Piling and drilling rig

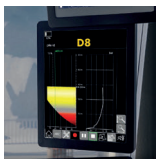
LRB 23

EN

LRB 2505.07

LIEBHERR

Concept and characteristics

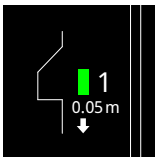


PDE®
Process Data Recording

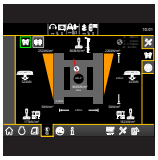
MyJobsite

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:

- 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	800 l 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 320 + 2x 320 l/min
for kinematics	166 l/min
Hydraulic oil tank capacity	725 l
Max. working pressure	400 bar
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	0-1.6 km/h
Track force	660 kN
Grousers	3-web grousers, width 800 mm (option 700 mm)
Undercarriage type 225	
Drive speed	0-1.65 km/h
Track force	647 kN
Grousers	3-web grousers, width 800 mm (option 700 and 900 mm)

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	230 kN (1st layer)
Rope diameter	28 mm
Rope speed	0-80 m/min
Auxiliary winch	
Line pull effective	50 kN (3rd layer)
Swing range	left 180°, right 90°
Radius adjustment device	2045 mm
Rope diameter	17 mm
Rope speed	0-87 m/min

Crowd system

Crowd winch	
Crowd force	320/320 kN (push/pull)
Line pull effective	160 kN
Travel	20.0 m
Rope speed	0-88 m/min

Noise emission / vibration

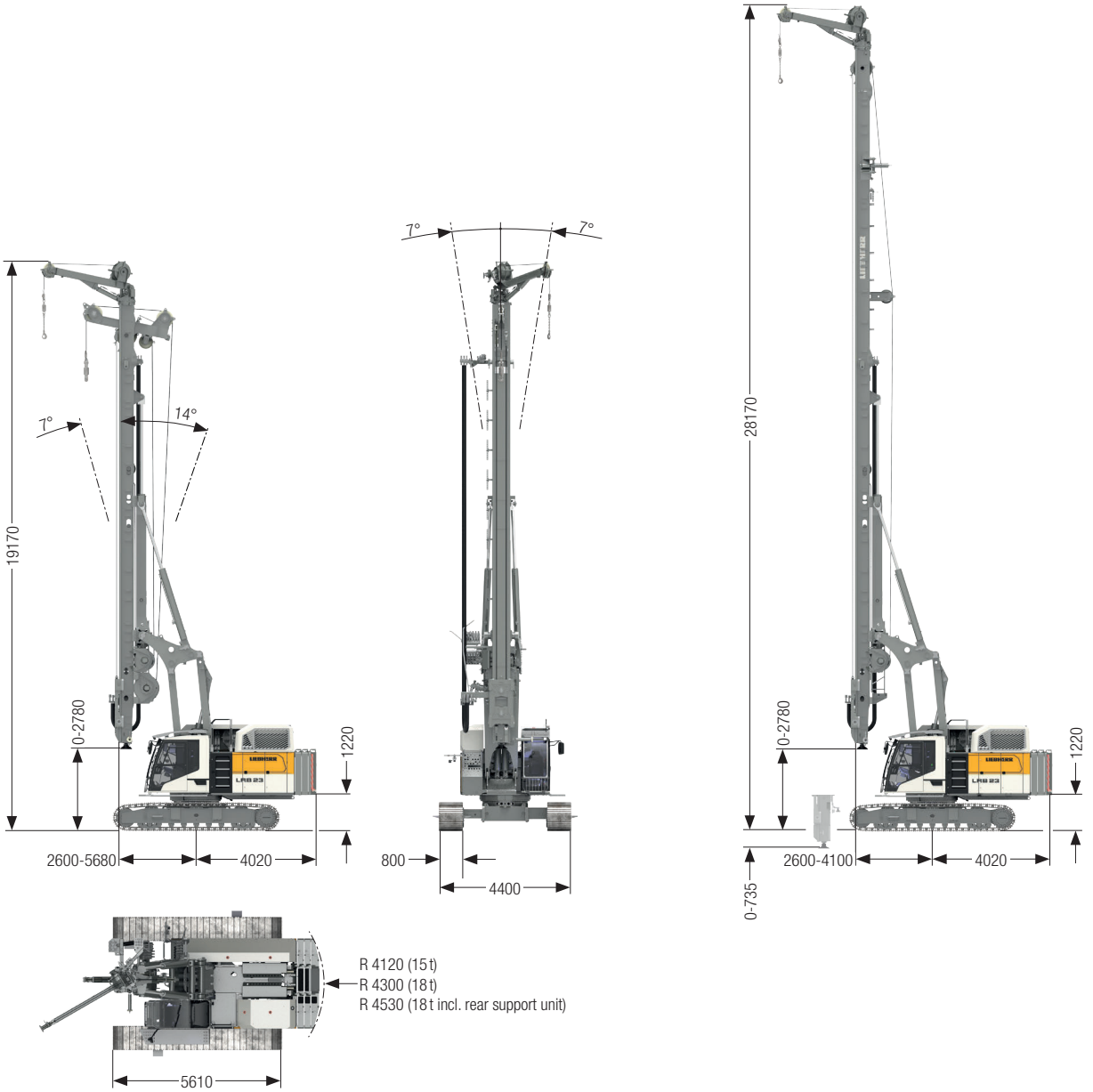
Noise emission	according to 2000/14/EC directive	
Emission sound pressure level L_{PA}	79 dB(A)	(in the cabin)
Guaranteed sound power level L_{WA}	110 dB(A)	(of the machine)
Vibration transmitted to the machine operator	< 2.5 m/s²	(to the hand-arm system)
	< 0.5 m/s²	(to the whole body)

