



UNNET LIP SEAL PROTECTION

The UNNET lip seal protector is an optional protection device intended for all aft lip-type stern tube seals of the Wärtsilä Seals & Bearings portfolio.

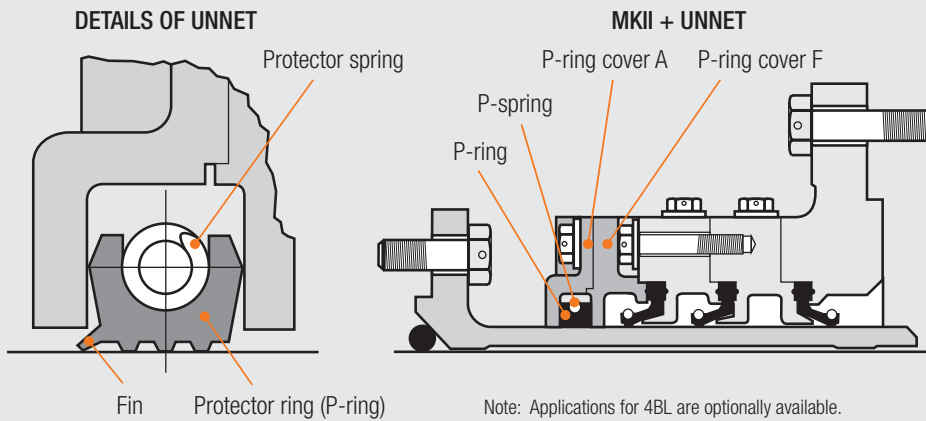
Damage of aft stern tube seals by fishing nets and lines is a well known phenomena, as old as oil lubricated stern tube systems themselves. Many methods have been tried to overcome this problem and to prevent vessels from emergency docking or other costly effects of a damaged seal.

All known protectors have one problem in common; there is always a gap between

the rotating and static parts which is at least equal to the shaft's axial and radial movements. These gaps are usually so wide that fishing nets and lines are not prevented from entering the seal envelope.

Wärtsilä's UNNET lip seal protector provides owners with the ultimate protection against seal ring damage caused by foreign bodies entering from outside, in particular fishing nets and lines. Wärtsilä has supplied many hundreds of the UNNET lip seal protector for various types of stern tube seals since its introduction in 1980.

Due to its design the UNNET lip seal protector can be applied on all Wärtsilä's lip type seals either for newbuild vessels or for upgrading. Existing Wärtsilä lip type seals accept the UNNET without any modification. Upgrading can be done in situ without removal of shaft and/or propeller.



TRIPLE PROTECTIVE FUNCTIONS

The P-ring is designed to revolve with the shaft and the UNNET provides three stages of protective functions against foreign objects such as fishing nets or fishing lines, which would otherwise get into the sterntube seal.

STAGE 1 The fishing net that winds round the liner is blocked by the fin of the P-ring and is prevented from being caught between the P-ring and the liner.

STAGE 2 If the volume of the net is larger, the aft sliding face of the P-ring will prevent it from entering further.

STAGE 3 The net caught in the space between the P-ring and metal covers is finally blocked at the fore sliding face of the P-ring which is pressed against the P-ring cover F.

APPLICABLE SEAL TYPE

- MK2
- MK2M
- 4BL
- Safeguard
- 3AS (included in standard)

STANDARD EXECUTION

- Fully split
- Standard materials
- Covers: Ni-resist or bronze
(Depending on seal housing materials)
- P-ring: NBR
- Spring: Stainless steel

DESIGN FEATURES

At the aft end of the seal housing a double cover is fitted. In the cavity between the 2 covers a rubber ring, the P-ring, is clamped around the shaft liner by a strong stainless steel spring. The P-ring, fitting tightly on the liner surface, revolves with the liner. At the aft side of the P-ring a fin protrudes between the housing and the liner. The forward and aft sliding parts of the P-ring run against the metal covers.

TRIPLE PROTECTION

Fishing net or line that winds around the liner is blocked by the fin of the P-ring and hence, prevented from entering the aft seal chamber.



The fishing net or line cannot easily pass the aft sliding surface of the P-ring, however, in the unlikely event that the fishing net or line does enter the cavity between the two covers, the cavity is filled-up and the forward sliding surface of the P-ring is pressed even harder against the forward cover, creating a final barrier.

FEATURES

- Gap-free
- Easily fitted
- Proven design
- Standardised wearing parts
- All parts renewable in situ
- Fully split

BENEFITS

- Protection against finest of foreign particles
- Low initial cost
- Low operational cost
- Fast ex-stock supplies of wearing parts
- Reliability
- Low repair cost
- Seal upgrade without shaft or propeller removal