

Solutions for Lifting Operations

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LIEBHERR



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Multitude of Application Possibilities

Lifting Structural Elements

Liebherr crawler cranes excel with excellent performance features and high mobility. They are mainly used in the building industry. Here they have numerous application possibilities and are indispensable for the erection of a wide variety of buildings worldwide.

Steel and Concrete Elements

The lifting of different kinds of structural elements on large jobsites is one of the most common tasks performed. The crawler crane convinces with high lifting capacities and mobility, and also with especially short working cycles.



Prefabricated Concrete Elements

Using a lifting beam prefabricated concrete elements are installed. The smooth control of the cranes assists in the exact positioning of the loads.





Lifting Structural Elements



Bridges

In most cases, only limited space is available when building bridges. Long bridge elements are often positioned using demanding tandem lifts.



Dams

Travelling with the load is extremely important during the construction of dams and treatment plants.



Stadiums

Boom systems with large working outreaches are required for building stadiums.



Factories

Mainly large cranes configured for heavy lifts are deployed for building factories.

Port and Barge Applications

Liebherr crawler cranes are certified for lifting jobs on barges. The application as floating crane opens up a multitude of possibilities. Rivers can be used as an extended working area especially in built-up areas where space is restricted.



Barges

Crawler cranes carry out lifting work on floating constructions. Building material that is transported by water reduces road transport and so relieves traffic in the inner city.

Ports

Liebherr's crawler cranes also carry out work on land in ports. They are in demand due to their versatility in material handling.



Jack-up Platforms

Jack-up platforms serve as a working area for crawler cranes during port development.



Deep Foundation Work

Crawler cranes are also used as carrier machines in many deep foundation applications. With a leader system fitted, they are suitable for common piling and drilling methods as well as for deep compaction to improve building ground. Long booms and large radii enable extensive working ranges as well as enormous effective lengths.



Deep Compaction

Using vibro-replacement the prevailing ground is improved through dynamic energy input. The vibro-flot is mounted free hanging on ropes and sunk into the ground. Through the vibration the surrounding soil is compacted.



Vibrating

Using a vibratory hammer with vibration damper different steel beams can be installed.



Drilling

A fixed leader is fitted on the carrier machine LR 1300. Hence a drilling machine is created for the installation of cast-in-place piles using the continuous flight auger drilling method. Drilling depths down to 50 metres can be achieved.

Further Applications

One thing is sure: Liebherr crawler cranes are versatile. The wide crawlers master all kinds of terrain. Flexible boom configurations master a wide number of lifting tasks.

Pipe-laying

Crawler cranes can not only lift heavy structural elements to great heights. By means of a multiple lift, even complicated or especially long elements can be easily moved.



Grab Operation

Grab operation is not common for this type of machine. Nevertheless, a grab can be installed if required, and light excavating tasks can be carried out.



Wind Farms

The installation and maintenance of wind turbines is advancing worldwide. Due to the optimum coordination of the lifting capacity, lifting height and working radius, Liebherr crawler cranes are ideally suited for this task. The cranes do not require an auxiliary crane for erection, which is a huge advantage at remote wind farms.



