



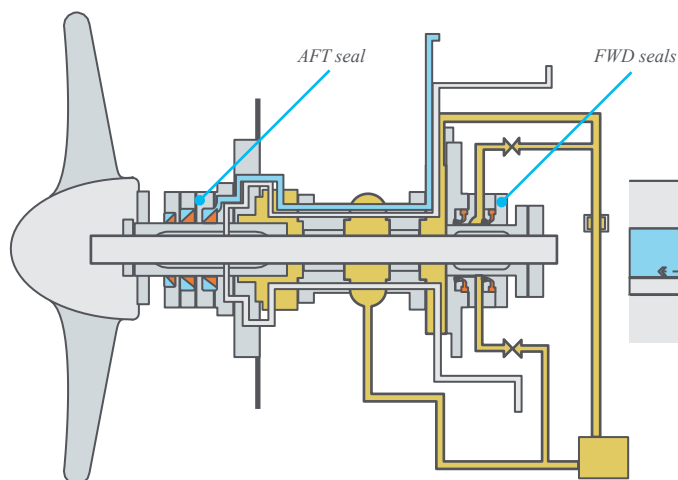
MARINE ENGINEERING SEALING APPLICATIONS

TECHNICAL HANDBOOK

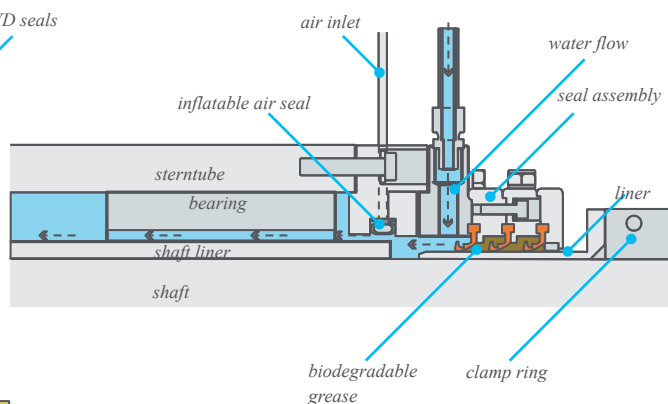
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MARINE ENGINEERING APPLICATIONS



EXAMPLE OF OIL STERN TUBE LUBRICATION SYSTEM



EXAMPLE OF WATER STERN TUBE LUBRICATION SYSTEM

Around 90% of world trade is carried by the international shipping industry. Without shipping, the import/export of affordable food and goods would not be possible - half the world would starve and the other half would freeze!

Vessels must sail and it's the propulsion systems that convey ships all over the world. Seals efficiently and effectively keep the water out and the vital lubricants in. Thanks to our strong strategic alliances with some of the world's leading sealing solution companies, O Rings Limited are ideally placed to assist you in finding the optimum seals for your application. From a simple and basic o ring to the most advanced specialised seal, we've got you covered.

The main propulsion systems are as follows and with, nearly 50 years experience in the seal industry, we know we can assist you with top quality and competitive solutions for your sealing requirements.

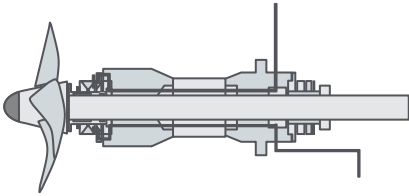
- Propeller stern tube systems (STLS seals)
- Azimuth Thrusters
- Tunnel Thrusters
- Bow Thrusters
- Rudder & Steering Gears
- Roll Fin Stabilizers

In each one of these systems there are gearboxes, bearings, and other mechanical components all supported by their seals which, thanks to their efficiency, guarantee the integrity of the entire propulsion system.

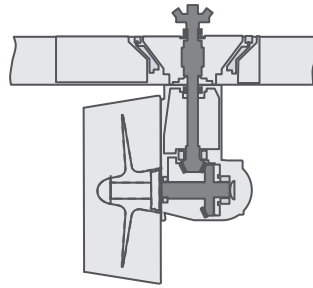
O Rings Limited supply a range of seals that mount in oil lubricated propeller shaft bearings to prevent any water from entering into the stern tube, or getting into contact with any other part of the engine. This not only prevents damage but also guarantees no oil leakage into the water from the stern tube, protecting the environment.

