Product advantages mobile crane

Max. load capacity: 400 t
Max. height under hook: 130 m
Max. radius: 100 m

The LICCON test system

- The LICCON test system assists the servicing personnel in quickly localizing errors of the crane’s sensory system without the need of measuring instruments.
- The service starts at the display screen, trouble shooting becomes a matter of seconds.
- Convenient interactive functions permit the observation of all in and outputs of the general system by different representations on the display screen. The testing results can be printed as reports and saved as archives to the system as well as their function on the display screen.

The LICCON work area limitation

- It allows the crane operator, especially in situations where the working area limits, or work zone restrictions, by buildings, bridges, high tension power lines, pipe lines or adjacent crane’s working area’s, are to be considered.
- The LICCON work area limitation (optional) can be programmed. Four different limitation functions are possible:
  - Height limitation of the pulley head
  - Radius limitation
  - Radius limitation for lattice towers
  - Limitation of edges

The LICCON work planner

- The LICCON work planner consists of a software program on CD for planning, simulation and documentation of crane applications on the display screen (optional)
- The Co-planner permit the drawing of buildings, to write texts and to represent a crane model true to scale including its entire working motions within a fictional construction site.
- The work planner enables the preparation of more transparent offers, it facilitates the training of crane operators and can be run on a laptop at the construction site.

The LICCON system

- It’s designed for the mobile crane controller by Liebherr and the LICCON test system, by Liebherr-Werk Ehingen GmbH.
- It consists of the LICCON controller, LICCON monitor, LICCON transmitters and LICCON sensors.
- The LICCON controller is the central control element of the LICCON system.

Optional features contribute to an expansion of the application spectrum and increase comfort and safety

On the carrier:
- Eddy-current brake
- Outrigger control
- Air-conditioning system
- Radio preparation
- Seat heating for driver’s and co-drivers seat
- 3rd seat
- Maneuvering coupling
- Fog lamps
- CD radio set

On the crane superstructure:
- Air-conditioning system
- Seat heating
- Video control of the winches
- Work area limitation program
- Work area limitation
- Working projector Xenon on the telescopic boom base section
- GSM module for tele diagnostic
- CD radio set

Further optional features by request

Liebherr-Werk Ehingen GmbH
Postfach 1361, 89582 Ehingen, Germany
Tel. +49 73 91 5 02-0, Fax +49 73 91 5 02-33 99
www.liebherr.com, E-Mail: info.lwe@liebherr.com
Compact, maneuverable and safe

• Overhanging angle, front to 11°, rear to 5°
• Overhanging angle, front to 11°, rear to 5°
• Overhanging angle, front to 11°, rear to 5°
• Compact drive concept, 4x4, side 1 and 2 drive are driven, side 3 and 4 are driven
• Compact drive concept, 4x4, side 1 and 2 drive are driven, side 3 and 4 are driven
• Compact drive concept, 4x4, side 1 and 2 drive are driven, side 3 and 4 are driven
• Compact drive concept, 4x4, side 1 and 2 drive are driven, side 3 and 4 are driven

Modern drive concept

• Powerful, 14 cylinder Liebherr turbo-charged Diesel engine D2676 T24 500 HP, equipped with electronic control system
• Powerful, 14 cylinder Liebherr turbo-charged Diesel engine D2676 T24 500 HP, equipped with electronic control system
• Powerful, 14 cylinder Liebherr turbo-charged Diesel engine D2676 T24 500 HP, equipped with electronic control system
• Powerful, 14 cylinder Liebherr turbo-charged Diesel engine D2676 T24 500 HP, equipped with electronic control system

LICCON configuration and operating program

• Manual application program: Safe load indicator (SBE) configuration program with configuration picture, operating program with operating picture, telescoping program with telescoping picture, supporting pressure indicators, control parameter program (load spreader), optional extras: Work area creation and LICCON work planner
• Manual application program: Safe load indicator (SBE) configuration program with configuration picture, operating program with operating picture, telescoping program with telescoping picture, supporting pressure indicators, control parameter program (load spreader), optional extras: Work area creation and LICCON work planner
• Manual application program: Safe load indicator (SBE) configuration program with configuration picture, operating program with operating picture, telescoping program with telescoping picture, supporting pressure indicators, control parameter program (load spreader), optional extras: Work area creation and LICCON work planner
• Manual application program: Safe load indicator (SBE) configuration program with configuration picture, operating program with operating picture, telescoping program with telescoping picture, supporting pressure indicators, control parameter program (load spreader), optional extras: Work area creation and LICCON work planner

LICCON-assisted telescoping system

• Telescoping by single hydraulic ram with hydraulic lifting/locking system (inertial locking system)
• Telescoping procedure controllable by operator using software interface on the monitor, the interlocking positions are precisely monitored
• Telescoping procedure controllable by operator using software interface on the monitor, the interlocking positions are precisely monitored
• Telescoping procedure controllable by operator using software interface on the monitor, the interlocking positions are precisely monitored
• Telescoping procedure controllable by operator using software interface on the monitor, the interlocking positions are precisely monitored

