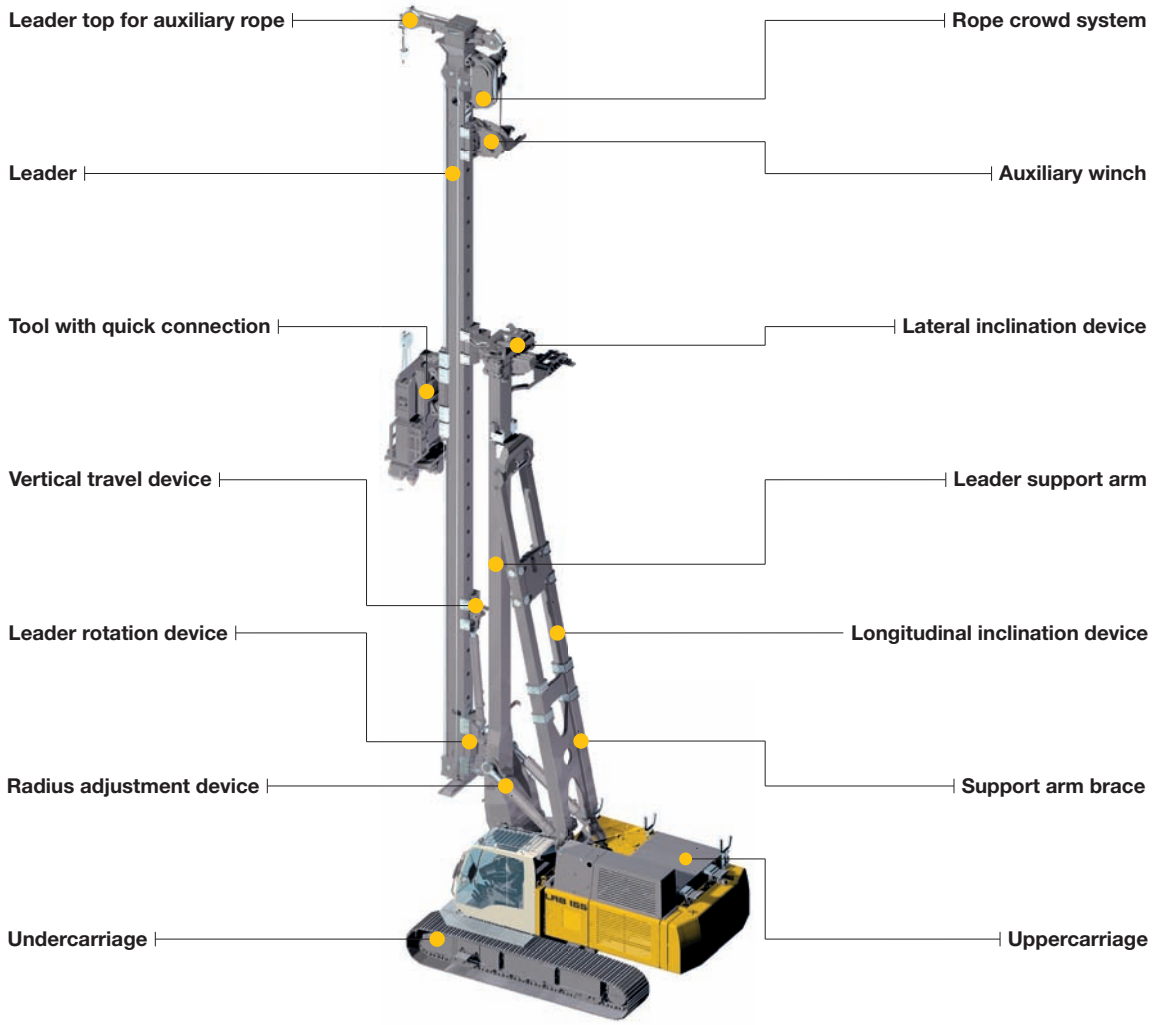
Technical data
Piling and drilling rig

LRB 155
Litronic®

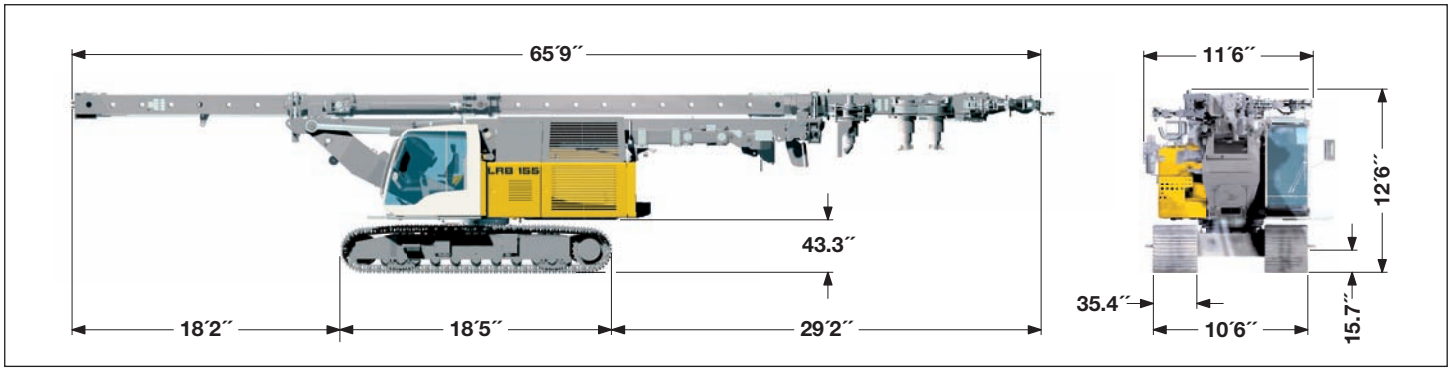
LIEBHERR

Concept and characteristics



- High engine output with automatic engine speed control
- Controlled entirely from cab
- Sturdy and solid rig design
- Solid parallel kinematics on the basic machine
- High push and pull forces
- High torque
- Completely self–rigging (no auxiliary machines required)
- Large range of working tools (all piling and drilling Works can be performed)
- Stepless leader inclination 1:6 forward – 1:3 backward depending on type of equipment
- Leader swing range ± 90°
- Increase of effective leader length (up to 3 m) via vertical travel device
- Automatic vertical alignment
- High alignment forces
- Simultaneous control of several movements via Load–sensing multi–circuit hydraulics
- Quick change of equipment possible through quick connection