With the correct sealing solutions in place shipping is the least environmentally damaging form of commercial transport and, compared with land based industry, is a comparatively minor contributor to marine pollution from human activities.

APPLICATIONS



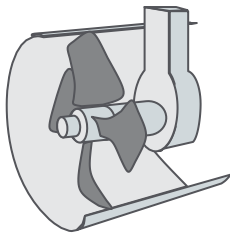
**PROPELLER STERN
TUBE SYSTEMS**



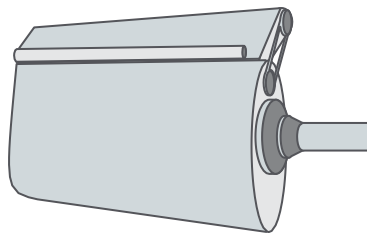
AZIMUTH THRUSTERS



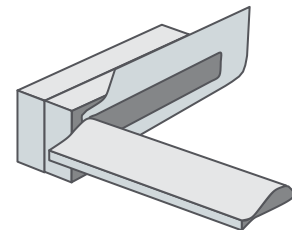
BOW THRUSTERS



TUNNEL THRUSTERS

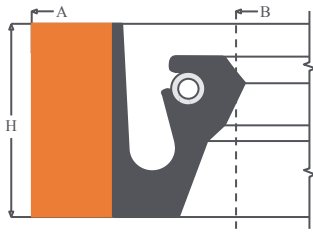


RUDDER & STEERING GEARS



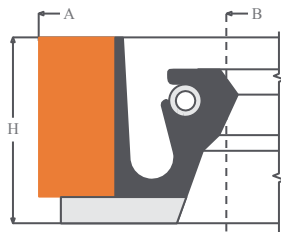
ROLL FIN STABILIZERS

SEALS FOR PROPULSION SYSTEMS



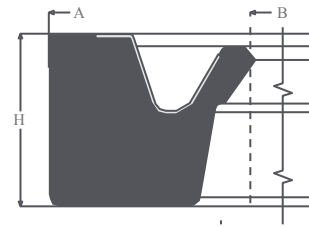
TGU

Oil seal with a flexible reinforced textile rubber back, and rubber sealing lip with a garter spring.



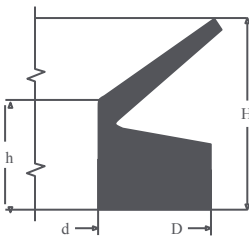
TGA

Provided with axial (A) and radial (R) lubrication grooves; mostly used in "back-to-back" applications.



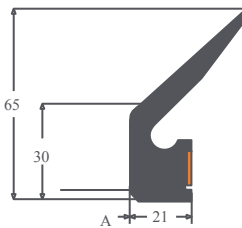
GM

All rubber oil seal with a vulcanized stainless steel finger spring. Recommended for difficult assembly conditions and replacements of the seal on site.



VA

V-Ring with standard cross section proportional to the diameter of the shaft. On demand, fastening metal band with clips.



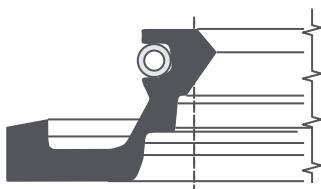
VRME

V-Ring with a built-in housing for a fastening metal band. Cross section with fixed dimensions.



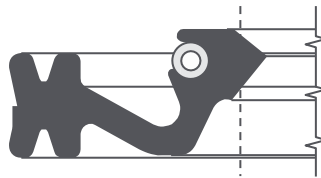
NET STOPPER

Special shaped ring for AFT Bearings on marine propeller stern tube systems.



