

Drilling Rig

LB 16 *unplugged*

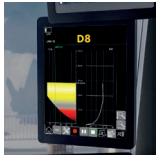
EN

LB 2001.99

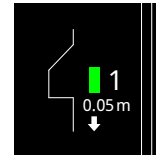


LIEBHERR

Concept and characteristics



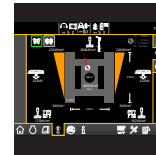
PDE[®]
Process Data Recording



Kelly
Visualization



MyJobsite



Ground
Pressure
Visualization



LIPOS[®]
Positioning System



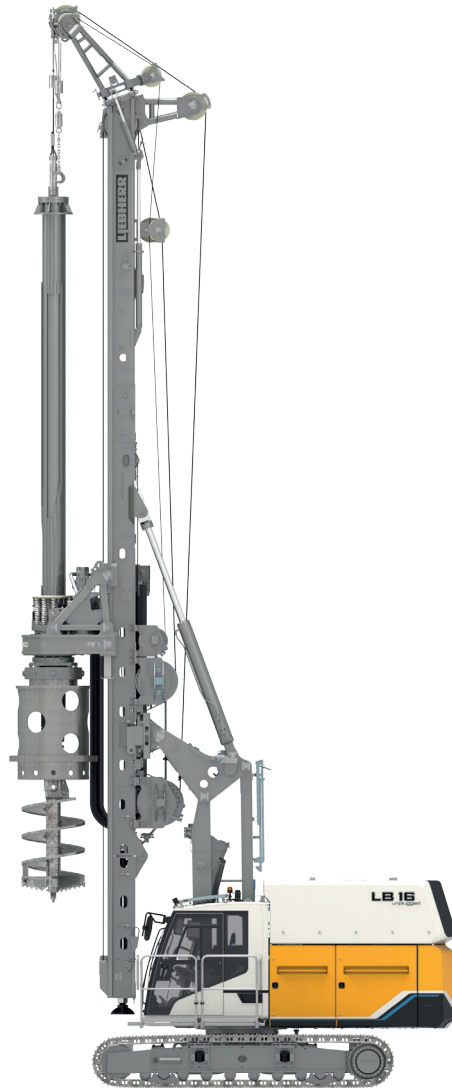
Radio remote
control



LiDAT[®]
Data Transmission



Concrete
pump



The robust universal machine for a wide variety of applications:

- Kelly drilling
- Continuous flight auger drilling
- Full displacement drilling
- Double rotary drilling
- Soil mixing

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
- 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



Drive system

System power	265 kW peak power
Battery type	High Performance Battery System
Technology	Li-Ion NMC (nickel manganese cobalt)
Max. charging power	40 kW (CEE socket 63 A/400 VAC) 20 kW (CEE socket 32 A/400 VAC) 80 kW (CEE socket 125 A/400 VAC)
Mains voltage	400 VAC (3 phase + N + PE)



Hydraulic system

Hydraulic pumps	
for attachments	2x 275 l
for kinematics	130 l
Hydraulic oil tank capacity	500 l
Max. working pressure	350 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
Drive speed	0-1.8 km/h
Track force	438 kN
Grousers	width 800 mm



Swing gear

Drive system	with fixed axial piston hydraulic motors, planetary gearbox, pinion
Swing ring	single row ball bearing with internal teeth and one swing drive
Brake	hydraulically released, spring-loaded multi-disc holding brake
Swing speed	0-3.3 rpm continuously variable



Kelly winch with freewheeling

Line pull effective	160 kN (2nd layer)
Rope diameter	24 mm
Rope speed	0-75 m/min



Kelly winch with freewheeling for Ultra Low Head

Line pull effective	110 kN (3rd layer)
Rope diameter	20 mm
Rope speed	0-91 m/min



Auxiliary winch

Line pull effective	50 kN (1st layer)
Rope diameter	14 mm
Rope speed	0-85 m/min



Crowd system

Crowd winch	
Crowd force	200/200 kN (push/pull)
Line pull effective	100 kN
Travel with standard leader between mechanical limit stops	12.1 m
Rope speed	0-90 m/min
Crowd cylinder for Ultra Low Head	
Crowd force	207/207 kN (push/pull)
Travel of cylinders	2.8 m
Feed rate (up/down)	16.8/13 m/min