LR Series



Mobile and Versatile

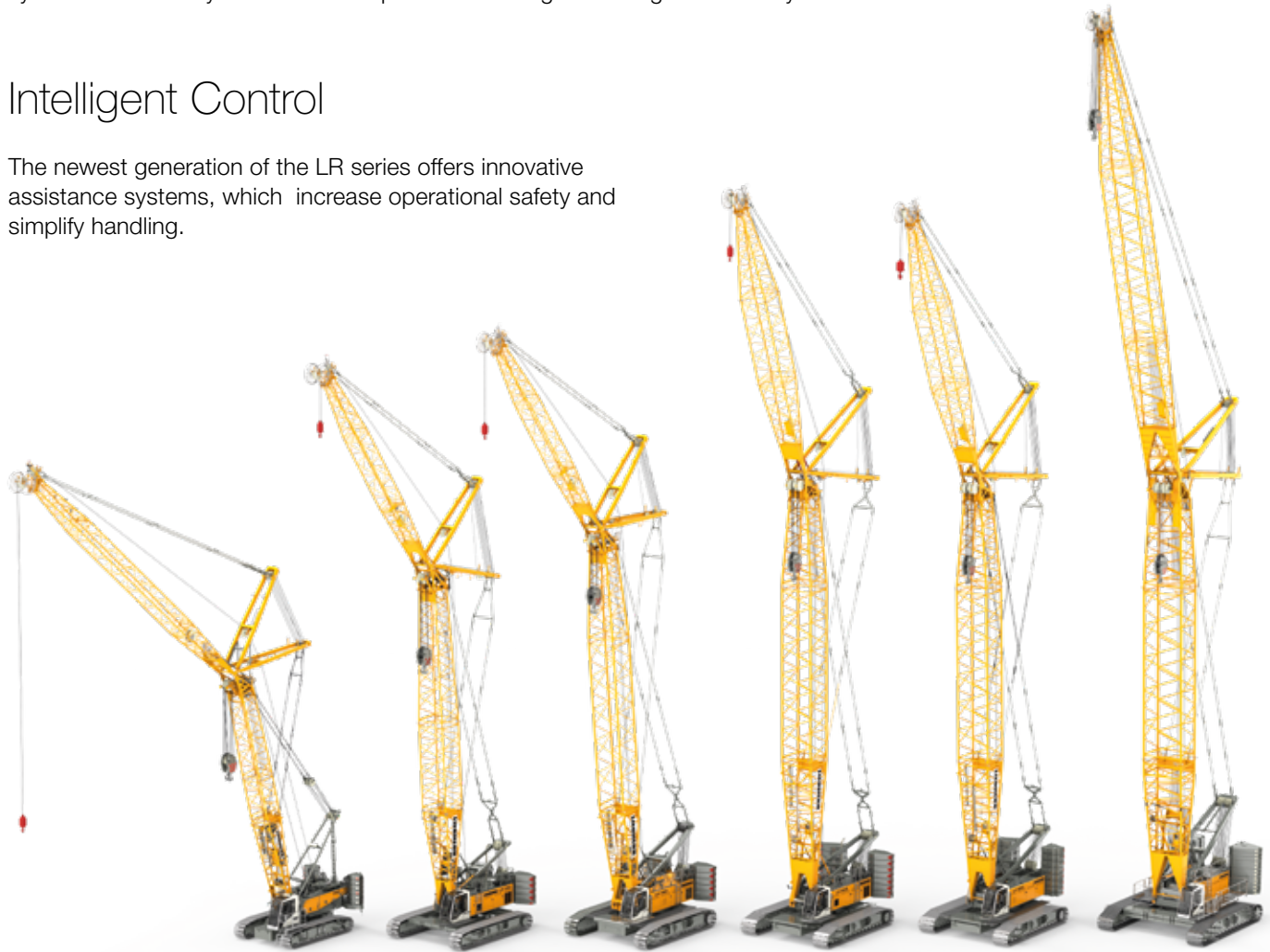
Liebherr offers a comprehensive range of crawler cranes which excels with high mobility and excellent lifting capacities. Easy exchange of equipment enables quick adaptation to different jobsite conditions.

Taxi Crane

The compact design ensures easy transportation as well as quick assembly and disassembly. Thanks to the innovative self-assembly and self-loading systems an auxiliary crane is not required for loading/unloading or assembly.

Intelligent Control

The newest generation of the LR series offers innovative assistance systems, which increase operational safety and simplify handling.



	LR 1110	LR 1130.1	LR 1160.1	LR 1200.1	LR 1250.1	LR 1300.1 SX
Max. capacity	110 t (242,508 lbs)	137.2 t (302,500 lbs)	160 t (352,740 lbs)	200 t (440,920 lbs)	250 t (550,000 lbs)	300 t (661,300 lbs)
Max. main boom	71 m (233 ft)	80 m (262 ft)	87.5 m (287 ft)	89 m (291 ft)	86 m (282 ft)	92 m (302 ft)
Max. main boom and jib	104.8 m (344 ft)	125.5 m (412 ft)	133.6 m (438 ft)	148 m (486 ft)	148 m (486 ft)	160 m (524 ft)
Engine (Liebherr)	230 kW (313 hp)	230 kW (313 hp)	230 kW (313 hp)	230 kW (313 hp)	230 kW (313 hp)	390 kW (530 hp)
Max. line pull of hoist winches	120 kN (26,980 lbf)	120 kN (26,980 lbf)	120 kN (26,980 lbf)	120 kN (26,980 lbf)	120 kN (26,980 lbf)	215 kN (48,334 lbf)

Characteristics

The high degree of vertical integration is one of the main characteristics of the crawler cranes. Key components such as swing ring, power pack or hydraulic systems are all manufactured by Liebherr and perfectly aligned - this extends to the control system, which is also developed in-house.

