

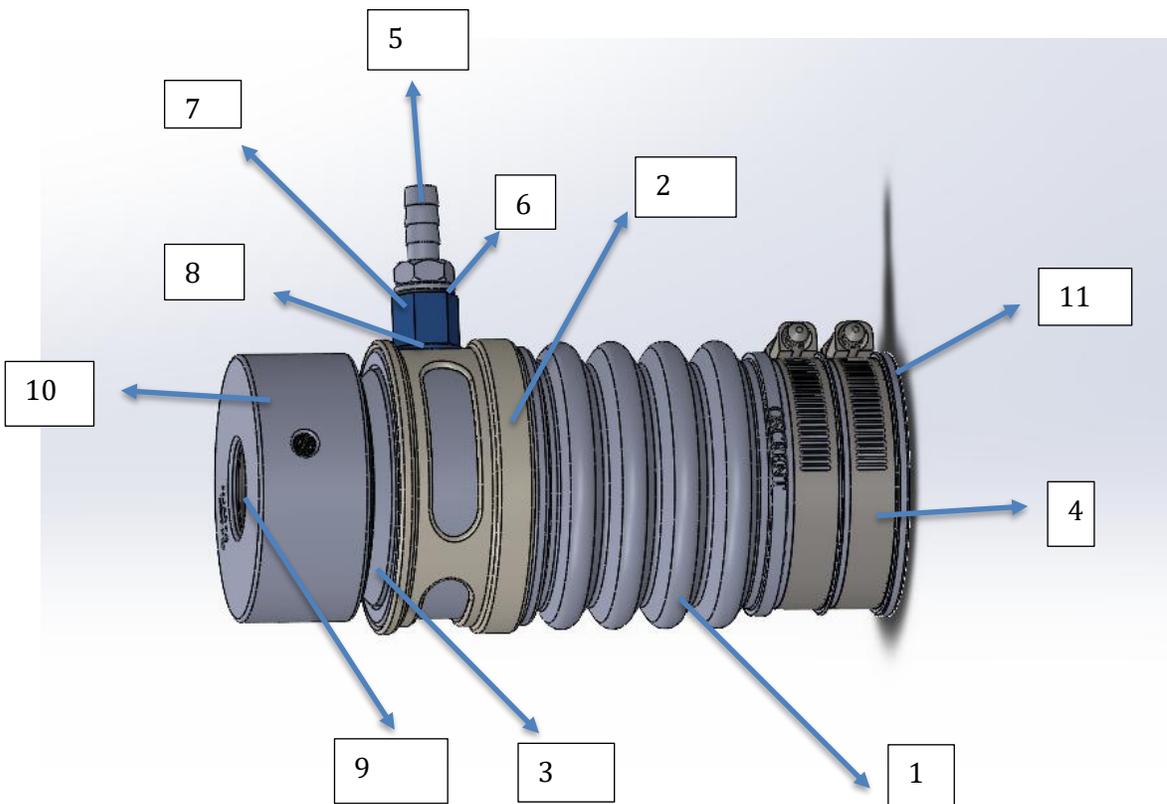
# OSCRENT Mechanical Seal Instruction Manual

The Oscrent Mechanical Seal is a precision-engineered component designed to provide a watertight seal in marine applications, preventing water ingress around rotating shafts. It is specifically designed to accommodate axial and radial movement, as well as vibrations, making it suitable for environments where alignment and load conditions may vary. This manual provides step-by-step instructions for the installation, operation, and maintenance of the OSCRENT Mechanical Seal.

