

**Progress as a
modular system.**

EC-H and EC-B cranes.



LIEBHERR

The modular-element system offers much greater benefits.

Liebherr tower cranes are of modular design so that every crane can be configured to meet individual requirements.

The undercarriages or bases, tower elements, adapter sections, jib segments and drivelines can be combined freely among the EC-H and EC-B crane systems. This offers decisive benefits for crane fleet operators.

1

Good working conditions boost productivity.

Modern, ergonomic cabin design and excellent operating convenience help the operator to concentrate on the task in hand – an important precondition for tower crane efficiency.

2

Intelligent high-performance drivelines.

Liebherr's stepless high-performance drivelines deliver much higher load-handling performance. There is an ideal driveline for every purpose: single-, two- or three-speed hoist gear, slewing gear and trolley travel gear all with frequency converter control. Liebherr's intelligent driveline concepts mean highly reliable operation and uncompromising efficiency – and their low electricity consumption reduces operating costs significantly.

3

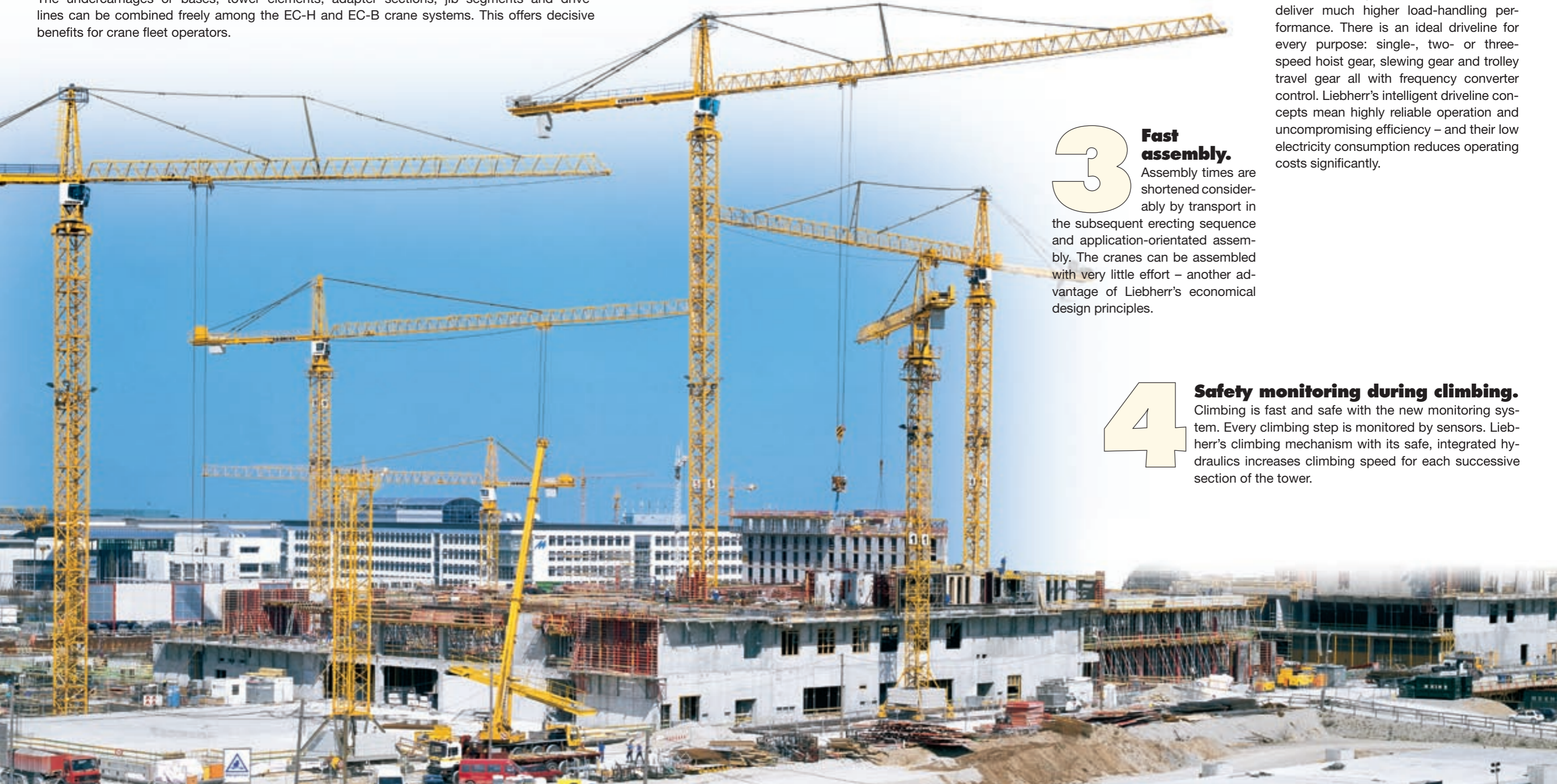
Fast assembly.

