Drilling Rig

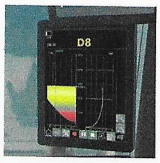
LB 30

EN-US

LB 2003.07

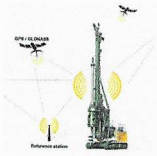
LIEBHERR

Concept and characteristics



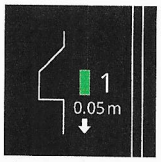
PDE®
Process Data Recording

MyJobsite

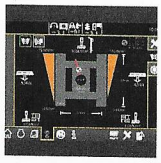


LIPOS®
Positioning System

LiDAT®
Data Transmission

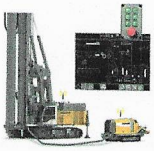


Kelly Visualization



Ground Pressure Visualization

Radio remote control



Concrete pump

The robust universal machine for a wide variety of applications:

- 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

Diesel engine

Power rating according to ISO 9249	320 kW (429 hp) at 1700 rpm
Engine type	Liebherr D 936 A7-05
Fuel tank capacity	185 gal with continuous level indicator and reserve warning
Exhaust certification	EU 2016/1628 Stage V EPA/CARB Tier 4f ECE-R.96 Power Band H non-certified emission standard

Hydraulic system

Hydraulic pumps	
for attachments	2x 71 gal
for kinematics	34 gal
Hydraulic oil tank capacity	158 gal
Max. working pressure	5,584 PSI
Hydraulic oil	electronic monitoring of all filters use of synthetic environmentally friendly oil

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	0-0.84 mph
Track force	148,374 lbf
Grousers	width 31.5 inch (option 27.6 inch)

Swing gear

Drive system	with fixed axial piston hydraulic motors, planetary gearbox, pinion
Swing ring	triple-row roller bearing with external teeth and one swing drive
Brake	hydraulically released, spring-loaded multi-disc holding brake
Swing speed	0-3.7 rpm continuously variable

Kelly winch with freewheeling

Line pull effective	51,706 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 winch	
Crowd force	71,939/71,939 lbf (push/pull)
Line pull effective	35,969 lbf
Travel with standard leader between mechanical limit stops	56.8 ft
Travel Ultra Low Head leader with short leader lower part	15.1 ft
Rope speed	0-289 ft/min

Noise emission / vibration

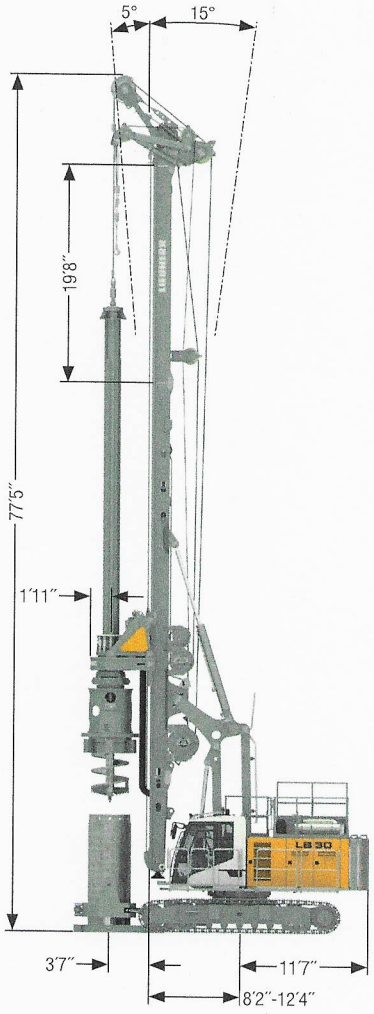
Noise emission	according to 2000/14/EC directive	
Emission sound pressure level L_{PA}	76.0 dB(A)	(in the cabin)
Guaranteed sound power level L_{WA}	106 dB(A)	(of the machine)
Vibration transmitted to the machine operator	< 2.5 m/s²	(to the hand-arm system)
	< 0.5 m/s²	(to the whole body)
Eco-Silent Mode (option)		
Guaranteed sound power level L_{WA}	-3 dB(A)	(of the machine)

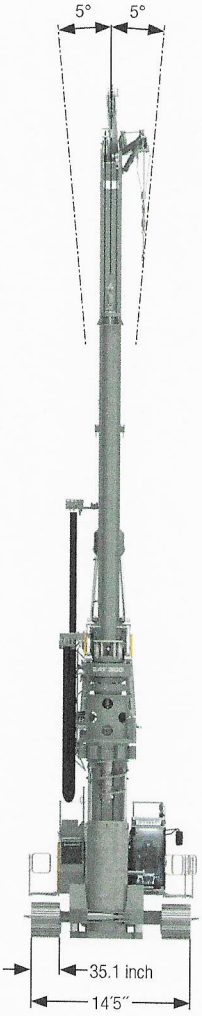
Remarks:

- Illustrations showing the types of application (e.g. Kelly drilling, continuous flight auger drilling etc.) are examples only.
- Weights 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.

