#### **Liebherr-Werk Ehingen GmbH**

## High tech for the world market



# LIEBHERR



#### From Ehingen to the world

Liebherr-Werk Ehingen GmbH develops and manufactures highly modern telescopic and lattice boom cranes on mobile and crawler chassis. Its range of competences also includes the design and construction of large sunshades.

The company is the global market leader in mobile cranes. The key to this success is its innovative products, high quality and a committed workforce. Since the company attaches a great deal of value to high technological standards, Liebherr-Werk Ehingen GmbH invests heavily in research and development.

The needs of customers are at the forefront of everything we do from development to after-sales service. The aim is to set standards in terms of quality, functionality and safety and to ensure the high availability of the machines for use.

Liebherr-Werk Ehingen GmbH is a member of the international Liebherr Group. This family-owned company is one of the largest manufacturers of construction machines in the world and is also renowned as a supplier of technically advanced, user-oriented products and services in many other industries.



International customer days at the Liebherr plant in Ehingen.

### Facts and figures

40 years of experience in building mobile cranes

30,000 mobile cranes from Ehingen in use around the world

 $45\,$ % global market share of all-terrain cranes

1,5 billion euros annual turnover

1,400 cranes per year

850,000 m² factory site

240,000 m² covered floor area

3,000 employees

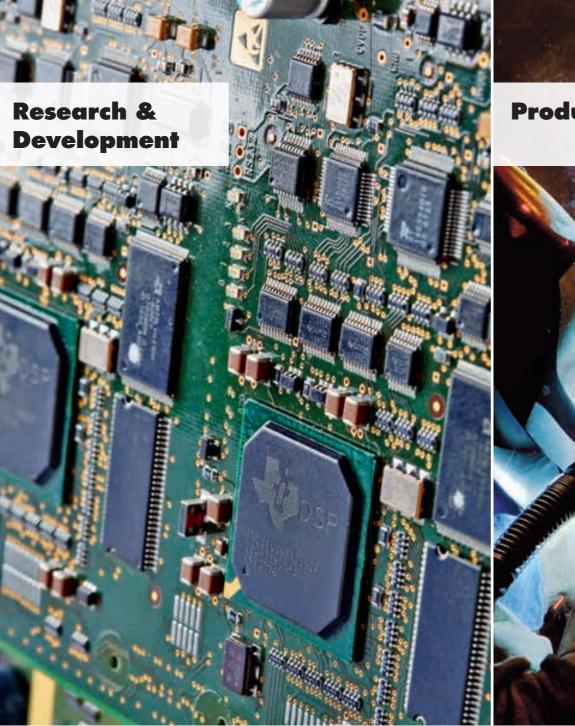


### All competences at a single site

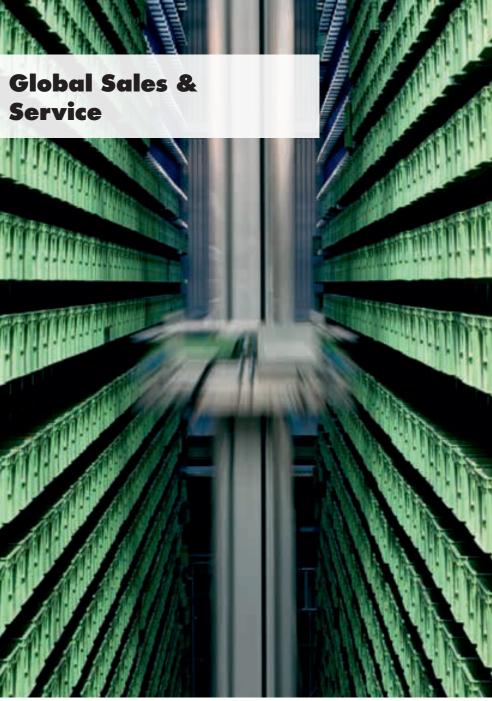
Liebherr-Werk Ehingen GmbH has extensive expertise relating to the complete life cycle of a mobile crane.

