

Piling and drilling rig

LRB 355
Litronic®

enUS

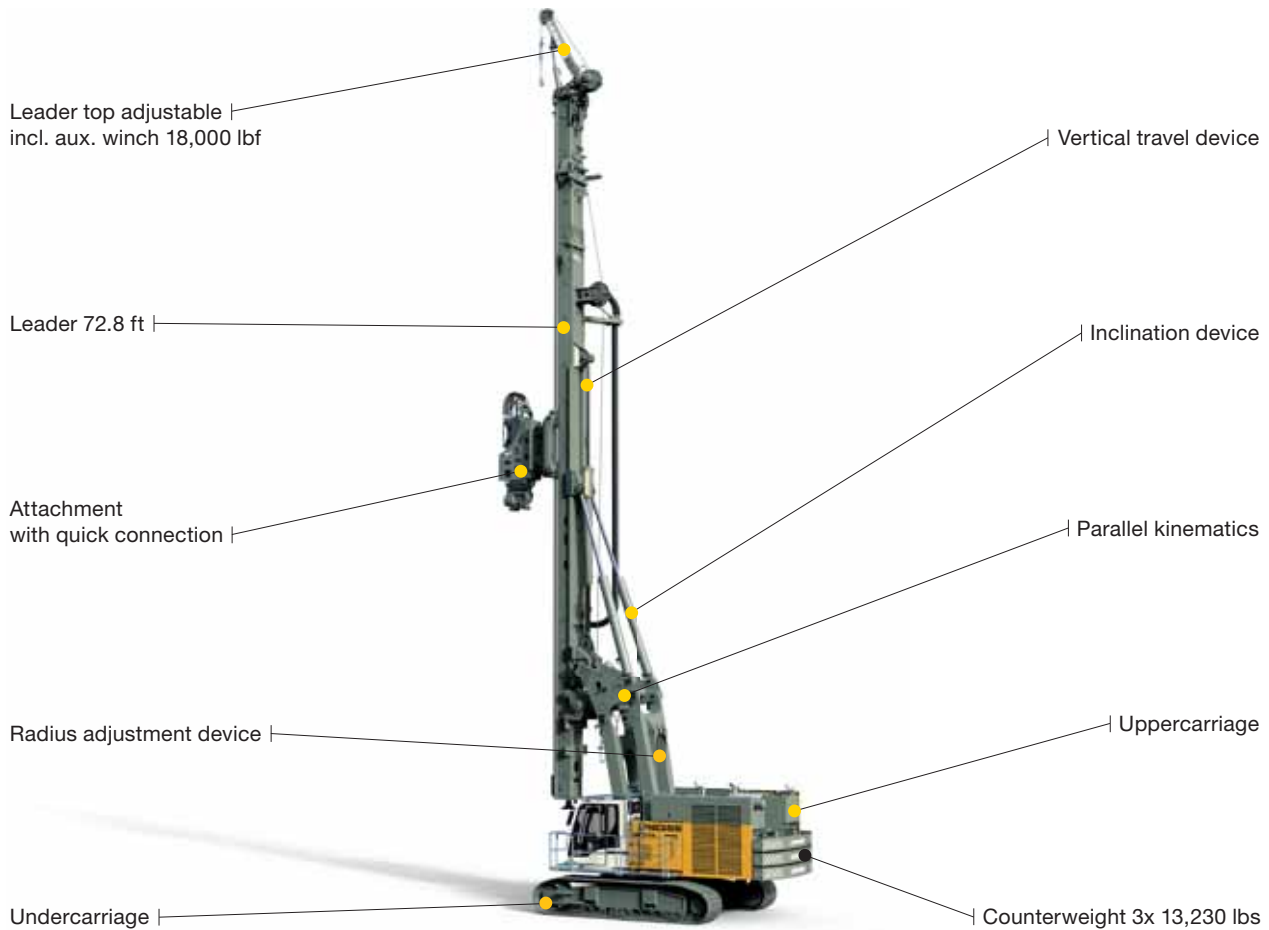
LRB 2504.05



LIEBHERR

Concept and characteristics

LRB 355



The robust universal machine for a wide variety of applications:

- Full displacement drilling
- Continuous flight auger drilling
- Double rotary drilling
- Kelly drilling
- Soil mixing
- Vibrator slim design
- Ring vibrator
- Hydraulic hammer
- Cutter Soil Mixing (CSM)

The solid undercarriage offers excellent stability and low ground bearing pressure.

The uppercarriage with its small swing radius enables operation in restricted space.

Parallel kinematics with a large working area allows to fold the leader back.

All winches are mounted on the leader for low centre of gravity and easy operation.

The rigid leader absorbs high torque and is fitted with a rope crowd system for high pull forces.

The quick change system allows for rapid mounting or changing of attachment.

LRB 355 with optional equipment



The powerful Liebherr diesel engine is low in emission and economical through SCR technology.

The optional Eco-Silent-Mode reduces fuel consumption and noise emission.

The Litronic control with assistance systems supports the operator:

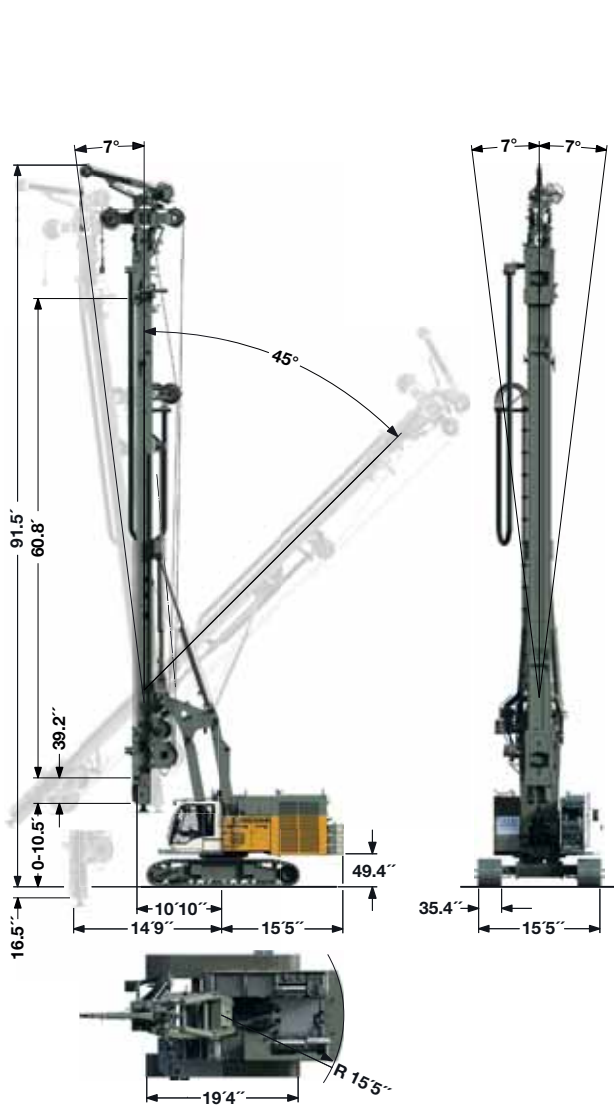
- Joystick control for all machine functions
- Leader inclination memory
- Centrifugal governor for vibrator
- Cruise Control for the drilling process etc.