## 1. Parts and Components

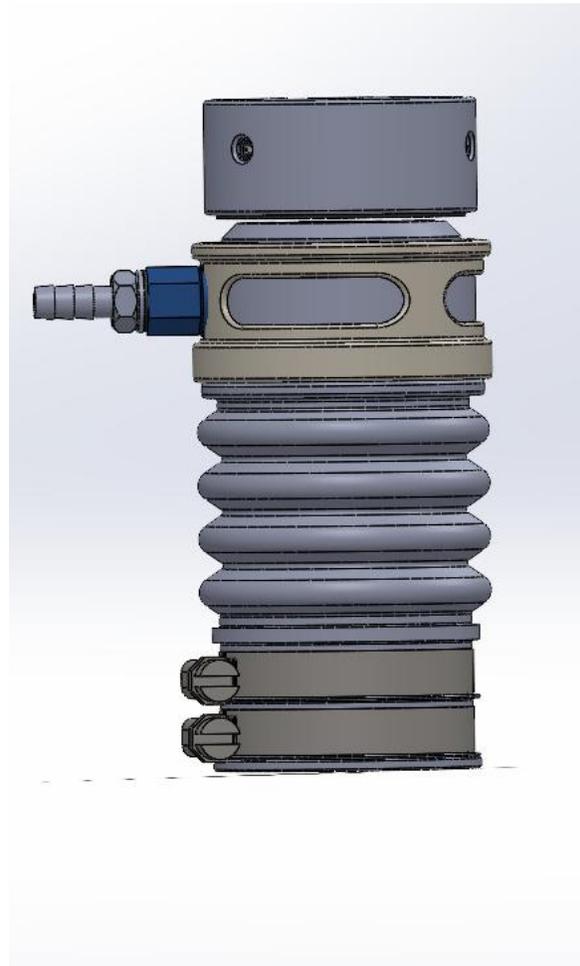
Oscrent Mechanical Seal consists of several key components designed to work together for optimal sealing performance. Below is a breakdown of each part:

Rubber bellow with carbon stator, end cap housing, carbon stator, fittings and clamp. This part is preassembled.



Item No.	Component	Description
1	Oscrent Bellow	Flexible bellow for shaft sealing

2	End Cap SS 316	Stainless steel end cap to secure bellow
3	Carbon Stator with Groove	Stationary component with groove for seal face
4	Clamps SS	Stainless steel clamps for securing bellow to stern tube and carbon flange
5	Fitting	¼" hose barb fitting for water supply
6	O-Ring for adapter	O-Rings for sealing hose barb and adapter fitting
7	Adapter Fitting	Fitting adapter to connect other components
8	Gasket O-Ring Fitting	O ring to connect adapter fitting to other components
9	O rings for rotor	O rings to fit in rotor
10	<b>Rotor with Cavity</b>	Rotating stainless-steel rotor that compresses bellow
11	Adapter 2.0x1.75	Adapter to fit in bellow (Optional)
12	Shaft Collar	A shaft collar supplied is highly recommended to install if space is available.



**Warning for use**

**The OSCRENT shaft seal you're going to install is a device that prevents water entering the hull. Make sure, that you or your technician have the qualifications and skills necessary to properly install the shaft seal and have all the tools and accessories before starting the installation**

## **MANDATORY**

**Shaft seal must be installed into the boat on dry dock (not floating)**

**Seal trials should be conducted.**

### **WARNING!!!**

**Do not use oil, grease or silicone-based products at any stage of the job but just soap and water to lubricate the O-rings/ shaft.**

## **3. Installation Instructions**

"To ensure the optimal performance and longevity of the Oscrent Mechanical Seal, please adhere closely to the following installation instructions. Improper installation may result in malfunction or significantly reduce the lifespan of the seal. Only a certified marine mechanic should perform the installation of this seal." All warranties are considered void if the seal is assembled by a non-certified/licensed individual.

### **3.1 Preparation**

1. Clean the Shaft: Thoroughly clean the shaft to remove any dirt, grease, or debris.
2. Inspect the Parts: Verify that all components listed in the Parts and Components section are present and undamaged.
3. Lubricate the Shaft: Apply a light film of soap water to the shaft. Use a petroleum free liquid (e.g., dish soap / water solution works well). **DO NOT USE OIL OR GREASE.**

Be careful not to damage or scratch the surface of the carbon-graphite flange or the steel/ceramic rotor surface while unpacking or installing.

Do not replace the nylon reduction of the hose connector with a metal one.

During assembly do not slide the sleeve too far down on the stern tube because the external part could damage the inside of the sleeve or limit its movement.

If you are preparing a vent line, on boats with a max speed less than 12 knots, do not fold down the upper end of the tube because it could trigger a siphon and let water enter the boat.

Like all pipes under the waterline, the mechanical seal sleeve should be inspected regularly (usually at least every 6 months) and checked for signs of wearing.

At the first sign of wearing the sleeve must be replaced, for safety reasons, normally it should be replaced at least every 5 years, regardless of the apparent conditions.

Do not allow hydrocarbon liquids or corrosive materials to be in contact with the mechanical seal.

Do not use any ozone-producing equipment (such as an air purifier) near the mechanical seal as ozone accelerates wearing rubber parts.

