Steelhead Composites is a world-class advanced manufacturing company based in Golden, Colorado USA. We are dedicated to the design, manufacturing and testing of lightweight composite pressure vessels used in weight-sensitive energy, gas and fuel storage applications. Steelhead offers a full array of technical services in pressure vessel design, metal spin forming, filament winding, prototyping and testing.
Steelhead Composites’ talented engineering, design and manufacturing teams ensure your project is in great hands. With in-house design, manufacturing and testing, Steelhead is a one-stop-shop for your pressure vessel needs.

- Ability to fabricate seamless metallic liners and vessels out of aluminum, steel, stainless steel and titanium.
- The patented “Steelhead” on our products enables robust large port fittings enables industry standard fittings, in-tank regulators and variable port sizes and materials.
- Material selection & proprietary winding patterns allows for multi-environment durability and added structural integrity.
- Pressure vessel volumes from 500ml to 270L (0.1 gallon to 70 gallons) across all pressures.
- Sophisticated modeling and design tools and know-how.
- Fully digital shop floor – work instructions, quality system, paperless travelers all allow for easy duplication and expansion.

**Company Data**

- **DUNS:** 078762693
- **NAICS:** 332420
- **Quality System:** AS9100 Rev D, ISO 9001-2015
- **Certifications:** CE, DOT, DNV GL, ABS, EC-79
- **Patents:**
  - Integrating materials for thermal compensation
  - Telematics enabled vessels
  - Composite piston accumulator with serviceable piston
  - Diaphragm accumulator design
  - Bi-metallic polar boss

**AEROSPACE and DEFENSE EXPERIENCE**

**Engineering / Design Services:** Full composite structure design & analysis, metallic & composite structures, finite element analysis and computational fluid dynamics.

**Product Based Projects:** Lightweight pressure vessels for compressed gases such as nitrogen, hydrogen, xenon, oxygen, and various corrosive gases/chemicals.

**Contract Service Based Projects:** Metallic liner manufacturing, filament winding, composite manufacturing and testing.

**WWW.STEELHEADCOMPOSITES.COM**

**CONTACT US**

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The Hydrogen Cube

Fully Plumbed, 8kg or 18kg
Hydrogen Drop & Swap Storage and Delivery Solution

Fuel Cell Ready
Perfect for EV Fleet refueling, remote electricity, emergency backup power

Integrated Solution
- Deliverable
- Durable
- Swappable
- Fraction of cost of batteries
- Easy and rapid refilling
- Compact ease of transport
- Safe to handle

STEELHEAD COMPOSITES and EPC

STEELHEADCOMPOSITES.COM
Overview

The Hydrogen Cube offers a cost-efficient module for deliverable, swappable gaseous H2 storage. When empty, the Hydrogen Cube can easily be swapped with a full unit; the empty Cubes are taken to a filling station or gas company to be refilled.

- Swappable modules mean no downtime
- Agnostic to fuel cell, compressor or electrolyzer
- Significantly cheaper and lighter than batteries for the same amount of energy storage
- Allows reliable electricity, with plug-and-play fuel cell, in places without adequate grid power (e.g. EV fleet or emergency needs)

Benefits

- A single Hydrogen Cube could recharge a small fleet of electric fleet vehicles
- A single Cube could store enough energy to power a small home for a month
- A single Hydrogen Cube could provide backup for life support systems
- A medium sized flat-bed pickup truck could easily deliver multiple Cubes

Business models:

- Distributed grid model -- own the cubes and fuel cell, bill customers at a per kWh rate for electricity used
- Module replacement model -- own the cubes, customer buys fuel cell, bill customer per kg of H2 used
- Customer owned model -- customer owns cubes and fuel cell, swap cubes with filled cubes when empty at fixed cost.

Dimensions:

8kg H2 storage (4 x 90L tanks): 1.2M H x 1.1M W x 1.6M L
18kg H2 storage (9 x 90L tanks): 1.6M H x 1.6M W x 1.6M L
Composite bladder accumulators are a light weight version of traditional steel bladder accumulators. Steelhead’s composite bladder accumulators can be serviced through the wide mouth opening just like traditional bladder accumulators. The metallic/composite construction of the shell reduces the total accumulator weight significantly. Steelhead’s accumulators have a “steelhead” interface that allows for traditional steel fluid port connections.

**POSSIBLE CAUSES:**

- **Old Technology:**
  
  Do you have an heavy steel accumulator on your system?

- **More Capacity:**
  
  Do you want to lightweight your system to put more equipment on your vehicle?

- **Incomplete System:**
  
  Do you not have an accumulator on your system due to weight?