The PDE process data recording system creates the basis for a complete documentation of the working processes carried out. Using the PDR evaluation software this documentation is given the desired form.

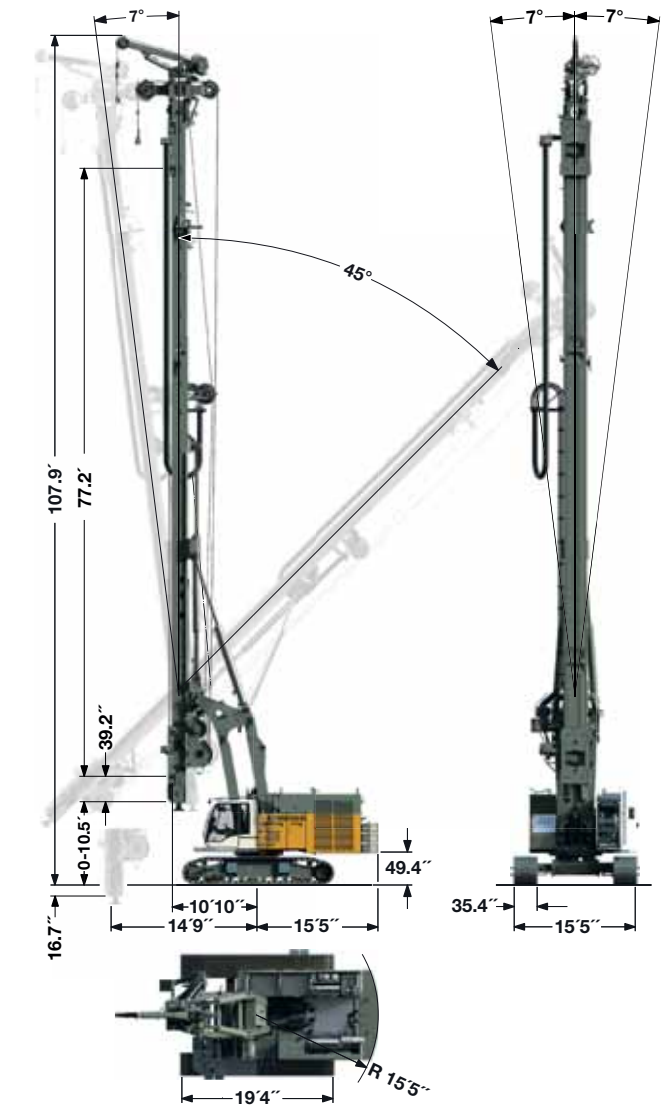
Sophisticated solutions provide safe operation and maintenance of the machine:

- Cab design for optimum visibility
- Acoustic and optic warnings
- Rear and side view cameras etc.

Dimensions and weights



LRB 355 with standard undercarriage



LRB 355 with standard undercarriage and optional equipment

Operating weight LRB 355

Total weight with 35.4 inch 3-web shoes ————— 207,235 lbs

The operating weight includes the basic machine LRB 355 (ready for operation*) and 3x 13,230 lbs counterweight, without attachment.

Additional weights LRB 355

Main winch 56,200 lbf with leader top	10,580 lbs
Elevating working platform	1,985 lbs
Adapter for casing oscillator	2,645 lbs
Hydraulic leader foot	1,764 lbs
Concrete supply line	1,764 lbs

*) Including 20% filling of diesel tank

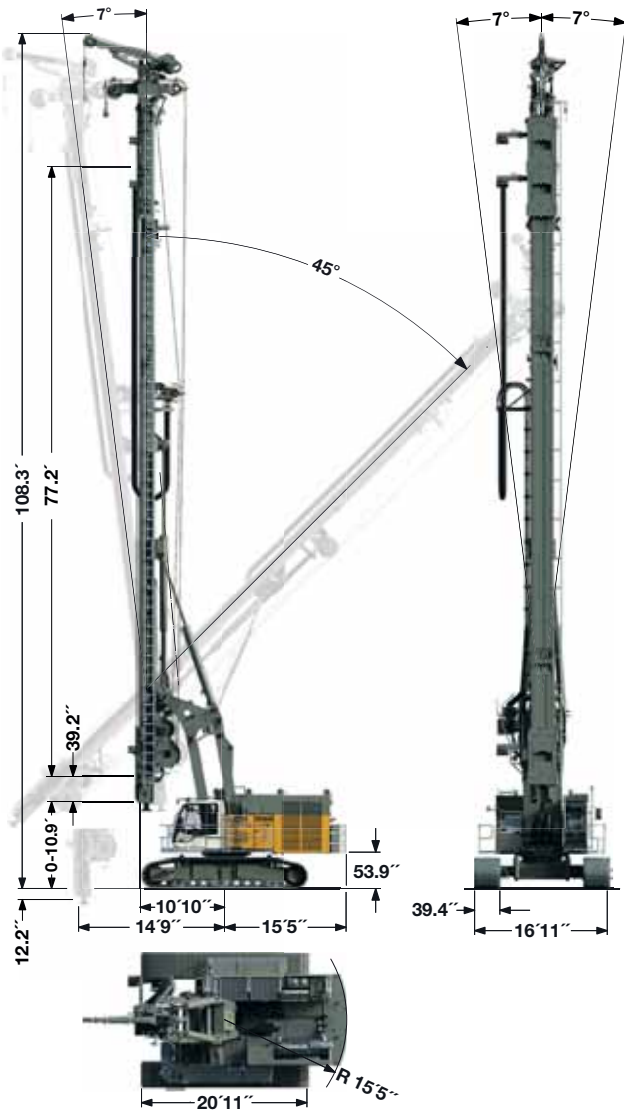
Operating weight LRB 355 with optional equipment

Total weight with 35.4 inch 3-web shoes ————— 210,100 lbs

The operating weight includes the basic machine LRB 355 (ready for operation*) and 3x 13,230 lbs counterweight, without attachment.