- Equipment design according to latest European regulations and standards
- High manufacturing quality through quality control by PDE®–system

Transport dimensions and weights

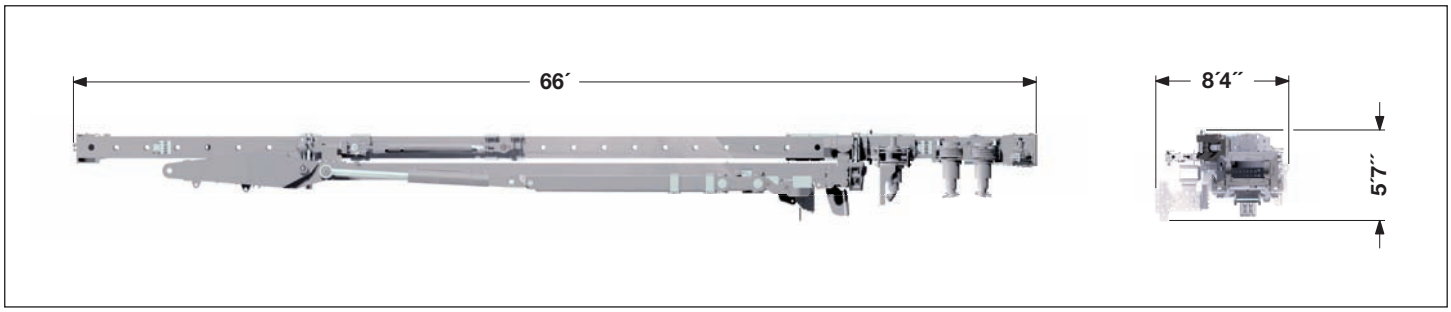


Transport with leader

includes the basic machine (ready for operation) with leader, without working tools (such as rotary, torque support etc.) and without counterweight.

Dimensions and weights

Leader length	60 ft – 70 ft – 80 ft
Weight complete ex counterweight	64.6 US t - 65.4 US t - 66.3 US t

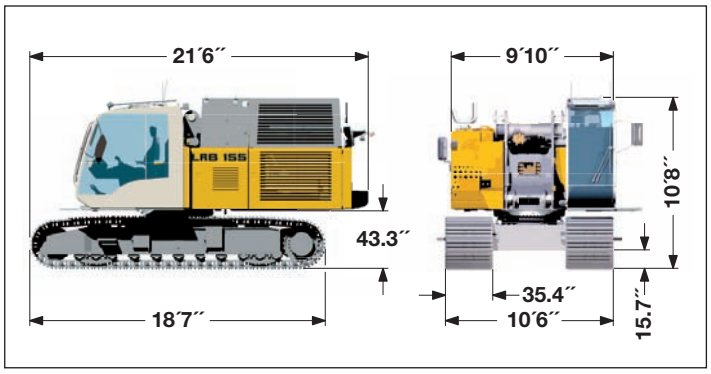


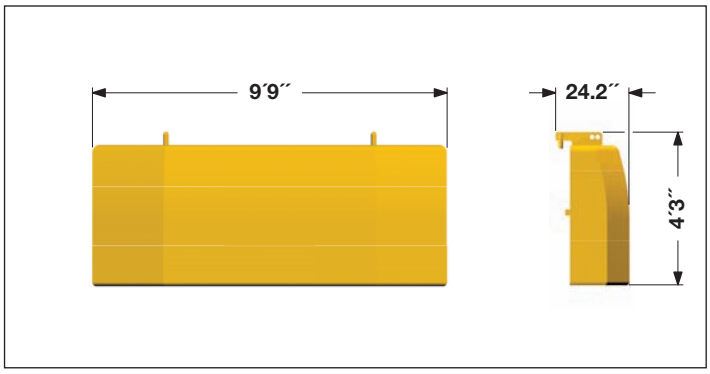
Transport leader

includes the leader without working tools (such as rotary, torque support etc.).

Dimensions and weights

Leader length	60 ft – 70 ft – 80 ft
Weight	52,470 lbs – 54,015 lbs – 55,780 lbs





Transport basic machine

ready for operation

Basic machine	76,720 lbs

Weights

Counterweight	17,640 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.

