

Application know-how and technology expertise

Components for maritime applications



LIEBHERR

A strong partner for the maritime sector





Components by Liebherr make their case in harbours or on shore, as well as under extreme environmental conditions on the high seas. With its broad product range, Liebherr supports safe and economical operation, thereby contributing to the most decisive competitive factor: productivity. Liebherr has worked with renowned inspection companies for years and has experience with certification processes as well as a certified supply chain.

Applications

Components by Liebherr have been used for decades in maritime cranes of various manufacturers, making Liebherr Components an experienced

partner in meeting the specific needs of the maritime industry. The extensive product range offers efficient solutions for individual applications.

Electric propulsion systems

**Maritime and offshore cranes
Jacking systems and winches**

Dredgers

Pipelaying vessels / tensioners

Cable carousels

Turrets and buoys

**Access bridges
and offshore cranes**

Electric propulsion systems

To reduce emissions and fuel consumption, ships are increasingly equipped with electric drive systems. Electric thrusters offer outstanding manoeuvring capabilities.

Liebherr supports the electrification trend with various components that can be combined to complete system solutions.

Frequency converter systems

- Modular architecture allows for redundant systems
- Compact design thanks to liquid cooling
- Operation of multiple motors is possible
- Easy to service



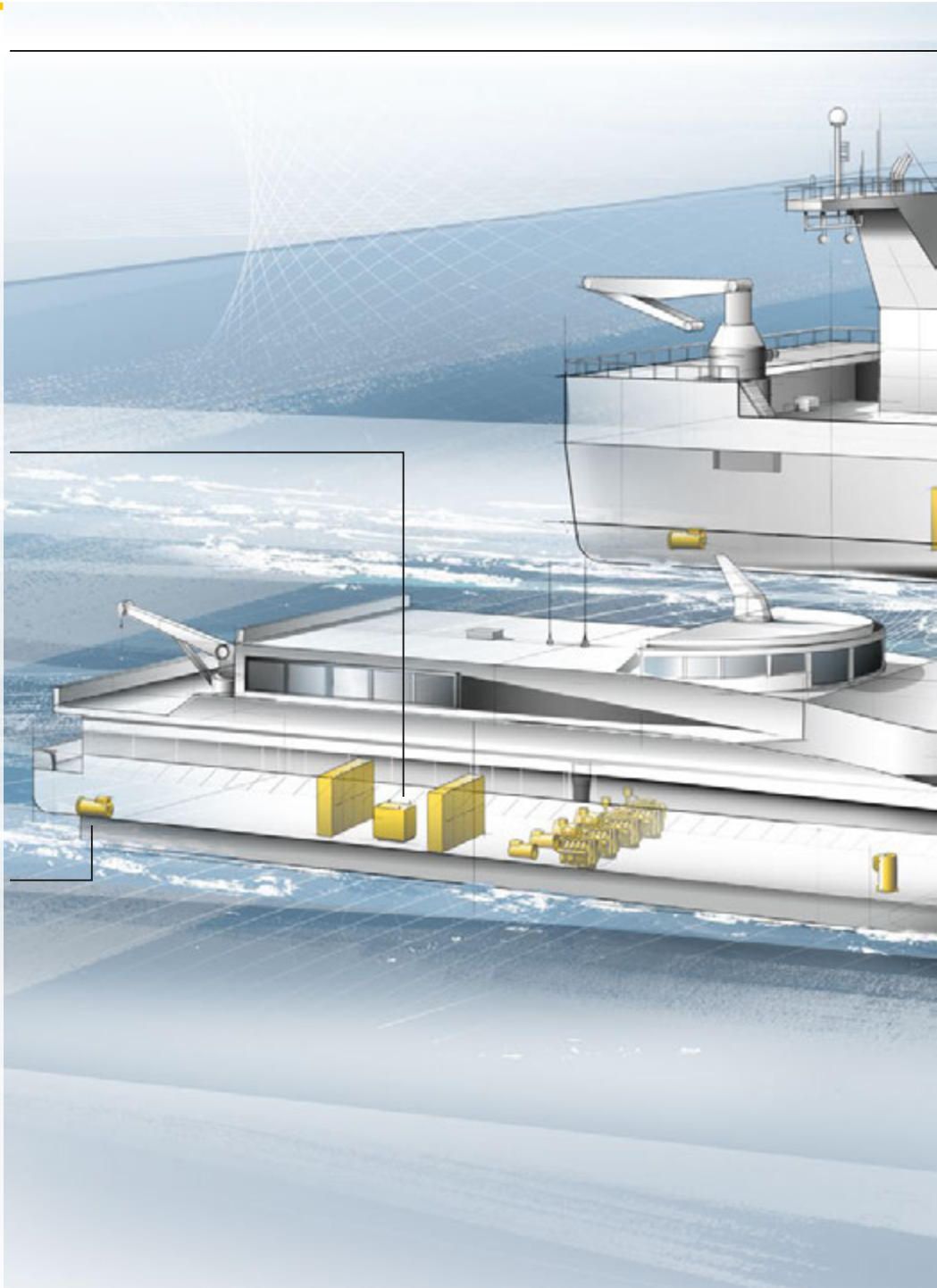
Energy storage systems

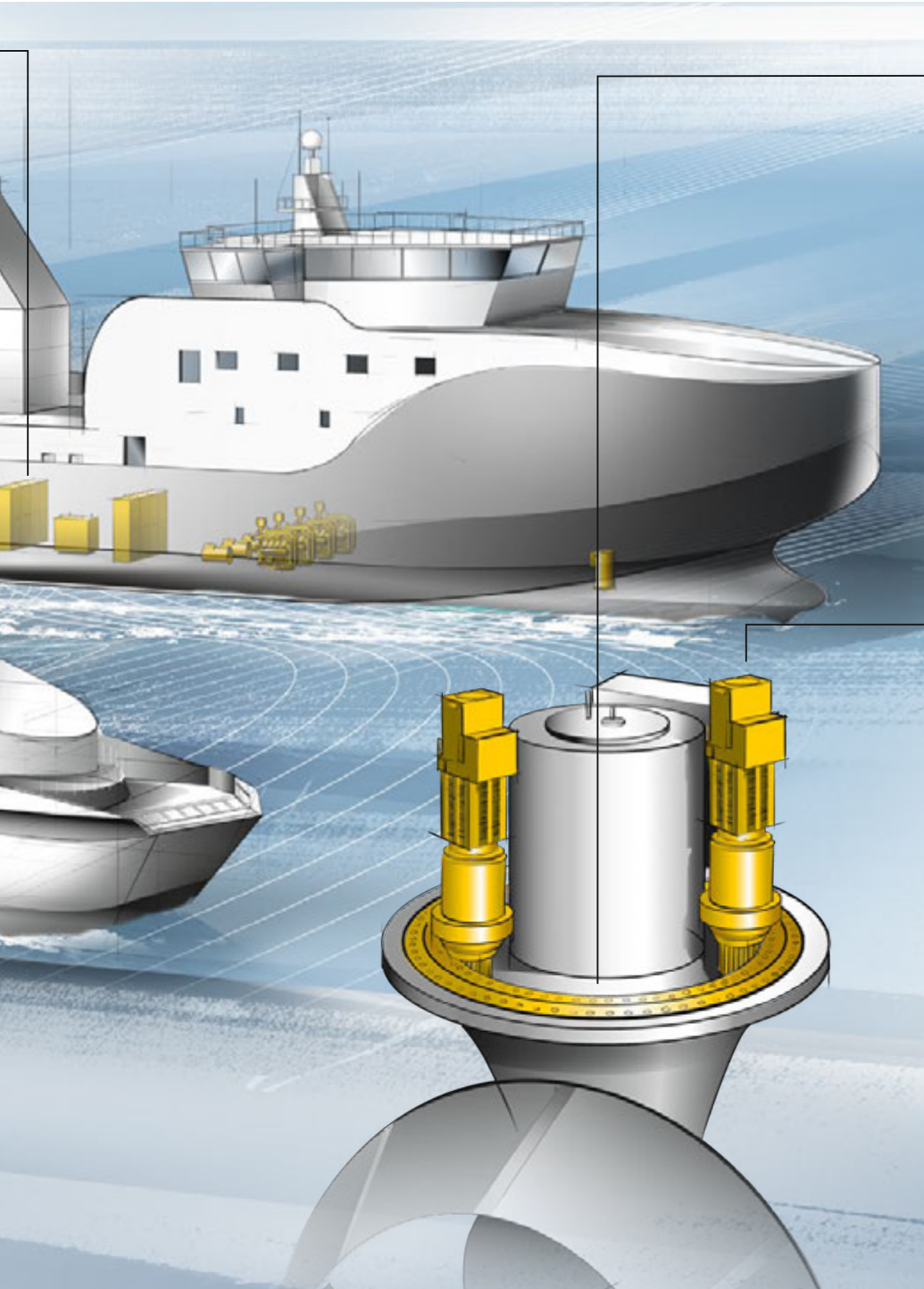
- To cover power peaks and reduce the necessary drive power
- Powerful double-layer capacitors
- Complete liquid-cooled system