During installation, make sure that the hose - holder mounted on the carbon - graphite flange is positioned

vertically and that the pipe mounted on it does not push or pull the hose holder and consequently the carbon - graphite flange.

### 3.2 Installing the Bellow subassembly

Before installing, make sure you have all the tools suitable for the operation.

**Remove Old Seal:** Unlatch the flange from the transmission (gearbox), remove the old seal, and clean the stern tube where the rubber sleeve will be fixed using the two clamps provided.

**Prepare the Shaft:** Use fine-grained paper to clean the shaft, especially the keyway. Ensure the keyway is smooth, with no sharp edges that could damage the O-rings during installation.

**Install the Sleeve:** Slide the complete bellow assembly with the carbon flange onto the stern tube. Do not slide the sleeve too far down, as this could damage the sleeve.

**Secure the Sleeve:** Tighten the clamps securing the bellow assembly to the stern tube. Ensure that the carbon flange is clean and undamaged.

**Lubricate Components:** If necessary, use a neutral soap and water solution to lubricate the shaft and O-rings before inserting the rotor.

### 3.3 Positioning the Stainless-Steel Rotor

**Install O-Rings:** Place the O-rings into the recessed areas of the collar bore.

**Slide the Rotor onto the Shaft:** Position the rotor with cavity in front of the carbon stator and slide it onto the shaft.

**Secure the Rotor:** Tighten the grub screws (3 pieces) on the rotor, using **Loctite 243** before inserting them. Ensure proper compression of the bellow (10-15mm) to create adequate pressure between the rotor and stator.

**Measure Compression:** Before and after compression, measure the overall compressed length to verify the desired preload.

**Final Adjustments:** Tighten all screws to secure the rotor in place. Ensure that the O-ring is not damaged during assembly.

#### **Warning!!!!**

**Do not use any oil or lubricant on rotor, only use soap and water for sliding rotor in position**

WARNING - make sure that the hose-holder mounted on the carbon - graphite flange is positioned vertically and the pipe mounted on it does not push or pull the hose holder and consequently the

carbon - graphite flange.

#### 4. Hydraulic connections

##### Method A: Low-Speed Boats (<12 knots)

1. Connect an **8-9mm tube** (not supplied) to the hose holder on the carbon-graphite flange.
2. Route the tube at least half a meter above the waterline.
3. Ensure the tube does not pull on the seal and is as close to the boat's centerline as possible to prevent siphoning.
4. Do not fold down the end of the tube to avoid creating a siphon.
5. Secure the tube to prevent any movement.

##### Method B: High-Speed Boats (>12 knots)

1. Establish a **T-branch connection** from the cooling circuit to ensure water flows to both seals.
2. Use a **seacock** or a dedicated valve to regulate water pressure, ensuring it does not exceed the recommended limits to avoid sleeve deformation.

#### **WARNING –**

**All hydraulic connections must be made following the rules and precautions for marine use.**

#### **TEST**

At the time of launching, inspect the seal and make sure it is properly in place. No water must enter from the area of the seal. Run the engine normally with the gear engaged, at this point it is normal to see small spray or nebulized water come out, together with carbon dust, since the Shaft seals need a period of adaptation. The shaft seal must not have water leakage when not in operation and in any case must not show more than a light spray when it is in operation.

#### 5. Settlement period

Normally, the seal needs about one hour of settling, to allow the carbon to polish the surface of the Steel/ ceramic ring. During this period, a spray of water could come out, often associated with black powder from the graphite flange. Under normal conditions, this leakage stops within one hour of operation.

### 3. Operation and Maintenance

#### Routine Inspection

1. Inspect the seal regularly for visible signs of wear.
2. Clean the area around the seal to prevent debris buildup.
3. Periodically check the compressed length of the seal assembly to verify there has been no slippage of the rotor or relaxation of the rubber bellow.
4. If any components show signs of excessive wear, such as the carbon stator, rotor, or rubber bellow, replace them immediately.