Additional weights LRB 355 with optional equipment

Main winch 56,200 lbf with leader top	10,580 lbs
Elevating working platform	2,205 lbs
Adapter for casing oscillator	2,645 lbs
Hydraulic leader foot	1,764 lbs
Concrete supply line	1,764 lbs



LRB 355, undercarriage with detachable crawlers and optional equipment

Operating weight LRB 355 with optional equipment

Total weight with 39.4 inch 3-web shoes _____ 230,385 lbs

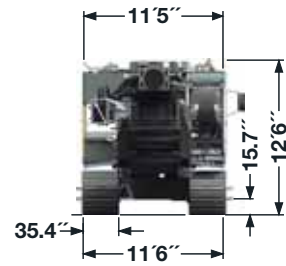
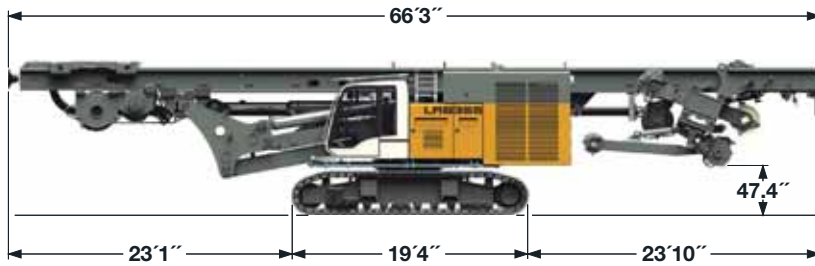
The operating weight includes the basic machine LRB 355 (ready for operation*), the undercarriage with detachable crawlers and 3x 13,230 lbs counterweight, without attachment.

Additional weights LRB 355 with optional equipment

Main winch 56,205 lbf with leader top _____	10,580 lbs
Elevating working platform _____	2,205 lbs
Adapter for casing oscillator _____	2,870 lbs
Hydraulic leader foot _____	1,764 lbs
Concrete supply line _____	1,764 lbs
Jack-up system _____	2,870 lbs

Transport dimensions and weights

LRB 355 with undercarriage

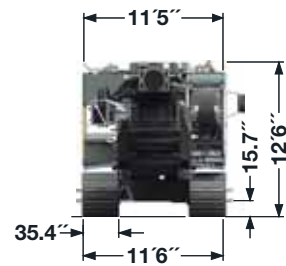
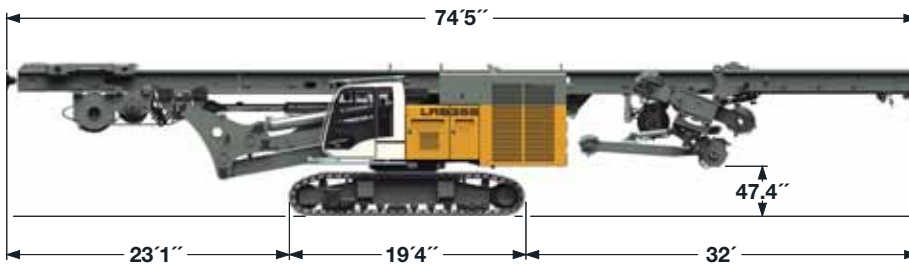


Transport standard LRB 355 with 72.8 ft leader

includes the basic machine (ready for operation*) with leader, without attachment (such as rotary, vibrator, hammer etc.) and without counterweight.

Dimensions and weights

Length	66.2 ft
Weight complete without counterweight	167,550 lbs

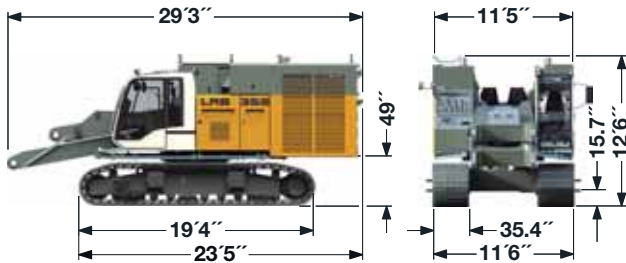


Transport standard LRB 355 with 89.2 ft leader

includes the basic machine (ready for operation*) with leader, without attachment (such as rotary, vibrator, hammer etc.) and without counterweight.

Dimensions and weights

Length	74.4 ft
Weight complete without counterweight	170,420 lbs



Transport basic machine (ready for operation*, without counterweight)

Transport weight	105,820 lbs
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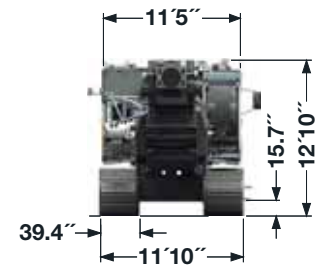
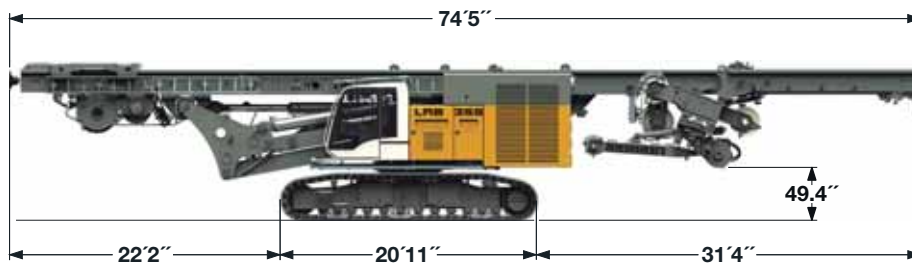
Additional weights LRB 355

Main winch 56,205 lbf with leader top	10,805 lbs
Elevating working platform (leader length 72.8 ft)	1,984 lbs
Elevating working platform (leader length 89.2 ft)	2,204 lbs
Adapter for casing oscillator	2,645 lbs
Hydraulic leader foot	1,764 lbs
Concrete supply line	1,764 lbs

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.

*) Including 20% filling of diesel tank

LRB 355 with undercarriage and detachable crawlers

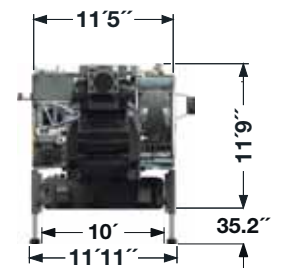
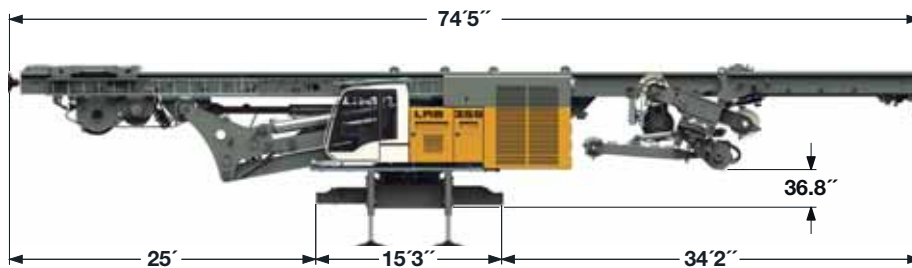


Transport standard LRB 355 with 89.2 ft leader

includes the basic machine (ready for operation*) with leader, without attachment (such as rotary, vibrator, hammer etc.) and without counterweight.