Dimensions

Basic machine LRB 155

Technical data

Leader length	60 ft – 70 ft – 80 ft
Capacity hammer including cap plus pile	33,070 lbs
Max. hammer weight	17,640 lbs
Max. pile weight	15,430 lbs
Max. pull, leader on ground	67,445 lbf
Max. torque	162,265 lbf-ft
Working radius machine center of rotation — front edge leader	9.8 — 15.4 ft
Stepless rig inclination adjustment	
Lateral inclination	± 1:20
Forward inclination	1:6
Backward inclination	1:3
Vertical leader adjustment	
above ground level (depending on radius)	9.8 ft
below ground level (depending on leader length)	16.4 ft
Leader swing range	± 90°

Operating weight and ground pressure

Total weight with 35.4 inch 3–web shoes	73.4 US t
Ground bearing pressure	11.2 PSI

The operating weight includes the basic machine LRB 155 (leader length 60 ft, without working tools) and 17,650 lbs counterweight.

Technical data

Engine

Power rating according to ISO 9249, 450 kW (603 hp) at 1900 rpm
Engine type — Liebherr D 9508 A7
Fuel tank — 211 gal capacity with continuous level indicator and reserve warning
Engine complies with NRMM exhaust certification EPA/CARB Tier 3 and 97/68 EC Stage III.

Hydraulic system

The main pumps are operated by a distributor gearbox. Axial piston displacement pumps work in open circuits supplying oil only when needed (flow control on demand).
The hydraulic pressure peaks are absorbed by the integrated automatic pressure compensation, which relieves the pump and saves fuel.

Pumps for working tools — 2x 92 gal/min
Separate pump for kinematics — 50 gal/min
Hydraulic oil tank — 218 gal
Max. working pressure — 5076 PSI

No auxiliary power packs are required as application specific hydraulics supply power to all components.
The cleaning of the hydraulic oils occurs via an electronically monitored pressure and return filter.
Any clogging is shown on the display in the cab.
The use of synthetic environmentally friendly oil is also possible.

Swing

Consists of single-row ball bearing with internal teeth, 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.
Free swing reduces wear to a minimum because rotation moment is sustained through the hydraulic system by the diesel engine.
Swing speed from 0 – 3.7 rpm is continuously variable.

Crawlers

Propulsion through axial piston motor, hydraulically released spring loaded multi–disc brake, maintenance free crawler tracks, hydraulic chain tensioning device.
Drive speed — 0 – 0.9 mph
Track force — 142,080 lbf
Width of 3-web track shoes — 27.6 inch — 31.5 inch — 35.4 inch

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 modem allows for remote inquiry of machine data and error indications. 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.
Options:
- PDE®: Process data recording
- GSM-modem

Kelly winch with free fall

Line pull (effective) — 35,970 lbf
Rope diameter — 26 mm
Line speed — 0 - 308 ft/min

Auxiliary winch

Line pull (effective) — 17,985 lbf
Rope diameter — 20 mm
Drum diameter — 12.6 inch
Line speed — 0 - 240 ft/min

Rope crowd system

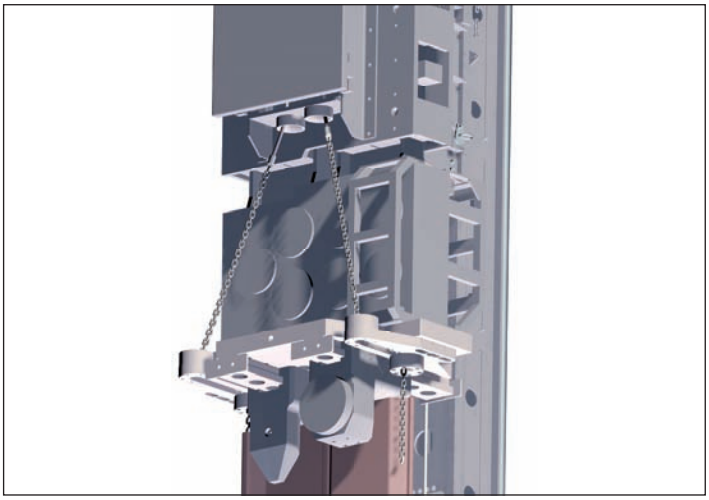
Crowd force push/pull — 67,445/67,445 lbf
Line pull (effective) — 33,720 lbf
Rope diameter — 24 mm
Line speed — 0 - 197 ft/min
The ropes are precisely actuated via a powerful winch.
The winches are noted for compact, easily mounted design.
Propulsion is via a maintenance-free planetary gearbox in oil 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

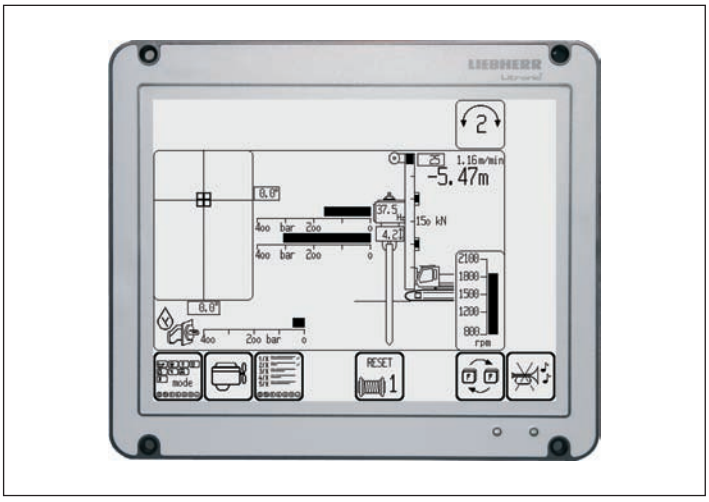
Noise emissions correspond with 2000/14/EC directive on noise emission by equipment used outdoors.

