Conformable CNG Storage Tanks

One Shape. Maximum Conformability.

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A Paradigm Shift In CNG Tank Storage

REL, Inc. borrowed from nature to create an internally structured conformable high-pressure compressed natural gas (CNG) tank. The developed aluminum alloy ‘Matrix Tank’ employs a geometry mimicking the skeletal structure of the sea urchin (mathematically modeled as a Schwarz P surface), to create a structurally and volumetrically efficient vessel for high-pressure gas storage. REL developed and refined several casting technologies to produce a high-integrity tank which offers the attributes of conformability to provide greater storage capacity and more efficient packaging than conventional high-pressure vessels.

The Matrix Tank, developed by REL under ARPA-E’s MOVE Program, attracted investment from Southwestern Energy Company (SWN) to integrate and test this technology into a vehicle platform. The $2.1-million, three-year investment tasks an interdisciplinary team of REL engineers and Michigan Technological University researchers with integrating REL’s ARPA funded CNG tank in a light-duty truck.

REL, Inc. is a dynamic, responsive, and vertically integrated technology development company. REL designs, develops and deploys advanced metal matrix composites (MMC) and other lightweight materials to create cost-effective, high-tech, lightweight, revolutionary products. REL has a growing portfolio of product and process technologies that deliver significant efficiency, cost savings and weight reduction.

REL is seeking financial and commercial partners to bring resources and investment for future product development, manufacturing scale-up, sales, marketing and distribution.