

EN

# Mobile harbour cranes

Product range

[www.liebherr.com](http://www.liebherr.com)

## LIEBHERR

Maritime cranes



# Versatile drive systems



Liebherr has been a pioneer in low- and zero-exhaust-emission technologies for over a quarter century. Our mobile harbour cranes, when equipped with electric drives, are locally emission-free, provided the necessary infrastructure is in place. This not only reduces emissions but also leads to lower operating costs. Hybrid drives are a standard part of our mobile harbour crane portfolio, allowing a variety of port infrastructures to be accommodated.

This commitment to sustainability is evident in products like the LPS 420 E, as well as existing cranes that are built or retrofitted with fully electric drives.



#### Electric drive

Electric drive and/or diesel drive, in possible combination with the hydraulic power-booster Pactronic.



All-electric

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All crane movements are done by electric motors, locally emission-free.



Unplugged

#### Unplugged

Crane operates with an electric drive, locally emission-free, and a battery-driven undercarriage is used for travelling the crane.

#### Diesel/hybrid

Diesel engine that can run on HVO 100, or be combined with the hydraulic power-booster Pactronic.

# LPS 420 E – All-electric portal crane

The LPS 420 E is an extension of the Liebherr mobile harbour crane product range. This machine is a purely electric driven portal crane. It is a universal all-rounder and a key asset for handling every type of cargo, from containers to bulk, general cargo and heavy lifts up to 124 tonnes. This forward-looking machine is designed for ports and terminals with an electrical infrastructure, and can also accommodate grids that have energy fluctuations.

## 1 Power supply

The LPS 420 E is especially optimised for terminals with a power supply ranging from 400 V to > 20 kV with 50/60 Hz.

## 2 High performance

With a turnover of up to 1,200 tonnes per hour, the electric crane exceeds the average turnover of comparable electric driven cranes in the market.

## 3 Electric driven

All crane movements like luffing, hoisting, slewing and travelling are done by electric motors.

## 4 Universal all-rounder

The LPS 420 E is a key asset for handling every type of cargo, from containers to bulk, general cargo and heavy lifts up to 124 tonnes. Tailor-made portals are also available for any quay infrastructure.

# Unplugged LHM travelling by battery



**Thanks to the new battery-powered Liebherr mobile harbour crane, completely exhaust-emission-free handling is now also possible for mobile equipment.**

The crane procedure between two feed points becomes independent of a diesel engine thanks to the new Liebherr battery-powered undercarriage. By using a battery pack, distances that are too long between connections to the shore power supply can now be travelled purely electrically – up to 2 km.

