



**FLUOROCARBON**

# CASE STUDY

## ENHANCING SUBMARINE HULL VALVE RELIABILITY WITH F-LON COATINGS

Our customer, a global leader in the design and manufacture of critical flow control solutions for naval applications, partnered with us to improve the performance and longevity of their hull valve systems for submarines.

Hull valves are mission-critical components that require exceptional durability and corrosion resistance, particularly in the harsh marine environment.

## THE CHALLENGE

Submarine hull valves operate in highly demanding conditions, including continuous exposure to saltwater, extreme pressure differentials, and mechanical wear. Bearings within these valves are particularly vulnerable to corrosion, galling, and frictional wear, all of which can jeopardise valve performance and operational safety.

Our customer needed a solution that would significantly improve bearing wear resistance, minimise friction to enable smoother operation, and offer enhanced corrosion protection. Additionally, they required the extension of maintenance intervals and continuous performance under the high-pressure, submerged conditions typical of submarine service.

## THE SOLUTION

To meet these stringent requirements, we applied our advanced **F-LON coating** technology to the bearings used in the hull valves.

**F-LON coatings** are engineered fluoropolymer-based coatings renowned for their exceptional corrosion resistance and low coefficient of friction. These coatings also offer outstanding wear resistance and maintain long-term stability even in aggressive marine environments.

The application process was meticulously controlled to ensure uniform coverage and optimal adhesion, both of which are critical for delivering consistent bearing performance under demanding operational loads.





## THE OUTCOME

Following the application of our **F-LON coating**, the customer observed a notable reduction in friction, leading to smoother and more reliable valve operation and reducing strain on actuators. The wear resistance of the bearings improved significantly, resulting in an extended service life for both the bearings and the valves themselves.

Additionally, the bearings demonstrated greatly enhanced corrosion protection, maintaining structural integrity even after prolonged exposure to saltwater. These improvements collectively allowed for longer maintenance intervals, reducing the total cost of ownership and minimising vessel downtime.

Ultimately, the solution contributed directly to increasing the reliability and operational availability of submarine hull systems, a critical advantage in naval operations where equipment failure is not an option.

## WHY FLUOROCARBON

At Fluorocarbon, we understand that performance, reliability, and longevity are non-negotiable in mission-critical naval components. That's why global leaders in naval engineering trust us to deliver advanced material solutions that excel under pressure, literally...

Our **F-LON coating** technology exemplifies our commitment to engineering excellence. With decades of expertise in high-performance fluoropolymer coatings and a rigorous quality assurance process, we provide tailored surface solutions that enhance operational safety, extend service life, and reduce lifecycle costs.

We don't just deliver coatings; we deliver confidence, innovation, and peace of mind in the most demanding environments on the planet.

Let's explore how **F-LON** coatings can enhance the durability and efficiency of your critical components.

Contact us today to speak with a technical specialist or schedule a consultation.