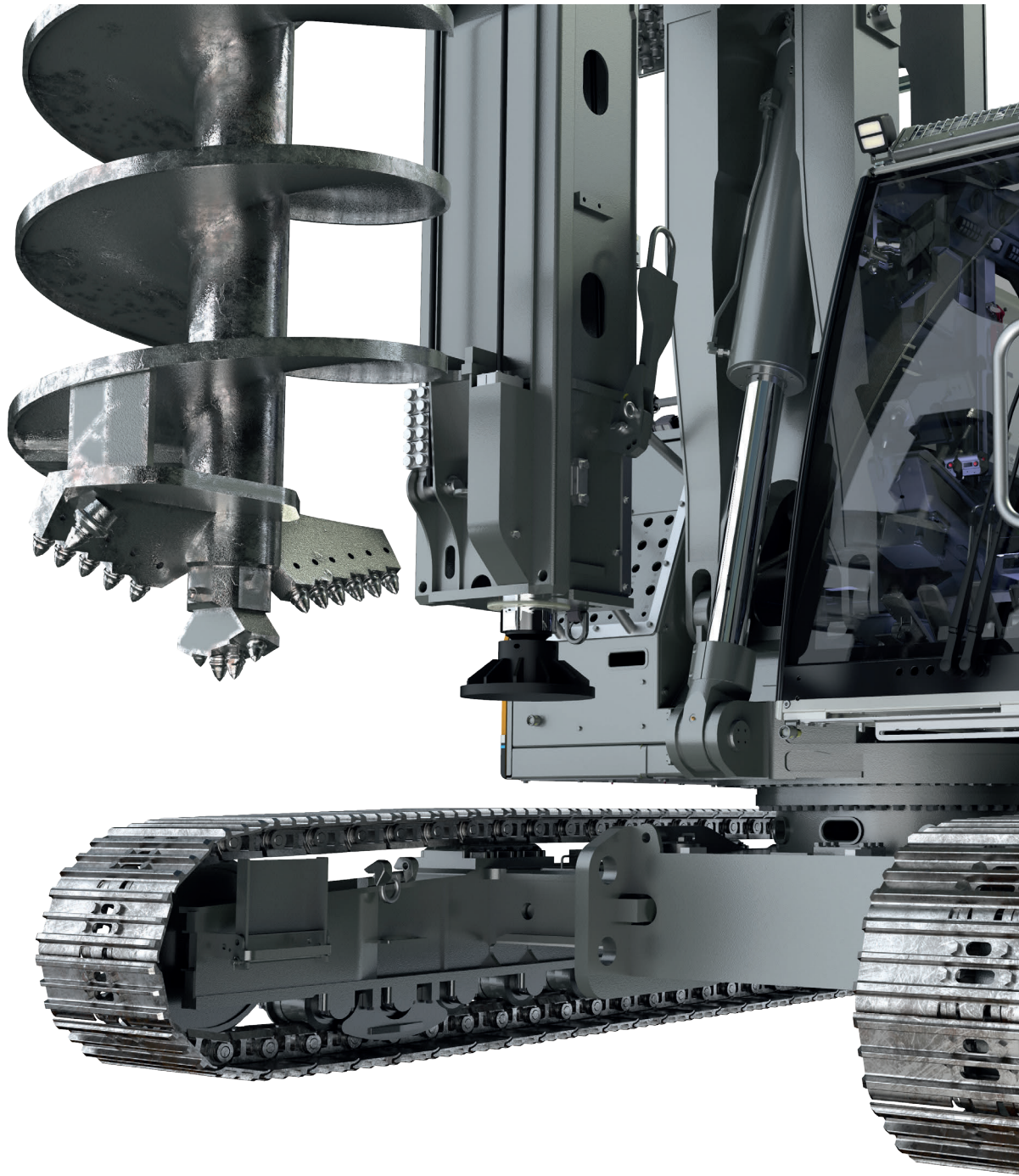


Noise emission / vibration

Noise emission	according to 2000/14/EC directive	
Emission sound pressure level L_{pA}	73.4 dB(A)	(in the cabin)
Guaranteed sound power level L_{WA}	104 dB(A)	(of the machine)
Vibration transmitted to the machine operator	< 2.5 m/s ²	(to the hand-arm system)
	< 0.5 m/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.





