

EN-US



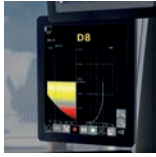
LB 30 unplugged

LB 2103.07
www.liebherr.com

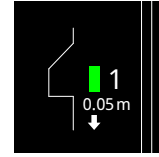
LIEBHERR

Drilling rigs

Concept and characteristics



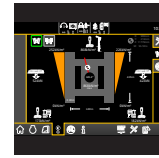
PDE[®]
Process Data Recording



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

Max. drive power	390 kW
Battery type	High Performance Battery System
Technology	Li-Ion NMC (nickel manganese cobalt)
Max. charging power	40 kW (CEE socket 63 A / 400 V AC) 20 kW (CEE socket 32 A / 400 V AC)
Option	80 kW (CEE socket 125 A / 400 V AC)
Mains voltage	400 V AC (3 phase + N + PE)
Capacity	standard 4 h*

* in normal operation



Hydraulic system

Hydraulic pumps	double axial displacement pump in open loop hydraulic system allows all functions to be operated simultaneously; automatic working pressure cut-off to minimize peak pressure
Hydraulic oil tank capacity	159 gal
Max. working pressure	5,584 PSI
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	0-0.83 mph
Track force	149,498 lbf
Grousers	width 31.5 inch



Swing gear

Drive system	with fixed axial piston hydraulic motor, planetary gearbox, pinion
Swing ring	roller bearing with external teeth
Brake	hydraulically released, spring-loaded multi-disc holding brake
Swing speed	0-3.75 rpm continuously variable
Speed control	both swing modes are possible - speed control or free swing for speed control: a multi-disc holding brake locks automatically at zero swing motion



Kelly winch with freewheeling

Line pull effective	51,706 lbf (1st layer)
Rope diameter	26 mm
Rope speed	0-262 ft/min



Auxiliary winch

Line pull effective	17,985 lbf (1st layer)
Rope diameter	20 mm
Rope speed	0-271 ft/min



Crowd system

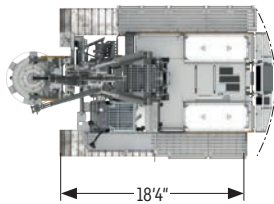
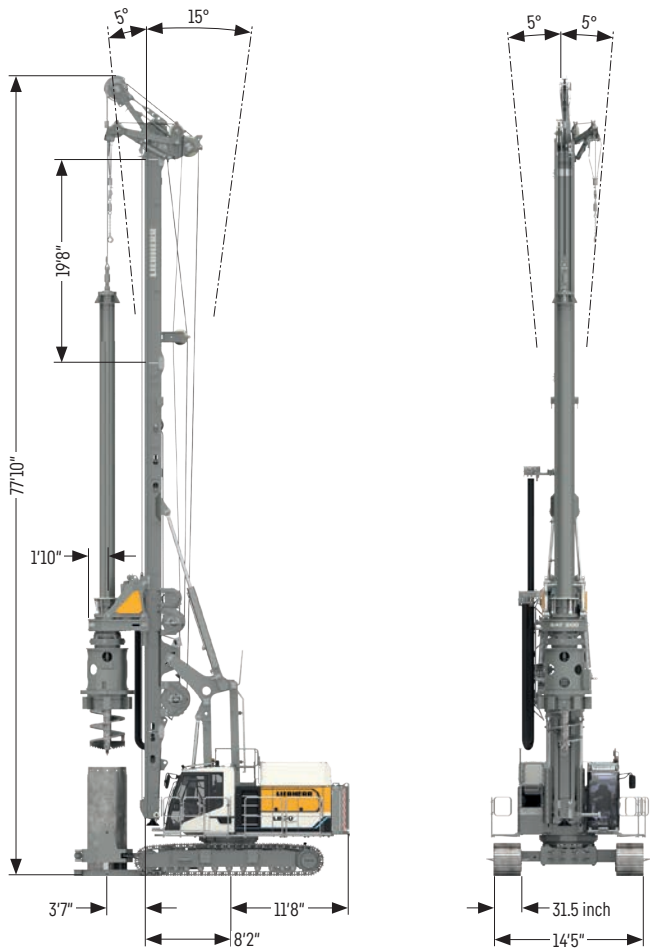
Crowd force	71,939/71,939 lbf (push/pull)
Line pull effective	35,969 ft (1st layer)
Rope diameter	24 mm
Travel with standard leader between mechanical limit stops	56.8 ft
Rope speed	0-289 ft/min

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.

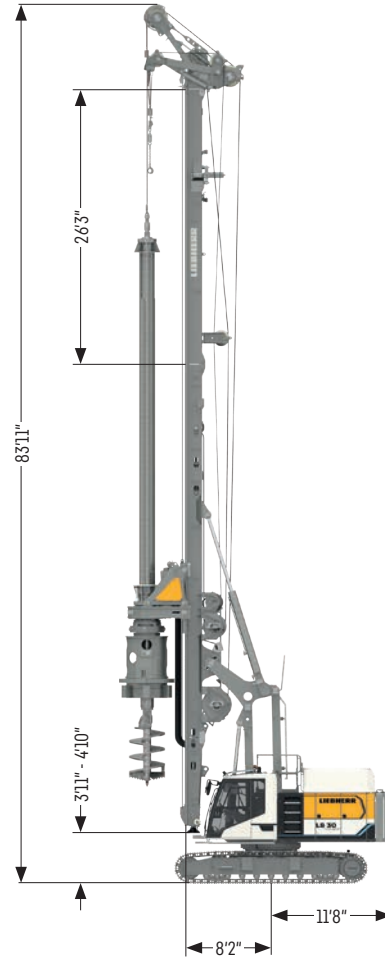
Dimensions

Standard



- R 11'10" (17,637 lbs)
- R 12'0" (22,046 lbs)
- R 14'2" (28,660 lbs incl. rear support unit)

Folding leader



Operating weight

Total weight with 27.6 inch 3-web grousers	lbs 176,149
Total weight with 31.5 inch 3-web grousers	lbs 176,590