### Features

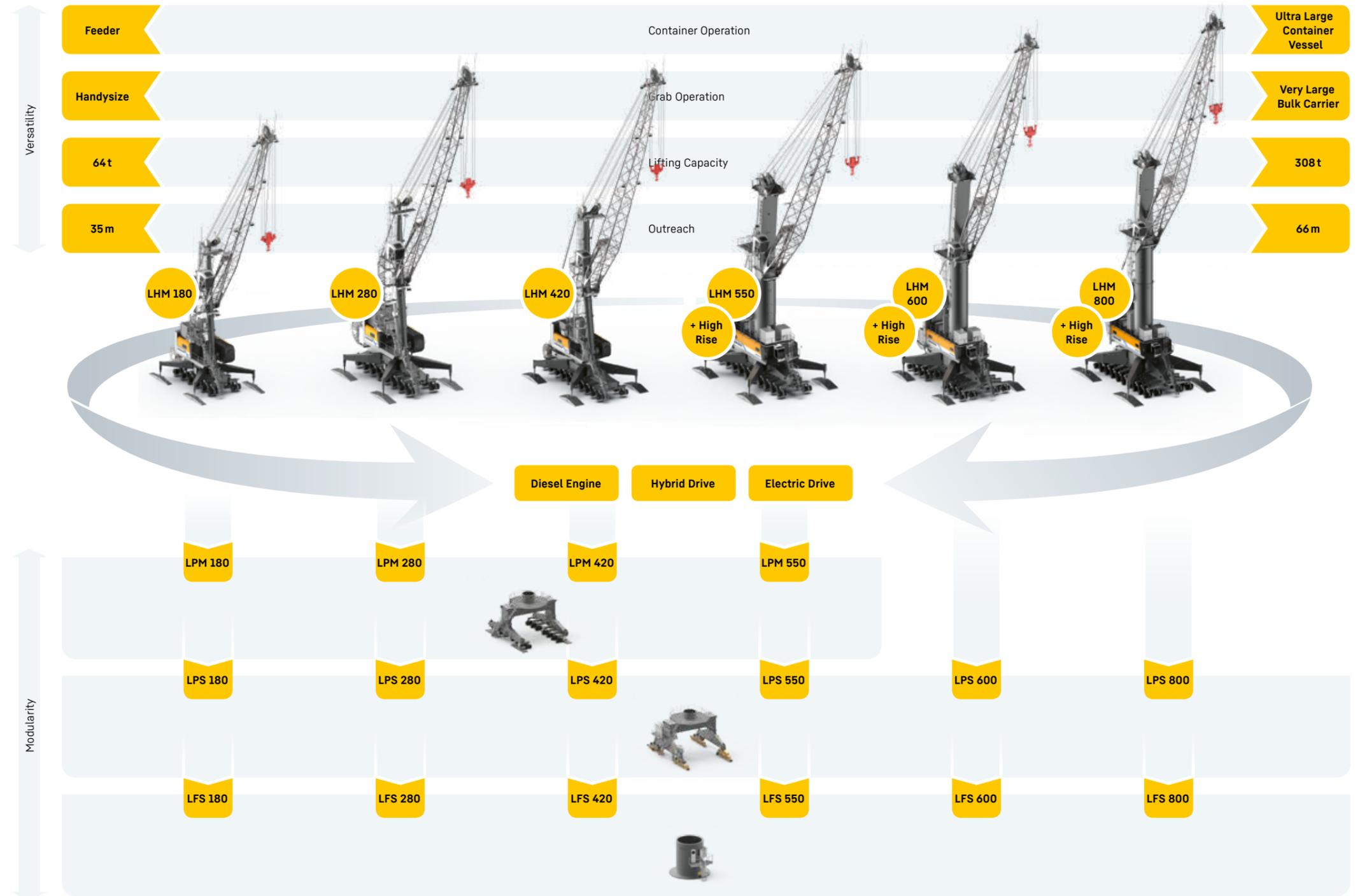
- Up to 2 km travelling distance with 360 kWh capacity
- Zero exhaust-emission traveling for grid connected cranes
- Recharged battery within 4 hours
- Battery life of more than 2,000 loading and unloading cycles
- Emergency operation using the battery possible

Preliminary data, according to current status, subject to further adjustments. All data depending on actual use and infrastructural conditions.

# Product range

Through many years of experience and customer-oriented engineering, the range of Liebherr mobile harbour cranes sets new standards in innovation and quality.

In terms of harbour management, versatility is as important as specialisation, and Liebherr's mobile harbour cranes combine these factors for all types of cargo in practically every harbour. Comprehensive basic equipment, easy transportation and high flexibility underline the cranes' effectiveness as an investment.



# Unique features

## 1 4-chord boom

The four struts (lattice design) of the boom provide maximum stability, meaning precise crane movement and a longer service life.

## 2 Luffing cylinder

The tension cylinder is located above the boom. Thus, it is protected from damage through swinging loads. There is no risk of buckling and the piston rod is fully protected in parking position. The crane's hydraulic loop is smaller, so there is less hydraulic fluids needed for the crane.

## 3 Hydrostatic drive

Closed hydraulic loops are used for all main functions, such as hoisting, slewing and luffing. The crane driver benefits from extremely precise control, the service personnel benefit from a minimal number and size of components, and the operating company benefits from reduced fuel consumption thanks to the standard use of reverse power.

## 4 X-Shaped support base

The star-shaped supporting base reduces the torsion strain on the steel structure and ensures optimal vertical stability during operation, as well as a longer lifetime of the steel structure.

## 5 Tubular tower design

The round tower design minimises torsion and distributes forces evenly to the steel structure and the slewing ring. As a result, the service life of the crane is significantly increased.

In addition, the enclosed design of the tower in cranes of type LHM 550 and larger provides the crane driver with secure and weatherproof access to the tower cabin.