High frequency vibrator
Model 23 VML with hydraulic sheet pile feeder

Effective length – 68.9 ft



Double clamp and hydraulic sheet pile feeder



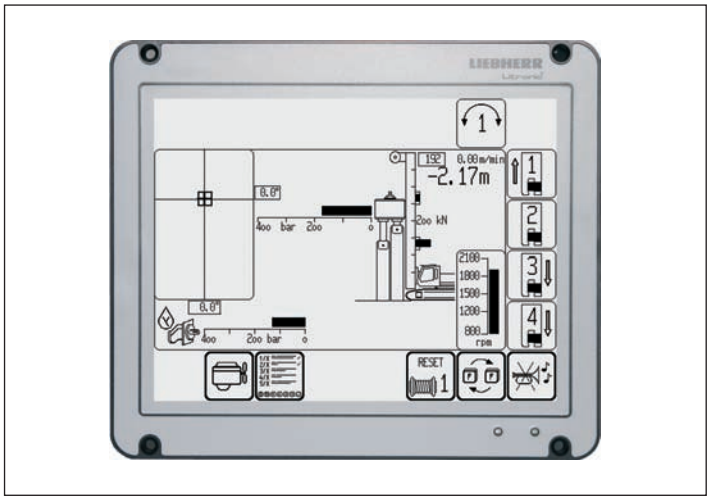
Display for vibrating

Technical data

Static moment	0 – 166 lbf-ft
Max. speed	2300 rpm
Max. centrifugal force	303,490 lbf
Amplitude	0 - 0.67 inch
Total weight without clamp	8,820 lbs
Dynamic weight with clamp	11,575 lbs

Sheet pile press
Model 4080

Effective length – 68.9 ft



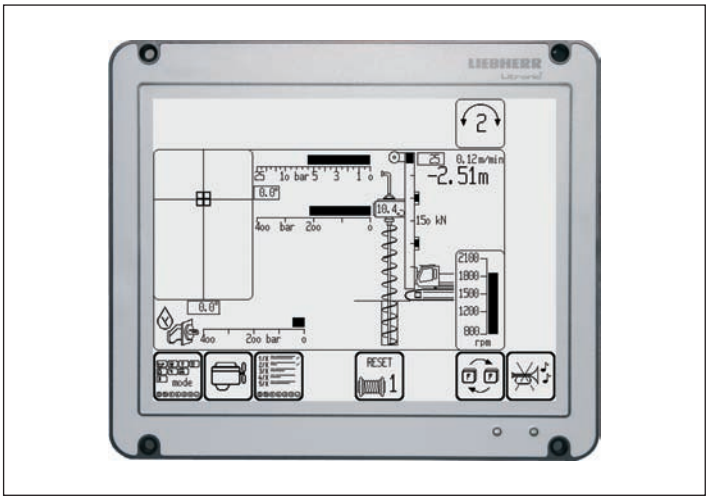
Display for sheet pile press

Technical data

Push force	4x 179,850 lbf
Pull force	4x 157,370 lbf
Stroke of cylinders	15.7 inch
Sheet piles U and Z profile	
Weight	15,435 lbs

Pre-drill
Model BA 45

Effective length – 68.9 ft



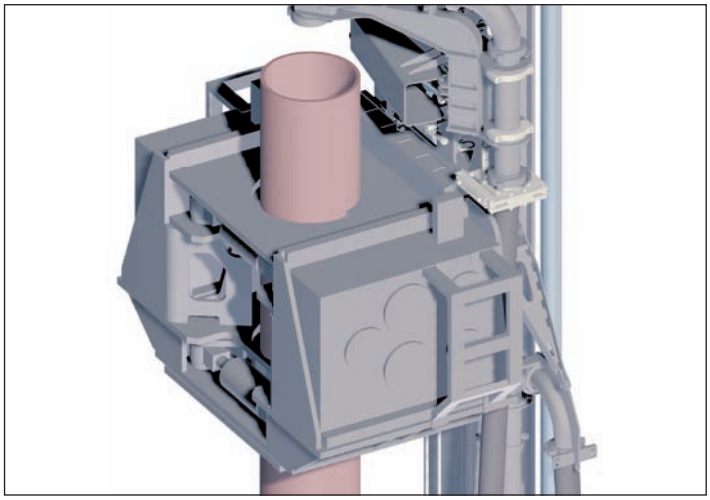
Display for continuous flight auger drilling

Technical data

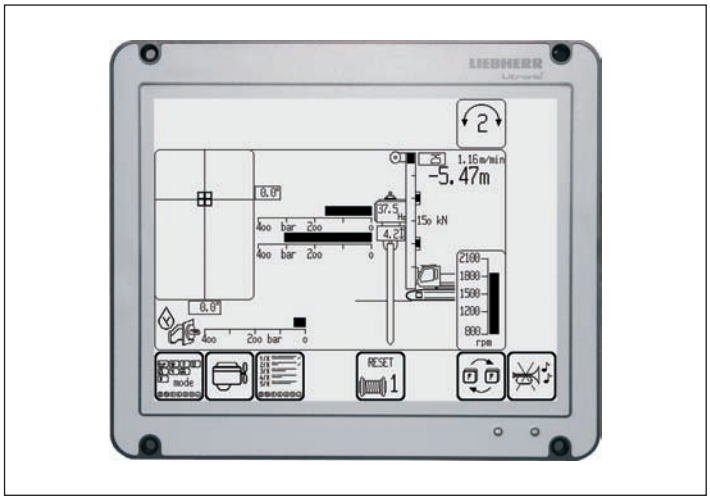
Drilling drive – torque	33,190 lbf-ft
Drilling drive – speed	95 rpm
Max. drilling diameter	31.5 inch