Dimensions and weights

Length	74.4 ft
Weight complete without counterweight	190,700 lbs

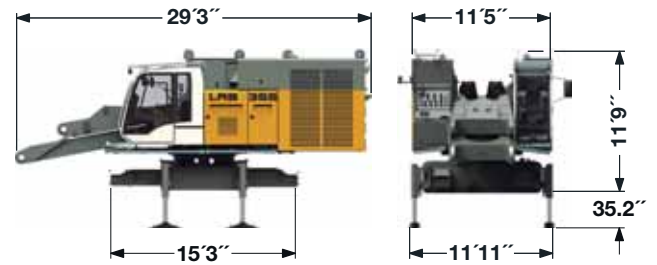
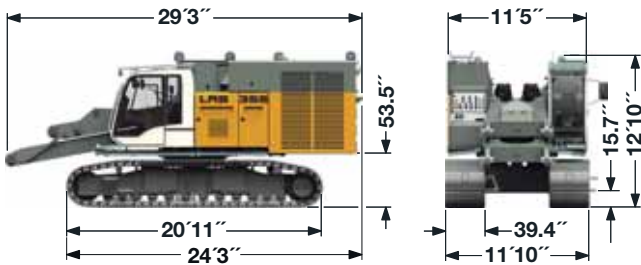


Transport standard LRB 355 with 89.2 ft leader

includes the basic machine (ready for operation*) with leader, without attachment (such as rotary, vibrator, hammer etc.), without crawlers and without counterweight.

Dimensions and weights

Length	74.4 ft
Weight complete without counterweight	148,600 lbs

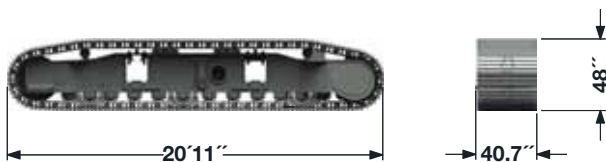


Transport basic machine

ready for operation*, without counterweight
Transport weight 126,105 lbs

Transport basic machine

ready for operation*, without crawlers and without counterweight
Transport weight 84,000 lbs



Transport crawlers

Crawler left	22,500 lbs
Crawler right	22,500 lbs

Additional weights LRB 355

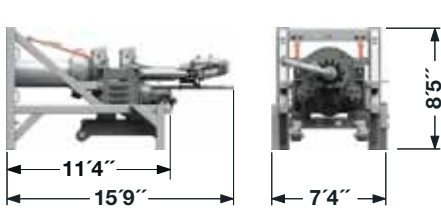
Main winch 56,200 lbf with leader top	10,580 lbs
Elevating working platform (leader length 72.8 ft)	1,984 lbs
Elevating working platform (leader length 89.2 ft)	2,204 lbs
Adapter for casing oscillator	2,870 lbs
Hydraulic leader foot	1,764 lbs
Concrete supply line	1,764 lbs
Jack up	2,870 lbs

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.

*) Including 20% filling of diesel tank

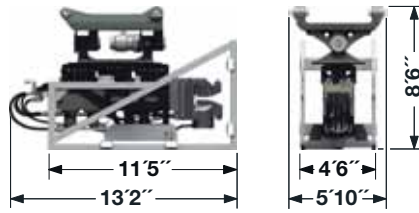
Transport dimensions and weights

Equipment



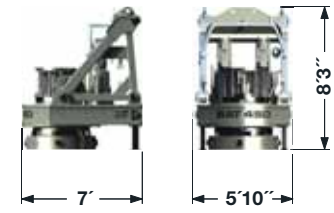
Double rotary drive DBA 300

Transport weight
DBA 300 ————— 26,000 lbs



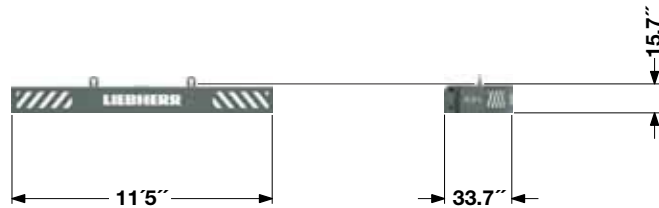
Vibrator slim design 1500 H

Transport weight
1500 H ————— 19,620 lbs



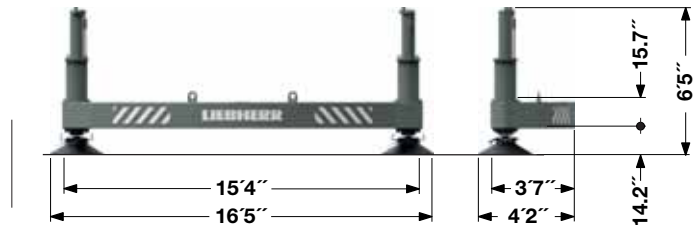
Rotary (standard)

Transport weight
BAT 450 ————— 20,065 lbs



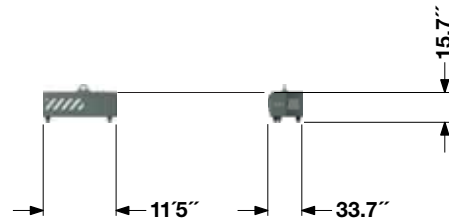
Counterweight (standard)

Counterweight ————— 3x 13,230 lbs



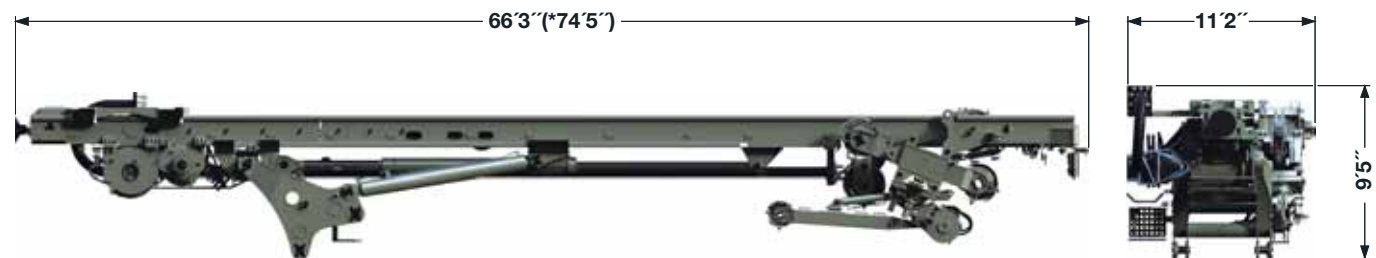
Counterweight (option)

Counterweight ————— 1x 13,230 lbs



Additional counterweight (option only for double rotary drilling)

Counterweight ————— 2x 6,615 lbs



Transport leader

includes the leader without attachment (such as rotary, Kelly bar etc.).

