

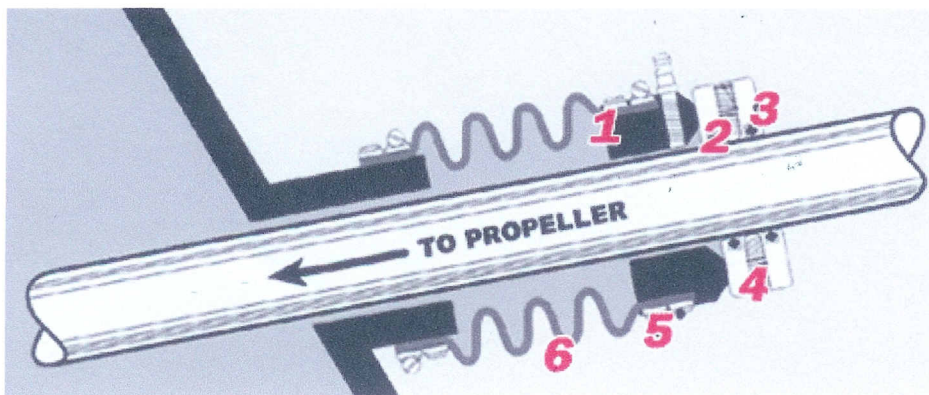
How Does The PSS Mechanical Shaft Seal Work?

A mechanical seal is created by the contact of a turning surface against a stationary surface. In the case of the PSS Shaft Seal, the stationary surface is a carbon flange held in contact against a stainless steel rotor which turns with the shaft. The carbon flange is attached to the boat by a nitrile bellow which, with the help of water pressure, produces a constant contact between the carbon and the stainless steel ring. These type of seals are unaffected by engine motion or vibrations. The result is a 100% watertight and totally maintenance-free seal.

Warning!

All mechanical seals look very similar. There is, however, a big difference in materials uses in the components and subsequently in the way the seals will perform.

Materials Reference Drawing for PSS Shaft Seal



1) HIGH DENSITY CARBON/GRAPHITE FLANGE

This space age composite is machined to shape. The face is then lapped to 4 light bands. Once installed and operational the carbon/graphite face will actually polish the stainless steel rotor face during the initial minutes of operation. This polishing process ensures a perfect seal and eliminates the necessity of a spray guard. The high density of this composite greatly increases its impact and wear resistance. At a maximum operating temperature of 500° F, the carbon guards against any overheating situation unlike other seals using plastic derivatives. The carbon/graphite flange should never need replacing under normal operation conditions.

2) DOUBLE O-RINGS

The nitrile O-Rings are fit inside the stainless steel rotor to guarantee alignment and seal of the rotor to propeller shaft. Nitrile is the material used due to its superior resistance to petroleum products, temperature variations and resistance to tearing. These O-rings are stationary and do not wear.

3) STAINLESS STEEL ROTOR

The one-piece stainless steel (Type 316) rotor is slid down and secured to the propeller shaft with double set screws. Precision tolerance are maintained by computer controlled lathes. After machining, the rotors are passivated to military specifications for maximum corrosion resistance. The stainless steel rotor should never need replacing under normal operating conditions.

4) DOUBLE ALLEN HEAD SET SCREWS

Allen head set screws with cupped ends (to prevent damage to shaft) are threaded into the rotor and secured to the propeller shaft. A second set screw is then threaded into each hole to secure the first screw and to prevent it from possibly backing out. Set screws are treated with a Dri-Loc 204.

5) DOUBLE HOSE CLAMPS

Two stainless steel hose clamps are used to secure the bellow at both the stern tube and flange ends.

6) BELLOW

Bellow is resistance to petroleum based products and set retention. It provides the best combination of durability, strength and elasticity. The stern tube end of the bellow is available in 1/4" increments. Both shaft and stern tube diameters are necessary when ordering.