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# LB 55

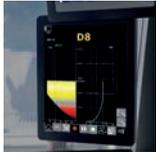
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LB 2006.07  
[www.liebherr.com](http://www.liebherr.com)

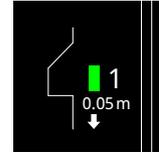
## LIEBHERR

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



## Diesel engine

Power rating according to ISO 9249	565 kW
Engine type	Liebherr D 9508 A7-04
Fuel tank capacity	1000 l
Exhaust certification	EU 2016/1628 Stage V; EPA/CARB Tier 4f non-certified emission standard



## Hydraulic system

Hydraulic oil tank capacity	1400 l
Max. working pressure	385 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	0-1.4 km/h
Track force	1122 kN
Grousers	Width 1000 mm



## Swing gear

Drive system	with fixed axial piston hydraulic motors, planetary gearbox, pinion
Swing ring	roller bearing with external teeth
Brake	hydraulically released, spring-loaded multi-disc holding brake, locks automatically at zero swing motion
Swing speed	0-1.8 rpm continuously variable



## Kelly winch with freewheeling

Line pull effective	500 kN (2nd layer)
Rope diameter	42 mm
Rope speed	0-79 m/min



## Auxiliary winch

Line pull effective	140 kN (1st layer)
Rope diameter	24 mm
Rope speed	0-71 m/min



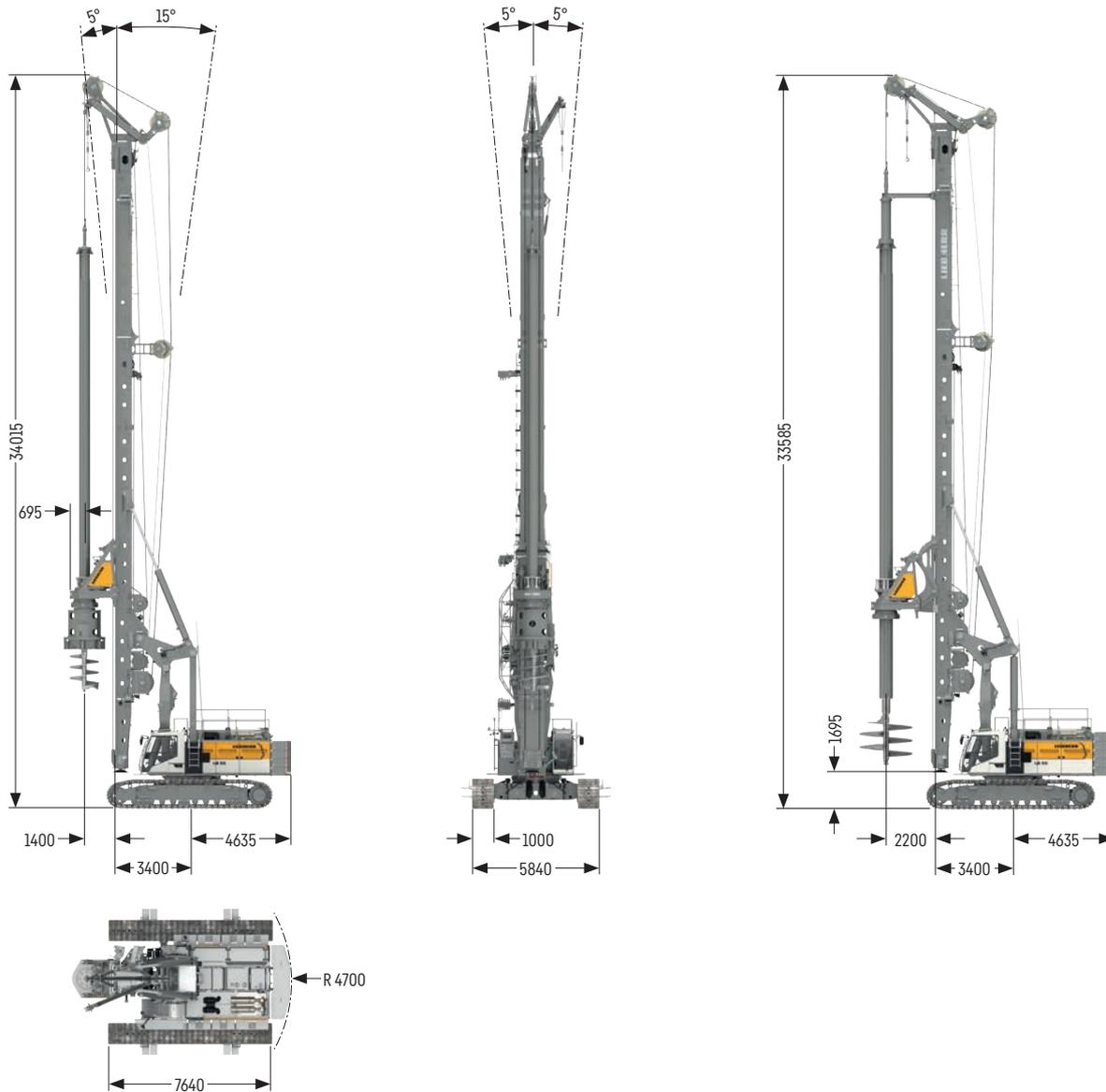
## Crowd system

Crowd force	560/560 kN (push/pull)
Line pull effective	280 kN (1st layer)
Rope diameter	30 mm
Travel with standard leader between mechanical limit stops	24.2 m
Rope speed	0-68 m/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



## Operating weight

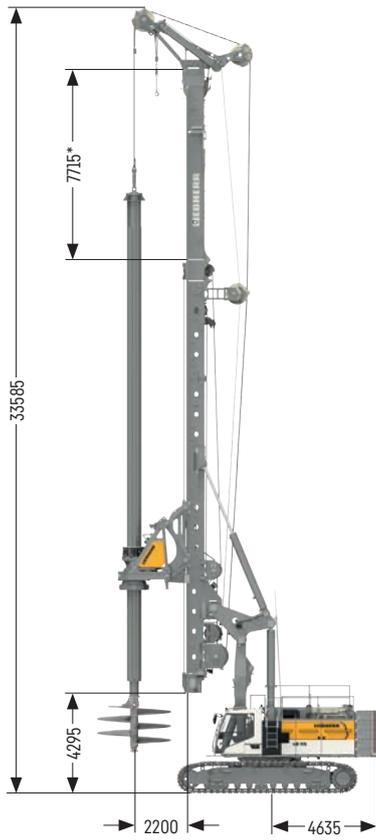
Total weight with 1000 mm 3-web grousers t 162.5

The operating weight includes the basic machine LB 55 with rotary and Kelly bar 36/4/66, 23.2 t counterweight and equipment for casing oscillator.

## Operating weight

Total weight with 1000 mm 3-web grousers t 178.2

The operating weight includes the basic machine LB 55 with rotary, Kelly bar 45/4/78 and 29 t counterweight. Equipment for casing oscillator not included.



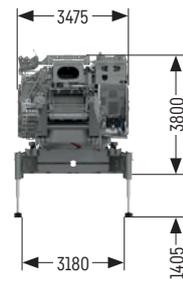
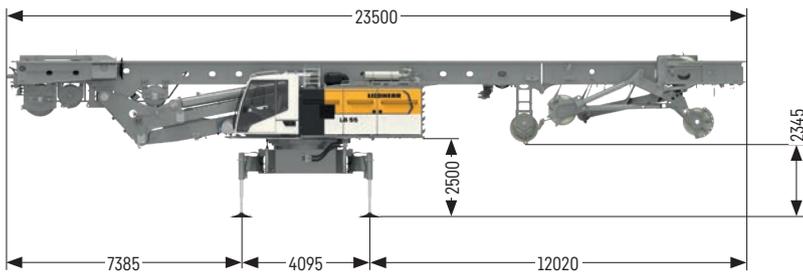
### Operating weight

Total weight with 1000 mm 3-web grousers	t 173.9
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The operating weight includes the basic machine LB 55 with rotary, Kelly bar 45/4/78 and 29 t counterweight. Equipment for casing oscillator not included.