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 weight

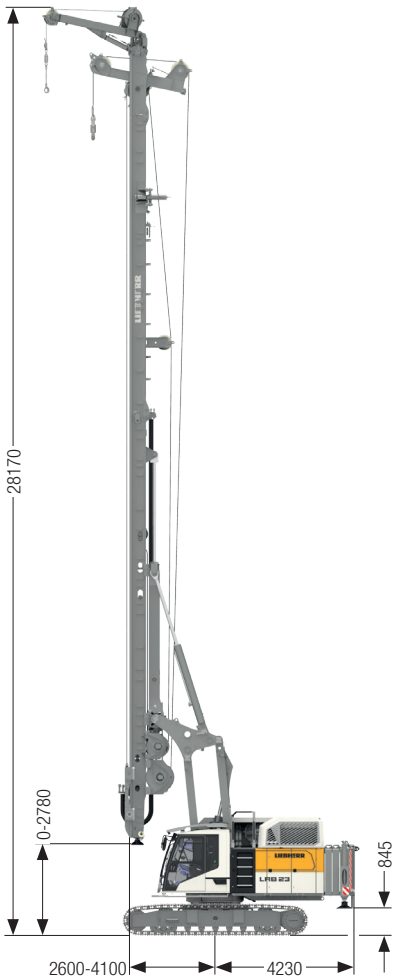
Total weight with 700 mm 3-web grousers	t	72.6
Total weight with 800 mm 3-web grousers	t	73.0

The operating weight includes the basic machine LRB 23 (ready for operation – incl. 20 % filling of diesel tank) with Kelly equipment and 15 t counterweight, without attachment.

Operating weight

Total weight with 700 mm 3-web grousers	t	72.9
Total weight with 800 mm 3-web grousers	t	73.3

The operating weight includes the basic machine LRB 23 (ready for operation – incl. 20 % filling of diesel tank) and 15 t counterweight, without attachment and Kelly equipment.

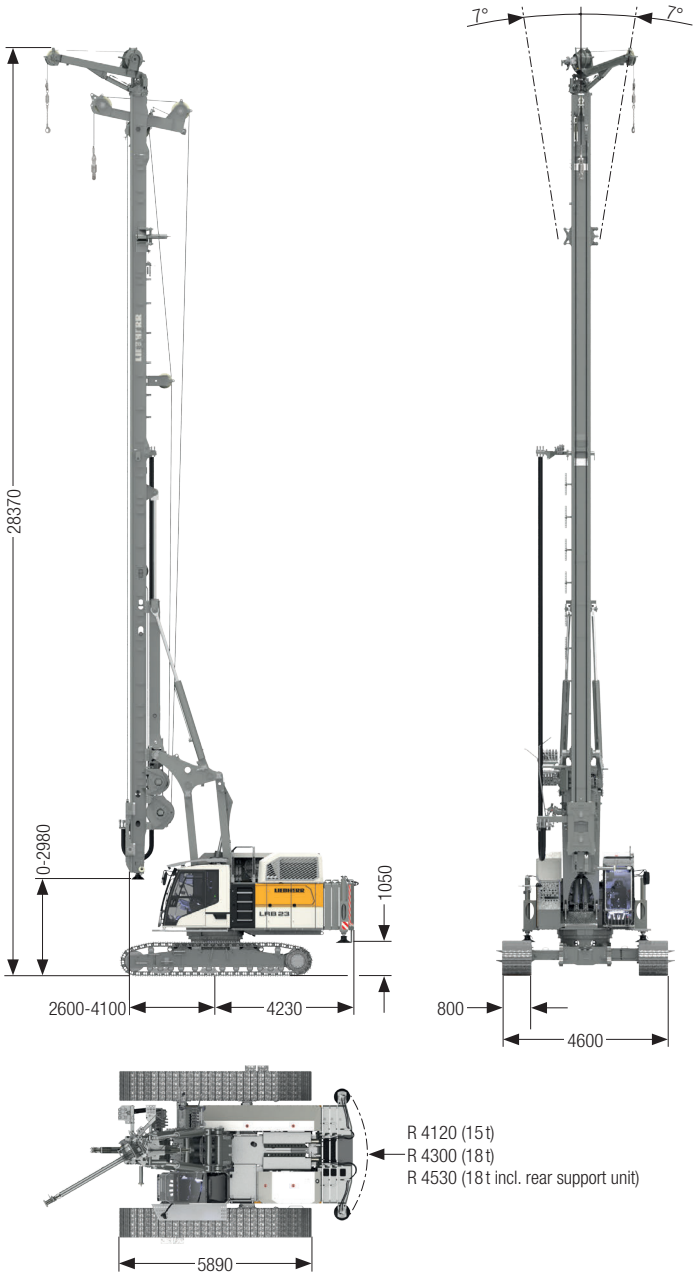


Operating weight

Total weight with 700 mm 3-web grousers	t	78.1
Total weight with 800 mm 3-web grousers	t	78.5

The operating weight includes the basic machine LRB 23 (ready for operation – incl. 20 % filling of diesel tank) with Kelly equipment and 18 t counterweight, without attachment.

