

EN-US



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# LB 25 unplugged

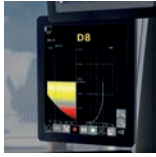
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LB 2102.07  
[www.liebherr.com](http://www.liebherr.com)

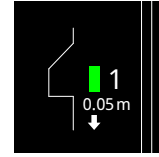
## LIEBHERR

Drilling rigs

# Concept and characteristics



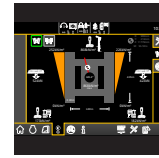
**PDE**<sup>®</sup>  
Process Data Recording



Kelly  
Visualization



**MyJobsite**



Ground  
Pressure  
Visualization



**LIPOS**<sup>®</sup>  
Positioning System



Radio remote  
control



**LiDAT**<sup>®</sup>  
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 VAC) 20 kW (CEE socket 32 A / 400 VAC)
Option	80 kW (CEE socket 125 A / 400 VAC)
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	0-1.26 mph
Track force	98,916 kN
Grousers	width 27.6 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	44,962 lbf (1st layer)
Rope diameter	28 mm
Rope speed	0-312 ft/min



## Auxiliary winch

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



## Crowd system

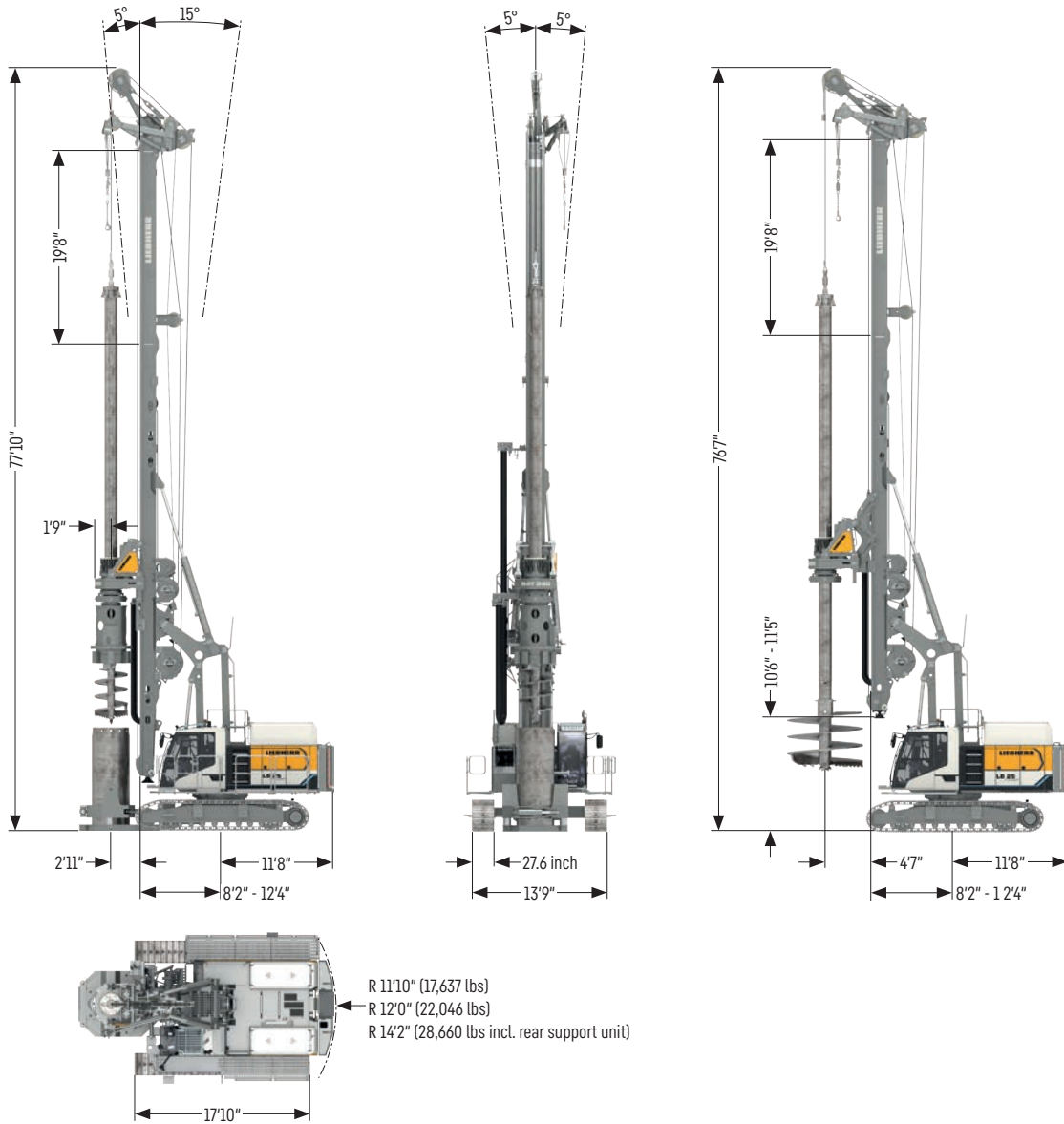
Crowd force	67,443/67,443 lbf (push/pull)
Line pull effective	33,721 lbf (1st layer)
Rope diameter	24 mm
Travel with standard leader between mechanical limit stops	56.8 ft
Rope speed	0-289 ft/min

## 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



### Operating weight

Total weight with 27.6 inch 3-web grousers	lbs 162,040
Total weight with 31.5 inch 3-web grousers	lbs 162,922