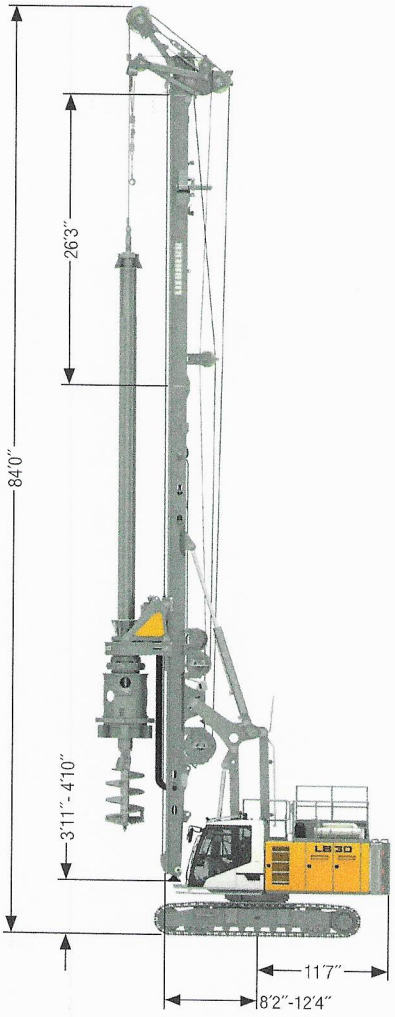
Dimensions

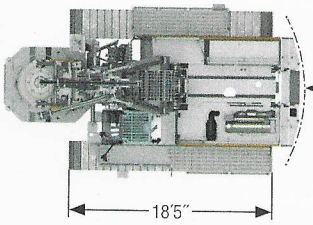
Standard leader





Folding leader





R 12'0" (22,046 lbs)
R 12'6" (28,660 lbs)
R 14'2" (28,660 lbs incl. rear support unit)

Operating weight

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

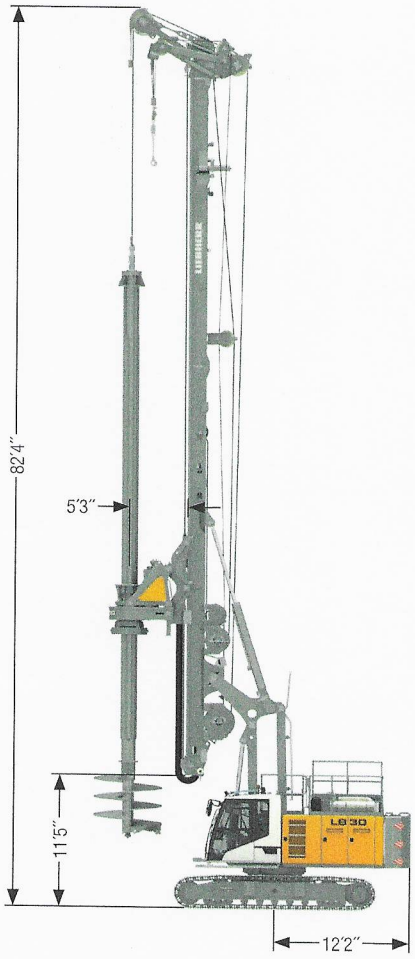
The operating weight includes the basic machine LB 30 with rotary, Kelly bar 28/3/30, 22,046 lbs counterweight and equipment for casing oscillator.

Operating weight

Total weight with 27.6 inch 3-web grousers	lbs	176,590
Total weight with 31.5 inch 3-web grousers	lbs	177,472

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

Folding leader

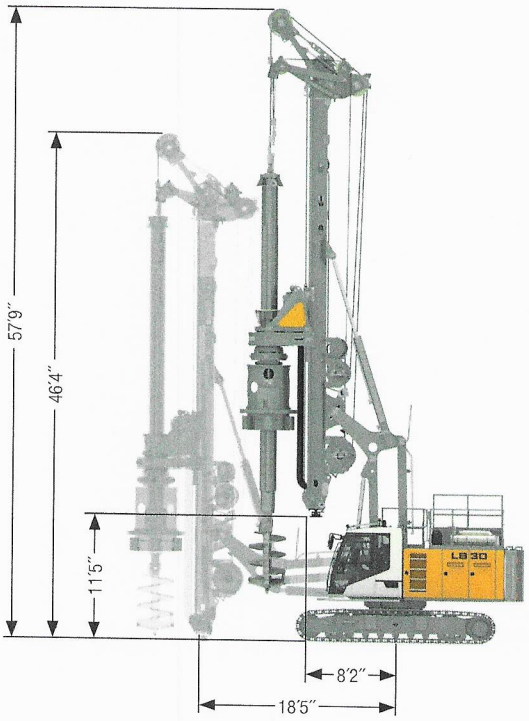


Operating weight

Total weight with 27.6 inch 3-web grousers	lbs	185,629
Total weight with 31.5 inch 3-web grousers	lbs	186,511