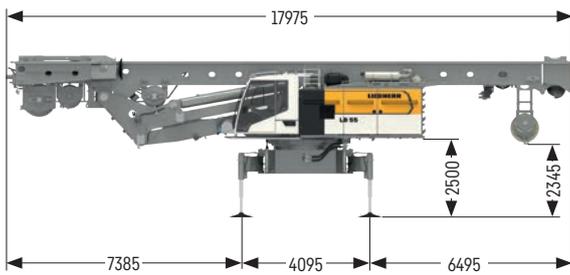
\* Reduction of crowd travel when using leader upper part for short crowd distance

# Transport dimensions and weights



## Transport with leader

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 t 80.2



## Transport with leader, without leader top and upper part, for short crowd distance

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 t 75.8

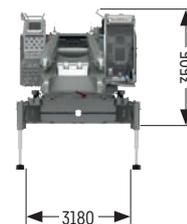
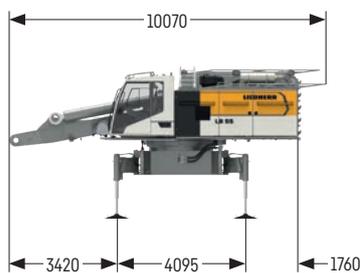


## Transport leader top

Weight t 2.2

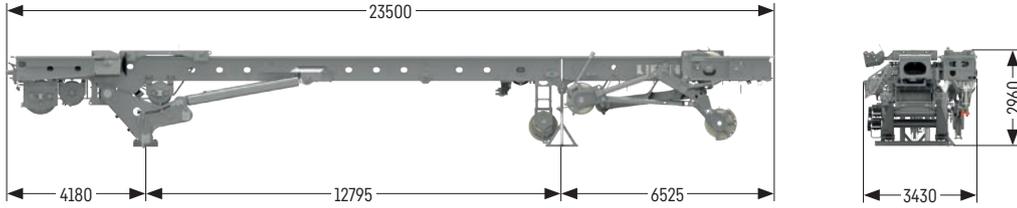
## Transport leader upper part for short crowd distance

Weight t 3.6



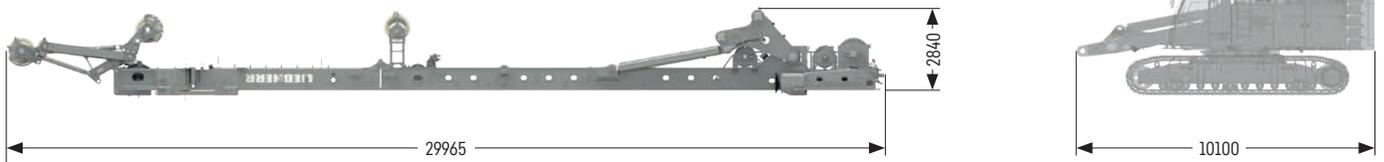
## Basic machine

without crawlers, without counterweight and without adapter for casing oscillator t 40.5



**Transport leader**

Weight	t 42.7
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**Option - fold leader forward / set down leader to the front**

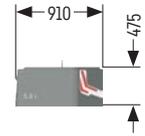
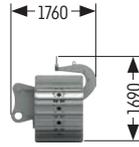
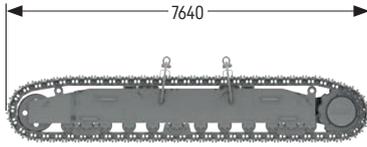
Weight of leader	t 41.9
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**Options**

Adapter for casing oscillator	t 0.8
Concrete supply line	t 0.7
Cylinder for V-kinematics	t 2.0

**Leader parts**

Standard leader upper part foldable	t 5.3
Leader upper part for short crowd distance with pulley support	t 4.5
Standard leader lower part	t 3.5
Short leader lower part	t 1.1
Leader top	t 2.2

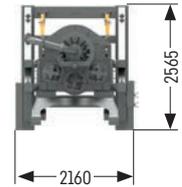
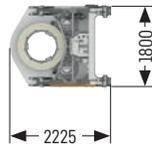


**Crawler**

Weight t 2x15.8

**Counterweight**

Weight t 5.8

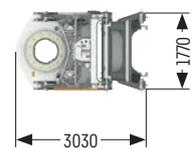
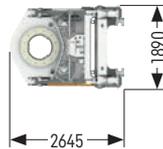
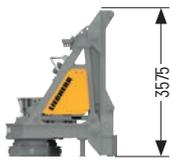


