Case Study 02: Diving Support Vessel – Reducing Risk of Corrosion Failure on Instrumentation Lines

By selecting Tungum® tubing a leading deepwater project company was able to reduce the risk of tube line failure due to saltwater corrosion while also cutting downtime and refit costs.

The Challenge

In 1983 a leading deep-water project company Subsea 7 was building a new diving support vessel – Rockwater 1. On previous vessels they had experienced corrosion problems using stainless steel tubing for the instrumentation lines. Various lines run externally and are exposed to a saltwater environment. As a result of the corrosion and resultant leak points, they had to replace stainless steel tubing multiple times on previous vessels at considerable cost and downtime.

Rockwater 1 – Diving Support Vessel

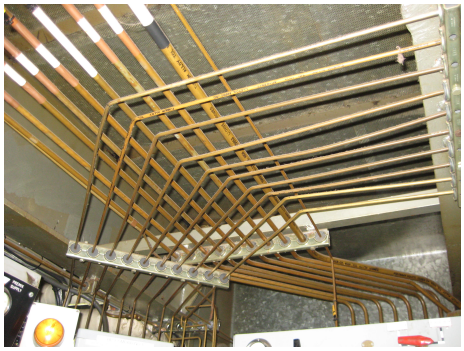
The Tungum Solution

Tungum tube (top) remains unscathed despite more than 10 years marine exposure. Stainless steel (bottom) showed both crevice and chloride pitting after five years in the same environment.

Subsea 7 chose Tungum tubing for its proven history in seawater environments and its resistance to stress and crevice corrosion. The tube possesses a natural protection mechanism whereby, on exposure to salt spray, a very thin oxide coating is generated over the exposed service, no more than two thousandths of an inch thick, when complete. The tube becomes discoloured and it may even have a verdigris coating, but under the oxide layer the tube material is perfect and will remain so for a very long time.

The Result

Subsea 7 installed Tungum for the instrumentation lines and was pleased with the performance of the tubing. Tungum tubing now plays a major role in eliminating downtime of many systems in this vessel as it is highly resistant to seawater and its atmosphere, offering outstanding serviceability, even at intermittent duty in the highly corrosive 'splash' zone. The photo on the right was taken in 2010 and shows the tube still in good condition and performing well after 26 years of service!



Tungum tube lines after 26 years on Rockwater 1

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