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

Low Head

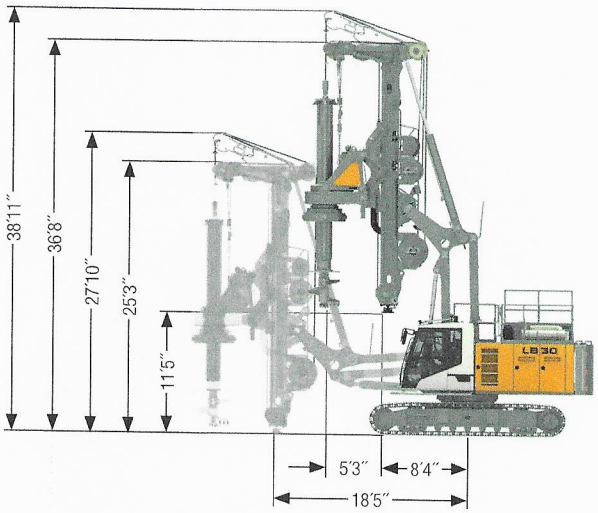


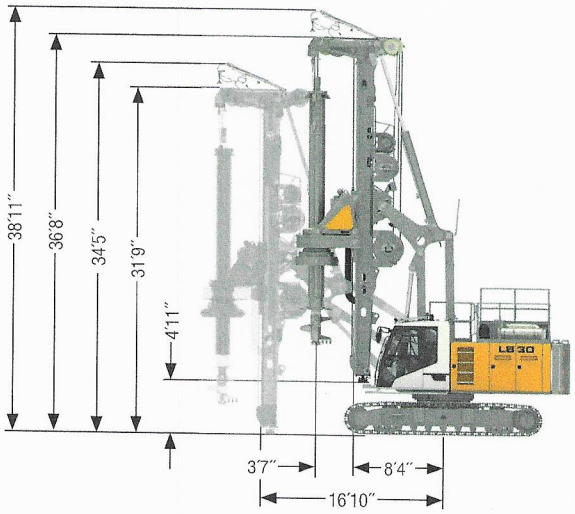
Operating weight

Total weight with 27.6 inch 3-web grousers	lbs	162,260
Total weight with 31.5 inch 3-web grousers	lbs	163,142

The operating weight includes the basic machine LB 30 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 22,481 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	164,906
Total weight with 31.5 inch 3-web grousers	lbs	165,788

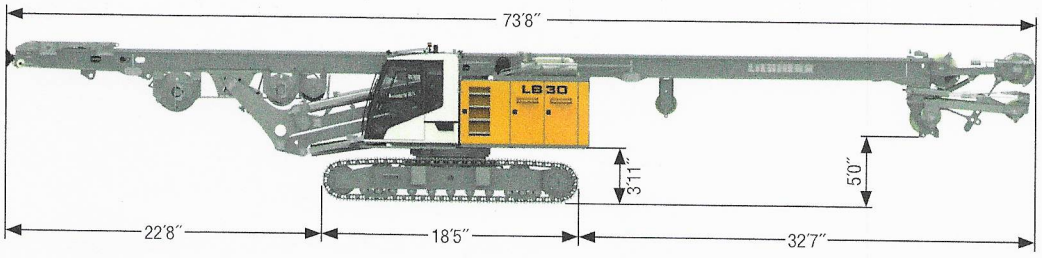
The operating weight includes the basic machine LB 30 with rotary, Kelly bar 28/5/24 and 28,660 lbs counterweight. Equipment for casing oscillator not included.

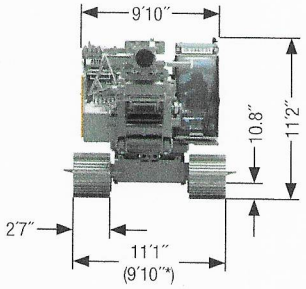
Operating weight

Total weight with 27.6 inch 3-web grousers	lbs	163,363
Total weight with 31.5 inch 3-web grousers	lbs	166,449

The operating weight includes the basic machine LB 30 with rotary, Kelly bar 28/5/24 and 28,660 lbs counterweight. Equipment for casing oscillator not included.

Transport dimensions and weights

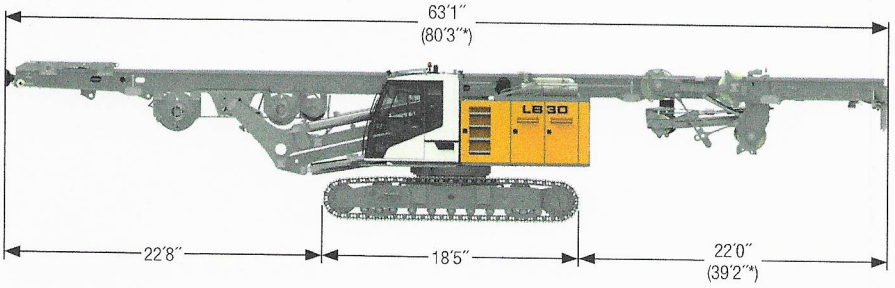




Standard leader (19.7 ft leader upper part)

includes the basic machine (fully tanked and ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator	lbs	116,625

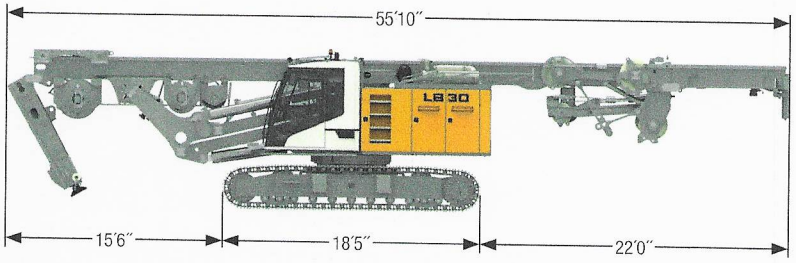
* Transport width with 27.6 inch grousers



Folding leader (26.2 ft leader upper part)

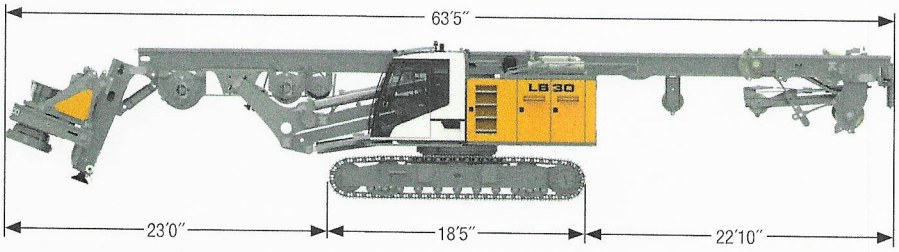
includes the basic machine (fully tanked and ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator	lbs	118,609