Legends

1 Control injection pump Diesel engine/carrier
2 Steering unit in steering box
3 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
4 Control injection pump Diesel engine/carrier
5 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
6 Control injection pump Diesel engine/carrier
7 Control injection pump Diesel engine/carrier
8 Control injection pump Diesel engine/carrier
9 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
10 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
11 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
12 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
13 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
14 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
15 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
16 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
17 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
18 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
19 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
20 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
21 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
22 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
23 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
24 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
25 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
26 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
27 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
**Variable steering concept with “active rear-axle steering”**

Axes 4 – 7 provided for “active rear-axle steering”. 5 steering methods are preselectable by fixed programs (P).

**P1** Road displacement steering

Axes 1 – 3 are steered mechanically by means of the steering wheel with hydraulic assistance. Axes 4 and 5 are steered “actively”, speed-dependent up to 30 km/h in relation to the degree of lock of the front axle, and are deactivated to straight displacement at over 30 km/h. Axes 6 and 7 are steered “actively”, speed-dependent up to 60 km/h in relation to the degree of lock of the front axle, and set electrohydraulically to straight displacement at 60 km/h. The modification of the steering angle in dependence of the speed guarantees a precise and trouble-free displacement quality and reduces the abrasion of the pneumatics.

**P2** All-wheel steering

Axes 4 – 7 are locked in conformance with the steering angle of the 1st axle by means of the steering wheel to realize the smallest turning radii.

**P3** Crab steering

Axes 4 – 7 are locked in the identical sense of axes 1 – 3 by means of the steering wheel. The raising of the axles is not necessary for crab steering as all axles are steered.

**P4** Steering without swerving out

Axes 4 – 7 are locked in relation to the steering angle of the 1st axle to prevent any swerving out of the rear of the carrier.

**P5** Manual crab steering

Axes 1 – 3 are steered manually from the steering wheel and control the steering angle of axes 4 – 7 by pushbuttons.

- In case of failure of the active rear-axle steering, it is restored by lockout and the rear axles are set to straight travel by the programming time.
- Two independent hydraulic circuits with wheel and engine driven hydraulic pumps, thus maximum safety standard.
- The operating error indication is maximally increased by existing E/A modules and is guarantied sensory system.
- The driver knows how far the “active rear-axle steering” by feel/shift.

**Data bus technology for more functionality and efficiency**

- The electric and electronic components are interconnected by the most modern data bus technology.
- Digital data transmission to the individual functional blocks by just ether data cable instead of the conventional wiring thus increased functional reliability due to essentially low contacts.
- The Liebherr CAN bus systems (LSB), especially matched for the requirements of a mobile crane.
- The engine and auxiliary systems are controlled by means of an ECU data bus. The all-electronic drive management reduces fuel consumption and improves the efficiency.
- The electric systems of the carrier and the crane as well as all control functions, the air conditioning and the automatic fire protection are controlled by Liebherr systems.
- The control of the functional blocks is realized by ECU modules, the programming of which is performed by means of the Liebherr debug tool. The control intelligence is integrated in the ECU module.
- Comprehensive diagnostic facilities, quick error localization, opening error indicators.
- Real-time diagnosis of the functional test of the keyboard and display unit as well as the function of the control systems is performed by the Liebherr system bus. The CAN data bus is used for monitoring the hydraulic ventilation, hydraulic suspension and outrigger control.
- Digital data transmission by means of the most modern data bus technology distinctly increases the functionality and efficiency of the mobile crane.

**Variable steering concept with “active rear-axle steering”**

Axes 4 – 7 provided for “active rear-axle steering”. 5 steering methods are preselectable by fixed programs (P).

**P1** Road displacement steering

Axes 1 – 3 are steered mechanically by means of the steering wheel with hydraulic assistance. Axes 4 and 5 are steered “actively”, speed-dependent up to 30 km/h in relation to the degree of lock of the front axle, and are deactivated to straight displacement at over 30 km/h. Axes 6 and 7 are steered “actively”, speed-dependent up to 60 km/h in relation to the degree of lock of the front axle, and set electrohydraulically to straight displacement at 60 km/h. The modification of the steering angle in dependence of the speed guarantees a precise and trouble-free displacement quality and reduces the abrasion of the pneumatics.

**P2** All-wheel steering

Axes 4 – 7 are locked in conformance with the steering angle of the 1st axle by means of the steering wheel to realize the smallest turning radii.

**P3** Crab steering

Axes 4 – 7 are locked in the identical sense of axes 1 – 3 by means of the steering wheel. The raising of the axles is not necessary for crab steering as all axles are steered.

