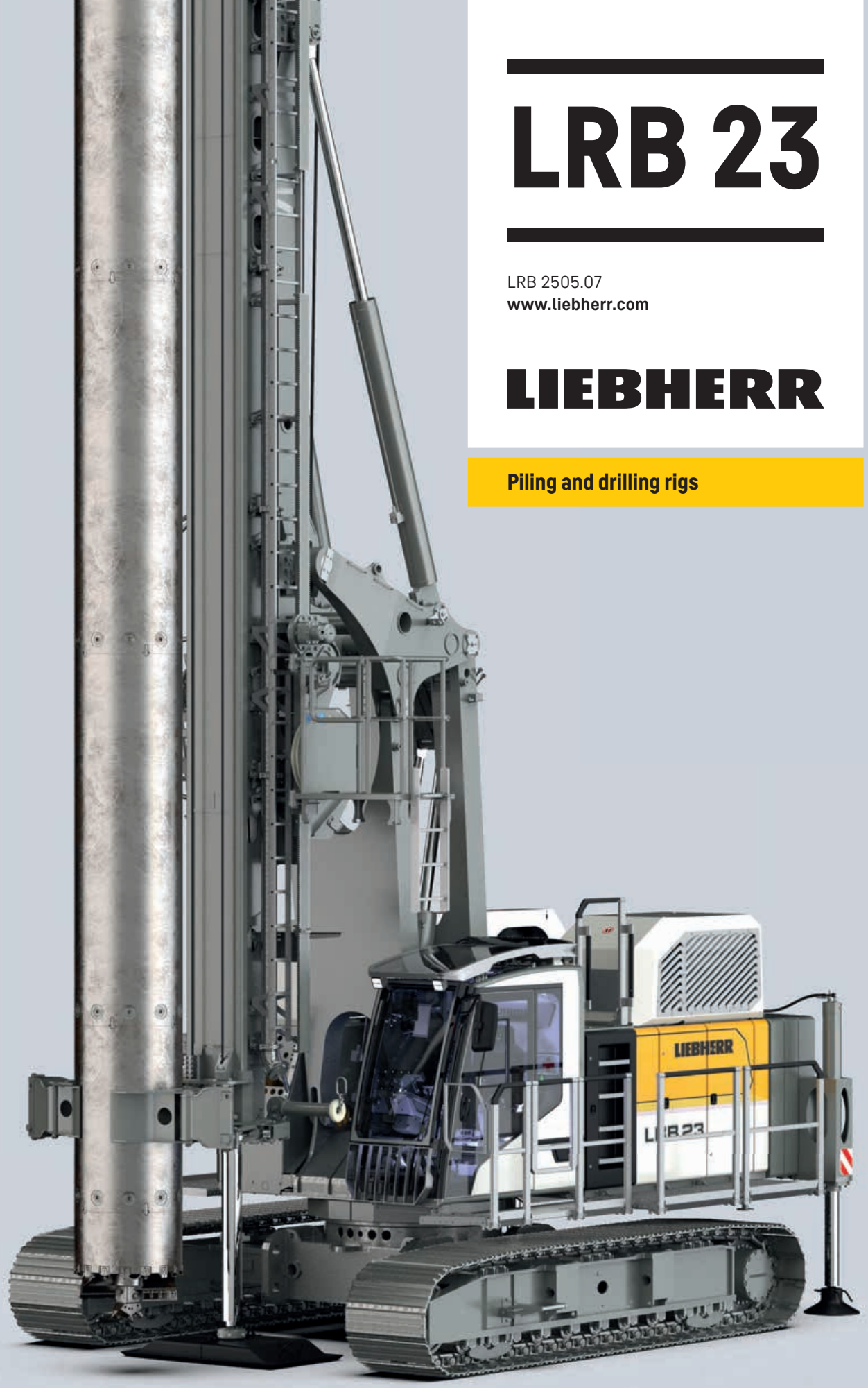
EN-US

LRB 23

LRB 2505.07
www.liebherr.com

LIEBHERR

Piling and drilling rigs



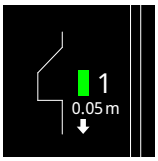
Concept and characteristics

PDE®
Process Data Recording

MyJobsite

LIPOS®
Positioning System

LiDAT®
Data Transmission



Kelly visualization

Ground pressure visualization

Radio remote control

Concrete pump

The robust universal machine for a wide variety of applications

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

Assistance systems

- Cruise Control for all main functions
- Control lever 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 description

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 certification	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 bar
Hydraulic oil	electronic monitoring of all filters use of synthetic environmentally friendly oil possible

Crawlers

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

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 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 measurement data and vibration