Additional weights

Weight for 72.8 ft leader	61,730 lbs
Weight for 89.2 ft leader	64,600 lbs
Main winch 56,200 lbf with leader top	10,580 lbs
Elevating working platform (leader length 72.8 ft)	1,984 lbs
Elevating working platform (leader length 89.2 ft)	2,204 lbs
Hydraulic leader foot	1,764 lbs
Concrete supply line	1,764 lbs

Technical description



Engine

Engine type ————— Liebherr D 9512 A7-04
Power rating according to ISO 9249 – 600 kW (805 hp) at 1700 rpm or
————— 750 kW (1006 hp) at 1700 rpm
Fuel tank ————— 343 gal capacity with continuous level
————— indicator and reserve warning
Engine complies with 97/68 EC or NRMM exhaust certification
EPA/CARB Tier 4f.
The reduced engine speed results in increased fuel efficiency, less noise
emission and longer service life of the engine.
The optional Eco-Silent Mode can be used when the working process
does not require the full engine power. This function further reduces the
engine speed so allowing the machine to operate even more silently and
with enhanced fuel efficiency. The optional Engine Auto-Stop prevents
long idle times after the operator has left the cabin and thus avoids
unnecessary fuel consumption and emissions. As an option a diesel
particulate filter is available (for 97/68 EC engines only).



Hydraulic system

The main pumps are operated by a distributor gearbox. Axial piston
variable displacement pumps work in open and closed circuits,
supplying oil only on demand. Hydraulic pressure peaks are absorbed
by the integrated automatic pressure compensation, which relieves the
pumps and saves fuel.
Main pump capacities ————— 3x 104.6 gal/min
————— 2x 113.6 gal/min
————— 1x 56.8 gal/min
Hydraulic oil tank ————— 290.6 gal
Max. working pressure ————— 5800 PSI
Largely dimensioned hydraulic components guarantee a high efficiency
rate and fuel economy.
A system of electronically monitored pressure and return filters cleans
the hydraulic oil. Any clogging is displayed in the cabin. The use of
synthetic environmentally friendly oil is also possible.



Crawlers

Propulsion through axial piston motor, hydraulically released spring
loaded multi-disc brake, maintenance-free crawler tracks, hydraulic
chain tensioning device.
Drive speed ————— 0 – 1.30 mph
Track force ————— 153,100 lbf
Width of 3-web grousers (option 31.5 inch) ————— 35.4 inch

Option:
Undercarriage with detachable crawlers
Drive speed ————— 0 – 1.15 mph
Track force ————— 183,000 lbf
Width of 3-web grousers (option 35.4 inch) ————— 39.4 inch



Swing

Consists of triple-row roller bearing with external teeth and two swing
drives, fixed axial piston hydraulic motor, spring loaded and hydraulically
released multi-disc holding brake, planetary gearbox and pinion.
Selector for 3 speed ranges to increase swing precision.
Swing speed from 0 – 2.4 rpm is continuously variable.



Control

The control system – developed and manufactured by Liebherr – is
designed to withstand extreme temperatures and the many heavy-
duty construction tasks for which this machine has been designed.
Complete machine operating data are displayed on a high resolution
monitor screen. A GSM/GPRS telematics module allows for remote
inquiry of machine data and operational conditions. To ensure clarity of
the information on display, different levels of data are shown in enlarged
lettering and symbols.
Control and monitoring of the sensors are also handled by this high
technology system. Error indications are automatically displayed on the
monitor in clear text. The machine is equipped with proportional control
for all movements, which can be carried out simultaneously.
Two joysticks are required for operation. Pedal control can be changed
to hand control.
Option:
PDE®: Process data recording



Main winch

Line pull effective (1st layer) ————— 56,205 lbf
Rope diameter ————— 34 mm
Line speed ————— 0-259 ft/min
Free-fall function



Auxiliary winch

Line pull effective (3rd layer) ————— 17,985 lbf
Rope diameter ————— 20 mm
Line speed ————— 0-151 ft/min



Rope crowd system

Crowd force push/pull ————— 89,925/89,925 lbf
Line pull (effective) ————— 44,960 lbf
Line speed ————— 0-230 ft/min
Free-fall function
The winches are noted for compact, easily mounted design.
Propulsion is via a maintenance-free planetary gearbox in oil bath.
Load support by the hydraulic system; additional safety factor by a
spring-loaded, multi-disc holding brake. All line pull values are effective
values. The efficiency factor of approx. 25% has already been deducted.



Noise emission

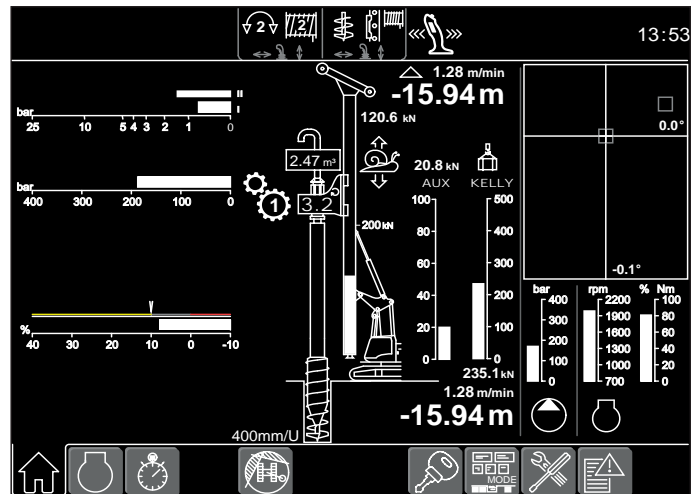
Noise emissions correspond with 2000/14/EC directive.
Guaranteed sound pressure level L_{PA} in the cabin ————— 71.8 dB(A)

Guaranteed sound power level L_{WA} ————— 112 dB(A)
Option: Eco-Silent Mode
Guaranteed sound power level L_{WA} ————— 108 dB(A)