**P4** Steering without swerving out

Axes 4 – 7 are locked in relation to the steering angle of the 1st axle to prevent any swerving out of the rear of the carrier.

**P5** Manual crab steering

Axes 1 – 3 are steered manually from the steering wheel and control the steering angle of axes 4 – 7 by pushbuttons.

- In case of failure of the active rear-axle steering, it is restored by lockout and the rear axles are set to straight travel by the programming time.
- Two independent hydraulic circuits with wheel and engine driven hydraulic pumps, thus maximum safety standard.
- The operating error indication is maximally increased by existing E/A modules and is guarantied sensory system.
- The driver knows how far the “active rear-axle steering” by feel/shift.

**Data bus technology for more functionality and efficiency**

- The electric and electronic components are interconnected by the most modern data bus technology.
- Digital data transmission to the individual functional blocks by just ether data cable instead of the conventional wiring thus increased functional reliability due to essentially low contacts.
- The Liebherr CAN bus systems (LSB), especially matched for the requirements of a mobile crane.
- The engine and auxiliary systems are controlled by means of an ECU data bus. The all-electronic drive management reduces fuel consumption and improves the efficiency.
- The electric systems of the carrier and the crane as well as all control functions, the air conditioning and the automatic fire protection are controlled by Liebherr systems.
- The control of the functional blocks is realized by ECU modules, the programming of which is performed by means of the Liebherr debug tool. The control intelligence is integrated in the ECU module.
- Comprehensive diagnostic facilities, quick error localization, opening error indicators.
- Real-time diagnosis of the functional test of the keyboard and display unit as well as the function of the control systems is performed by the Liebherr system bus. The CAN data bus is used for monitoring the hydraulic ventilation, hydraulic suspension and outrigger control.
- Digital data transmission by means of the most modern data bus technology distinctly increases the functionality and efficiency of the mobile crane.
### Setzt auf Ausleger – schnell, bequem und sicher

- Unterstützte Stützweiten: 10 m - 50 m
- Einführlage-Blechstahl mit speziellem Lack
- Leichtes Anheben der Stützweiten durch "push-button"-Steuerung
- Druckaufbauindikation der Stützweiten, sanfte Abschaltung der Stützweiten durch "push-button"-Steuerung
- Vakuum- oder pneumatische Beleuchtung der Stützweiten
- Operationsanzeigen der Stützweiten auf der Oberseite
- Operation des Ausleger-Systems in Übereinstimmung mit der bedarfsabhängigen Ausführung

### Komfortables Fahrerhaus mit herausragender Funktionalität

- Modernes Fahrerhaus mit herausragender Funktionalität und ausgezeichneter Design: Korrosionsbeständiger Stahlkonstruktion, hydraulische Brennpunkte, hydraulische Rahmenteilung, hydraulische Abschaltzäune
- Sicherheitssysteme: Sichtschutzfläche, gestapelte Fensterflächen, mit integrierter Beleuchtung
- 4 Ausleger-Fahrerhäuser mit integriertem Fahrerhaus
- Hydraulische und elektrische Verlautbarung von Fahrerhäusern, Fahrerzimmer und Co-Fahrerzimmer
- Sicherheitsbänder für Fahrer- und Co-Fahrerzimmer
- Höhen- und Seitenstellbarkeit des Fahrerzimmers
- Standardisierte, optische und mechanische Anzeigeeinrichtungen
- Fernbedienung des Fahrerzimmers
- Operationsanzeige der Fahrerzimmers durch "push-button"-Steuerung
- Additionales Nebelwetter-Peiling

### Multi-auslegerbausystem

- Teleskop-Ausleger: 7.4 m - 46 m
- Teleskop-Ausleger-Gestell-Typ: 7.4 m - 46 m in "standard"-Ausführung
- Drehgestell für "T" und "F"-Modus
- Fixe Längen-Ausleger-Typ: 14 m - 84 m, montierbar auf dem 15.4 m - 56.4 m langen Teleskop-Ausleger
- Zugänglichkeit des Ausleger-Systems für den Fahrer- und Co-Fahrerzimmer
- Hakenwechsel für Fahrer- und Co-Fahrerzimmer
- Zusätzliche Heizer mit Vorwärmung des Fahrerzimmers

### Erweiterte Fahrerzimmerspezifikation

- Reichweite: 10 m x 9.5 m oder 10 m x 6.2 m
- Fixe Stützpunkte mit seitlicher Ausweichbewegung
- Ausleger-Injektoren mit 600 mm Ausführung
- Automatische Absenkschaltung des Ausleger-Systems durch "push-button"-Steuerung
- 2 x 9° seitliche Neigung des Fahrerzimmers
- Inclinometer (elektronische Neigungsanzeige), zwei Anzeigen auf Fahrerzimmers und eine Anzeige auf der LICCON-Monitoren im Fahrerhaus
- 2 Stützenkräfteindikatoren auf den Steuerplätzen im Fahrer- und Co-Fahrerzimmer
- 4 Projektoren für die Beleuchtung des Stützpunktes
- Achslocken (Sperre der Laufrollen für den Transport mit Gerät) kontrollierbar im Fahrerhaus
- Betrieb des Ausleger-Systems im Übereinstimmung mit den Regelungen zur Vermeidung von Unfällen