#### **WARNING!!!!**

**Water Lubrication: Do not run this seal in dry condition to prevent irreversible damage. The seal should be running wet always.**

### 5. Troubleshooting

Issue	Possible Cause	Solution
Leakage around the Shaft	Loose clamps or set screws, damaged rubber bellow	Tighten clamps and set screws, check and replace rubber bellow assembly if required.
Excessive Vibration	Misalignment of seal components Or misaligned shaft / couplings.	Realign components and check pre-load
Water leakage from rotor	Worn O-rings or carbon stator, loose set screws	Replace O-rings and inspect stator screws. Replace it as necessary.
Leakage from plumbing assembly	Inspect rubber gasket, O-rings and Plastic adaptor for damage or looseness Damage to stator carbon threads	Replace parts as necessary and tighten the hand parts.
Water Leakage from carbon and rotor face or rubber bellow	Damaged bellow or carbon stator there is likely, some dirt between the two faces of the Rotor and the	Replace damaged components insert a clean rag between the ring and the flange (water will come in) and

	graphite flange.	rub all around the shaft and between the two surfaces. By this the water that will enter, removes the impurities. After removing the rag, the seal should stop to leak.
Too much heating of the carbon and rotor face	Not enough water lubrication.	Check for vacuum formed in the seal and release air by compressing with hand or injecting water from the plumbing fitting to ensure seal is running always wet.
HIGH hissing noise	If you hear a high hiss during the operation , likely is due to of lack of water in the seal .	Check all hydraulic connections. Check and release any vacuum formed in the seal.

## 6. Warranty Information

The OSCRent Mechanical Seal is backed by a 12-month warranty covering manufacturing defects in materials or workmanship under normal usage and maintenance.

Warranty Conditions:

- Ensure proper installation following this manual by only certified marine mechanic through a registered marine business.
- Perform regular maintenance and inspections as outlined.
- Only authorized parts should be used for repairs.

To file a warranty claim, contact OSCRent Customer Service with proof of purchase, a description of the issue, and any relevant maintenance records.

### Liability for Property Damage (Product Liability)

- The Seller is only liable for property damage in accordance with mandatory regulations. The Buyer must indemnify the Seller if a third-party claims damage not covered under this agreement.
- **Exclusions:** The Seller is not liable for:
  - Damage to property while the goods are in the Buyer's possession.
  - Damage to products manufactured by the Buyer or items containing the Buyer's products if such damage is caused by the Seller's goods.
- The Seller is not responsible for lost production, profit loss, or any other economic loss due to consequential damages.
- **Gross Negligence Exception:** These limitations do not apply if the Seller is guilty of gross negligence.

- If a third-party claim is made, both the Seller and Buyer must inform each other and cooperate if required to attend court or arbitration. Any disputes between the Seller and Buyer will be resolved by arbitration according to Clause 3.

## FORCE MAJEURE

Oscrent cannot be held responsible for the non-performance of the purchase agreement due to force majeure. This may include, but is not limited to strike, fire, export and import bans, currency restrictions or other external circumstances which are beyond our control and which we could not reasonably have foreseen, avoided or overcome.

In such cases, Oscrent must notify of the force majeure situation as soon as possible. Oscrent is then entitled to postpone delivery. If the force majeure situation continues for more than 90 days, Oscrent may cancel the order in whole or in part.

Oscrent disclaims liability for infringement of third parties' intellectual property rights when products are specifically manufactured according to the buyer's instructions.

Oscrent is not liable for indirect losses, unless otherwise provided for in the applicable legislation. Indirect losses can be, for example, operating losses, loss of profit, loss of goodwill or other consequential damages caused by Oscrent's products. Oscrent also does not cover losses caused in connection with crane lifting during the installation of Seller's products. The extent of the indirect losses is not limited to the above examples.

Oscrent disclaims product liability to the greatest extent possible for damage caused by defective products to natural persons and assets. For business customers, the same terms apply as for consumers, unless otherwise stated below or stated in the agreement between the parties.

Business customers do not have the right of withdrawal.

The business customer must complain about visible defects no later than 8 days after the delivery of the product. For hidden defects, an absolute complaint period of 12 months applies from delivery, however, a complaint must be made immediately after the defect has been or should have been discovered.

Unless otherwise agreed, the payment deadline is 8 days after delivery.

Ownership of the product remains with Headland Engineering (Seller) until the full purchase price including taxes, costs and any interest has been paid. The business customer is obliged to provide access to the sold goods and to assist in the delivery of the sold goods, should seller terminate the transaction.

Until ownership has been transferred, the product may not be resold, pledged or used contrary to Headland Engineering's interests.

The Business Customer shall indemnify Headland Engineering for claims from third parties and have their own relevant insurance in place for claims.