

TANK TYPE DIAPHRAGM	MOUNT Polar Bosses	LOCATION POLAR
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The Ammonia tank is a Light-weight, near-spherical 6Al-4V Titanium Pressure Vessel Used with the ammonia boiler for the Environmental Controls and Life Support System of the Crew Exploration Vehicle. Pressurized regulated helium is applied to the back of the tank causing ammonia to flow from the tank. The tank contains a elastomeric diaphragm that separates the ammonia from the helium.

Part Number 80552-1

SIZE: 16.5" ID x 17.1" Long

SIZE: 419 mm ID x 434 Long

ISO 9001 & AS 9100 REGISTERED

APPLICABLE DOCUMENTS

Acceptance Test Procedure	50-000776
Qual Test Procedure	50-000775
Qualification Test Report	56-000284
Cleaning	CPP 4059
FMECA	

TANK CHARACTERISTICS

Operating Pressure	710 psia @ 120°F	Total Volume, in ³	2390 in ³
Proof Pressure	1065 psia @ 120°F	Propellant Volume, lbs	54 lb _m
Cryo Proof	N/A	Max Design Wt, lbs	17 lb _m
Burst Pressure	1420 psia @ 120°F	Minimum Wall, inch	0.048 in
Actual Burst,	2310 psig @ 60°F	Qual Tank Mass	15.18 lb _m

ACCEPTANCE TESTS

Examination of Product, Preliminary
Pre-Proof Volume Determination
Shell Proof Pressure
Post-Proof Volume Determination
Ammonia Volume Test
Ammonia Flow Rate Test
Internal Leak-Differential Pressure-Internal Leak Test
Pressurant to Ammonia
Internal Leak-Differential Pressure-Internal Leak Test
Ammonia to Pressurant
External Leak Test
Radiographic Inspection
Penetrant Inspection
Determination of Weight and Final Inspection
Cleanliness Verification
Final Examination of Product

TANK CHARACTERISTICS (Metrics)

Operating Pressure	49 bar @ 49°C	Total Volume, l	39.2
Proof Pressure	73.4 bar @ 49°C	Propellant Volume, kg	24.5 kg
Cryo Proof	N/A	Max Design Wt, kg	7.7 kg
Burst Pressure	97.9 bar @ 60°C	Minimum Wall, mm	1.2 mm
Actual Burst	2310 bar @ 60°F	Qual Tank Mass	6.9 kg

HEMISPHERE FORGINGS

HEMI P/N	QTY
80-552061-1	2

RING FORGINGS

P/N	QTY	SIZE
CUT FROM 80-552061-1 FORGING		

TUBE TYPE AND SIZE

6Al-4V Ti Bar	QTY	SIZE
80-552045-5	2	0.250" OD x 0.028" Wall x 2.31" LONG 6.35 OD mm x 0.7112 mm Wall x 58.7 mm Long

QUALIFICATION TESTS

Pressure Cycle
Internal Leak Test (Pressurant to Ammonia)
Internal Leak Test (Ammonia to Pressurant)
External Leak
Vibration
Internal Leak Test (Pressurant to Ammonia)
Internal Leak Test (Ammonia to Pressurant)
External Leak
Flow Rate Test
Radiographic
Dye Penetrant
Differential Pressure Test (Pressurant to Ammonia)
Internal Leak Test (Pressurant to Ammonia)
Differential Pressure Test (Ammonia to Pressurant)
Internal Leak Test (Ammonia to Pressurant)
PED Cycling Test
Internal Leak Test (Pressurant to Ammonia)
Internal Leak Test (Ammonia to Pressurant)
N-Ray Test
Fluid Interface Loads
Dye Penetrant
PED Cycling Test
Burst Pressure and Rupture Test