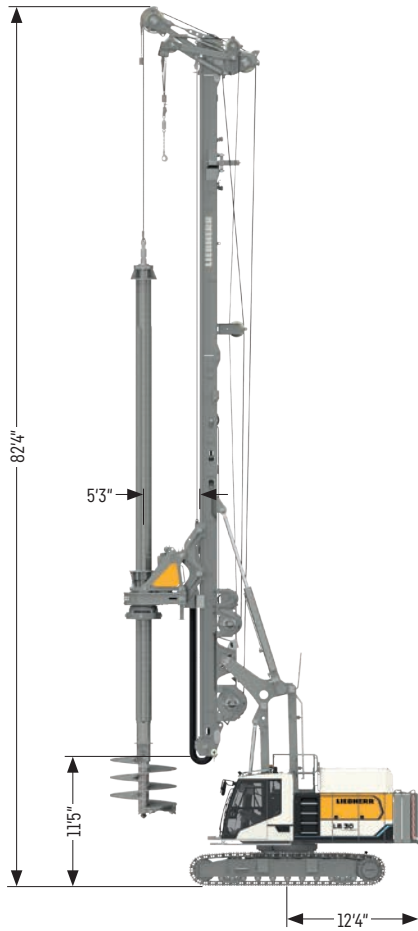
The operating weight includes the basic machine LB 30 unplugged with rotary and Kelly bar 28/3/30, 22,046 lbs counterweight and equipment for casing oscillator.

Operating weight

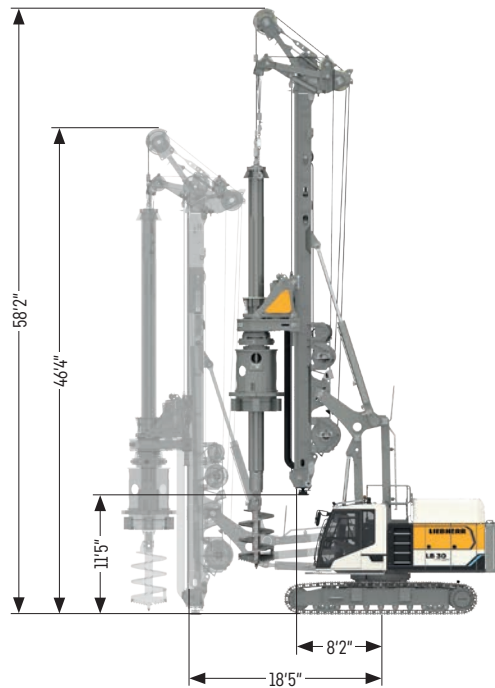
Total weight with 27.6 inch 3-web grousers	lbs 180,117
Total weight with 31.5 inch 3-web grousers	lbs 181,000

The operating weight includes the basic machine LB 30 unplugged with rotary, Kelly bar 28/4/42 and 22,046 lbs counterweight. Equipment for casing oscillator not included.

Folding leader



Low Head



Operating weight

Total weight with 27.6 inch 3-web grousers	lbs 187,613
Total weight with 31.5 inch 3-web grousers	lbs 188,495

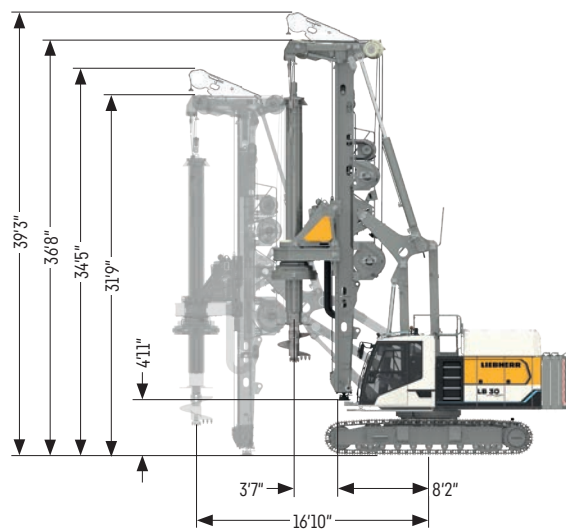
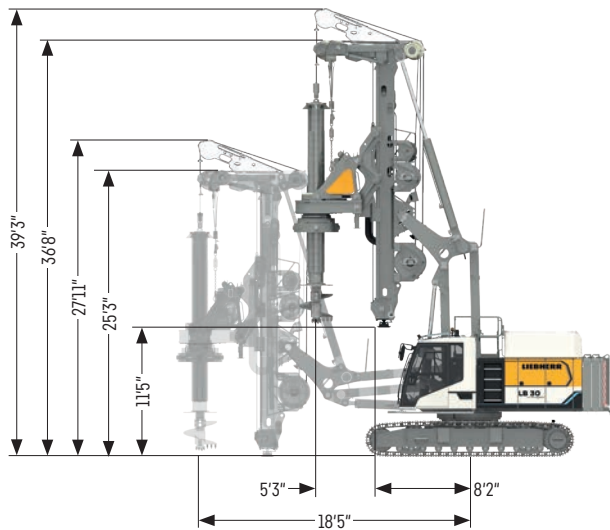
The operating weight includes the basic machine LB 30 unplugged with rotary, Kelly bar 28/4/42 and 28,660 lbs counterweight. Equipment for casing oscillator not included.

Operating weight

Total weight with 27.6 inch 3-web grousers	lbs 166,449
Total weight with 31.5 inch 3-web grousers	lbs 167,331

The operating weight includes the basic machine LB 30 unplugged with rotary, Kelly bar 28/3/24 and 22,046 lbs counterweight. Equipment for casing oscillator not included. The line pull of the Kelly winch is reduced to 22,484 lbf when working at a radius exceeding 12.3 ft.

Ultra Low Head



Operating weight

Total weight with 27.6 inch 3-web grousers	lbs 178,354
Total weight with 31.5 inch 3-web grousers	lbs 179,236

The operating weight includes the basic machine LB 30 unplugged with rotary and Kelly bar 28/3/30, 39,683 lbs counterweight and equipment for casing oscillator.

Operating weight

Total weight with 27.6 inch 3-web grousers	lbs 177,472
Total weight with 31.5 inch 3-web grousers	lbs 178,354

The operating weight includes the basic machine LB 30 unplugged with rotary, Kelly bar 28/4/42 and 39,683 lbs counterweight. Equipment for casing oscillator not included.

