



# MARINE ENGINEERING SEALING APPLICATIONS

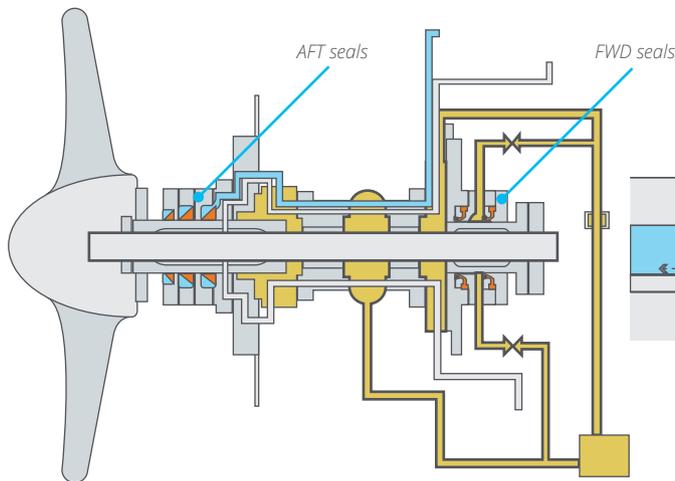
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**TECHNICAL HANDBOOK**

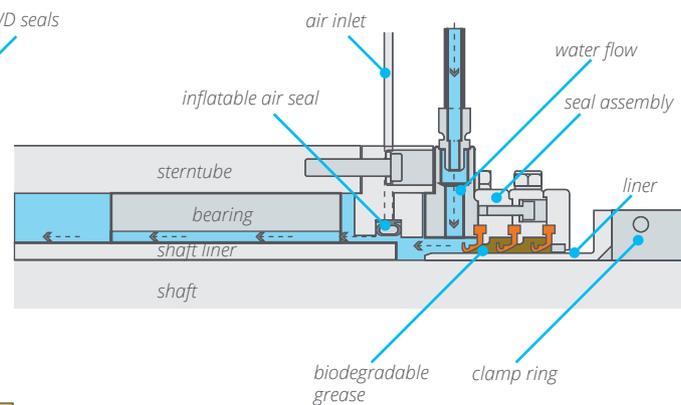
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## MARINE ENGINEERING APPLICATIONS



EXAMPLE OF OIL STERN TUBE LUBRICATION SYSTEM



EXAMPLE OF WATER STERN TUBE LUBRICATION SYSTEM

Marine propulsion systems allow ships, cargos, boats and any floating vessel to move all over the water world thanks to mechanical equipment, that ensure the distribution of power from the engine to the propellers. F.Ili Paris S.r.l. is producer and supplier of the Brands • FP • and ATS as first equipment or spare parts of commonly used Stern Tube Lip Seals (STLS) for Propeller Lubricating System, as much as dynamic and static sealing for other applications in marine engines and on-board equipment.

Being an independent producer of large Seals F.Ili Paris S.r.l. can help you with competitive top quality solutions for the best compatible choice of the right Oil Seal or sealing element for different vessel designs and applications.

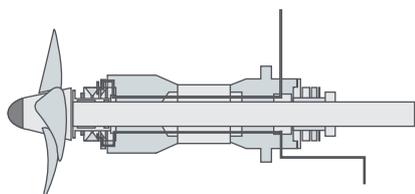
- Propeller stern tube systems (STLS seals)
- Azimuth Thrusters
- Tunnel Thrusters
- Bow Thrusters
- Rudder & Steering Gears
- Roll Fin Stabilizers

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. The F.Ili Paris S.r.l. seals mount in oil lubricated

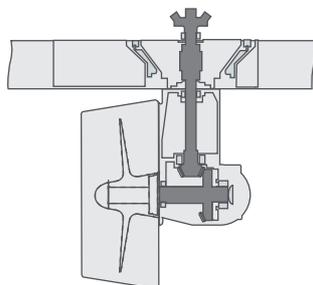
propeller shaft bearings prevent the water from entering into the stern tube, or to get in contact with any other part of the engine or into the engine room, causing severe damages. They also guarantee no oil leakage from the stern tube into the water protecting the environment.