## 6 Machinery housing

The machine housing is made of Glass-Fibre Reinforced Polymer (GFRP), and protective coating C5-M, which is the highest offshore standard for protective coating. This makes the machine house lightweight and corrosion-free. Furthermore, all components are easily accessible for maintenance work.

The swing radius lies within the support base for all crane types in the LHM series, eliminating the risk of collision and allowing the crane driver to concentrate solely on his work.

## 7 Individual wheel sets

All wheel sets are individually steerable and have load balancing, ensuring that the ground pressure for each wheel does not exceed six tonnes. Access from all sides provides for easy maintenance. Furthermore, the 360° mobility ensures the highest manoeuvrability. This is a decisive advantage at narrow quays and busy terminals.



## Applied modularity

The Liebherr mobile harbour crane concept as a whole is characterised by an outstanding modularity designed to meet all port requirements. The upper part of the cranes (slewing platform, tower and boom) remains basically the same. However, depending on the conditions and requirements at the harbour, the substructure can be chosen from a number of variants, resulting in four different types of lifting solutions.



### LHM – Liebherr Harbour Mobile

Typical mobile harbour cranes from Liebherr are represented by the range of LHM cranes. Their decisive feature is the rubber-tyred travelling system. Each set of wheels can be individually controlled, enabling maximum mobility in all directions and even turning on the spot, knowing no limits.



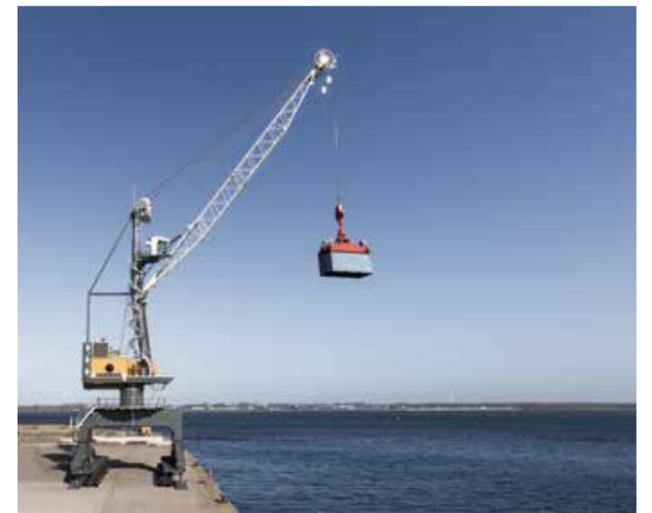
### LPS – Liebherr Portal Slewing

Liebherr's Portal Slewing cranes, type LPS, are specifically designed for installation on quays with existing rail-track infrastructure, wharves with limited space or high traffic, and locations where railways are the primary mode of transport. The upper part is installed on a rail-mounted gantry, enabling efficient cargo-handling without restricting quayside infrastructure and transportation of goods.



### LFS – Liebherr Fixed Slewing

Liebherr Fixed Slewing cranes, type LFS, are the preferred choice when stress levels on the ground must be kept low and space in the harbour is limited. The upper carriage is fitted on a fixed base column, reducing the space required while also ensuring high productivity rates from the range of mobile harbour cranes.



### LPM – Liebherr Portal Mobile

Liebherr Portal Mobile cranes, type LPM, are an ingenious combination of LHM and LPS cranes. Here, the upper part is installed on a gantry, which is fitted with conventional rubber tyres instead of being rail-mounted. The LPM provides utmost mobility and all advantages of a gantry crane, without the need of rail infrastructure at the quay.

# One machine, many possibilities

The multifunctionality of Liebherr's mobile harbour cranes makes them effective for all areas of application in the harbour. Lifting attachments can be exchanged within minutes thanks to the simple modular structure. After selecting the software, the respective lifting attachment is ready for immediate use.



## Container handling

The cranes are able to serve vessels with widths of up to 23 rows of containers, ranging from Feeder ships up to Ultra Large Container Vessels (ULCV). Using manual, semi-automatic, or fully-automatic telescopic spreaders, all regular container sizes between 10' and 53' in single or twin lift can be handled.



## Bulk handling

Liebherr offers a wide product portfolio for highly effective bulk handling using various types of grabs. With a maximum material handling rate of up to 2,300 tonnes per hour, mobile harbour cranes from Liebherr are suitable not only for inland ports but also for large sea ports and industrial areas.