### Sicherheit auf der Baustelle – schnell, bequem und sicher

- Ausleger-System für eine schnelle, bequeme und sichere Positionierung des Krans
- 4 Auslegerprofile mit "standard"-Ausführung
- Hydraulische und elektrische Verlautbarung von Fahrerzimmers und Stützweiten
- Operationsanzeige der Fahrerzimmers durch "push-button"-Steuerung
- Zusätzliche Heizer mit Vorwärmung des Fahrerzimmers

---

### Abbildung

- Diagramm des Ausleger-Systems mit Auslegerwechsel-System
- Grafische Darstellung des Fahrerzimmers mit Auslegerwechsel-System
- Technische Details des Ausleger-Systems mit Auslegerwechsel-System

---

*PM 1400-1.1 DEFISR.fh11 24.07.2007 10:48 Uhr Seite 4*
Outstanding boom technology

- 5-section, 60 m long telescopic boom in light-gauge design, weight-optimized by FEM processing
- Optimum load capacity by usage of ultra-high grain refined steels, boom bottom shell of S 1100 QL (1100 N/mm²)
- Optimum, oviform boom profile with continuous curvature in the bottom shell and upper part, high stability against deflection for maximum load capacities
- Outstanding functionality of the boom system due to the automated, electronically controlled telescoping system
- Patented internal locking system of the telescopes – reliable and maintenance-free
- Optimal utilization of the telescopic boom due to a multitude of telescoping variants
- Y-guying system for the telescopic boom for a decisive increase in the load capacity
- Self-assembly of the Y-frames, carrier width/height with fitted and laterally hinged Y-guying system: 3.03 m/4.07 m

Outstanding crane cab of outstanding functionality

- Crane cab in corrosion-resistant, galvanized sheet steel version, powder-coated, with sound and heat insulating internal paneling, interior of modern design, tinted window panes all-round, front knockout window with large and blowout wiper and wash/wipe device, skylight of bullet-proof glass with large parallel windscreen wiper and wash/wipe device, skylight of bullet-proof glass with large parallel windscreen wiper and wash/wipe device, roller blinds on front window and skylight, space-saving sliding door
- Greenish tinted front and side windows for heat absorption
- Pneumatically operated lateral footboard for safe access to and egress from the cabin
- Greenish tinted front and side windows for heat absorption
- Crane cab tiltable to the rear by 20° to improve the sight
- 1 working projector 70 Watt, at the cabin front
- Comfortable crane cab of outstanding functionality
- Spring-mounted and hydraulically cushioned crane operator's seat with pneumatic backrest support and headrest
- Operator-friendly armrest-integrated controls, vertically and horizontally adjustable master switch consoles and armrests, ergonomically adjustable operating consoles
- Ergonomical control levers with integrated winch and slewing indicators
- Modern instrument support with integrated LCCON monitor, display of all essential operating data on the LCCON display
- Additional heater with engine preheating
Crane drive with field-proven components

- Crane engine: 6-cylinder Liebherr turbo-charged Diesel engine type D936L of 240 kW/326 h.p, exhaust gas emissions in accordance with the directives 97/68/EG stage 3 and EPA/CARB Tier 3, robust and reliable, electronic engine management, optimized fuel consumption, exhaust gas emission of special steel
- Variable axial pumps with servo-control and capacity regulation, auxiliary pumps for central feeding and ventilation lines, electric-driven oil cooler
- Standard high-efficiency noise absorption of the diesel-hydraulic crane drive
- Drive of the hoist gear within a "closed oil circuit", i.e. during lowering of the load, the oil motor is propping itself up on the variable displacement pump due to the closed oil circuit (hydraulic shaft). The potential energy is not converted into heat, but can be re-employed for an additional movement. Besides a saving in fuel, the hydraulic oil is less thermically exposed than in an "open oil circuit"

Hydraulic system with 5 variable axial piston pumps with servo-control and capacity regulation, auxiliary pumps for central feeding and ventilator drive, electric driven oil cooler

Standard high-efficiency noise absorption of the diesel-hydraulic crane drive

Self-manufactured Liebherr winches (1, 2 and 3) with special grooving, with incorporated planetary gears and spring-mounted multi-disk brakes as static brakes

Winch technology by Liebherr

Winch 1
- Main hoist gear

Winch 2
- Auxiliary hoist gear, required for 2-hook operation with luffing lattice jib

