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Press release

Conquering the world with Spartacus

- Liebherr and IHC develop an anchor winch for the currently world's largest and most powerful cutter suction dredger
- Liebherr designs high-torque plug-in gears with torque ranging up to 1,500,000 Nm for the Spartacus
- The overall high performance of the Spartacus makes cutting through hard sediments a reality

Nussbaumen (Switzerland), 25 September 2019 – In close cooperation with Royal IHC, a leading provider of maritime solutions for the offshore, dredging and wet mining applications, Liebherr has designed special planetary plug-in gearboxes for rope winches to be installed on the "Spartacus" - the world's largest and most powerful cutter suction dredger.

The first LNG-driven, 164 m long and 44,180 kW-strong Spartacus is getting ready to conquer the world of dredging vessels. The Liebherr Components Division has played its part in this. In close cooperation with the development department of IHC, Liebherr has designed a wide spectrum of planetary plug-in gearboxes for cutter suction dredgers.

The gears are used, for example, to move the anchor booms. The winches also serve to hoist the very heavy side-mounted anchors, to move the discharge pipes for barge loading or haul and to keep barges moored alongside in heavy seas.

For the Spartacus, Liebherr and IHC developed an anchor winch with two high-torque plug-in gears (up to 1,500,000 Nm) and equipped these with axial play, in order to guard against any possible tensions in the steel structure. The multiple tooth mesh of the planetary gear stages provides the gears' very high power density. The drum bearings in the transmission are designed specifically for use in winches to comply with high service life and maintenance-friendly operation requirements. Salt water-resistant paints and the particularly robust and compact design make them ideal for deployment on the high seas, and ensure the long life of the components. Liebherr conducted a detailed heat calculation and supported IHC in choosing a suitable cooling option.

"For the Spartacus project, we chose Liebherr planetary gearboxes, because of the good experience we already had with them," explains JaapJan de Koster, Lead Engineer at IHC. "For a number of these winch drives, secondary controlled hydraulic motors were applied, which place high demands on the rest of the drive, such as an increased mass inertia. For this requirement Liebherr has applied their extensive knowledge of drive technology and provided us with a very solid and integrated solution. Their technical support on this project helped a lot and we had our minds free to focus on other technical challenges for this very special vessel," de Koster concludes.

All told, the Spartacus incorporates 12 different gears with torque ranging from 165,000 to 1,500,000 Nm in use. The overall high performance of the Spartacus will enable it to cut through even the harder sediments at high speeds. This was only a dream of the future, now cutting instead of blasting is a reality.

The maritime division of Liebherr also contributed to this major project, and supplied IHC with its largest CBW-F 3450 ship crane, which was specifically developed for the Spartacus in March of this year. The cooperative partnership between IHC and Liebherr has been in place for several years and continues to evolve.

At Offshore Energy 2019 in Amsterdam (the Netherlands), Liebherr demonstrates its expertise in maritime solutions from 8th to 9th of October. The focus thereby lies on the new LPI gearbox generation and the slewing bearing portfolio. Visit us at booth 210 in hall 1 and get an insight into the world of Liebherr Components.

Captions

first-lng-driven-dredging-vessel-spartacus.jpg
The first LNG-driven dredging vessel Spartacus.

liebherr-ihc-anchor-winch.jpg
For the Spartacus, Liebherr and IHC developed an anchor winch with two high-torque plug-in gears.

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