## General cargo

Lifting attachments can be quickly and easily exchanged to suit the actual handling requirements. Litronic, Liebherr's own crane control system, automatically recognises and pre-selects the lifting device, ensuring unique versatility and continuity.



## Heavy lift

Liebherr's flagship model in the mobile harbour crane sector has a maximum load capacity of 308 tonnes at an 18-metre outreach, which can even be doubled in tandem operation. With this high tonnage, Liebherr proves its commitment to satisfying ever-increasing market demands.



# Infinite driving pleasure

## Working environment

Driver comfort is just as important as a good-quality machine. Liebherr mobile harbour cranes are designed to support the driver with regards to safety, comfort and control. An excellent and unobstructed view of the working area is provided through the forward-mounted position of the tower cabin, which is made of 70% glass (safety glass). Ergonomically arranged monitors and controls can be easily operated from an adjustable comfort driver's seat. The conditions in the cabin are further improved through climate control and swing equalizers, which reduce any vibration to an unnoticeable minimum. Furthermore, the cabin is noise insulated.

## Crane control and assistance systems

The Litronic crane control system, developed by Liebherr, focuses on precision, safety and productivity. The crane driver benefits from the immediate response of the machine for consistently high productivity and a high level of safety. Numerous assistance systems have been developed by Liebherr to facilitate the working processes, including for example:



## SmartGrip®

This unique, game-changing system optimises grab filling rates in a self-learning manner. As such, it automatically adjusts its behaviour by recognising bulk density, compression, granularity, depth of impression or type of grab, leading to fewer overloads. The advantages speak for themselves: more turnover, perfect crane utilisation, less stress for the crane and the crane operator.



## Sycratronic®

This feature enables the operation of two Liebherr mobile harbour cranes in tandem mode with just one single crane driver. While manual tandem lifts require crane downratings of 25% and more, this unique system enables the usage of 100% crane capacity during tandem lifts. This ensures a better utilisation of the cranes, thus giving more flexibility and improving handling times. Potential misunderstandings between crane drivers can be avoided. Increased safety and simplified control lead to faster operation times.



## Teach-In®

The Teach-In assistance system defines luffing and slewing areas, enabling precise boom control with minimal load movement. This enhances material handling performance and turnover by eliminating the need to position loads at (un)loading points. Operators benefit from simplified operation and reduced workload, with easy definition of target positions. Teach-In ensures exact load motion without sway, preventing spillage and protecting sensitive goods.

# High-tech site

## Maritime hub on the Baltic Sea

From Rostock to the world: Liebherr-Rostock GmbH, founded in 2002, develops and manufactures ship cranes, mobile harbour cranes and offshore cranes. Components for container cranes are also covered in its product portfolio. The plant's location directly at the Baltic Sea provides the best logistics conditions.

## Ready for operation

When shipping large equipment semi-erected or even fully assembled by Ro-Ro vessel, Liebherr mobile harbour cranes can be ready for operation immediately after driving off the vessel onto the quay.