The first battery-powered drilling rig in the world

The brand-new Liebherr model does not only have an alternative drive concept, it can be operated by battery without a cable, therefore: unplugged.

Local zero emission

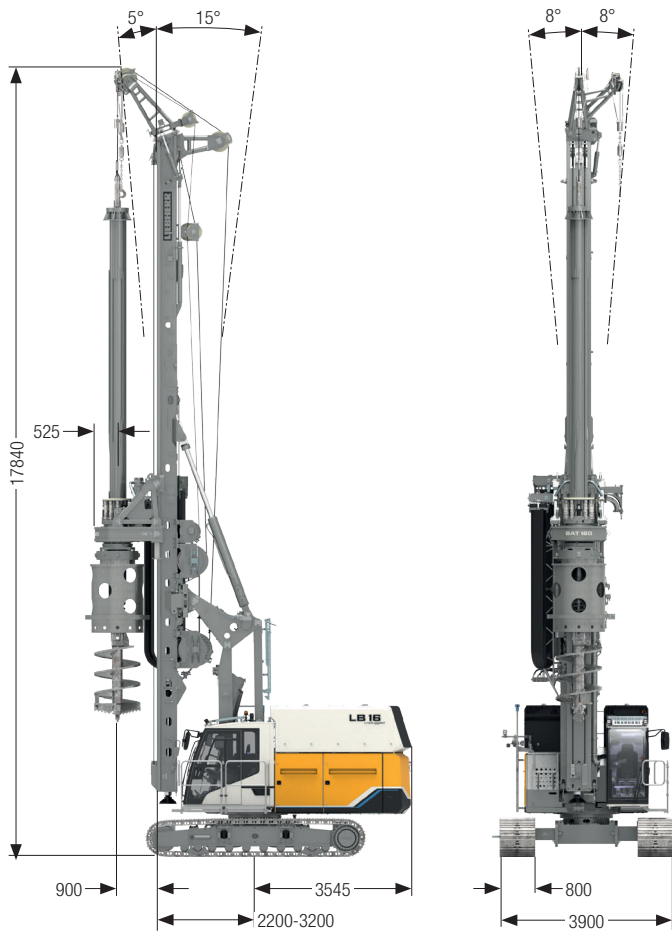
Liebherr is aware of its responsibility towards society and the environment and, with the LB 16 unplugged, strives for the best possible combination of environmental sustainability, customer benefit and efficiency.

Unplugged

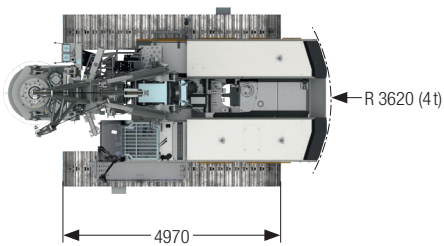
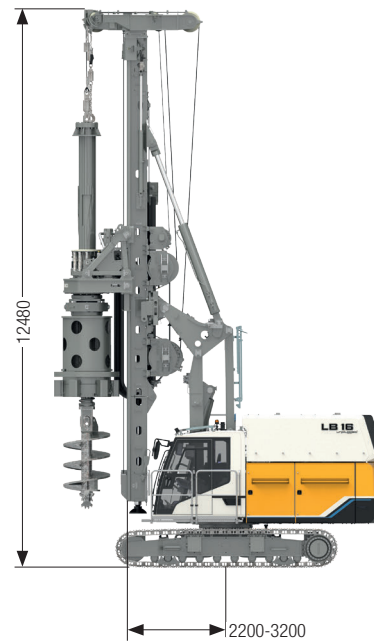
There are no restrictions in performance and application of the LB 16 unplugged when compared to the conventional version. The battery is designed for an operation time of 10 hours.

Dimensions

Standard leader



Low Head



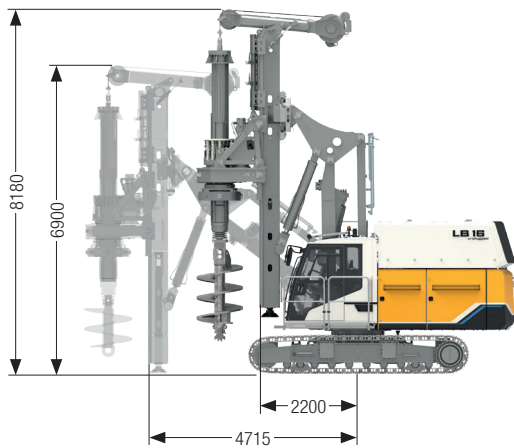
Operating weight

Total weight with 800 mm 3-web grousers t | 59.4
 The operating weight includes the basic machine LB 16 unplugged with rotary, Kelly bar 20/3/24, 4 t counterweight and equipment for casing oscillator.