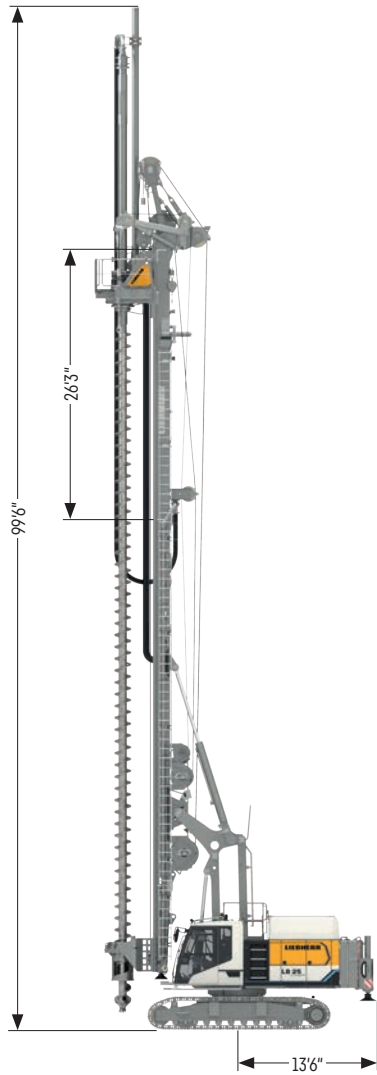
The operating weight includes the basic machine LB 25 unplugged with rotary, Kelly bar 20/3/27, 17,637 lbs counterweight and equipment for casing oscillator.

### Operating weight

Total weight with 27.6 inch 3-web grousers	lbs 173,504
Total weight with 31.5 inch 3-web grousers	lbs 174,386

The operating weight includes the basic machine LB 25 unplugged with rotary, Kelly bar 20/4/48, 22,046 lbs counterweight and equipment for casing oscillator.

## Folding leader

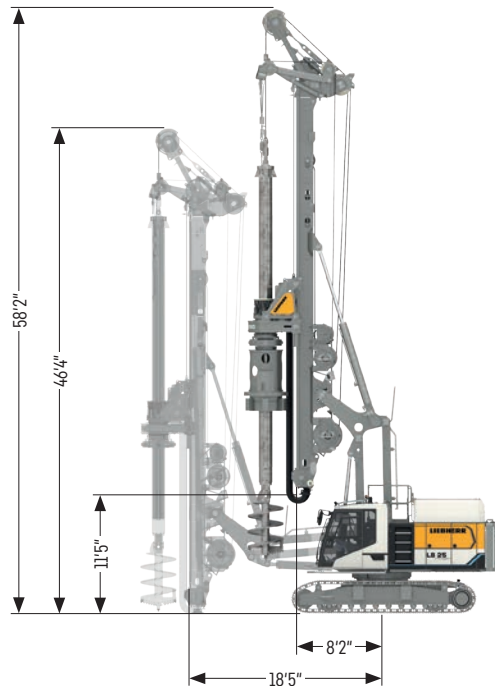


### Operating weight

Total weight with 27.6 inch 3-web grousers	lbs 180,338
Total weight with 31.5 inch 3-web grousers	lbs 181,000

The operating weight includes the basic machine LB 25 unplugged with rotary, continuous flight auger 65.6 ft, 28,660 lbs counterweight and equipment for casing oscillator.

## Low Head



### Operating weight

Total weight with 27.6 inch 3-web grousers	lbs 156,749
Total weight with 31.5 inch 3-web grousers	lbs 157,631

The operating weight includes the basic machine LB 25 unplugged with rotary, Kelly bar 20/3/18 and 22,046 lbs counterweight. Equipment for casing oscillator not included. The line pull of the Kelly winch is reduced to 22,480 lbf when working at a radius exceeding 12.3 ft.

# 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 25 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**

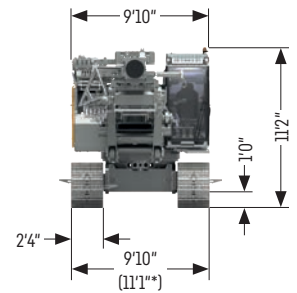
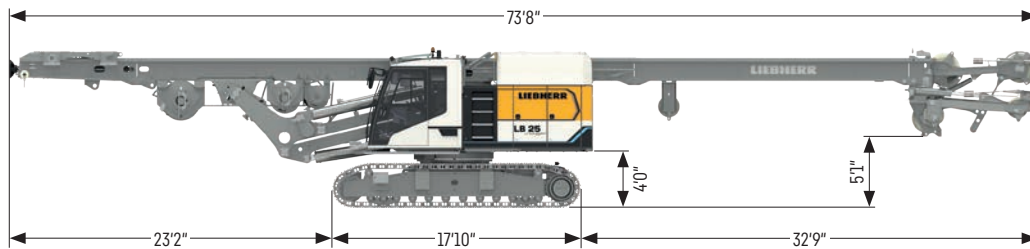
When connected to the power supply, there are no restrictions in performance and application of the machine when compared to the conventional version with diesel engine. The battery is constantly charged when connected to the power supply and therefore always provides sufficient energy.



