DryMax™ Stern Tube Seal System

- Environmentally Friendly
- Water-Lubricated System
- Eliminates Shaft Wear

For propeller shafts from:
3" - 36" diameter (60-900mm)
DryMax™ Stern Seal System is engineered for optimum sealing performance.

Robust and reliable hydrodynamic seal design.

The DryMax™ Stern Tube Seal System was designed, built and tested by Duramax Marine® in the USA. The seal is a water-lubricated axial shaft seal system constructed of the highest quality materials which have been engineered to deliver long service life.

The DryMax™ Shaft Seal is a reliable system that uses no grease or oil and is easy to install and maintain. It is a great addition to a full line of proven and reliable marine products developed by Duramax Marine™ and engineered to protect the environment.

Engineered for low maintenance and long life.

The DryMax™ Shaft Seal eliminates wear on propulsion shafts caused by traditional radial lip sealing systems. The unique nature of the DryMax™ design creates a highly effective seal which accommodates shaft movement in both the axial and radial directions.
Duramax Marine® technology is the difference.

Duramax understands rubber technology and its hydrodynamic interaction with water lubricated surfaces. We used our expertise in the science of tribology to engineer a rubber and metal material pair to make them perform in a way that surpasses other materials used in traditional sealing systems.

Our proven water-lubricated rubber bearing technology is used on more navy, commercial and recreational vessels around the world than any other bearing. Almost every U.S. Navy surface ship and submarine runs on Duramax® water-lubricated rubber bearing technology. This same bearing science inspired the technology utilized in the DryMax™ Sealing System.

The DryMax™ Seal is a perfect marriage of material pairs from the proprietary rubber formulations used in our seal ring to the engineered DuraChrome™ Mating Ring that it runs on. Researching and developing these materials is critically important to how they will wear and even better… how they won’t.

As anyone in the marine industry knows, keeping water out of your ship is no easy task. The DryMax™ Shaft Seal System is designed to keep water out and your bilge dry!
DryMax™ Shaft Seal keeps your bilge dry.

Simplicity of DryMax™ design.
Leonardo da Vinci is credited with saying, "simplicity is the ultimate sophistication". This statement summarizes the uniqueness of DryMax™ Seal System. Some competitive sealing systems can be overcomplicated and difficult to service. The design of the DryMax™ has only 2 primary sealing parts; the seal ring and our DuraChrome™ Mating Ring which never require adjustment.

The superior design of the DryMax™ Shaft Seal System makes it the best choice for your shaft seal requirements. It eliminates the inefficiencies of many existing designs. The DryMax™ Sealing System is easy to install and requires zero maintenance. Something ship owners around the world appreciate.

Designed for heavy duty service in clean and dirty water.
The DryMax™ Seal has been engineered and tested for service in both Blue (clean) and Brown (gritted) water operating conditions. Our research and development team conducted experiments on our full scale test rig built to simulate the most difficult service conditions.

You can have confidence that the DryMax™ Sealing System will provide you with many years of trouble free operation.

Proprietary rubber Sealing Ring.
The DryMax™ Rubber Sealing Ring is very durable and is easily replaced if necessary. The ring is constructed of proprietary nitrile rubber that rotates with the propeller shaft and creates a hydrodynamic sealing interface with the highly polished DuraChrome™ Mating Ring. Every seal assembly includes an active rubber seal and a spare seal ready on the shaft for change out when needed. The DryMax™ Seal Ring is engineered to deliver a long operating life.

Maximum seal life with DuraChrome™ Mating Ring.
The DuraChrome™ Mating Ring can be reversed and reused with the spare rubber ring that is stored forward of the seal assembly on the shaft. Once both sides of the DuraChrome™ Mating Ring have been worn it can be restored by machining in a lathe. The Alloy used in the DuraChrome™ Mating Ring was engineered to optimize operation with our rubber seal ring.

DURAMAX MARINE® ADDS TO ENVIRONMENTALLY-FRIENDLY SHAFT SEAL PROTECTION SYSTEMS.
The Duramax® DryMax™ Shaft Sealing System is designed to protect your propulsion shaft in the toughest working environments. It is a robust but economical shaft seal system that is added to a long list of trusted Duramax Marine® products.
The DryMax™ Seal supports vessel owners around the world helping to remove oil from their propulsion systems and operate an environmentally sustainable system with NO risk of oil leakage or pollution.
The Duramax® DryMax™ Shaft Sealing System can be installed in new construction or replace an existing shaft seal. In retrofit applications Duramax engineers can design an adapter plate that mates with the vessel’s existing stern tube flange to simplify installation.

**Heavy duty cast bronze housing and components.**
The housing and internal components of the DryMax™ Seal are made from a high grade cast bronze. The material was selected to resist corrosion and in many cases will last the lifetime of the vessel.

**Sealing performance with shaft movement.**
The Duramax® DryMax™ Shaft Seal System allows unlimited axial movement and very large radial motion of the propeller shaft. The seal ring will still maintain a waterproof seal even with large running clearances in the stern tube bearings.