Vibration transmitted to the hand-arm system of the
machine operator ————— < 8.20 ft/s²
Vibration transmitted to the whole body of the
machine operator ————— < 1.64 ft/s²

Full displacement drilling

BAT 450



Display for full displacement drilling

Technical data

Rotary drive - torque	0 – 331,905 lbf-ft
Rotary drive - speed	0 – 40 rpm

Automatic gearbox for best operating comfort

- No stopping required to change gears
- No interruption of the drilling process
- Automatic torque adjustment
- Continuous optimization of speed
- Four electronically adjustable speed ranges

Highest availability through easy set-up

- No mechanical shift gearbox
- Higher availability thanks to less moving parts
- Less maintenance required

Performance data for 72.8 ft leader

Drilling depth	68.9 ft
Drilling depth with 32.8 ft Kelly extension	101.7 ft
Max. pull force (crowd winch and Kelly winch)	202,330 lbf
Max. drilling diameter*	23.6 inch

Performance data for 89.2 ft leader

Drilling depth	85.3 ft
Drilling depth with 32.8 ft m Kelly extension	118.1 ft
Max. pull force (crowd winch and Kelly winch)	202,330 lbf
Max. drilling diameter*	23.6 inch

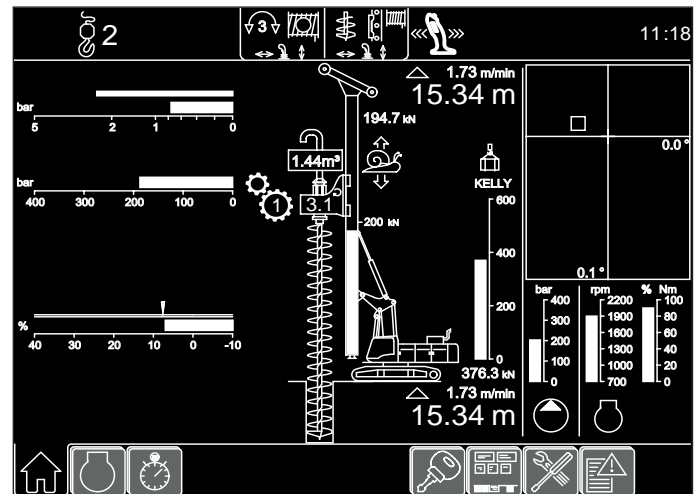
*) Other drilling diameters available on request

Continuous flight auger drilling

BAT 450



Auger with auger cleaner



Display for continuous flight auger drilling

Technical data

Rotary drive - torque _____ 0 – 331,905 lbf-ft

Rotary drive - speed _____ 0 – 40 rpm

*) Other drilling diameters available on request

Performance data for 72.8 ft leader and auger cleaner

Drilling depth _____ 64.3 ft

Drilling depth with 32.8 ft Kelly extension _____ 97.1 ft

Max. pull force (crowd winch and Kelly winch) _____ 202,330 lbf

Max. drilling diameter* _____ 47.2 inch

Performance data for 89.2 ft leader and auger cleaner

Drilling depth _____ 80.7 ft

Drilling depth with 32.8 ft Kelly extension _____ 113.5 ft

Max. pull force (crowd winch and Kelly winch) _____ 202,330 lbf

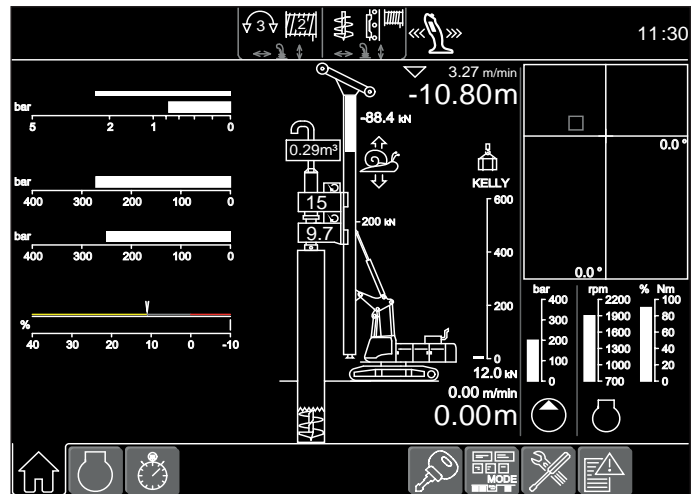
Max. drilling diameter* _____ 47.2 inch

Double rotary drilling

DBA 300



Option: additional counterweight 2x 6,615 lbs
(only for double rotary drilling)



Display for double rotary drilling

Technical data

Rotary drive I - torque	0 – 221,270 lbf-ft
Rotary drive I - speed	0 – 26 rpm
Rotary drive II - torque	0 – 110,635 lbf-ft
Rotary drive II - speed	0 – 30 rpm

*) Other drilling diameters available on request

Performance data for 72.8 ft leader

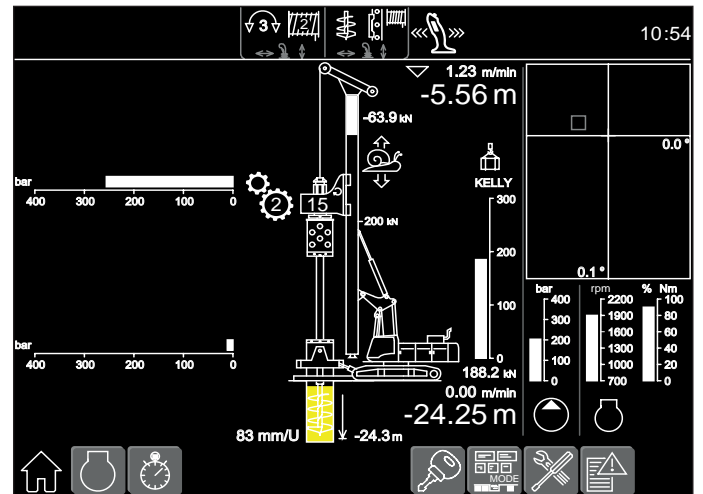
Drilling depth	68.9 ft
Max. pull force (crowd winch and Kelly winch)	202,330 lbf
Max. drilling diameter*	35.4 inch

Performance data for 89.2 ft leader

Drilling depth	85.3 ft
Max. pull force (crowd winch and Kelly winch)	202,330 lbf
Max. drilling diameter limited to 75.5 ft drilling depth*	35.4 inch

Kelly drilling

BAT 450



Display for Kelly drilling

Technical data

Rotary drive - torque _____ 0 – 331,905 lbf-ft

Rotary drive - speed _____ 0 – 40 rpm

Performance data

Max. drilling diameter* _____ 6.6 ft uncased

Max. drilling diameter* _____ 4.9 ft cased

*) Other drilling diameters available on request

Other Kelly bars available on request

When using a casing oscillator, value X has to be reduced by 5.3 ft.