### **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.

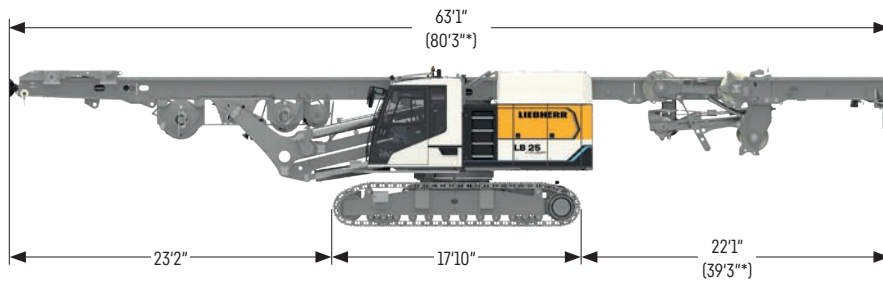
# Transport dimensions and weights



## 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 116,404

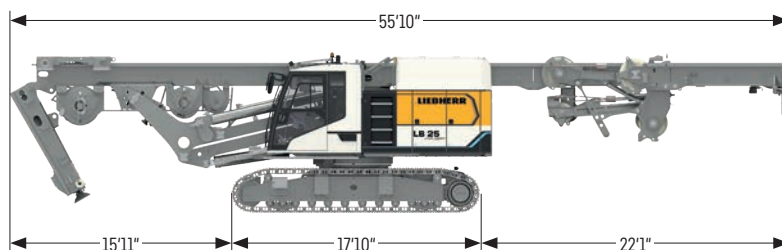
\* Transport width with 31.5 inch grousers



## 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 118,609

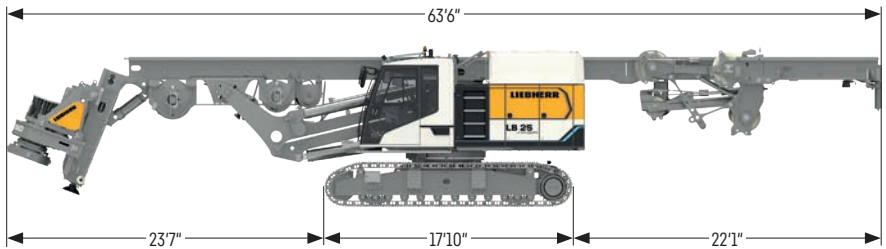
\* Transport length leader not folded



## Leader lower and upper part folded

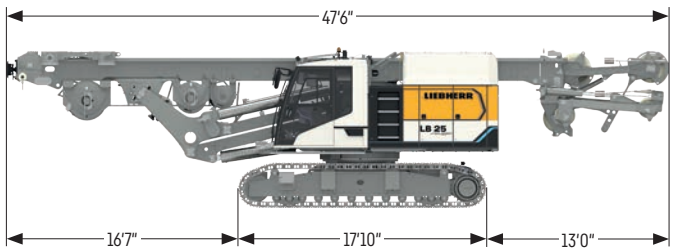
includes the basic machine (ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator lbs 118,609





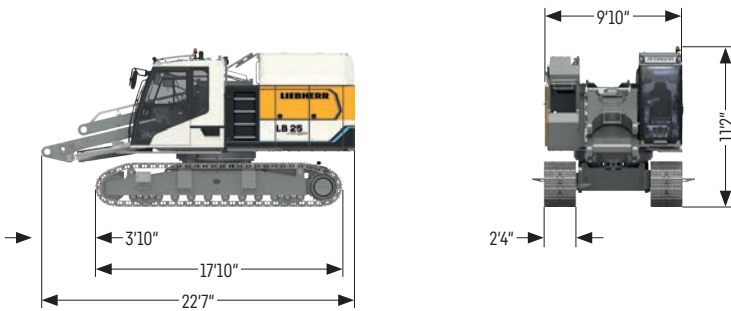
**Leader lower and upper part folded (with BAT)**

includes the basic machine (ready for operation) with leader, BAT 250, without lbs 130,073 counterweight and without adapter for casing oscillator



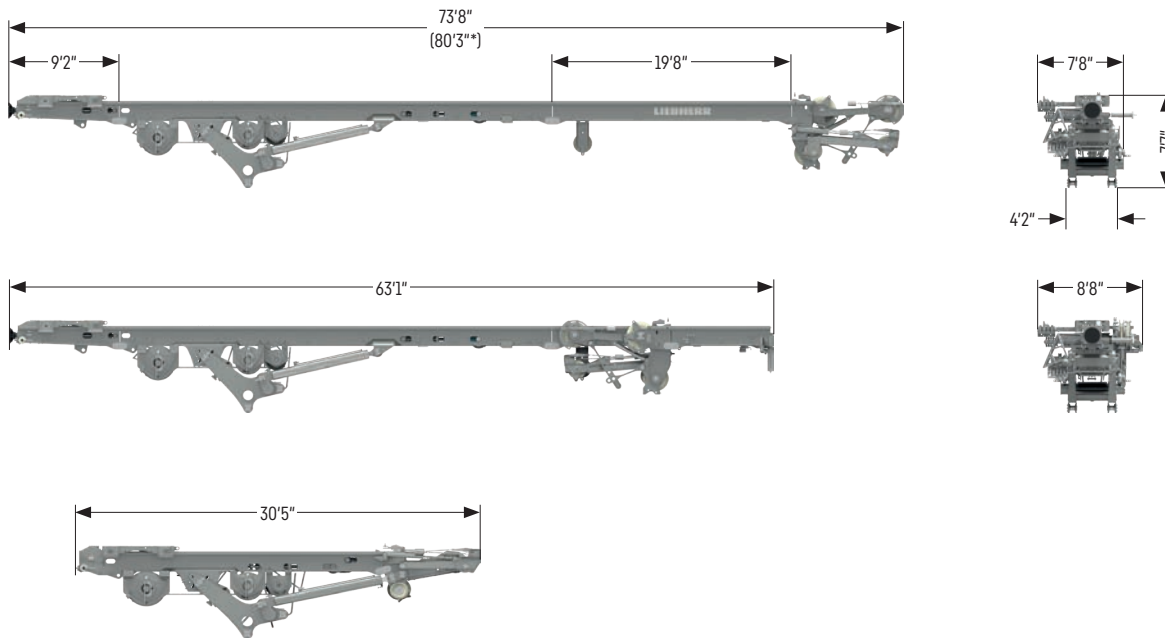
**Low Head**

includes the basic machine (ready for operation) with leader, without attach- lbs 112,215 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 78,925