Research and development, production and global sales and service all focus on the needs of the customer.

The development capacities and production equipment on site are of a very high standard. That is the only way to produce top quality products in Ehingen.









## Researching the crane of the future

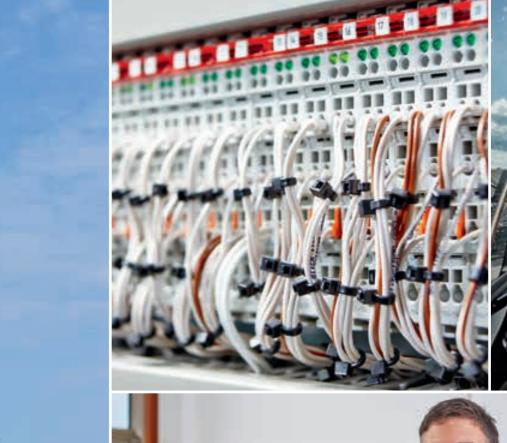
#### Setting standards in development

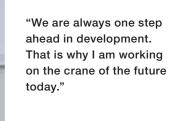
Liebherr is renowned in the crane industry for products featuring the very highest technological standards and innovative concepts. More than 250 engineers set these standards in Ehingen. A wide range of technical innovations which have dominated the crane industry were first designed and developed by Liebherr.

Liebherr established the concept of the all-terrain mobile crane and still supplies the widest range of products in the world in this segment. Ever longer and stronger booms have been developed thanks to innovative telescoping systems and profile shapes. Liebherr continues to set standards with its latest chassis technologies.

Since the start of lattice boom crane developments, Liebherr has continually set load capacity and hoist height records. Another milestone was the Liebherr PowerBoom, a lattice main boom for large crawler cranes which has a twin design at the bottom.

The basis for development is provided by intensive research work into the use of ever stronger fine grain structural steels in crane production together with technology institutes and universities. It also includes the development of pioneering and ever more powerful control and monitoring systems. One of the main aims of this is to deliver maximum safety for crane operations.









From left to right: Material testing in the laboratory. Crawler crane with Liebherr PowerBoom in operation.

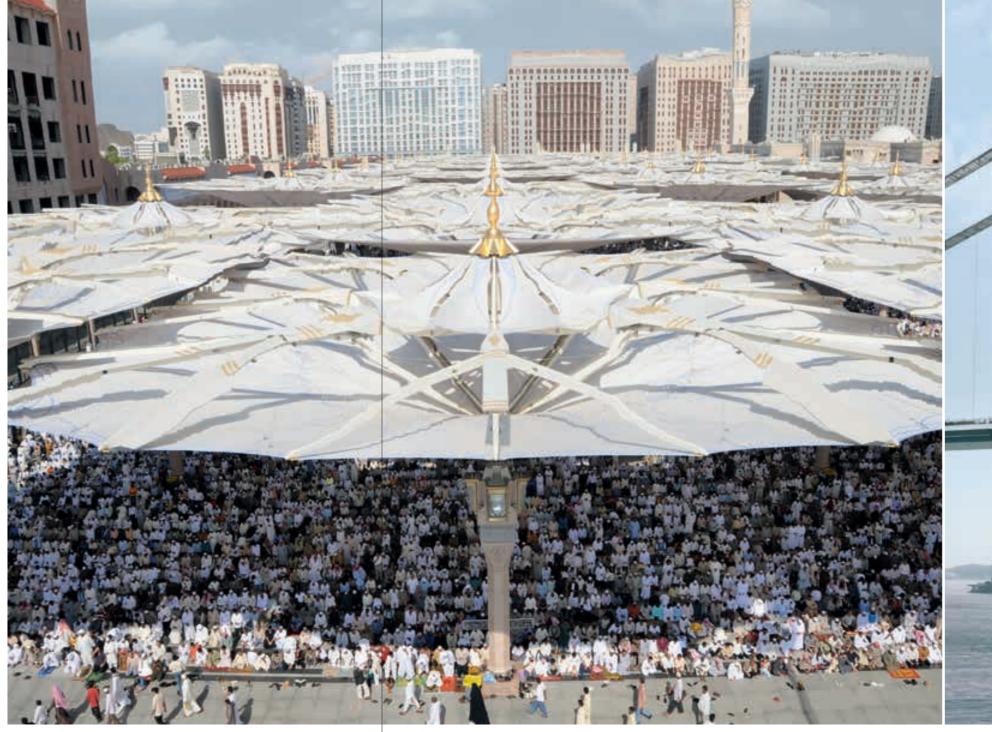
Cabinet for control equipment in the laboratory. Function tests during the crane acceptance procedure.