Operating weight

Total weight with 800 mm 3-web grousers t | 57.1
 The operating weight includes the basic machine LB 16 unplugged with rotary, Kelly bar 20/3/15 and 4 t counterweight. Equipment for casing oscillator not included.

Ultra Low Head

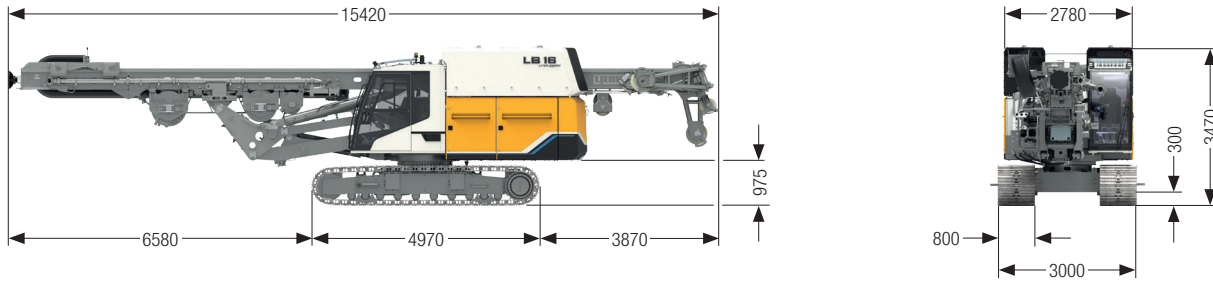


Operating weight

Total weight with 800 mm 3-web grousers t | 51.5

The operating weight includes the basic machine LB 16 unplugged with rotary, Kelly bar 16/3/10 and 4t counterweight. Equipment for casing oscillator not included.

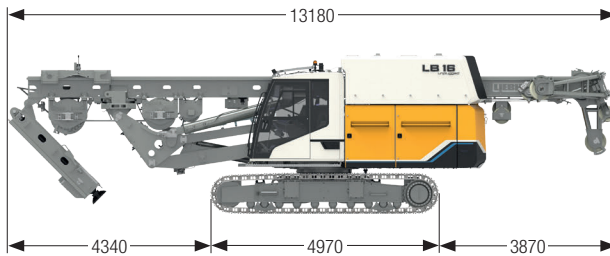
Transport dimensions and weights



Standard leader

includes the basic machine (ready for operation) with leader and counterweight, without attachments (such as rotary, Kelly bar etc.) and without adapter for casing oscillator

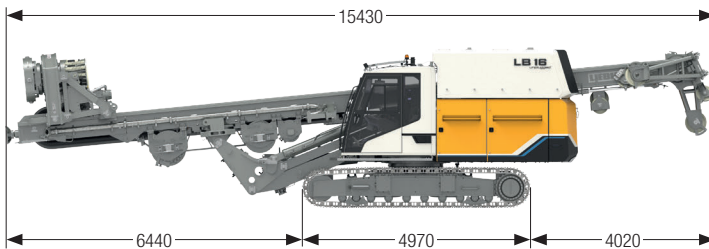
t 48.2



Standard leader with leader lower part folded

includes the basic machine (ready for operation) with leader and counterweight, without attachments (such as rotary, Kelly bar etc.) and without adapter for casing oscillator

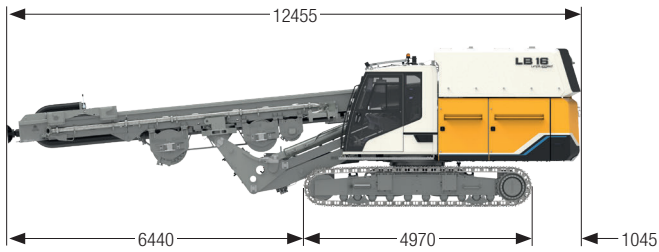
t 48.2



Standard leader with BAT

includes the basic machine (ready for operation) with leader, BAT and counterweight, without adapter for casing oscillator