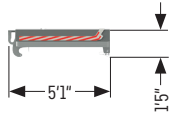
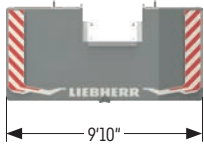
### Leader versions

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

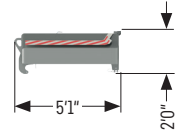
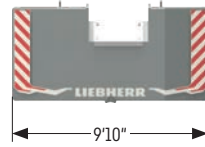
### Options

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



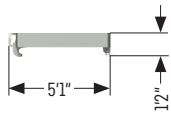
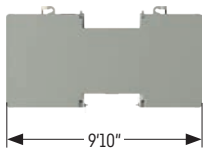
**Counterweight**

Weight lbs 11,023



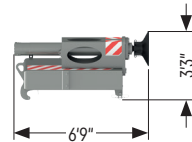
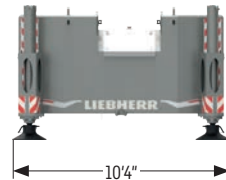
**Counterweight**

Weight lbs 17,637



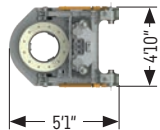
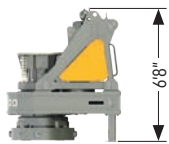
**Intermediate slab**

Weight lbs 11,023



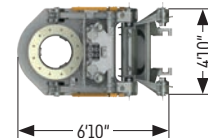
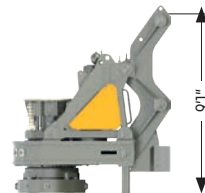
**Counterweight with rear support unit**

Weight lbs 17,637



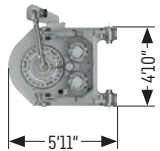
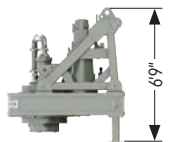
**BAT 250**

Transport weight lbs 11,684



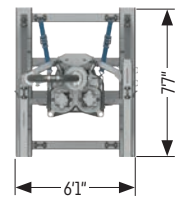
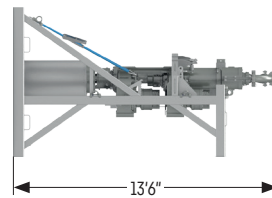
**BAT 250 with adapter for drilling axis 4.6 ft**

Transport weight lbs 14,110



**MAT 100.1**

Transport weight lbs 12,346

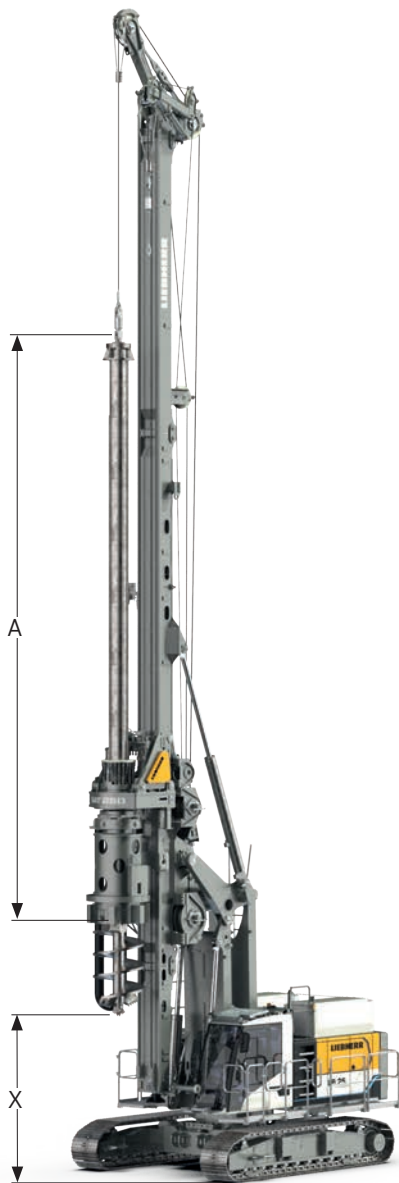


**DBA 90**

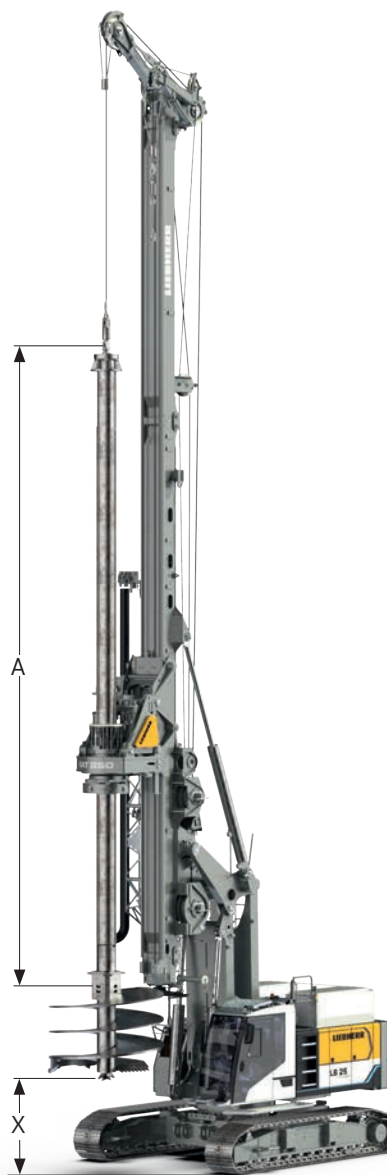
Transport weight lbs 12,566

# Kelly drilling

## Standard



## Standard (large drilling axis)



### Performance data

Rotary drive - torque	lbf-ft	185,866	
Rotary drive - speed	rpm	58	
		Drilling axis 2.9 ft	Drilling axis 4.6 ft
Max. drilling diameter cased*	ft	3.9	7.2
Max. drilling diameter uncased	ft	4.9	8.2
Max. drilling diameter uncased with short leader lower part	ft	8.9	10.8