### Engineering competence in all sectors

Powerful, efficient cranes are the result of perfect interplay between high strength steel, precise mechanics, efficient hydraulics and the latest electronic control systems. Liebherr develops and improves the individual engineering solutions required for this in conjunction with specialist partners. The company continuously completes special projects with related technology which make the professional world sit up and stare.

For example, Liebherr-Werk Ehingen GmbH designed diesel-hydraulic heavy duty winches for the construction of the Kurushima Bridges in Japan. The winches were used to raise bridge segments measuring 30 m wide and weighing 540 tonnes.

Another example is the development and installation of 250 large parasols for a pilgrimage site in Saudi Arabia. Each of the 15 m high sunshades covers an area of 625 m<sup>2</sup> and provides protection for around 800 pilgrims from the harsh sun.





From left to right: Liebherr parasols in Medina, Saudi Arabia. Installation of bridge elements in Japan.



The most modern crane production plant in the world

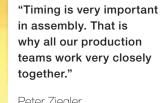
### Efficient production logistics

Every day 150 trucks deliver 1,000 tonnes of material to the plant. Every year 360 km of lattice tubes, 620 km of hydraulic hoses and 270 km of hydraulic pipes are installed on mobile and crawler cranes.

The material arrives at the production line at precisely the right place and right time. The result is maximum deadline reliability for the production and delivery of cranes. Every day six mobile cranes are delivered to customers throughout the world.







Peter Ziegler Final Assembly Mobile Cranes

From left to right: Final assembly of large crawler cranes. Assembly of telescopic booms.

### Precision in large dimensions

The final assembly hall for LTM mobile cranes has an area of over 55,000 m². This is where the chassis and slewing platforms are assembled and completed with telescopic booms. The mobile cranes are built on a production line comprising four assembly chains. There are parallel pre-assembly areas upstream of them where sliding beams, diesel engines and hydraulic components are assembled.

The large mobile and crawler cranes are assembled in the special cranes production hall. There are three production lines in this building and several assembly stations for special sizes.

Even for cranes with these large dimensions

Liebherr never loses sight of one thing – precision in the assembly of every single component.



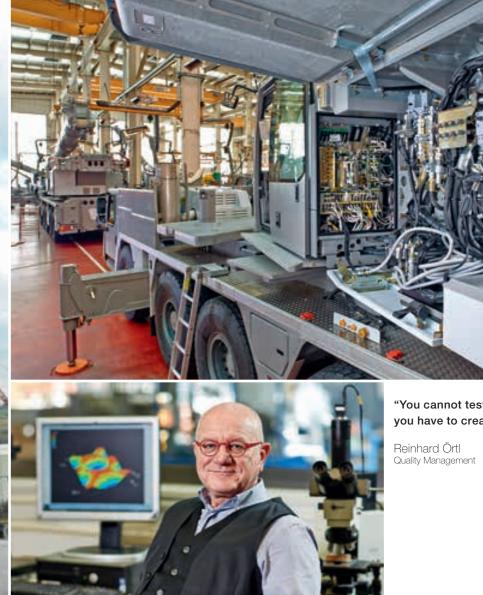
Robot-aided positioning of an axle on a mobile crane substructure.