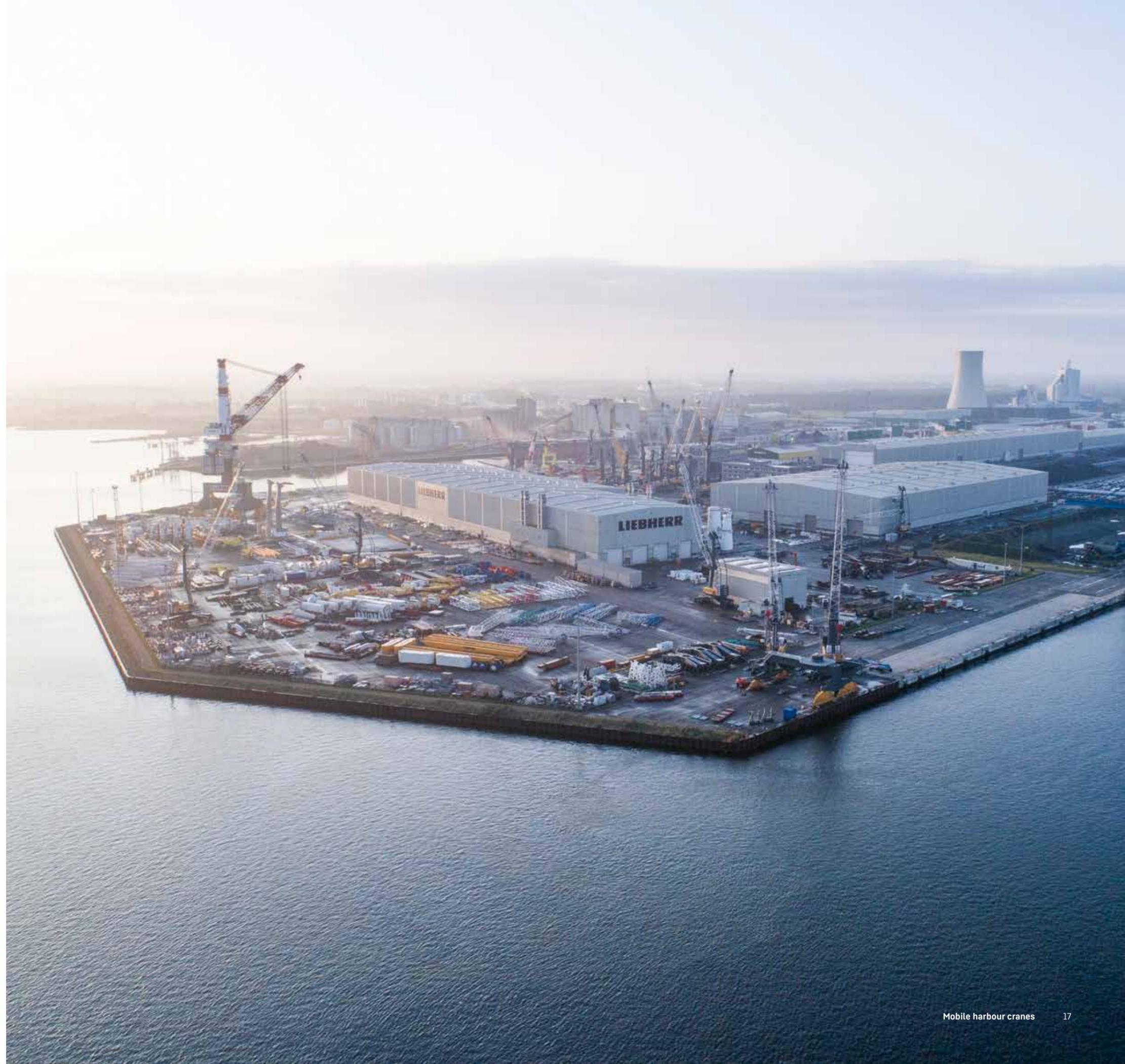
## Achieving excellence

Before shipment, every crane is put through an intense factory testing programme. This means that every single crane is fully assembled and tested before delivery, which results in extraordinarily quick commissioning. Under normal conditions, Liebherr mobile harbour cranes are assembled and ready for operation within just two weeks after delivery.

## Gold sustainability rating from EcoVadis

For its long-standing commitment to sustainability, Liebherr-Rostock GmbH was awarded a gold medal by the independent rating agency EcoVadis. This puts the company in the top 2% of all evaluated companies of its industry. EcoVadis scores sustainability using indicators in four key areas: Environment, Labour and Human Rights, Ethics and Sustainable Procurement.

The Liebherr Group aims to honour its responsibility to society and the environment at all times. In its long history, the company has grown successfully through responsible and future-oriented behaviour.





# Customer service

Based on many years of experience, Liebherr provides effective assistance and support to its customers and will continue to do so in the future. The continuous improvement and expansion of the service network is part of Liebherr's commitment to offer the best possible support to customers worldwide.



## Testing

Mobile harbour cranes go through an extensive testing programme. Prior to delivery, all electrical and hydrostatic installations undergo detailed examination. After assembly on the test bed, Liebherr service engineers conduct final adjustments of limit switches and prove the crane's functions through an overload test.

## Shipment

Located at the Baltic Sea, Liebherr Rostock provides the best conditions for fast and effective shipment of large maritime cargo handling solutions. Mobile harbour cranes can be transported fully or semi-erected, and also by Ro-Ro shipment. This guarantees fast commissioning. The good connection to the motorway also enables road transportation.