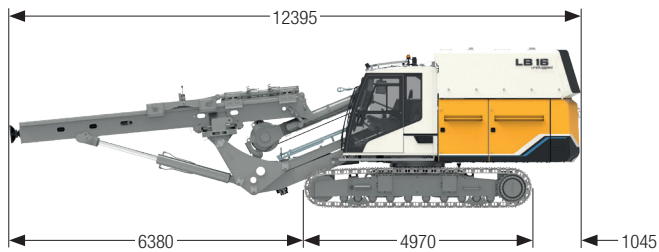
t 53.3



Low Head

includes the basic machine (ready for operation) with leader and counterweight, without attachments (such as rotary, Kelly bar etc.) and without adapter for casing oscillator; leader top (1.3 t) must be removed for transportation

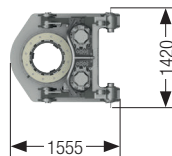
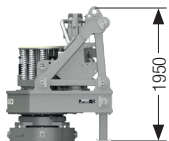
t 46.4



Ultra Low Head

includes the basic machine (ready for operation) with leader and counterweight, without attachments (such as rotary, Kelly bar etc.) and without adapter for casing oscillator

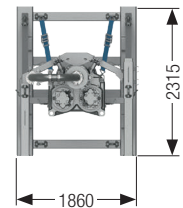
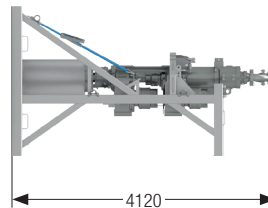
t 42.6



BAT 180

Transport weight

t 5.1



DBA 90

Transport weight

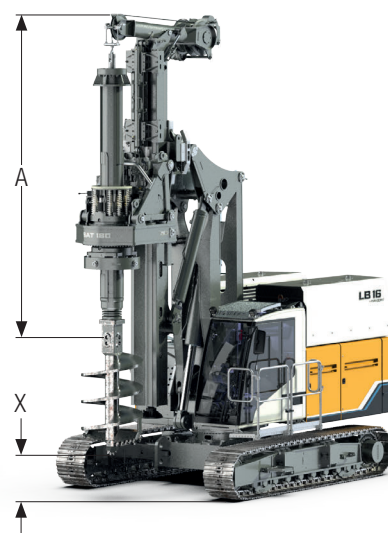
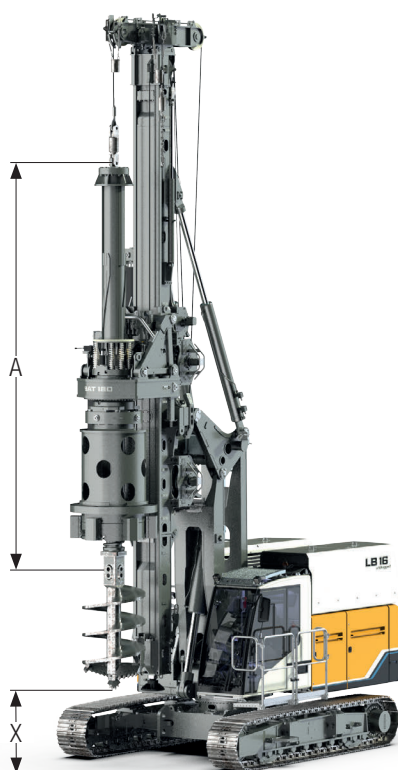
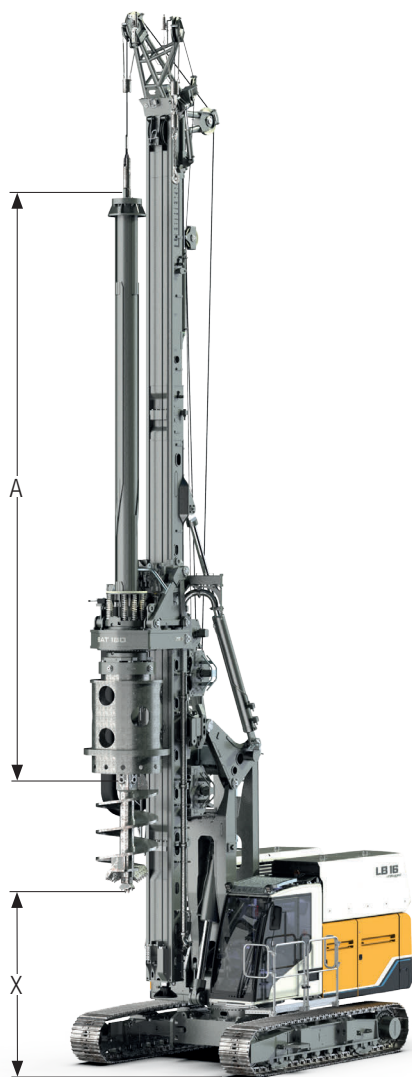
t 5.7

