

Piling and drilling rig

LRB 23

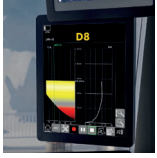
EN-US

LRB 2505.07

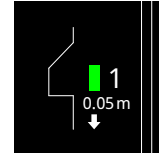


LIEBHERR

Concept and characteristics



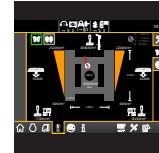
PDE[®]
Process Data Recording



Kelly
Visualization



MyJobsite



Ground
Pressure
Visualization



LIPOS[®]
Positioning System



Radio remote
control



LiDAT[®]
Data Transmission



Concrete
pump



The robust universal machine for a wide variety of applications:

- Full displacement drilling
- Continuous flight auger drilling
- Double rotary drilling
- Kelly drilling
- Soil mixing
- Vibrator slim design
- Hydraulic hammer

Assistance systems:

- Cruise Control for all main functions
- Joystick control for all machine functions
- Automatic shake-off function for working tools
- Kelly Visualization
- Ground Pressure Visualization
- Radio remote control for concrete pump
- Drilling assistant (single-pass process)
- Leader inclination memory
- Display of auger filling level
- Kelly winch with freewheeling and with slack rope monitoring and prevention

Technical data



Diesel engine

Power rating according to ISO 9249	600 kW (804 hp) at 1700 rpm
Engine type	Liebherr D 976 A7-04
Fuel tank capacity	211 gal with continuous level indicator and reserve warning
Exhaust emission	EU 2016/1628 Stage V EPA/CARB Tier 4f non-certified emission standard



Hydraulic system

Hydraulic pumps	
for attachments	3x 85 + 2x 85 gal/min
for kinematics	44 gal/min
Hydraulic oil tank capacity	191 gal
Max. working pressure	5,801 PSI
Hydraulic oil	A system of electronically monitored pressure and return filters cleans the hydraulic oil. Any clogging is displayed in the cabin. The use of synthetic environmentally friendly oil is also possible.



Crawlers

Drive system	with fixed axial piston hydraulic motors
Crawler side frames	maintenance-free, with hydraulic chain tensioning device
Brake	spring loaded and hydraulically released multi-disc holding brake
Undercarriage type 205	
Drive speed	0-1.0 mph
Track force	148,374 lbf
Grousers	3-web grousers, width 31.5 inch (option 27.6 inch)
Undercarriage type 225	
Drive speed	0-1.0 mph
Track force	145,451 lbf
Grousers	3-web grousers, width 31.5 inch (option 27.6 and 35.4 inch)



Swing gear

Drive system	with fixed axial piston hydraulic motors, planetary gearbox, pinion
Swing ring	triple-row roller bearing with external teeth and one swing drive
Brake	hydraulically released, spring-loaded multi-disc holding brake
Swing speed	0-3.5 rpm continuously variable



Winches

Kelly winch	
Line pull effective	51,706 lbf (1st layer)
Rope diameter	28 mm
Rope speed	0-263 ft/min
Auxiliary winch	
Line pull effective	11,240 lbf (3rd layer)
Swing range	left 180°, right 90°
Radius adjustment device	6.7 ft
Rope diameter	17 mm
Rope speed	0-285 ft/min



Crowd system

Crowd winch	
Crowd force	71,939/71,939 lbf (push/pull)
Line pull effective	35,969 lbf
Travel	65.6 ft
Rope speed	0-289 ft/min



Noise emission / vibration

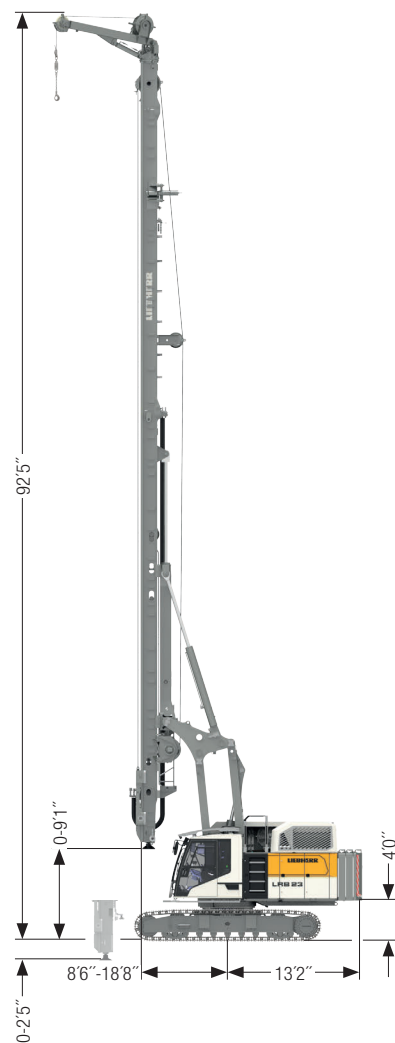
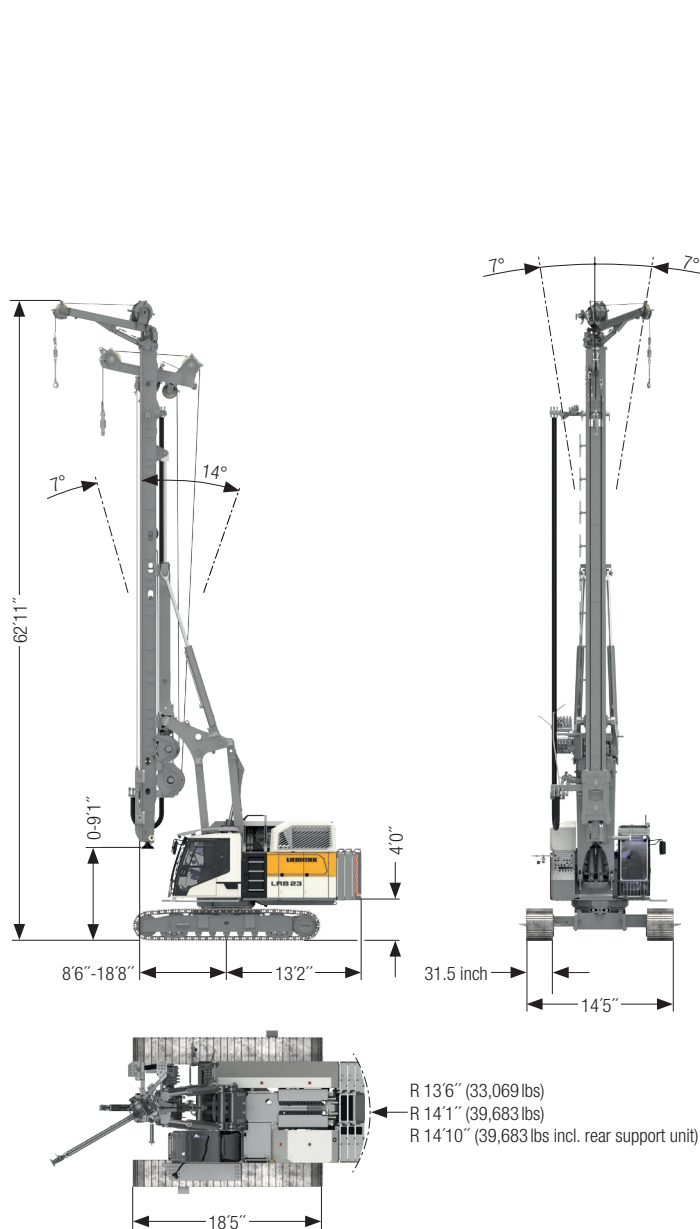
Noise emission	according to 2000/14/EC directive
Emission sound pressure level L_{PA}	79 dB(A) (in the cabin)
Guaranteed sound power level L_{WA}	110 dB(A) (of the machine)
Vibration transmitted to the machine operator	< 8.2 ft/s ² (to the hand-arm system) < 1.6 ft/s ² (to the whole body)

