



<b>TANK TYPE</b> Diaphragm	<b>MOUNT</b> Flange	<b>LOCATION</b> Girth
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This is a 40-inch oblate spheroid pressure vessel constructed of 6Al-4V titanium. The tank has two elliptical heads welded to a cylindrical center section. The tank contains an internal perforated titanium dome to allow complete reversal of the elastomeric diaphragm. Mounting of the propellant tank is provided by an integral flange around tank girth. This tank was qualified by qualification testing.

**ATK Part Number 80451-1**

**SIZE: 40.85" ID x 41.70" Long Oblate Spheroid**  
**SIZE: 1037.59-mm x 1059.18 mm**

**ISO 9001 & AS 9100 REGISTERED**

APPLICABLE DOCUMENTS	TANK CHARACTERISTICS	QUALIFICATION TESTS
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Acceptance Test Procedure	50-000607
Qualification Test Procedure	50-000606
Qualification Test Report	56-000205
Stress Analysis	308-1
Cleaning	CPP 3957

Operating Pressure, psig	412	Total Volume, ci	38,000
Proof Pressure, psig	619	Prop Mass, lbm	1,000
Cryo Proof, psig	NA	Max Design Wt, lbm	110.0
Design Burst, psig	824	Minimum Wall, inch	0.071
Actual Burst, psig	1,015		

Preliminary Examination of Product
Pre-Proof Volumetric Capacity Test
Proof Pressure Test
Post-Proof Volumetric Capacity Test
Expulsion Efficiency
Internal Leak Test
External Leak Test
Weld Quality Inspection
Mass Measurement
Diaphragm Cycling Test
MEOP Pressure Cycling and Expulsion Efficiency
Internal Vacuum Test
Internal Leak Test
External Leak Test
Vibration Test
Cleanliness Test
Acceleration Test
Internal Leak Test
External Leak Test
Weld Quality Inspection
Burst Test
Data Review

DIAPHRAGM INFORMATION	
Diaphragm P/N	80-263027-1
Diaphragm Mold P/N	T-1868
Diaphragm Gross Wt	7.6 (3.44 Kg)
Diaphragm Matl Type	AF-E-332
Material Spec, Rubber	MT3-73
Diaphragm Processing, Note 2	90-000094
N-Ray Inspection Procedure	N/A

TANK CHARACTERISTICS (Metrics)			
Operating Pressure, Bar	28.41	Total Volume, l	622.7
Proof Pressure, Bar	42.68	Prop Volume, kg	454
Cryo Proof, Bar	NA	Max Design Wt, Kg	49.9
Design Burst, Bar	56.81	Minimum Wall, mm	1.803
Actual Burst, Bar	69.98		

**Notes:**

- 1: Tooling owned by TRW / Lockheed Martin
- 2: Proprietary Document
- 3: Fracture Critical
- 4: This Tank was qualified to 1000 lb. mass of fluid
- 5: Tube protectors are SK 1487

FORGINGS P/N	SUPPLIER	Die No
80-260061-1 (3)		

RING SIZE, (Rough Machined)		
80-451067-1, Cylinder	40.90 +.09 OD x 39.80 -.09 ID x 7.12 +.25 Lg	
80-263065-1, Retainer	40.46 +.09 OD x 39.12 -.09 ID x 1.68 +.09 Lg	
80-263063-1, Cylinder	42.57 +.09 OD x 39.56 -.09 ID x 3.81 +.25 Lg	

TUBE TYPE AND SIZE (in.)	
<b>Ti 3AL-2.5V</b>	<b>SIZE</b>
80-451003-3	.375 OD x .035 wall

TUBE SIZE (mm)	
80-451003-3	(9.525 x .889 mm)

VACUUM RATE	
YES	

**ACCEPTANCE TESTS**

Preliminary Examination of Product
Pre-Proof Volumetric Capacity Test
Proof Pressure Test
Post-Proof Volumetric Capacity Test
Expulsion Efficiency
Internal Leak Test
External Leak Test
Weld Quality Inspection
Final Examination of Product and Mass Measurement
Cleanliness Test
Data Review