Kelly drilling

Standard

Low Head

Ultra Low Head



Performance data

Rotary drive - torque	kNm	180
Rotary drive - speed	rpm	52
Max. drilling diameter cased*	mm	1200
Max. drilling diameter uncased	mm	1500

Above applications are sample illustrations.

Other drilling diameters available on request.

* Depends on the design of the casing driver.

Drilling depths

Technical data Kelly bars

Kelly bars			Drilling depths					
Model	Length A [mm]	Weight [t]	Ultra Low Head		Low Head		Standard	
			X [m]	Depth [m]	X [m]	Depth [m]	X [m]	Depth [m]
16/3/10	4900	2.3	1.2 ¹	8.8 ¹	-	-	-	-
16/4/13	4765	2.7	1.3	11.7	-	-	-	-
20/2/18	10500	3.6	-	-	-	-	3.0	16.8
20/3/15	7150	3.2	-	-	0.9 ¹	13.8 ¹	6.3	13.8
20/3/18	7800	3.4	-	-	0.3 ¹	16.8 ¹	5.7	16.8
20/3/21	8950	4.0	-	-	-	-	4.5	19.8
20/3/24	9950	4.4	-	-	-	-	3.5	22.8
20/3/27	10800	4.6	-	-	-	-	2.7	25.8
20/3/30	11800	4.9	-	-	-	-	1.7	28.8
20/3/33	12800	5.2	-	-	-	-	0.7 ¹	31.8 ¹
20/4/36	11265	6.2	-	-	-	-	2.2	34.8

¹ Installation only possible using auxiliary equipment

Other Kelly bars available on request

When using a casing oscillator, value X has to be reduced by 1200 mm.

When working at maximum radius value X is reduced by 1200 mm and the drilling depth increases by 1200 mm.

Continuous flight auger drilling

Standard



Performance data

Rotary drive - torque	kNm	180
Rotary drive - speed	rpm	52
Max. drilling diameter*	mm	800
Drilling depth without Kelly extension	m	10.6
Max. pull force	kN	360

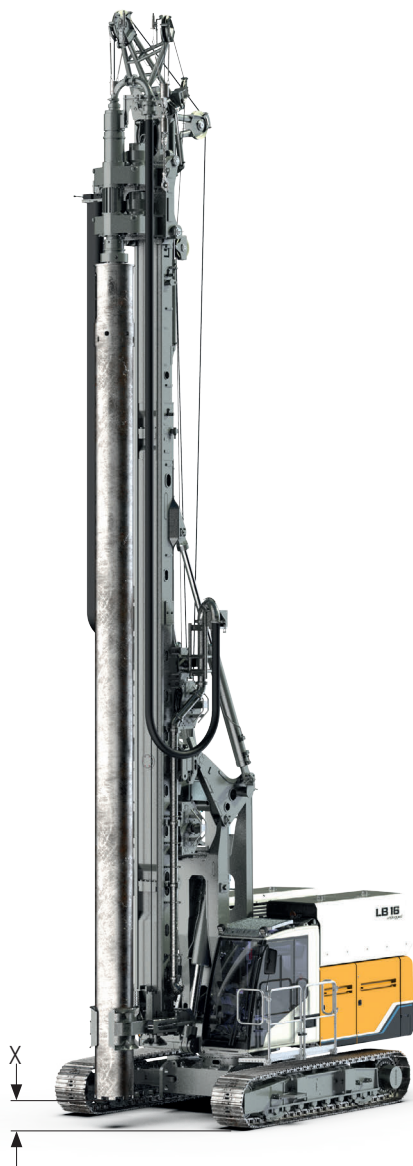
Above drilling depths take into account that an auger cleaner is used and the cardan joint has been removed.