* Transport length leader not folded



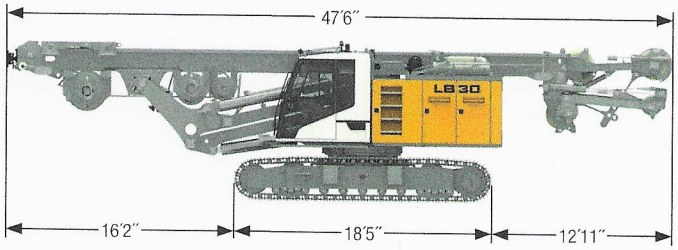
Leader lower and upper part folded

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



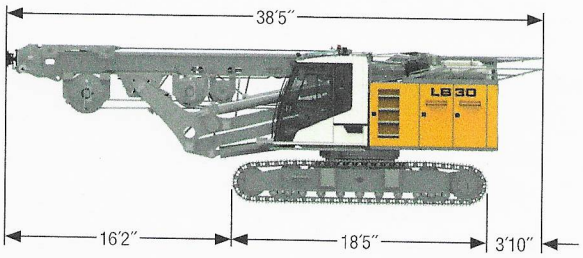
Leader lower and upper part folded (with BAT)

includes the basic machine (fully tanked and ready for operation) with leader, BAT 300, without counterweight and without adapter for casing oscillator	lbs	133,600



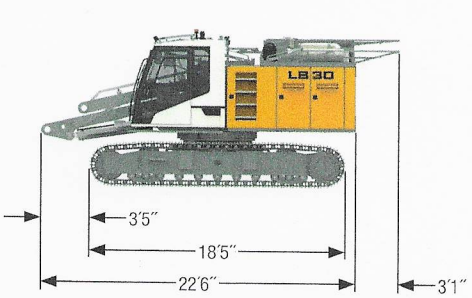
Low Head

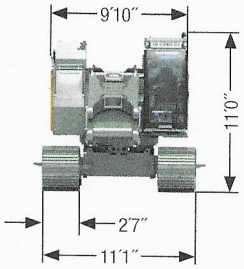
includes the basic machine (fully tanked and ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator	lbs	111,774



Ultra Low Head

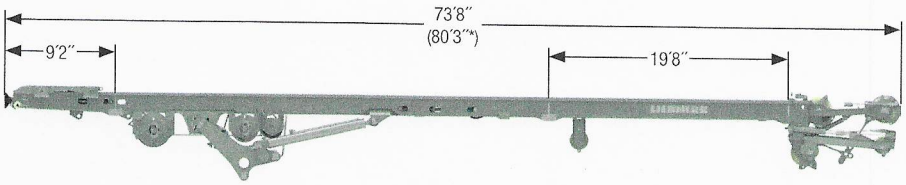
includes the basic machine (fully tanked and ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator	lbs	106,483

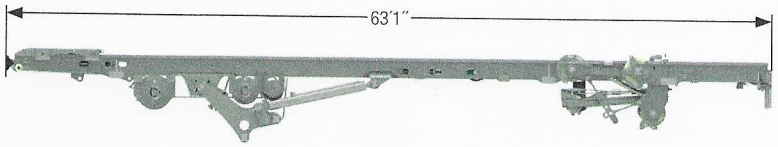


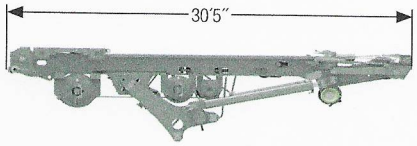


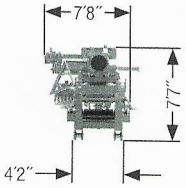
Basic machine

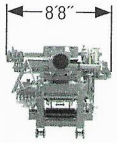
with crawler side frames, without counterweight and without adapter for casing oscillator	lbs	77,382











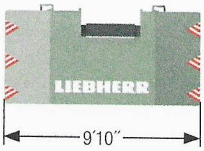
Leader versions

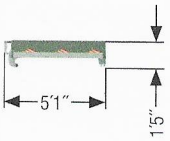
Standard leader	lbs	39,242
Folding leader	lbs	41,226
Standard leader lower part	lbs	1,543
Ultra Low Head leader	lbs	29,101
19.7 ft leader extension	lbs	3,307
26.2 ft leader extension	lbs	5,291
Leader top	lbs	3,748
Short leader lower part	lbs	661

* Transport length folding leader

Options

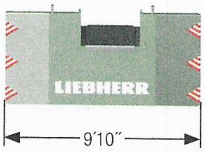
Adapter for casing oscillator	lbs	1,764
Concrete supply line	lbs	1,323
All round platform with railings	lbs	882