**BAT 550**

Transport weight t 10.6

**DBA 300.1**

Transport weight t 12.3



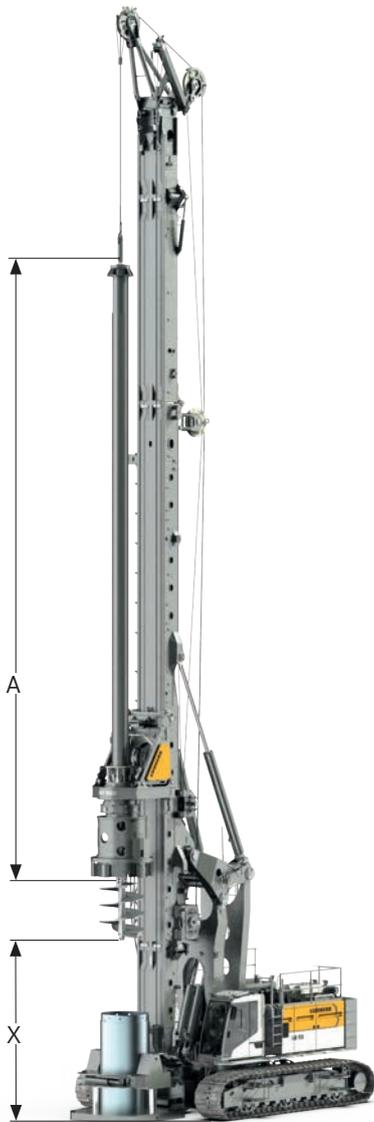
**BAT 550 with adapter for drilling axis 1800 mm**

Transport weight t 12.8

**BAT 550 with adapter for drilling axis 2200 mm**

Transport weight t 12.7

# Kelly drilling



## Performance data

Rotary drive - torque	kNm	557		
Rotary drive - speed	rpm	34		
		Drilling axis 1400mm	Drilling axis 1800mm	Drilling axis 2200mm
Max. drilling diameter cased*	mm	2000	2500	3000
Max. drilling diameter uncased	mm	2500	3000	4200
Max. drilling diameter uncased with short leader lower part	mm	3800	4200	4800

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

\* Depending on casing driver configuration.

# Drilling depths

## Technical data Kelly bar 470

Model	Kelly bars		Drilling depths Standard					
	Length A [mm]	Weight [t]	X [m]			Depth [m]		
			1400	1800	2200	1400	1800	2200
36/3/30	11900	7.6	17.0	16.8	16.5	28.2	28.1	27.9
36/3/36	14045	9.2	14.9	14.7	14.4	34.1	34.0	33.8
36/4/42	12965	10.9	15.9	15.8	15.5	40.1	40.0	39.8
36/4/48	14465	12.1	14.4	14.3	14.0	46.1	46.0	45.8
36/4/54	15950	13.0	13.0	12.8	12.5	52.2	52.0	51.9
36/4/60	17450	14.1	11.5	11.3	11.0	58.1	58.0	57.8
36/4/66	18950	15.3	10.0	9.8	9.5	64.2	64.1	63.9
36/4/72	20450	16.4	8.5	8.3	8.0	70.2	70.0	69.9
36/4/78	21950	17.5	7.0	6.8	6.5	76.2	76.1	75.9
36/4/84	23450	18.7	5.5	5.3	5.0	82.2	82.1	81.9
36/4/90	24950	20.1	4.0 <sup>1</sup>	3.8 <sup>1</sup>	3.5 <sup>1</sup>	88.2 <sup>1</sup>	88.1 <sup>1</sup>	87.9 <sup>1</sup>

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

Drilling axis 1400 mm

Drilling axis 1800 mm

Drilling axis 2200 mm

Other Kelly bars available on request.

When using a casing oscillator, value X must be reduced by 1770 mm.

When using a Kelly bar guide, value X has to be reduced by 2625 mm.

When using a short leader lower part the drilling depth is reduced by 2800 mm for a drilling axis of 1400 mm, by 2400 mm for a drilling axis of 1800 mm, and by 2000 mm for a drilling axis of 2200 mm.