Efficient Self-assembly System and Short Assembly Times

The self-assembly system enables safe, independent and quick assembly/disassembly of the crawlers, the carbody and rear counterweights, as well as boom elements.

Maximum mobility

Crane parts are optimized for transportation. The maximum transport width is 3 m.

Easy Service

The design ensures easy maintenance and service as well as safe access to the components.





Control System

Easy and intuitive handling of control, service and machine functions through a large, clear colour monitor. Built for extreme environmental conditions.

Boom

A variety of boom systems and configurations allow for optimum operation on the most diverse jobsites.

High Performance

Strong, efficient and reliable diesel engines of the newest generation provide high performance and enable several movements to be carried out simultaneously.



Comfortable Cab

Optimised field of vision combined with enhanced comfort: an orthopaedic operator's seat with heating and cooling functions, as well as precise and ergonomic controls are included.




Boom Configurations

The compatible boom configurations can be applied independent of the product type. This offers more flexibility for fleet managers, simplifies logistics and reduces the levels of storage.



		Main boom										Fixed jib							
		Mode 1					Mode 2					Mode 3							
							 Auxiliary jib					 L-boom					Wind jib/heavy lift jib		
Pendants		1512	2017	2018	2320	2821		2017 1309	2018 1309	2018 1713	2320 1916	2821 2316	0906	1507	0806	1008	1713		
Steel	CFK																		
LR 1110	•	•					•								•				
LR 1130.1	•		•				•	•							•				
LR 1160.1	•			•			•		•						•	•			
LR 1200.1	•	•			•		•			•			•		•	•			
LR 1250.1	•	•			•		•			•			•		•	•			
LR 1300.1 SX	•	•				•	•				•		•	•	•	•	•		



Luffing jib												Derrick				
Mode 4				Mode 5				Mode 6		Mode 8		Mode 9				
				 Auxiliary jib				 Mid fall				 Suspended counterweight				
1309	1713	1916	2316	1309	1713	1916	2316	1309	1713	1916	2316	2220				
•				•				•								
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Optional Equipment



Low Temperatures

Reliable operation even in Arctic regions with extreme conditions and temperatures between -25° and 60° C is possible with low temperature packages.



Additional Lighting

Operation in the dark without loss of productivity is also possible. High performance LED lights on the boom and uppercarriage provide optimum illumination.



Adjustable Track Width

The track width can be reduced to a minimum so allowing the crane to travel in narrow spaces, fully equipped including boom and counterweight.



Cabin Elevation

Thanks to continuous cabin elevation, the cab can be raised to over 9 m above the ground in order to increase the field of vision. This extra is of enormous assistance to the operator especially in harbours when loading or unloading vessels.



Customer-specific Paintwork

Give your crane an individual touch. The crane can be painted in your company colours and there is plenty of room for your logo.



Boom Camera

Safety is of utmost importance. With an aerial view of the site, the crane operator has everything continuously under control. The camera has a multiple zoom ratio and can be controlled with the foot pedal, so keeping hands free for the joysticks.



CFRP Pendants

Carbon fibre reinforced plastic (CFRP) pendants are maintenance-free, easy to handle and also have reduced weight. This results in higher lifting capacities and longer self-assembling booms.



Remote Control

All crane movements can be controlled from outside the cabin. Loads can therefore be moved to positions which are not otherwise visible. The remote control also offers huge advantages for the assembly/disassembly of the machine.

Heavy Lift Configurations



Swinging Counterweight LR 1110

An optional swinging rear counterweight further increases the lifting capacity by approx. 20 %. The counterweight is swung back hydraulically, so achieving higher stability with improved lifting capacities.



LR 1300.1 SX with Derrick Equipment

The crane can be fitted with a derrick boom for heavy lifts. The swing radius of the suspended counterweight can be adjusted hydraulically from 12.2 to 15.8 metres.