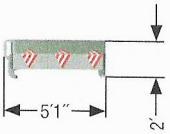




Rear counterweight

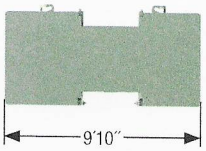
Weight	lbs	11,023

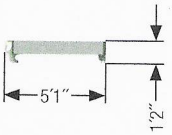




Rear counterweight

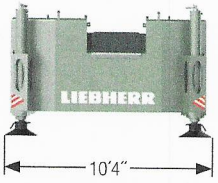
Weight	lbs	17,636

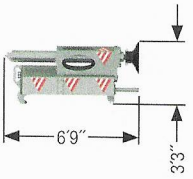




Intermediate counterweight

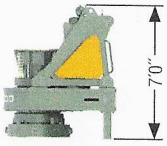
Weight	lbs	11,023

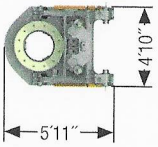




Rear counterweight with rear support unit

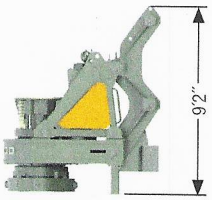
Weight	lbs	17,636

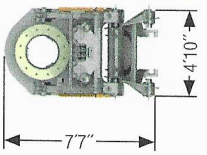




BAT 300

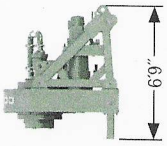
Transport weight	lbs	14,330

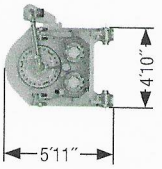




BAT 300 with adapter for drilling axis 5.2 ft

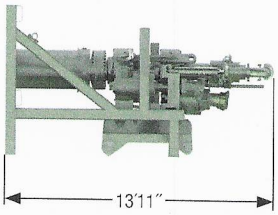
Transport weight	lbs	16,755

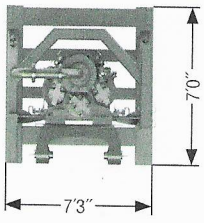




MAT 100

Transport weight	lbs	12,346





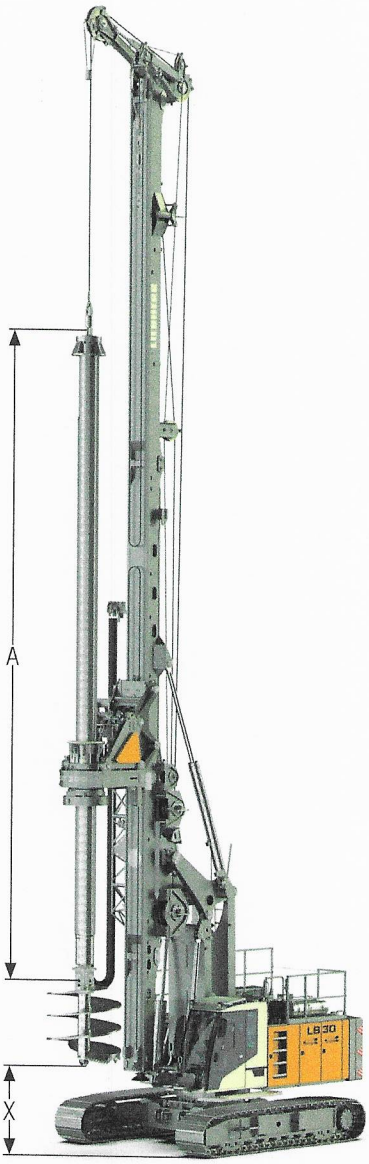
DBA 160

Transport weight	lbs	17,857

Kelly drilling

Standard leader

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	11.1

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											
			Low Head				Standard leader				Folding leader			
Model	Length A	Weight	X [ft]		Depth [ft]		X [ft]		Depth [ft]		X [ft]		Depth [ft]	
	[ft]	[lbs]	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	11,685	10.2[1]	8.6[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	35.6	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	42.2	14,771	-	-	-	-	20.0	18.4	103.7	105.3	26.6	24.9	103.7	105.3
28/3/36	46.0	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	-	-	-	-	15.0	13.5	153.2	154.5	21.7	20.0	153.2	154.5
28/4/54	52.3	23,369	-	-	-	-	10.2[1]	8.6[1]	172.9[1]	174.2[1]	16.7	15.0	172.9[1]	174.2[1]
28/4/60	57.3	25,574	-	-	-	-	5.2[1]	3.6[1]	192.6[1]	193.9[1]	11.8	10.2	192.6[1]	193.9[1]
28/4/66	62.2	25,794	-	-	-	-	-	-	-	-	6.9[1]	5.2[1]	212.6[1]	214.2[1]
28/4/72	72.5	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 | Drilling axis 5.2

Other Kelly bars available on request.
When using a casing oscillator, value X has to 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 with short leader lower part							
			Leader top in horizontal position				Leader top in inclined position			
Model	Length A	Weight	X [ft]		Depth [ft]		X [ft]		Depth [ft]	
	[ft]	[lbs]	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	21.2	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]	71.9[1]	71.2[1]	11.5[1]	11.5	71.9[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 with 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	21.2	11,905	9.8	9.8	73.2	74.1	12.5	12.5	73.2	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

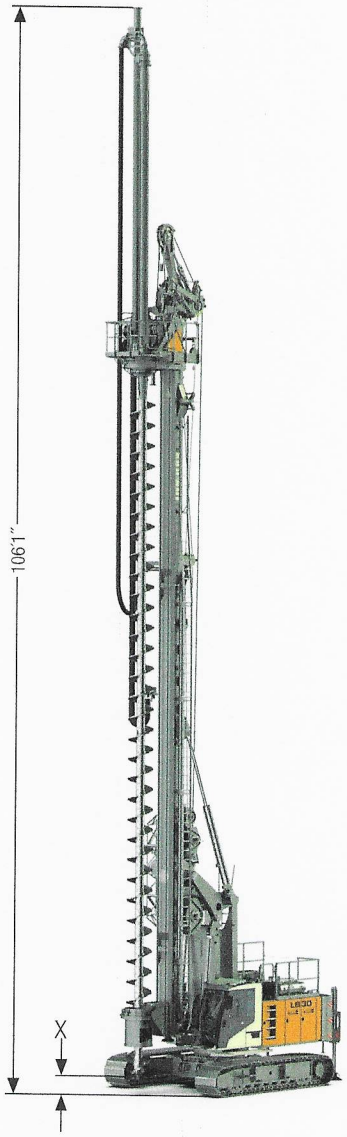
[1] Installation of the Kelly bar with leader top in inclined position.
[2] Installation only possible using auxiliary equipment.