Length of drilling tool 1900 mm

## Technical data Kelly bar 559

Model	Kelly bars		Drilling depths Standard					
	Length A [mm]	Weight [t]	X [m]			Depth [m]		
			1400	1800	2200	1400	1800	2200
45/3/30	12070	10.1	16.8	16.7	16.4	27.7	27.6	27.5
45/3/36	14070	11.5	14.8	14.7	14.4	33.7	33.6	33.5
45/4/42	13020	12.0	15.9	15.7	15.4	39.8	39.7	39.5
45/4/48	14525	14.3	14.4	14.2	13.9	45.7	45.5	45.4
45/4/54	16020	15.4	12.9	12.7	12.4	51.8	51.7	51.5
45/4/60	17520	16.7	11.4	11.2	10.9	57.8	57.6	57.5
45/4/66	19020	18.2	9.9	9.7	9.4	63.7	63.6	63.4
45/4/72	20525	20.0	8.4	8.2	7.9	69.7	69.5	69.4
45/4/78	22020	20.4	6.9	6.7	6.4	75.8	75.6	75.5
45/4/84	23520	22.1	5.4	5.2	4.9	81.8	81.7	81.5
45/4/90	25025	24.0	3.9 <sup>1</sup>	3.7 <sup>1</sup>	3.4 <sup>1</sup>	87.7 <sup>1</sup>	87.5 <sup>1</sup>	87.4 <sup>1</sup>
36/5/123	27500	32.0	1.4 <sup>1</sup>	1.2 <sup>1</sup>	0.9 <sup>1</sup>	120.7 <sup>1</sup>	120.7 <sup>1</sup>	120.7 <sup>1</sup>

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

Drilling axis 1400 mm

Other Kelly bars available on request.

When using a casing oscillator, value X must be reduced by 1700 mm.

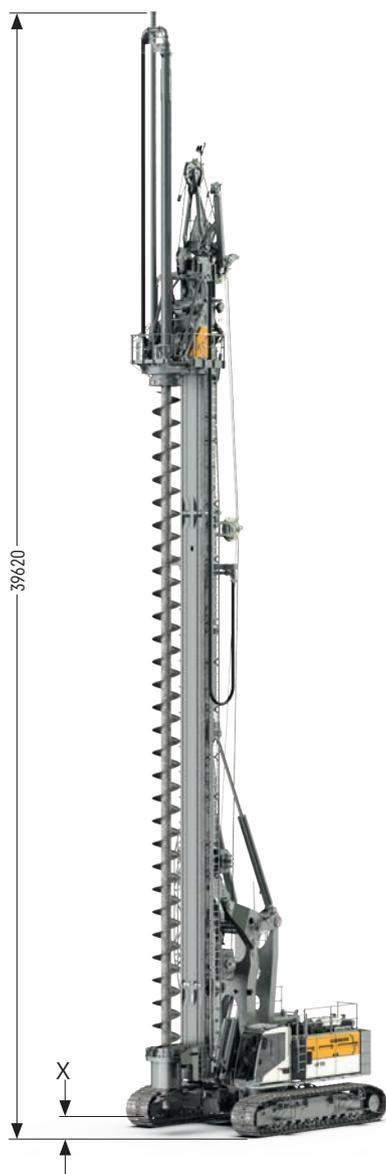
When using a Kelly bar guide, value X has to be reduced by 2165 mm.

When using a short leader lower part the drilling depth is reduced by 2800 mm for a drilling axis of 1400 mm, by 2400 mm for a drilling axis of 1800 mm, and by 2000 mm for a drilling axis of 2200 mm.

Length of drilling tool 1900 mm

Drilling axis 2200 mm

# Continuous flight auger drilling



## Performance data

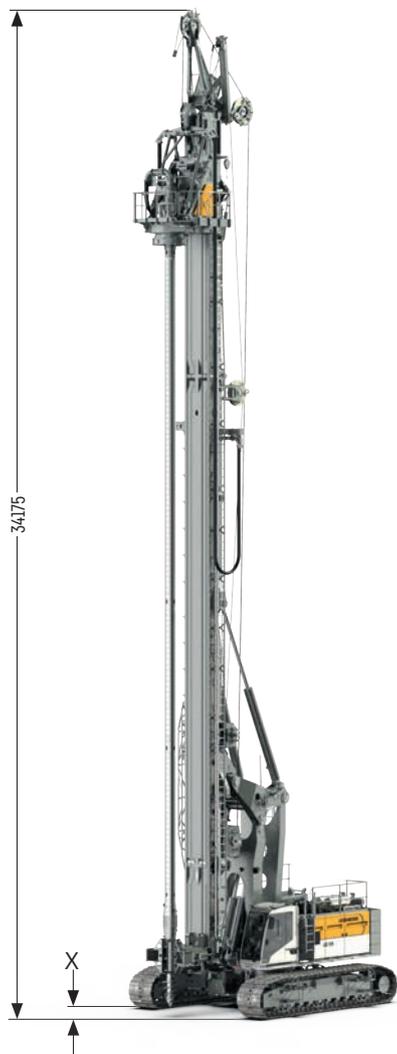
Rotary drive - torque	kNm	510
Rotary drive - speed	rpm	34
Max. drilling diameter*	mm	1200
Drilling depth without Kelly extension	m	22.6
Drilling depth with 10m Kelly extension	m	32.6
Max. pull force	kN	1240