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

\* Depending on casing driver configuration

# Drilling depths

## Technical data Kelly bars

Kelly bars			Drilling depths							
Model	Length A [ft]	Weight [lbs]	Low Head				Standard			
			X [ft]		Depth [ft]		X [ft]		Depth [ft]	
			2.9	4.6	2.9	4.6	2.9	4.6	2.9	4.6
20/3/18	25.6	7,496	17.7	16.4	54.5	56.1	37.4	36.1	54.5	56.1
20/3/21	29.4	8,818	13.8	12.8	64.3	65.9	33.5	32.5	64.3	65.9
20/3/24	32.6	9,700	10.5 <sup>1</sup>	9.5	74.1 <sup>1</sup>	75.8	30.2	29.2	74.1	75.8
20/3/27	35.4	10,141	7.2 <sup>1</sup>	6.2 <sup>1</sup>	84.0 <sup>1</sup>	85.6 <sup>1</sup>	26.9	25.9	84.0	85.6
20/3/30	38.7	10,803	4.6 <sup>1/2</sup>	3.3 <sup>1</sup>	93.8 <sup>1/2</sup>	95.5 <sup>1</sup>	24.3	23.0	93.8	95.5
20/3/33	42.0	11,464	1.3 <sup>1/2</sup>	-	103.7 <sup>1/2</sup>	-	21.0	20.0	103.7	105.3
20/4/36	37.0	13,669	6.2 <sup>1</sup>	4.9 <sup>1</sup>	113.5 <sup>1</sup>	115.2 <sup>1</sup>	25.9	24.6	113.5	115.2
20/4/42	42.2	15,212	1.0 <sup>1/2</sup>	-	133.5 <sup>1/2</sup>	-	20.7	19.7	133.5	135.2
20/4/48	46.6	18,078	-	-	-	-	16.1	14.8	152.9	154.5
20/4/54	52.0	18,960	-	-	-	-	10.8 <sup>1</sup>	9.8	172.9 <sup>1</sup>	174.5

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

<sup>2</sup> Installation only possible using auxiliary equipment

Drilling axis 2.9 ft

Drilling axis 4.6 ft

Other Kelly bars available on request

When using a casing oscillator, value X has to be reduced by 3.9 ft.

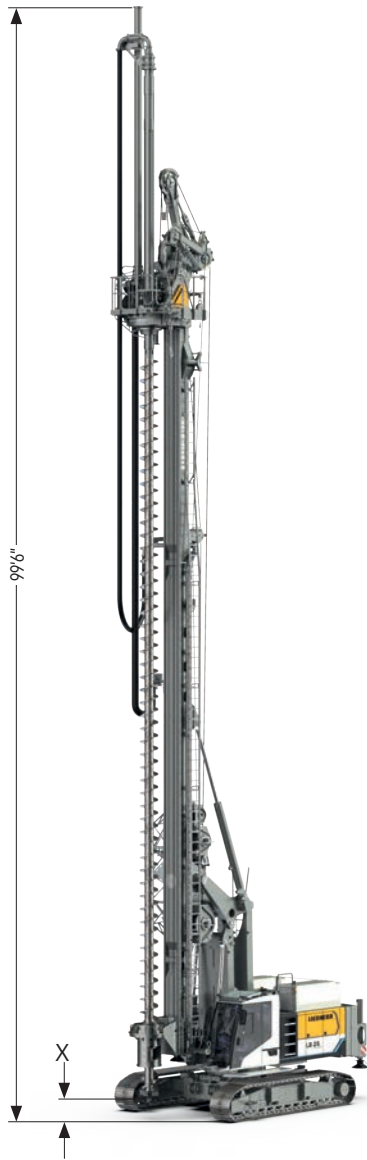
When using a Kelly bar guide, value X has to be reduced by 1.6 ft.

When using a short leader lower part the drilling depth is reduced by 6.6 ft for a drilling axis of 3 ft, and by 8.2 ft for a drilling axis of 4.6 ft.

Length of drilling tool 6.2 ft

# Continuous flight auger drilling

## Folding leader



### Performance data

Rotary drive - torque	lbf-ft	169,639		
Rotary drive - speed	rpm	58		
Max. drilling diameter*	ft	3.2		
		Low Head	Standard	Folding leader
Drilling depth without Kelly extension	ft	33.1	52.8	59.4
Drilling depth with 19.4 ft Kelly extension	ft	52.8	72.5	79.1
Max. pull force	lbf	157,366	157,366	157,366