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## APPLICATIONS



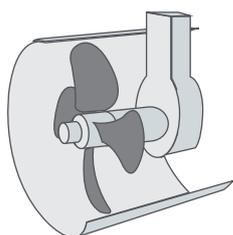
**PROPELLER STERN  
TUBE SYSTEMS**



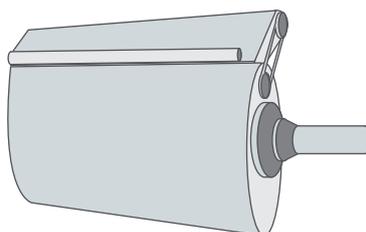
**AZIMUTH THRUSTERS**



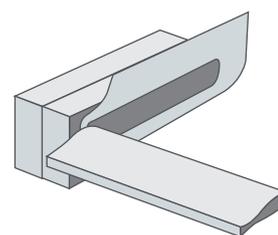
**BOW THRUSTERS**



**TUNNEL THRUSTERS**

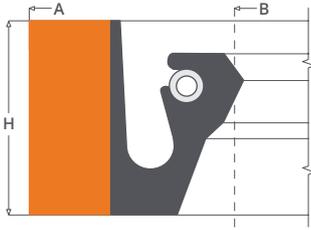


**RUDDER & STEERING GEARS**



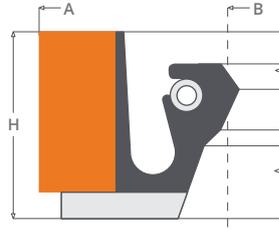
**ROLL FIN STABILIZERS**

Seals for propulsion systems



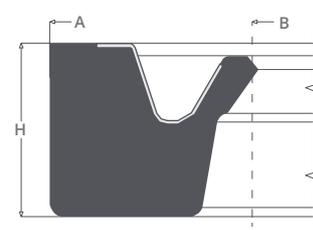
**TGU**

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



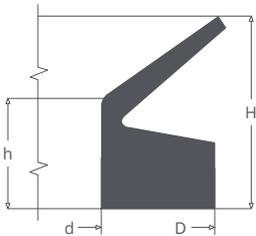
**TGA**

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



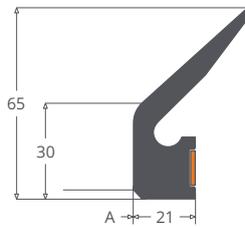
**GM**

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



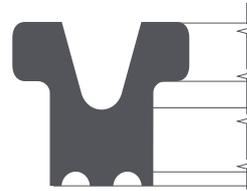
**VA**

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



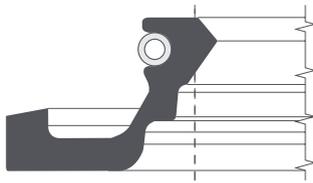
**VRME**

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



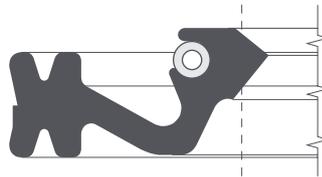
**NET STOPPER**

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



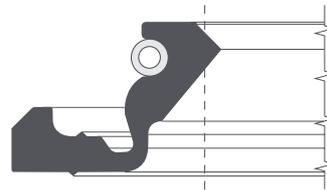
**STLS-L**

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.



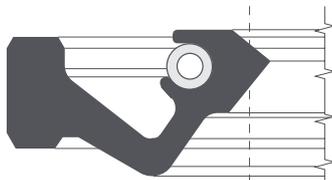
**STLS-S**

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.



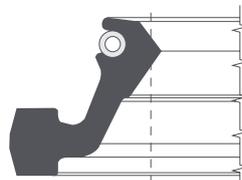
**STLS-LLS**

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.