Local zero emission

Emission-free

The new machines with alternative electro-hydraulic drive have a very low noise level and are also emission-free. That is a huge advantage in areas sensitive to noise and also for the people working on the jobsite.

Operation

The LB 30 unplugged can be operated both connected to the power supply (plugged in) or powered by battery (unplugged).

Sustainability

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





Plugged in

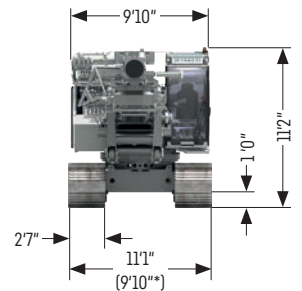
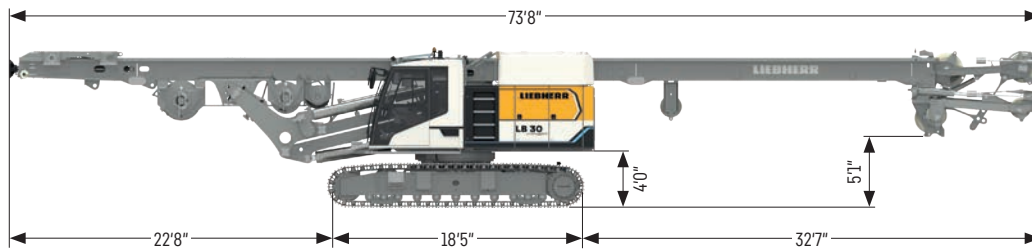
When connected to the power supply, there are no restrictions in performance and application of the machine when compared to the conventional version with diesel engine. The battery is constantly charged when connected to the power supply and therefore always provides sufficient energy.



Unplugged

In Kelly application, the battery is designed for an operating time of 4 hours. It can be simply recharged using a conventional jobsite electric supply (32 A, 63 A). Using a 125 A supply, the battery can be fast-charged in barely 5 hours.

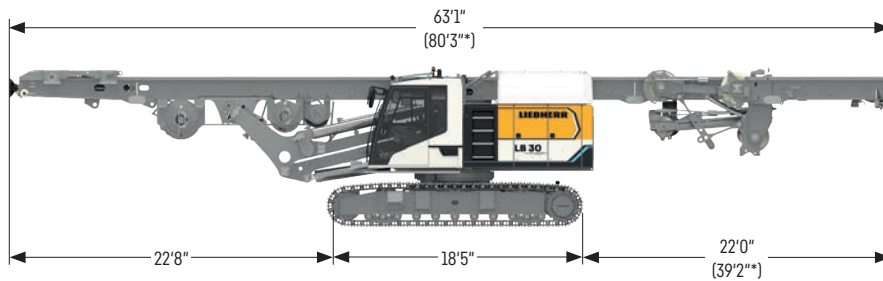
Transport dimensions and weights



Standard leader (19.7 ft leader upper part)

includes the basic machine (ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator lbs 120,152

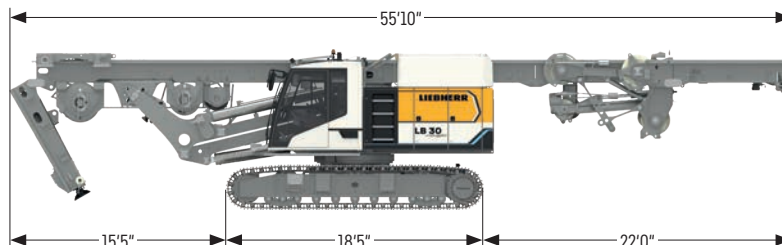
* transport width with 27.6 inch grousers



Folding leader (26.2 ft leader upper part)

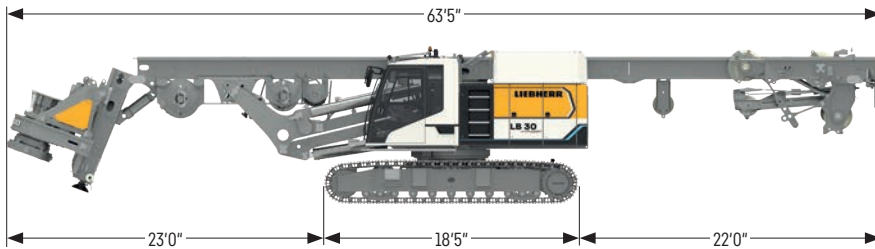
includes the basic machine (ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator lbs 122,136

* Transport length leader not folded



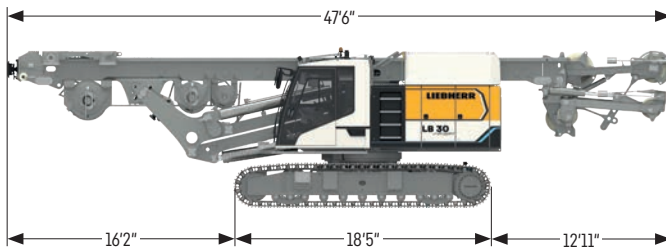
Leader lower and upper part folded

includes the basic machine (ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator lbs 122,136



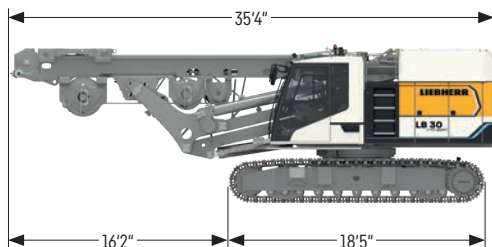
Leader lower and upper part folded (with BAT)

includes the basic machine (ready for operation) with leader, BAT 300, lbs 136,466
 without counterweight and without adapter for casing oscillator