Fixed Leader LRH 600

The combination of crawler crane and solid lattice boom leader provide a deep foundation machine for piling and drilling work which has a remarkable effective length and large radii. Hammer or rotary drive can be operated directly by the on-board hydraulics of the LR 1300.

Swinging Leader LRH 600

The leader hangs on a special traverse. Raked impact driving of especially long steel or reinforced concrete impact driven elements is thus possible. Swinging leaders are often used for embankment work.



Comfort



State-of-the-Art Cabin Equipment

With Liebherr machines, the focus is on people. High operator comfort makes the handling of the crawler cranes considerably easier. The innovative design of the cabin sets new standards in the construction industry with regards to ergonomics, interior fittings, air conditioning, and reduced noise emission. Furthermore, the optimum view from the cabin allows for precise and safe operation.

Ergonomic Cabin Design

Ingenious Interior

An optional cooler for provisions, various storage areas and surfaces, as well as a holder and USB port for mobile phones are all within easy reach of the comfortable seat.

Sunshade

A standard sliding window and sunshade serve as additional features for improving comfort.

Modern Operating Elements

All operating elements including redesigned joysticks, keyboards and pedals are ergonomically arranged and allow for precise control of all machine movements.

Air Conditioning

The airstreams run over the ceiling area and the windscreen and are, therefore, unnoticed by the operator.

Comfortable Operator Seat

The orthopaedic seat with automatic adjustment can be heated or cooled as required.

Clear Field of Vision

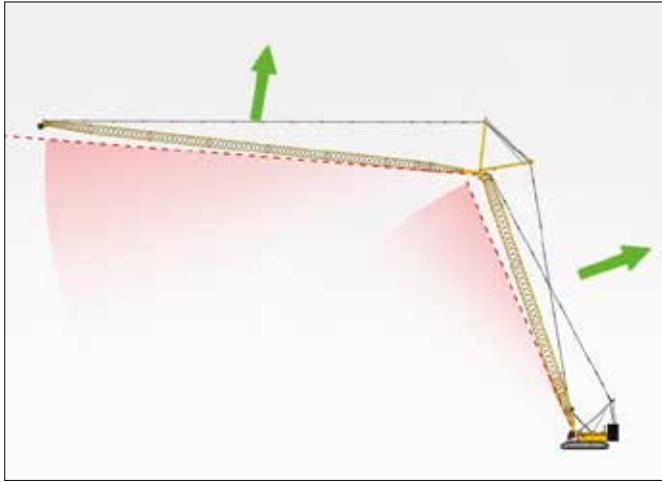
Safety on site is Liebherr's highest priority. An unobstructed view from the cabin combined with a camera system for all working areas ensures this important factor.





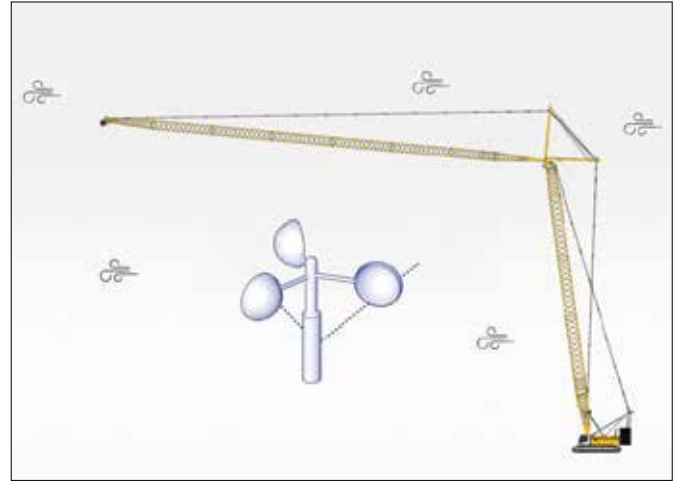
Assistance Systems

Operating a crane can be very demanding. The newest generation of crawler cranes offers innovative assistance systems, which increase operational safety and simplify handling.



Boom Up-and-Down Aid

The Liebherr assistance system “Boom Up-and-Down Aid” indicates the approach to the tipping lines and automatically stops operation before the operator unintentionally enters an unsafe zone. It assists the operator in safely leaving the danger zone without having to activate the safety bypass switch.