Remarks:

- Illustrations showing the types of application (e.g. Kelly drilling, continuous flight auger drilling etc.) are examples only.
- Weights and transport dimensions can vary with the final configuration of the machine. The figures in this brochure may include options which are not within the standard scope of supply of the machine.

Dimensions

Undercarriage type 205



Operating weight

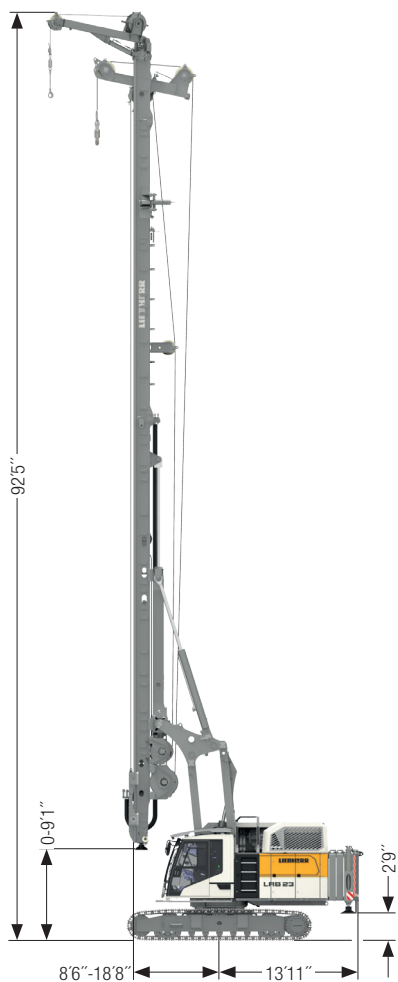
Total weight with 27.6 inch 3-web grousers	lbs	160,056
Total weight with 31.5 inch 3-web grousers	lbs	160,937

The operating weight includes the basic machine LRB 23 (ready for operation – incl. 20 % filling of diesel tank) with Kelly equipment and 33,069 lbs counterweight, without attachment.

Operating weight

Total weight with 27.6 inch 3-web grousers	lbs	160,717
Total weight with 31.5 inch 3-web grousers	lbs	161,599

The operating weight includes the basic machine LRB 23 (ready for operation – incl. 20 % filling of diesel tank) and 33,069 lbs counterweight, without attachment and Kelly equipment.

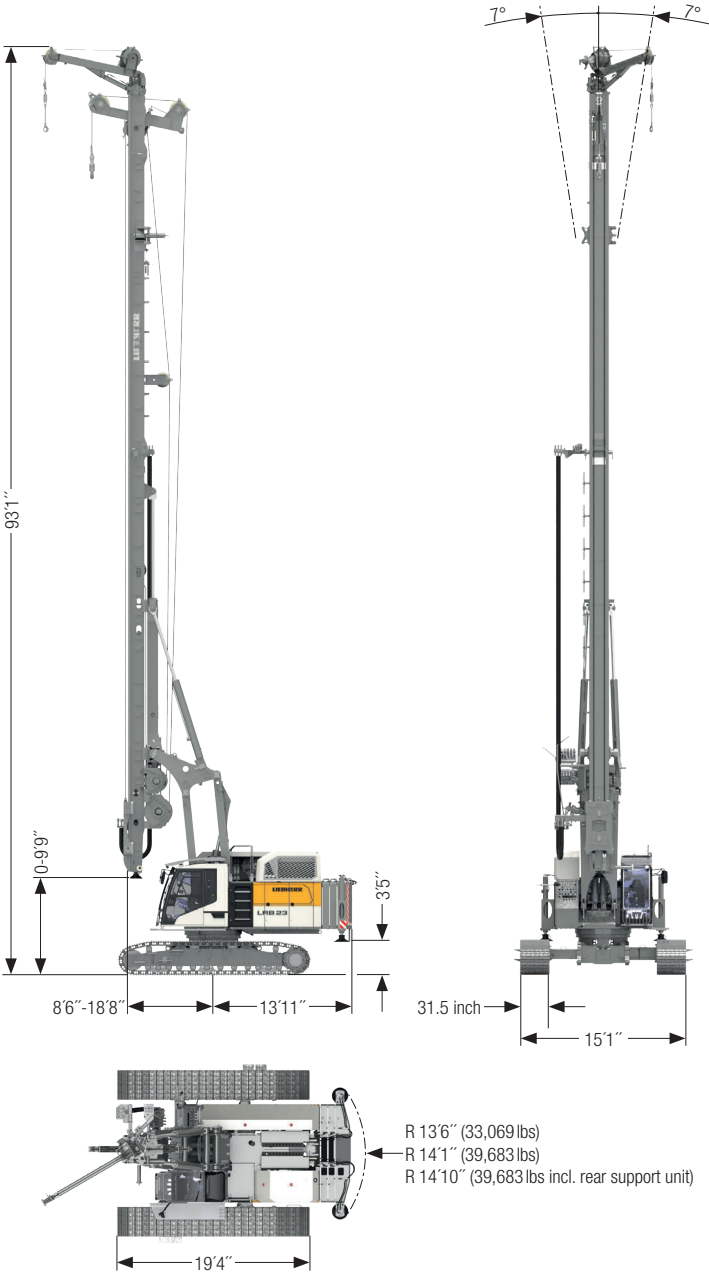


Operating weight

Total weight with 27.6 inch 3-web grousers	lbs	172,181
Total weight with 31.5 inch 3-web grousers	lbs	173,063

The operating weight includes the basic machine LRB 23 (ready for operation – incl. 20 % filling of diesel tank) with Kelly equipment and 39,683 lbs counterweight, without attachment.