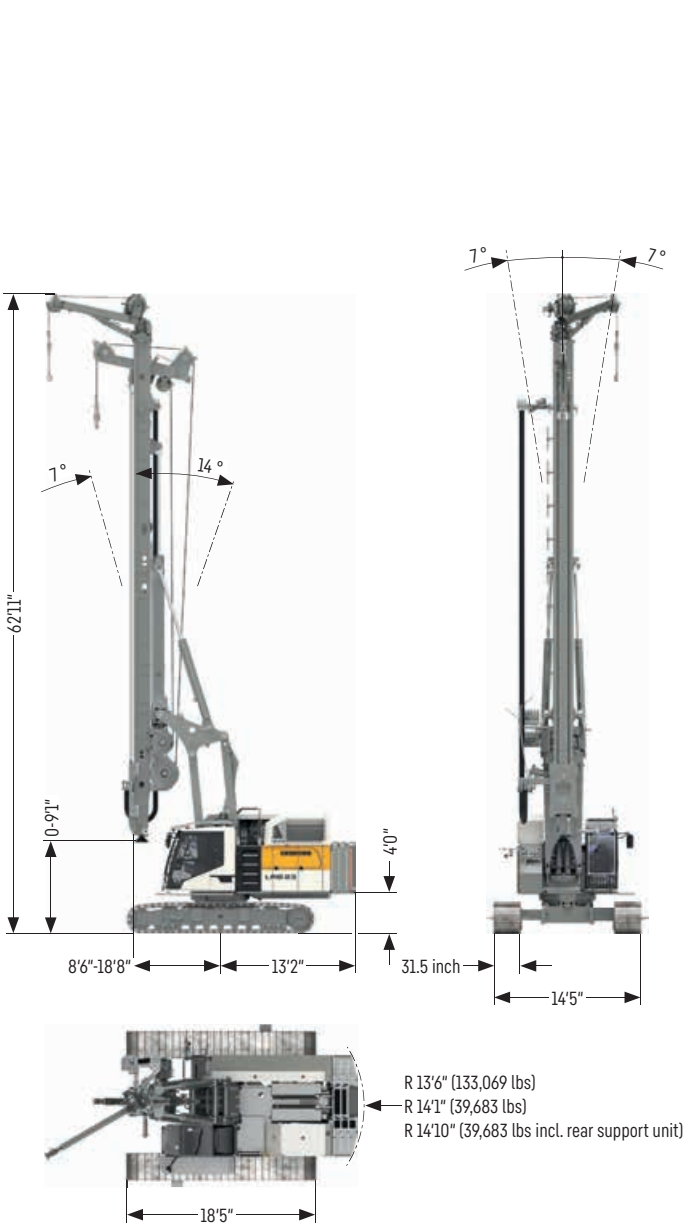
Noise emission	according to 2000/14/EC directive	
Emission sound pressure level L_{PA}	79.0 dB(A)	(in the cabin)
Guaranteed sound power level L_{WA}	110 dB(A)	(of the machine)
Vibration transmitted to the machine operator	< 8.2 ft/s²	(to the hand-arm system)
	< 1.6 m/s²	(to the whole body)

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 weights

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 – including 20% filling of diesel tank) with Kelly equipment and 33,069 lbs counterweight, without attachment.

Operating weights

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

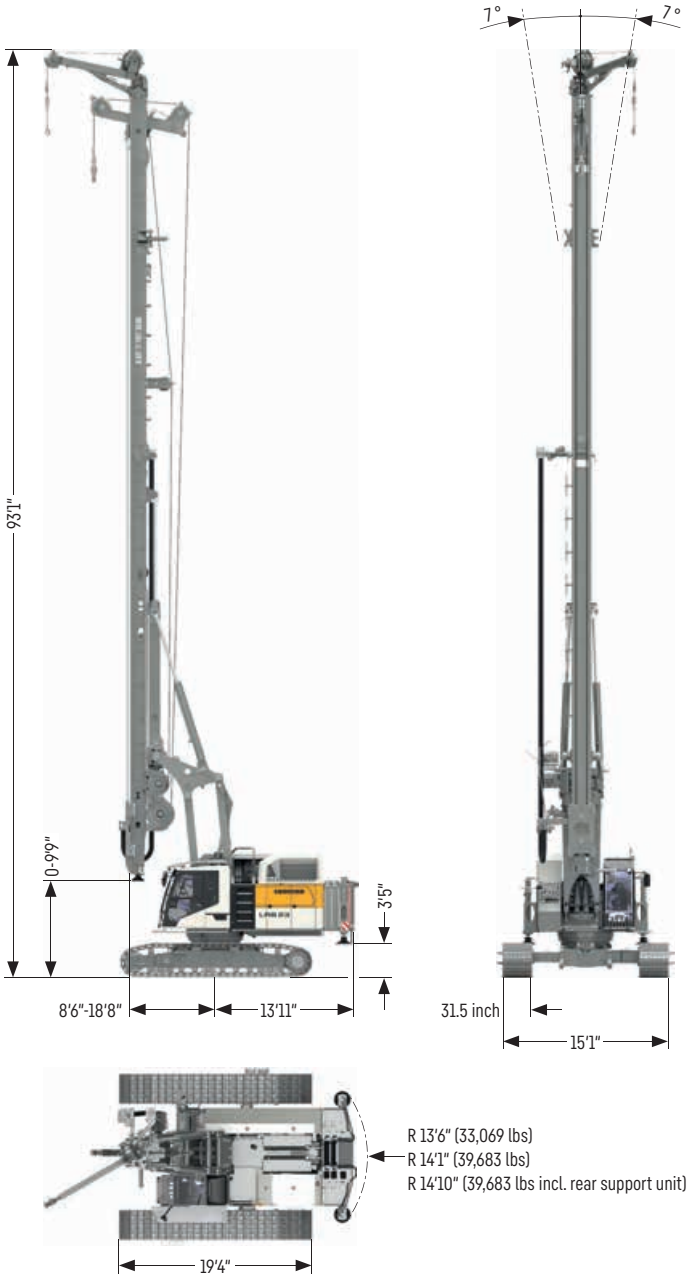
The operating weight includes the basic machine LRB 23 (ready for operation – including 20% filling of diesel tank) and 33,069 lbs counterweight, without attachment and Kelly equipment.

