

# ***PRESSURMAXX Tanks***

***On the Moon -- February, 2024***

***Meeting your Current &  
Future mission needs***



Similar to All-composite  
Pressurmaxx tanks  
currently on the Moon

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- **The SSLC PRESSURMAXX tanks are the first (and currently only) commercial/industrial tanks on the Moon**
- **Type V linerless, all composite tanks are at a TRL of 9**
- **Lighter -- Can reduce the mass relative to metal tanks by approximately 50% (depending on application)**
- **Stronger -- Can serve as the primary structure of your vehicle, further reducing mass, parts count, and risk while increasing strength**
- **Quicker – They are room temperature cured and do not need an autoclave, vacuum processing, or autofrettage**
- **Fully qualified for spaceflight – they have passed over 150 tests by NASA, the launch vehicle, and the spacecraft manufacturer**
- **Cost competitive – comparable or lower cost than traditional tanks**
- **The tanks can hold multiple cryogenic gasses or liquids including oxygen, nitrogen, and methane**

**PRESSURMAXX: TRL-9, improved strength, & dramatically reduced mass, risk, and schedule. Let PRESSURMAXX tanks become your vehicle structure.**



# Can PRESSURMAXX Meet Your Application Needs?



- **Most tanks are built to the specs of the user, within the following constraints:**
- **Size**
  - **5 inch to 62 inch diameter**
  - **10 to 170 inch length**
- **Operating Pressure: 50 psi to 3,000 psi (we have factor of 2 margin above this)**
- **Lifetime: Greater than 10 years**
- **Content: oxygen, nitrogen, helium, methane (hydrogen tanks available for testing)**
- **Can serve as the primary structural element of your vehicle**
- **Can have interior baffles or external structure added as a part of the tank construction**
- **Our goal is to make this work for you to meet your needs and change how space systems are built and work**

**To look at your specific applications and issues,  
contact Markus Rufer at [mrufer@smad.com](mailto:mrufer@smad.com)**



**PRESSURMAXX Tanks are the first commercial tanks on the Moon**

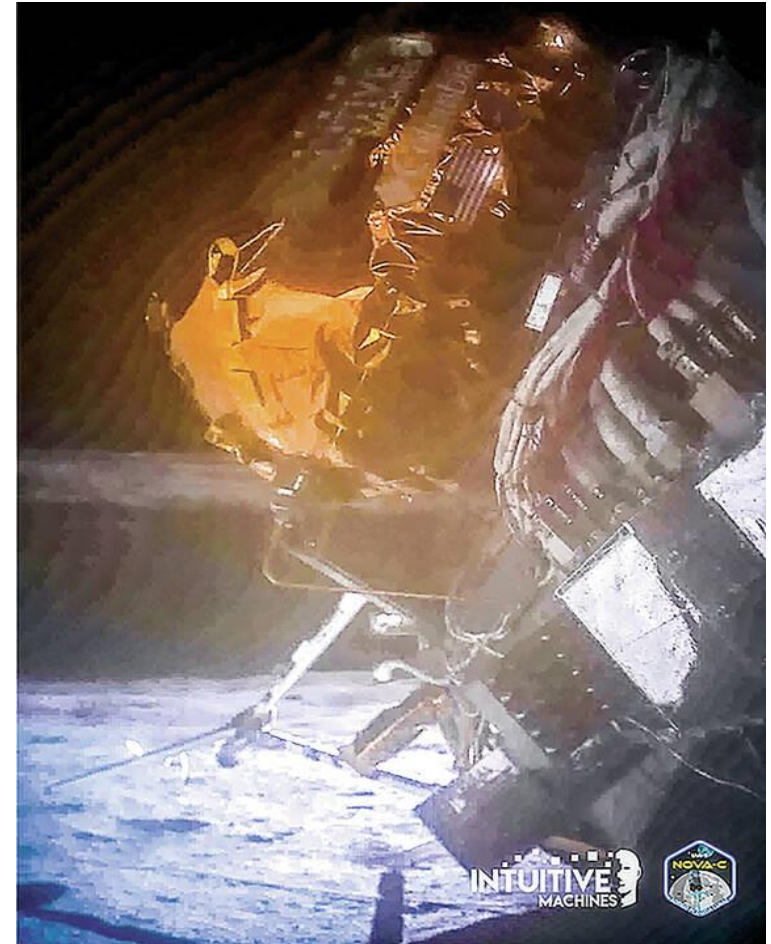


**An historic mission:**

**IM-1 launched 2/15/24, Landed at Lunar South Pole/Malapert A Crater 2/22/24**



**Tanks in the IM-1 Spacecraft**



**On the Moon.**

**PRESSURMAXX Tanks were 100% successful.**



# PRESSURMAXX Tanks are Remarkably Strong



American Composite Manufacturers Association Award for Excellence and Innovation in Composites Engineering



Key technologies are patented and/or trade secret



The tanks are open and unpressurized. However, look closely at the photo. The truck wheelbase is longer than the flat portion of the tanks. The truck is resting entirely on just the skirts at the tank ends.

The light-weight, all-composite cryogenic propellant tanks increase the Microcosm payload to orbit by 35%, with no increase in cost — the biggest single improvement in cost per pound to orbit that we are aware of in the history of the space program.

Metal boss (below) has different coefficient of thermal expansion (CTE) than the composite tank and weighs 12.7 kg



All-composite boss performs better than the metal boss and weighs only 1.5 kg



The all-composite boss has identical thermal and physical characteristics as the rest of the tank. There is no potential for leakage or separation, irrespective of temperature.