High frequency ring vibrator
Model 20 VMR

Effective length – 111.5 ft



Ring vibrator with concreting system



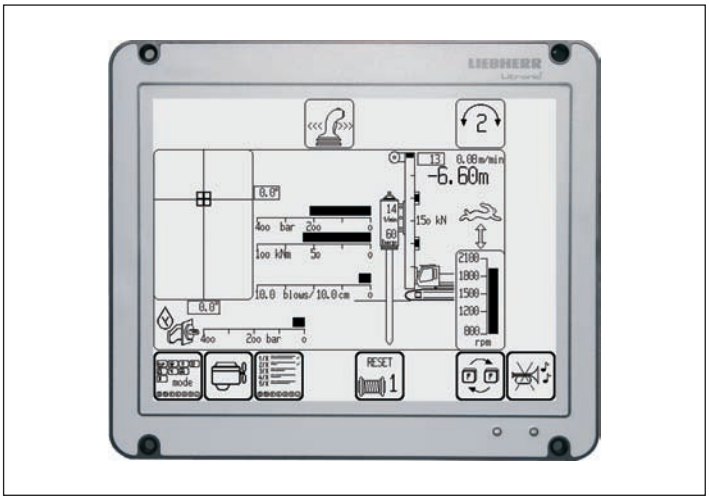
Display for vibrating

Technical data

Static moment	0 – 145	lbf-ft
Max. speed	2300	rpm
Max. centrifugal force	260,780	lbf
Max. pull force	67,445	lbf
Max. pull down	67,445	lbf
Amplitude	0 - 0.256	inch
Casing diameter	14 – 20	inch
Total weight	13,670	lbs
Max. hydraulic pressure	5076	PSI
Hydraulic flow	145	gal/min

Hydraulic hammer
Model H 85

Effective length – 68.9 ft



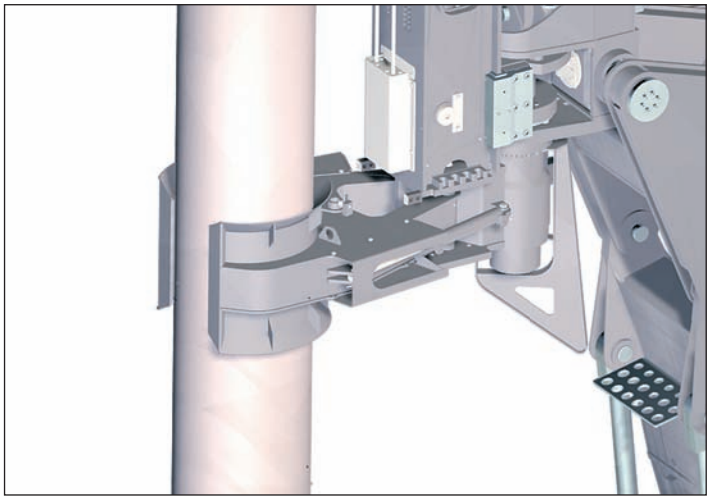
Display for impact driving

Technical data

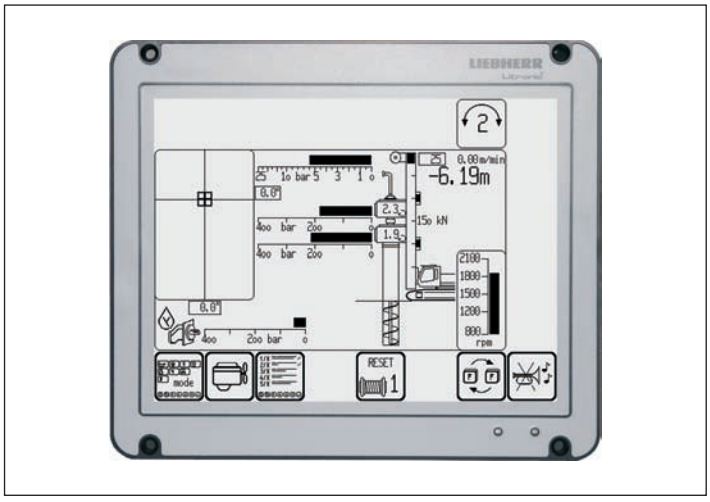
Hammer model	H 85/7	H 85/5*
Ram weight	15,435 lbs	11,025 lbs
Max. rated energy	61,220 lbf-ft	44,250 lbf-ft
Blow rate	45–100 blows/min	50–100 blows/min
Hammer weight incl. ram	22,490 lbs	18,300 lbs
Hydraulic pressure	3480 PSI	348 0 PSI
Hydraulic flow	52.8 gal/min	52.8 gal/min

*) The 15,435 lbs ram can be replaced by a 11,025 lbs ram.