Assembly times are shortened considerably by transport in the subsequent erecting sequence and application-orientated assembly. The cranes can be assembled with very little effort – another advantage of Liebherr's economical design principles.

4

Safety monitoring during climbing.

Climbing is fast and safe with the new monitoring system. Every climbing step is monitored by sensors. Liebherr's climbing mechanism with its safe, integrated hydraulics increases climbing speed for each successive section of the tower.





**connect
&
work**
Practical assembly
technology

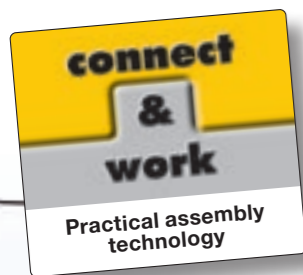
The EC-H crane system.

EC-H cranes in the size category from 112 metre-tonnes upwards set the standard in today's tough construction-site conditions, either as standard EC-H cranes in FR.tronic version or as EC-H Litronic cranes, which can sustain up to 20 percent higher loads at the push of a button. The Litronic crane control system is built up from several electronic modules.

The EC-H's spacious cabin sets the standards in design and operator convenience. The large windows ensure optimum visibility.

EC-H cranes can be transported inexpensively, have innovative drivelines and are fast and easy to set up. Their performance ratings are ideal for medium and large construction projects.

Cranes are transported in the subsequent assembly sequence, divided into compact transport units consisting of the main crane sub-assemblies. The EC-H slewing platforms and counter-jibs are completely pre-installed before leaving Liebherr's Biberach production plant.



The EC-B crane system.

The small and medium-sized EC-B cranes.

Crane operators in medium-sized building projects can choose between ten small and medium-sized EC-B Flat-Top cranes from 30 mt to 130 mt in standard or FR.tronic version. These cranes are available in either 2-fall or 2/4-fall version, or exclusively in 2-fall where the FR.tronic version is concerned. On these EC-B cranes, the compact head contains the hoist gear, the slewing gear, the central switchgear and the complete slewing ring support. The trolley travel gear is housed in such a way in the jib pivot section as to make it easily and safely accessible straight from the compact head. Crane operators have the option of using the crane and all its functions with or without the cab.

The large EC-B cranes.

Four large EC-B Flat-Top cranes from 160 mt to 250 mt in Litronic version guarantee up to 20 % greater load capacities at the touch of a button and ensure excellent material-handling on your construction site. High hook heights and large load capacities are the large EC-B Flat-Top cranes' specialisations. The compact head on these cranes contains the entire switchgear, the slewing ring support, the movable comfort cab, the slewing gear and the fold-out frame.

Tower systems for every task.

Equipment is available for a wide variety of applications: rail-going and stationary undercarriages and cruciform bases as well as tower systems.

Liebherr towers for crane sizes up to 256 HC / 290 HC have tight-welded, closed corner posts and diagonal elements. The tower connections at each corner consist of two drop forgings and two heavy-duty bolts subject to tensile rather than shear loads. These zero-clearance connections are a guarantee of the Liebherr crane tower's long life.



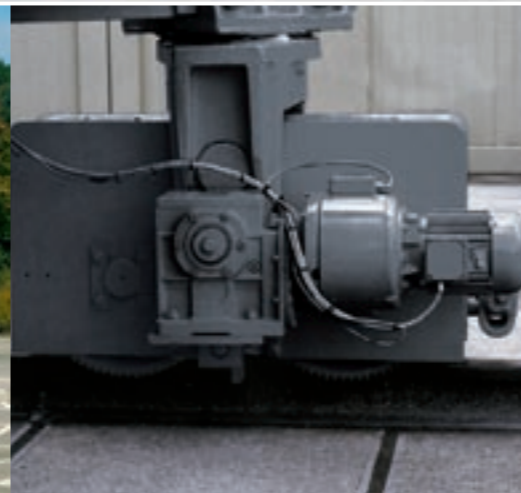
The stationary cruciform base with foundation blocks.