Undercarriage type 225

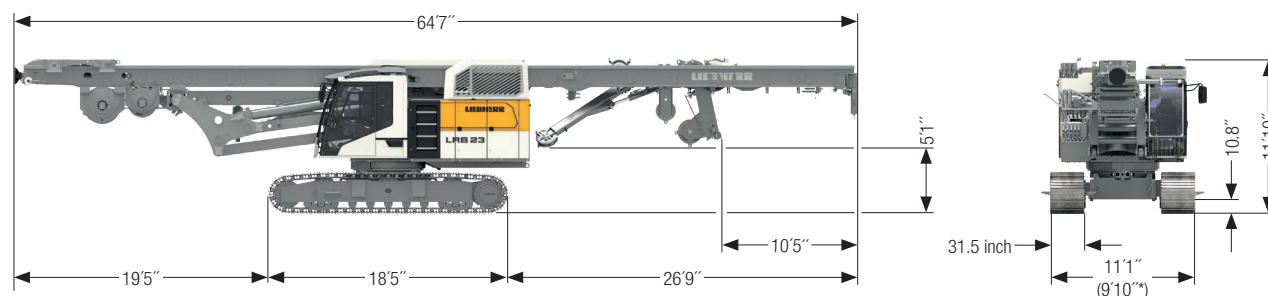


Operating weight

Total weight with 31.5 inch 3-web grousers	lbs	182,763
The operating weight includes the basic machine LRB 23 (ready for operation – incl. 20 % filling of diesel tank) with Kelly equipment and 39,683 lbs counterweight, without attachment.		

Transport and weights

Undercarriage type 205

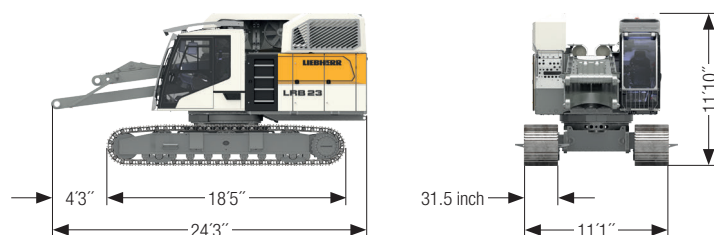


Operating weight

includes the basic machine LRB 23 (ready for operation – including 20 % filling of diesel tank) with Kelly equipment, without counterweight and attachment. lbs 133,159

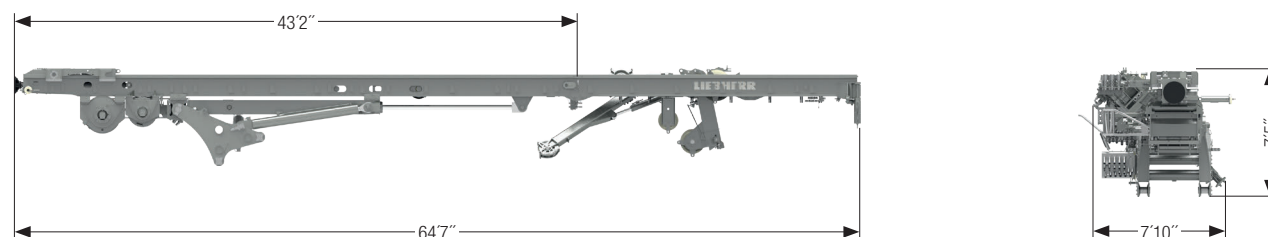
includes the basic machine LRB 23 (ready for operation – including 20 % filling of diesel tank) without counterweight, attachment and Kelly equipment. lbs 128,309

* Transport width with 27.6 inch grouzers



Basic machine

without counterweight and without adapter for casing oscillator lbs 86,201



Leader

with Kelly equipment lbs 46,958

without Kelly equipment lbs 42,108

Options

Adapter for casing oscillator lbs 1,764

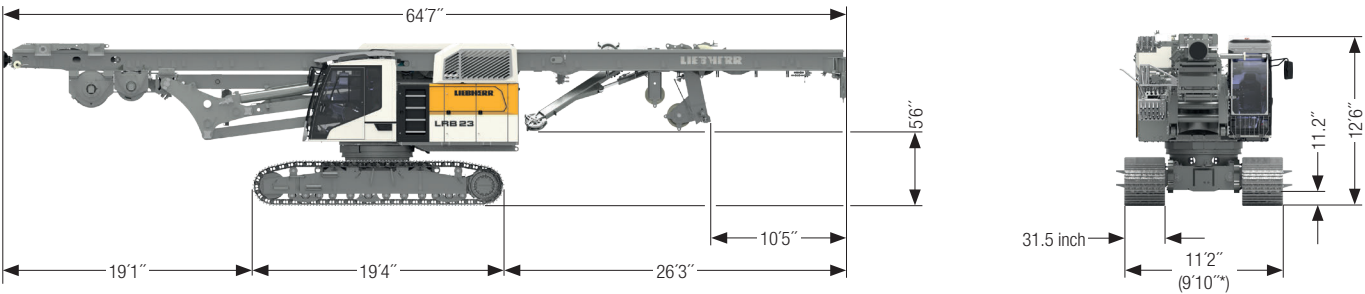
Elevating working platform lbs 1,984

Concrete supply line lbs 1,102

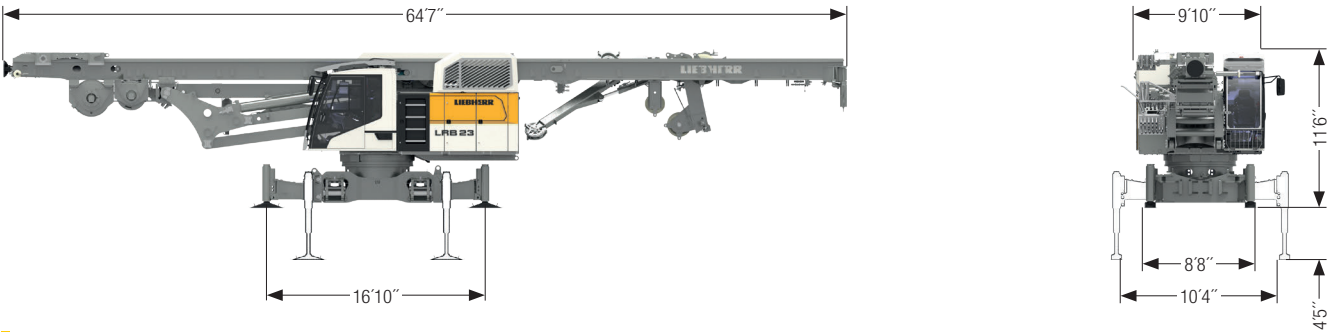
All round platform with railings lbs 882