**NanoEye spacecraft with the propellant tank as the primary spacecraft structure.**

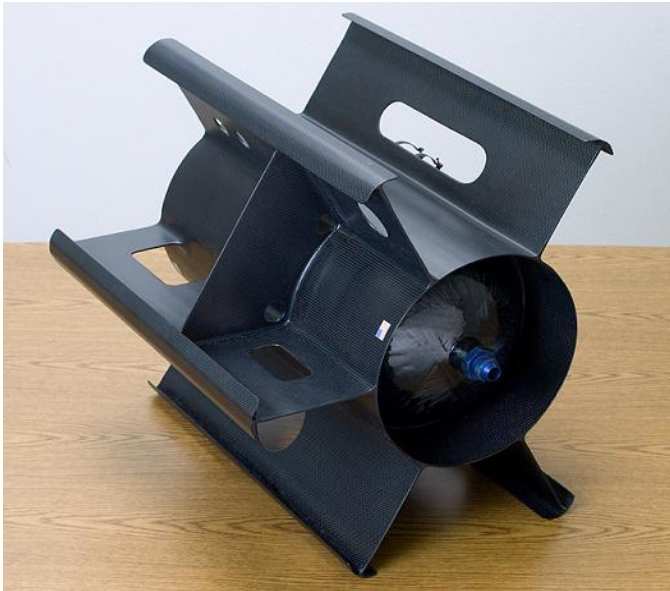


**SR-M suborbital. All Scorpius suborbital and orbital launch vehicles use the tanks as the primary structure.**

- **The strength of the tank allows us to use the tank itself as the structure of the spacecraft or launcher and entirely eliminate secondary structures and the outside “walls” of the spacecraft or launch vehicle**

**Using the PRESSURMAXX tanks as the spacecraft or launch vehicle structure dramatically reduces the dry weight which greatly increases performance.**

- Additive manufacturing techniques for integrated features such as skirts or circumferential or longitudinal stringers BOTH outside and inside the tank



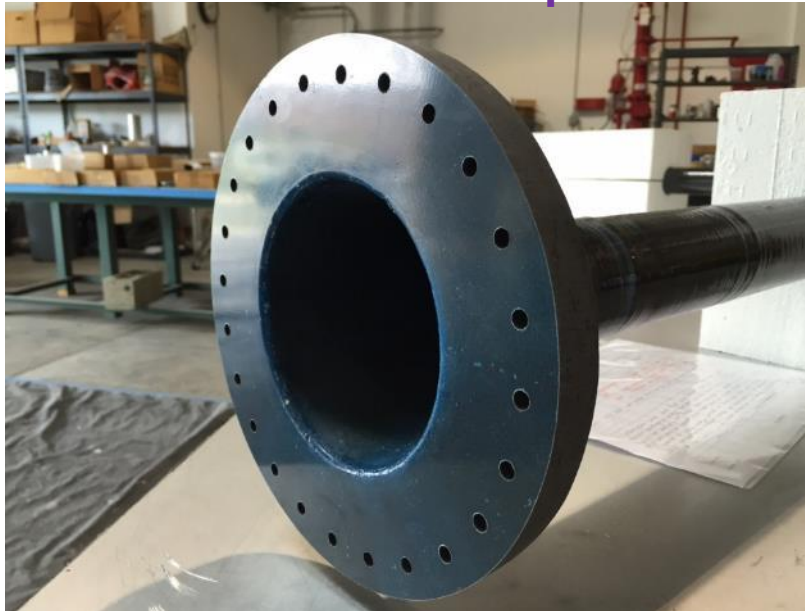
**Features are NOT externally attached. They are built as an integral part of the tank itself – This improves reliability and reduces mass**



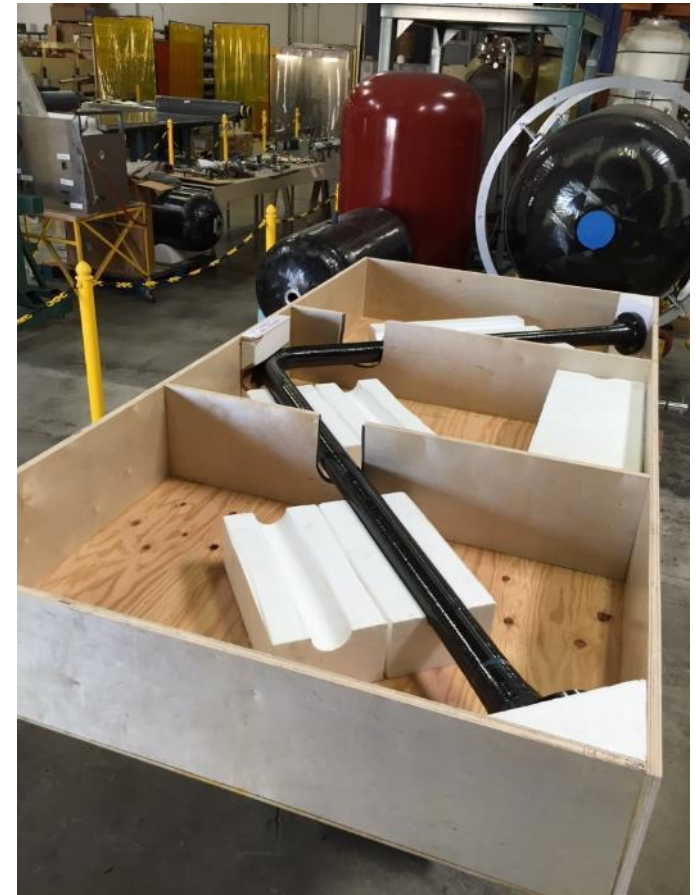
3,000 psi fluid line



550 psi LOX line



LOX down comer





# Thank You

For information on tanks, structures, and other space components:

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