Preselecting the Wind Speed

Sensors on the boom and luffing jib measure the wind speed. Furthermore, the actual crane configuration (boom length, boom angle) is taken into consideration when calculating the current hazardous situation for the crane. When the conditions become too dangerous, the system gives a warning. The actual status is visible for the operator on the monitor at all times.

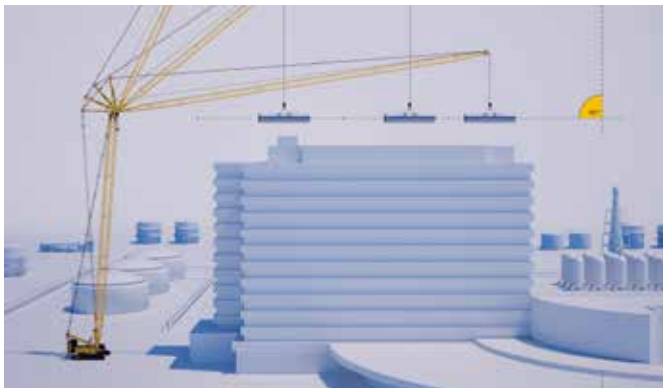
Erecting/lowering the boom in limited space in the centre of San Francisco



Explanatory video

Safety on the Jobsite

Loads must often be moved over substantial distances with restricted visibility. Intelligent assistance systems control both the load path and the load distribution. Therefore, stresses on the steel construction are avoided.



Horizontal Load Path

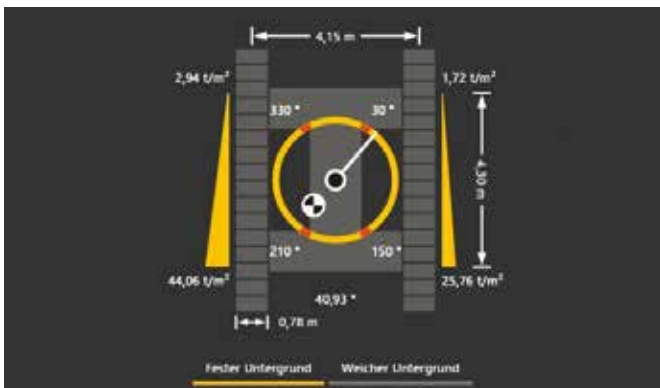
At the press of a button on the control panel the load moves along the horizontal load path during luffing. Thanks to the short pendant height, loads can be moved to their intended position more quickly and the coordination of multiple lifts is easier.

Vertical Line Finder

The boom head is exactly positioned vertically above the planned load. This prevents swinging load and any possible contact with surrounding obstacles. The service life of the crane is also extended through lower dynamic forces on the boom.

Ground Pressure

The ground load-bearing capacity and the monitoring of the ground pressure are decisive for the safe operation of a crane. Ground Pressure Visualization calculates the current ground pressure of the machine in real time and compares it with the specified safety limits that the operator has entered in the control system.



Angle values of the maximum prevailing ground pressure and position of the centre of gravity.

The ground pressure rosette shows the course of the maximum ground pressure over 360°.

The ground pressure is displayed on the monitor and the operator is permanently aware of whether the machine is in or approaching a critical area. Dangerous work steps can so be avoided or safely adapted in good time.

Modes of Operation



Barge Operation

For lifting work on floating barges, the crane operator can enter the barge inclination in the control system and lifting capacities are adjusted accordingly.



Driving with Load on the Hook

Driving is always carried out in “Safe Mode” with active Load Moment Limiter, and is dependent on the driving speed. The control system automatically adjusts the lifting capacities to suit the driving speed, when driving with a load on the hook. At the lowest speed the full lifting capacity can even be lifted.

Deep Foundation Work

Deep foundation mode reduces the lifting capacities and Load Moment Limiter in accordance with the applicable regulations for the deep foundation industry.



Personnel Lifting

The newest generation of crawler cranes is approved for personnel lifting. This mode is selected using a separate key switch. Thanks to the EC type approval certificate of the Liebherr crane for the occasional lifting of persons, local approval from an acceptance authority is no longer required by the crane operator. The statutory emergency generator and emergency controls required for personnel lifting are offered by Liebherr as a simple Plug-and-Play solution. In case of emergencies, the crane availability can be restored within a few minutes.