Jack-up system lbs 5,512

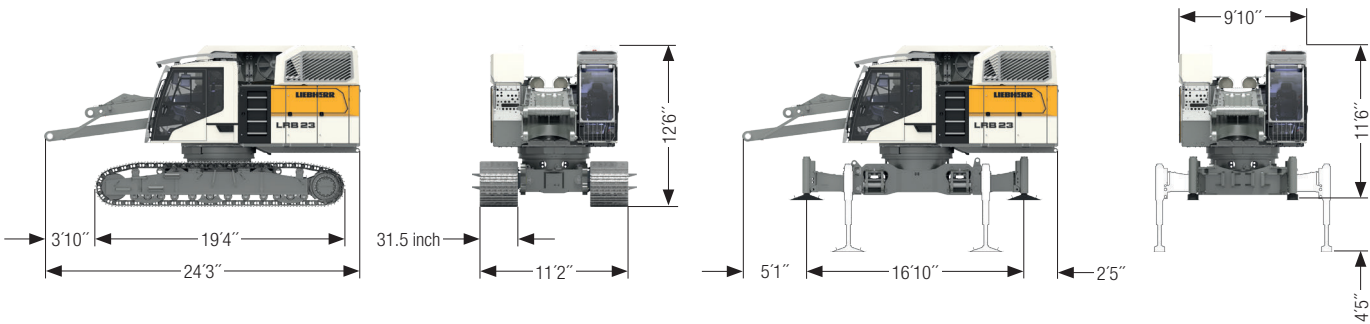
Undercarriage type 225



Operating weight	
includes the basic machine LRB 23 (ready for operation – including 20 % filling of diesel tank) with Kelly equipment, without counterweight, jack-up system and attachment	lbs 142,860
* Optional transport width with 27.6 inch grouser and non-detachable crawlers. With this option, the transport weight is reduced by 4,850 lbs compared to the version with detachable crawlers.	

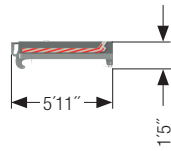
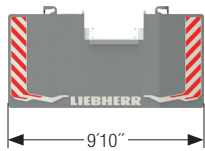


Operating weight without crawlers, with jack-up system	
includes the basic machine LRB 23 (ready for operation – including 20 % filling of diesel tank) with Kelly equipment, without counterweight and attachment.	lbs 119,270



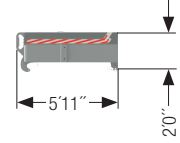
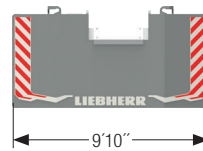
Basic machine	
without counterweight, adapter for casing oscillator and without jack-up system	lbs 95,901

Basic machine	
without counterweight and crawlers, with adapter for casing oscillator and with jack-up system	lbs 72,312



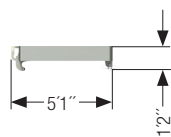
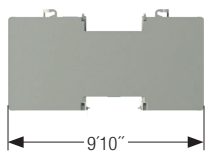
Rear counterweight

Weight	lbs	11,023
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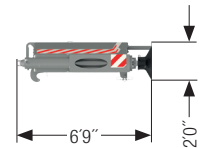
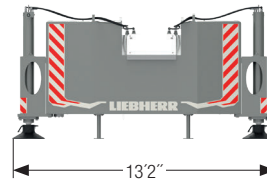
Rear counterweight

Weight	lbs	17,636
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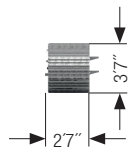
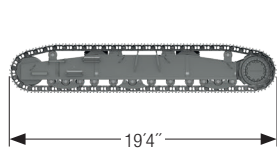
Intermediate counterweight

Weight	lbs	11,023
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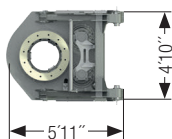
Rear counterweight with rear support unit

Weight	lbs	17,636
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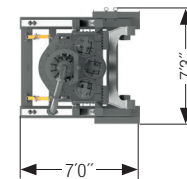
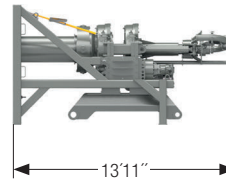
Crawler type 225

Weight	lbs	16,314
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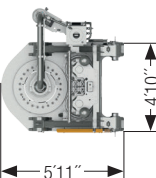
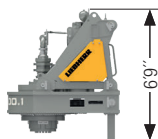
BAT 300

Weight	lbs	14,330
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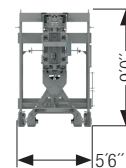
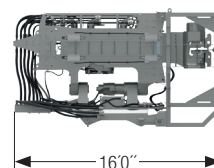
DBA 250

Weight	lbs	17,857
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MAT 100.1

Weight	lbs	72,312
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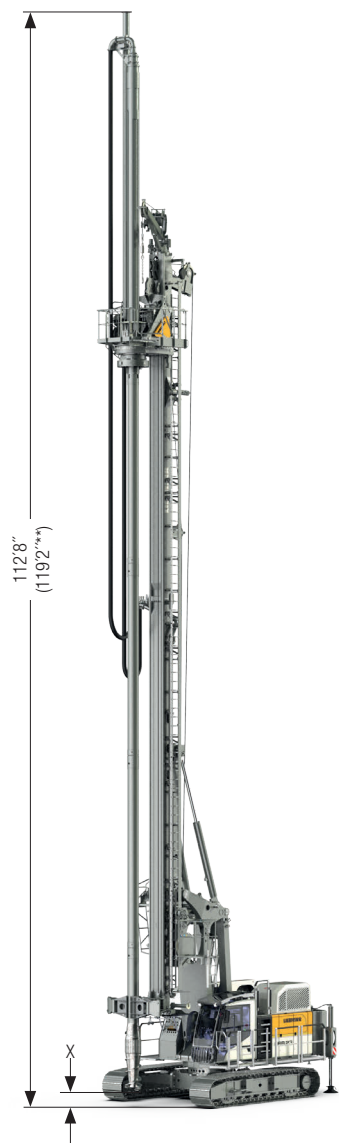