Operating weights

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

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

Undercarriage type 225



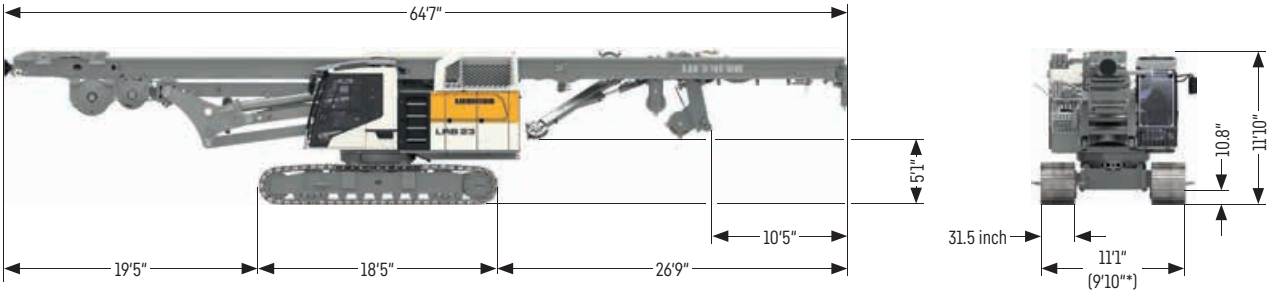
Operating weights

Total weight with 31.5 inch 3-web grousers	lbs	182,763

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

Transport dimensions and weights

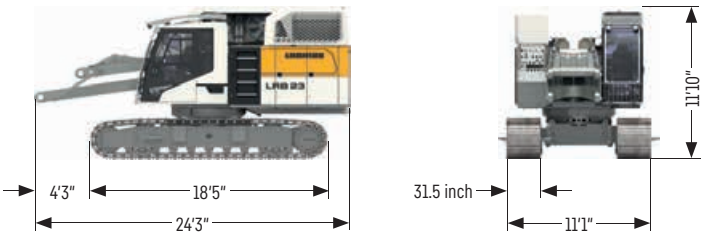
Undercarriage type 205



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 Kelly equipment, counterweight and attachment	lbs	128,309

* transport width with 2.3 ft grousers



Basic machine

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

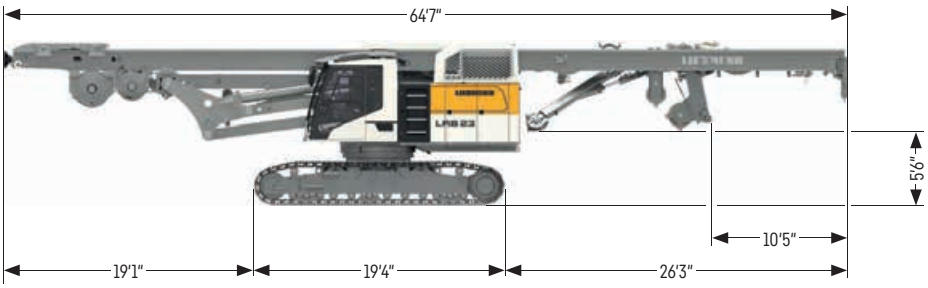
Leader

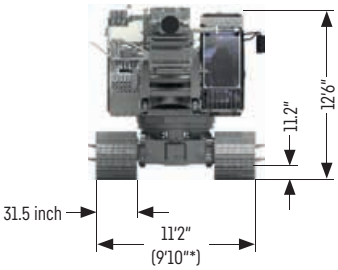
with Kelly equipment	lbs	46,958
without Kelly equipment	lbs	42,108

Options

Adapter for casing oscillator	lbs	1,764
Concrete supply line	lbs	1,323
All round platform with railings	lbs	882
Elevating working platform	lbs	1,984
Jack-up system	lbs	5,512

Undercarriage type 225

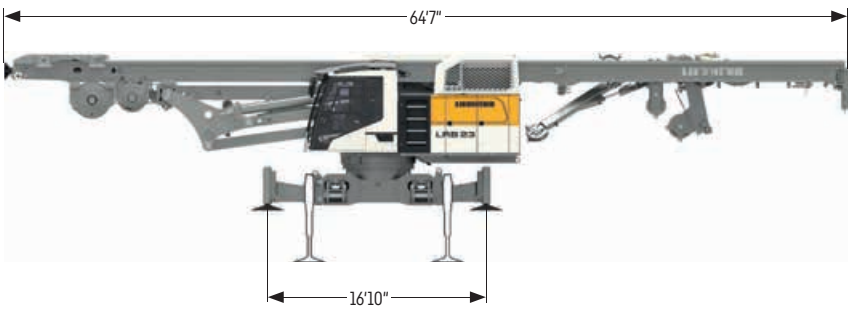


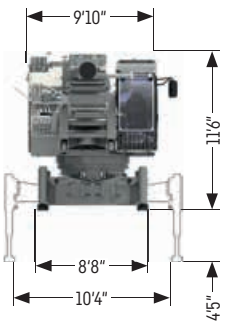


Operating weight

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

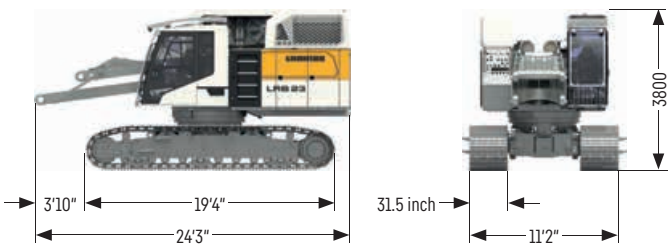
* Optional transport width with 2.6 ft grousers and non-detachable crawlers.
With this option, the transport weight is reduced by 4,850 lbs compared to the version with detachable crawlers.