Double rotary drilling
Model DBA 200



Hydraulic casing guide



Display for double rotary drilling

Technical data

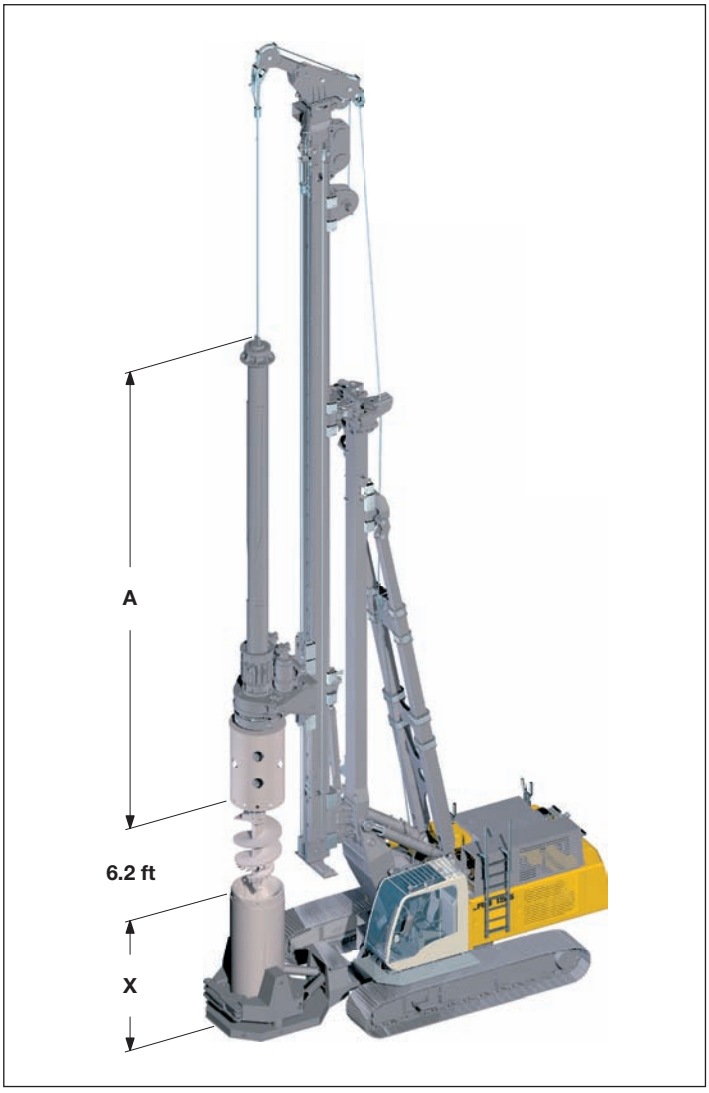
Drilling drive I – speed	1st gear	7 rpm
Drilling drive I – torque	1st gear	144,560 lbf-ft
Drilling drive I – speed	2nd gear	14 rpm
Drilling drive I – torque	2nd gear	72,280 lbf-ft
Drilling drive II – speed	1st gear	15 rpm
Drilling drive II – torque	1st gear	72,280 lbf-ft
Drilling drive II – speed	2nd gear	30 rpm
Drilling drive II – torque	2nd gear	36,140 lbf-ft

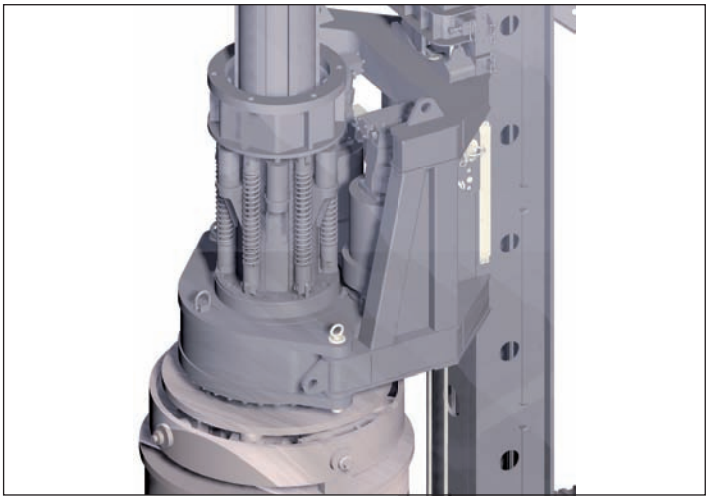
Performance data

Max. drilling diameter*	24.4 inch
Max. drilling depth*	49.2 ft
Max. pull force (crowd winch and Kelly winch)	103,415 lbf

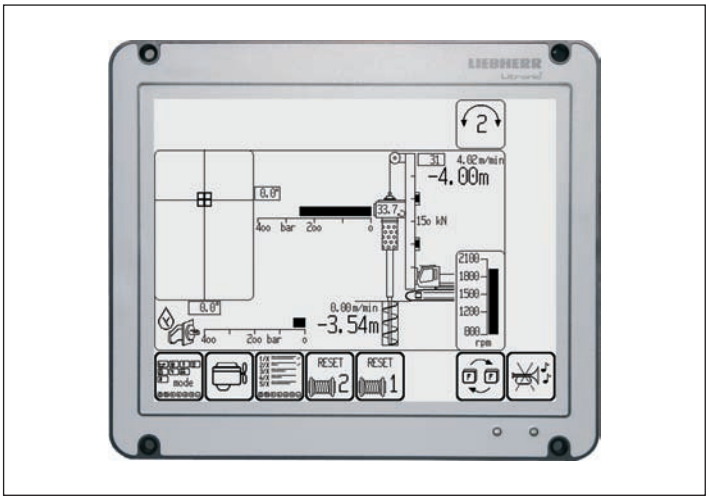
*) Other drilling diameters and drilling depths available on request

Kelly drilling
Model BA 220





Shock absorber for Kelly bar



Display for Kelly drilling

Technical data

Drilling drive - torque	1st gear	162,270 lbf-ft
Drilling drive - speed	1st gear	25 rpm
Drilling drive - torque	2nd gear	81,135 lbf-ft
Drilling drive - speed	2nd gear	50 rpm

Performance data

Max. drilling diameter with adapter*	8.2 ft
Max. drilling diameter without casing oscillator*	7.2 ft
Max. drilling diameter with casing oscillator*	4.9 ft
Line pull Kelly winch	35,970 lbf
Line speed Kelly winch	0 – 308 ft/min