Generators / motors

- For main drives, thrusters or winches and other auxiliary outputs
- Excellent efficiency during non-stop operation and in variable-speed applications
- Meets the highest requirements in terms of protection class and insulation system





Slewing bearings

- For the slewing system of thrusters
- Four-point bearings as single-piece or segmented bearings
- Special offshore sealing systems available
- Special corrosion protection



Slewing drives

- For the slewing system of thrusters
- Number and sizes depending on installation, safety (redundancy) and power requirements



Maritime and offshore cranes

Jacking systems and winches

Rotational and linear movements are essential functions of deck equipment, working and lifting machinery onboard

of ships. Lifting complete vessels requires reliable drives equipped with gearboxes or hydraulic cylinders.

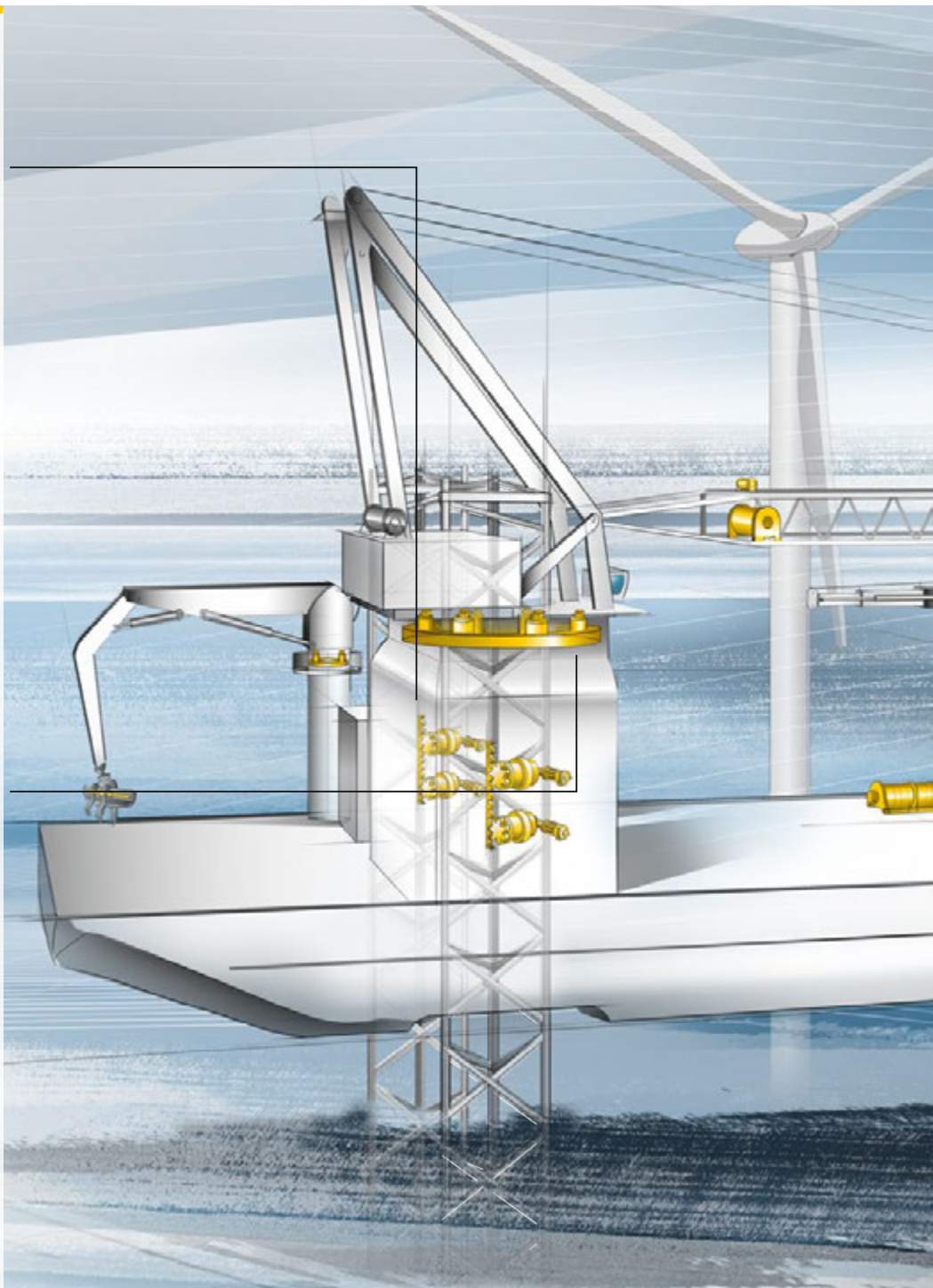
Slewing drives

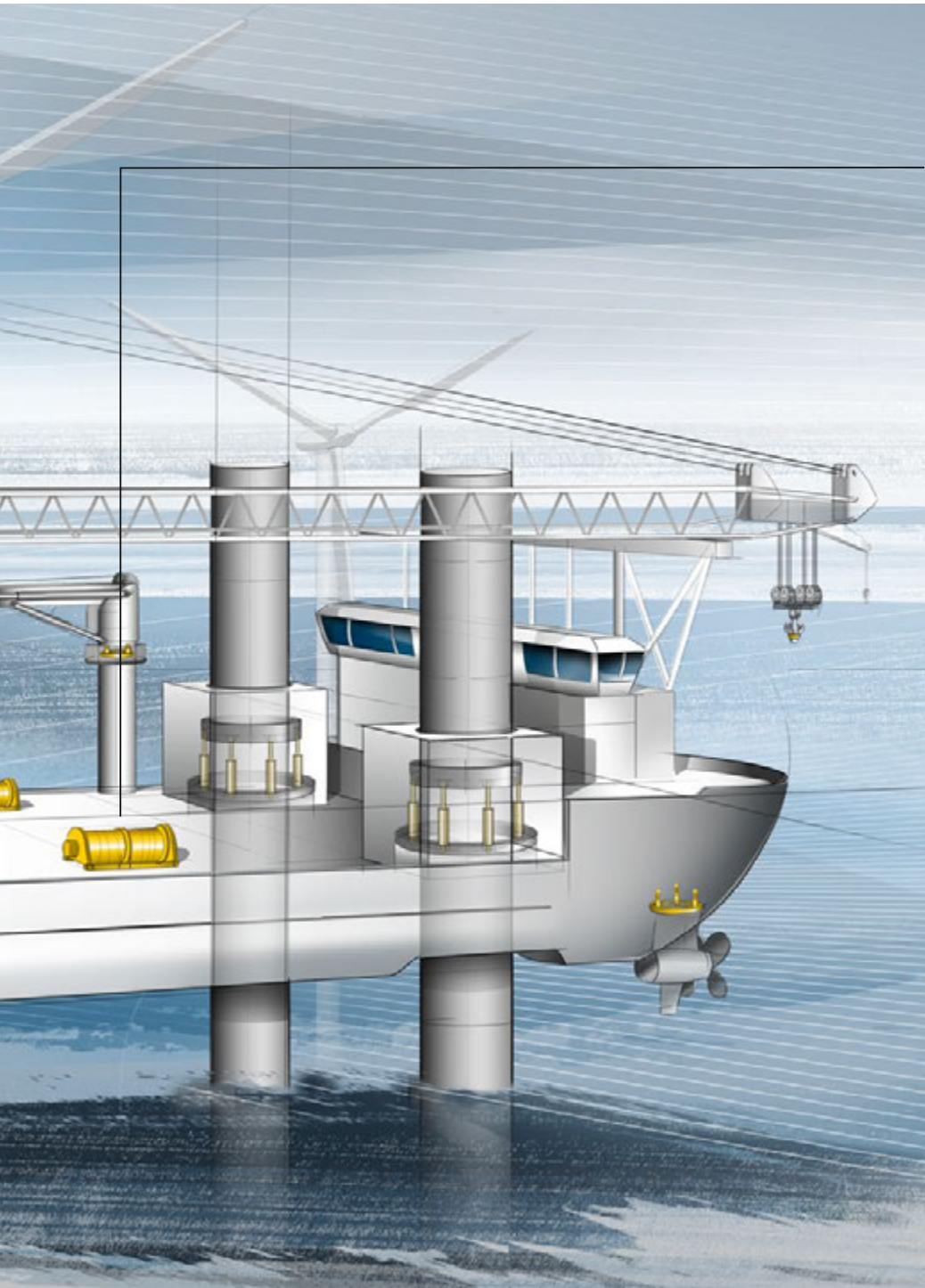
- For the drive system of jack-up systems or the swivel system of cranes
- Output torques of 1,000 kNm and more
- Up to output shaft module 50
- Customised solution available
- Drive with electric or hydraulic motor