Vibrator slim design LV 36

Weight	lbs	26,896
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Full displacement drilling

BAT 300



Performance data

Rotary drive - torque	lbf-ft	221,269
Rotary drive - speed	rpm	0-46
Max. drilling depth	ft	72.8
Drilling depth with 26.2 ft Kelly extension	ft	99.0
Drilling depth with 32.8 ft Kelly extension	ft	105.6
Max. pull force (crowd winch and Kelly winch)	lbf	175,351
Max. drilling diameter*	ft	2.0

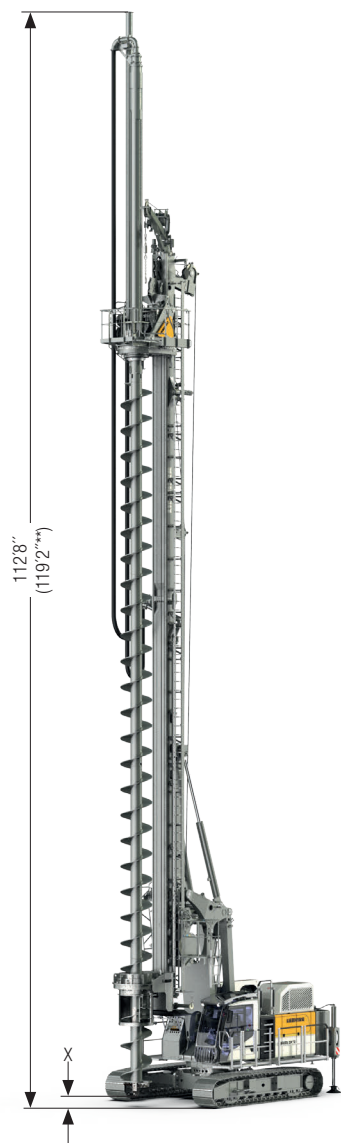
Above drilling depths are valid for the use of standard tools and for the X value of 1.7 ft shown in the illustration.

* Other drilling diameters on request

** With 32.8 ft Kelly extension

Continuous flight auger drilling

BAT 300



Performance data

Rotary drive - torque	lbf-ft	221,269
Rotary drive - speed	rpm	0-46
Max. drilling depth	ft	70.9
Drilling depth with 26.2 ft Kelly extension	ft	97.4
Drilling depth with 32.8 ft Kelly extension	ft	104.0
Max. pull force (crowd winch and Kelly winch)	lbf	175,351
Max. drilling diameter*	ft	3.9

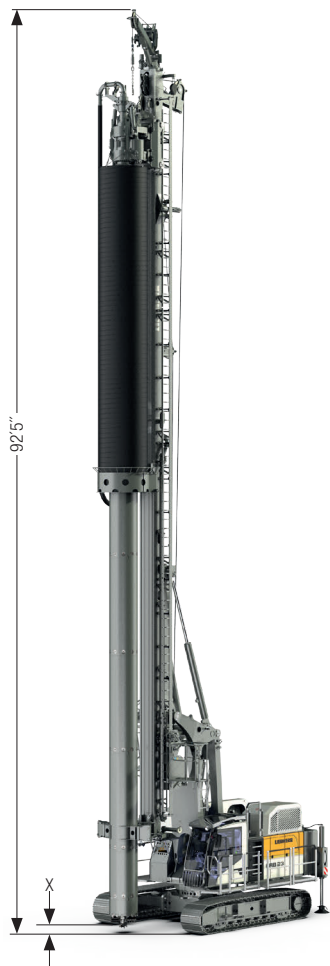
Above drilling depths take into account that an auger cleaner is used and the cardan joint has been removed.
Above drilling depths are valid for the use of standard tools and for the X value of 1.1 ft shown in the illustration.

* Other drilling diameters on request

** With 32.8 ft Kelly extension

Double rotary drilling

DBA 250



Performance data

Rotary drive I - torque	lbf-ft	0-182,178
Rotary drive I - speed	rpm	0-30
Rotary drive II - torque	lbf-ft	0-83,345
Rotary drive II - speed	rpm	0-34
Max. drilling diameter*	ft	3
Max. pull force (crowd winch and Kelly winch)	lbf	175,351
Max. drilling depth**	ft	72.8

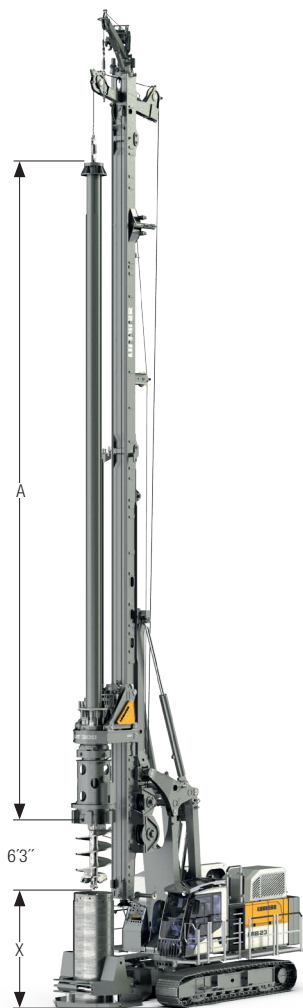
Above drilling depths are valid for the use of standard tools and for the X value of 1.7 ft (see above illustration).
Due to differences in the max. admissible load capacities, the combinations of drilling depth and drilling diameter may be limited.

* Other drilling diameters available on request

** When using a protective hose, the maximum drilling depth has to be reduced by 2.9 ft

Kelly drilling

BAT 300



Performance data

Rotary drive - torque	lbf-ft	221,269
Rotary drive - speed	rpm	0-46
Max. drilling diameter uncased	ft	6.2
Max. drilling diameter cased*	ft	4.9
Max. drilling diameter below the leader	ft	9.5

Other drilling diameters available on request.

When using a casing oscillator, value X must be reduced by 4.9 ft.

