

Powering payload performance in compact ROV design

Engineering buoyancy optimisation for Rovtech's VALOR ROV, The world's first digital class ROV



Key products

Shallow water foam

Challenge

Rovtech set out to redefine what a compact, lightweight ROV could achieve with its VALOR ROV platform. The world's first digital class ROV, engineered for performance not dimension is compact, intelligent and relentless. Designed for inspection, offshore energy and defence applications, VALOR delivers capabilities that rival light work-class systems while maintaining a significantly smaller footprint and lower operational cost.

The compact nature and performance ambition introduces a engineering constraint - limited available volume for buoyancy,

restricting uplift and constraining payload capacity in shallow water operations down to 300 metres. Rovtech's existing buoyancy solution could be improved upon within the available space, extending the system's full operational potential.

To overcome these challenges, Rovtech required a partner capable of delivering lower-density buoyancy, consistent quality and a dependable UK-based supply chain.



“For a compact system like VALOR, every kilogram and every cubic centimetre matters. We needed a buoyancy solution that would maximise payload without compromising the compact design and Base Materials delivered exactly that.

Just as importantly, the consistency in quality and on-time delivery has removed a source of risk for us. It has made a tangible difference not only to our engineering performance but to how we support our customers, as we view to continually improve on our products and service.”

JOHN POLSON
CEO of Rovtech

Solution

Base Materials partnered with Rovtech to supply precision-machined buoyancy modules using Gurit S1200, a low-density copolymer foam engineered for shallow water subsea applications. The material provides high uplift performance while maintaining structural integrity and low water absorption.

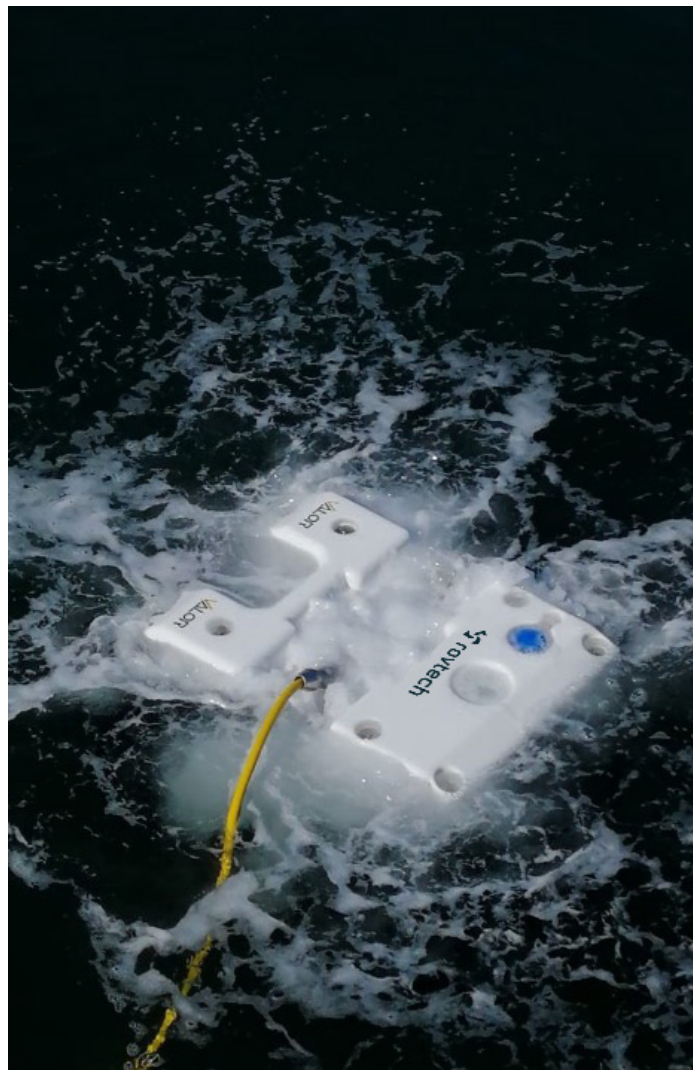
Rather than supplying raw blocks, Base Materials delivered fully finished modules tailored to a refreshed design of the VALOR ROV's compact geometry. This enabled efficient integration while maximising buoyancy volume within tight spatial constraints.

Working collaboratively, both teams validated performance through fit checks, visual inspection and payload testing against the previous material and updated specifications. The final design combined material optimisation with a revised buoyancy layout, increasing usable volume and achieving the required uplift.

Manufactured in the UK, each module was produced with consistent quality and zero defects, eliminating rework and ensuring reliable delivery aligned with Rovtech's programme timelines.

The result is a step change in payload capability, with uplift improvements of 15%, enabling greater operational flexibility across inspection and intervention tasks. The solution is now the approved buoyancy standard for the VALOR platform, supporting deployment across offshore energy and defence applications.

By increasing payload within the same compact footprint, Rovtech has strengthened VALOR's position as a high-performance, portable ROV capable of advanced intervention and data acquisition.



“VALOR is the world's first Digital Class ROV, engineered around performance, not dimensions. Compact. Intelligent. Relentless. For too long, the ROV market has been defined by outdated classes: Observation, Inspection, WorkClass. We don't fit in those boxes, and we don't want to.

We built it to shift expectations, to prove that compact systems can thrive where others can't, harnessing power and data intelligence that make subsea ownership simpler, faster, and smarter.”

JOHN POLSON CEO of Rovtech