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 870 mm (see above illustration).

\* Other drilling diameters available on request

# Full displacement drilling



## Performance data

Rotary drive - torque	kNm	510
Rotary drive - speed	rpm	34
Max. drilling diameter*	mm	800
Drilling depth without Kelly extension	m	23.6
Drilling depth with 10 m Kelly extension	m	33.6
Max. pull force	kN	1240

Above drilling depths are valid for the use of standard tools and for an X value of 355 mm (see above illustration).

\* Other drilling diameters available on request

# Double rotary drilling

## DBA 300.1



### Performance data

Rotary drive I - torque	kNm	0-300
Rotary drive I - speed	rpm	0-26
Rotary drive II - torque	kNm	0-150
Rotary drive II - speed	rpm	0-30
Max. drilling diameter*	mm	900
Drilling depth**	m	23.0
Max. pull force	kN	960

Above drilling depths are valid for the use of standard tools and for an X value of 1000 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 on request

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

# Soil mixing

## BAT 550



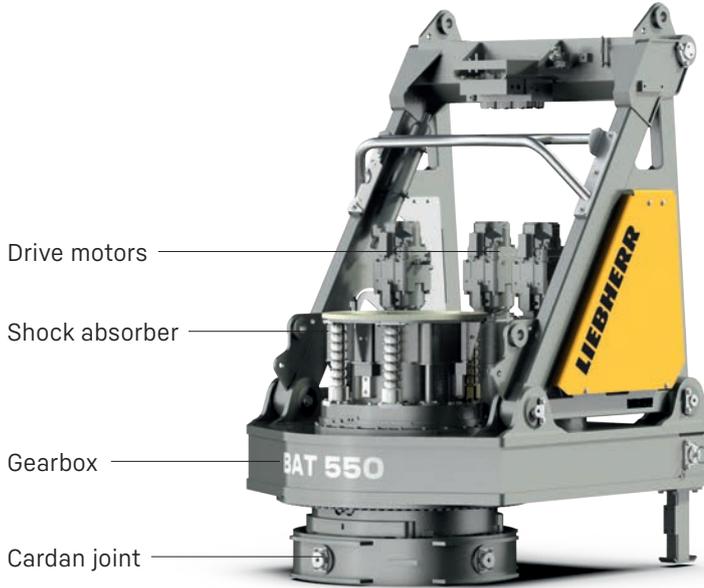
### Performance data BAT 550

Rotary drive - torque	kNm	510
Rotary drive - speed	rpm	34
Max. mixing diameter*	mm	1500
Mixing depth	m	23.0
Mixing depth with 10 m Kelly extension	m	33.0
Max. pull force	kN	1240

Above mixing depths are valid for the use of standard tools and for the X value of 1000 mm shown in the illustration.