Auxiliary winch
- for variation of the lifting lattice jib

Winch 3
- Breaking winch (auxiliary winch) on the counterweight frame as standard equipment

Display of the hoist gear on the LICCON display screen

Non-rotating hoist rope, standard rotation absorber

Video control of the winches (standard in conjunction with the jib variation winch)

Partial counterweight, radius 2.6 m

140 t total counterweight, radius 6.6 m

60 t-package with winch 3

Counterweight assembly – just a matter of minutes

- 140 t total counterweight, 100 t basic counterweight, 40 t additional counterweight
- Hydraulic balancing device on the counterweight frame
- 60 t-package, 50 t total transport width, mountable by one lift
- Hoist gear 2 t fixed to the counterweight frame
- All-loaded weight 135 t to be pivoted on the counterweight frame
- The counterweight can be reduced from 6.6 m to 5.6 m

60 t-package with winch 3

Winching Jib mode, counterweight radius 2.6 m or 6.6 m
Crane engine with field-proven components

- 6-cylinder Liebherr turbo-charged Diesel engine type D936L A6 of 240 kW/326 h.p, exhaust gas emissions in accordance with the directives 97/68/EG stage 3 and EPA/CARB Tier 3, robust and reliable, electronic engine management, optimised fuel consumption, exhaust gas cycle of special steel, electronically controlled intake and exhaust valves, variable swirl intake and exhaust valves with sensor control and capacity regulating, auxiliary pumps for central feeding and ventilation lines, electric-driven oil cooler.
- Standard high-efficiency noise absorption of the diesel-hydraulic drives.

Hydraulic system with 5 variable axial piston pumps with servo-control and capacity regulation, auxiliary pumps for central feeding and ventilation lines, electric-driven oil cooler.

Standard high-efficiency noise absorption of the diesel-hydraulic drives.

Winch technology by Liebherr

- Self-manufactured Liebherr winches (1, 2 and 3) with special grooving, with incorporated planetary/planetary-planet/multi-disk brake, as static brakes.

**Winch 1**  
Main hoist gear

**Winch 2**  
Auxiliary hoist gear, required for 2-hook operation with luffing lattice jib

**Winch 3**  
for variation of the luffing lattice jib

- Drive of the hoist gear within a "closed oil circuit", i.e., during lowering of the load, the oil motor is propping itself up on the variable displacement pump due to the closed oil circuit (hydraulic shaft). The potential energy is not converted into heat, but can be re-employed for an additional movement. Besides a saving in fuel, the hydraulic oil is less thermally exposed than in an "open oil circuit".
- Axial-piston variable displacement motor of own manufacture, specially laid out for crane operation, exposed to tough fatigue test and field-proven.
- Display of the rotary motion of the winch on the LICCON display screen.
- Non-rotating hoist rope, standard rotation absorber
- Video control of the winches (standard in conjunction with the jib variation winch).

Counterweight assembly – just a matter of minutes

- 140 t total counterweight, 100 t basic counterweight, 40 t additional counterweight.
- Hydraulic ballasting device on the counterweight frame.
- "60 t-package" of just 3 m transport width, mountable by one lift.
- Hoist gear 2 fixed to the counterweight frame.
- All additional weights (D) to be pinned on the counterweight frame.
- The counterweight radius can be reduced from 6.6 m to 5.6 m.
- Reeving winch (auxiliary winch) on the counterweight frame as standard equipment.

Partial counterweight, radius 5.6 m  
140 t total counterweight, radius 6.6 m  
60 t-package with winch 3  
Luffing jib mode, counterweight radius 5.6 m or 6.6 m
• Crane cab in corrosion-resistant, galvanized sheet steel version, powder-coated, with sound and heat insulating internal paneling, interior of modern design, tinted window panes all-round, front knockout window with large windshield wiper and washer/washer device, skylight of bullet-proof glas with large parallel windscreen wiper and wash/wash device, roller blinds on front window and skylight, space-saving sliding door,

• Greenish tinted front and side windows for heat absorption

• Pneumatic operated lateral foot board for safe access to and from the carrier

• Crane cab tiltable to the rear by 20° to improve the sight

• 1 working projector 70 Watt, at the cabin front

• Comfortable crane cab of outstanding functionality

• Spring-mounted and hydraulically cushioned crane operator’s seat with pneumatic, vertically adjustable seating and headrest

• Operation-friendly armrest-integrated controls, vertically and horizontally adjustable master switches and armrests, ergonomically adjustable operating consoles

• Electronic comfort features with integrated switching and steering control

• Modern instrument support with integrated LICCON monitor, display of all essential operating data on the LICCON display

• Additional heater with engine preheating

• 5-section, 60 m long telescopic boom in light-gauge design, weight-optimized by FEM processing