Kelly bars

	A	X**	Drilling depth	Weight	Kelly Ø
	(ft)	(ft)	(ft)	(lbs)	(inch)
MD 36/3/30	39.0	32.5	98.1	16,755	18.5
MD 36/3/36	45.6	25.9	117.8	19,400	18.5
MD 36/4/42	42.5	28.4	137.5	22,710	18.5
MD 36/4/48	47.4	24.1	157.2	25,355	18.5
MD 36/4/54	52.3	19.2	176.8	28,000	18.5
MD 36/4/60	57.3	14.3	196.5	30,645	18.5

**) Values valid for 72.8 ft leader.

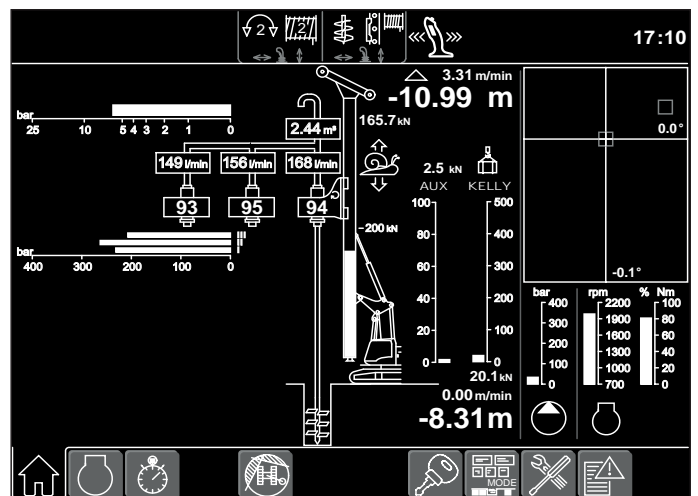
For machines with 89.2 ft leader X + 16.4 ft can be applied.

Soil mixing equipment

3MA 35*



Set-up for retaining walls



Display for soil mixing

Technical data

Drilling drive – torque	1 st gear	25,815 lbf-ft
Drilling drive – speed	1 st gear	62 rpm
Drilling drive – torque	2 nd gear	12,910 lbf-ft
Drilling drive – speed	2 nd gear	124 rpm

*) Single, double and triple mixing equipment available.
Double and triple mixing equipment available for longitudinal or transverse mounting.

Performance data for 72.8 ft leader

Drilling depth ————— 67.3 ft

Performance data for 89.2 ft leader

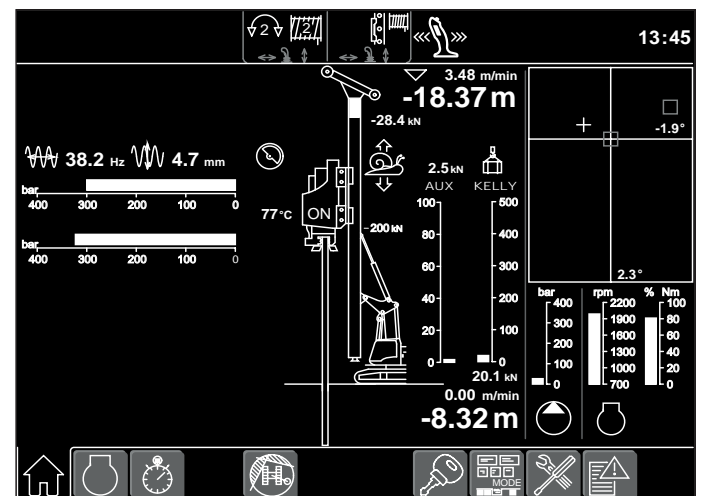
Drilling depth ————— 83.7 ft

Vibrator slim design

1500 H



Vibrating of a single pile between two other piles



Display for vibrating

Technical data

Static moment	0 – 217 lbf-ft
Max. frequency	2160 rpm
Max. centrifugal force	345,082 lbf
Max. amplitude with clamp	0.57 inch
Total weight without clamp	15,875 lbs
Total weight with single clamp	18,300 lbs
Dynamic weight with clamp	9,150 lbs

Performance data for 72.8 ft leader

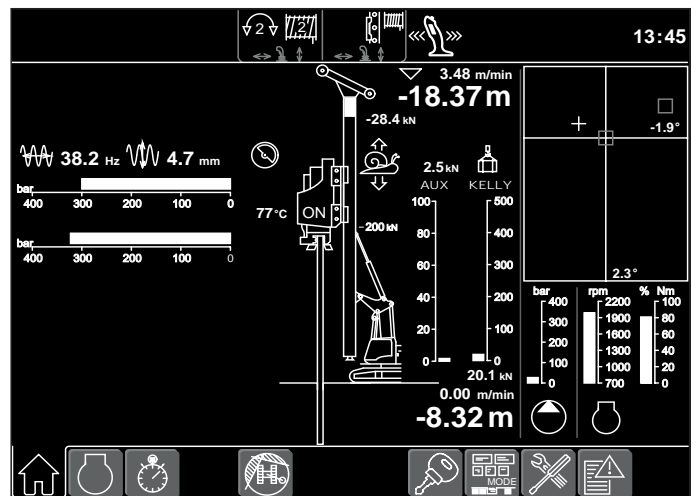
Max. pile length	68.9 ft
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Performance data for 89.2 ft leader

Max. pile length	85.3 ft
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Ring vibrator

32 VMR



Display for vibrating

Technical data

Static moment	0 – 231.5 lbf-ft
Max. frequency	2300 rpm
Max. centrifugal force	418,145 lbf
Diameter	14 – 24 inch
Total weight	30,645 lbs

Performance data for 72.8 ft leader

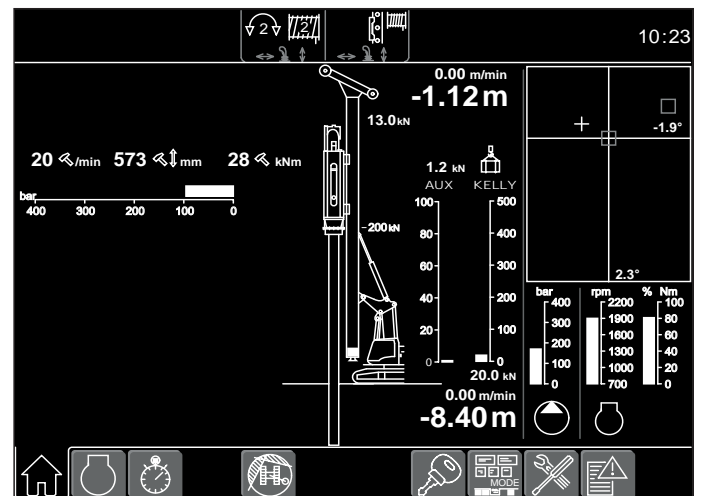
Max. pipe length	114.8 ft
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Performance data for 89.2 ft leader

