



TANK TYPE Simple PMD	MOUNT Flange	LOCATION Girth	PMD DEVICE Channel
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This is a 42-inch spherical pressure vessel constructed of 6AL-4V titanium. A channel type propellant management device (PMD) is provided to expel NTO under low or zero gravity conditions. Mounting is accomplished by a continuous flange parallel with

ATK Part Number 80484-1

SIZE: 42-inch ID Sphere
SIZE: 1067-mm

ISO 9001 & AS 9100 REGISTERED

APPLICABLE DOCUMENTS	
Acceptance Test Procedure	50-000663
Bubble Point Test Procedure	50-000664
PMD Shell Vibration Test	50-000656
Protoflight Test Procedure	50-000660
Fracture Analysis Plan	54-000247
FMEA	54-000245
PMD Analysis	54-000248
Quality Test Report	56-000223
Acceptance Test Report	56-000228
Cleaning Procedure, Tank	CPP 3991

TANK CHARACTERISTICS			
Operating Pressure, ps	300	Total Volume, ci	39,440
Proof Pressure, psig	375	Prop Volume, ci	39,230
Cryo Proof, psig	600	Max Design Wt, lbs	51.5
Burst Pressure, psig	450	Minimum Wall, inch	0.036

ACCEPTANCE TESTS
Examination of Product
Volume Determination
Proof Pressure Test
Post-Proof Volume Determination
Differential Pressure Drop Test
Drain and Dry Tank
External Leakage Test
Tank Assembly Bubble Point Test
Random Vibration and Sine Test
Tank Assembly Bubble Point Test
External Leakage Test
Weld Quality Inspection
Radiographic Inspection of PMD & Expulsion Assembly
Final Examination of Product
Cleanliness Verification
Preparation of Delivery

TANK CHARACTERISTICS (Metrics)			
Operating Pressure, Bar	20.68	Total Volume, l	646.31
Proof Pressure, Bar	25.85	Prop Volume, l	642.87
Cryo Proof, Bar	41.37	Max Design Wt, kg	23.4
Burst Pressure, Bar	31.03	Minimum Wall, MM	0.914

Notes:

- 1: Tooling owned by ATK
- 2: Original program was Mars Observer (MO)
- 3: Flange has 48 holes
- 4: The PMD design is proprietary to GE/ASD
- 5 Tube protectors are SK-1220 & SK 1221
- 6: Fracture Analysis Plan, 88-045
- 7: Stress Report, PMD, 88-059
- 8: Stress Report, Tank, 88-066A
- 9: Fracture Analysis Report, Tank, 89-005C
- 10: Fracture Critical

FORGINGS

FGGS P/N	SUPPLIER	Die
80-352061-1 (2)		

TUBE TYPE AND SIZE

TITANIUM	SIZE
80-352001-5, Inlet	.375 OD x .035 Wall
80-352002-5, Outlet	.500 OD x .028 Wall

TUBE TYPE AND SIZE (Metrics)

TITANIUM	SIZE
80-352001-5, Inlet	9.52 OD x .88 Wall
80-352002-5, Outlet	12.7 OD x .71 Wall

QUALIFICATION TESTS
Examination of Product
Pre-Proof Volumetric Capacity
Proof Pressure Test
Post-Proof Volumetric Capacity
Differential Pressure Drop Test
External Leakage Test
Bubble Point Test
Sine and Random Vibration Test
Bubble Point Test
External Leakage Test
Dye Penetrant Inspection
Radiographic Inspection - Girth weld only
Radiographic Inspection - PMD
Final Examination of Product & Mass Measurement
Cleanliness Verification & Packaging

