



JAURE®

Perceptiv™

JAURENews

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General Industry | Wind | Marine | Metals & Heavy Duty | Perceptiv™ & Service

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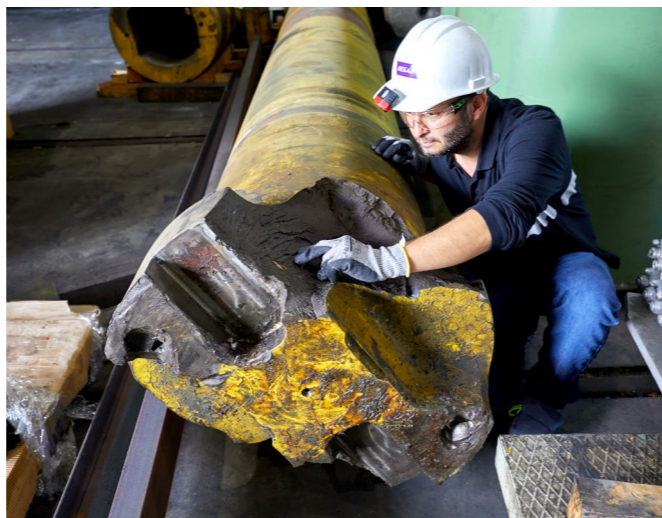
REGAL®

JAURE® GEAR SPINDLES AND PERCEPTIV™ SERVICE TEAM AT ALUMINUM HOT ROLLING MILL



This case study started with a failure in the hot rolling mill of an Aluminum manufacturer. With limited spares, and a crack in one of the working spindles, they got in touch with us in order to look for a fast support on:

- Solution to get a spare spindle in place.
- Find out the root cause.
- Get new spares.
- Have all the spares inspected to know if they are ok for the future.



Hot Rolling Mill Spindle's failure.

CUSTOMER'S NEED	OUR OFFER
Fast solution to get a new spindle in place	Make a new spindle shaft out of 2 broken ones
Root cause analysis + preventive maintenance design"	<ul style="list-style-type: none"> · Torque Monitoring · Torsional Vibration Analysis
Get new spares	<ul style="list-style-type: none"> · Design improve with Finite Element Analysis · Manufacture of 2 new shafts · Manufacture of 2 new roll side hubs
Get spares inspected	<ul style="list-style-type: none"> · Hubs inspections · CBK union inspection
Service Support	Installation service support

Repair

In the interest of time, the broken spindle was repaired by welding the safe side of another broken spindle. All the process was done in less than 2 weeks.



Spindle after urgent repair.

Installation

Jaure® Service team supported the customer in their installation and checking works during stops in their manufacturing plant. Other parts of the drive-chain had also suffered heavily from that event, and needed a deep overhaul for being operative as a valid spare again. Couplings and pinion gearbox were inspected. Gearbox's bearings were changed by Jaure Service personnel. For that the spindle hub needed to be extracted from Gearbox's shaft by hydraulic means, using almost 3000bar.



Monitoring and diagnostics

Perceptiv™ service team proposed and conducted a torque monitoring and torsional vibration analysis and provided weekly reports of the Torque monitored in both spindles to the customer, as well a report of the TVA study.

For that we installed five torque sensors along the driveline. Real data for the TVA was acquired during 3 months of production; Torque monitoring analysis from a Perceptiv technology analyst was performed during one year.

Currently the system keeps working and customer's crew is using it as a valuable tool.

The fact of being able to see this key parameter (real torque instant data), helped us to identify the hazardous loads induced over the application. Thanks to this, other production parameters, as slab temperature, cylinder's pressure, speed, motor currents, were adjusted in order to preserve the drive-train from another unexpected failure.