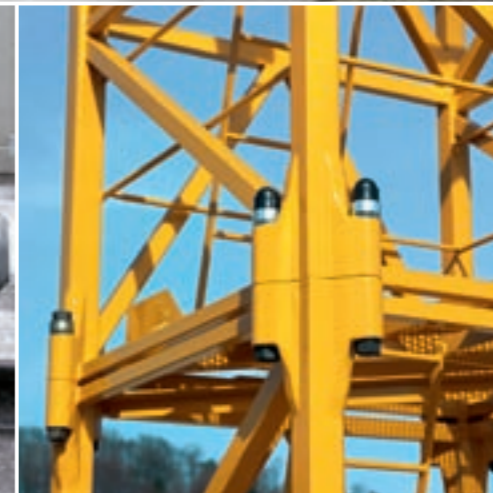
The support spindles for rapid levelling.



The rail-going undercarriage.



The rail track wheel assembly.



Liebherr's zero-clearance bolted connection.



Liebherr's zero-clearance taper-pin connection for large cranes.

1 Top comfort for increased productivity.

Modern cabin design.

The control centre and a comfortable workplace with an unobstructed view of the load and the site are located in the full-view noise-proofed and temperature-insulated cabin. Every load can thus be positioned optimally. This ergonomic cabin is the key to safe, concentrated work and high load-handling capacity.

Ergonomic controls.

The controls in the full-view cabin are exceptionally convenient to use. The panels for all control functions are integrated into the seat, with a wide range of position adjustment. The EMS electronic monitoring system, the control levers and the driver's seat are well matched to form a perfect ergonomic unit. Air conditioning is available as an optional extra.

The Litronic crane system.

The standard EMS electronic monitoring system is the control and display device for all Liebherr crane displays and the control and monitoring systems. The maximum load on Litronic cranes can be increased by 20 percent at the push of a button. The Litronic crane control system consists of several electronic functional modules.

The electronic modules, that is to say the LMB load moment limiting system, the ABB work area limiting system and the MDA machine data analysis system, are standard on all cranes. The AKS anti-collision system and DFÜ remote data transmission system are available as optional extras. All sub-assemblies are pre-installed.



EMS system



The modern, ergonomic cabin design provides a relaxed, stress-free working environment.

Well-designed controls for maximum convenience.



2 Intelligent high-performance drive systems.

High-performance drives from Liebherr ensure safe, quick and efficient handling of loads. Their low power consumption also has a noticeable positive effect on operating costs. All drives were developed and manufactured at the Liebherr Group's own competence centre for drive technology in Biberach.

Frequency-converter hoist gears.

Liebherr top-slewing cranes feature high-performance drive systems for maximum load-handling capacity and economy. Frequency-controlled high-performance single-, 2- and 3-speed frequency-converter drive systems with various power outputs are available for any kind of application. All loads are lifted by a double-reeved rope, which saves a lot of time.

Some of the most significant advantages include automatic load detection, micro-speed travel movement, use of the entire control-lever travel range and load retention without application of the hoist gear brake. With these drive systems, safe command and optimum control of the crane is extremely easy.

Frequency-converter slewing gear.