* Depends on the design of the casing driver

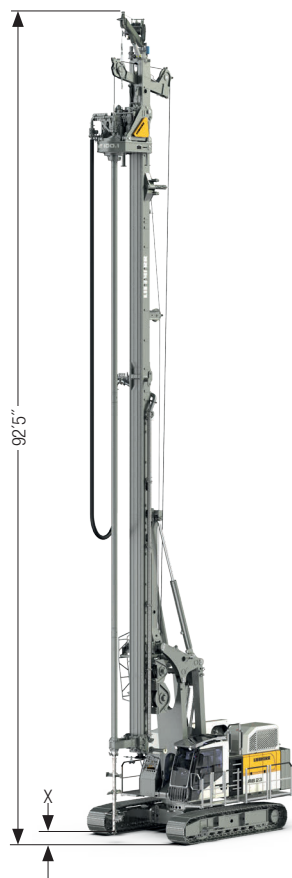
Kelly bars

	A	X	Drilling depth	Weight
	ft	ft	ft	lbs
28/3/24 SD	32.4	40.7	79.1	17.4
28/3/27 SD	35.7	37.4	88.9	19.0
28/3/30 SD	39.5	33.5	98.8	21.0
28/3/33 SD	42.3	30.8	108.6	22.0
28/3/36 SD	46.1	26.9	118.4	24.0
28/4/24 SD	27.7	45.3	79.7	18.0
28/4/30 SD	32.6	40.4	98.8	22.3
28/4/36 SD	37.6	35.4	118.8	25.3
28/4/42 SD	42.5	30.5	138.1	28.5
28/4/48 SD	47.4	25.6	158.1	31.5
28/4/54 SD	52.3	20.7	177.8	34.8
28/4/60 SD	57.3	15.7	197.5	38.0
28/4/66 SD	62.2	10.8	217.5	38.4
28/4/72 SD*	67.1	5.9	237.2	41.0

* Installation only possible with assist crane

Soil mixing

MAT 100.1



Performance data MAT 100.1

Rotary drive - torque	lbf-ft	75,969
Rotary drive - speed	rpm	0-100
Max. mixing depth	ft	73.5
Max. mixing diameter*	ft	4.9

Above mixing depth is valid for the use of standard tools and for the X value of 1.0 ft (see above illustration).

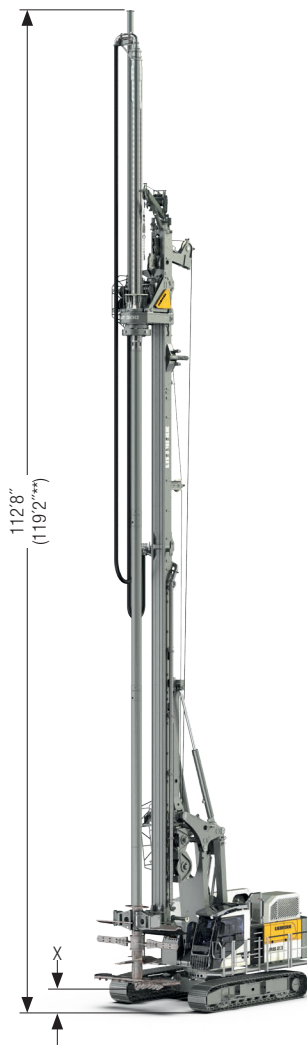
* Other mixing diameters available on request

Performance data 3MA 100

Rotary drive - torque	lbf-ft	0-78,182
Rotary drive - speed	rpm	0-70
Swing range mixing drive	°	+/- 35
Centre-to-centre distance adjustable in steps of 0.2 ft	ft	2.0-2.9
Max. mixing depth	ft	72.2

Above mixing depth is valid for the use of standard tools and for the X value of 2.3 ft (see above illustration).

BAT 300



Performance data BAT 300

Rotary drive - torque	lbf-ft	221,269
Rotary drive - speed	rpm	0-46
Max. mixing depth	ft	72.2
Mixing depth with 26.2 ft Kelly extension	ft	98.4
Mixing depth with 32.8 ft Kelly extension	ft	105.0
Max. mixing diameter*	ft	9.5

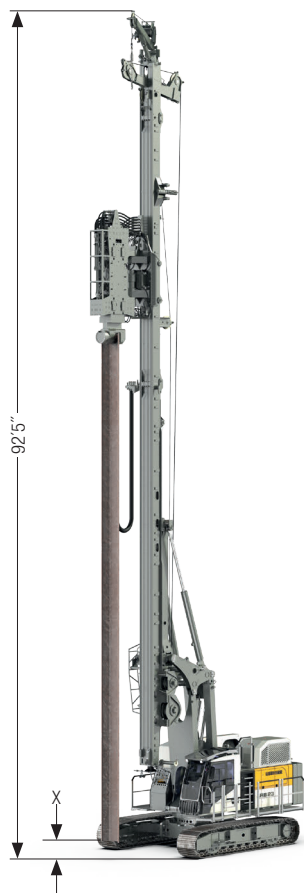
Above mixing depth is valid for the use of standard tools and for an X value of 2.3 ft (see above illustration).

* If the mixing diameter is 6.2 ft or more the mixing paddle is always located below the leader. Other drilling diameters available on request

** With 32.8 ft Kelly extension

Vibrator slim design

LV 36



Performance data

Static moment	lbs ft	0-260.4
Max. frequency	rpm	0-2200
Max. centrifugal force	lbf	429,385
Max. peak-to-peak amplitude with clamp	inch	0.5
Total weight without clamp	lbs	20,062
Dynamic weight with clamp	lbs	13,889
Max. pile length	ft	72.2
Swing range vibrator	°	+/- 87

Above pile length is valid for an X value of 1.6 ft (see above illustration).