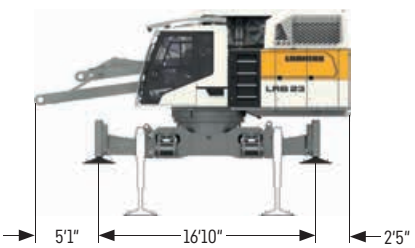


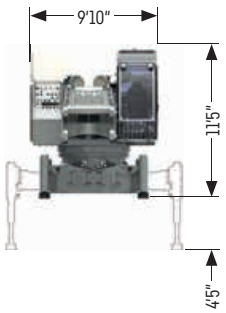


Operating weight without crawlers, with jack-up system

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





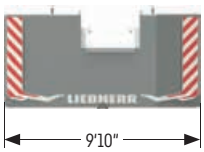


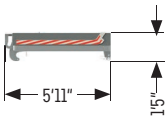
Basic machine

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

Basic machine

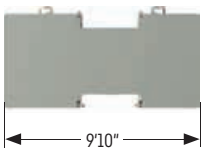
without counterweight and crawlers, with adapter for casing oscillator and with jack-up system	lbs	72,312

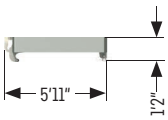




Rear counterweight

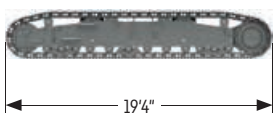
Weight	lbs	11,023

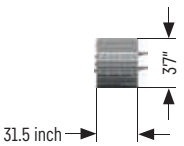




Intermediate slab

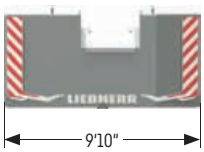
Weight	lbs	11,023

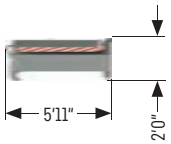




Crawler type 225

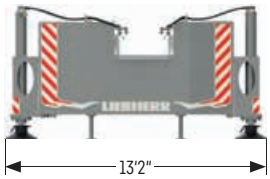
Weight	lbs	16,314

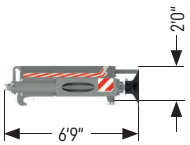




Rear counterweight

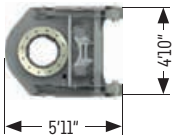
Weight	lbs	17,636





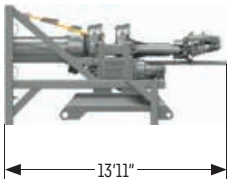
Rear counterweight with rear support unit