- **Fluid Power:**
  
  Does your vehicle have a hydraulic system?
LIGHTWEIGHTING SOLUTIONS
Onboard Hydraulic Systems

REPLACE A STEEL ACCUMULATOR

FOR A LIGHTWEIGHT SOLUTION

OUR SOLUTION:

One-third to one-forth the weight of traditional steel accumulators

Customizable sizes to fit space restraints

Add more power by doubling or tripling accumulator volume at the same weight.

Weight reduction allows vehicle to carry more supplies

Visit www.steelheadcomposites.com for more information

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**Andrew Coors**

**CEO**

Mr. Coors is the founder and CEO of Steelhead Composites LLC. Previously, he was Principal at 9th Street Capital, a venture capital and private equity fund.

Mr. Coors spent 6 years as Corporate Economist and Investment Strategist at Qualcomm Incorporated, a Fortune 500 company. Prior to joining Qualcomm, for 5 years he served as the Director of Research at Laffer Associates, a money management and institutional economic research and consulting firm. He serves on various corporate Boards and has received numerous awards in industry including being named one of Treasury and Risk magazine '40 under 40' Upwardly Mobile Finance Execs in 2007.

Mr. Coors is a CFA Charterholder. He holds a M.S. in Economics from the University of California, San Diego and a B.S. from Colorado State University.

**Dr. Kaushik Mallick**

**Director of Engineering**

Dr. Mallick is a recognized industry expert in designing all composite, metal/composite and plastic/composite structures. He has extensive experience in designing high pressure storage tanks for gaseous hydrogen (H2) and compressed natural Angas (CNG). Dr. Mallick acts as Director of Engineering at Steelhead Composites where he is developing high pressure hydraulic accumulators and gas transport vessels.

Dr. Mallick was a Senior Engineer at Quantum Technologies in Irvine, California, where he led the technical team for design and development of composite pressure vessels. This resulted in the world’s first certified Type IV composite tanks for storage of gaseous hydrogen at 350 bar and 700 bar service pressure for fuel cell cars. He was also involved in optimizing the design of lightweight composite fuel tanks for the NASA’s Helios fuel cell aircraft.

Dr. Mallick holds a Ph.D. in Mechanical Engineering from Arizona State University, an M.S. in Mechanical Engineering (1990), University of Michigan, and a B.S. in Mechanical Engineering (1988), Indian Institute of Technology.

**John Cronin**

**Director of Operations**

Mr. Cronin has dedicated 13 plus years to the design, manufacturing and process engineering of composite structures. His extensive background across the composite pressure vessel, lighting and wind energy industries has led to at least two patent or two patents pending for technologies relating to composite pressure vessels. He currently serves as the Director of Operations at Steelhead Composites, where he oversees and manages the day to day operations of sales, product development and manufacturing.
Michael Stewart
Product Development Manager

Mr. Stewart joined Steelhead Composites as a Production Engineer in 2014, with a Master’s Degree in Civil and Environmental Engineering (University of Colorado at Boulder) and a Bachelor’s Degree in Mechanical Engineering (Colorado State University). Michael’s previous professional experience has been focused towards composite materials, from hand lay up of custom composite parts, to mold design and manufacture, as well as composite material characterization and resin development.

Areas of specialization at Steelhead Composites include metal spinforming, pressure vessel testing, and new product development.

Curt Honcharick
Director of Quality

Mr. Honcharik has spent a combined 10 years supporting the manufacturing of composite components in the aerospace, wind turbine and pressure vessel industries with a specific focus on quality and compliance. He has implemented and managed multiple quality systems conforming to industry standards such as AS9100 and ISO 9001.

Mr. Honcharik has also worked extensively with 3rd party auditors from domestic and international agencies to qualify products in accordance with federal regulations and has managed multiple certifications programs.

Marisa Veni Sundy
Director of Business Development

Mrs. Sundy has extensive experience (12+ years) in opening new markets in Europe, Middle East, Asia and South America across multiple product lines and industries. Her industry experience includes Oil & Gas, Fluid Power / Gas Storage, Pharmaceuticals, Legal Marketing & PR and Higher Education.

As the Director of Business Development, she develops intricate market analyses to formulate and institute strategic business and growth plans in accordance to corporate goals. She also provides support to strategic accounts to ensure all programs meets customer expectations.

Mrs. Sundy is a Drexel University Co-Op Graduate and carries the honor as the youngest elected member to the Drexel University Board of Governors.

Steven C. Arzberger
Director of Technical Business Development

Dr. Arzberger has nearly 20 years-experience in small business including a prolific track record in U.S. government contracting and technological innovation-based economic development. His
experience spans numerous technology platforms serving the Oil & Gas, Aerospace, Defense, Energy and Medical markets.

As the Technical Director of Business Development, he is responsible for leadership, technology management and business development.

Dr. Arzberger holds a Ph.D. in Organic Chemistry from the University of Arizona, Tucson, AZ; and a B.S. Chemistry from Western Washington University, Bellingham, WA.