinary pressure. This makes space vacuum - and qualifies for orbit.
ENGAGEMENT	Send the article size, vacuum level, temperature range and standard to sales@neometrixgroup.com for a clause-by-clause compliance matrix in two working days.

DEFENCE PROGRAMMES DESK

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