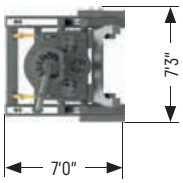
Weight	lbs	17,636



BAT 300

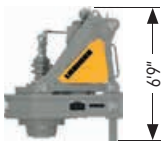
Weight	lbs	14,330

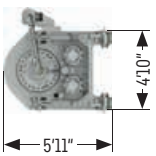




DBA 250

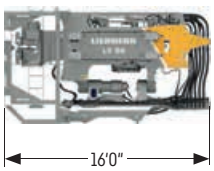
Weight	lbs	17,857

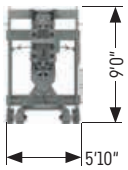




MA 180

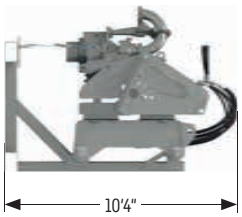
Weight	lbs	12,346

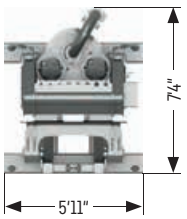




Vibrator slim design LV 36 and LV 36 F

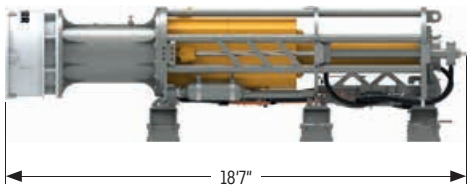
Weight	lbs	26,455

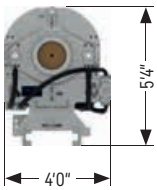




DHR 220

Transport weight	lbs	14,110



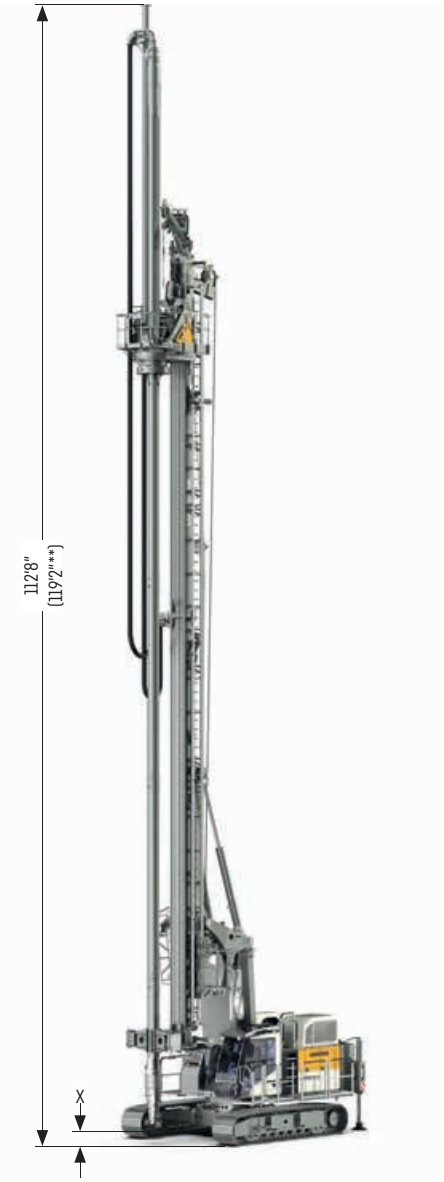


Hammer H 10-100

Weight incl. 22,046 lbs drop weight	lbs	35,715

Full displacement drilling

BAT 300



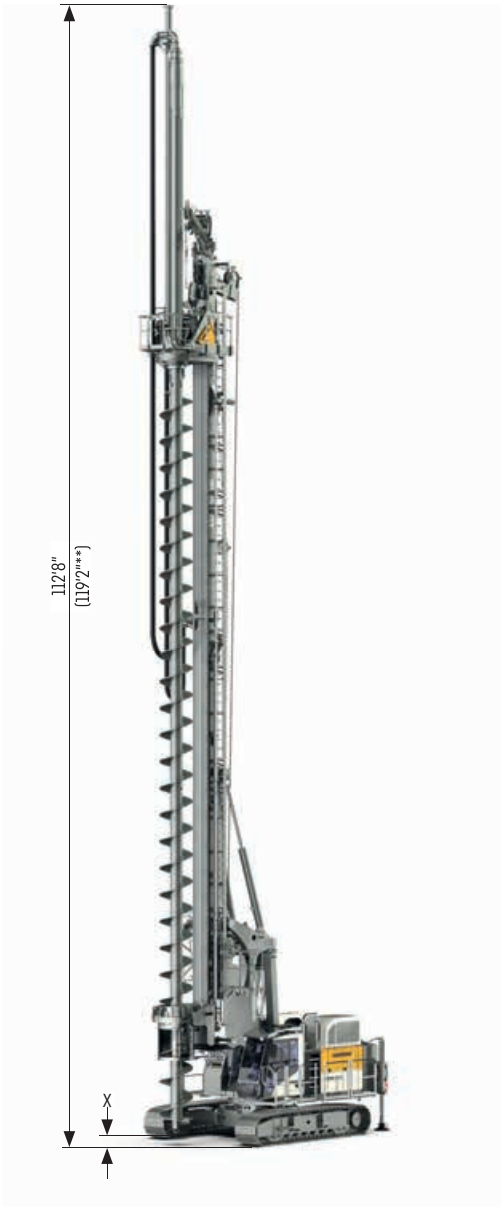
Performance data

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. drilling diameter*	ft	2.0
Max. pull force (crowd winch and Kelly winch)	lbf	175,351

Above drilling depths are valid for the use of standard tools and for an X value of 1.7 ft (see above illustration).
* Other drilling diameters available on request
** With 32.8 ft Kelly extension

Continuous flight auger drilling

BAT 300



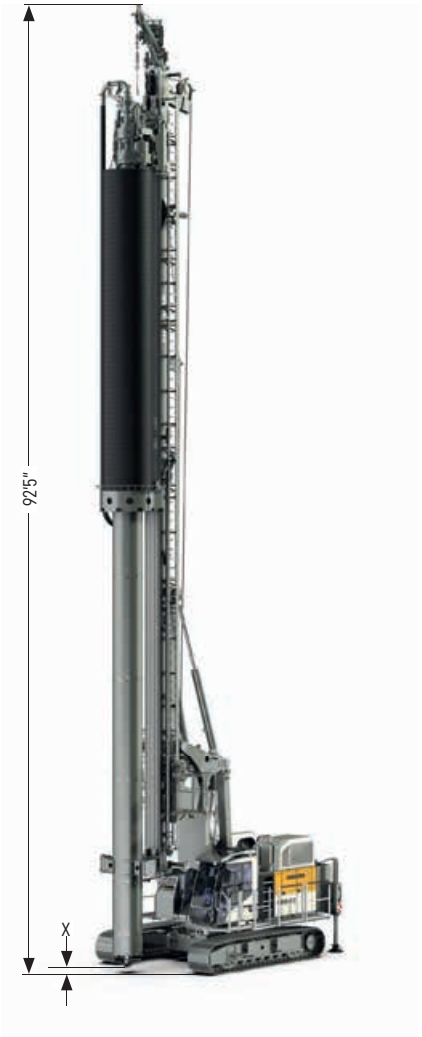
Performance data

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. drilling diameter*	ft	3.9
Max. pull force (crowd winch and Kelly winch)	lbf	175,351

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 an X value of 1.1 ft (see above illustration).
* Other drilling diameters available 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	3.0
Max. drilling depth**	ft	72.8
Max. pull force (crowd winch and Kelly winch)	lbf	175,351

Above drilling depths are valid for the use of standard tools and for an 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	300
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 (standard 118/120 KL und 150 KL), value X has to be reduced by 4.9 ft. Other casing oscillators available on request
* Depends on the design of the casing driver

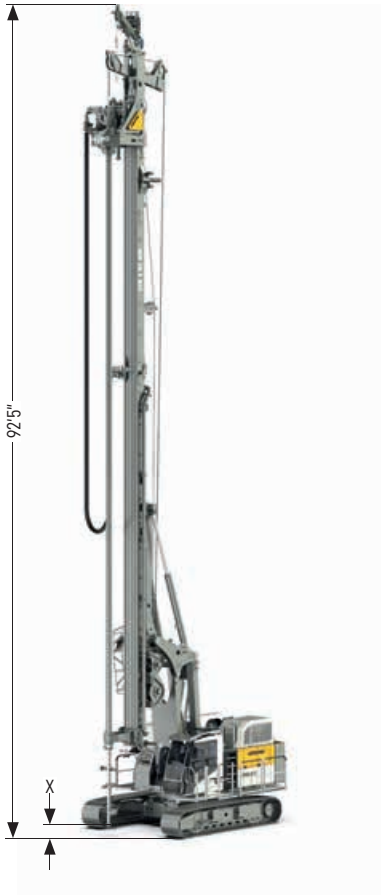
Technical data Kelly bars

Model	Length A [ft]	X [ft]	Drilling depth [ft]	Weight [lbs]
28/3/24	32.4	40.7	79.1	17.4
28/3/27	35.7	37.4	88.9	19.0
28/3/30	39.5	33.5	98.8	21.0
28/3/33	42.3	30.8	108.6	22.0
28/3/36	46.1	26.9	118.4	24.0
28/4/24	27.7	45.3	79.7	18.0
28/4/30	32.6	40.4	98.8	22.3
28/4/36	37.6	35.4	118.8	25.3
28/4/42	42.5	30.5	138.1	28.5
28/4/48	47.4	25.6	158.1	31.5
28/4/54	52.3	20.7	177.8	34.8
28/4/60	57.3	15.7	197.5	38.0
28/4/66	62.2	10.8	217.5	38.4
28/4/72*	67.1	5.9	236.2	41.0

