Product advantages
Mobile crane LTM 1500

Max. lifting capacity: 500 t at 3 m radius
Max. height under hook: 142 m with lattice luffing jib
Max. radius: 108 m with lattice luffing jib

Performance profile of the LTM 1500 at a glance:
- 8-axle carrier, 7-section, 84 m long telescopic boom
- 96 t total weight (12 t axle load) with 50 m long telescopic boom
- Multivariable boom system: 50/84 m telescopic boom, telescopic boom guying system, fixed or lattice luffing jib
- Outstanding lifting capacities, flexible apportionment of counterweight, i.e. 165, 135, 105, 90, 75, 45, 30, 15 or 0 t
- Most modern boom technology, oviform boom profile, patented internal interlocking system of telescopes, rapid-cycle telescoping system “Telematik”
- Most modern data bus technique with 6 Liebherr system busses, electronically controlled drive management by CAN bus
- Powerful, energy-saving and emission-optimized Liebherr Diesel engines (EURO 2)
- Boom change device for low loader, "Quick Connection" for telescopic boom and superstructure
- The LTM 1500 is manufactured by Liebherr within the scope of a quality assurance system acc. to DIN EN ISO 9001
The variable telescoping boom system.

- 96 t total weight incl. 50 m telescopic boom and permanent outrigger system
- Boom change device with hoisting and displacement mechanism on low loader
- Quick Connection for the dismantling of the telescopic boom (10 t axle load)
- Quick Connection for the dismantling of the superstructure (6 t axle load)

The LTM 1500 - economical through advanced technology.
Setting on outriggers – quick, convenient and safe.
- Permanent supporting pads
- Supporting rams with 500 mm travel
- Automatic levelling of the crane during the supporting procedure
- 2 x 9° lateral inclination, even with locked suspension
- Inclinometer (electronic display of inclination) with two indicators on the carrier and one display on the LICCON monitor
- Indicators of supporting forces on the carrier and on the LICCON monitor
- Control of sliding outriggers with display of the state of extension on the LICCON monitor
- Operation of outriggers in accordance with the rules for the prevention of accidents

Robust drive concept.
- 4 axles permanently driven (1st, 2nd, 4th and 5th axle)
- 6th axle steered; independent steering of axles 7 and 8 (optional)
- Electronically controlled Allison automatic transmission type CLBT, 5 forward speeds, 1 reverse gear
- Transfer case with off-road ratio and transfer differential
- Driving axles with longitudinal differential locks (locking in the off-road ratio)
Outstanding boom technology.
- oviform boom profile
- patented internal interlocking system of the telescopes
- automatic telescoping system
- Telescopic boom with electronically controlled telescoping system
- Boom bearings of low maintenance polyamide slide blocks
- Outstanding lifting capacities, e.g.
  - 161 t at 10 m radius
  - 84 t at 30 m radius
  - 38.5 t at 40 m radius
  - 21.2 t at 60 m radius
  - 11.6 t at 80 m radius
  - 1.8 t at 108 m radius

Powerful carrier drive.
- 8-cylinder Liebherr turbo-charged Diesel engine type D 9408 TI-E with charge cooling, 440 kW/598 h.p. (EURO 2), energy-saving, emission-optimized, robust and reliable, electronic engine management
- Allison automatic transmission with torque converter and hydrodynamic brake, electronic transmission management, proved and well tested aerial transmission, 5 forward speeds, 1 reverse gear
- 2-step, robust transfer case
- Robust crane axles, welded design
- Max. driving speed 77 km/h, max. gradability 28 %
- In addition to the service and parking brakes, the following sustained-action brakes: Exhaust brake with Liebherr auxiliary brake system by valve control, retarder in the Allison transmission, Telma-type eddy current brake on 4th axle

Weight-optimized steel structure.
- Carrier, superstructure and telescopic boom in lightweight design, calculated by the F.E.M. method, weight-optimized and of particular torsional rigidity
- Tensile property of material with high safety factors through the application of STE 960 (960 N/mm²) for all supporting members

Crane drive with proved components.
- 6-cylinder Liebherr turbo-charged Diesel engine type D 926 TI-E with charge cooling, 240 kW/326 h.p., electronically controlled engine speed, engine located laterally to the rear of the superstructure
- Pump distribution gear with 4 servo-controlled axial piston variable displacement pumps operating in a closed oil circuit for winches 1, 2, 3 and slewing gear; 2 servo-controlled double axial piston variable displacement pumps in an open oil circuit for luffing/telescoping; oil cooler within the hydraulic oil circuit