Drilling axis 3.6 | Drilling axis 5.2

Other Kelly bars available on request.
The values given are at minimum radius.
Length of drilling tool 2.3 ft.
Special drive adapter on BAT for Kelly bar diameter 1.5 ft.
When using a standard drive adapter on BAT for Kelly bar diameter 1.4 ft, Kelly bars and drilling depths are available on request.

Continuous flight auger drilling

Folding leader



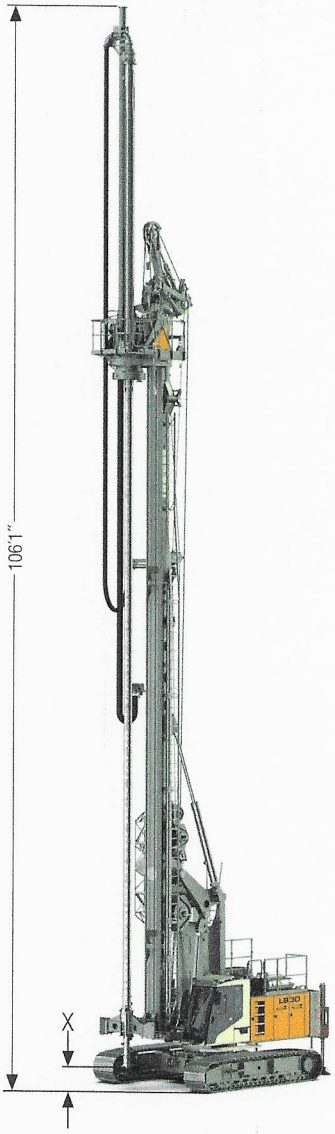
Performance data

Rotary drive - torque	lbf-ft	199,142		
Rotary drive - speed	rpm	43		
Max. drilling diameter*	ft	3.3		
		Low Head	Standard leader	Folding leader
Drilling depth without Kelly extension	ft	32.8	52.5	59.0
Drilling depth with 26.2 ft Kelly extension	ft	59.0	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 an X value of 1.5 ft (see above illustration).
* Other drilling diameters available on request

Full displacement drilling

Folding leader



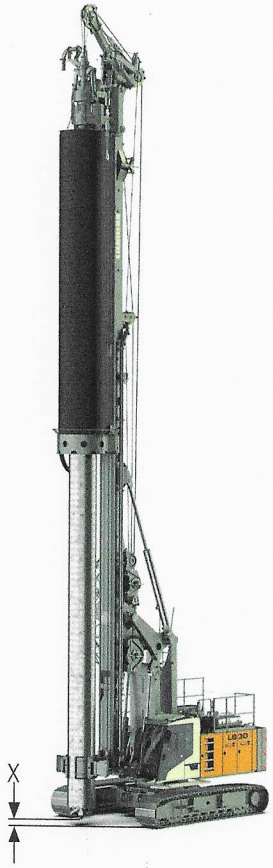
Performance data

Rotary drive - torque	lbf-ft	199,142		
Rotary drive - speed	rpm	43		
Max. drilling diameter*	ft	2.0		
		Low Head	Standard leader	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 leader	Folding leader
Drilling depth**	ft	35.1	54.8	61.4
Max. pull force	lbf	123,645	123,645	123,645

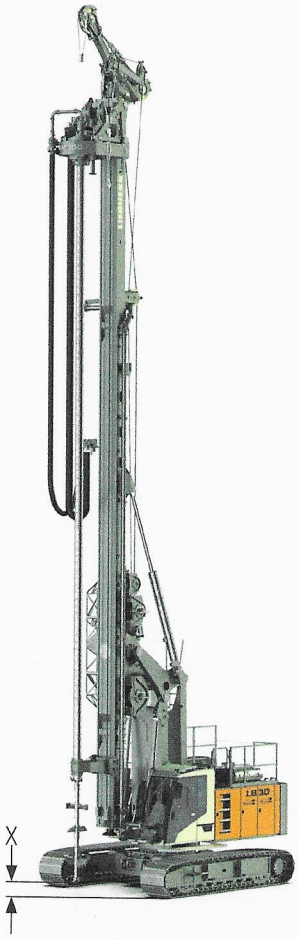
Above drilling depths are valid for the use of standard tools and for an X value of 1.7 ft (see above illustration). Due to differences in the max. admissible load capacities, the combinations of drilling depth and drilling diameter may be limited.

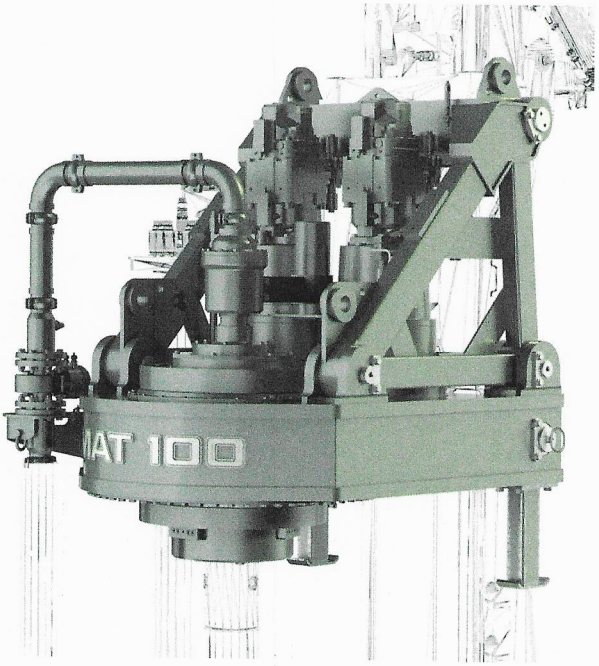
* Other drilling diameters available on request.