Torsional vibration analysis

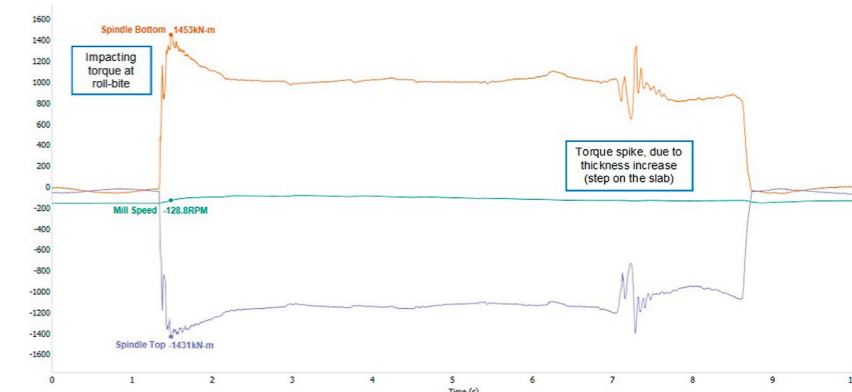
The Torsional Vibration complete study included the simulation of Mass Elastic Data on a simplified model, the verification of two torsion modes and the torsional interference check for the working speeds. This study showed that the health of the application was good. It also helped to understand that the mass and stiffness of the system was well balanced.

Design

Thanks to the analysis of the real torque data, a valuable Finite Element analysis was performed, and the results were used for a redesign of the critical area of the spindle. The new parts were manufactured as well in optimized material specifications and assembled on a new spindle.

New Parts

Complete new spindles were manufactured by using the improved design and delivered to customer.



JAURE® LIGHT WEIGHT DRIVESHAFTS FOR HIGH SPEED VESSELS

Waterjets are widely used today for many high speed vessels including navy, fast ferries, landing crafts, yachting, patrol boats among other.

The need to reduce weight pushed Jaure R+D to develop Jaure® Carbon Fiber Driveshafts (JCFS) back in the 90's. Since then hundreds of Jaure driveshafts are operating successfully in a variety of high speed vessels.

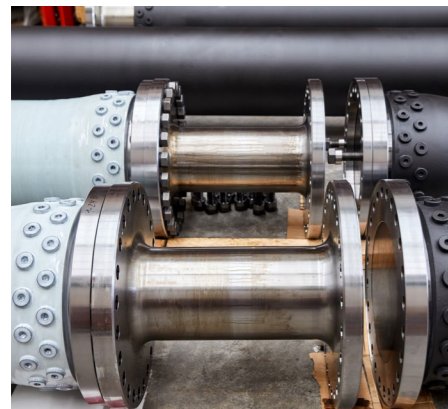
Today we are sharing one of our most challenging JCFS driveshaft projects recently delivered for Eleanor Roosevelt, a 123m Dual-Fuel Fast Ropax Ferry built by the partnership of Spanish Shipyard Astilleros Armón and designer Incat Crowther for Spanish vessel operator Balearia.

Description:

Jaure Lamidisc® Fire Protected Carbon Fiber Driveshafts.

Main features:

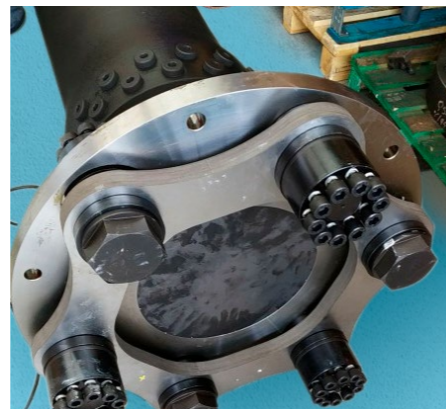
Center driveshafts:	Wing driveshafts:
Length: 28 meters	Length: 13 meters
N° bearings: Two	N° bearings: One
Mass: 2,6 Tonnes	Mass: 1,7 Tonnes