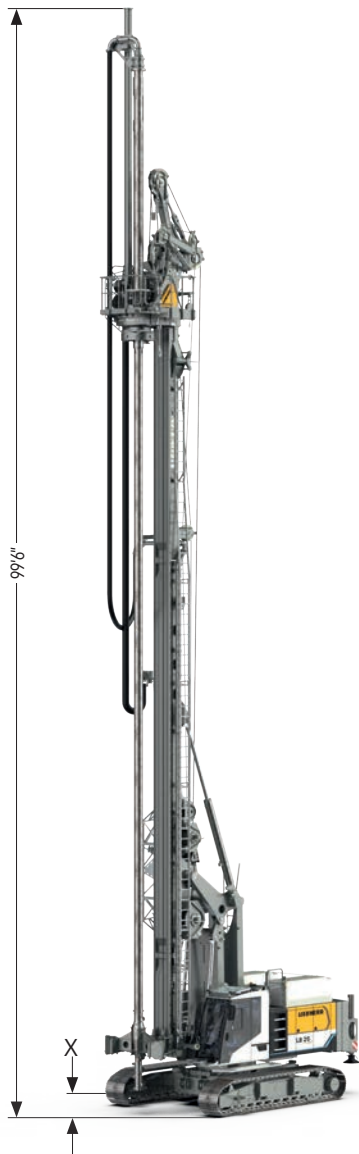
Above drilling depths take into account that an auger cleaner is used and the cardan joint has been removed.

Above drilling depths are valid for the use of standard tools and for the X value of 1.6 ft (see above illustration).

\* Other drilling diameters available on request

# Full displacement drilling

## Folding leader



### Performance data

Rotary drive - torque	lbf-ft	169,639		
Rotary drive - speed	rpm	58		
Max. drilling diameter*	ft	1.6		
		Low Head	Standard	Folding leader
Drilling depth without Kelly extension	ft	34.8	54.5	61.0
Drilling depth with 19.7 ft Kelly extension	ft	54.5	74.1	80.7
Max. pull force	lbf	157,366	157,366	157,366

Above drilling depths are valid for the use of standard tools and for an X value of 2.2 ft (see above illustration).

\* Other drilling diameters available on request

# Double rotary drilling

## DBA 90



### Performance data

Rotary drive I - torque	lbf-ft	0-66,381		
Rotary drive I - speed	rpm	0-32		
Rotary drive II - torque	lbf-ft	0-50,154		
Rotary drive II - speed	rpm	0-44		
Max. drilling diameter*	ft	2.0		
		Low Head	Standard	Folding leader
Drilling depth	ft	34.1	53.8	60.4
Max. pull force	lbf	67,443	67,443	67,443

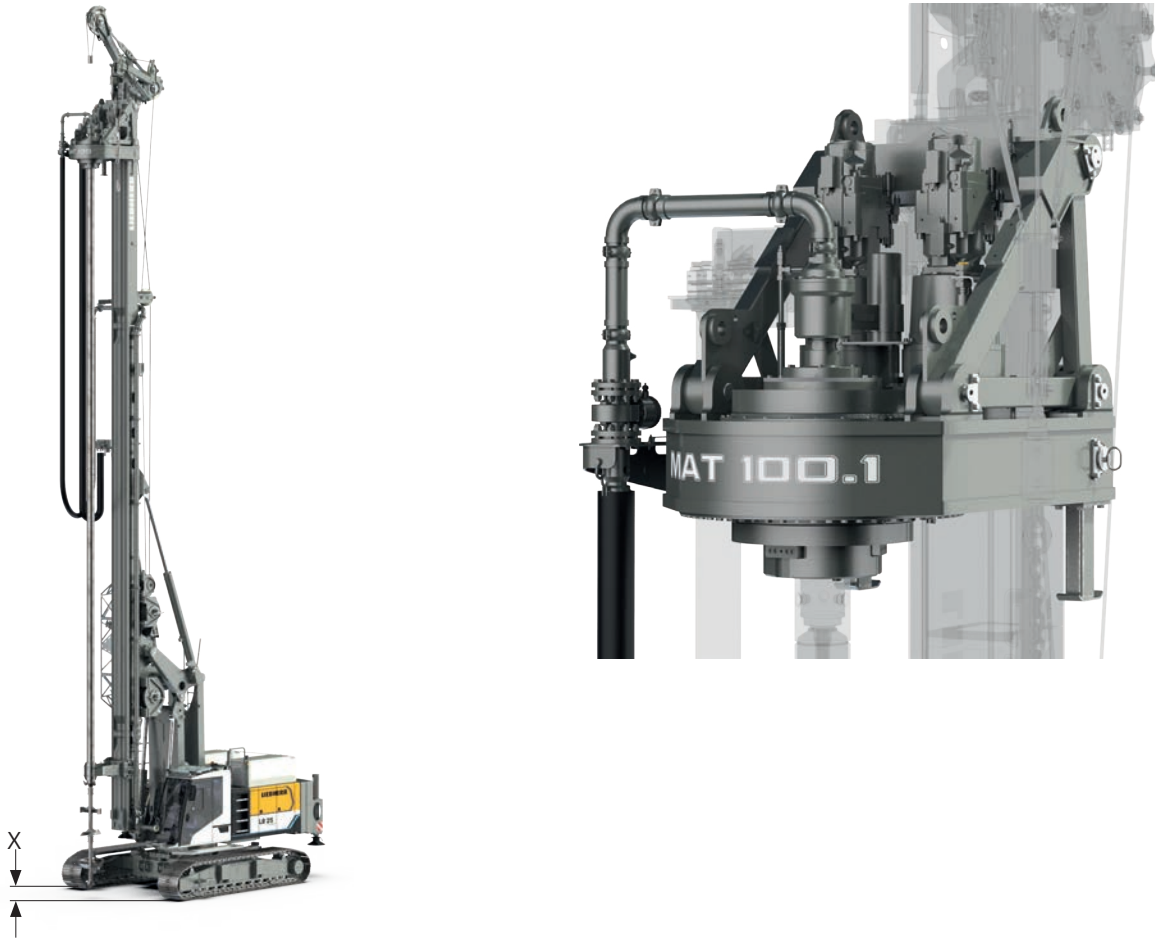
Above drilling depths are valid for the use of standard tools and for an X value of 2.9 ft (see above illustration). Due to differences in the max. admissible load capacities, the combinations of drilling depth and drilling diameter may be limited.