* Installation only possible with assist crane

Soil mixing

MA 180



Performance data MA 180

Rotary drive - torque	lnf-ft	132,761
Rotary drive - speed	rpm	0-80
Max. mixing depth	ft	73.5
Mixing depth with 8 m Kelly extension	ft	99.7
Max. mixing diameter*	ft	4.9
Max. pull force	lbf	175,351

Above drilling depths are valid for the use of standard tools and for an X value of 1.0 ft.
* Other mixing diameters available on request

Performance data 3MA 65

Rotary drive - torque	lbf-ft	47,941
Rotary drive - speed	rpm	100
Swing range mixing drive	°	+/- 30.0
Centre-to-centre distance adjustable in steps of 0.2 ft	ft	1.5-2.3
Max. mixing depth	ft	72.8
Max. pull force	lbf	123,645

Above mixing depth is valid for the use of standard tools and for an X value of 1.6 ft.
Longitudinal or transverse mounting of the mixing equipment possible

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 8 m Kelly extension	ft	98.4
Mixing depth with 10 m Kelly extension	ft	105.0
Max. mixing diameter*	ft	9.5
Max. pull force	lbf	175,351

Above drilling depths are valid for the use of standard tools and for an X value of 2.3 ft.
* Other mixing diameters available on request
** With 32.8 ft Kelly extension

Vibrator slim design

LV 36 and LV 36 F

Performance data		LV 36	LV 36 F
Static moment	lbs-ft	0-260.4	0-260.4
Max. frequency	rpm	0-2400	0-2400
Max. centrifugal force	lbf	429,385	429,385
Max. peak-to-peak amplitude with 529,109 lbs clamp	inch	0.5	0.5
Total weight with 529,109 lbs clamp	lbs	24,615	24,570
Dynamic weight including 529,109 lbs clamp	lbs	13,889	14,341
Max. pile length	ft	72.2	72.2
Swing range vibrator	°	+/- 87	+/- 50
Vibrator width in piling axis	ft	1.8	2.6
Piling axis	ft	5.6	5.6
Max. pull force	lbf	71,939	71,939

Above pile length is valid for an X value of 1.6 ft.

Hydraulic hammer

H 6 and H 10

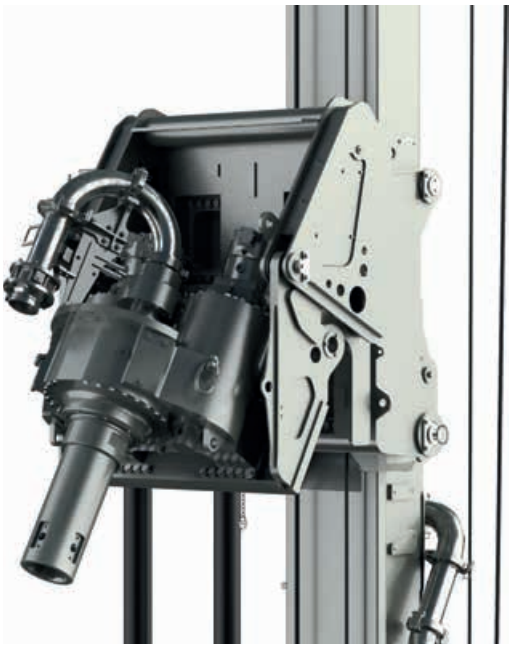
Performance data

Hammer type		H 6-3	H 6-4	H 6-5	H 6-6	H 10-75	H 10-100
Drop weight	lbs	6,614	8,818	11,023	13,228	16,535	22,046
Max. rated energy	lbf-ft	26,552	35,403	44,254	53,104	66,381	88,507
Blow rate	blows/min	50-150	50-150	50-150	40-150	50-150	50-150
Max. pile length	ft	68.9	68.9	68.9	68.9	63.3	63.3
Pile winch*	lbf	35,969	35,969	35,969	35,969	35,969	35,969
Hammer weight incl. pile helmet and dolly	lbs	14,771	16,976	19,180	21,385	30,203	35,715

Various pile helmet sizes up to diameters of 2.1 ft for the hammer H 6, up to 2.6 ft for the hammer H 10 or in square design available as standard. Above pile length is valid for an X value of 1.6 ft.
Other pile helmet sizes available on request
* Existing Kelly winch with limitation