Transportation and Set-up



The LR 1110 can be transported in one piece, which reduces assembly and disassembly work to a minimum.

Focus on Cost-efficiency

Special attention was given to the uncomplicated and economic transportation of Liebherr's crawler cranes. Thanks to minimum set-up work, the machine can be quickly mobilized between jobsites so promoting economic deployment.

Designed for Road Transport

All components have a space-saving design and weights are optimized so allowing for smooth transportation on all roads in accordance with current international transport regulations. The disassembled crawler crane has a compact transport width of maximum 3 metres.

Easy Assembly

The self-assembly and self-loading systems allow for quick and easy, and above all safe assembly of the crawler crane. All assembly work and changes of equipment can be carried out without an auxiliary crane.

Jack-up System

First of all, the uppercarriage is unloaded independently using a jack-up system, whereby the crawler crane is supported by hydraulic jack-up cylinders.



Unloading and Assembly

Subsequently the crawlers, counterweights and boom sections are unloaded and assembled using either the A-frame or boom foot.



Pin Connections

Hydraulically activated pins and quick connections accelerate the assembly process.



Economic Transport

The middle sections of the boom and luffing jib can be transported within each other thus saving space and costs.

Erecting and Lowering the Boom

All boom configurations can be erected within a very short time.

Fall Protection

This system, designed by Liebherr, protects personnel during assembly work on the lattice boom.

Lower Emissions



Fuel savings calculator
Check how much fuel you can save!
Compare your consumption with
worldwide fleet values.



The powerful Liebherr diesel engine D946 6-cylinder in-line engine (390 kW/523 hp) is installed in the crawler crane LR 1300.1 SX.

Deciding Factor for the Purchase of a Liebherr Machine

The newest drive and control systems from Liebherr help to reduce noise emission, fuel consumption and thus CO₂ emissions. Furthermore, both the reliability and productivity of the crawler cranes are increased.

Engine Functions for Increased Efficiency

Engines of the Latest Generation

Crawler cranes are equipped with diesel engines manufactured by Liebherr in-house. All engines complying with Stage IV/TIER 4f have a limited maximum speed of 1,700 rpm. This contributes to fuel savings of approximately 5% compared to previous engines.

Lower Engine Speed While Idling

Crawler cranes are in idling mode for 45 % of their operating time. With the lowering of the engine speed from 950 rpm to 750 rpm while the machine is in idling mode, up to 2 litres of fuel can be saved per hour.

Downsizing of the Engine

Thanks to the machine's optimized hydraulic system the size of the power pack can be reduced without negative effects on system performance. The efficiency is thus significantly increased while the fuel consumption is decreased.

Useful Additions



Automatic Engine Stop Control

The engine switches off automatically during longer work interruptions, after having checked certain system functions. This saves fuel and reduces emissions. At the same time the machine has fewer operating hours, thus increasing its residual value, as well as extending both warranty and the maintenance intervals.



Eco-Silent Mode

With the aid of this function the engine speed is reduced to a required predefined level. This leads to a considerable reduction in the fuel consumption and a reduction in noise emission.



Auxiliary Power Unit with Remote Starter

During crane operation there are often downtimes when the operator has to be on standby in the cab. An additional auxiliary power pack provides the power meaning the main engine can be switched off. Air conditioning and lighting are therefore always available with a comparatively low consumption.

LiSIM® - Liebherr Simulators



The simulated machine is the LR 1300, a favourite model in the series of crawler cranes.

Hands-on Training for Crawler Cranes

Simulation-based training is the perfect way for crane operators to familiarize themselves with the machine and to prepare for the real job. It is the key for a safe and productive working environment.

Simulating all Aspects of your Job

The training simulator from Liebherr offers a wide variety of scenarios depicting typical areas of operation for crawler cranes. Each training scenario can be performed under different environmental conditions so that even unforeseeable situations can be practised. The training programme includes various kinds of loads for a high-quality and realistic hands-on training.



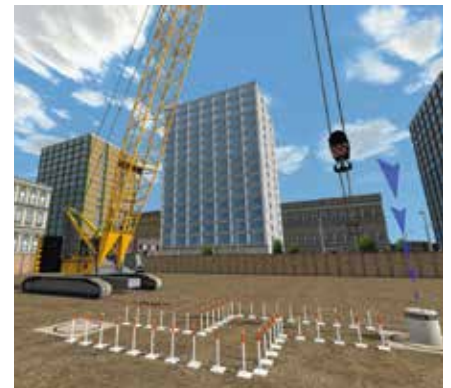
Basic Training

The basic functions of the machine are learnt through completing different scenarios.