Slewing bearings

- For the swivel system of cranes
- Depending on the required size, as one-piece or segmented bearing
- For the highest standards in terms of service life and quality





Rope winches

- For cranes or as deck winches
- Customised design with a variety of options
- Electric or hydraulic operation



Dredgers

Dredging equipment maintains navigable shipping lines and protects beaches from erosion by moving vast amounts of sand and mud. This specific environment of abrasive sand

and water mixtures challenges any component within the deck machinery of dredgers.

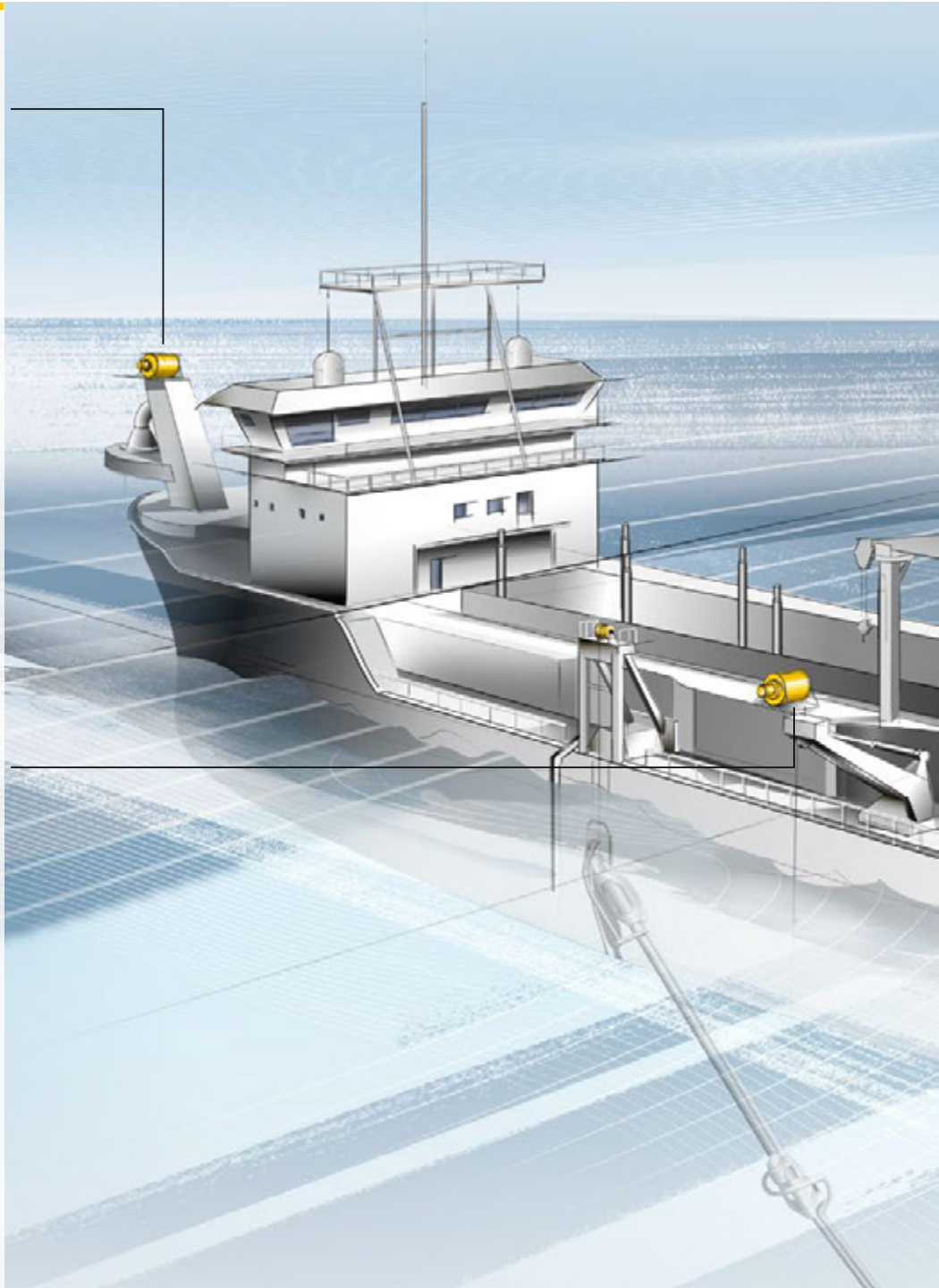
Planetary plug-in gearboxes

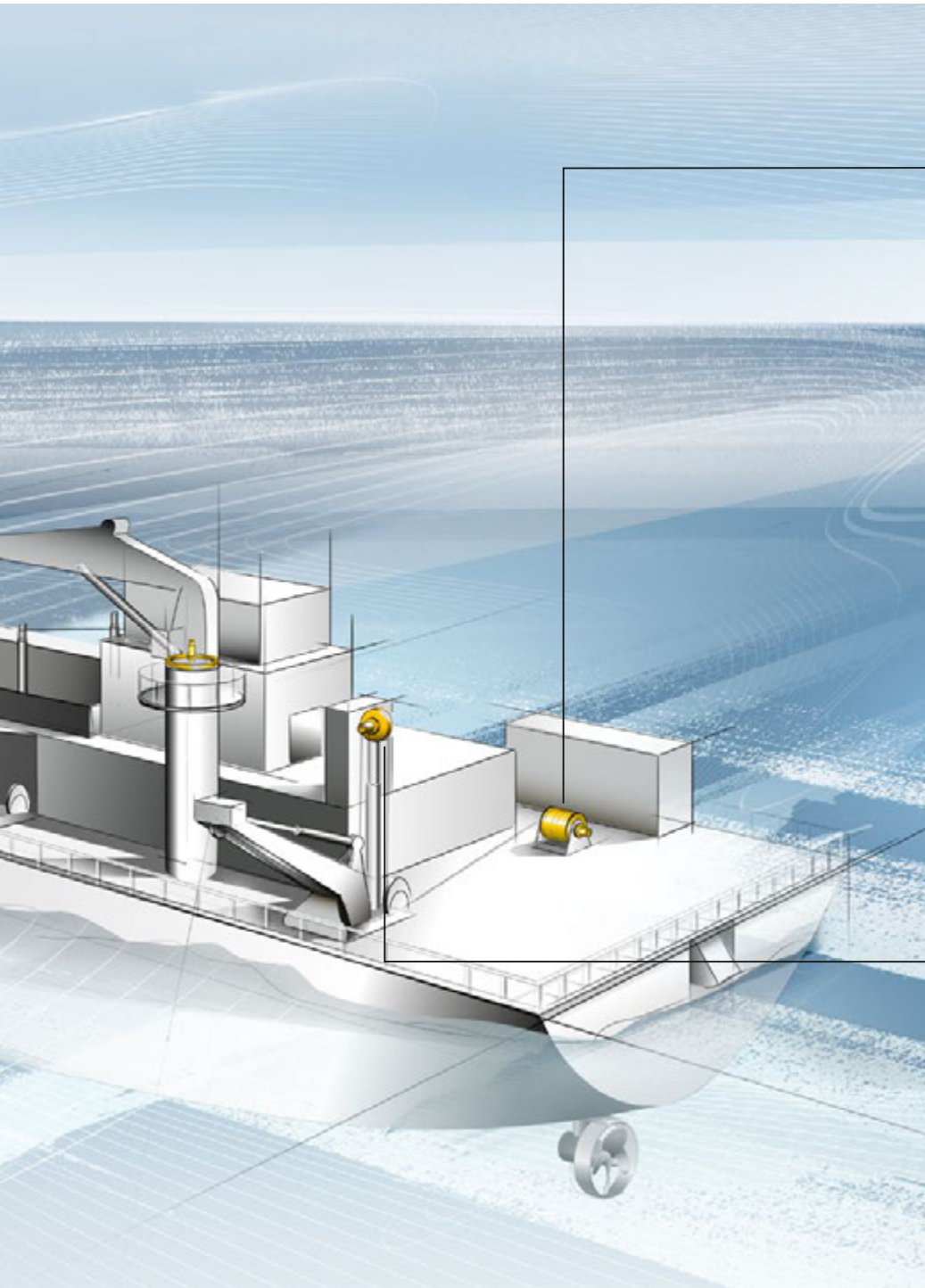
- For winches or for moving the suction arms
- Standard or customised production
- Optimal weight/performance ratio
- For electric and hydraulic motors