#### What we strive for: perfection

The renowned high quality of Liebherr mobile and crawler cranes is the result of work by a highly trained staff in the production department and good collaboration with external partners. Employees of many years standing have extraordinarily valuable experience due to their use every day of the materials and machines used to make the products. Together single components and entire assemblies and production processes are permanently analysed and improved. New technologies and materials are tested to produce the very highest quality. Every individual crane is tested in depth and continuously during the production process before undergoing trials with special test loads at the acceptance area.

Our striving for perfection also means, however, that we are conscious of our responsibility to the environment. Over the past few years the company has made massive investments to protect resources. For example Liebherr-Werk Ehingen GmbH operates geothermal systems and energy control systems as well as heat recovery and water treatment systems.





"You cannot test quality, you have to create it."

From left to right: Sand-blasting in the modern large component priming facility. Ultrasonic testing of welds. Load tests during the crane acceptance procedure. Function tests during the final assembly process.



The ideal solution for every customer

#### Finding the best product together

Long-term business relationships which take the form of partnerships, mutual trust and constructive collaboration are the main features of how Liebherr-Werk Ehingen GmbH treats its customers and business partners. Innovative concepts and solutions are developed by talking to customers to ensure that our products meet their needs and requirements perfectly.

Liebherr has a presence all over the world thanks to its direct sales system and is very close to the market due to the company having many sales and service subsidiaries. This means that trends and new requirements can be identified early and satisfied with corresponding technologies and products. Sophisticated solutions can thus be supplied quickly.



LR 11350 crawler crane removing the roof of a basketball stadium in Vitoria-Gasteiz, Spain.

#### Global service – renowned to be good

In addition to high performance products, Liebherr also provides excellent service. A tight network of modern service locations ensures high quality and fast completion of repair and maintenance work all over the world.

All employees are trained at the production plant so that they can provide their customers with high quality service wherever it may be required. Experienced specialists from Ehingen provide fast, unbureaucratic support. And our service teams are mobile with a fleet of modern service vehicles. Our emergency teams are available anytime. 95% of all spare parts can be delivered anywhere in the world within 24 hours thanks to our intelligent warehousing and spare parts logistics system.

As an additional service Liebherr-Werk Ehingen GmbH is the largest used crane dealer in the world and has decades of experience in testing, repairing and marketing used cranes whilst also ensuring the ready availability of spare parts.

A modern training centre in Ehingen delivers effective training to employees and customers alike. Every year more than 6,000 people receive basic and advanced training there by attending around 400 courses on around 80 different topics.











Local service and training all over the world.