Data bus technique revolutionizes crane electric system.
- The data transmission to the individual functional blocks is realized digitally by just a few data cables instead of the traditional electrical wiring. Thus, increased functional reliability and essentially less contacts
- Self-manufactured bus systems, especially adapted to the requirements of a mobile crane
- The vehicle and crane electric systems are interconnected by 6 Liebherr system busses
- Comprehensive diagnostic facilities, quick localization of errors
- The new data bus technique provides a distinctive increase in functionality and efficiency

Outstanding carrier technology for road and off-road application.
- Weight optimized and low maintenance axles of high-tensile steel; perfect track keeping and lateral stability due to special control linkage arrangement
- The maintenance-free steering knuckles are steel mounted
- The perfected and robust axles are manufactured in large series and are troublefree components
- The cardan shafts are maintenance-free; easy and quick fitting of the cardan shafts due to 70° diagonal toothing and 4 fixing screws

Crane and road-preserving Niveaumatik suspension.
- Maintenance-free suspension rams, free of lateral forces and protected by synthetic tubes
- Level adjustment (suspension set to “travel mode”) can be performed automatically by push-button control from any position
- Stable cornering ability due to cross mounting of the hydraulic suspension
- Axle locking system (locking of the suspension for travelling with equipment) integrated into the suspension ram and controllable from the driver’s cabin

The LTM 1500 - successful with innovative crane concepts.
Dismantling of telescopes 2 - 6 or 3 - 6 respectively over the vehicle’s rear, front or side.

**Variant 1**
Crane on outriggers, dismantling over the vehicle’s rear
Minimum counterweight with 2 – 6 telescopes 30 t
3 – 6 telescopes 15 t

**Variant 2**
Crane on outriggers, dismantling over the vehicle’s front
Minimum counterweight with 2 – 6 telescopes 30 t
3 – 6 telescopes 30 t

**Variant 3**
Crane on outriggers, dismantling over the side
Minimum counterweight with 2 – 6 telescopes 30 t
3 – 6 telescopes 15 t

The LTM 1500 offers the mobility guarantee.
**Sequence**

Extend telescopes 2 or 3 to 100%.
Retract telescoping ram and interlock it with telescopes 1 or 2.

Extend telescopes 1 or 2 until the interlocking pin is accessible. Put the boom head slightly on the low loader and dismantle the upper slide blocks of telescope 1 or 2. Lower the telescopic boom slightly in order to dismantle the lower slide pads. Remove the slide pads from telescope 1 or 2. Release the interlock between telescopes 1 and 2 or 2 and 3 respectively by means of the emergency release screw. Extend the supporting frame of the low loader and raise telescopic sections 2 – 6 or 3 – 6 respectively.

Retract telescope 1 or 2 and lower the boom on to the low loader. Lock the boom to the supporting frame by the lateral pressure plates. Lock the boom head in the supporting device by the ratchet.
Load handling – precise and safe.

- 7-section, 84 m long telescopic boom for 84 m height under hook and 74 m radius
- Considerable gain in lifting height and reach due to the exceptionally long boom
- 4-section, 50 m long telescopic boom for 50 m height under hook and 48 m radius
- Oviform boom profile of particular torsional rigidity and for the highest capacities
- Patented internal interlocking system of the telescopes - of functional reliability and maintenance-free
- High functionality of the boom system due to the automatic telescopic system "Telematik"
- Optimal utilization of the telescopic boom through numerous telescoping variants

Boom systems for multi-purpose applications.
**Multi-variable boom configuration system.**

- Telescopic boom T, 16.1 m - 84 m, also with additional guying system TA
- Fixed lattice jib TF, 14 m - 63 m, mountable at 0° or 20°, also with additional guying system TAF
- Luffing lattice jib TN, 21 m - 91 m, mountable to the 16.1 m - 78.8 m long telescopic boom at an inclination of 83°, 75° and 67°, also with additional guying system TAN
- Intermediate sections of the TF and TN configuration are identical and can be slid into one another for transportation
- Jib A-frames with T-adapter and N-base section form a complete mounting/transport unit and can be mounted with 4 pins only
- Easy-to-rig stay rods which remain on the intermediate sections during transportation
- Standard auxiliary winch for easy reeving of the hoist and luffing ropes
- Rigging of the jib is practicable in suspended condition on restricted sites
- Winch 2 for 2-hook operation or for operation with mast nose
- Winch 3 for luffing of the jib
- Hinged boom head which can be pinned to telescope 2 or 3; substitute for the 50/84 m boom head section, providing immediate readiness for crane operation for the supporting and ballasting procedure

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The electrical and electronic components are interconnected by the most modern data bus transmission technique.