Undercarriage type 225



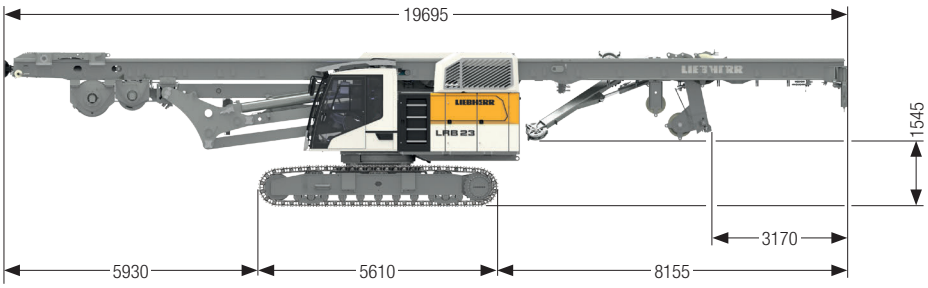
Operating weight

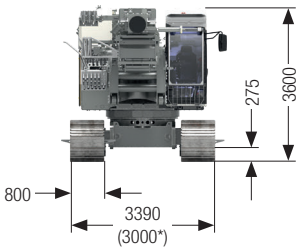
Total weight with 800 mm 3-web grousers	t	82.9

The operating weight includes the basic machine LRB 23 (ready for operation – incl. 20 % filling of diesel tank) with Kelly equipment and 18 t counterweight, without attachment.

Transport and weights

Undercarriage type 205

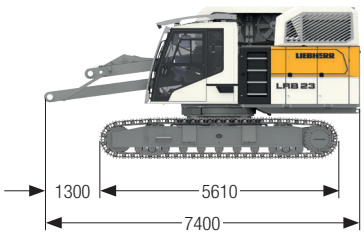


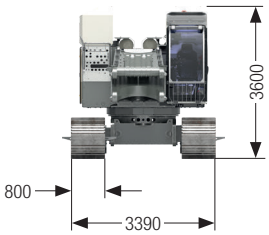


Operating weight

includes the basic machine LRB 23 (ready for operation – including 20 % filling of diesel tank) with Kelly equipment, without counterweight and attachment.	t	60.4
includes the basic machine LRB 23 (ready for operation – including 20 % filling of diesel tank) without counterweight, attachment and Kelly equipment.	t	58.2

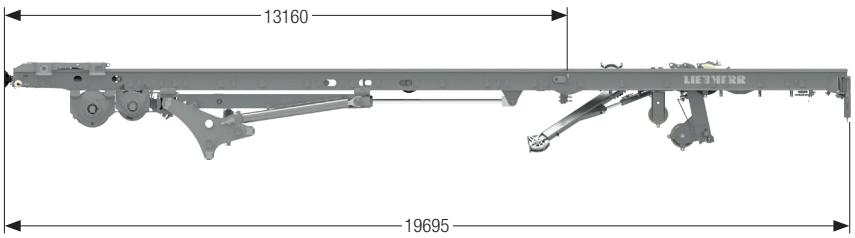
* Transport width with 700 mm grousers

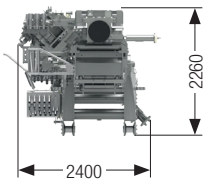




Basic machine

without counterweight and without adapter for casing oscillator	t	39.1





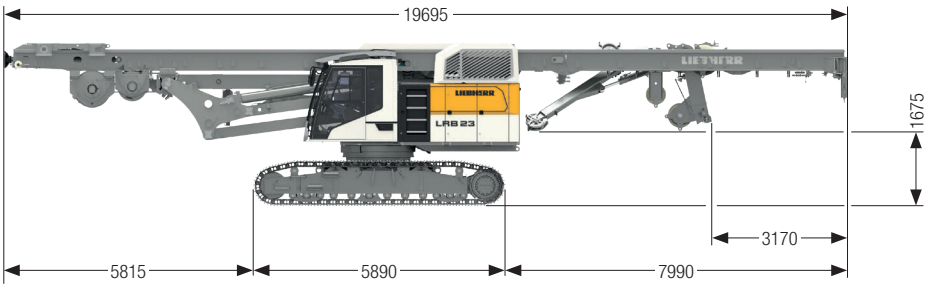
Leader

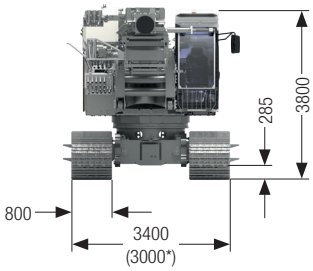
with Kelly equipment	t	21.3
without Kelly equipment	t	19.1

Options

Adapter for casing oscillator	t	0.8
Elevating working platform	t	0.9
Concrete supply line	t	0.5
All round platform with railings	t	0.4
Jack-up system	t	2.5