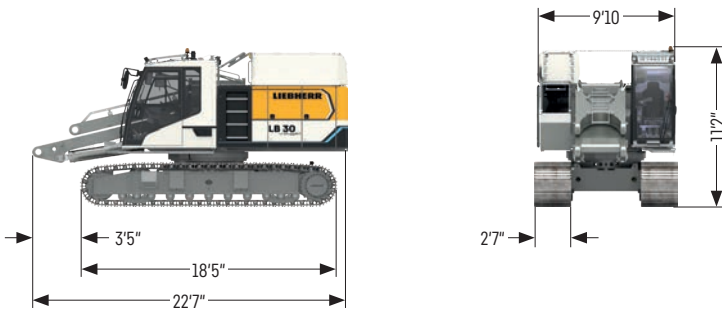
Low Head

includes the basic machine (ready for operation) with leader, without attach- lbs 117,286
 ments (such as rotary, Kelly bar etc.), without counterweight and without
 adapter for casing oscillator



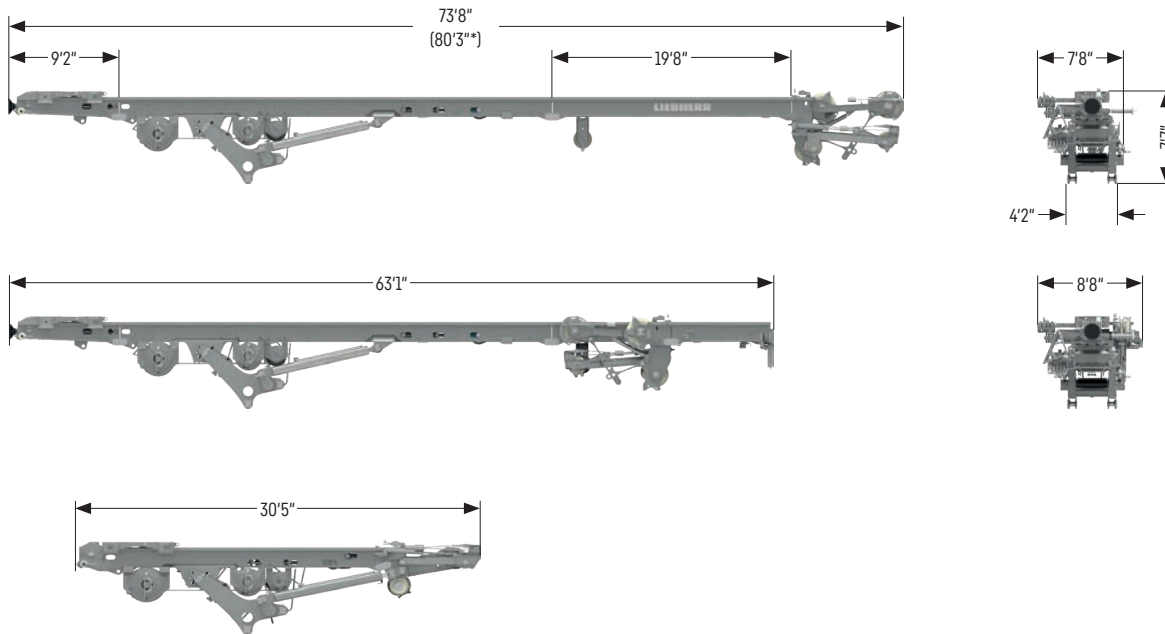
Ultra Low Head

includes the basic machine (ready for operation) with leader, without attach- lbs 113,097
 ments (such as rotary, Kelly bar etc.), without counterweight and without
 adapter for casing oscillator



Basic machine

with crawler side frames, without counterweight and without adapter for casing oscillator lbs 82,673



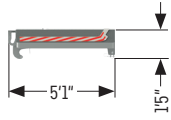
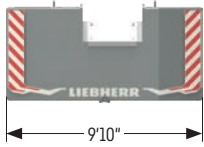
Leader versions

Standard leader	lbs 39,242
Folding leader	lbs 41,226
Standard leader lower part	lbs 1,543
19.7 ft leader extension	lbs 3,306
26.2 ft leader extension	lbs 5,291
Leader top	lbs 3,748
Short leader lower part	lbs 661

* Transport length folding leader

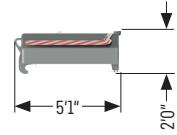
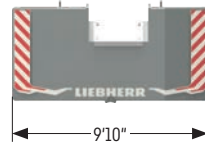
Options

Adapter for casing oscillator	lbs 1,764
Concrete supply line	lbs 1,323
All round platform with railings	lbs 882



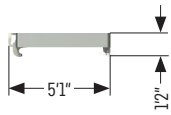
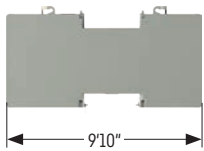
Counterweight

Weight lbs 11,023



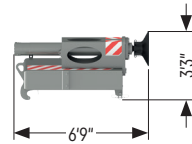
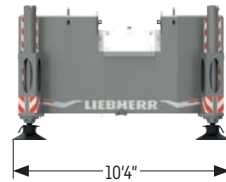
Counterweight

Weight lbs 17,637



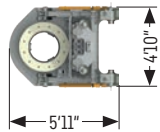
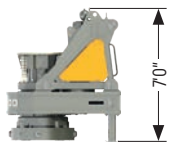
Intermediate slab

Weight lbs 11,023



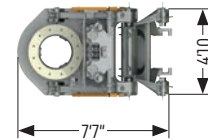
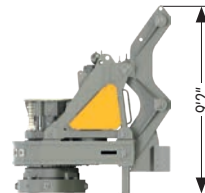
Counterweight with rear support unit

Weight lbs 17,637



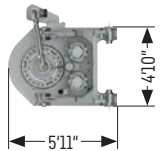
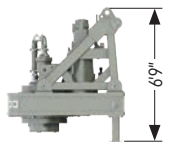
BAT 300

Transport weight lbs 14,330



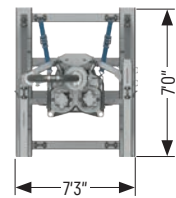
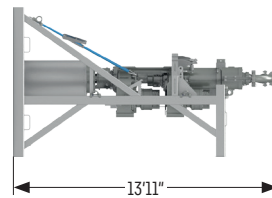
BAT 300 with adapter for drilling axis 5.2 ft