• Material stability with high safety factors by the application of ultra-high grain refined steels, boom bottom shell of S 1100 QL (1100 N/mm²)

• Optimized, oviform boom profile with continuous curvature in the bottom shell and upper after part, high stability against deflection for maximum load capacities

• Outstanding functionality of the boom system due to the patented, electronically controlled telescoping system

• Patented internal locking system of the telescopes – reliable and maintenance-free

• Optimal utilization of the telescopic boom due to a multitude of telescoping variants

• Crane cab in corrosion-resistant, galvanized sheet steel version, powder coated, with sound and heat insulating internal paneling, interior of modern design, tinted window panes all-round, front knockout window with large windshield wiper and washer/washer device, skylight of bullet-proof glas with large parallel windscreen wiper and wash/wash device, roller blinds on front window and skylight, space-saving sliding door,

• Greenish tinted front and side windows for heat absorption

• Pneumatic operated lateral foot board for safe access to and from the carrier

• Crane cab tiltable to the rear by 20° to improve the sight

• 1 working projector 70 Watt, at the cabin front

• Comfortable crane cab of outstanding functionality

• Spring-mounted and hydraulically cushioned crane operator’s seat with pneumatic, vertically adjustable seating and headrest

• Operation-friendly armrest-integrated controls, vertically and horizontally adjustable master switches and armrests, ergonomically adjustable operating consoles

• Electronic comfort features with integrated switching and steering control

• Modern instrument support with integrated LICCON monitor, display of all essential operating data on the LICCON display

• Additional heater with engine preheating
Modern driver’s cab of outstanding functionality

- Supporting basis: 10 m x 9.5 m or 10 m x 6.23 m
- Supporting rails with 800 mm throw
- Level control of the outriggers, air/annular leveling of the crane during the supporting procedure by “push-down function”
- Two digital displays on the outrigger control panel and the crane control panel
- Height and inclination adjustable steering wheel
- Height and inclination adjustable joystick
- Standardized, digital operating and control instruments arranged ergonomically for safe and convenient handling, arranged operator-friendly in a half-round shape
- Digital display and keyboard units interconnected with the functional blocks by data bus technology
- Additional heater with engine preheating

Comfortable driver’s cab of outstanding functionality

- Modern driver’s cab of outstanding functionality and convincing design
- Corrosion resistant sheet steel door, cataphoretic dip-primed, front section mounted on shock absorbers, rear damped hydraulically
- Internal sound and heat absorbing panelling
- Safety glas all-round, greenish tinted front and side windows for heat insulation
- Electric window lifters
- 3 automatic windscreen washers/wipers with intermittent control
- Heated and electrically adjustable outer rear mirrors
- Air-cushioned driver’s and co-driver’s seat with headrests, driver’s seat with pneumatic lumber support
- Safety belts for driver’s and co-driver’s seat
- Height and inclination adjustable steering wheel
- Height and inclination adjustable joystick
- Standardized, digital operating and control instruments arranged ergonomically for safe and convenient handling, arranged operator-friendly in a half-round shape
- Digital display and keyboard units interconnected with the functional blocks by data bus technology
- Additional heater with engine preheating

Multi variable boom configuration system

- Telescopic boom: T, 15.4 m – 60 m
- Telescopic boom guying system: TY, 5.25 m wide “spacer” for TYSF and TYSN mode
- Fixed lattice jib: TF (TYSF), 7 m – 56 m, mountable at 0°, 20° or 40° on the 15.4 m – 60 m long telescopic boom
- Lattice luffing jib: TN (TYSN), 14 m – 84 m, mountable on the 15.4 m – 56.4 m long telescopic boom
- Continuous load capacity interpolation during lifting of the boom configuration TN – TY (between 46° and 82° telescopic boom inclination)
- Intermediate sections TF and TN equipment are identical, intermediate sections can be slid into one another for transportation
- 24 different combinations with T-adapter and N-base section form a complete mounting/transport unit and can be fitted with just 4 pins
- Easy-to-rig stay rods which remain on the intermediate sections during transportation
- Auxiliary winch on the counterweight frame for easy reeving of the hoist and luffing ropes
- Rigging of the jib can be performed in suspended condition on restricted sites
- Winch 2 for 2-hook operation on the lattice jib
- Winch 3 for jib variation. The variation winch forms one unit with the variation block. The variation rope remains reeved during transportation.