Undercarriage type 225

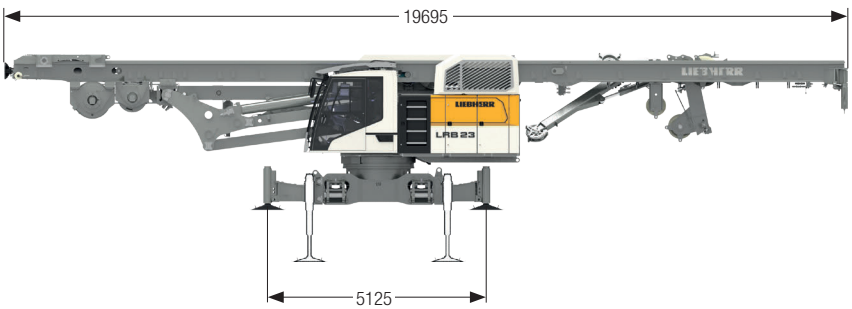


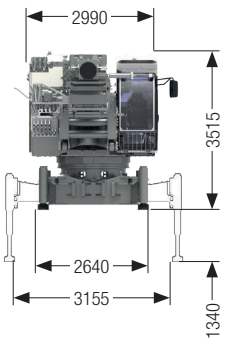


Operating weight

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	t	64.8

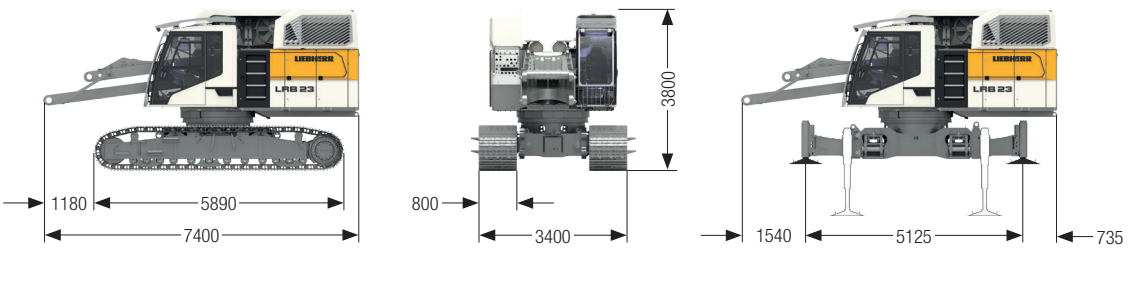
* Optional transport width with 700 mm grousers and non-detachable crawlers.
With this option, the transport weight is reduced by 2.2 t compared to the version with detachable crawlers.





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.	t	54.1

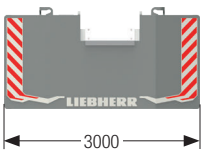


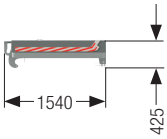
Basic machine

without counterweight, adapter for casing oscillator and without jack-up system	t	43.5

Basic machine

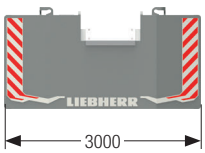
without counterweight and crawlers, with adapter for casing oscillator and with jack-up system	t	32.8