## Training

Liebherr offers a range of flexible, high-quality training solutions to fulfil specific customer training needs. The main focus lies on creating sustainable awareness for efficient and safe crane operations. In addition, it has always been Liebherr's philosophy to train customers' engineers in all aspects of crane maintenance, repair and operation. Where necessary, customer personnel are then able to ensure that crane downtime is reduced to a minimum.



## Technical service & maintenance

A team of more than 600 experienced, multi-skilled and factory-trained service engineers is based in more than 50 service centres around the globe. They are available ad hoc or on a contractual basis. The continuous expansion of our worldwide sales and service network is part of Liebherr's commitment to offer the maritime industry the best possible support.

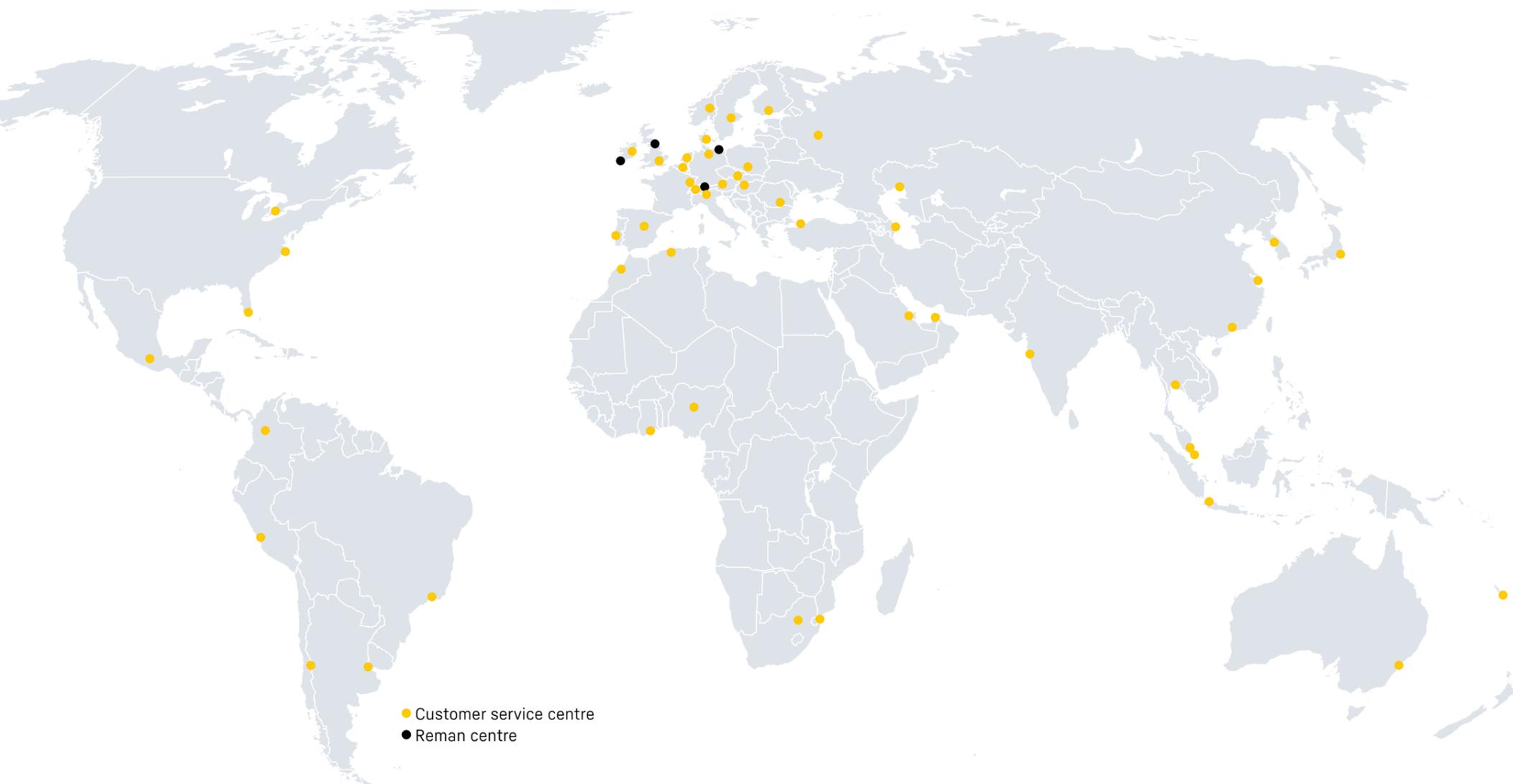
## Upgrades & retrofits

It might be necessary to upgrade cranes due to changes in the installation layout, changes in rules and regulations, operational requirements, or simply to extend the service life of an older crane. In consideration of new conditions, Liebherr offers retrofits of existing drive systems and structural inspections.