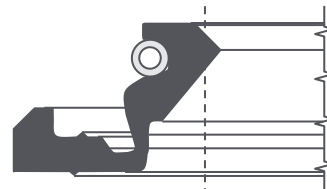
STLS-L

Seal with essential profile to maintain separated lubrication and water in the propeller shaft's housing, and prevent oil leakage, both in the Front and in the Rear Bearing. It can be used also in Tunnel Thrusters, in Bow Thrusters and in Azimuth Thrusters.



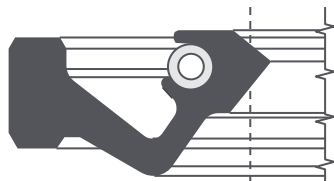
STLS-S

Seal with special profile, which absorbs the variation of pressure and ensures a synchronized movement of the lip with the oscillations of the propeller shaft, maintaining a minimum lubricating oil film to increase performance, both in the Front and in the Rear Bearing.



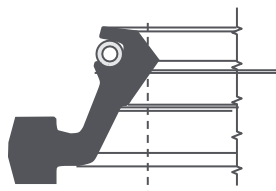
STLS-LLS

Seal with enlarged profile to maintain separated lubrication and water in the propeller shaft's housing, and prevent oil leakage, for heavy duty marine applications.



STLS-K

Seal with reinforced profile to better stand the pressure variation inside the propeller shaft, maintaining a minimum lubricating oil film both in the Front and in the Rear Bearing.



STLS-W

Seal with special profile for applications with high speed, and to better stand the pressure variation inside the propeller shaft, avoiding leakages even with tight housing space. Both the Front and in the Rear Bearing.



O-RINGS

Large size and Endless O-Rings.

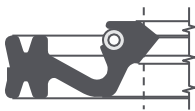
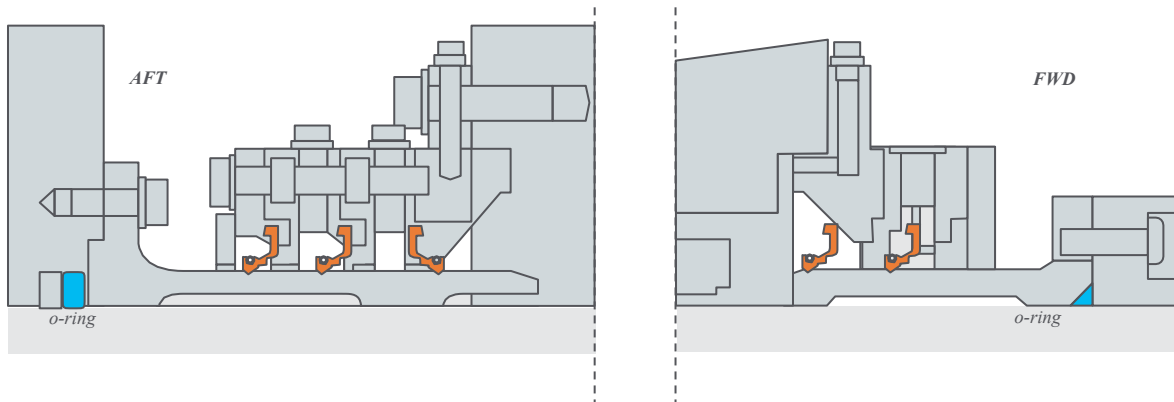
STERN TUBE LIP SEALS (STLS) APPLICATIONS



PROPULSION SYSTEM WITH PROFILE STLS-L

This propeller shafts presents a standard design, which requires seal with an essential profile to maintain separated lubrication and water in the propeller shaft's housing, and prevent oil leakage both in front and rear bearings. It can be used also in tunnel thrusters, bow thrusters and in azimuth thrusters.