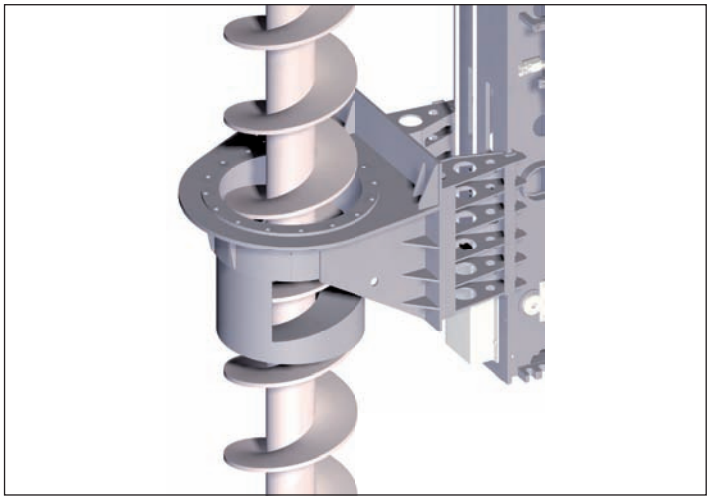
*) Other drilling diameters available on request.

Kelly bars

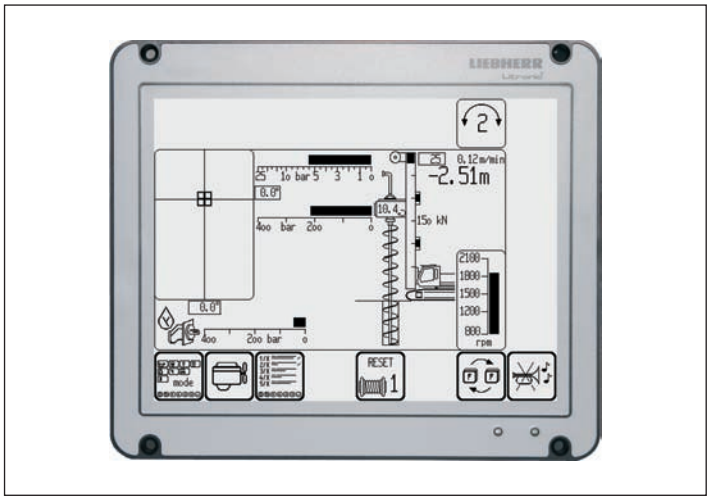
Kelly type	A	X	Drilling depth	Weight	Kelly Ø
	(ft)	(ft)	(ft)	(lbs)	(inch)
MD 28/3/24	32.4	39.4	71.5	11,025	16.5
MD 28/3/27	35.7	36.1	81.4	12,125	16.5
MD 28/3/30	39.0	32.8	91.2	13,010	16.5
MD 28/3/33	42.3	29.5	101.1	14,110	16.5
MD 28/3/36	45.5	26.2	110.9	14,990	16.5
MD 28/4/36	37.6	35.3	110.9	15,980	16.5
MD 28/4/42	42.5	30.3	130.6	17,875	16.5
MD 28/4/48	47.4	25.4	150.3	19,840	16.5
MD 28/4/54	52.3	20.5	170.0	21,605	16.5

Other Kelly bars available on request. When using a casing oscillator, value X has to be reduced by 59 inch.

Continuous flight auger drilling
Model BA 220



Auger with hydraulic auger cleaner



Display for continuous flight auger drilling

Technical data

Drilling drive - torque	1st gear	162,270	lbf-ft
Drilling drive - speed	1st gear	25	rpm
Drilling drive - torque	2nd gear	81,135	lbf-ft
Drilling drive - speed	2nd gear	50	rpm

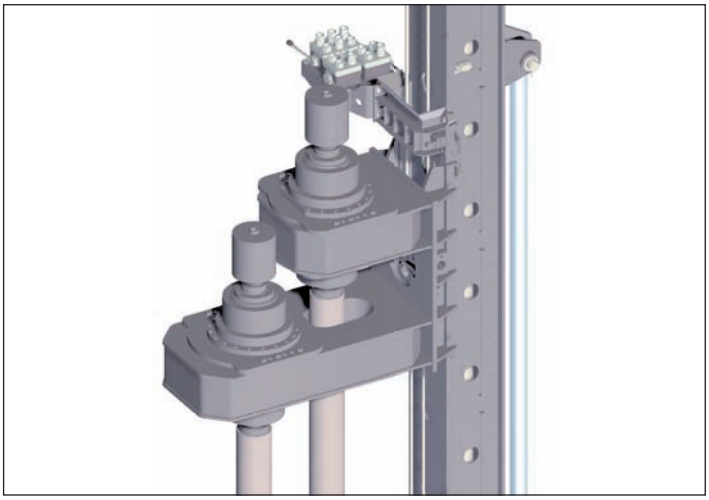
Performance data

Drilling depth without auger cleaner*	57.4	ft
Drilling depth with auger cleaner*	52.5	ft
Max. pull force (crowd winch and Kelly winch)	103,415	lbf
Max. push force (weight of rotary and auger to be added)	44,970	lbf
Max. drilling diameter*	27.6	inch