Setting crane on outriggers – quick, convenient and safe

- Supporting basis: 10 m x 9.5 m or 10 m x 6.23 m
- Supporting rails with 800 mm throw
- Level control of the outriggers, air/annular leveling of the crane during the supporting procedure by “push-down function”
- Two digital displays on the outrigger control panel and the crane control panel
- Height and inclination adjustable steering wheel
- Height and inclination adjustable joystick
- Standardized, digital operating and control instruments arranged ergonomically for safe and convenient handling, arranged operator-friendly in a half-round shape
- Digital display and keyboard units interconnected with the functional blocks by data bus technology
- Additional heater with engine preheating
Data bus technology for more functionality and efficiency

- The electric and electronic components are interconnected by the most modern data bus technology.
- Digital data transmission to the individual functional blocks by just one or two data cables instead of the conventional electrical wiring thus increased functional reliability due to essentially less contacts.
- The electric and electronic components have no more to do than to connect with a plug onto the respective bus system without any change of wiring.
- The electric systems of the center and the cab as well as all control functions, the outrigger system and the boom sensory system are interconnected by a Liebherr system bus.
- The control of the functional blocks is realized by E/A modules, the programming of which is performed by means of the Liebherr system busses. The control intelligence is integrated into the LICCON central unit.
- Comprehensive diagnostic facilities, quick error localization, operating error indication.
- Test programs for functional test of the keyboard and display unit as well as for test of the control units of engine and transmission management, Liebherr additional brake system, hydraulic ventilator, hydraulic suspension and outrigger control.
- The new data bus technology distinctly increases the functionality and efficiency of this mobile crane.

Legends:
- LSB Liebherr system bus 1
- LSB Liebherr system bus 2
- LSB Liebherr system bus 3
- LSB Liebherr system bus 4
- LSB Liebherr system bus 5
- LSB Liebherr system bus 6
- CAN bus
- SCI serielle communication interface

1 Input/output module for electronic control of the suspension, Liebherr Diesel engine, automatic transmission, control functions, pneumatic control for brake function
1a Instruments-keyboard unit in driver's cab
2 Input/output module for differential locks, display functions
2a Instruments-display unit in driver's cab
3 Input/output module for outriggers - right
3a Control unit for outriggers - right
4 Input/output module for outriggers - left
4a Control unit for outriggers - left
5 Input/output module for engine brake, tempomat, temposet, electronic control Diesel engine (steering column switch right) and automatic transmission
6 Control ZF-TC-TRONIC automatic transmission
7 Control injection pump Liebherr Diesel engine/carrier
8 Slewing sensor in slipring unit
9 Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
10 LICCON central unit
11 LICCON monitor in crane cab
12 Length sensor and cable drum/energy cable for interlocking gripper/hydraulic boom
13 Inductive sensor
14 Cable drum for interlocking gripper
15 Wind sensor
16 Slack sensor
17 Wired limit switch
18 Input/output module for electronic control of the Diesel engine/steering/ventilator clutch, exhaust flap
19 Control injection pump Liebherr Diesel engine/superstructure
20 Joystick selector
21 Pressure sensor for output management and LMB (safe load indicator) and supporting pressures
22 Angle sensor active rear-axle steering
23 Pedal telescoping
24 Winch rotation sensor
25 Inductive sensor Y-guying system

The electric and electronic components are interconnected by the most modern data bus technology. Digital data transmission to the individual functional blocks by just one or two data cables instead of the conventional electrical wiring thus increased functional reliability due to essentially less contacts. The electric and electronic components have no more to do than to connect with a plug onto the respective bus system without any change of wiring. The electric systems of the center and the cab as well as all control functions, the outrigger system and the boom sensory system are interconnected by a Liebherr system bus. The control of the functional blocks is realized by E/A modules, the programming of which is performed by means of the Liebherr system busses. The control intelligence is integrated into the LICCON central unit. Comprehensive diagnostic facilities, quick error localization, operating error indication. Test programs for functional test of the keyboard and display unit as well as for test of the control units of engine and transmission management, Liebherr additional brake system, hydraulic ventilator, hydraulic suspension and outrigger control. The new data bus technology distinctly increases the functionality and efficiency of this mobile crane.
Compact, maneuverable and safe

- Smooth, powerful Liebherr 6-cylinder Diesel engine (D6A-7 at 440/521 kW, protector extension acc. to EN 60730-2-4) robust and reliable
- Electronic engine control and diagnostic interface, 10th generation, 3rd level of electronics, onboard diagnostics, automated performance adjustment systems
- Reduced fuel consumption due to a great number of speeds, optimized gear ratios, double driving tenons (patented internal locking system)
- Easy, robust, reliable case with transfer differential, good performance, reduced noise on minor maintenance
- Manual setting if necessary (operator-protected access to gradient adjustment, valve block height, interlocks, sensors, electronic fuel control, maintenance-free steering, twist lock standard)
- Maintenance-free control shaft, simple and quick fitting due to two-axle diagonal locking

Modern drive concept

- Powerful, compact Liebherr radial piston-cylinder Diesel engine (D6A-7 at 440/521 kW, protected extension acc. to EN 60730-2-4) robust and reliable
- Electronic engine control and diagnostic interface, 10th generation, 3rd level of electronics, onboard diagnostics, automated performance adjustment systems
- Reduced fuel consumption due to a great number of speeds, optimized gear ratios, double driving tenons (patented internal locking system)
- Easy, robust, reliable case with transfer differential, good performance, reduced noise on minor maintenance
- Manual setting if necessary (operator-protected access to gradient adjustment, valve block height, interlocks, sensors, electronic fuel control, maintenance-free steering, twist lock standard)
- Maintenance-free control shaft, simple and quick fitting due to two-axle diagonal locking

LICCON configuration and operating program

- Serial application program: Safe load indicator (LMB) by built-in transmission for彩色图的 caption and support functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporting functions; control functions; supporti...