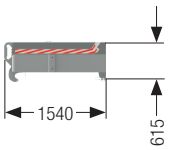




Rear counterweight

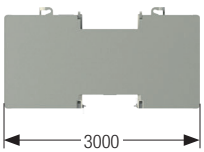
Weight	t	5.0

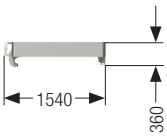




Rear counterweight

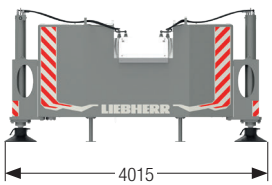
Weight	t	8.0

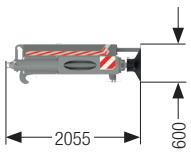




Intermediate counterweight

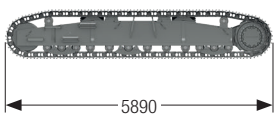
Weight	t	5.0

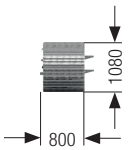




Rear counterweight with rear support unit

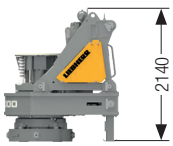
Weight	t	8.0

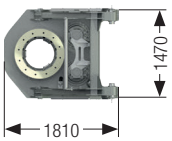




Crawler type 225

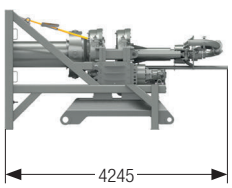
Weight	t	7.4

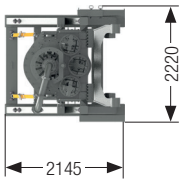




BAT 300

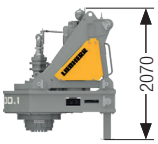
Weight	t	6.5

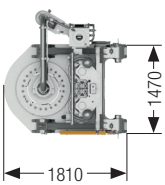




DBA 250

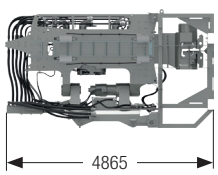
Weight	t	8.1

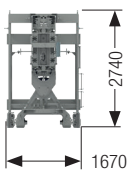




MAT 100.1

Weight	t	5.6



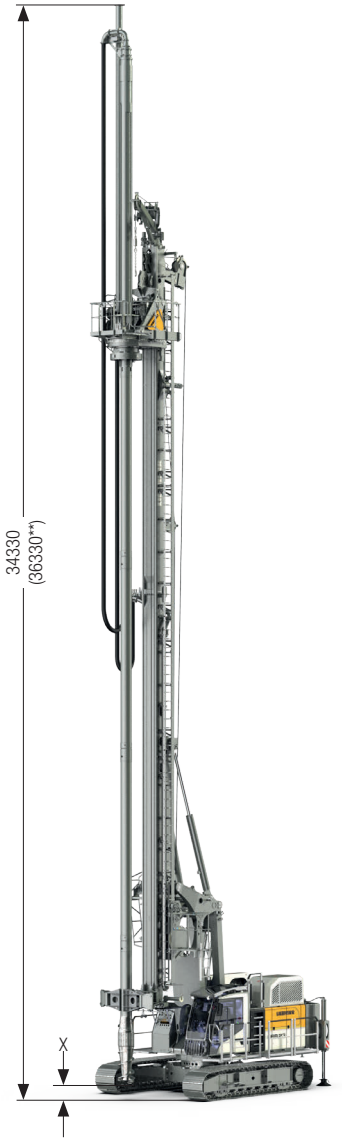


Vibrator slim design LV 36

Weight	t	12.2

Full displacement drilling

BAT 300



Performance data

Rotary drive - torque	kNm	300
Rotary drive - speed	rpm	0-46
Max. drilling depth	m	22.2
Drilling depth with 8 m Kelly extension	m	30.2
Drilling depth with 10 m Kelly extension	m	32.2
Max. pull force (crowd winch and Kelly winch)	kN	780
Max. drilling diameter*	mm	600

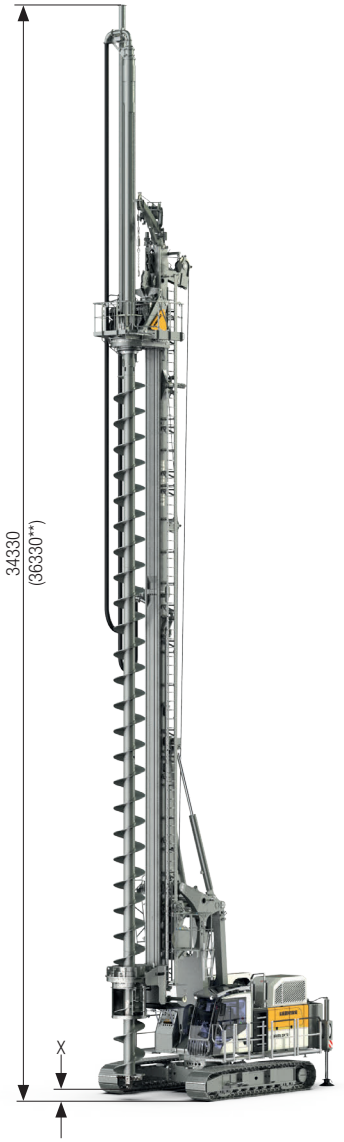
Above drilling depths are valid for the use of standard tools and for the X value of 530 mm (see above illustration).

* Other drilling diameters available on request

** With 10 m Kelly extension

Continuous flight auger drilling

BAT 300



Performance data

Rotary drive - torque	kNm	300
Rotary drive - speed	rpm	0-46
Max. drilling depth	m	21.6
Drilling depth with 8 m Kelly extension	m	29.7
Drilling depth with 10 m Kelly extension	m	31.7
Max. pull force (crowd winch and Kelly winch)	kN	780
Max. drilling diameter*	mm	1200

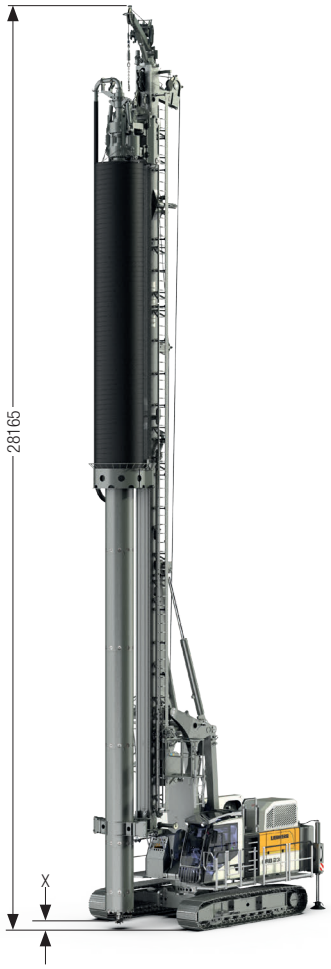
Above drilling depths take into account that an auger cleaner is used and the cardan joint has been removed.
Above drilling depths are valid for the use of standard tools and for the X value of 340 mm (see above illustration).