Rope winches

- For cranes or various types of deck equipment
- For high rope speeds and rope capacities





Axial piston motors

- To drive planetary plug-in gearboxes, rope winches and other hydraulically operated systems
- As a constant or variable displacement motor
- Single, double or multiple motor configuration



Electric motors

- To drive planetary plug-in gearboxes or rope winches and other electrically operated systems
- KGF and KDF build motors



Pipelaying vessels / tensioners

Pipelines are necessary for the efficient transport of liquids and gases below the ocean's surface. Constructing and maintaining this infrastructure on the seafloor requires spe-

cialised deck equipment for which Liebherr offers perfectly suited components.

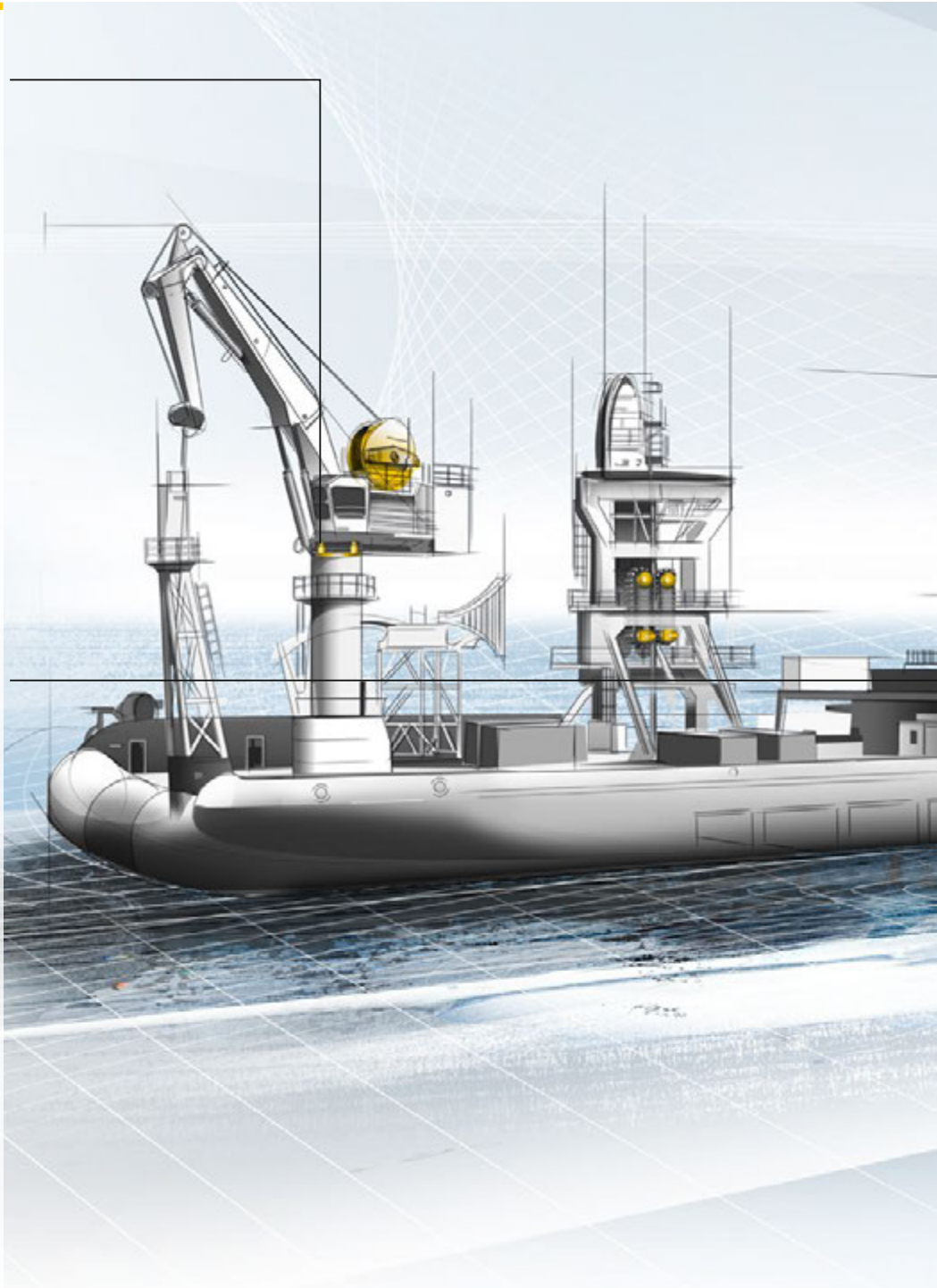
Slewing drives

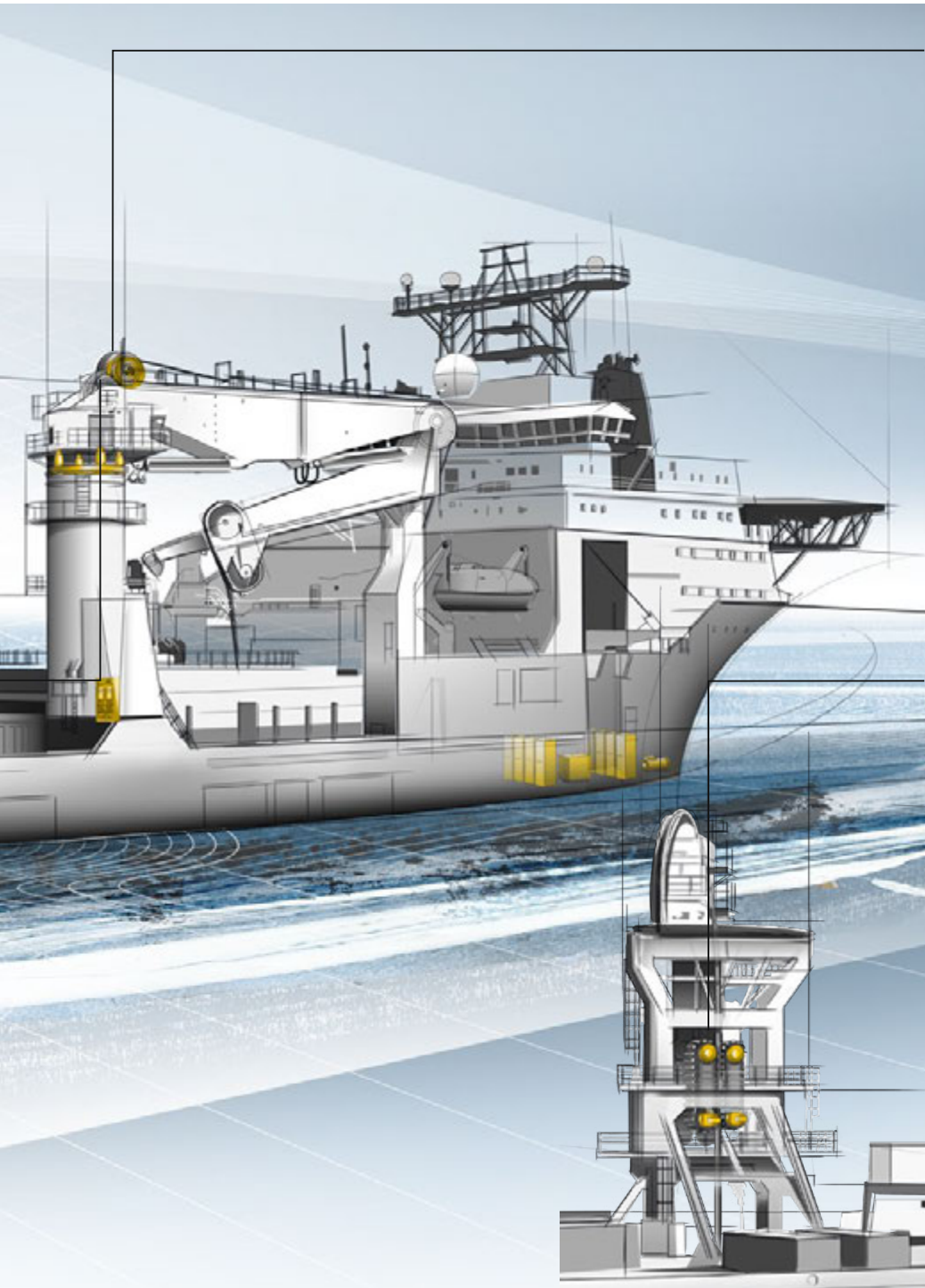
- To drive gear ring rope winches or the swivel system of cranes
- Design of the complete system in cooperation with the customer for a long service life and high reliability at a low cost
- Wide range of serial gearboxes and availability of special solutions