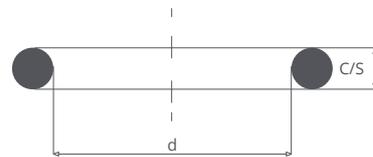
**STLS-K**

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

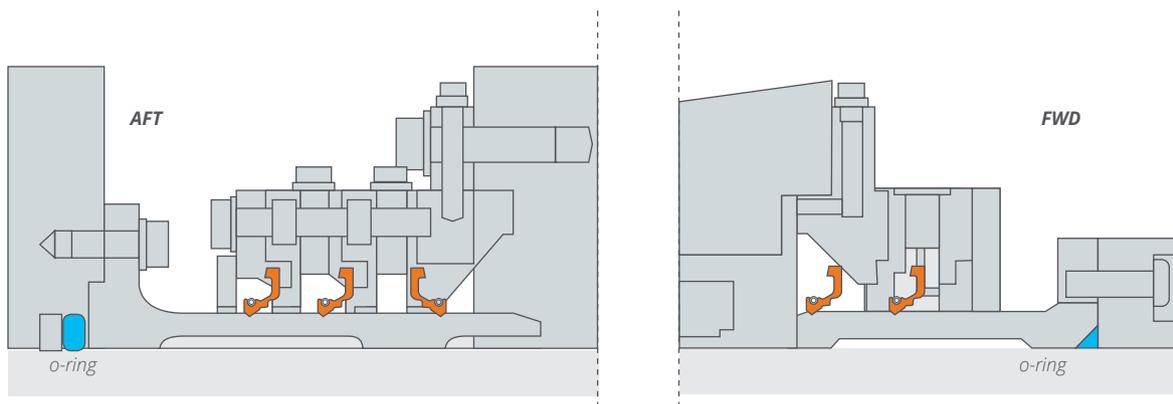


STLS-L

### 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 leak-

age, both in the Front and in the Rear Bearing. It can be used also in Tunnel Thrusters, in Bow Thrusters and in Azimuth Thrusters.

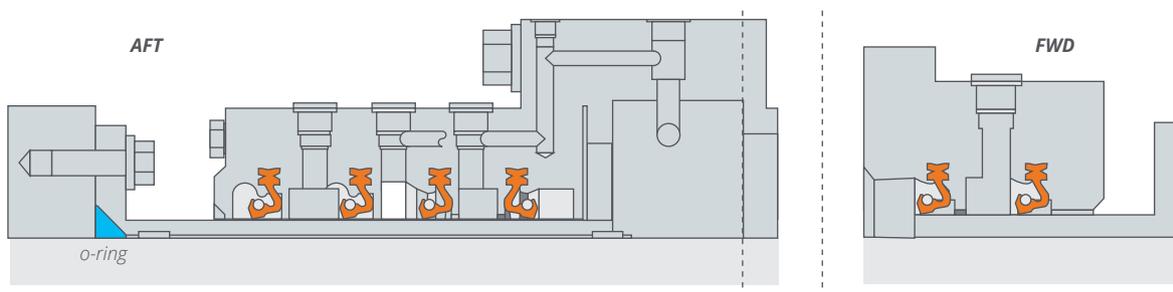


STLS-S

### PROPULSION SYSTEM WITH PROFILE STLS-S

The design of this peculiar 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.



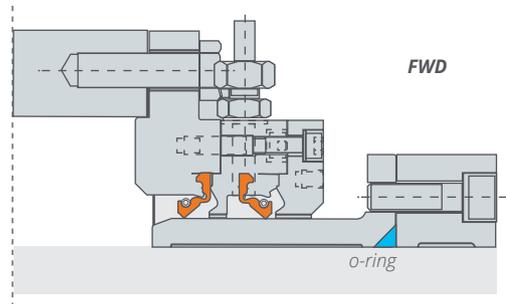
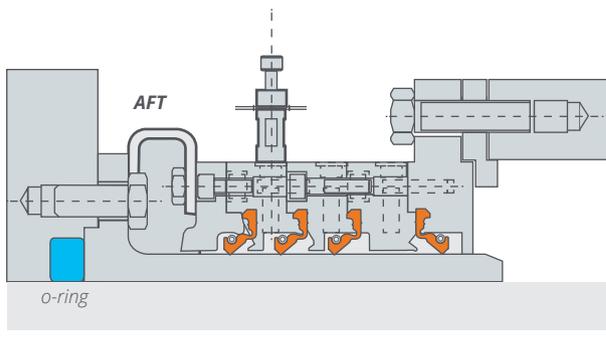
## STERN TUBE LIP SEALS (STLS) APPLICATIONS



**STLS-LLS**

### PROPULSION SYSTEM WITH PROFILE STLS-LLS

This propeller system design is used on big vessels, and for huge loads and 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.