* Other drilling diameters available on request

** With 10 m Kelly extension

Double rotary drilling

DBA 250



Performance data

Rotary drive I - torque	kNm	0-247
Rotary drive I - speed	rpm	0-30
Rotary drive II - torque	kNm	0-113
Rotary drive II - speed	rpm	0-34
Max. drilling diameter*	mm	900
Max. pull force (crowd winch and Kelly winch)	kN	780
Max. drilling depth**	m	22.2

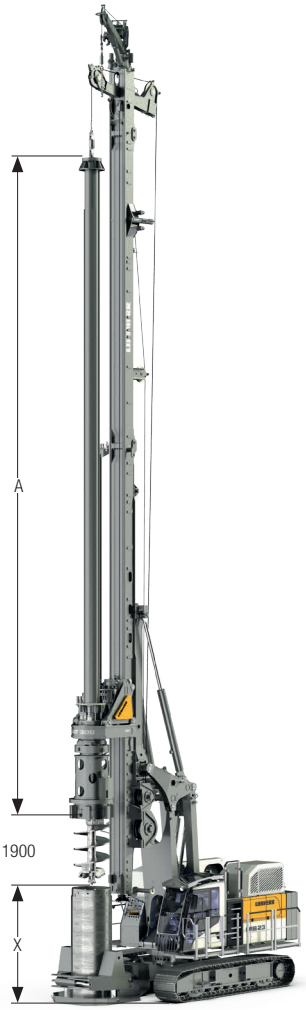
Above drilling depths are valid for the use of standard tools and for the X value of 520 mm (see above illustration).
Due to differences in the max. admissible load capacities, the combinations of drilling depth and drilling diameter may be limited.

* Other drilling diameters available on request

** When using a protective hose, the maximum drilling depth has to be reduced by 875 mm

Kelly drilling

BAT 300



Performance data

Rotary drive - torque	kNm	300
Rotary drive - speed	rpm	0-46
Max. drilling diameter uncased	mm	1900
Max. drilling diameter cased*	mm	1500
Max. drilling diameter below the leader	mm	2900

Other drilling diameters available on request.
When using a casing oscillator, value X has to be reduced by 1500 mm.
* Depends on the design of the casing driver

Kelly bars

	A	X	Drilling depth	Weight
	mm	m	m	t
28/3/24 SD	9885	12.4	24.1	5.3
28/3/27 SD	10885	11.4	27.1	5.8
28/3/30 SD	12040	10.2	30.1	6.4
28/3/33 SD	12885	9.4	33.1	6.7
28/3/36 SD	14040	8.2	36.1	7.3
28/4/24 SD	8450	13.8	24.3	5.5
28/4/30 SD	9940	12.3	30.1	6.8
28/4/36 SD	11450	10.8	36.2	7.7
28/4/42 SD	12950	9.3	42.1	8.7
28/4/48 SD	14450	7.8	48.2	9.6
28/4/54 SD	15950	6.3	54.2	10.6
28/4/60 SD	17450	4.8	60.2	11.6
28/4/66 SD	18950	3.3	66.3	11.7
28/4/72 SD*	20450	1.8	72.3	12.5

* Installation only possible with assist crane

Soil mixing

MAT 100.1

Performance data MAT 100.1

Rotary drive - torque	kNm	103
Rotary drive - speed	rpm	0-100
Max. mixing depth	m	22.4
Max. mixing diameter*	mm	1500

Above mixing depth is valid for the use of standard tools and for the X value of 300 mm (see above illustration).

* Other mixing diameters on request

Performance data 3MA 100

Rotary drive - torque	kNm	0-106
Rotary drive - speed	rpm	0-70
Swing range mixing drive	°	+/- 35
Centre-to-centre distance adjustable in steps of 56 mm	mm	600-880
Max. mixing depth	m	22.0

Above mixing depth is valid for the use of standard tools and for the X value of 700 mm (see above illustration).

BAT 300

Performance data BAT 300

Rotary drive - torque	kNm	300
Rotary drive - speed	rpm	0-46
Max. mixing depth	m	22.0
Mixing depth with 8 m Kelly extension	m	30.0
Mixing depth with 10 m Kelly extension	m	32.0
Max. mixing diameter*	mm	2900

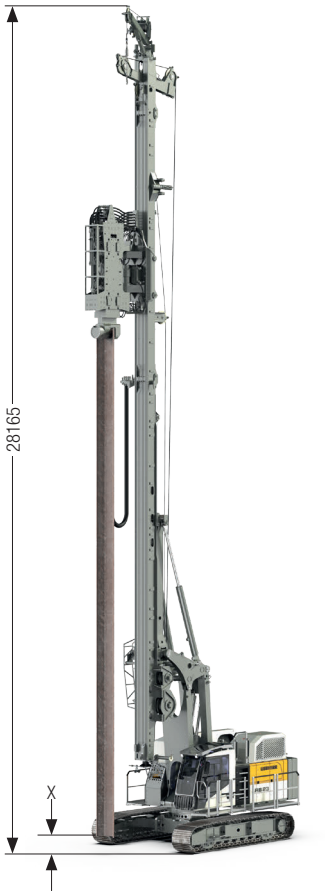
Above mixing depth is valid for the use of standard tools and for the X value of 705 mm (see above illustration).

* If the mixing diameter is 1900 mm or more the mixing paddle is always located below the leader. Other drilling diameters available on request

** With 10 m Kelly extension

Vibrator slim design

LV 36



Performance data

Static moment	kgm	0-36
Max. frequency	rpm	0-2200
Max. centrifugal force	kN	1910
Max. peak-to-peak amplitude with clamp	mm	11.4
Total weight without clamp	kg	9100
Dynamic weight with clamp	kg	6300
Max. pile length	m	22.0
Swing range vibrator	°	+/- 87
Vibrator width in piling axis	mm	560
Piling axis	mm	1700

Above pile length is valid for an X value of 500 mm (see above illustration).