Down-the-hole drilling

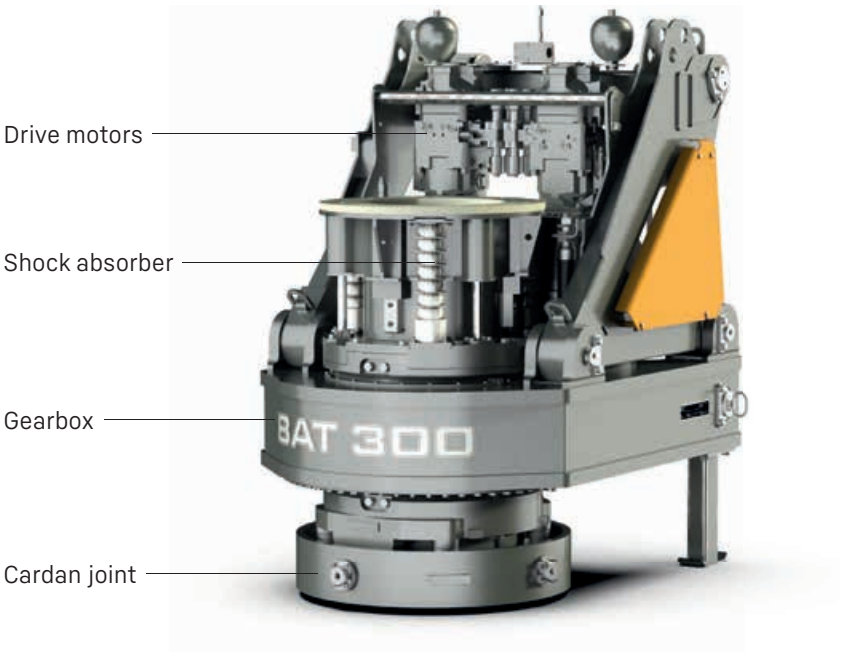
DHR 220



Performance data		DHR 220
Rotary drive - torque	lbf-ft	160,789
Rotary drive - speed	rpm	42
Mixing depth	ft	72.8
Folding function	°	0-90
Max. pull force	lbf	175,351*/134,885**

Above drilling depths are valid for the use of standard tools and for an X value of 1.6 ft (see above illustration).
* Max. pull force in recovery operation
** Max. pull force in drilling operation

BAT 300

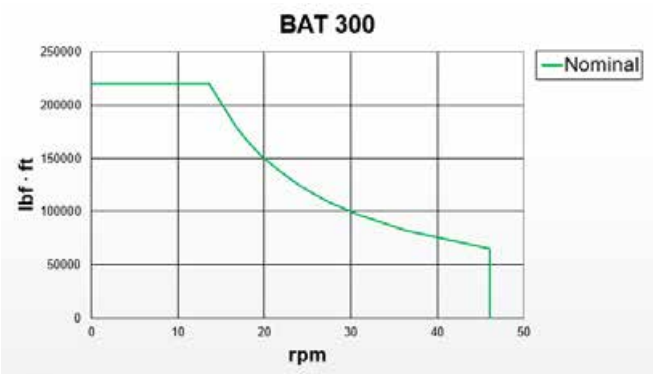


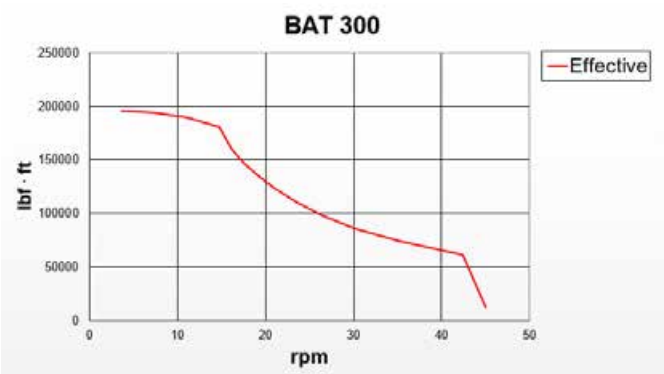
Kelly shock absorber:
- Newly developed Kelly shock absorber for highest demands
- Possibility of adjusting the strength of the Kelly shock absorber for different Kelly bar weights

Highest availability through easy set-up:
- No mechanical shift gearbox
- Low maintenance requirements

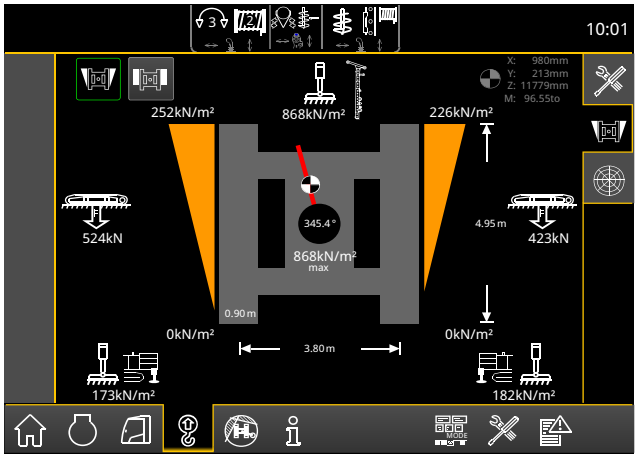
Automatic gearbox for best operating comfort:
- No stopping required to change gears
- No interruption of the drilling process
- Continuous optimization of speed

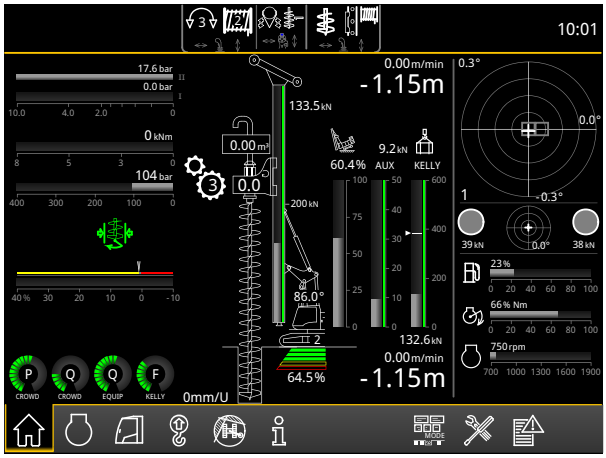
Flexibility through modular design:
- Exchangeable cardan joint for other casing drivers
- Exchangeable drive adapters for use of other Kelly bars
- Quickly exchangeable equipment for other methods of operation





