FACT SHEET

SCORPIUS®
SPACE LAUNCH COMPANY

THE SAPPHIRE 77 SERIES

PRESSURMAXX®

ULTRA LIGHT — SUPER STRONG — UNMATCHED VALUE

10”x16” cryogenic pressure vessel, 0.7-cuft volume, 1000-psi burst, 2.5-lb weight

***SAPPHIRE* 77 state-of-the-art unibody all-composite construction with seamless carbon fiber boss integration. Proprietary *SAPPHIRE* 77 cryogenic resin system with expanded performance range.**

FEATURES

- All-composite technology
- Carbon fiber polar bosses
- Unibody construction
- *SAPPHIRE* 77 resin system
- Unmatched weight/performance
- Superior robustness
- Low thermal and pressure expansion ratios
- Compatible with LOX, LN2, petroleum- or alcohol-based fuels, methane
- Available as commercially listed line item at fixed price
- Integrated attachment features available

APPLICATIONS

- Propulsion systems
- Pressurization systems
- Oxygen & air supplies
- Cryogenic fluids
- Launch vehicles
- Spacecraft, satellites
- Lunar and Mars lander vehicles
- Aircraft, commercial/military*
- Man-carried breathing apparatus*
- Unmanned aerial vehicles
- Medivac vehicles*
- Special ops diving*

American Composites Manufacturers Association
ACMA
2006 WINNER
Award for Excellence and Innovation in Composites Engineering

* pending human rating certification

SAPPHIRE 77 SERIES CRYOGENIC TANKS

10" Diameter All-Composite Cryogenic Tank

Tank Diameter (in)	Length (in)	Operating Pressure (psi)	Boss Material	Wall Thickness (in)	Weight* (lbs)	Volume (ft^3)	Volume (in^3)	Safety Factor (-)	PV/W* (10^6 in)
10	16	250	Carbon Fiber	0.08	3.1	0.70	1,210	2.0	0.20
10	16	500	Carbon Fiber	0.09	3.4	0.70	1,210	2.0	0.36
10	16	1500	Carbon Fiber	0.14	5.5	0.70	1,210	2.0	0.66
10	16	3000	Carbon Fiber	0.16	6.1	0.70	1,210	2.0	1.20
10	24	250	Carbon Fiber	0.08	4.3	1.00	1,728	2.0	0.20
10	24	500	Carbon Fiber	0.09	4.7	1.00	1,728	2.0	0.37
10	24	1500	Carbon Fiber	0.14	7.7	1.00	1,728	2.0	0.67
10	24	3000	Carbon Fiber	0.16	8.5	1.00	1,728	2.0	1.2

25" Diameter All-Composite Cryogenic Tank

Tank Diameter (in)	Length (in)	Operating Pressure (psi)	Boss Material	Wall Thickness (in)	Weight (lbs)	Volume (ft^3)	Volume (in^3)	Safety Factor (-)	PV/W (10^6 in)
25	59	250	Carbon Fiber	0.08	25	14.3	24,757	2.0	0.49
25	59	500	Carbon Fiber	0.12	36	14.3	24,757	2.0	0.68
25	59	3000	Carbon Fiber	0.29	91	14.3	24,757	2.0	1.6

42" Diameter All-Composite Cryogenic Tank

Tank Diameter (in)	Length (in)	Operating Pressure (psi)	Boss Material	Wall Thickness (in)	Weight (lbs)	Volume (ft^3)	Volume (in^3)	Safety Factor (-)	PV/W (10^6 in)
42	136	250	Carbon Fiber	0.08	96	97.5	168,480	2.0	0.9
42	136	500	Carbon Fiber	0.13	160	97.5	168,480	2.0	1.1
42	136	3000	Carbon Fiber	0.45	540	97.5	168,480	2.0	1.9

53" Diameter All-Composite Cryogenic Tank

Tank Diameter (in)	Length (in)	Operating Pressure (psi)	Boss Material	Wall Thickness (in)	Weight (lbs)	Volume (ft^3)	Volume (in^3)	Safety Factor (-)	PV/W (10^6 in)
53	170	250	Carbon Fiber	0.08	150	196	38,688	2.0	1.1
53	170	500	Carbon Fiber	0.17	240	196	338,688	2.0	1.4
53	170	3000	Carbon Fiber	0.55	1050	196	338,688	2.0	1.9

* Estimated values with IM7

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Other Sizes Available
Please Visit Our Website

POINT OF CONTACT

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