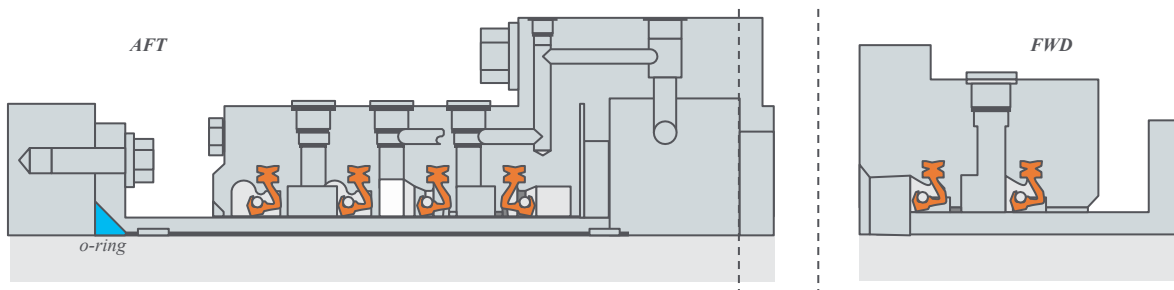
STLS-L



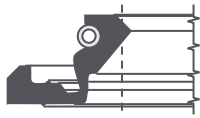
PROPULSION SYSTEM WITH PROFILE STLS-S

The design of this particular propeller system, requires a seal with special profile, which absorbs the variation of pressure and ensures a synchronized movement of the lip with the oscillations of the propeller shaft, maintaining a minimum lubricating oil film to increase performance, both in the front and in the rear bearing.

STLS-S



STERN TUBE LIP SEALS (STLS) APPLICATIONS

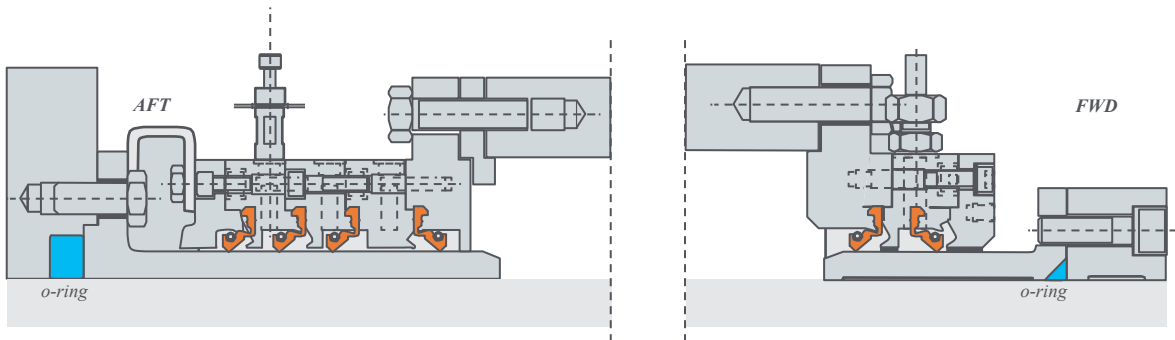


PROPULSION SYSTEM WITH PROFILE STLS-LLS

This propeller system design would be found on a larger vessels for heavy duty marine transportation.

It requires a seal with an increased profile to maintain separated lubrication and water in the propeller shaft's housing and prevent oil leakage