Gear rings

- To drive gear ring rope winches
- With external or internal gears
- For high quality standards





Planetary plug-in gearboxes

- To drive rope winches
- As a serial gearbox or for customised design
- Optimal weight/performance ratio
- Adaptable to electric and hydraulic motors



Planetary gearboxes

- To drive tensioned chains
- Customer-specific solutions, depending on the requirements and adjacent construction
- Also available with two drives in one axis



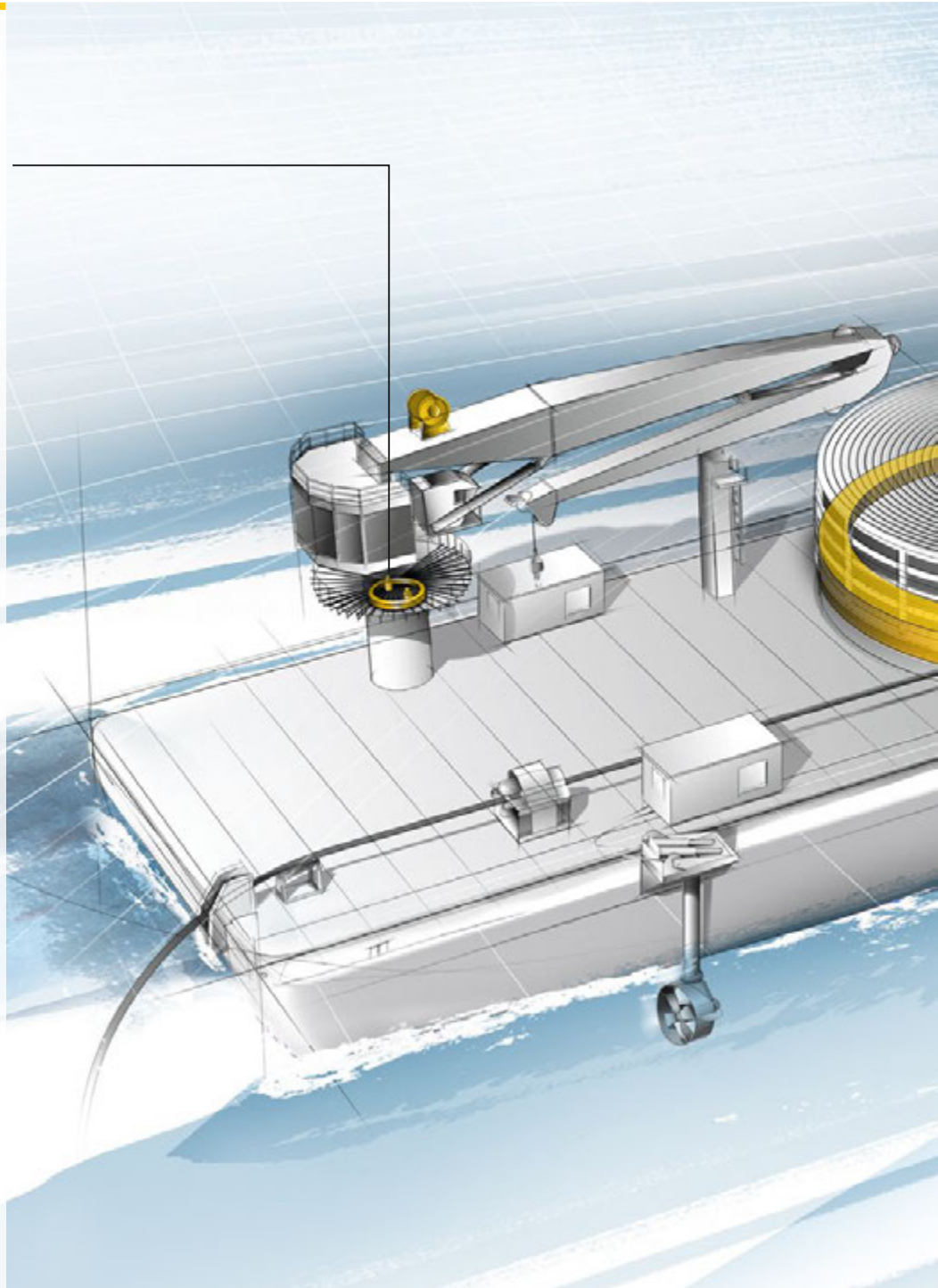
Cable carousels

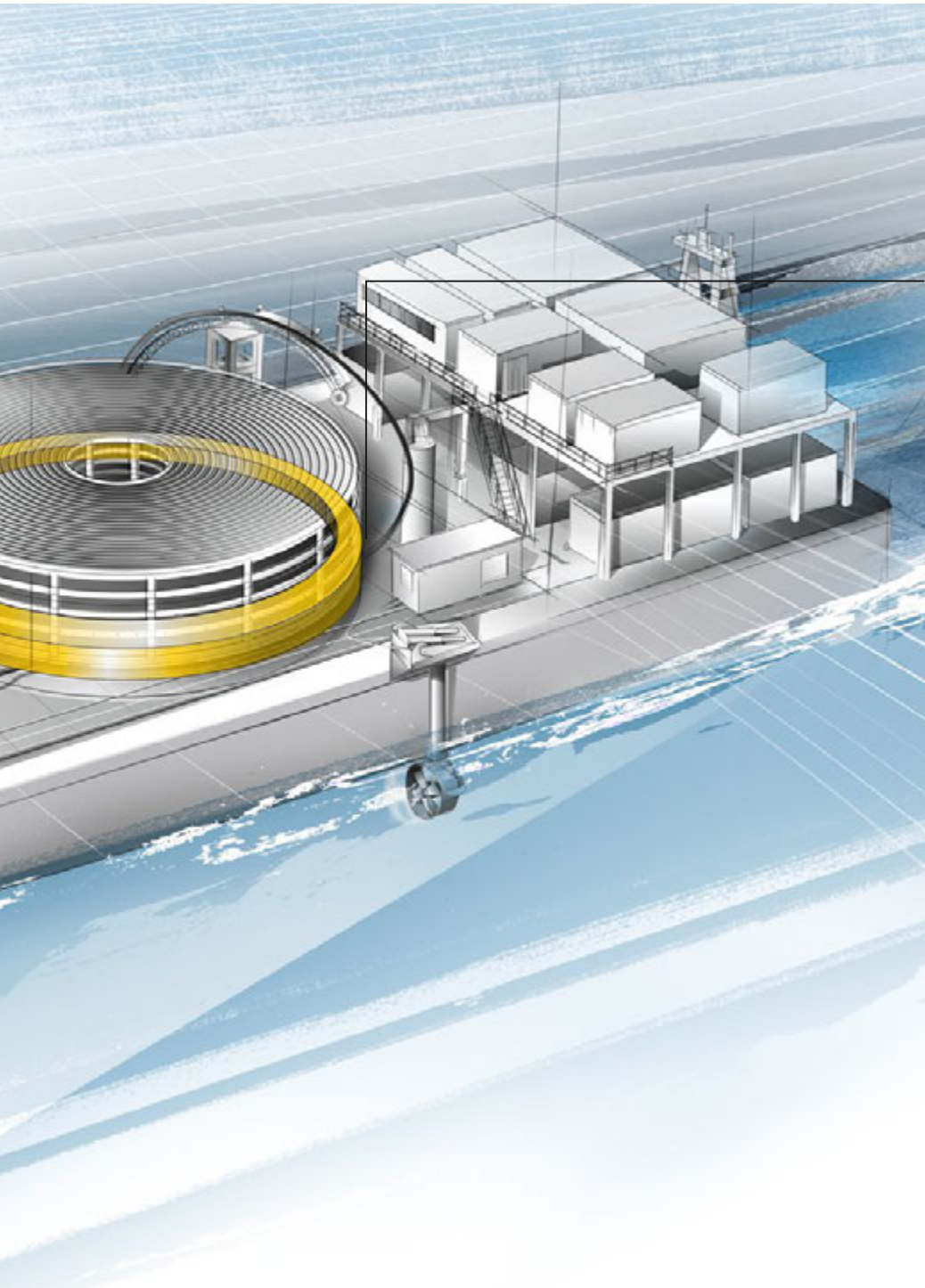
Power and communication cables connect long distances in between continents and short distances from wind turbines to shore regions. The vessels installing and maintaining these