#### Our employees

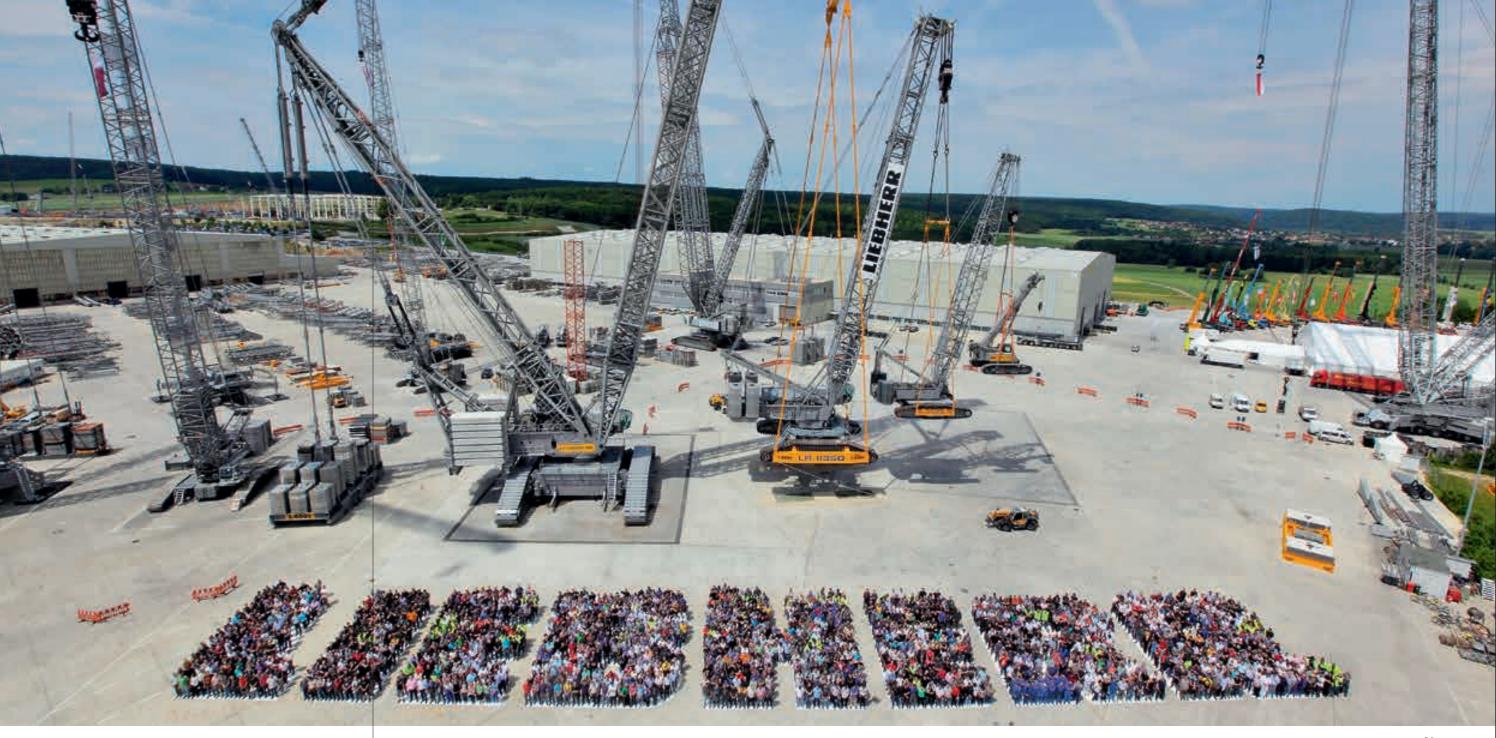
Liebherr is fortunate to be able to rely on highly motivated, competent employees who are loyal to the company for many years and devote themselves enthusiastically to the company's interests.

To promote this situation, Liebherr creates suitable overall conditions: secure jobs and a healthy working environment. The absence of unnecessary managerial levels encourages our staff to take on responsible tasks with ample freedom of action.

We promote entrepreneurial initiative and offer our employees various basic and advanced training programs. Around 50 young people start their vocational training every year at Liebherr in Ehingen.

Liebherr stands for diversity in the cultural area as well.

The Group draws strength from close teamwork across national borders. Cooperation within our Group is founded on integrity, mutual respect, fairness and trust.





Top technology for top performance

### The right crane for every job

3 tonnes – 30 tonnes – 300 tonnes – 3,000 tonnes:
Liebherr has the perfect crane regardless of the load to be hoisted. All customer requirements can be satisfied thanks to the company's wide product range. Quick set-up telescopic booms and strong lattice mast booms can be supplied with mobile all-terrain chassis or particularly strong crawler chassis and additional functional equipment.

The main applications for these products include the construction sector, industry, power plant construction and wind power. The cranes are also used for infrastructure projects, in petrochemicals and for bridge building, but also for loading work and for assembling tower cranes.









Crane projects in the Netherlands, Germany and Canada.

#### Liebherr mobile cranes – economically on the way

LTM mobile cranes deliver maximum mobility with their all-terrain chassis using advanced drive technology and flexible driving and control programs. They are ideal for driving on public roads and for off-road jobs and feature comfort, economy and safety. Liebherr mobile cranes can travel at up to 80 km/h and are extremely manoeuvrable due to their compact design. The powerful, long telescopic booms can reach very great working heights quickly and easily. Flexibility is also the number one priority for the crane's equipment. The ideal crane can be configured very quickly using functional lattice extensions, folding jibs and fixed and luffing lattice jibs.

