



Photo of the AUVic's Unmanned Underwater Vehicle in the Solid Concepts' produced housing making a test run prior to competition.



CAD image showing the mechanical features of the AUVic's UUV design and housing.



AUVic's UUV needed to be water tight and strong enough to handle the pressures produced under water.

UUV Hull Manufactured Utilizing Proprietary QuantumCast™ Techniques for Strong & Stable Housing

Solid Concepts Provides QuantumCast™ Outer Hull for University Unmanned Underwater Vehicle Project

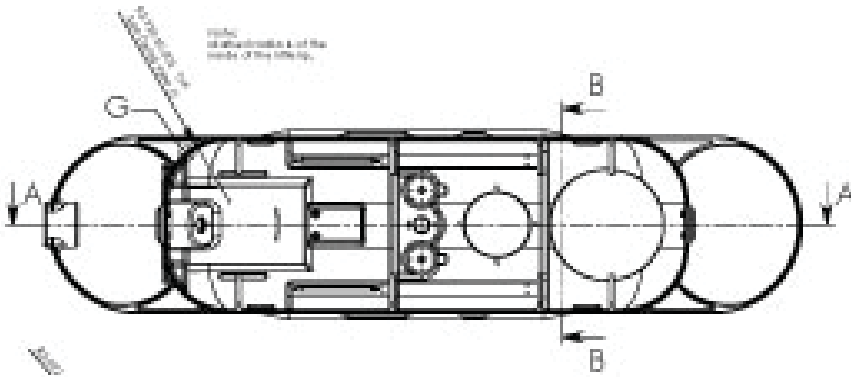
The AUVic is an undergraduate research organization within the University of Victoria that is actively involved in designing and building Unmanned Underwater Vehicles (UUV). The resulting vehicles compete in competitions where they are released in open water to perform a series of tasks unaided by links to remote operators.

UUV's have historically been classified as either a Remotely Operated Vehicle (ROV), or an Autonomous Underwater Vehicle (AUV). An ROV is a tethered vehicle controlled by a human operator on shore or a nearby vessel. An AUV is a self controlled mobile sensor platform, with no tether and no human operator. Team AUVic has designed and manufactured an ultra compact UUV vehicle as a hybrid that can function as an AUV, intelligent ROV or a combination of both.

Custom artificial intelligence, vision and active sonar tracking systems are implemented on the vehicle to provide real time navigational decision making, a feature never before seen on an AUV. All of these features combine to create a platform whose innovations in size, weight and functionality are unrivaled.

To produce the housing for their project, team AUVic turned to Solid Concepts and their proprietary QuantumCast™ process. Their requirements for a streamlined housing that would ensure maximum hydrodynamic efficiency and provide a reliable and stable pressure rated environment for the sensitive vehicle electronics posed a unique challenge and the necessity of utilizing the strongest materials available.

The team only needed one complete housing, the material had to be water tight for an inner hull protecting electronics, and it had to be strong enough to handle the pressures produced under water. All the team's hard work in engineering the project rested within this housing, selecting the right company and process for it was critical.



Solid Concepts was able to fabricate the QuantumCast housing directly from AUVic's CAD drawings.

Solid Concepts' QuantumCast™ process is a multi-step process that applies vacuum, heat and pressure to process advanced formula polymers (AFP's) that results in void-free, strong and stable pre-production or early production components. This next generation polyurethane technology and Solid Concepts' ability to fabricate their master pattern directly from AUVic's CAD drawings were an ideal fit for the team.

Solid Concepts Inc.

Solid Concepts Inc. is a supplier of rapid prototyping, direct digital manufacturing, tooling and production molding services. Capabilities in PolyJet, SLA, SLS, QuantumCast™ cast urethanes, CNC and FRP prototypes and short run production parts. Tooling and Molding expertise to bring your project through to completion. ISO 9001 and AS9100 certified.

AUVic at the University of Victoria

AUVic is a research organization within the University of Victoria. The objective of this organization is to be actively involved in the design and building of an Unmanned Underwater Vehicle (UUV). The 2007 design team consists of approximately thirty undergraduate Mechanical, Electrical, Software and Computer Engineering students, and three faculty advisors. AUVic's goal for this year is to build its fifth generation AUV, while learning about and enjoying engineering. Learn more about the AUVic team at www.auvic.uvic.ca.

Current applications for the AUVic vehicle include pipe line detection, instrument recovery, underwater surveillance, sonar mapping of ocean floors or structures, underwater object manipulation, and visual inspections.



The Annual Autonomous Underwater Vehicle Competition was held at the SSC SD TRANSDEC facility in San Diego, CA.



Members of the University of Victoria's AUVic design team join Solid Concepts' Scot Thompson (right) at the San Diego competition.



AUVic's ultra compact UUV vehicle hybrid can function as an AUV, intelligent ROV or a combination of both.