Fire Protection of Carbon Shafts on demand



Assembly job at our workshop



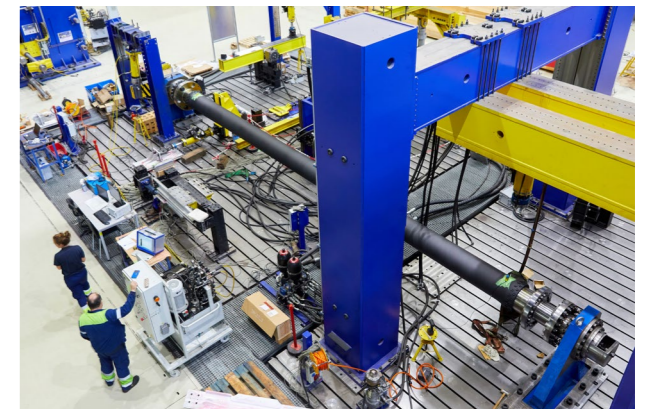
Lamidisc disc pack kit with super nuts



Jaure carbon shaft after installation

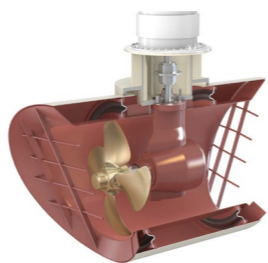


Supervision of installation



Torsional testing of carbon shaft

JAURE® ENGINEERED TO ORDER DRIVESHAFTS FOR THRUSTERS



It is over 50 years since we delivered our first MT gear coupling for a tunnel thruster. Hundreds of flexible couplings leave our works weekly since then to fit all type of tunnel and azimuth thrusters.

Today we are presenting couple of successful international projects delivered for retractable azimuth thrusters in crane vessels.

BOKALIFT 2

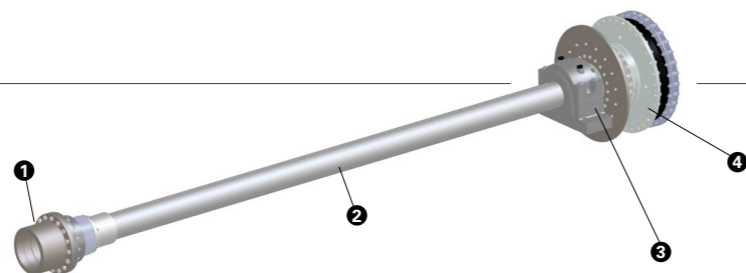
Conversion project of a drillship vessel into an offshore wind vessel. This unique crane vessel will be capable of lifting structures more than 100m high.

The Bokalift 2 will be operated by BoWei Offshore, a joint venture between Boskalis and Hwa Chi construction, and deployed for the first time at the Changfang and Xidao offshore wind farm project in Taiwan.

The vessel is equipped with four 4.500kW retractable azimuth thrusters.

Description:

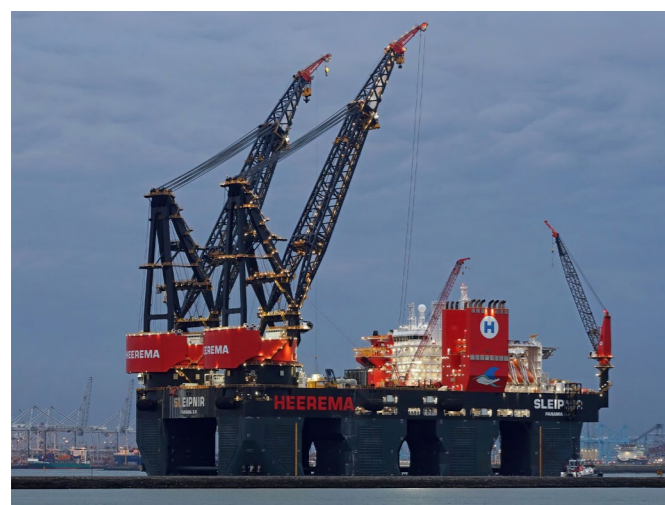
Jaure® couplings engineering team developed a hybrid telescopic driveshaft solution connecting E-motors and Thrusters.