Hydraulic hammer

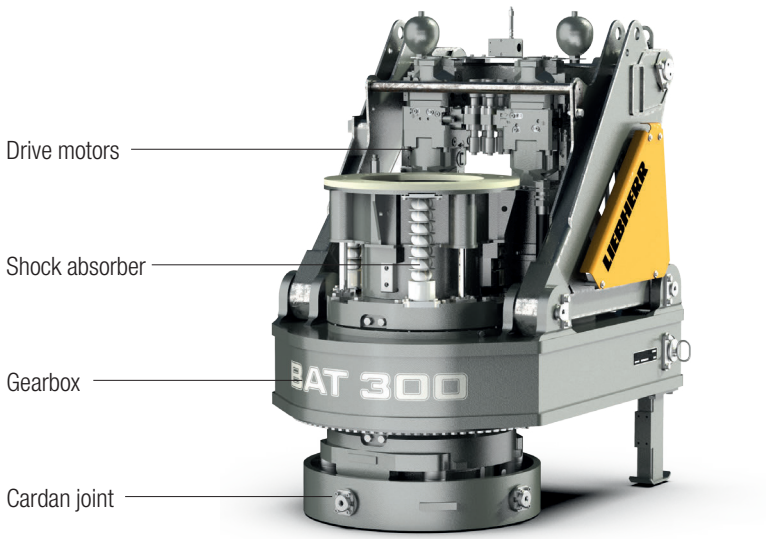
H 6

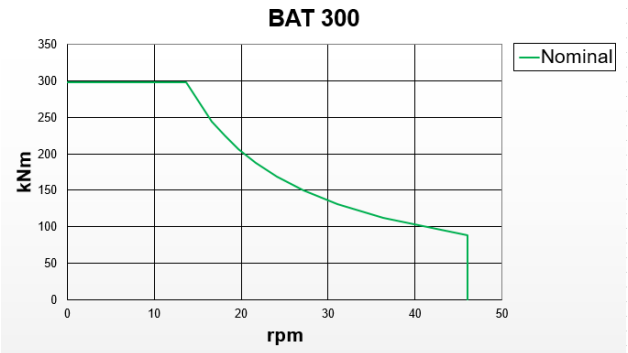
Performance data

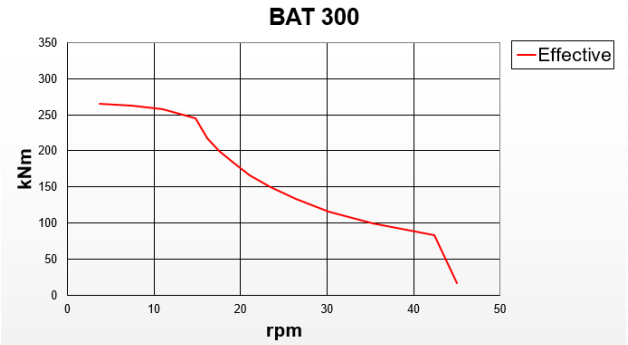
Drop weight (1x 3 t + 3x 1 t)	t	6
Max. rated energy	kNm	72
Blow rate max. energy	blows/min	50
Max. blow rate	blows/min	150
Total weight	kg	9000
Max. pile length	m	20.0
Pile winch*	kN	120

* Existing Kelly winch with limitation

BAT 300







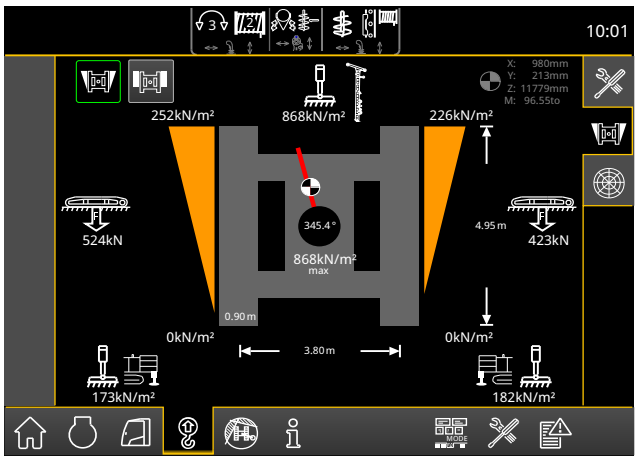
Kelly shock absorber:
- Newly developed Kelly shock absorber for highest demands
- Possibility of adjusting the strength of the Kelly shock absorber for different Kelly bar weights

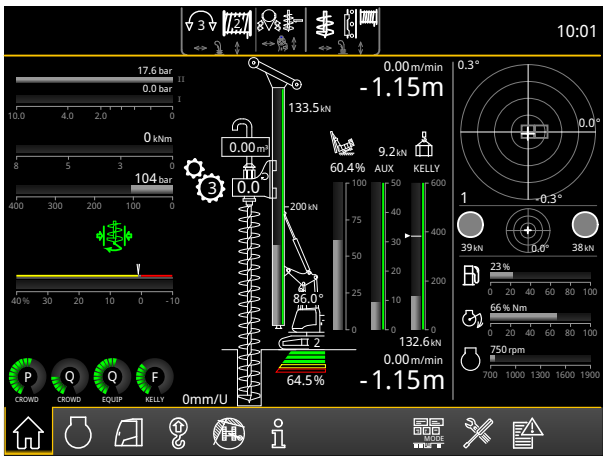
Automatic gearbox for best operating comfort:
- No stopping required to change gears
- No interruption of the drilling process
- Continuous optimization of speed

