

 CASE STORY /
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EXPANITE IN THE DEPTHS OF THE ARCTIC OCEAN

Expanite - the Danish pioneer of surface hardening of stainless steel and titanium delivers with the ExpaniteHard-Ti the solution for the development of an autonomous underwater winch of the Alfred Wegener Institute. The special winch is a key component and will provide continuous physical and biogeochemical data from the surface of the Arctic Ocean in the area of the Fram Strait.

The winch will hover at a depth of about 150 meters on a long, anchored rope that rises vertically in the water and from this position once a day a measuring unit with different sensors will rise to the water surface and catch up again. The sensors will measure the water temperature, the salt, oxygen and carbon dioxide content as well as the chlorophyll fluorescence in the different water layers during the test run through the water column.



Titanium part withstand significant wear

Accompanied by the designer of the underwater winch Dipl.-Ing. Normen Lochthofen and the anchoring specialist of the deep sea group Dr. med. Eduard Bauerfeind test runs took place at the Sven Lovén Center for Marine Infrastructure in Tjärnö, Sweden, because only there, less than 15 minutes by boat from the research station, the water is up to 200 meters and deep enough for testing.

"The solution from Expanite is an essential part of our special winch," explains Lochthofen. With the ExpaniteHard-Ti surface hardening, the stressed titanium components will withstand significant wear and thus prevent long-term use of the winch system. In addition to the increased surface hardening of up to 1.000 HV, the corrosion resistance of the material is improved at the same time, and use in seawater is made possible.

In the late summer of this year, the five-week expedition took place in the Fram Strait between Spitsbergen and Greenland. "We launched two winch systems that will collect data over the next two years. Not an everyday project", said Norms Lochthofen, who also took part in the research trip.

About the Alfred Wegener Insistut

As a Helmholtz centre for polar and marine research the Alfred Wegener institute works above all in the cold and temperate regions of the world. Together with numerous national and international partners the AWI is involved to decipher the complicated processes in the "system of earth".
www.awi.de

About Expanite

Expanite was founded in 2010 by leading experts in material and surface hardening whose research dates back to 2000. The company is headquartered in Hillerød near Copenhagen and has treatment centers in the USA, Germany, Korea and China. Expanite's solutions are flexible and can be tailored to the customer's own product line within the framework of a license agreement