LTC compact cranes in addition have a particularly compact design. This makes them even more suitable for extremely constricted conditions, for example for work in industrial buildings.

LTF truck-mounted cranes are economical alternatives in the taxi crane class. Their use on standard truck chassis makes their running costs very low.

LG lattice boom mobile cranes can handle particularly heavy loads, enormous working heights and radii.



LTC compact cranes



LTF truck-mounted cranes



LTM mobile cranes



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#### Liebherr crawler cranes – all the power you need

LR crawler cranes with lattice booms are used all over the world on sites where very heavy loads must be moved safely and economically. These cranes have outstanding load capacities and load moments, great hoist heights and radii. With extremely versatile boom systems and load capacities of up to 3,000 tonnes they are suitable for a particularly wide range of work. Maximum mobility and economy is ensured by compact dimensions and optimised weights of the crane components for easy transport. Derrick systems with suspended ballast or ballast trailers are available to extend the performance of the cranes. Special, enhanced boom systems have been developed for the efficient assembly of wind power plants.

LTR telescopic crawler cranes from Liebherr have short setup times and deliver fantastic flexibility.

LR-W narrow track crawler cranes can be used particularly economically in wind farms since they can be moved from turbine to turbine carrying all the equipment they need.



LTR telescopic crawler cranes





#### Milestones

Liebherr-Werk Ehingen GmbH can look back at an eventful route to becoming the leading global supplier of mobile and crawler cranes since it first opened for business in 1969.

1977: Development of the LTM 1025, the first all-terrain mobile crane in the world which is perfect for combined use on and off road

1981: Major order for the Soviet state trading company for the delivery of 333 telescopic mobile cranes with additional equipment for use in temperatures as low as minus 50 °C

1989: Development of a system to control and monitor mobile cranes with the name LICCON – Liebherr Computed Control

1994: Order received from Japan for the delivery of cranes for the enormous hoist height of 224 m – Liebherr develops and builds two type LR 11200 crawler cranes specially for this task

1995: Revolutionary new boom technology – the oval boom section combined with the fully automatic TELEMATIK extension system results in new possible uses and enormous increases in load capacity

2007: The LTM 11200-9.1 with a 100 m telescopic boom is the most powerful telescopic mobile crane in the world

2012: The LR 13000 with a load capacity of 3,000 tonnes and a hoist height of 245 m sets new standards as the most powerful conventional crawler crane in the world





From left to right: LTM 1025 – the first all-terrain crane. The flagship of the mobile crane range, the LTM 11200-9.1.

# Liebherr, an international family-owned company

Liebherr was founded in 1949 by Hans Liebherr. The company has now developed into a group of companies with a workforce of over 39,000 people in more than 130 companies across all continents. Today Liebherr is not only one of the largest manufacturers of construction machinery in the world but is also renowned as a supplier of technically advanced, user-oriented products and services in many other industries. The holding company is Liebherr-International AG based in Bulle, Switzerland, whose shareholders are all members of the Liebherr family.

The fact that Liebherr is a family-owned company has dominated the corporate culture ever since the company was founded. For over 60 years Liebherr has been synonymous with stability and reliability and has always focussed on long-term, close working relationships with its customers and business partners.

Liebherr designs technological progress and will continue to pursue the objective of being at the forefront of technological development in the future. The main focus of everything the company does is to achieve maximum quality. Every single employee of the group of companies pursues this objective in their everyday work. Liebherr is passionate about its products, and concentrates on the point of view of its customers in order to develop bespoke solutions for them.



The family shareholders active in the Group (left to right): Patricia Rüf, Dr. h.c. Willi Liebherr, Dr. h.c. Isolde Liebherr, Stéfanie Wohlfarth, Sophie Albrecht and Jan Liebherr

#### The Group's divisions

Earthmoving	Concrete technology	Domestic appliances
Mining	Maritime Cranes	Components
Mobile cranes	Aerospace and transportation systems	Hotels
Tower cranes	Machine tools and automation systems	

#### Liebherr-Werk Ehingen GmbH

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