Above drilling depths are valid for the use of standard tools and for the X value of 550 mm (see above illustration).

* Other drilling diameters available on request

Double rotary drilling

DBA 90



Performance data

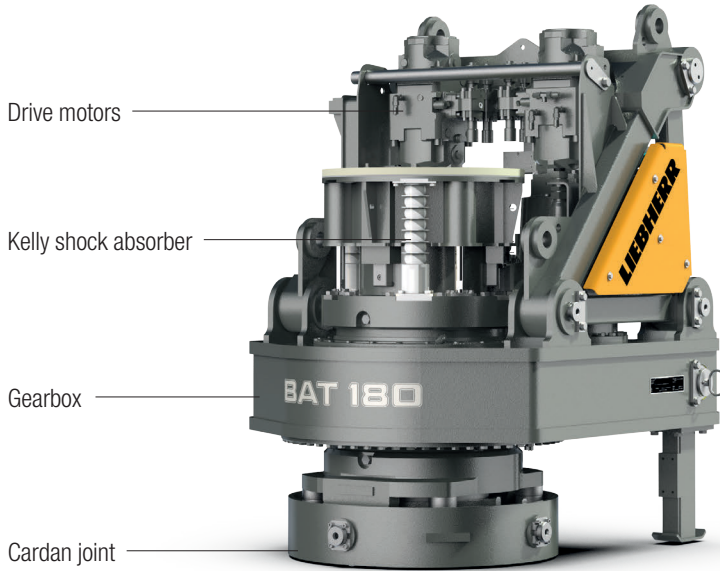
Rotary drive I - torque	kNm	0-90
Rotary drive I - speed	rpm	0-32
Rotary drive II - torque	kNm	0-68
Rotary drive II - speed	rpm	0-44
Max. drilling diameter*	mm	508
Drilling depth	m	11.5
Max. pull force	kN	360

Above drilling depths are valid for the use of standard tools and for the X value of 575 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

BAT 180



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:

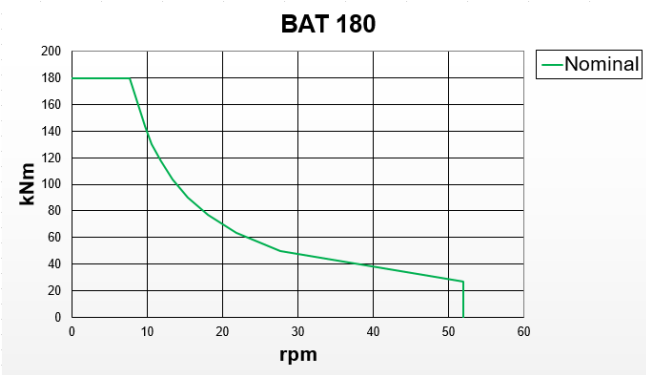
- No stopping required to change gears
- No interruption of the drilling process
- Continuous optimization of speed

Highest availability through easy set-up:

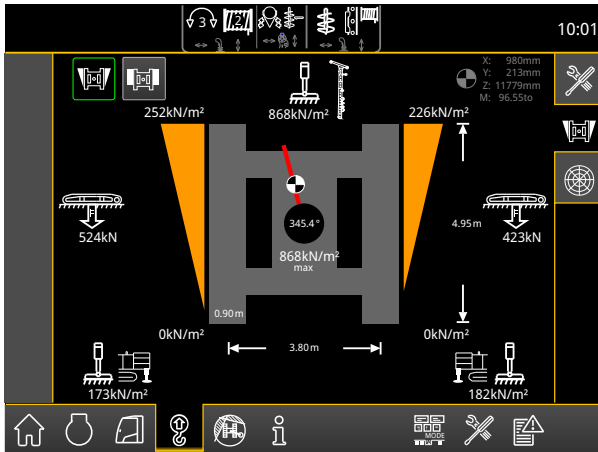
- No mechanical shift gearbox
- Low maintenance requirements