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

Soil mixing

MAT 100 / BAT 300





Performance data MAT 100

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

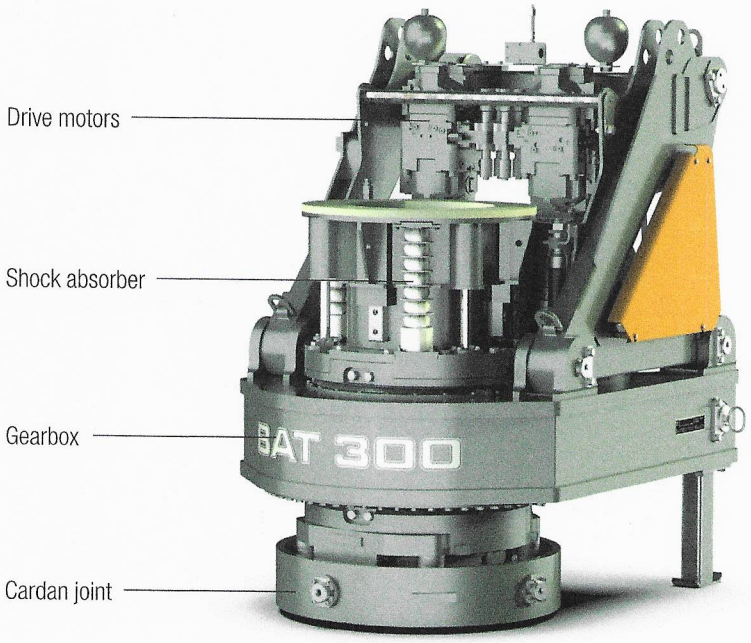
Performance data BAT 300

Rotary drive - torque	lbf-ft	199,141		
Rotary drive - speed	rpm	43		
Max. mixing diameter*	ft	6.2		
		Low Head	Standard leader	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, and 2.1 ft for BAT 300 (see above illustration).

* Other mixing diameters available on request.

BAT 300

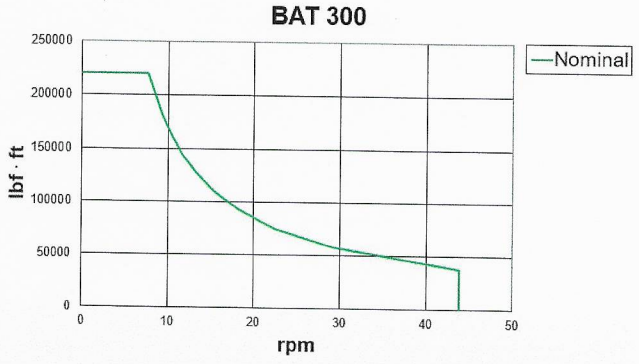


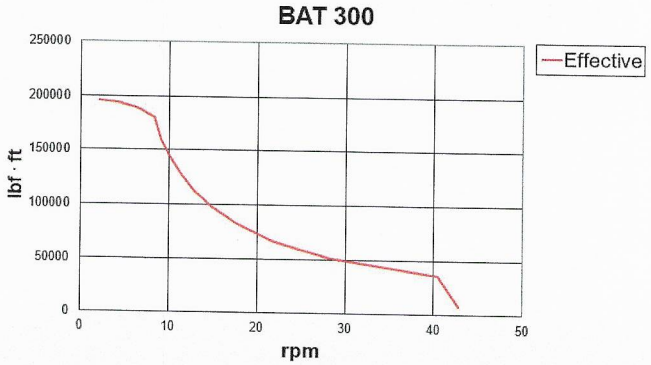
Kelly shock absorber:
- Newly developed Kelly shock absorber for highest demands
- Possibility of adjusting the strength of the Kelly shock absorber for different Kelly bar weights

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

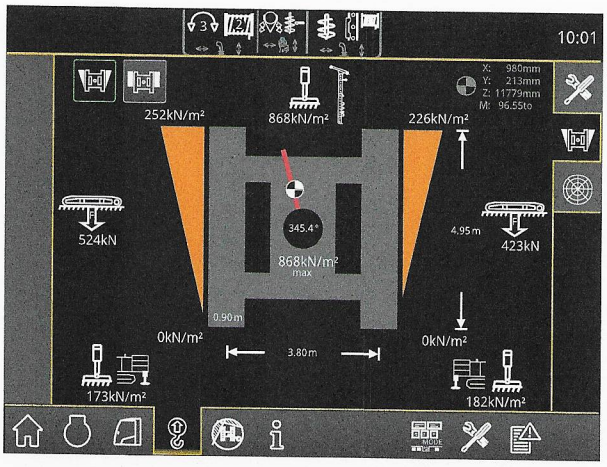
Highest availability through easy set-up:
- No mechanical shift gearbox
- Low maintenance requirements