cables are equipped with specialised deck equipment. Drives and bearings for cable carousels or cable tensioners are amongst the key components that Liebherr is able to provide.

Slewing drives

- To drive swivel systems in cranes
- As a serial gearbox or as a customised design
- Even for very high output torques
- Ideally matched to Liebherr slewing bearings





Slewing bearings

- For reliable rotation of the cable reel or the swivel system in cranes
- One piece depending on size or segmented design
- Offshore seals and corrosion protection



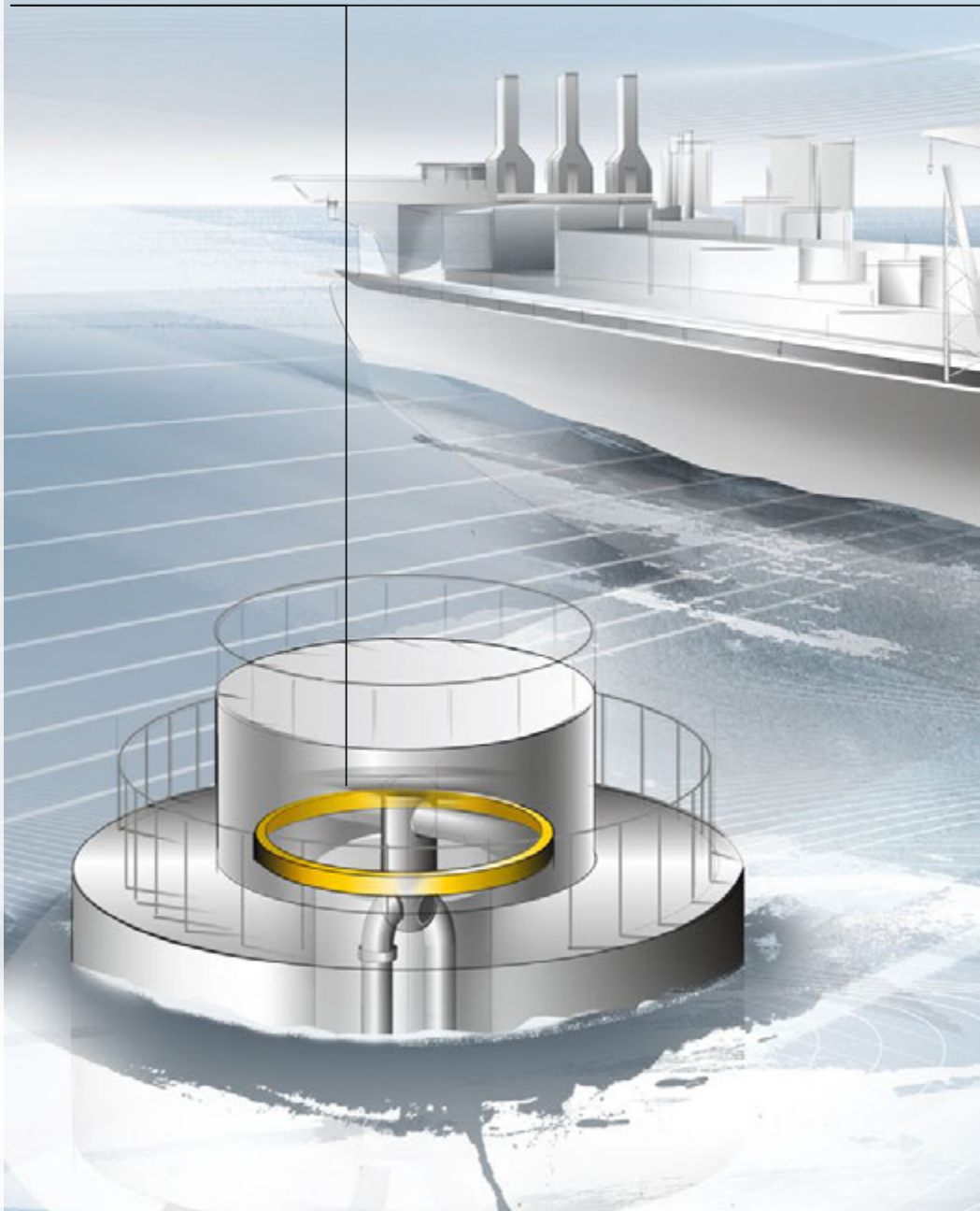
Turrets and buoys

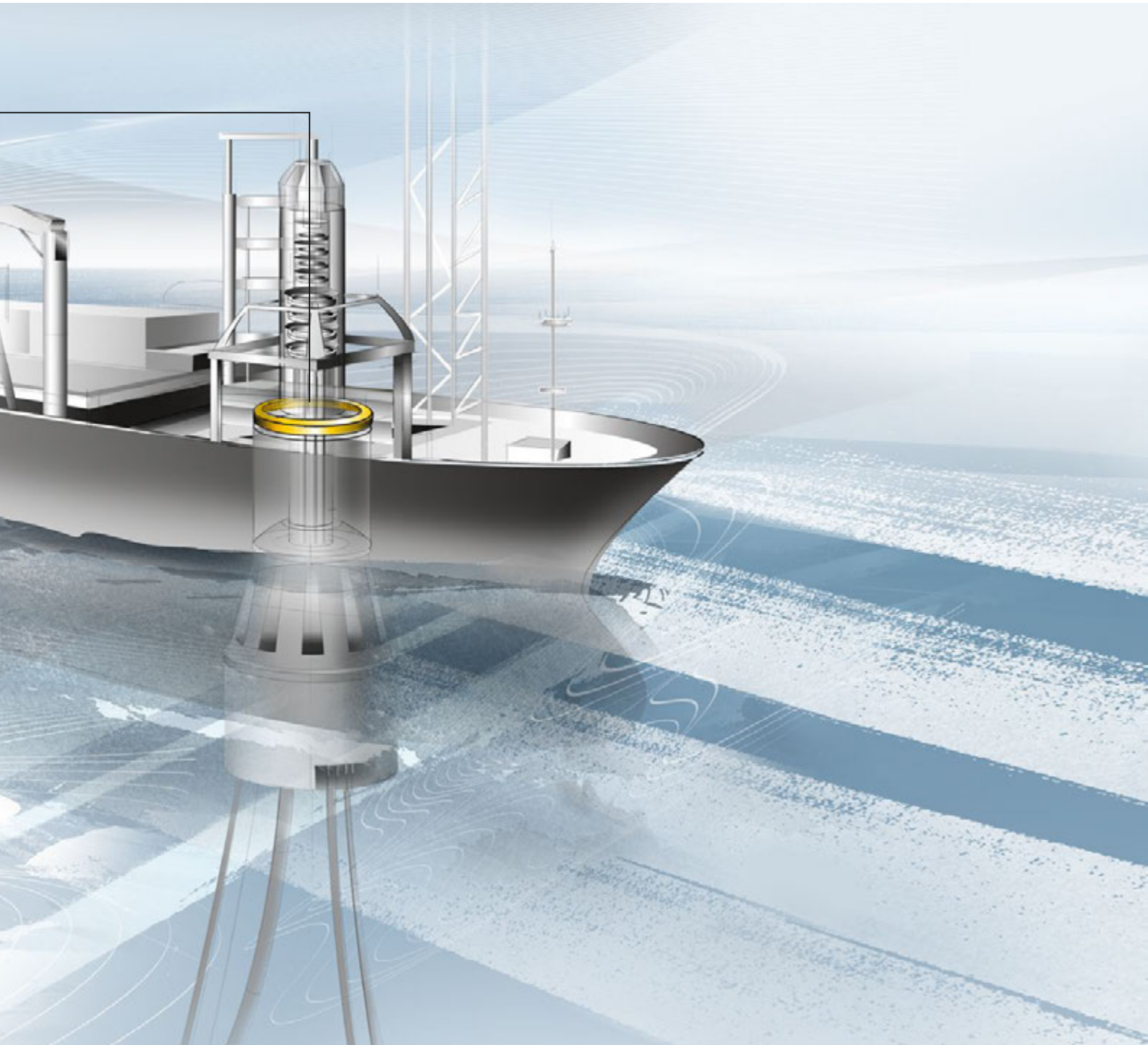
The connection of swiveling floating objects to a fixed seabed infrastructure has to absorb and transmit very large forces.