Hydraulic hammer

H 6

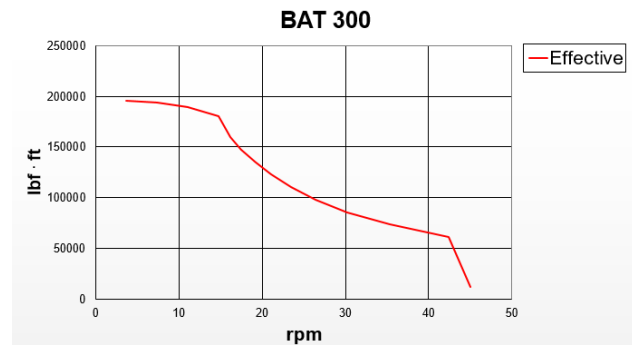
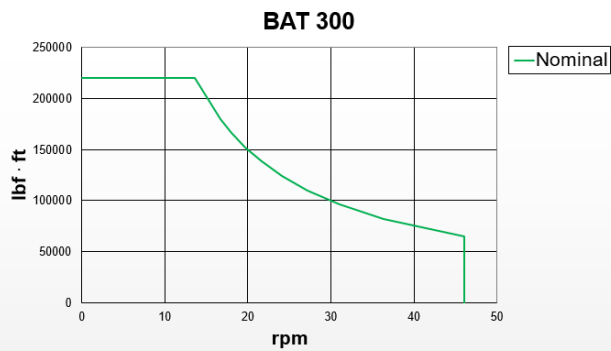
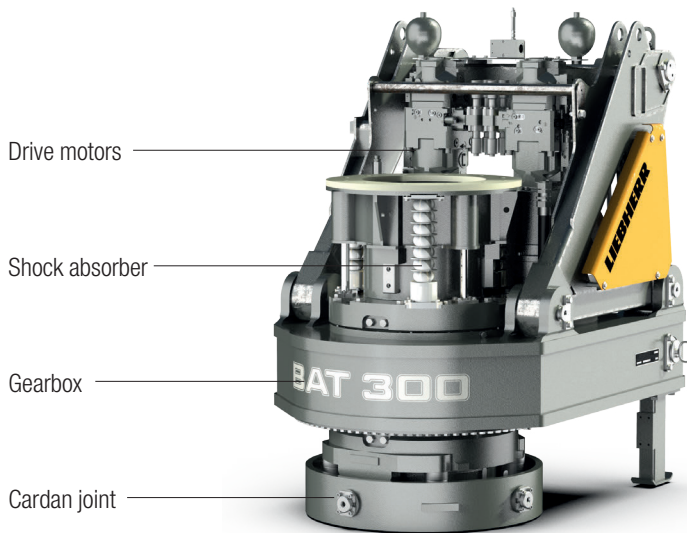


Performance data

Drop weight (1x 6,614 lbs + 3x 2,205 lbs)	lbs	13,228
Max. rated energy	lbf-ft	53,104
Blow rate max. energy	blows/min	50
Max. blow rate	blows/min	150
Total weight	lbs	19,842
Max. pile length	ft	65.6
Pile winch*	lbf	26,977

* Existing Kelly winch with limitation

BAT 300



Kelly shock absorber:

- Newly developed Kelly shock absorber for highest demands
- Possibility of adjusting the strength of the Kelly shock absorber for different Kelly bar weights

Automatic gearbox for best operating comfort:

- No stopping required to change gears
- No interruption of the drilling process
- Continuous optimization of speed

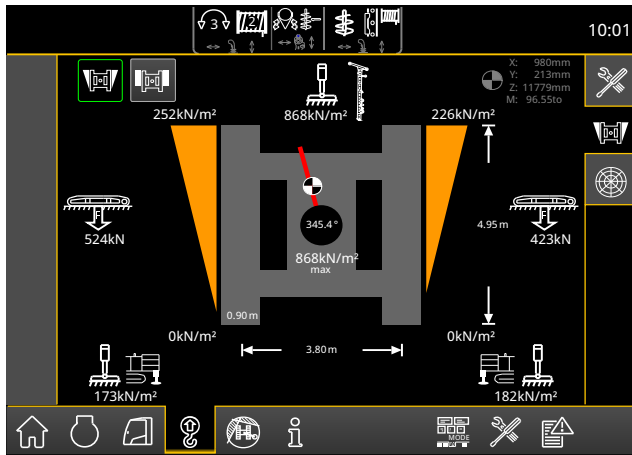
Highest availability through easy set-up:

- No mechanical shift gearbox
- Low maintenance requirements

Flexibility through modular design:

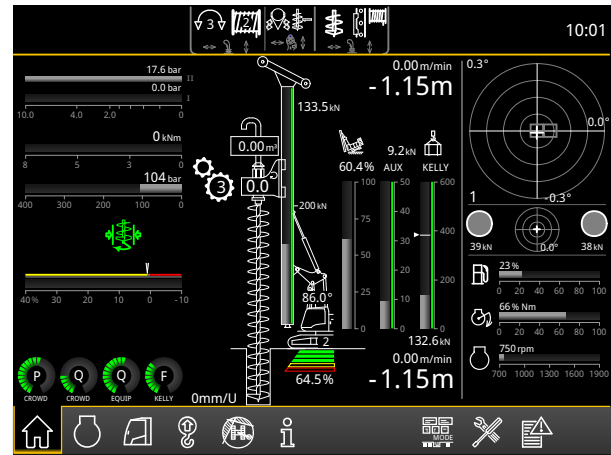
- Exchangeable cardan joint for other casing drivers
- Exchangeable drive adapters for use of other Kelly bars
- Quickly exchangeable equipment for other methods of operation

Ground Pressure Visualization



Features:

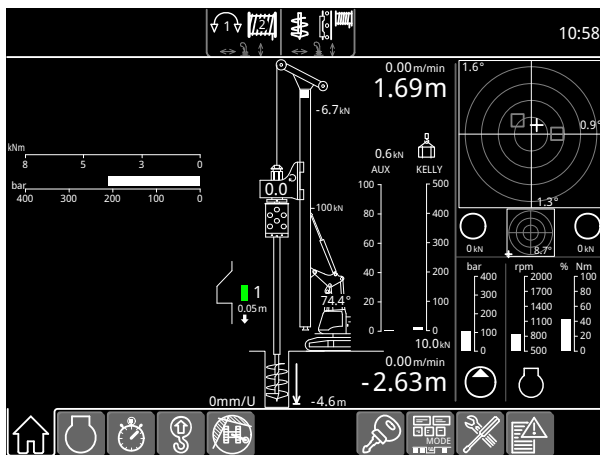
- The actual ground pressure is calculated in real time
- The maximum admissible ground pressure can be individually predefined
- The utilization is continuously calculated and displayed on the monitor in the operator's cab
- Audible and visual warnings when the predefined values are approached



Your benefits:

- Increased safety on the jobsite due to consideration of prevailing ground conditions
- Higher operator comfort thanks to clearly displayed information and warning signals
- Prevention of critical or stressful situations before they occur
- User-friendly and intuitive handling in the operator's cab