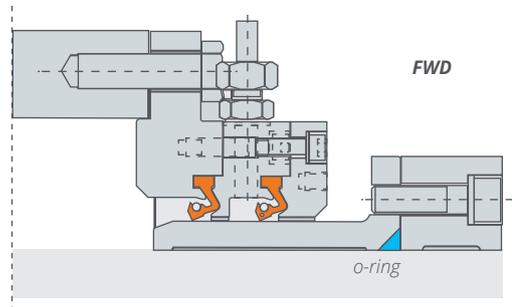
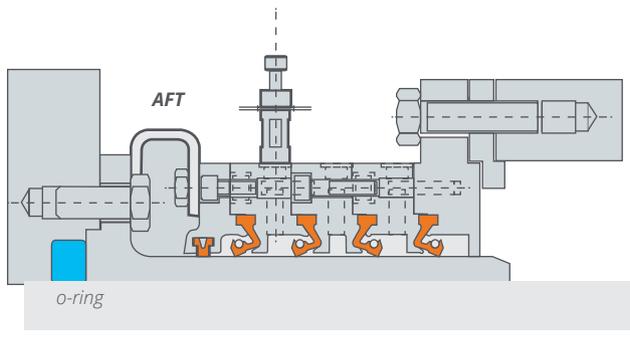
**STLS-K**



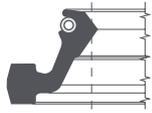
**NET STOPPER**

### PROPULSION SYSTEM WITH PROFILE STLS-K

Depending the kind of boat where it is mount, 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 Rear Bearing.



## STERN TUBE LIP SEALS (STLS) APPLICATIONS

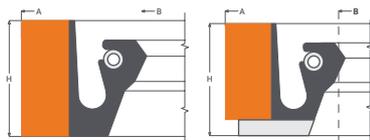
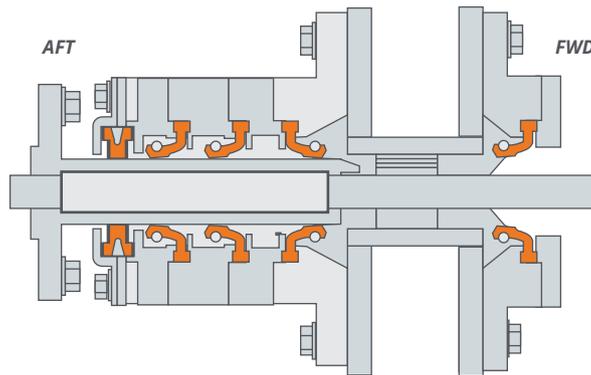


**STLS-W**

### 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 special profile to withstand high speeds, and to better

stand the pressure variation inside the Propeller Shaft, avoiding leakages even with tight housing space. Both in the Front and in the Rear Bearing.



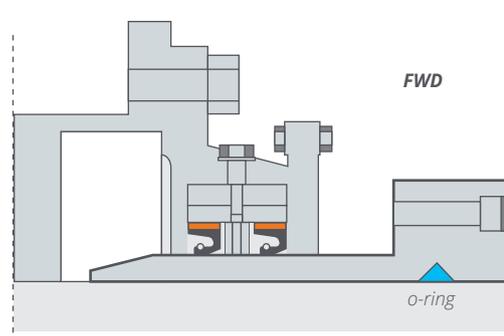
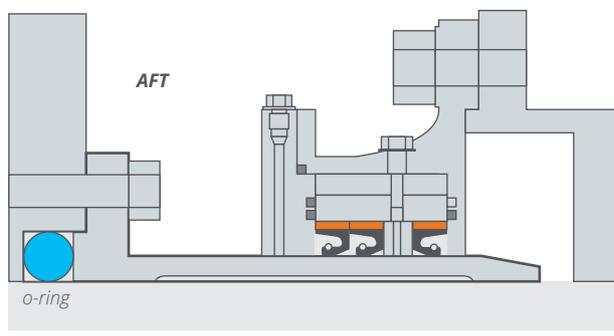
**TGU**

**TGA**

### PROPULSION SYSTEM WITH PROFILE TGU or TGA

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

lip with a garter spring. The type 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.





### Headquarter and sales office

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### Production

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