\* Other mixing diameters on request

# BAT 550



## 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:

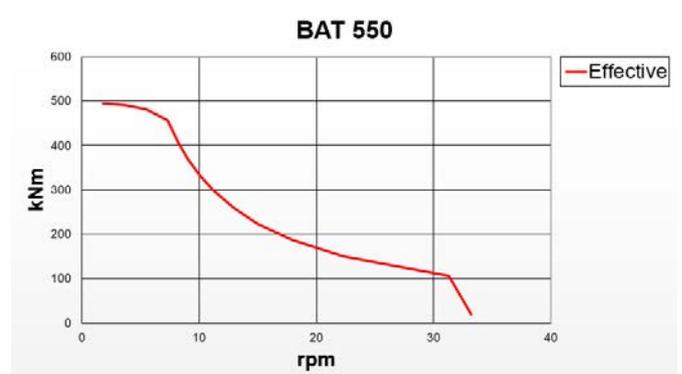
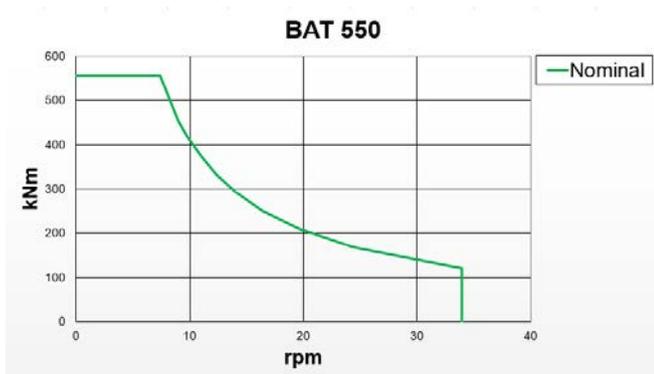
- No mechanical shift gearbox
- Low maintenance requirements

## 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:

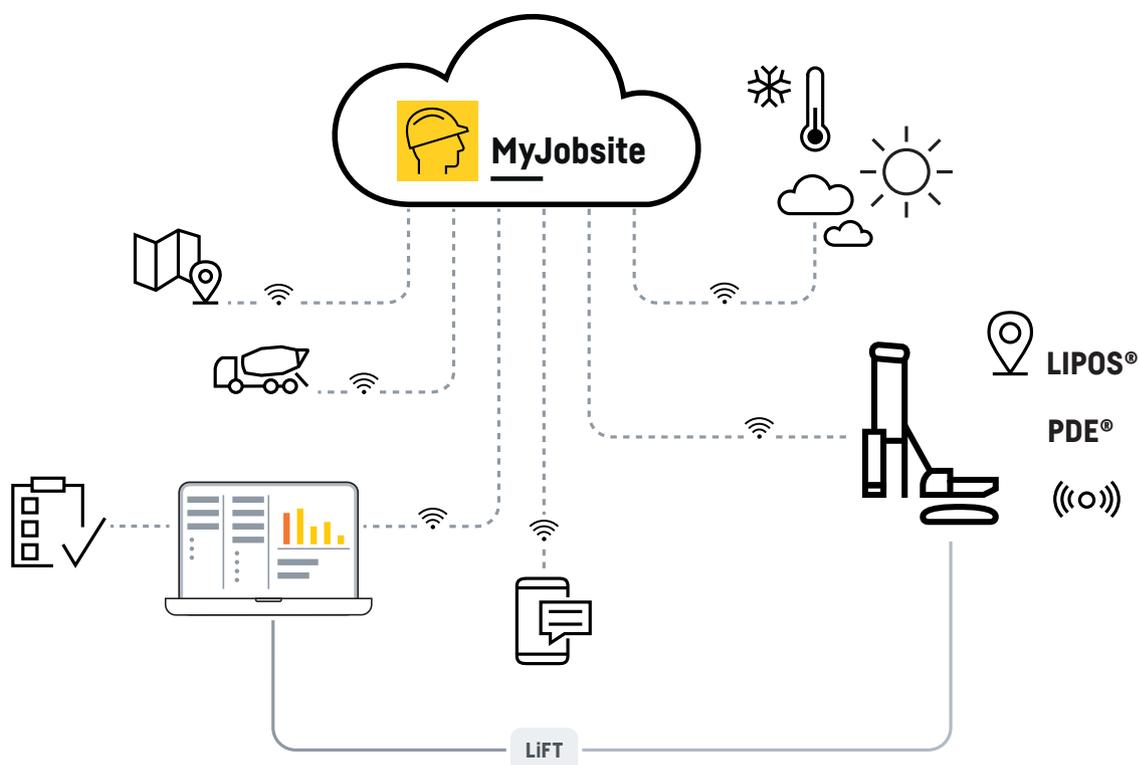
- Exchangeable cardan joint for other casing drivers
- Exchangeable drive adapters for use of other Kelly bars
- Quickly exchangeable equipment for other methods of operation





# 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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