Transport weight lbs 16,755



MAT 100.1

Transport weight lbs 12,346

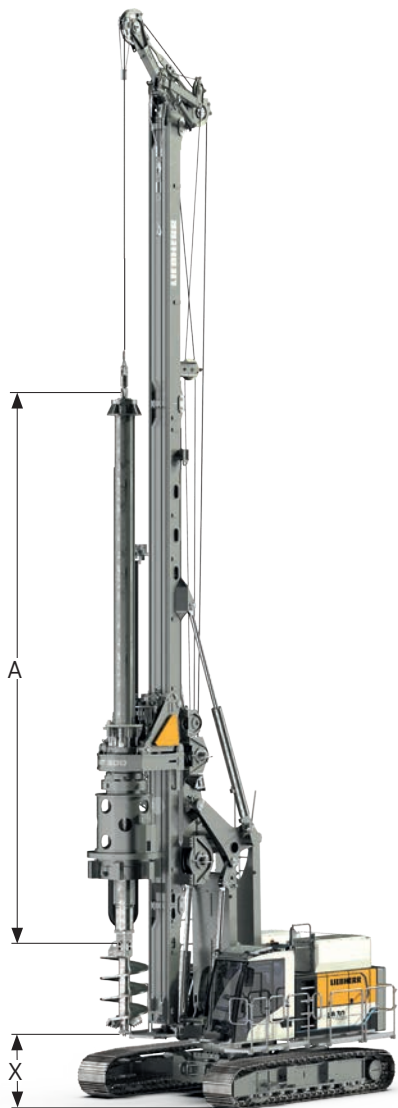


DBA 160

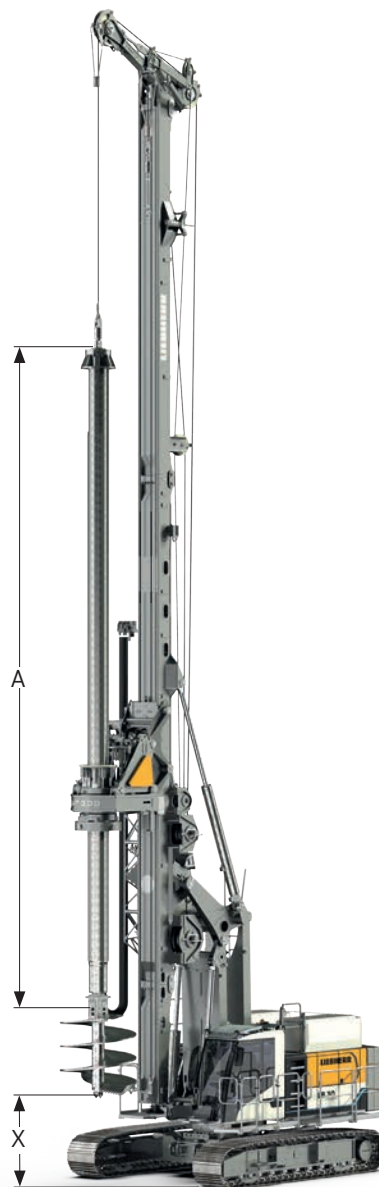
Transport weight lbs 17,857

Kelly drilling

Standard



Folding leader (large drilling axis)



Performance data

Rotary drive - torque	lbf-ft	219,056	
Rotary drive - speed	rpm	43	
		Drilling axis 3.6 ft	Drilling axis 5.2 ft
Max. drilling diameter cased*	ft	4.9	8.2
Max. drilling diameter uncased	ft	6.2	9.5
Max. drilling diameter uncased with short leader lower part	ft	9.2	11.2

Above applications are sample illustrations. Other drilling diameters available on request.

* Depending on casing driver configuration.

Drilling depths with Low Head, standard and folding leader

Technical data Kelly bars

Kelly bars			Drilling depths											
Model	Length A [ft]	Weight [lbs]	Low Head				Standard				Folding leader			
			X [ft]		Depth [ft]		X [ft]		Depth [ft]		X [ft]		Depth [ft]	
			3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2
28/3/24	32.4	11,684	10.1 ¹	8.5 ¹	74.1 ¹	75.8 ¹	29.9	28.2	74.1	75.8	36.4	34.8	74.1	75.8
28/3/27	35.7	12,787	6.9 ¹	5.2 ¹	84.0 ¹	85.6 ¹	26.6	24.9	84.0	85.6	33.1	31.5	84.0	85.6
28/3/30	39.5	14,110	3.3 ^{1/2}	1.6 ^{1/2}	93.8 ^{1/2}	95.5 ^{1/2}	23.0	21.3	93.8	95.5	29.5	27.9	93.8	95.5
28/3/33	42.3	14,771	-	-	-	-	20.0	18.4	103.7	105.3	26.6	24.9	103.7	105.3
28/3/36	46.1	16,094	-	-	-	-	16.4	14.8	113.5	115.2	23.0	21.3	113.5	115.2
28/4/36	37.6	16,976	5.2 ¹	3.6 ¹	113.8 ¹	115.2 ¹	24.9	23.3	113.8	115.2	31.5	29.9	113.8	115.2
28/4/42	42.5	19,180	-	-	-	-	20.0	18.4	133.2	134.8	26.6	24.9	133.2	134.8
28/4/48	47.4	21,164	-	-	-	-	15.1	13.5	153.2	154.2	21.7	20.0	153.2	154.2
28/4/54	52.3	23,369	-	-	-	-	10.2 ¹	8.5 ¹	172.9 ¹	174.2 ¹	16.7	15.1	172.9	174.2
28/4/60	57.2	25,573	-	-	-	-	5.2 ¹	3.6 ¹	192.6 ¹	193.9 ¹	11.8	10.2	192.6	193.9
28/4/66	62.2	25,794	-	-	-	-	-	-	-	-	6.9 ¹	5.2 ¹	212.6 ¹	214.2 ¹
28/4/72	67.1	27,558	-	-	-	-	-	-	-	-	2.0 ^{1/2}	-	232.3 ^{1/2}	-

¹ When using a short leader lower part an assist crane is required for installation.

² Installation only possible using auxiliary equipment

Drilling axis 3.6 ft

Drilling axis 5.2 ft

Other Kelly bars available on request

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

When using a Kelly bar guide, value X has to be reduced by 1.8 ft.

When using a short leader lower part the drilling depth is reduced by 6.6 ft for a drilling axis of 3.6 ft, and by 8.2 ft for a drilling axis of 5.2 ft.