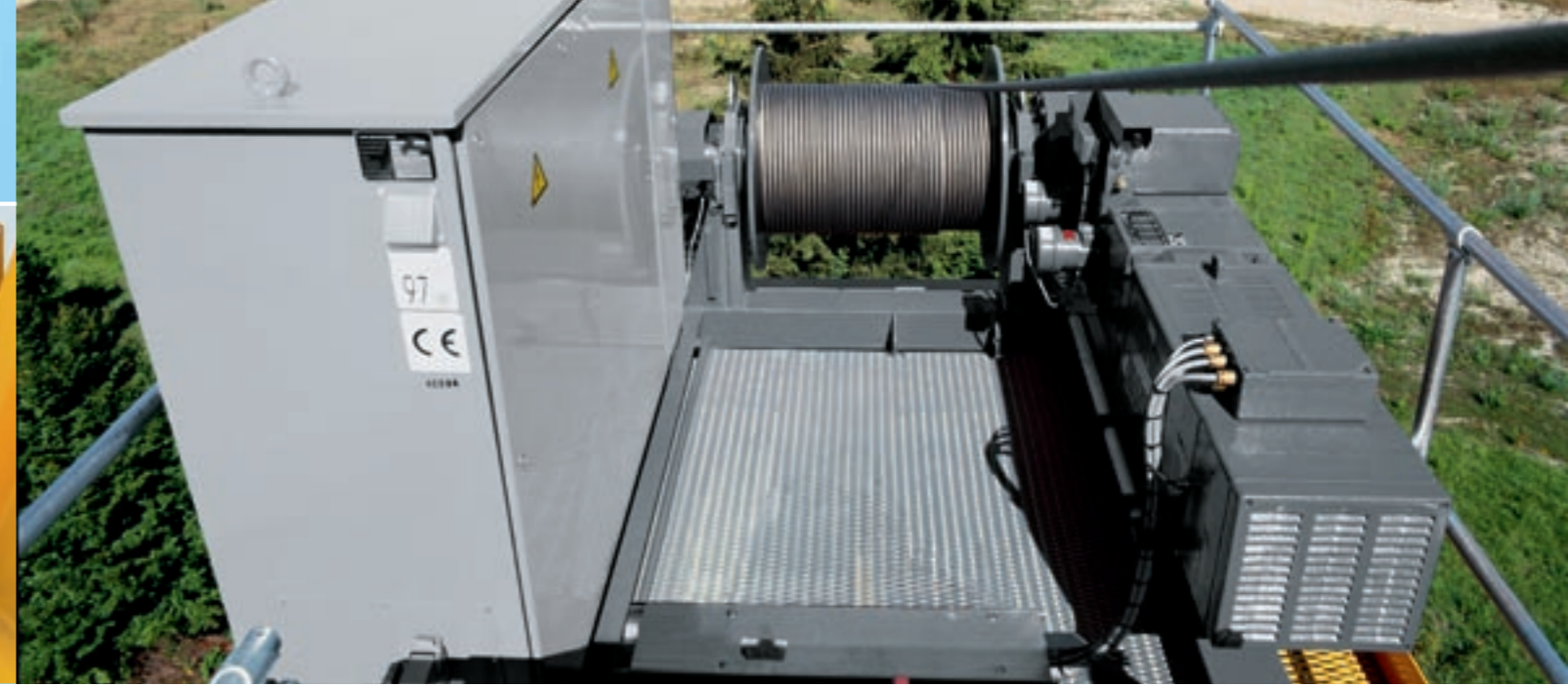
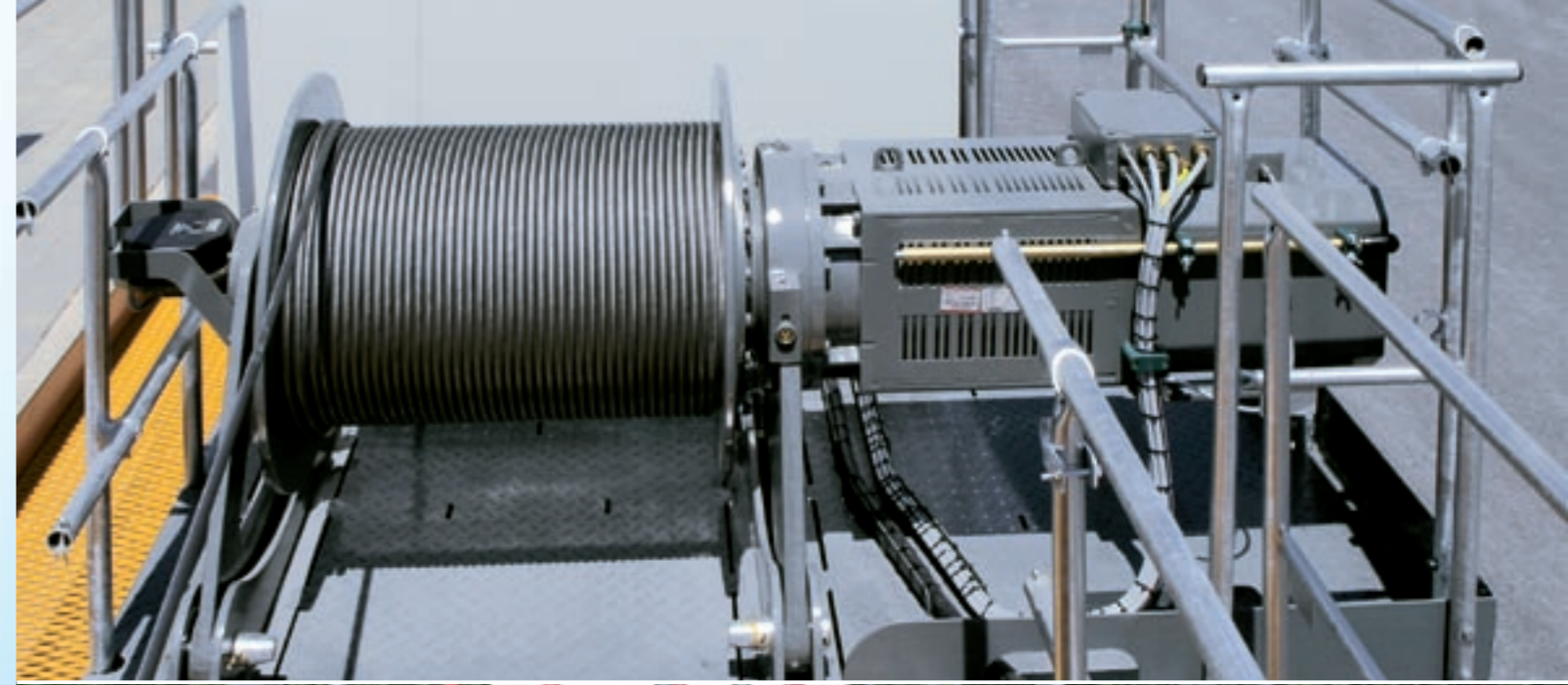
The FC slewing gear drives enable absolutely jolt- and jerk-free slewing at micro-speeds. Wind and load influences are all detected. Integrated anti-sway damping compensates for crane vibration and load swing. The integrated electrical wind release can be activated directly at the base of the tower.