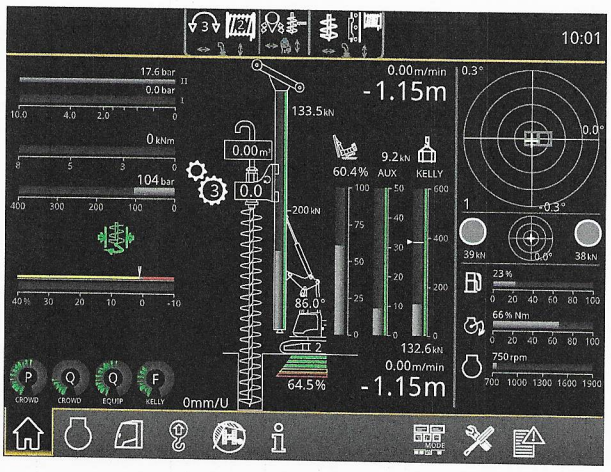
Flexibility through modular design:
- Exchangeable cardan joint for other casing drivers
- Exchangeable drive adapters for use of other Kelly bars
- Quickly exchangeable equipment for other methods of operation





Ground Pressure Visualization





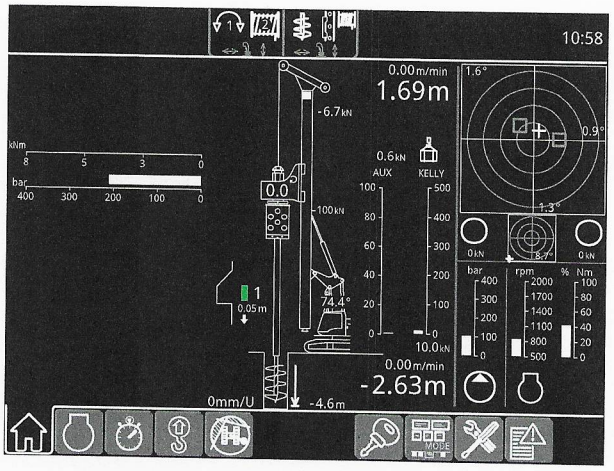
Features:

- 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



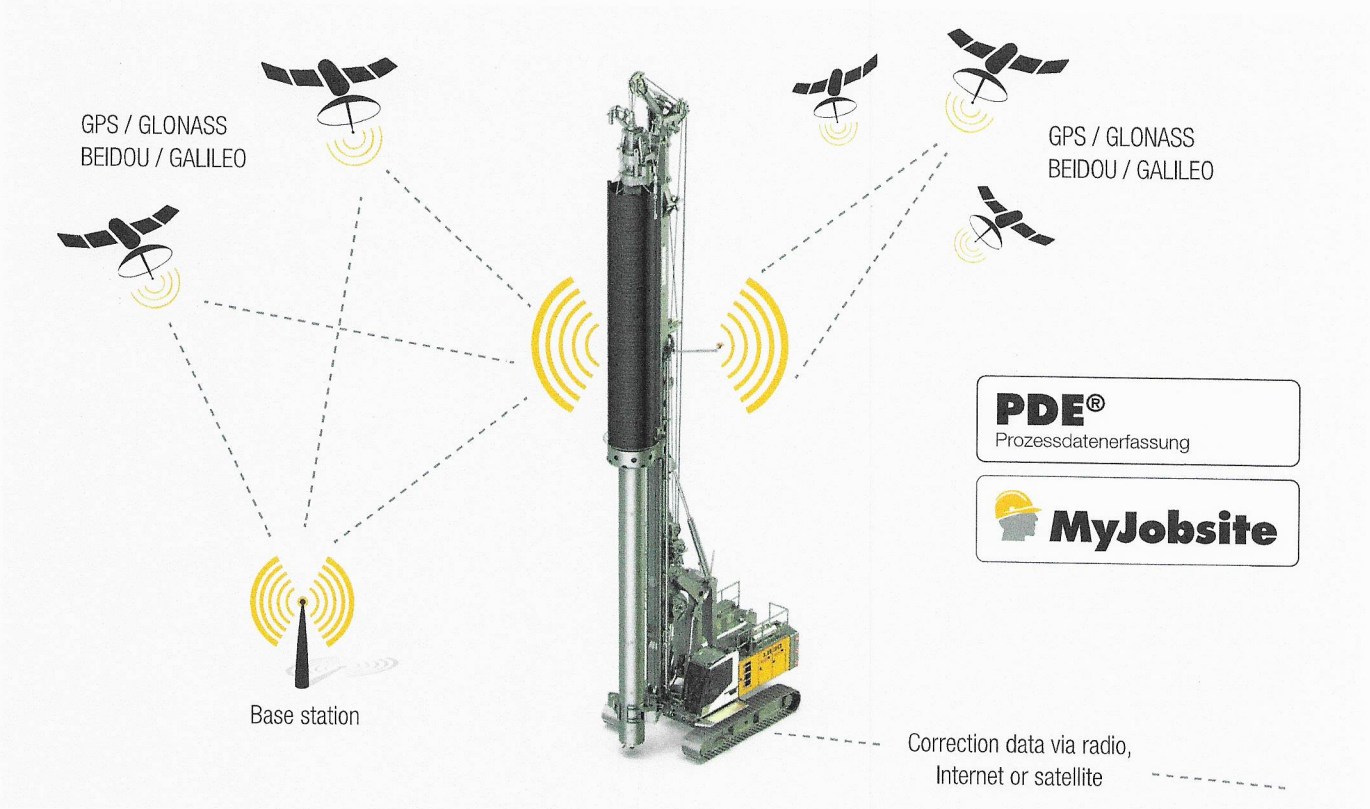
Your benefits:

- 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

all measurements displayed on this page are metric

LIPOS®

Liebherr Positioning System



DGNSS – Differential Global Navigation Satellite System

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.

Further info

- 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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