Length of drilling tool 6.2 ft

Drilling depths with Ultra Low Head

Technical data Kelly bars

Kelly bars			Drilling depths short leader lower part							
Model	Length A [ft]	Weight [ft]	Leader top horizontal				Leader top raised			
			X [ft]		Depth [ft]		X [ft]		Depth [ft]	
			3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2
28(470)/5/14	14.4	7,716	16.7	16.7	32.5	31.8	19.4	19.4	32.5	31.8
28(470)/5/18	17.0	9,259	14.1	14.1	45.6	44.9	16.7	16.7	45.6	44.9
28(470)/5/20	18.4	10,141	12.8 ¹	12.8	52.2 ¹	51.5	15.4	15.4	52.2	51.5
28(470)/5/24	21.3	11,905	9.8 ¹	9.8 ¹	66.6 ¹	65.9 ¹	12.5 ¹	12.5	66.6 ¹	65.9
28(470)/5/26	22.3	12,566	8.9 ¹	8.9 ¹	71.8 ¹	71.2 ¹	11.5 ¹	11.5	71.8 ¹	71.2
28(470)/5/30	24.9	14,330	6.2 ²	6.2 ¹	85.0 ²	84.3 ¹	8.9 ²	8.9 ¹	85.0 ²	84.3 ¹
			Drilling depths standard leader lower part							
28(470)/5/14	14.4	7,716	16.7	16.7	39.0	40.0	19.4	19.4	39.0	40.0
28(470)/5/18	17.0	9,259	14.1	14.1	52.2	53.1	16.7	16.7	52.2	53.1
28(470)/5/20	18.4	10,141	12.8	12.8	58.7	59.7	15.4	15.4	58.7	59.7
28(470)/5/24	21.3	11,905	9.8	9.8	76.4	74.1	12.5	12.5	76.4	74.1
28(470)/5/26	22.3	12,566	8.9	8.9	78.4	79.4	11.5	11.5	78.4	79.4
28(470)/5/30	24.9	14,330	6.2 ¹	6.2	91.5 ¹	92.5	8.9	8.9	91.5	92.5

¹ Installation of Kelly bar with raised leader top

² Installation only possible using auxiliary equipment

Drilling axis 3.6 ft

Drilling axis 5.2 ft

Other Kelly bars available on request

Values indicated for minimum radius

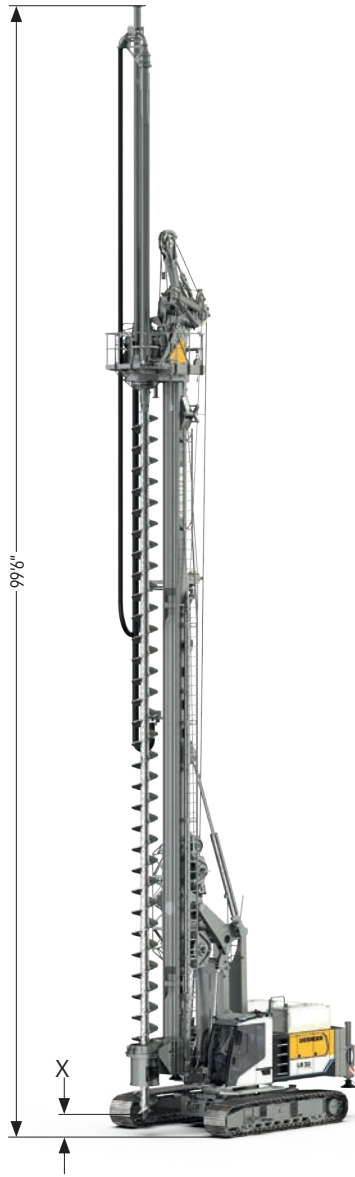
Length of drilling tool 2.3 ft

Special adapter on BAT for Kelly bar diameter 1.5 ft

If a standard BAT adapter for Kelly bar diameter 1.4 ft is used, Kelly bars and drilling depths on request

Continuous flight auger drilling

Folding leader



Performance data

Rotary drive - torque	lbf-ft	199,142		
Rotary drive - speed	rpm	43		
Max. drilling diameter*	ft	3.2		
		Low Head	Standard	Folding leader
Drilling depth without Kelly extension	ft	32.8	52.5	59.1
Drilling depth with 26.2 ft Kelly extension	ft	59.1	78.7	85.3
Max. pull force	lbf	175,351	175,351	175,351

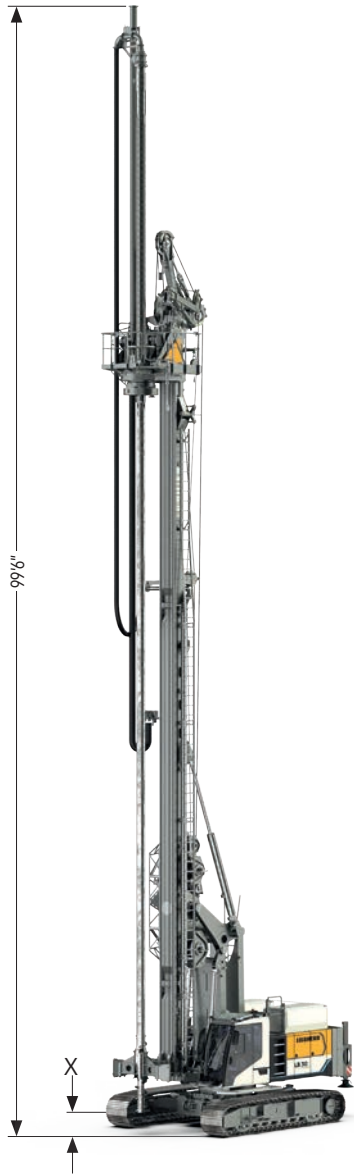
Above drilling depths take into account that an auger cleaner is used and the cardan joint has been removed.

Above drilling depths are valid for the use of standard tools and for the X value of 1.5 ft (see above illustration).