A completely new development is personalised slewing. The crane operator now has a choice between three different operating modes: rotational-speed control, torque control or a combination of the two.

Frequency-converter trolley travel gear.

The frequency-converter trolley travel gear offers convincingly sensitive, stepless operation, extended performance ranges and high trolley speeds, especially under load.

A cable storage area is integrated in the cable drum if a short jib is in use.



Frequency-controlled trolley travel gear: stepless operation and high trolley speeds.

Patented frequency-converter slewing gear: sensitive, jerk-free slewing movements.

Frequency-converter hoist gears for high load handling performance.

3 Fast assembly.

Compact assembly units.

The design principle of Liebherr's top-slewing cranes cuts costs when assembling them. The cruciform base can be assembled with very little effort and it is transported as two complete packages. A variety of bases is available for different applications.

Completely pre-installed assembly units.

Once the tower base and the climbing system have been assembled, the complete slewing platform is installed. This unit is completely pre-installed and can be transported on a normal truck. It is assembled with one lift. Once the slewing platform is installed on the tower and the electrical connections have been completed, the upper part of the crane can already be slewed from the control stand or cabin to pick up the counter-jib and main jib from any side.

The counter-jib comes complete with the hoist gear, hoist rope wound on to its drum and pre-installed guy rods. It also has completely pre-installed electrical plug connectors. The counter-jib is installed with a single lift and easily connected with quick-release fastenings.



Easy installation of the cruciform base.

Erecting the entire climbing unit with just a single lift.

Erecting the completely pre-installed slewing platform.

Well-planned detail design makes erecting work easier.



The complete jib is pre-installed on the ground. The trolley and the load hook form a single assembly unit. Reeving and tensioning the trolley rope is fast and easy without connection to the mains, since the drum can be rotated freely with the brake released.

Fast hoist rope reeving.

The hoist rope on Liebherr top-slewing cranes is installed by simply pulling it over the tower head and running it through the trolley to the hook.

On Liebherr's top-slewing cranes, the hoist rope pulley at the trolley hook block is simply folded open for easy hoist rope reeving. Once the hoist rope has been guided through the pulleys, the erecting mechanic moves out to the end of the jib in the trolley's cage, bolts the hoist rope into position – and the job's done!

Quick-release fastenings for trouble-free assembly.

The quick-release jib and counter-jib fastenings make erecting work significantly easier. The jib and counter-jib can even be installed without difficulty in an inclined position.



Liebherr's ballast centering system.



All plug connectors are pre-installed.



Quick-release fastenings for the jib and counter-jib.



Easy hoist rope reeving.



Crate containing completely pre-installed trolley and hook.



Easy attachment of hoist rope at end of jib.

Loading for easy assembly.