## Spare parts

Every operational hour is vital if cranes are to function effectively. Liebherr original spare parts (OEM) and service staff are at our customers' disposal 24/7. Availability of components over the whole service life of the crane is guaranteed. Liebherr also recommends a steady supply of critical spare parts on-site. In combination with Liebherr training on technical specifics, this allows for minimal downtime of cranes.

# Worldwide at your service



## Find your nearest service partner:

Our worldwide network of highly qualified and experienced engineers and technical consultants is at your disposal, providing rapid response times and the highest levels of expert service. This keeps your machines running at an optimum level delivering exceptional productivity and reliable performance.



## A new service era Service excellence

### Real-time and remote service

With XpertAssist, our service technicians can perform remote support and fault analysis in real time, regardless of your location. This increases the availability and service life of your machines while reducing operating and maintenance costs.



### Technical support

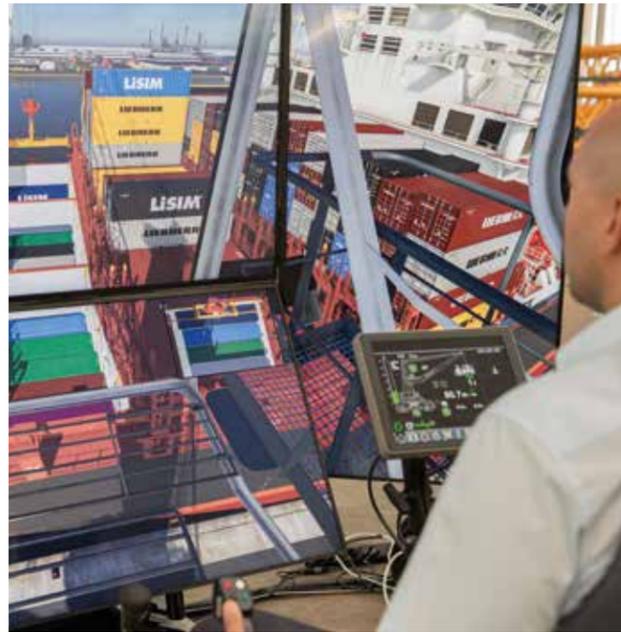
Based on many years of experience, we offer effective help and support from our specially trained technical advisors and service technicians. Regardless of the location or life cycle phase of your machine, our experts are at your disposal.



# Experience and know-how transfer

## Training

Our worldwide maritime training centres provide professional training for customers, partners and employees in the areas of product, operator and business skills. The training concepts are developed in close cooperation with the target groups and focus on product knowledge, crane operation, maintenance and fault diagnosis.



### Simulators

The LiSIM simulator enables an unprecedented simulation of crane operation. Thanks to the complete integration of the original crane control hardware via a CAN BUS client, all sensors on the real machine can be integrated and simulated. This level of integration is unique in the market and provides a training experience that closely resembles reality.

The use of VR glasses enables complete immersion in the virtual port environment and creates a detailed representation of the crane driver's cabin in three-dimensional space.

### LiSIM Move – simulation to go

LiSIM Move is Liebherr's portable training simulator, designed for maximum flexibility without compromising training quality. With intuitive controls, immersive visuals, and a compact setup, LiSIM Move brings crane operator training directly to your site, event, or classroom. Transportable in a suitcase, it allows for quick and convenient setup, making it ideal for various training environments.

# Your personal customer portal

## MyLiebherr

**MyLiebherr is your ticket to our online world with a variety of services for your Liebherr machines. You will benefit from comprehensive services and additional features such as:**

- individual management of your machines
- ease of contact with your Liebherr service partner – round the clock
- straight forward and secure management of your customer data
- instant access to the latest documentation and parts list of your machine
- simple parts ordering from your Liebherr service partner



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