* Other drilling diameters available on request

Full displacement drilling

Folding leader



Performance data

Rotary drive - torque	lbf-ft	199,142		
Rotary drive - speed	rpm	43		
Max. drilling diameter*	ft	2.0		
		Low Head	Standard	Folding leader
Drilling depth without Kelly extension	ft	34.8	54.5	61.0
Drilling depth with 26.2 ft Kelly extension	ft	61.0	80.7	87.3
Max. pull force	lbf	175,351	175,351	175,351

Above drilling depths are valid for the use of standard tools and for an X value of 2.1 ft (see above illustration).

* Other drilling diameters available on request

Double rotary drilling

DBA 160



Performance data

Rotary drive I - torque	lbf-ft	0-118,010		
Rotary drive I - speed	rpm	0-16		
Rotary drive II - torque	lbf-ft	0-77,444		
Rotary drive II - speed	rpm	0-28		
Max. drilling diameter*	ft	2.5		
		Low Head	Standard	Folding leader
Drilling depth**	ft	35.1	54.8	61.4
Max. pull force	lbf	123,645	123,645	123,645

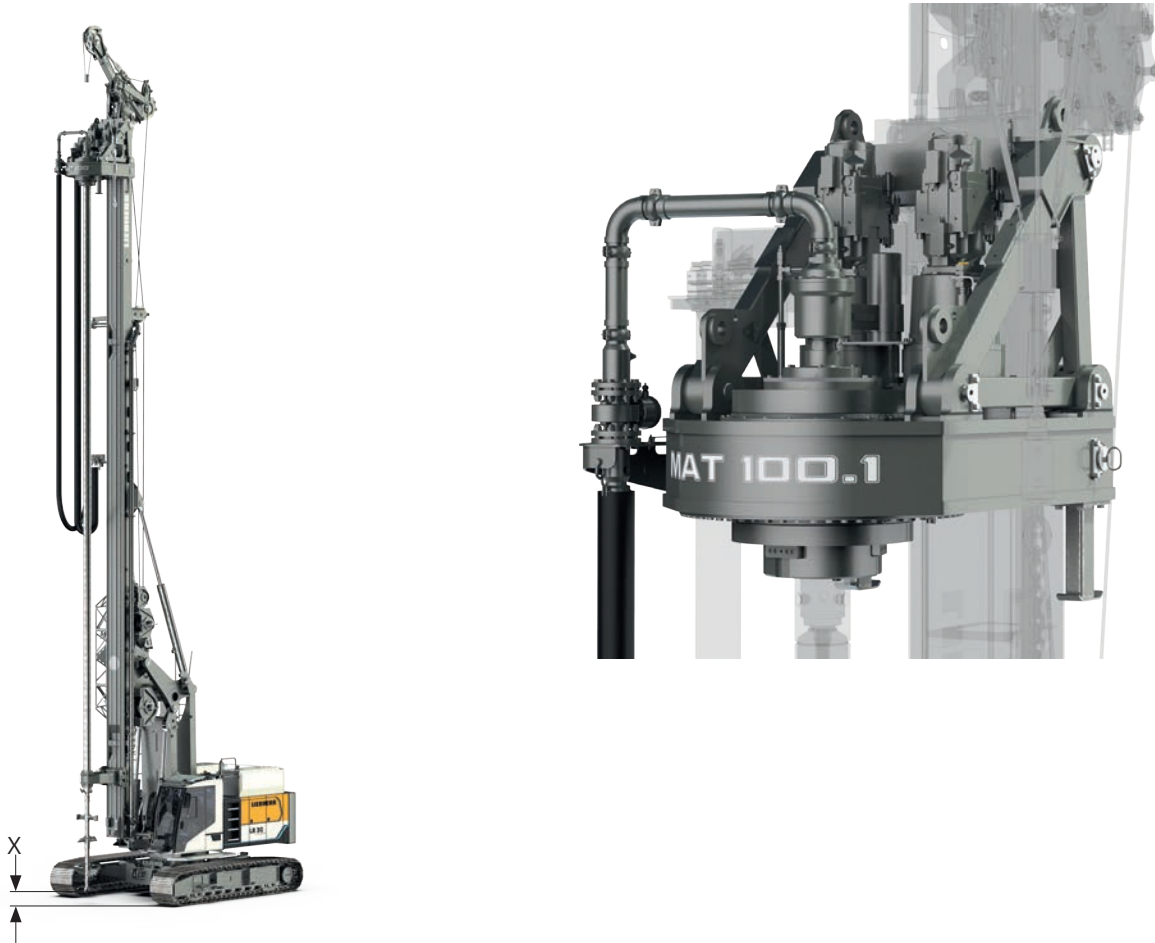
Above drilling depths are valid for the use of standard tools and for an X value of 1.7 ft (see above illustration). Due to differences in the max. admissible load capacities, the combinations of drilling depth and drilling diameter may be limited.

*Other drilling diameters on request

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

Soil mixing

MAT 100.1 / BAT 300



Performance data MAT 100.1

Rotary drive - torque	lbf-ft	0-70,068		
Rotary drive - speed	rpm	0-100		
Max. mixing diameter*	ft	4.9		
		Low Head	Standard	Folding leader
Mixing depth	ft	36.1	55.8	62.3
Max. pull force	lbf	71,939	71,939	71,939

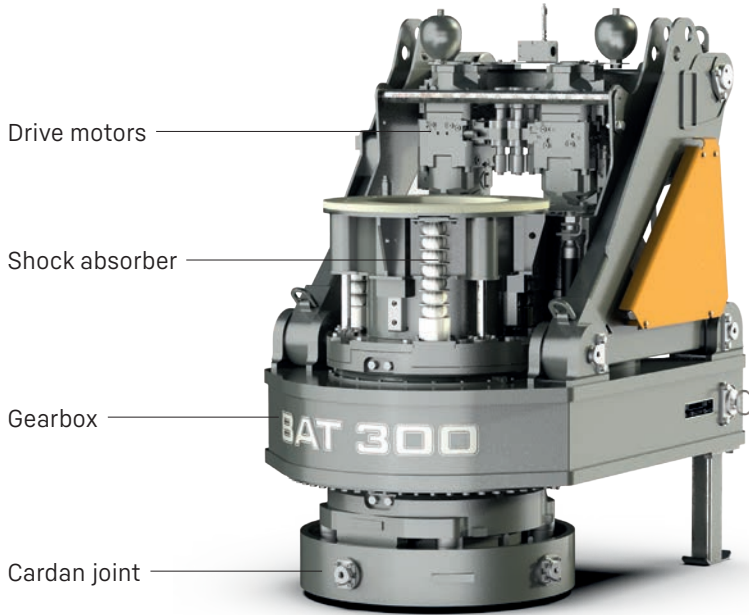
Performance data BAT 300

Rotary drive - torque	lbf-ft	199,142		
Rotary drive - speed	rpm	43		
Max. mixing diameter*	ft	6.2		
		Low Head	Standard	Folding leader
Mixing depth	ft	34.8	54.5	61.0
Mixing depth with 26.2 ft Kelly extension	ft	61.0	80.7	87.3
Max. pull force	lbf	175,351	175,351	175,351