Self-manufactured bus systems, especially adapted to the requirements of a mobile crane.

Diesel engine and automatic transmission are controlled by a CAN data bus system. The fully electronic drive management reduces fuel consumption and improves the emission of exhaust gases.

The electric systems of the vehicle and crane as well as all cockpit functions, the systems of the outriggers and sensors of the boom are interconnected by 6 Liebherr system busses.

Digital data transmission to the individual functional blocks by only a few data cables instead of the traditional electrical wiring; thus increased functional reliability and essentially less contacts.

The control of the functional blocks is realized by I/O modules, the programming of which is performed by means of the Liebherr system busses. The control intelligence is integrated into the LICCON central units.

Comprehensive diagnostic facilities, quick error localization.

The new data bus technique distinctively increases functionality and efficiency.

Data bus technique increases functionality and efficiency.
1  Input/output modules for electronic control of suspension, Liebherr Diesel engine, automatic transmission, operating functions, compressed air control for brake function
2a  Instruments-key board unit in driver’s cabin
2  Input/output module for differential locks, display functions
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, tempostat, temposet, electronic control of Diesel engine (steering column switch, right) and automatic transmission
6  Control of Allison automatic transmission
7  Control of injection pump Liebherr Diesel engine/carrier
8  Slewing sensor slipring unit
9  Connection Liebherr system bus (LSB 1, 2, 3, 4, 5, 6)
10 LICCON central unit
11 LICCON monitors in the crane cabin
12 Length sensor
13 Cable drum/energy cable for interlocking gripper/telescopic boom
14 Inductive sensors (12 x)
15 Angle sensor on the base section
16 Cable drum for items 17, 18, 19 and jib
17 Wind sensor
18 Hoist limit switch
19 Angle sensor
20 Input/output module for electronic control of Diesel engine/superstructure, air flap, ventilator clutch, exhaust flap
21 Control of injection pump Liebherr Diesel engine/superstructure
Comfortable driver’s cabin of outstanding functionality.

- Modern and comfortable driver’s cab of high functionality and convincing design
- Heat and sound absorbing internal panelling
- Ergonomically arranged operating and display elements for safe and convenient handling at permanent operation
- Digital display and keyboard units interconnected with the functional blocks by data bus technique
- Air-cushioned driver’s and co-driver’s seats, headrests, driver’s seat with pneumatic lumber support
- Height and inclination adjustable steering wheel
- Heated and electrically adjustable rear mirrors
- Side panes with electrical lifters
- Engine independent auxiliary warm water heater “Thermo 90”
- Safety belts for driver and co-driver
- Green-tinted windows for heat absorption
- Automatic windscreen washers/wipers with intermittent control
- Delayed disconnection of interior lighting
- Various racks and boxes for crane documentation, etc.
- Optional equipment
  Air conditioning, seat heating, 3rd seat with headrest, sleeper berth, cassette radio
Comfortable and spacious crane cabin.
- Aluminium crane cabin with tinted panes all-round, front knockout window with large parallel windshield wiper, large skylight of bullet-proof glass with parallel windscreen wiper, roller blind on skylight, space-saving sliding door, cabin inclinable backwards
- Spring-mounted and hydraulically cushioned crane operator's seat with pneumatic lumber support and headrest
- Convenient armrest-integrated controls, vertically and horizontally adjustable master switch consoles and armrests, ergonomically inclined operating consoles
- Heat and sound absorbing internal panelling

Display of all essential operating functions on the LICCON monitor
- Green tinted front and side panes for heat absorption
- Wash/windscreen wiper for front window and skylight
- 2 working projectors, 70 watt each, at the front and rear of the cabin
- Engine independent additional warm water heater "Thermo 90"
- Optional equipment
  - Air conditioning, seat heating, roller blind on rear pane, cassette radio

State of the art control and display systems for a safe crane operation.
LICCON computer system with practical application programs.

- Serial application programs: Safe load indicator, configuration program with configuration image, operating program with operating image, telescoping program with telescoping image, supporting pressure indication, control parameter program, test system; optional extra: work area limitation and LICCON work planner.
LICCON-assisted telescoping system.