Liebherr produces large slewing bearings of the required sizes, if necessary as segmented units.

Slewing bearings

- For safe rotation during a lifespan of several decades
- Custom design with extensive validation





Access bridges and offshore cranes

Access to offshore installations from floating vessels requires movable gangways. Their precise positioning with a reliable slewing system is of the utmost importance. For this,

Liebherr delivers important components such as slewing bearings and drives.

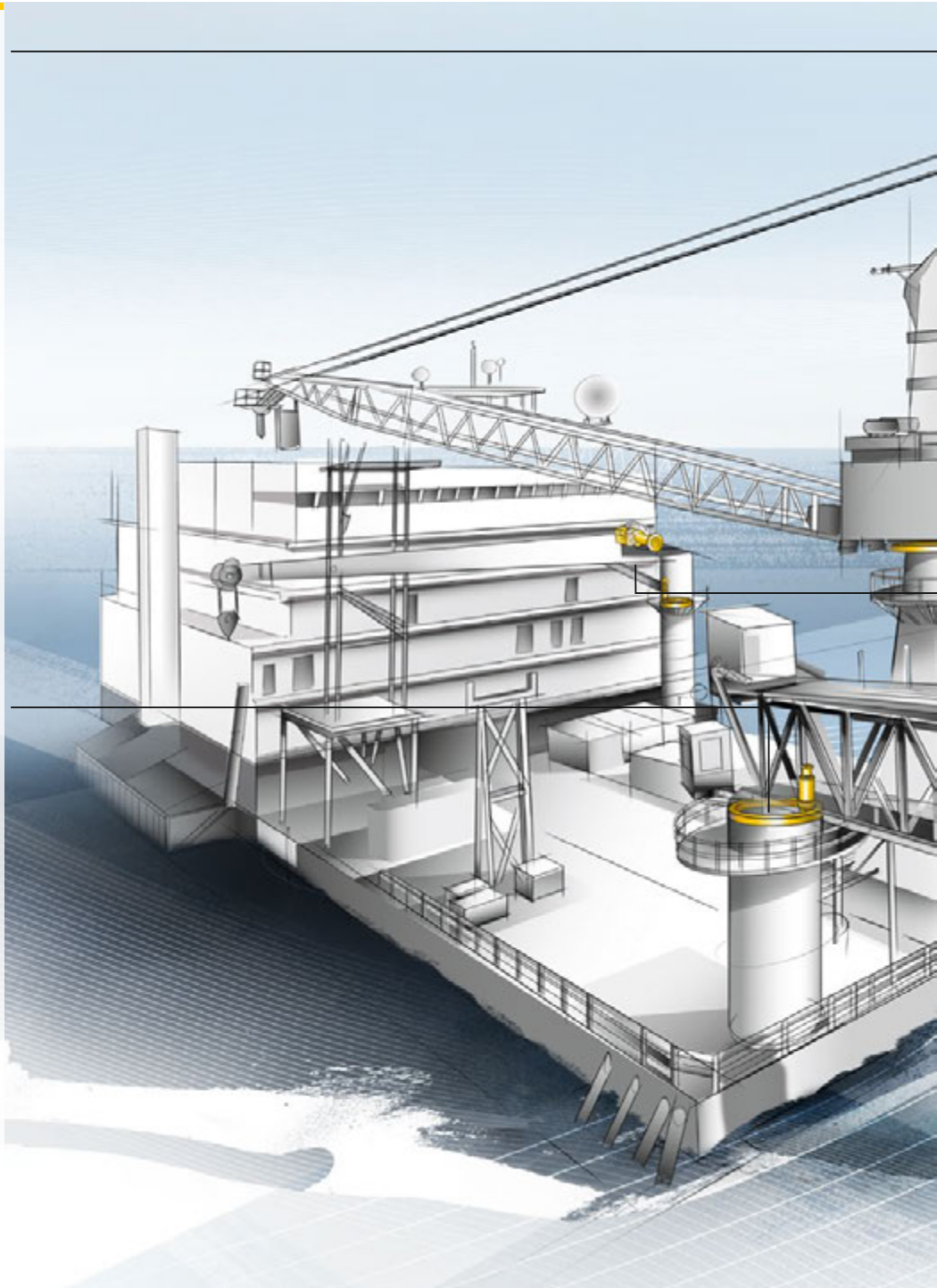
Slewing drives

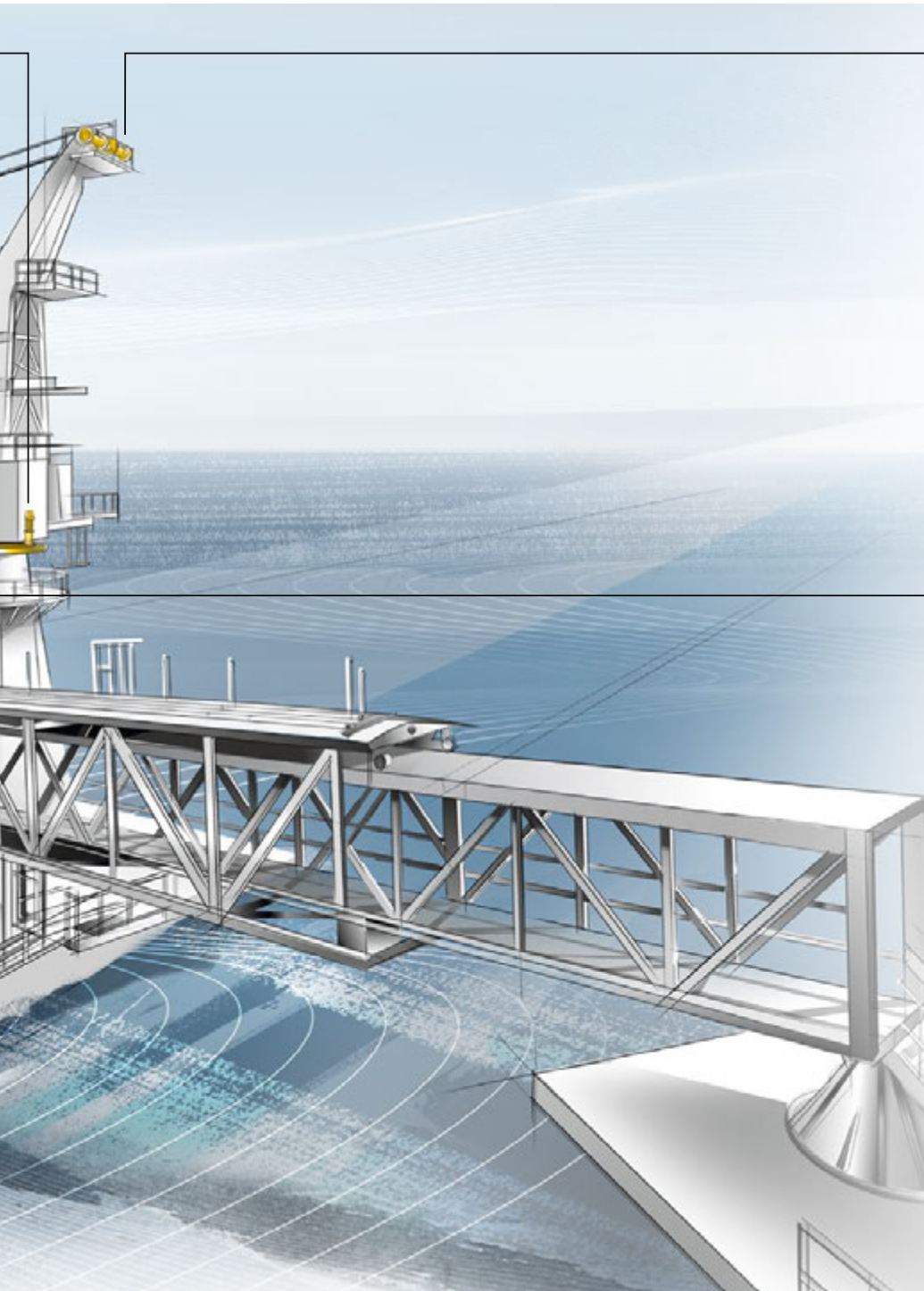
- Two, three or four planetary stages
- One-piece, case-hardened and ground output shaft
- High power density
- Reduced rotational play for exact positioning