Above mixing depths are valid for the use of standard tools and for an X value of 1 ft for MAT 100.1, and 2.1 ft for BAT 300 (see above illustration).

* Other mixing diameters available on request

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:

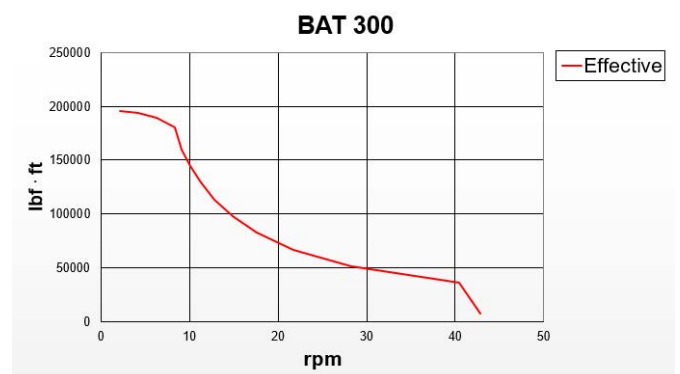
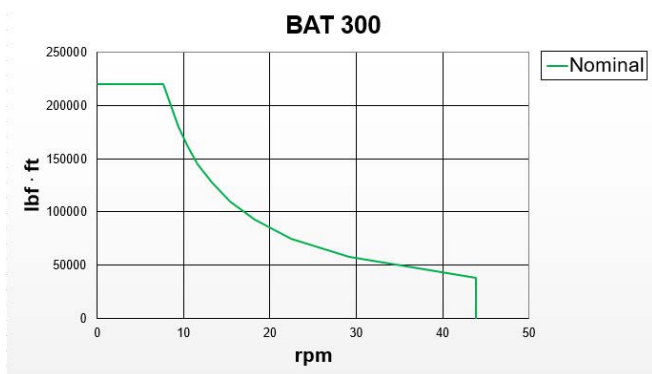
- No mechanical shift gearbox
- Low maintenance requirements

Automatic gearbox for best operating comfort:

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

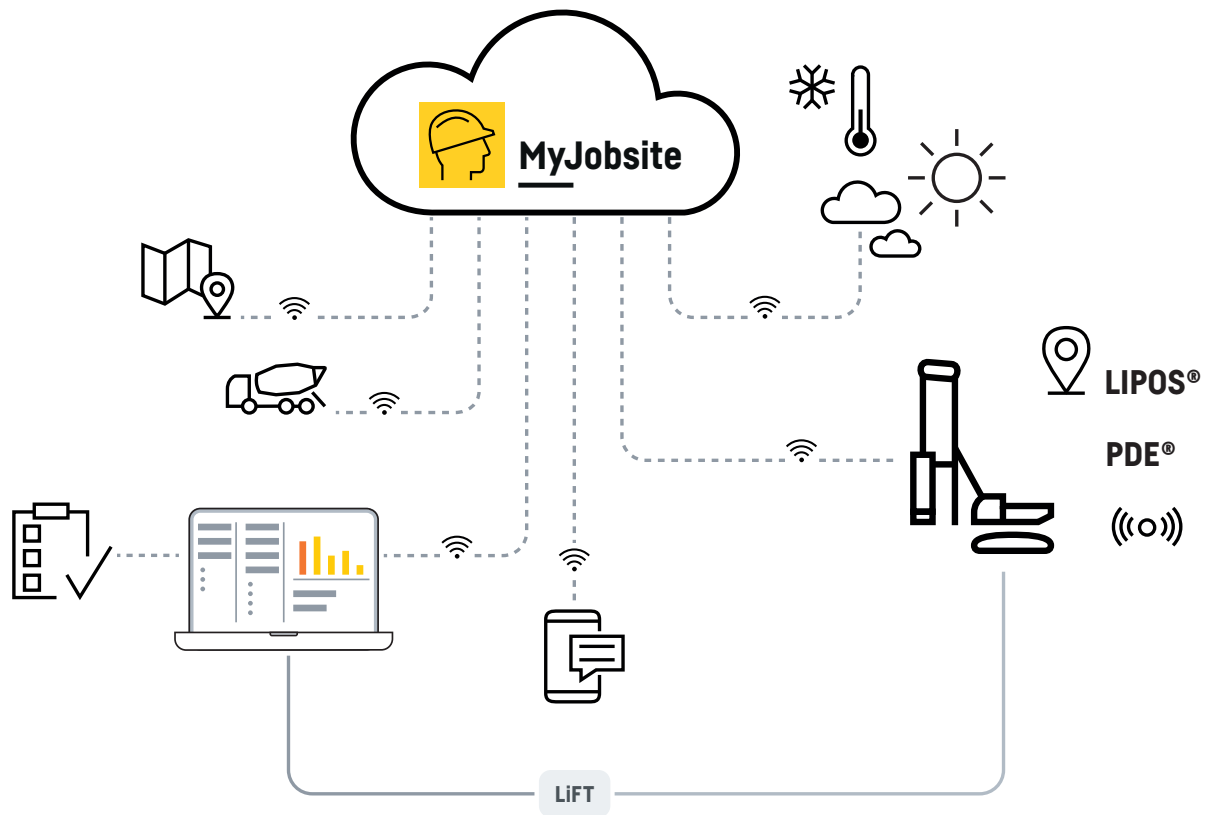
Flexibility through modular design:

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



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 is 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.



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