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

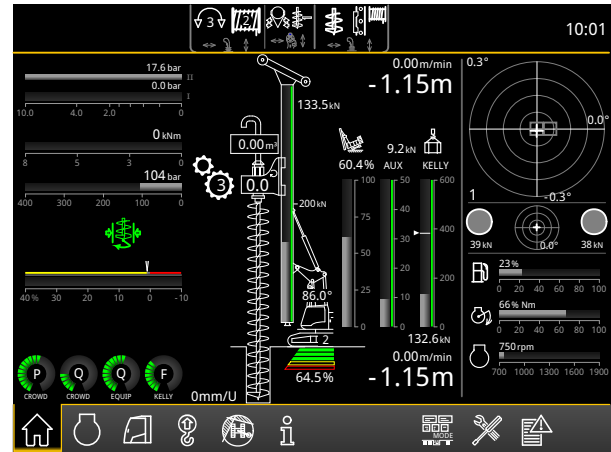


Ground Pressure Visualization



Features:

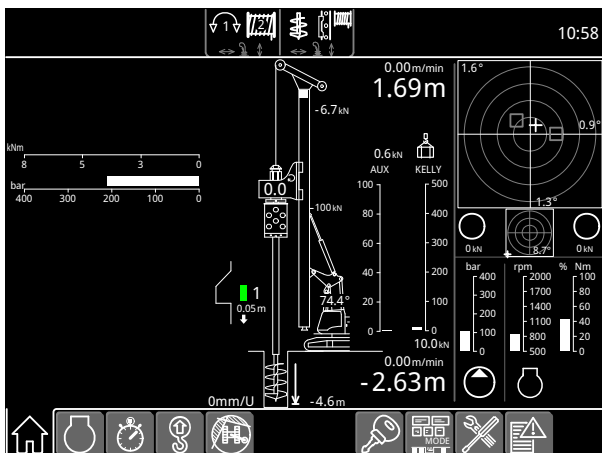
- The actual ground pressure is calculated in real time
- The maximum admissible ground pressure can be individually predefined
- The utilization is continuously calculated and displayed on the monitor in the operator's cab
- Audible and visual warnings when the predefined values are approached



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

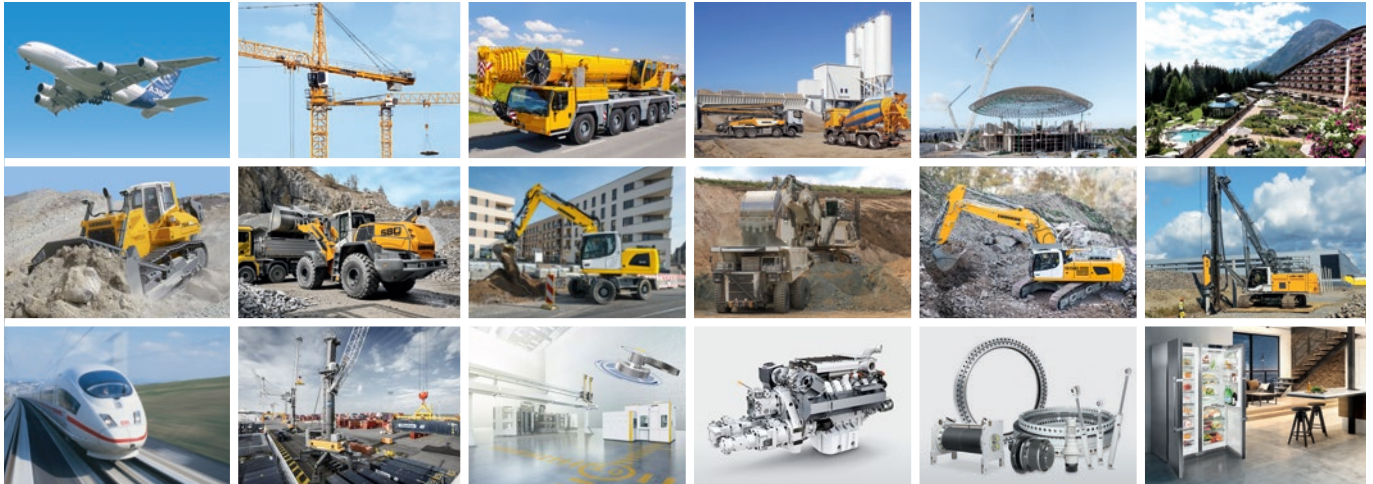
Kelly Visualization



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

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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