\* Other drilling diameters available on request



# Soil mixing

## MAT 100.1 / BAT 250



### 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	67,443	67,443	67,443

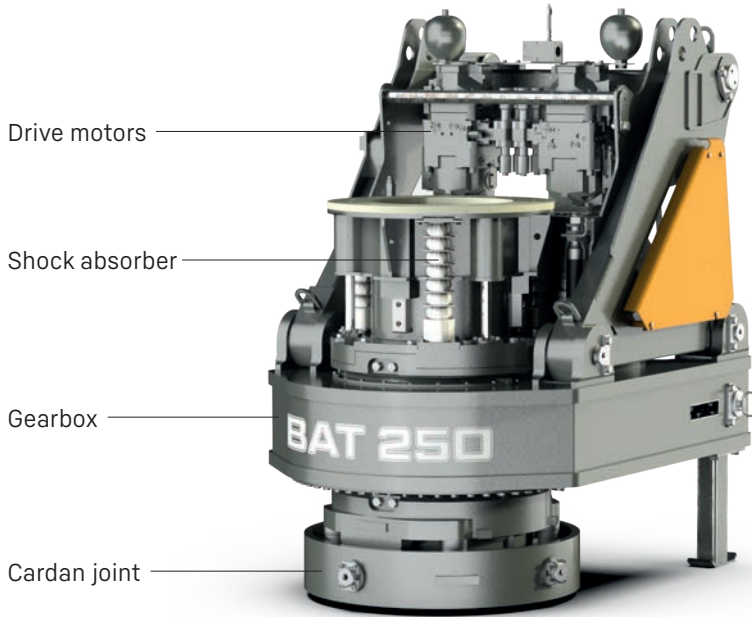
### Performance data BAT 250

Rotary drive - torque	lbf-ft	169,639		
Rotary drive - speed	rpm	58		
Max. mixing diameter*	ft	4.9		
		Low Head	Standard	Folding leader
Mixing depth	ft	34.8	54.5	61.0
Mixing depth with 19.76 ft Kelly extension	ft	54.5	74.1	80.7
Max. pull force	lbf	157,366	157,366	157,366

Above mixing depths are valid for the use of standard tools and for an X value of 1.0 ft for MAT 100.1, and 2.2 ft for BAT 250 (see above illustration).

\* Other mixing diameters available on request

# BAT 250



## 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:

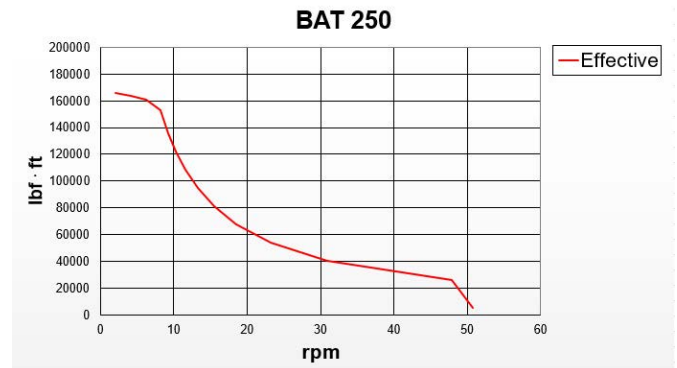
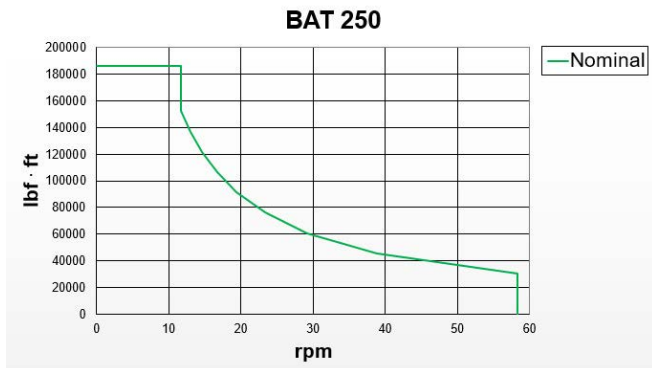
- No mechanical shift gearbox
- Low maintenance requirements

## Automatic gearbox for best operating comfort:

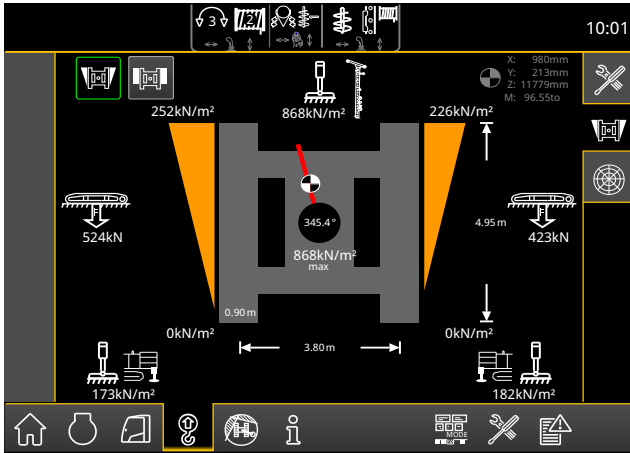
- No stopping required to change gears
- No interruption of the drilling process
- Continuous optimization of speed