Lifting Operations

Following the basic training, initial experience can be applied. The focus lies on lifting different loads with increasing difficulty. Typical jobsite tasks such as lifting steel beams, bridge elements, pipes and concrete blocks are simulated.



NCCCO Training

Perfect as preparation for the NCCCO certification, the crawler crane module offers practical exercises such as lifting test weights through a defined course.



LiSIM®

Crane Planner 2.0

Plan your Work, Work your Plan

Organizing a jobsite is a complex task. Often there is little space, the soil conditions are demanding, or the machine has a limited lifting capacity. The new Crane Planner 2.0 assists with the right choice of equipment for each lift when faced with these challenges. This saves time and money, and also meets with safety standards.

Easier Planning Through Visualisation



Equipped with virtual reality glasses and two hand controls, the whole jobsite including the crane, load and surroundings can be experienced in 3D. The planner can move freely in the virtual area and view the projects that are being planned in Crane Planner 2.0 from all angles. During the planning phase it is possible to survey the whole project, to operate the machines, and to directly simulate the planned working processes from lifting to setting down the load.

Intelligent Solutions for Demanding Lifts

- combination of highly detailed, interactive 3D models with all relevant planning data
- every change in influencing factors (crane geometry, load, surroundings) activates a new calculation of all planning data
- easy definition of both typical and user-specific dimensions
- ideal tool for planners and engineers who require not only actual data, but also precise 3D models of the machine configuration being used
- service program for everyone, no CAD knowledge necessary



www.liebherr.com/CranePlanner

Customer Service



Worldwide at Your Service

A well-organized worldwide network of highly qualified, experienced engineers and technical advisers, all trained by Liebherr, is available for our customers to ensure shortest response times and highest productivity.

Find your nearest
service partner:



All-round Service Excellence

Field Service

- professional engineers
- tailored inspections
- recommendations for maintenance programmes



Inspection Monitoring

- reduces the probability of large repairs
- increases the overall availability of the crane
- extends the service life of the crane



Upgrades and Retrofit

- increase safety
- reduce environmental impacts
- improve operator comfort
- comply with new legislation



Parts

- strategically located stocks worldwide
- fast distribution service
- long availability of parts
- Liebherr original parts - optimally suited to Liebherr machines

Remanufacturing and Exchange

Our Reman program offers three-stage reconditioning of components:

- exchange components
- general overhaul
- repairs

Customer Portal MyLiebherr

You profit from comprehensive service and additional benefits for your product.

- individual administration of your machines
- access to the latest load charts and operation manuals
- online parts orders 24/7





Liebherr-Werk Nenzing in Austria

The Liebherr Group of Companies



Wide Product Range

The Liebherr Group is one of the largest construction equipment manufacturers in the world. Liebherr's high-value products and services enjoy a high reputation in many other fields. The wide range includes domestic appliances, aerospace and transportation systems, machine tools and maritime cranes.

Exceptional Customer Benefit

Every product line provides a complete range of models in many different versions. With both their technical excellence and acknowledged quality, Liebherr products offer a maximum of customer benefits in practical application.

State-of-the-art Technology

To provide consistent, top quality products, Liebherr attaches great importance to each product area, its components and core technologies. Important modules and components are developed and manufactured in-house, for instance the entire drive and control technology for construction equipment.

Worldwide and Independent

Hans Liebherr founded the Liebherr family company in 1949. Since then, the family business has steadily grown to a group of more than 130 companies with nearly 44,000 employees located on all continents. The corporate headquarters of the Group is Liebherr-International AG in Bulle, Switzerland. The Liebherr family is the sole owner of the company.

www.liebherr.com

Liebherr-Werk Nenzing GmbH

Dr. Hans Liebherr Str. 1, 6710 Nenzing/Austria
☎ +43 50809 41-473, Fax: +43 50809 42 500
www.liebherr.com, crawler.crane@liebherr.com
[facebook.com/LiebherrConstruction](https://www.facebook.com/LiebherrConstruction)