CASE APPLICATION:

HOW GENERAL PLASTICS' SUBSEA POLYURETHANE FOAM EQUIPPED

REMOTELY OPERATED VEHICLES TO DIVE DEEPER

GENERAL PLASTICS
MANUFACTURING COMPANY

GENERAL PLASTICS' SUBSEA POLYURETHANE FOAM EQUIPPED ROVS TO DIVE DEEPER

THE APPLICATION:

Outland Technology has been in the business of producing underwater systems, video cameras, and lights for diving companies and military operations for more than 30 years.

About 16 years ago, the company pursued building a remotely operated vehicle (ROV) for underwater functions, including oil rig and pipeline inspections, collegiate research, and military uses. Built with multiple cameras, including a forward camera that has a 360° range of motion, Outland Technology's feature-filled ROVs continue to offer tremendous benefits for subsea applications.

THE CHALLENGE:

Key Requirements:

- Low-density foam
- Provides buoyancy underwater to depths of 500 feet
- Available in custom sizes

When Outland Technology expanded their product line 16 years ago, they faced a challenge. They knew that syntactic foam was a flotation option for the ROV because it can withstand depths of 500 feet. However, with a minimum density of 30 pounds, it was simply too heavy for such a small vehicle.

Outland Technology determined that polyurethane foam was a great syntactic foam alternative, and they began working with a supplier.

However, they had to bond 1" sheets together to achieve their desired thickness. After some research, Outland Technology learned about General Plastics' 15-pound density submersible foam series, and their ability to deliver customized solutions.

Remotely Operated Vehicle (ROV) for underwater functions

THE SOLUTION:

R-3300 Benefits:

- Four products for different weight/ depth performances
- Provides buoyancy with depths to 1,200 feet uncoated or 2,400 feet coated
- Excellent compressive properties
- Easy to machine, coat and paint
- Performs in freshwater or saltwater
- Available in big blocks and other custom sizes

Contact us today to learn more about our subsea submersible foam series.

Outland Technology turned to General Plastics' LAST-A-FOAM® R-3300 series to provide underwater buoyancy for their ROV's. The product they ultimately chose, the R-3315, could go to depths up to 700 feet uncoated and 1,400 feet when coated. Since the R-3315 foam is easy to machine and comes in custom sizes, it gave Outland Technology the ability to work directly with General Plastics to customize the foam to fit individual applications, both in terms of size and thickness. They knew that as their vehicles get heavier, General Plastics will be able to machine the foam to its desired thickness.

General Plastics' R-3315 remained beneficial as Outland Technology continued to further develop their ROV. As Outland Technology's founder Buddy Mayfield explains, "We originally designed our ROV to go to 500 feet, mostly because the electronics, power supplies, and copper in the cable restricted us from going any deeper. But as we designed higher voltages and better cables, we realized we could reach depths of 1,000 feet, or 500 psi, with the right buoyancy to sustain our ROVs." Also, by fiberglassing over the foam, Outland Technology increased the depth rating to produce a product that can sustain the evolving demand of customers.

Outland Technology tested General Plastics' R-3315 product for their application back in 1999, and has been using it ever since to equip their underwater ROV's to dive even deeper.

Summary of R-3300 Submersible Series Products:

	Density (lbs/ft3)	Height (in.)	Width (in.)	Length (in.)	Tested Depth (ft.) (uncoated)	Tested Depth (ft.) (coated)
R-3312	12	10	24	100	300	600
R-3312	12	14	18	100	300	600
R-3315	15	10	24	100	700	1,400
R-3315	15	14	18	100	700	1,400
R-3318	18	10	24	100	800	1,600
R-3318	18	14	18	100	800	1,600
R-3325	25	10	24	100	1,200	2,400
R-3325	25	14	18	100	1,200	2,400

Shown are maximun standards stock sizes based on density. Custom sizes are available. Cut sheets are available from .125 inches (3.175 mm) up to standard stock heights as listed above.

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Where Great Ideas Take Shape

4910 Burlington Way
Tacoma, WA 98409
P: 253-473-5000 F: 253-473-5104
www.generalplastics.com