**DryMax™ Seal requires no adjustments.**
The DryMax™ has no springs, bellows or clamp rings required to engage the seal. The DryMax™ Seal uses the seawater draft pressure as the primary spring force engaging the sealing ring so there is no concern that the DryMax™ Seal will ever disengage or change position. Also, there is no sliding contact of the seal with the shaft, eliminating the possibility of wear and grooving of the propeller shaft or liner.

**DryMax™ extends dry dock intervals.**
The DryMax™ Sealing System is designed to give unmatched reliability and longevity in the harshest conditions. The superior design of the DryMax™ Seal will keep you and your vessel running full speed ahead.

### DRYMAX™ SEALING SYSTEM
- Easy to use and install
- Eliminates shaft wear
- Environmentally friendly
- Uses no grease, oil or costly lubricants
- Maintenance free operation
- Can replace any existing seal
- Split reversible DuraChrome™ Mating Ring
  - For easy seal change out
  - Extends dry dock intervals
- Inflatable air seal permits service at sea
- Uses draft pressure to maintain seal

![Step 1](image1.png)
![Step 2](image2.png)
![Step 3](image3.png)
![Step 4](image4.png)

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**Shaft Earthing Assembly**

**Propeller Shaft**

**O-Ring**

**Primary DryMax™ Seal Ring**

**Spare DryMax™ Seal Ring**

**Spare Stainless Steel Garter Spring**

**DuraChrome™ Split Mating Ring**
Easy maintenance of DryMax™ Seal System.

Self retracting inflatable air seal ring.

Duramax Marine® was the first to introduce a patented air seal in the Johnson® Heavy-Duty Stuffing Box. Our engineered Inflatable air seal is used as a safety feature on the DryMax™ Shaft Seal System.

The air seal is held by a bronze retaining ring in the housing. It can be pressurized to make contact with the shaft, preventing any seawater from entering the vessel. It’s a safety measure if leakage exceeds allowable levels. It can be pressurized to replace the rubber seal ring at sea without dry docking.

Engineered for easy seal ring change out.

The DryMax™ primary sealing components can be renewed easily with the vessel at sea. With seawater restricted by the inflatable seal the split DuraChrome™ Mating Ring can be removed and the old seal ring replaced with the spare seal. The split DuraChrome™ Mating Ring is reversible and switching to the unused side extends service intervals.

Shaft Earthing Device for corrosion control.

The Duramax® DryMax™ Shaft Seal System includes an earthing assembly to help prevent shaft corrosion. The assembly contains a replaceable carbon brush that is spring loaded and grounded to the ship’s hull.

DRYMAX™ SHAFT SEAL OPERATES AS AN OPEN SYSTEM.
Global service and support network.

**Unmatched technical support.**

Duramax Marine® products are backed by a team of marine industry professionals that supplies technical support before, during and after installation of your Duramax® DryMax™ Seal System.

Our experts can assist you in converting your existing seal or stuffing box to fit our seal flange. **Once installed, if at any time you need technical help to solve a problem just contact our technical support group at +1 440-834-5400.**

Our worldwide distribution network puts our complete line of high quality marine products and spare parts within your reach to keep your vessel operating at peak performance.

**Factory authorized installation and service.**

Duramax Marine® has a global service network available for new installations and service on existing systems. Our service professionals can vulcanize new seal rings on the shaft while your vessel is at sea and can help you get the most from your DryMax™ Sealing System. Contact Duramax Marine® for more information.

### SEAL SPACE REQUIREMENTS

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Duramax Marine® is committed to providing excellence in every product we manufacture. Our Johnson Cutless® marine and industrial bearings, heat exchangers, impact protection systems and sealing systems are known worldwide for their engineered quality and dependable performance. Please contact the factory for information on any of the following Duramax Marine® products:

**JOHNSON CUTLESS® WATER-LUBRICATED BEARING SYSTEMS**
- Johnson Cutless® Sleeve and Flanged Bearings
- DX 490 Rudder Bushings

**DURAMAX® ADVANCED WATER-LUBRICATED BEARING SYSTEMS**
- Johnson® Demountable Stave Bearings
- ROMOR® I Stave Bearings and Segmental Housings
- ROMOR® C- Partial Arc Bearings
- DMX® Polymer Alloy Bearings
- DuraBlue® Rudder & Pintle Bushings, Thrust Washers, and Wear Pads
- Industrial Pump Bearing Systems

**DURAMAX® HEAT EXCHANGE SYSTEMS**
- DuraCooler® Keel Coolers
- Duramax® Demountable Keel Coolers
- Duramax® BoxCoolers
- Duramax® Plate Heat Exchangers

**DURAMAX® IMPACT PROTECTION SYSTEMS**
- Johnson® Commercial Dock Bumpers, Fenders & Tow Knees
- Weatherstrip Door Gaskets, Window Channel and Hatch Cover Gaskets
- LINERITE® Composite Batterboard Systems

**DURAMAX® SHAFT SEALING SYSTEMS**
- DryMax™ Shaft Seal
- Duramax® Mechanical Shaft Seal
- Johnson® Heavy-Duty air seal Stuffing Boxes
- Duramax® Ultra-X® High Performance Compression Packing
- Johnson® Strong Boy Stern Castings and Stuffing Boxes

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