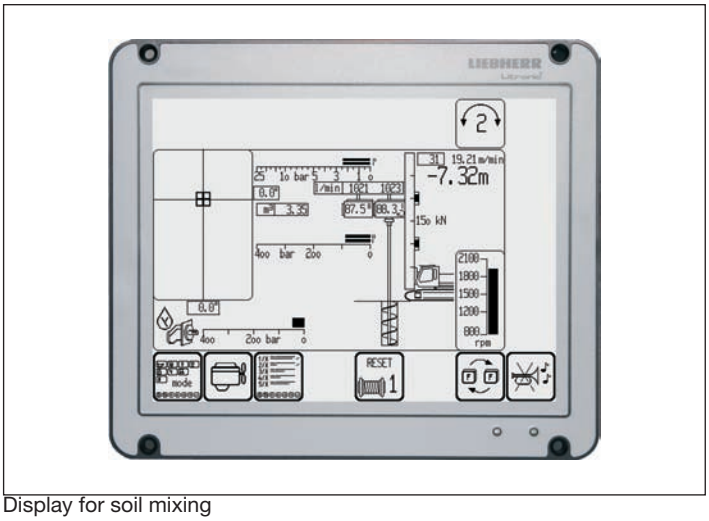
*) Other drilling diameters and drilling depths available on request

Twin mix equipment
Model DMA 35

Effective length – 57.4 ft



Set up for operation on dams



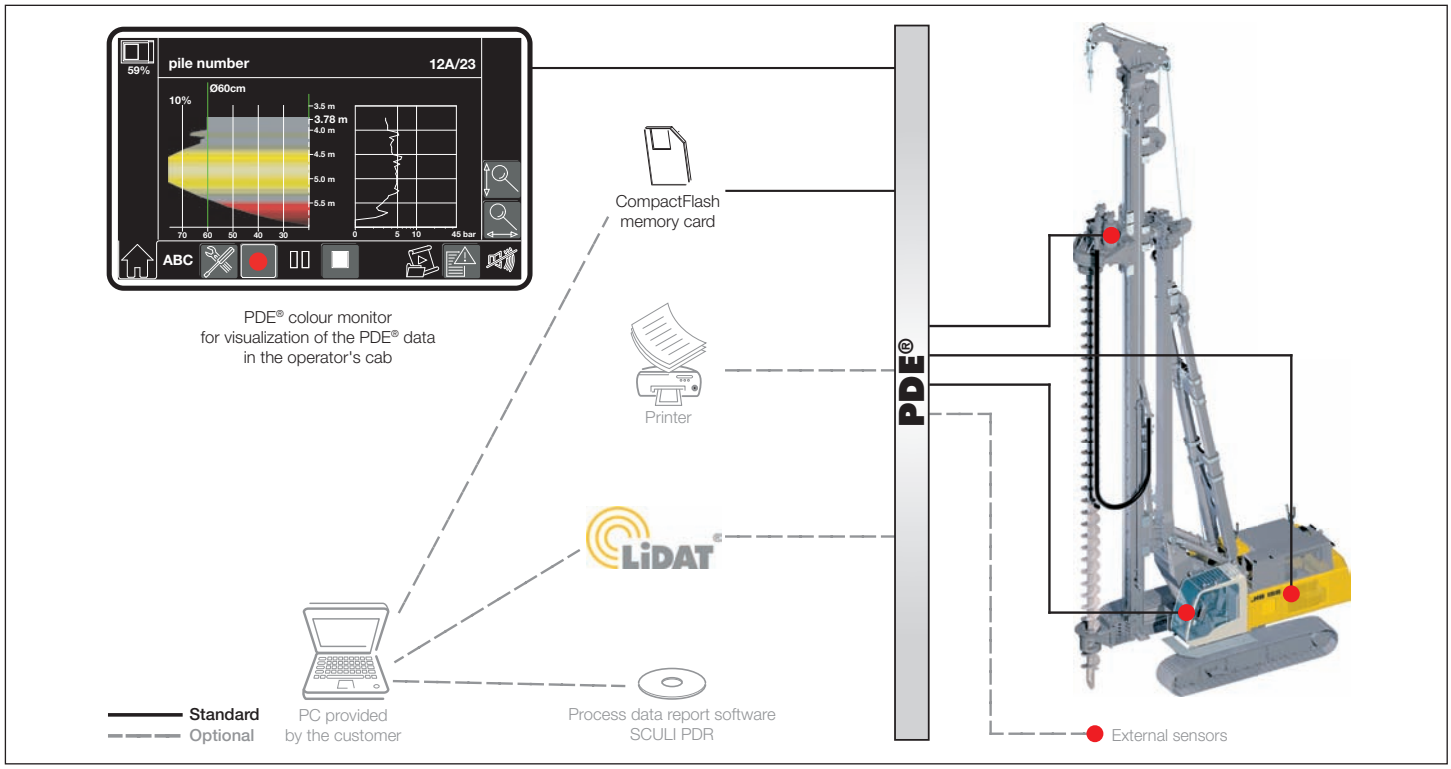
Display for soil mixing

Technical data

Drilling drive - torque	1st gear	25,820	lbf-ft
Drilling drive - speed	1st gear	60	rpm
Drilling drive - torque	2nd gear	12,910	lbf-ft
Drilling drive - speed	2nd gear	120	rpm

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.

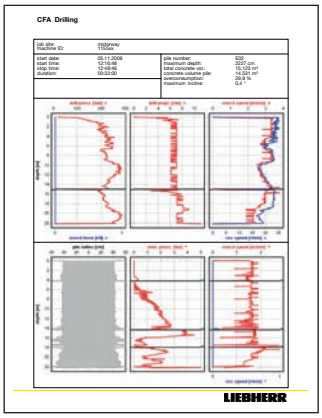
Process data reporting - PDR (additional equipment)

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

Recordings management - The recordings generated by the PDE® system can be imported and managed in SCULI 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 SCULI 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.



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