

# A Custom Propeller Shaft Seal Solution for a Freedom 28

How PSS Seal overcame space constraints to deliver a reliable sealing solution.

## The Problem

A customer with a Freedom 28 sailboat faced a significant challenge: finding a reliable propeller shaft seal that could fit within the extremely limited space available between the stern tube and the transmission coupling. With only 3.5 inches of clearance, most off-the-shelf propeller shaft seals were too large to install.

This limitation presented a critical issue. Without a suitable seal, the customer would be forced to use a less reliable alternative. Such a compromise could lead to increased maintenance costs, unexpected downtime, and potential safety risks during operation.



## Client Impact

The inability to install a reliable proper propeller shaft seal would jeopardize the long-term performance of the Freedom 28. This would result in more frequent servicing, increase the likelihood of leaks, and raise overall maintenance expenses. For the customer, this was an unsustainable solution, and finding a high-quality, tailored seal became a top priority.

## The Solution

PSS Seal, known for its innovative and flexible approach to marine sealing challenges, stepped in to develop a custom solution for the Freedom 28.

To overcome the space constraints, PSS Seal employed a unique combination of materials and design modifications:

- 1. Silicone Bellows:** Drawing inspiration from designs typically used in exercise pools, PSS Seal incorporated shorter length silicone bellows. This material provided the flexibility needed to accommodate the tight clearance while maintaining durability and reliability.
- 2. Low-Speed Carbon Stator:** By integrating a low-speed carbon stator into the design, the overall length of the PSS Shaft Seal was significantly reduced without compromising performance or reliability. The low-speed carbon stator is ment only for vessels that do not require water to be plumbed to the PSS Shaft Seal, as it does not have a hose barb fitting.

This tailored approach allowed the PSS Shaft Seal to fit within the 3.5-inch clearance while maintaining the high standards of quality and reliability that customers expect from PSS Seal products.

## Added Value

- **Custom-Tailored Solution** – Delivered a unique design tailored to the customer's specific constraints, showcasing PSS Seal's adaptability and problem-solving expertise.
- **Enhanced Safety & Reliability** – Provided a high-performance propeller shaft seal, reducing the risk of leaks and ensuring dependable operation over time.
- **Cost Efficiency** – Minimized the need for frequent maintenance or expensive repairs by offering a durable and reliable solution.
- **Customer Satisfaction** – Exceeded client expectations by addressing their unique challenge, reinforcing PSS Seal's commitment to quality and customer-centric solutions.

“ Wanted to inform you that I had an incredibly successful season with your shaft seal and not a single drop of water came through for the entire season! I am extremely confident now to take my sailboat on longer journeys this upcoming season.

Cannot thank you enough for all your help and support to make my custom application a reality. ”

**Industry:** Marine

**Products:** PSS Type A Shaft Seal  
Part #01-100-134HW

**Application:** Freedom 28 sailboat

**Savings:** Reduced maintenance  
cost and downtime