## 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

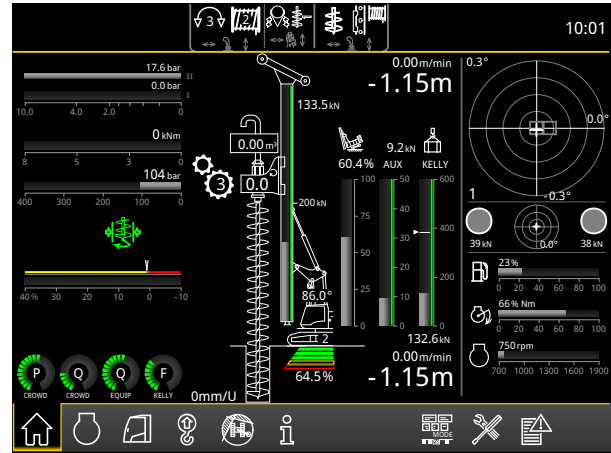


# Ground Pressure Visualization



## Features:

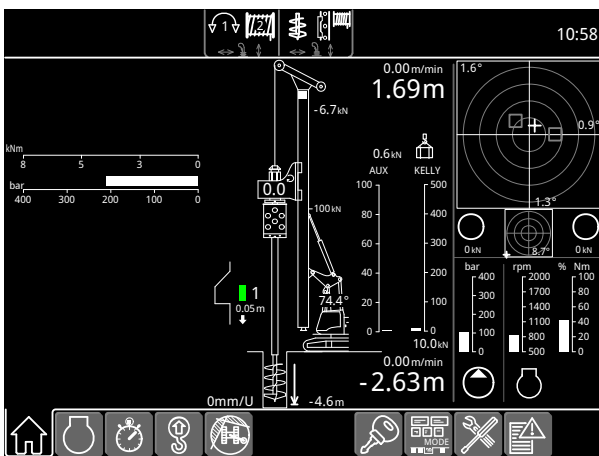
- The actual ground pressure is calculated in real time
- The maximum admissible ground pressure can be individually predefined
- The utilization is continuously calculated and displayed on the monitor in the operator's cab
- Audible and visual warnings when the predefined values are approached



## 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

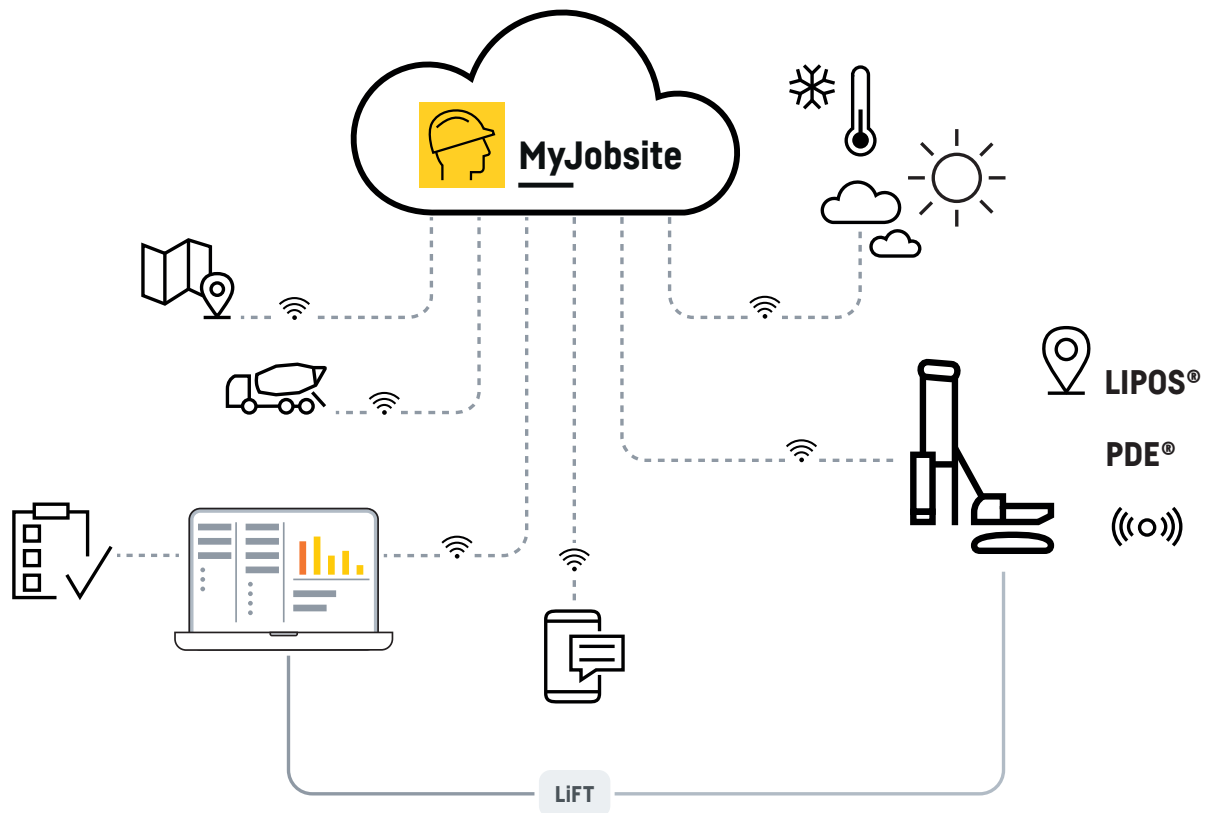


## Your benefits:

- 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

# 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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