

Aluminium Propellant Tank

- 45 Litre Propellant Diaphragm Tank



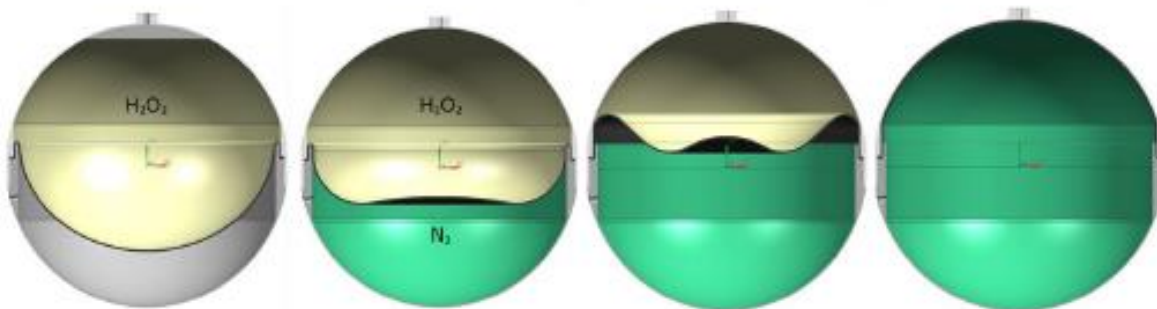
Nammo Space has responded to the growing requirement for demisable tanks required for spacecraft.

The inherent risk of non-demisable Titanium Alloy tanks surviving re-entry and falling to Earth is recognised. Nammo Space has utilised specially developed forging, friction stir and laser welding capabilities at its Raufoss manufacturing facility to create spacecraft propellant tanks in Aluminium Alloy.

Nammo's metallurgists and chemists have carried out analysis and propellant compatibility testing of high strength aluminium alloys with hydrazine derivatives, NTO and hydrogen peroxide.

Using the alloys that pass the selection and mechanical performance criteria, tank shells are forged, machined and assembled with suitable diaphragms and appropriate welding techniques.

The tanks are then proven through a complex and intensive validation and testing regime before being delivered for propulsion system integration.



Filling H2O2

Filled

H2O2 Blowdown

H2O2 Expelled

Evolution of Tank During Operation

Aluminium Propellant Tank

- 45 Litre Propellant Diaphragm Tank

Storage Fluids	87.5% H ₂ O ₂ , HTP, MON, MMH
Pressurant	Nitrogen
Tank Type	Positive Expulsion Device (Diaphragm type)
Useable Propellant Volume	45.5 Litre
Mass	<13 Kg
MEOP	32 bara
Proof Pressure Factor	1.5
Burst Pressure Factor	>2
Expulsion Efficiency	>99%
Blowdown Ratio	≈2.7
Tank Form	Spherical domes with cylindrical mid-section
Dimensions (at interfaces)	Ø490 mm x H 650 mm
External Leakage	10 ⁻⁶ scc/s
Diaphragm Material	Viton
Tank Structure Material	AA6000 series T6
Structural Interface	Equatorial adapters
Fluidic Interface	½" tube stub (propellant side), ⅜" tube stub (gas side)
Operational Cycles	>10
Technology Readiness Level	TRL 5



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