- Telescoping by single-stage hydraulic ram with hydraulic driving tenons
- Telescoping procedure controllable on the LICCON monitor, convenient and simple guide mode on the monitor, precise approach of the interlocking positions
- Telescopable loads are displayed on the LICCON operating image
- "Automatic operation", fully automatic telescoping to the desired boom length, rapid-cycle system with high working speeds
- Extremely light telescoping system, thus increases in lifting capacity with long booms and at large radii
- Automatic cushioning of telescopes in end positions during telescoping and retracting for preserving the structural members

The LICCON work area limitation system.

- Relieves the crane operator, especially in situations where the handling of loads requires his full attention, by controlling the work area limits. Work areas can be restricted by buildings, bridges, roofs, high-tension lines, pipe lines or adjacent cranes. The automatic work area limitation system can easily be programmed and is clearly understandable. Four different limitation functions are practicable:
  - Height limitation of the pulley head
  - Radius limitation
  - Slewing angle limitation
  - Limitation of edges
The LICCON test system.
- The test system assists the servicing personnel in quickly localizing errors of the sensor system without needing any further measuring instruments.
- Convenient interactive functions permit the observation of all in- and outputs of the general system by different displays on the monitor even during crane operation. It equally visualizes the allocation of the individual sensors to the system as well as their function and the terminals concerned in the control cabinet.
- The table of contents enables the display of the contents and state of development of the program modules as well as the load charts on the monitor.
- The service starts on the monitor, error detection becomes a matter of seconds.

The service and diagnostic system LISSy.
- This service and diagnostic system LISSy enables the data base-protected control of the programmed errors including error text, description of the cause of error as well as the measures to be taken for the elimination of those errors.
- The system provides a quick diagnostic analysis due to the rapid online access to the service documentation such as electric circuit diagrams and workshop manual.
- The possibility to memorize the experiences of the crane users in respect to the administrated errors contributes to a progressive growth of the service and diagnostic system LISSy to a data base of experience and knowledge.

The LICCON work planner.
- The LICCON work planner consists of a software program on diskettes for planning, simulation and documentation of crane applications on the monitor.
- The 2-D planner allows to draw buildings, to write texts and to represent a crane model true to scale including its entire 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 it can be run on a laptop at the construction site.
Multivariable counterweight system.
- Ballast variants of 165 t, 150 t, 135 t, 120 t, 105 t, 95 t, 70 t, 60 t, 45 t, 30 t, 15 t and 0 t, thus a considerable application spectrum
- Counterweight slabs of ideal transport dimensions
- The counterweight base slab (15 t) and 6 counterweight slabs (15 t each) as well as the winch frame with winch 2 and 3 can be mounted as a complete unit

Counterweight erection:
- Pile up the counterweight slabs on the carrier frame, the base slab with the ballasting rams forms the carrying plate
- Pick up the winch frame including winch 2, and winch 3 if required, lower it into the fixing devices of the ballasting rams and bolt it

- Pile up the lateral counterweight slabs, depending on the requirement (a total of 4 slabs, 15 t each)
- Connect the hydraulic devices and the remote control panel.
- Extend the ballasting rams and push the winch frame including winches 2 and 3 upwards
- Swing superstructure into the longitudinal axis of the winch frame

- Lower the winch frame by retracting the ballasting rams and enter the centering pins into the location holes of the superstructure. Continue to retract the ballasting rams and raise the counterweight slabs until they sit close to the winch frame
- Disconnect the hydraulic and electric connections

Advanced engineering in detail.
Counterweight frame – compact and quickly mountable.
- Modular set-up of the counterweight frame, consisting of base frame and two winch packages, compact transport unit
- Winch 2 and winch 3 with luffing block are pinned and thus quickly interchangeable if required, e.g. for the application of a second LTM 1500
- The winches are connected to the hydraulic system of the crane by rapid action couplings
- Auxiliary winch with control panel for reeving of the hoist rope and luffing rope
Electric/electronic crane control with integrated safe load indicator.

- Control of the winches, slewing gear as well as of the luffing and telescoping motions by the LICCON system (SPS control)
- Four working motions can be performed independent of one another
- Hoisting/lowering, slewing and luffing speeds are preselectable by 5 steps
- Luffing speed controlled automatically dependent on the boom length
- Very short response rate when initiating the crane motions

Hoist gear and slewing gear are operating within a "closed oil circuit". This enables a particularly precise hoisting, lowering or slewing of the load. Moreover, the potential energy generated during the lowering of a load is not converted into heat but can be re-employed for a 2nd motion. This offers the particular advantage in saving fuel and in a reduced thermal exposure of the oil than in an open circuit. No overheating of the oil.

Subject to modification. TP 283. 3.99

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