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

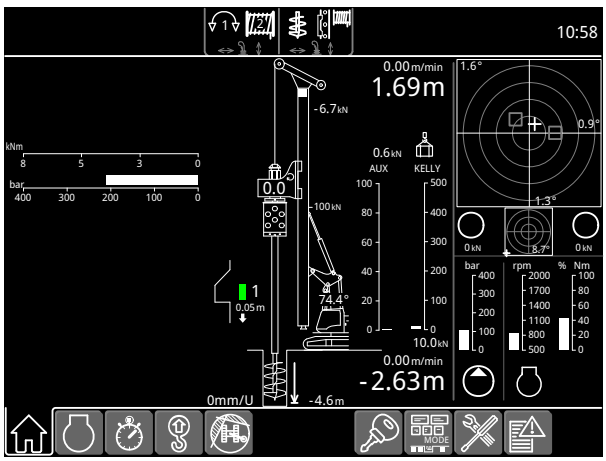




Features:
- The actual ground pressure is calculated in real time
- The maximum admissible ground pressure can be individually predefined
- The utilization is continuously calculated and displayed on the monitor in the operator's cab
- Audible and visual warnings when the predefined values are approached

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

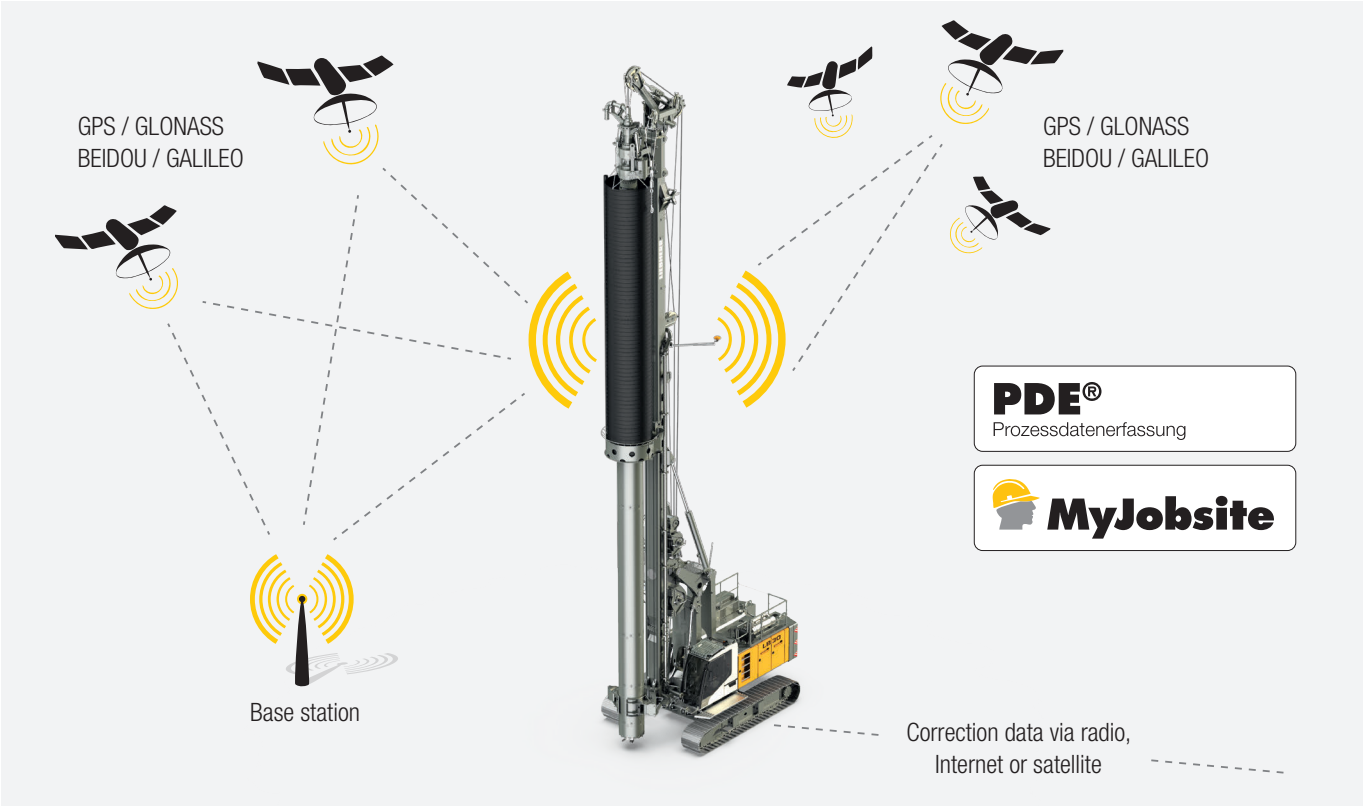
Kelly Visualization



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

LIPOS®

Liebherr Positioning System



DGNSS – Differential Global Navigation Satellite System

Further info

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

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.

www.liebherr.com

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