Ground pressure visualization

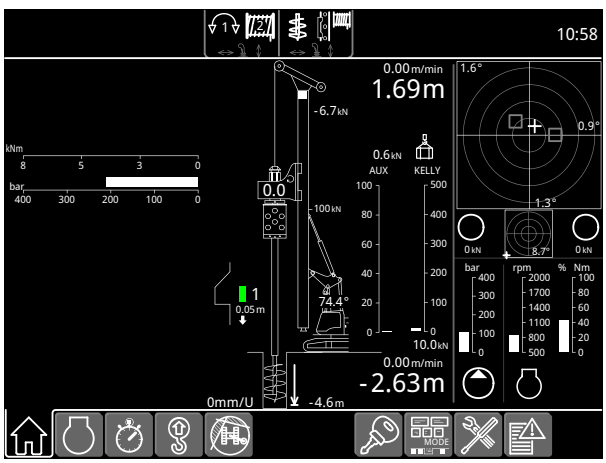




Features:
- The actual ground pressure is calculated in real time
- The maximum admissible ground pressure can be individually predefined
- The utilization is continuously calculated and displayed on the monitor in the operator's cabin
- Audible and visual warnings when the predefined values are approached

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 cabin

Kelly visualization

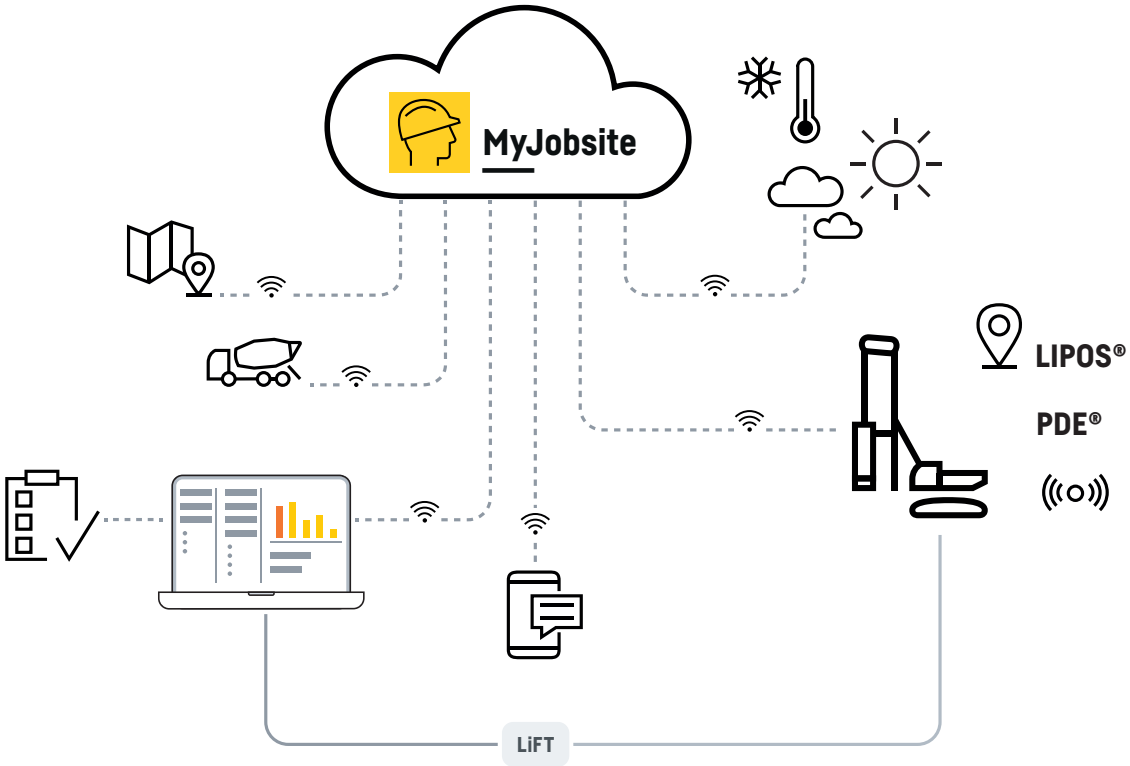


Your benefits:
- Time saving: the operator no longer needs to search for the interlocking recesses
- Higher availability: the machine needs less repair and maintenance work
- More safety: correct locking prevents damage to the Kelly bar
- Cost reduction: smooth operation results in higher performance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

All measurements displayed on this page are metric.

Digitalization in deep foundation work

As deep foundation expert, Liebherr has created a combination of the most diverse assistance systems and software solutions in order to record and evaluate complex processes and to be able to provide the corresponding evidence.



LIPOS - Liebherr positioning system
Using pre-installed components, LIPOS enables the direct integration of machine control systems from Trimble and Leica. 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.

PDE
All working processes can be electronically recorded and visualized using the process data recording system PDE. The system is operated and displayed on the PDE touchscreen in the operator's cab. PDE records operating data from the Litronic control system, as well as data from external sensors.

MyJobsite
Using the MyJobsite software solution all relevant process, machine, construction site and positioning data (LIPOS) can be recorded, displayed, analysed, managed and evaluated in one central location. The collected data can be accessed via a web browser when an internet connection is active.

With the recorded PDE data, such as the driving progress of the pile per blow, the total number of blows, or the impact frequency per minute, a driving protocol is automatically generated as proof of quality directly after completion of a work process. The parameters of the driving protocol can be defined and assigned in advance. Using the templates saves a lot of time when creating the protocols.

MyJobsite is THE tool for quality control and documentation. The deluge of data, which s accrued each day from a wide variety of sources on the jobsite, can be recorded precisely and processed in an informative manner. Unpopular bureaucratic work is kept to a minimum and the amount of time required for it is significantly reduced. At the same time, the quality of administration work is maximised.

Download datasheet

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