Main features:

Hybrid Gear-Elastic coupling
Tnom: 360kNm
Retracting: 4,6m
Overall length: 6,5m

- 1 MT gear coupling
- 2 Retracting shaft
- 3 Support bearing
- 4 Torsional damper



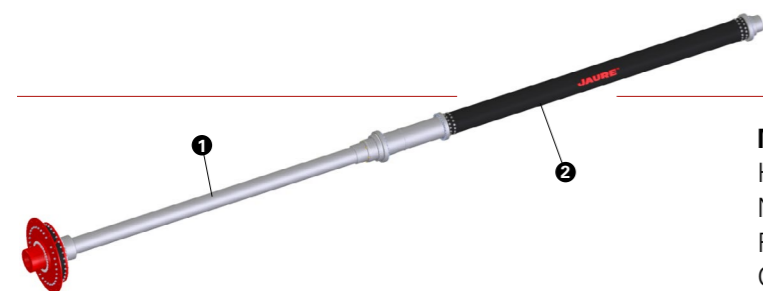
SLEIPNIR

Built by Heerema Marine Contractors, it is designed for worldwide offshore heavy lifting. It is equipped with two cranes of 10,000 metric tonnes lifting capacity each.

Dynamic positioning is critical to its operations and to ensure this, it is built with four Wärtsilä 5500 kW retractable thrusters.

Description:

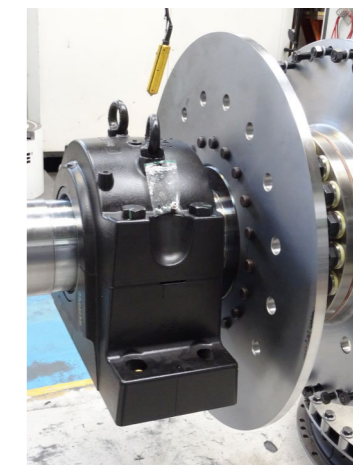
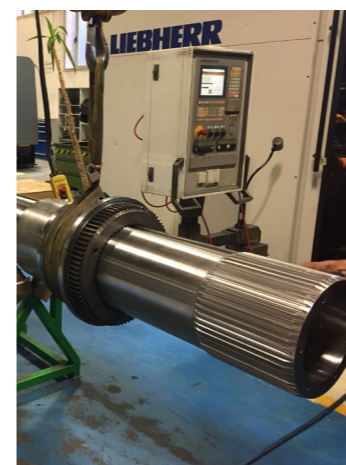
Jaure couplings engineering team developed for the retractable thrusters a light weight 16m carbon fiber driveshaft solution with one only intermediate support bearing and 6 meter of retracting capability.



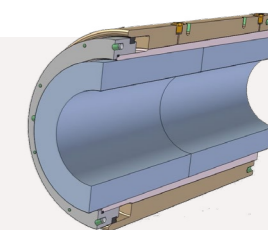
Main features:

Heavy duty gear driveshaft
Nominal torque: 720kNm
Retracting: 6m
Overall length: 16m

- 1 Telescopic shaft
- 2 Carbon fiber shaft



JAURE® HYDRAULIC COUPLINGS FOR PROPELLER SHAFTS



Hydraulic couplings are widely used on propellers shafts to allow an easy instalation and removal of hubs on the shafts.

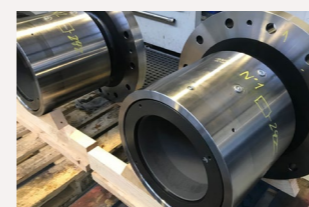
Our JHC can be delivered for inboard and outboard operation. We design customized hydraulic couplings fully made of stainless steel (JHC-SS).

Covers can be made to customer request in various materials and configurations.



Jaure® hydraulic couplings (JHC) are available on two versions: Shaft to Shaft (JHC-S) and Shaft to Flange (JHC-F)

To avoid the use of internal reinforcement sleeve on hollow propeller shafts, Jaure High Friction coupling (JHC-HF) was developed years ago. It can transmit higher torque than conventional JHC by increasing friction between its main torque transmitting components.



Jaure Flanged type JHC-HF-F (Max Torque 680kNm)



Sleeve type JHC-HF-S (Max Torque 960kNm)



Jaure JHC-SS for outboard installation

Installation kit composed of low and high pressure oil pumps are delivered also on demand.

Regal brands for Power Transmission Solutions:

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FOOTE-JONES[®]

GROVE GEAR[®]

 HUB-CITY[®]

JAURE[®]

KOP-FLEX[®]

marathon[®]
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Morse[®]

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