



TANK TYPE	MOUNT	LOCATION	PMD DEVICE
Simple Pmd	Tabs	Girth	Channel, Trap & Screen

This tank assembly is a hemispherical pressure vessel of all welded construction. It is mounted by 32 circumferential tabs with nut plates located on one of the hemispheres near the girth weld joint. The tank contains an internally-mounted propellant management device (PMD), with perforated sheet & woven screen, fabricated to maintain separation of liquid propellant & gaseous pressurant, & to provide predictable gas-free liquid propellant expulsion from the tank under low or zero gravity conditions.

ATK Part Number 80366-1

SIZE: 48.9-inch ID Sphere
SIZE: 1242 mm

ISO 9001 & AS 9100 REGISTERED

APPLICABLE DOCUMENTS	
Acceptance Test Procedure	50-000404
Qualification Test Procedure	50-000405
Protoflight Test Procedure	50-000406
Bubble Point Test Procedure	50-000407
Materials List	54-000126
Processes List	54-000127
Ring Forging Qualification Report	55-000077
Qualification Test Report	56-000157
Cleaning, PMD	CPP 3546
Cleaning, Tank	CPP 3723

TANK CHARACTERISTICS			
Operating Pressure, psig	250	Total Volume, ci	61,028
Proof Pressure, psig	313	Prop Volume, ci	61,028
Cryo Proof, psig	430	Max Design Wt, lbs	73.2
Burst Pressure, psig	375	Minimum Wall, inch	0.031

ACCEPTANCE TESTS
Preliminary Inspection of Product
Mass Measurement
Pre-Proof Volumetric Capacity
Ambient Proof Pressure, Visual Inspection
Post Proof Volumetric Capacity
Cryogenic Proof Pressure
Visual Inspection and Post Proof Volumetric Capacity
External Leakage Test
Bubble Point Test
Sine and Random Vibration
Visual Inspection
Expulsion Test
Bubble Point Test
External Leakage Test
Radiographic Inspection
Dye Penetrant Inspection
Cleanliness Check
Data Review

TANK CHARACTERISTICS (Metrics)			
Operating Pressure, bar	17.24	Total Volume, l	1,000.08
Proof Pressure, bar	21.58	Prop Volume, l	1,000.08
Cryo Proof, bar	29.65	Max Design Wt, Kg	33.20
Burst Pressure, bar	25.85	Minimum Wall, MM	0.787

Notes:

- 1: Tooling owned by ATK
- 2: Similar to 80363 & 80367 except no center section
- 3: Brunswick Wintec Proprietary*
- 4: Tube protectors are SK 1314 & SK 1315
- 5: Stress Analysis, Tank, 92-059A
- 6: Fracture Mechanics Analysis(Foster), 92-061A
- 7: Stress Analysis, PMD (Foster), 93-011
- 8: Fracture Critical

FORGINGS		
FORGINGS P/N	SUPPLIER	Die
80-363061-1 (2)		
RING FGG	RING SIZE, (Purchased Rough Machined)	
80-363065-1, Tab	49.75 +/- .06 OD x 48.31 +/- .06 ID x 3.19 +/- .09 Lg	
80-363069-1, Trap	12.87 +/- .06 OD x 8.25 +/- .06 ID x 2.87 +/- .09 Lg	
80-363067-1, Chnl	48.83 +/- .12 OD x 42.63 +/- .12 ID x 3.00 +/- .06 Lg	

TUBE TYPE AND SIZE	
TRANSITION	SIZE
80-363001-1 (2)	500 OD x .028 Wall (12.7 x .711 MM)

QUALIFICATION TESTS
Preliminary Inspection of Product
Mass Measurement
Pre-Proof Volumetric Capacity
Ambient Proof Pressure Test
Post Proof Volumetric Capacity
Cryogenic Proof Pressure Test
Post Proof Volumetric Capacity
External Leakage Test
Cleanliness Verification
Bubble Point Tests
Proof Pressure Cycle Test
MEOP Cycle Test
External Pressure Cycle Test
Expulsion Test
External Leakage Test
Final Inspection of Product
Cleanliness Verification
Bubble Point Tests
Burst Test
Data Review