Slewing bearings

- For the swivel system in cranes and connecting bridges
- Single-row / double-row four-point bearings
- Corrosion protection against salty air
- Offshore seals





Electric motors

- To drive the swivel system of cranes and connecting bridges
- KGF and KDF series electric motors
- High power density
- Seawater-resistant paintwork
- High positioning accuracy
- Low maintenance



Hydraulic motors

- To drive the swivel system of cranes and connecting bridges
- Low noise emissions
- Designed as an axial piston unit
- Swivel angle of up to 22 degrees
- Constant or variable displacement motors with compact design thanks to integrated valves



Advantages



All from one source

Customers value Liebherr's complete package - on the one hand, Liebherr offers customised solutions tailored to specific requirements, whether individual components or complete systems. On the other hand, Liebherr provides ideal support by competent contact partners throughout the entire sales process and product lifecycle. Contributing to the success of our customers and end users in long-term partnerships with reliable components is our top priority.



Application experience

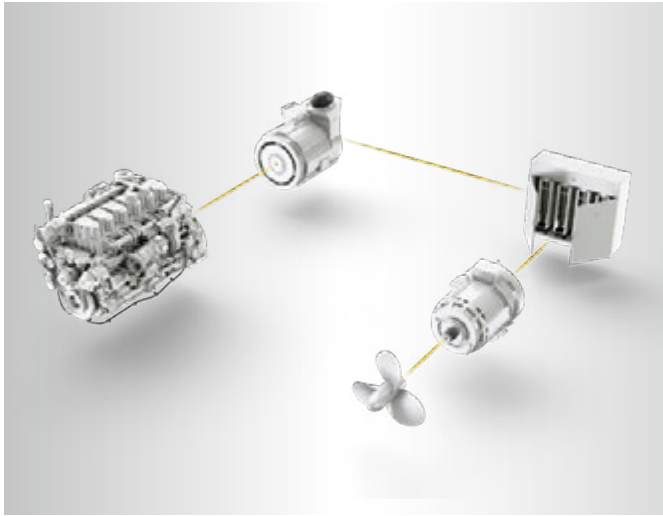
Liebherr has decades of application experience in the maritime industry. This guarantees continuous development of our components. With its focus on practice, Liebherr understands the requirements and develops innovative and functional solutions for the maritime environment that are designed to suit the machine's environment.



Certifications

Liebherr works with all well-known certification companies. These include classification companies such as American Bureau of Shipping, Bureau Veritas, Det Norske Veritas/Germanischer Lloyd and Lloyd's Register of Shipping and many others.

Optionally, extended tests can be carried out according to customer specifications. Of course, complete documentation is provided and ensures complete traceability at all times.



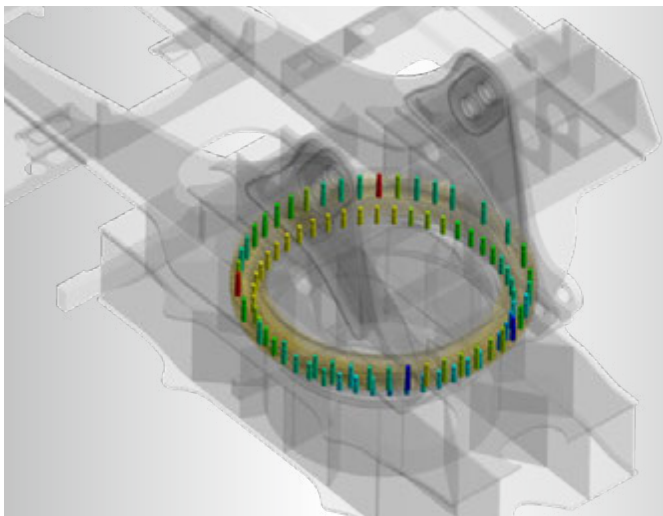
Wide product range

Our offer for the maritime industry includes powerful components from the areas of mechanical, hydraulic and electric drive and control technology. The extensive program includes electric motors and generators, axial piston pumps and motors, hydraulic cylinders, slewing bearings, gearboxes and rope winches, switchgears and power electronics. Depending on requirements, the individual components can be assembled to form a subsystem or even a complete drivetrain.



Customer service

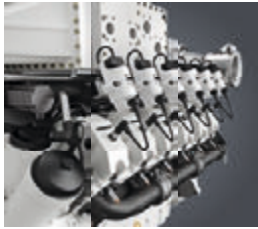
In addition to powerful components for new installations, Liebherr offers repair, remanufacturing and component replacement in cooperation with customers. End users benefit from short response times, readily available original spare parts, and a comprehensive inventory. This ensures the performance of our components throughout their entire lifecycle.



Custom engineering

Correct design and calculation of a component is crucial for its reliability and service life. In the component design, the calculation engineers analyse all influencing variables in close coordination with the customer in order to optimally design the components for their system. The basis for the calculation is the joint modelling of all components acting on the parts.

Liebherr Components



Gas engines



Diesel engines



Fuel injection systems



Axial piston hydraulics



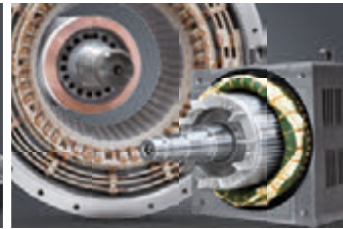
Hydraulic cylinders



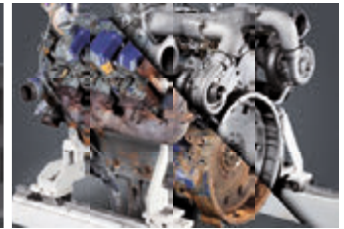
Slewing bearings



Gearboxes and winches



Electric machines



Remanufacturing



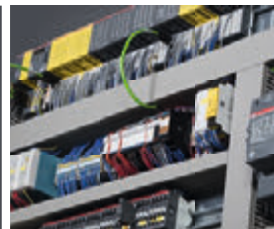
Human-machine interfaces and gateways



Control electronics and sensor technology



Power electronics



Control cabinets



Software

From A to Z – the components division of the Liebherr Group offers a broad range of solutions in the area of mechanical, hydraulic, electric and electronic drive system and control technology. The efficient components and systems are produced at a total of ten production sites around the world to the highest standards of quality. Central contact persons for all product lines are available to our customers at Liebherr-

Components AG and the regional sales and distribution branches.

Liebherr is your partner for joint success: from the product idea to development, manufacture and commissioning right through to customer service solutions like remanufacturing.

components.liebherr.com