Max. pipe length	131.2 ft
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Hydraulic hammer

H 110



Display for impact driving

Technical data

Drop weight	15,435 or 19,842 lbs
Max. rated energy	61,218 or 78,182 lbf-ft
Blow rate max. energy	36 blows/min
Max. blow rate	100 blows/min
Total weight	26,455 or 30,865 lbs

Performance data for 72.8 ft leader

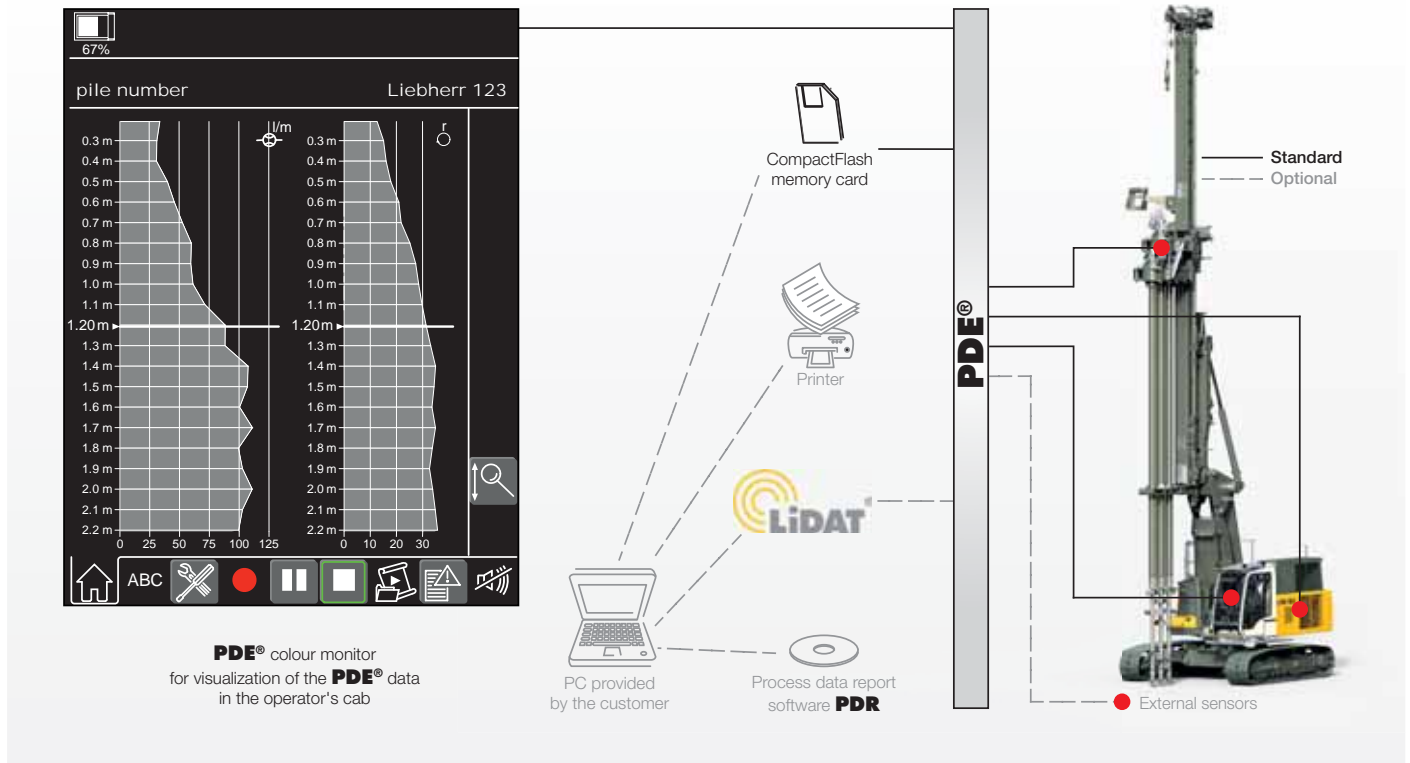
Max. pile length	62.3 ft
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Performance data for 89.2 ft leader

Max. pile length	78.7 ft
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Process data recording system - PDE® (additional equipment)

The Liebherr process data recording system PDE® constantly records the relevant process data during the working process.



Depending on the application the recorded and processed data are displayed on the PDE® touchscreen in the operator's cab, e.g. in the form of an online cast-in-place pile.

At the same time the PDE® is operated using this touchscreen. The operator can enter various details (e.g. jobsite name, pile number, etc.) and start and stop recordings. A recording of every start-stop cycle carried out in the PDE® is established on a CompactFlash memory card.

The PDE® can be configured in a number of ways, e.g. for the connection of external sensors, for the generation of a simple protocol as graphic file and/or for a printout directly in the operator's cab.

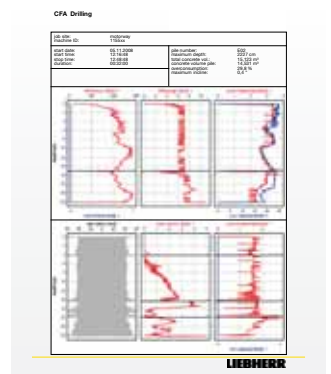
Process data reporting - PDR (additional equipment)

Comprehensive data evaluation and generation of reports on a PC is possible using the software PDR.

Recordings management - The recordings generated by the PDE® system can be imported and managed in PDR. The data can be imported directly from the CompactFlash card or via the Liebherr telematics system LiDAT. Certain recordings, e.g. for a particular day or jobsite, can be found using filter functions.

Viewing data - The data in each record is displayed tabularly. Combining several recordings provides results, for example, regarding the total concrete consumption or the average depth. Furthermore, a diagram editor is available for quick analysis.

Generating reports - A vital element of PDR is the report generator, which allows for the generation of individual reports. These can be printed out directly or stored as pdf files. In the process the size, colour, line thickness or even the desired logo can be configured. Moreover, the reports can be displayed in different languages, e.g. in English and in the national language.



Transport option

LRB 355



Liebherr-Werk Nenzing GmbH

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