STLS-LLS

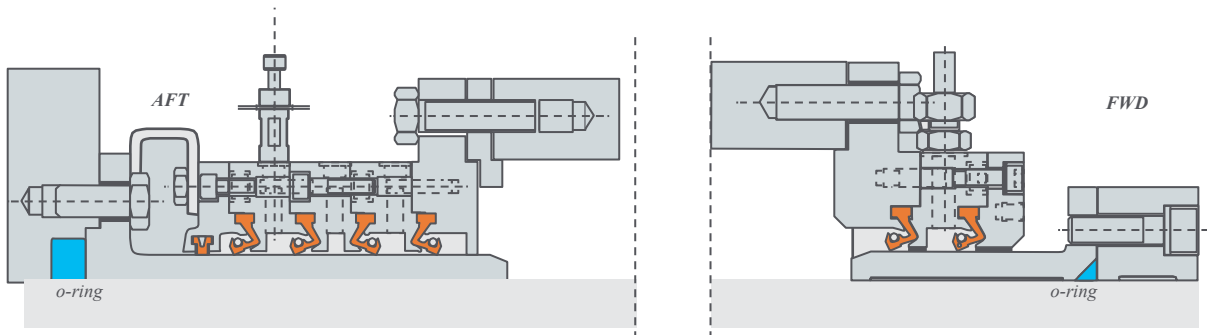


PROPULSION SYSTEM WITH PROFILE STLS-K

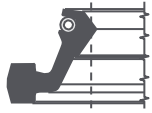
Depending the kind of boat where it is mounted, this propeller system may be designed with or without a Net Stopper ring. This design requires seals with a reinforced profile to better stand the pressure variation inside the propeller shaft, maintaining a minimum lubricating oil film both in the front and in the bear bearing.

STLS-K

NET STOPPER



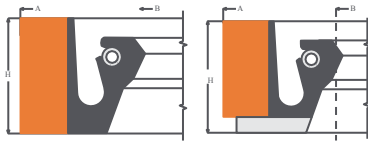
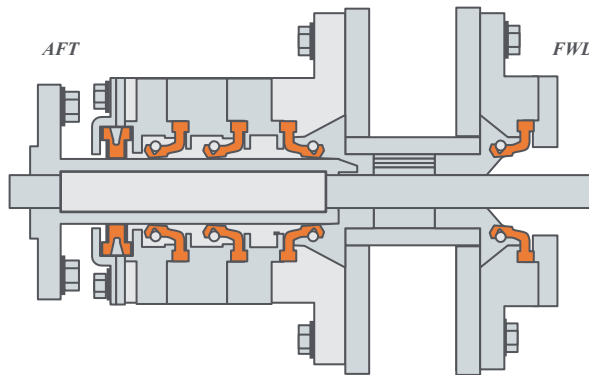
STERN TUBE LIP SEALS (STLS) APPLICATIONS



STLS-W

PROPULSION SYSTEM WITH PROFILE STLS-W

Because of its design, this propeller system can run very fast and for this reason it requires seals with a special profile to withstand high speeds, and to better stand up to the pressure variation inside the propeller shaft, avoiding leakages even with tight housing space, both in the front and in the rear bearing.



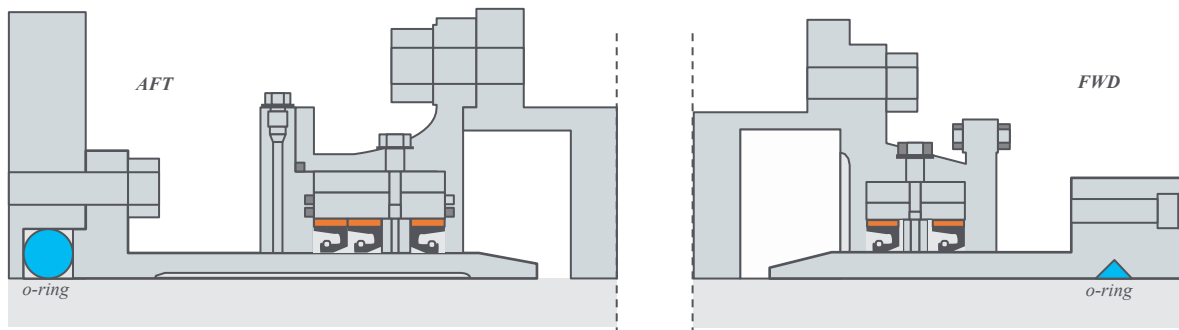
TGU

TGA

PROPULSION SYSTEM WITH PROFILE TGU or TGA

These propeller systems are based on "old school" design and use textile reinforced rubber seals. The TGU is an oil seal with a flexible reinforced textile rubber back, and a rubber sealing lip with a garter spring.

The TGA is an oil seal with a flexible reinforced textile rubber back, and a rubber sealing lip with a garter spring combined with axial (A) and radial (R) lubrication grooves.





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