### Product advantages mobile crane

Max. load capacity: 400 t
Max. height under hook: 130 m
Max. radius: 100 m

---

**The LICCON test system**

- Control of the winches, the slewing gear as well as the lifting and hoisting motions by the LICCON system (PLC control)
- Hoisting/moving and lifting speeds are preselectable by the LICCON test system
- The lifting speed is controlled automatically in relation to the the tower length
- Very short response rates of the activation of crane motions
- Optical and acoustic signalization of the LICCON test system

**The LICCON work area limitation**

- It utilizes the LICCON system especially in situations where the handling of loads requires full attention, by controlling the work area limits. Wash areas can no longer be reached by buildings, bridges, cables, high tension power lines, pipe lines or adjacent cranes
- The LICCON work area limitation can easily be programmed. Four different limitation functions are programmable
- Height limitation of the pulley head
- Radius limitation
- Distance to obstacles
- Limitation of edges

**The LICCON work planner**

- The LICCON work planner consists of a software program on a printing computer, which can be used for crane applications on the display screen (optional)
- The work planner permits the setting of limits, to write drafts and to represent a crane model true to scale including its entire working motions within a fictional construction site
- The work planner enables the preparation of more transparent offers. It facilitates the training of crane operators and can be run on a laptop on the construction site

**Electric/electronic crane control with integrated safe load indicator**

- On the crane superstructure
- Air-conditioning system
- Standard tire pressure indicator
- Work area limitation program
- Working projector
- GDP module for tele-diagnostic

---

**On the carrier**

- Eddy-current brake
- Outrigger control
- Senior seat
- Maneuvering coupling
- Fog lamps
- CD radio set

**On the crane superstructure**

- Air-conditioning system
- Seat heating
- Video control of the winches
- Working projector Xenon on the telescopic boom base section
- GSM module for tele-diagnostic
- CD radio set

---

**Optional features contribute to an expansion of the application spectrum and increase comfort and safety**

![Image of crane and LICCON diagram]
Product advantages mobile crane

Max. load capacity: 400 t
Max. height under hook: 130 m
Max. radius: 100 m

The LICCON test system

- The LICCON test system assists the servicing personnel in quickly localizing errors of the crane’s sensory system without the need of measuring instruments
- The service starts at the display screen, trouble shooting becomes a matter of seconds
- Descriptions of the display screen
- Convenient interactive functions permit the observation of all inputs and outputs of the general system by different representatives of the service area during crane-operation
- The LICCON test system can be used for crane’s sensitivity control and activations to the system as well as their function on the display screen

The LICCON work area limitation

- It reduces the crane operator, especially in situations where this tasking of loads requires full attention, by controlling the work area limits. Workshop areas can be restricted by buildings, bridges, cranes, high tension power lines, pipes or other equipment, which are important for the crane-equipment so that they cannot be passed. Four different limitation functions are possible:
  - Height limitation of the pulley head
  - Radius limitation
  - Distance limitations
  - Limitation of edges

The LICCON work planner

- The LICCON work planner consists of a software program for planning, simulation and documentation of crane applications on the display screen (optional)
- The software program permits the drawing of buildings, to write texts and to represent a crane model true to scale including its entire working motions within a fictional construction site
- The work planner enables the preparation of more transparent offers, it facilitates the briefing of the crane operators and can be run on a laptop at the construction site

Electric/electronic crane control with integrated safe load indicator

- Control of the winches, the slewing gear as well as the lifting and luffing motion of the LICCON test system (PLC control)
- Very short response rates at the activation of crane motions
- Visual warnings with rotating motion indicators
- Very short response rates at the activation of crane motions
- Electric/electronic interlocking system of the superstructure over front and over rear

LICCON
- Control of the winches, the slewing gear as well as the lifting and luffing motion of the LICCON test system (PLC control)
- Very short response rates at the activation of crane motions
- Visual warnings with rotating motion indicators
- Electric/electronic interlocking system of the superstructure over front and over rear

LTM 1400-7.1

Liebherr-Werk Ehingen GmbH
Postfach 1361, 89582 Ehingen, Germany
+49 73 91 5 02-0, Fax +49 73 91 5 02-33 99
www.liebherr.com, E-Mail: info.lwe@liebherr.com