Cable sheave bearings SL04 on the semi-submersible crane vessel Hermod





Figure 1 · Semi-submersible crane vessel Hermod of the company Heerema Marine Contractors, moored in Rotterdam

Heerema Marine Contractors transports, installs and removes all types of offshore facilities for the oil and gas industry worldwide, *Figure 1*. Built in 1978, the crane vessel Hermod along with her sister vessel Balder is part of the Heerema fleet of working ships. Hermod has space for a crew of up to 336 and is equipped with two cranes. The crane vessel is powered by the seven diesel generators (2765 kW each), two electrically driven controllable pitch propellers aft (4 400 kW each) and two retractable electrically driven controllable thrusters forward (1470 kW each).

The two cranes on the Hermod working in tandem can lift up to 8100 t at a radius of 39 m. At minimum radius, the auxiliary hoists are capable of each lowering 600 t to a depth of 3000 m under the work deck. The cable sheave bearings SL04 fitted in the crane's jib reliably transmit the heavy loads under the challenging offshore weather conditions.

Schaeffler Group Industrial supplies approx. 500 cylindrical roller bearings of series SL04 for the crane vessel Hermod that are used to support the cable sheaves.

Transit speed

6 knots with a deck load of 8 000 t at a draft of 11,5 m.

Port side crane

- Main hoist lifting height of up to 92 m
- Device for lowering to a depth of 3 000 m.

Starboard side crane

- Main hoist lifting height of up to 81 m
- Device for lowering to a depth of 3 000 m.

Cable sheave application

Cable sheaves are used as return and guide elements for the main cable, *Figure 2*. Depending on the type they are arranged either singly or in multiples alongside each other as an assembly. They are manufactured mainly from a special steel and are extremely robust with good wear resistance. The sheaves are mainly subjected to radial load due to the wrap of the main cable. However, axial forces and tilting moments may also occur due to diagonal pull of the cable as a result of the crane design.



Figure 2 · Cable sheave bearings in the example of a hook block

INA cable sheave bearings

INA cable sheave bearings have proved successful for decades in different areas of application for cable sheaves.

In order to obtain a cable sheave system with the lowest possible maintenance requirements, cable sheave bearing arrangements must fulfil the following requirements:

- Long operating life
- Effective sealing throughout the operating life
- Good relubrication facility
- Anti-corrosion protection.

In addition to good weather resistance, the following factors are decisive in bearing selection:

- Ease of mounting
- Integrated sealing
- High basic dynamic and static load ratings.

Schaeffler Group products in the crane vessel Hermod

In an environment as challenging as that of a crane vessel, where bearings are continually exposed to corrosive salt water, extreme temperature fluctuations and UV radiation, cylindrical roller bearings with Corrotect[®] coating offer an optimum solution for cable sheave bearing arrangements.

The bearings fitted in the crane vessel Hermod are narrower than the basic type SL045052-PP-RR and are fitted with special seals for high media resistance. Selection of the correct mounting fit gives a reliable bearing solution, *Figure 3*.



Figure 3 · Cylindrical roller bearing with anti-corrosion protection and seals

Special coating Corrotect[®]

Corrotect[®] is an extremely thin, electroplated zinc-iron coating free from Cr(VI) that is used to protect rolling bearings against corrosion.

The anti-corrosion protection gives a significant increase in operating life compared to uncoated parts. The decisive factors are that formation of rust under the seal lip is prevented, premature wear of the seal lip is prevented and that contamination and water cannot penetrate the bearing, *Figure 4.*



Figure 4 · With and without coating after the salt spray test

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