Kelly Visualization

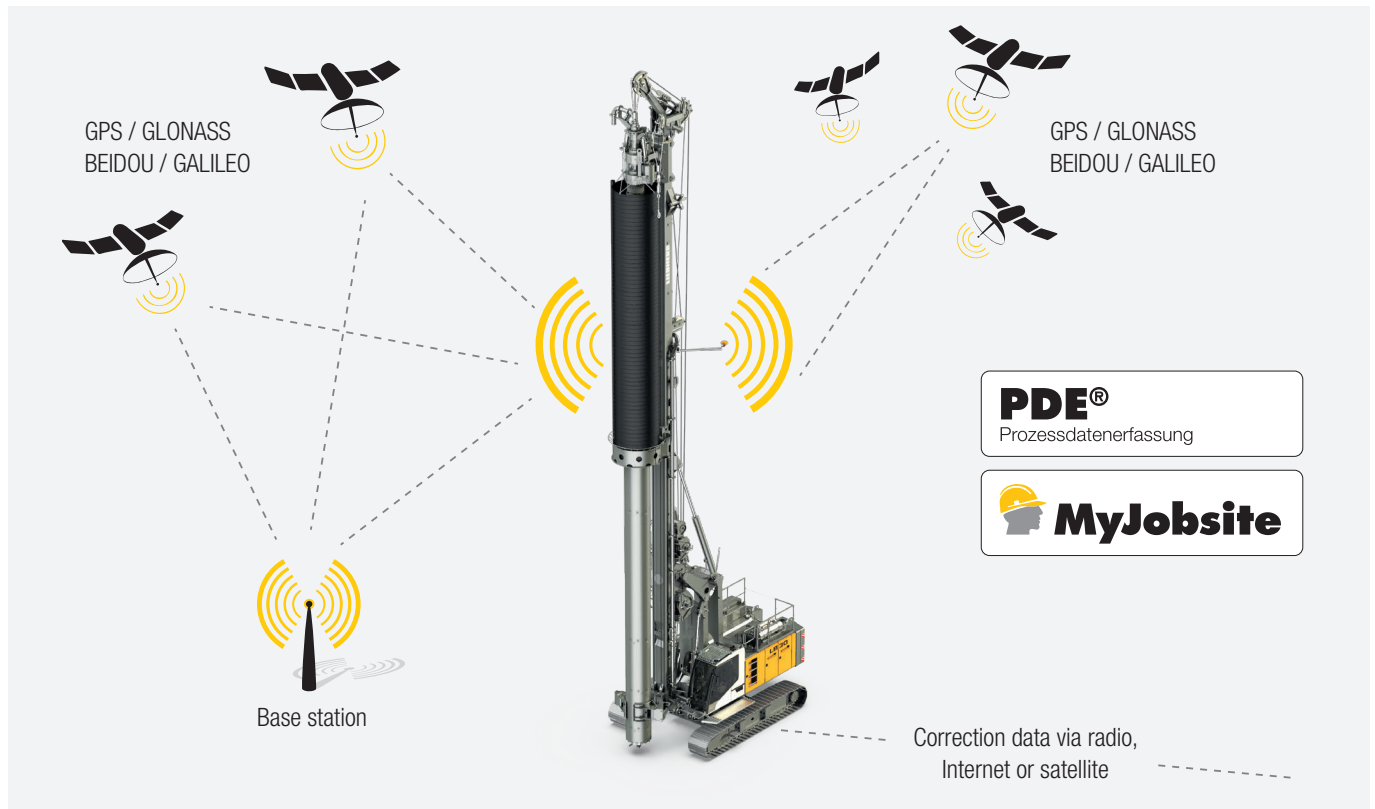


Your benefits:

- Time saving: the operator no longer needs to search for the interlocking recesses
- Higher availability: the machine needs less repair and maintenance work
- More safety: correct locking prevents damage to the Kelly bar
- Cost reduction: smooth operation results in higher performance and less wear

All measurements displayed on this page are metric.

Liebherr Positioning System



DGNSS – Differential Global Navigation Satellite System

Via pre-installed components, LIPOS® enables the direct integration of machine control systems from Trimble or Leica in the process data recording PDE® and reporting of Liebherr deep foundation machines. These systems are based on modern DGNSS technology (Differential Global Navigation Satellite System) and so achieve the best possible conditions for a precise and efficient positioning of Liebherr machines and their attachment tools.

- Intelligent mounting bracket design for the antennae on the leader for optimum signal quality
- Pinpoint precision of the drilling and piling work in accordance with a digital drilling plan
- Recording of the drilling points and work processes through the process data recording system PDE®
- Automatic transmission of the data to MyJobsite for visualisation and analysis
- Generation of comprehensive and understandable jobsite reports

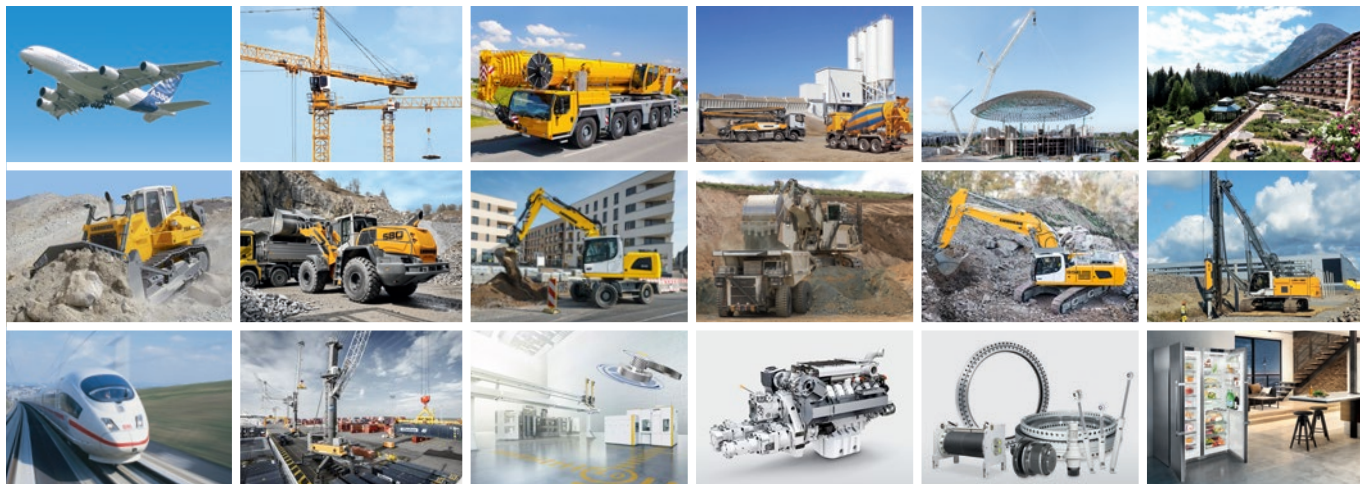
The positioning system LIPOS® is fully integrated in the existing IT solutions from Liebherr and compatible with a wide variety of deep foundation machines. The preparation for Trimble or Leica, as well as the machine-based complete system* from Trimble is obtainable from Liebherr.

* Without correction data solution (e.g. base station, VRS, or similar), measuring devices and Cloud solutions of other manufacturers



Further info

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 applications.

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.

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