Liebherr cranes are planned for transport in such a way that subsequent erecting work is simplified. The individual transport units are the complete cruciform base with central ballast, the base tower including ballast, the complete slewing platform with tower head, the complete counter-jib with hoist gear and counter-jib ballast, the complete jib and tower segments.

Re-usable frames are available for container transport. Tower segments can then be transported as containers, which cuts the cost.



4 Safety monitoring during climbing.

Liebherr's fast climbing system permits quick, easy and safe tower climbing. It consists of the guide section (blue), the hydraulic system (red) and the supporting cross-member (green). The guide section is bolted to the slewing platform. For fast climbing, the entire upper part of the crane is lifted by the hydraulic ram. All tower sections are inserted from the front, using the crane's own hook. The tower crane thus grows section by section.

Newly developed monitoring device.

The new monitoring device detects and prevents operating errors. The positions of the supporting equipment during climbing are monitored by limit switches.

Fast climbing.

Climbing is easy, fast and trouble-free. Position the climbing cross-member on the tower section, extend the ram, hold the upper part of the crane with the support shoe, retract the ram – this is all that's needed to complete the first climbing stage. For a 2.5-metre tower section, two climbing stages provide the space for the tower section to be pushed in and bolted to the tower.

This fast climbing system can also be easily removed using the crane's own hook, for use on another crane.



The climbing system with guide section, climbing cross-member and hydraulic system.

The climbing cross-member (green) is positioned on the tower section.

The ram piston rod (red) is extended and presses the entire upper part of the crane upwards.

Bolts can be tightened and released quickly using the hydraulic driver.



Climbing inside buildings.

Liebherr top-slewing cranes are ideal for use as climbing cranes in buildings. Liebherr tower cranes can be used in elevator shafts and even in the smallest niches as the project 'grows' rapidly. The crane in fact grows with the buildings.

The IC tower system.

The IC internal climbing tower system has been designed specifically for narrow elevator shafts. Its overall dimensions are as small as 1.60 m x 1.60 m to 1.90 m x 1.90 m, which makes them perfect for even the smallest shafts. The entire climbing hydraulics are located in a space-saving manner inside the tower section.



The hydraulic system in the IC tower.



Clamping the IC tower into an elevator shaft.



The upper climbing frame of the IC tower.



Overview of advantages.

Modular design

- Many possible combinations of sub-assemblies within the crane systems
- Identical tower design
- Customised crane configuration

Connect and Work

- LiConnect quick jib connection
- Quick connection system for jib and counter-jib
- Removable crane cab
- Pins within easy reach in tower and jib
- Quick and simple plug connections on the drive units
- Self-clamping counterweight slabs
- Compact assembly units
- Completely pre-installed assemblies

Tower combinations

- Proven modular system – full use of available tower sections
- Undercarriages / cruciform bases can be used in various ways as needed
- Closed, tight-welded sections
- Long operating life
- Zero-clearance connections with bolts or taper pins

Top comfort and convenience

- Control stand with a wide range of adjustment
- EMS with basic function and radius display
- Heating with thermostat and time switch
- Air-conditioning (optional extra)
- Heat and noise insulation
- Heat insulating glass
- 220 V power socket
- Wiper system

FR.tronic

- All drive systems controlled by frequency converter
- Stepless lifting, lowering and travel
- The latest control technology
- Can be used on 50 Hz or 60 Hz and 400 V or 480 V power supply

Litronic

- Monitors, controls and coordinates all the crane's important functions
- 20% load increase at the push of a button
- Electronic module for the LMB, ABB, AKS, MDA and remote data transmission systems

Safety-monitored climbing

- Newly developed monitoring system
- GS tested

Frequency-converter hoist gears

Single-, 2- or 3-speed frequency-converter hoist gears

- Double-reeved operation throughout the load handling range
- Automatic load adaptation
- Liebherr electric motor
- Micro-load positioning
- Essential safety function: the motor moment is only switched off when the brake has taken over the load
- Positioning mode -> lifting speed reduced to 1/4
- Minimal start-up currents – low power consumption
- Stepless speed control
- High lowering and empty hook speeds

Frequency-converter slewing gear

- Absolutely jolt- and jerk-free slewing
- Integrated wind load control
- Automatic load-swing damping
- Integrated system turns the crane into the wind electrically
- Personalised slewing - three operating modes

Frequency-converter trolley travel gear

- Compact design
- Sensitive control, stepless operation
- Generous performance ranges and high trolley travel speeds

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