Technical data
Piling and drilling rig

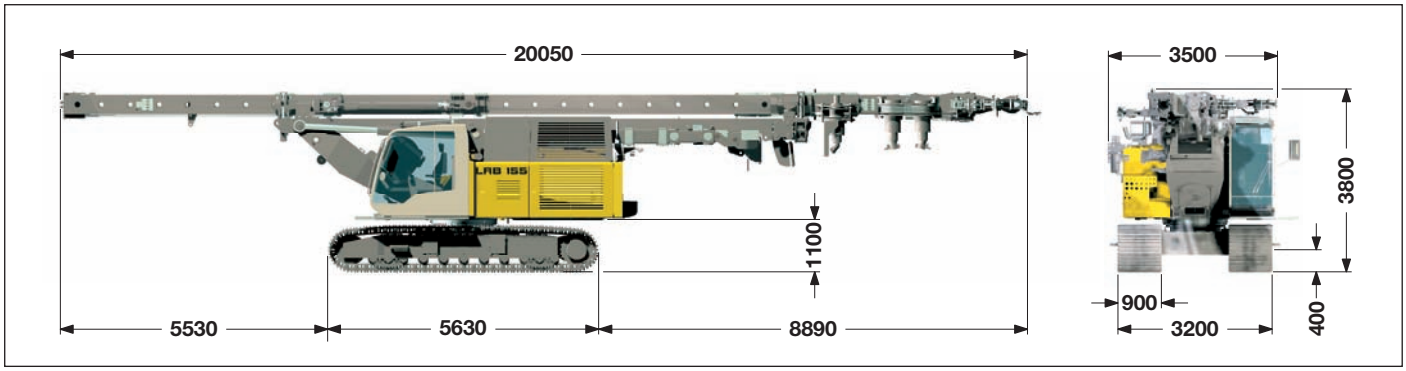
LRB 155
Litronic®

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

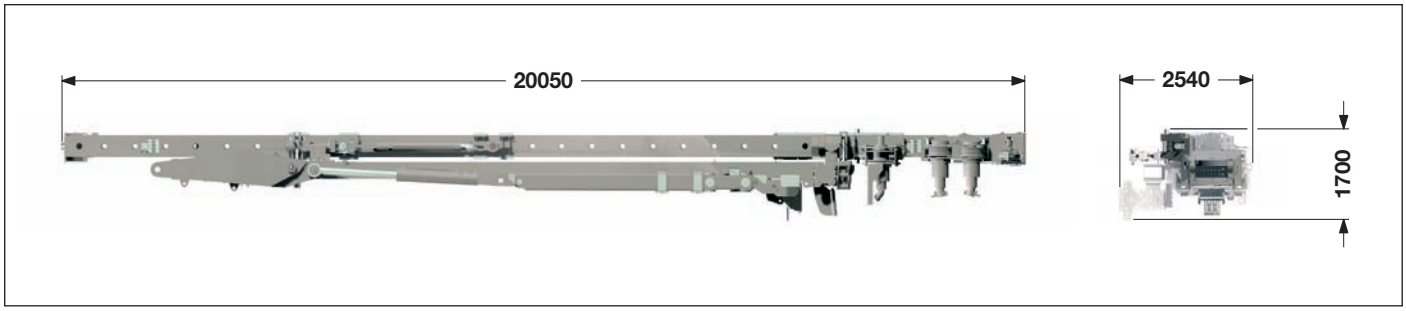


Transport with leader

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	18.2 m	21.2 m	24.2 m
Weight complete without counterweight	58.6 t	59.3 t	60.1 t

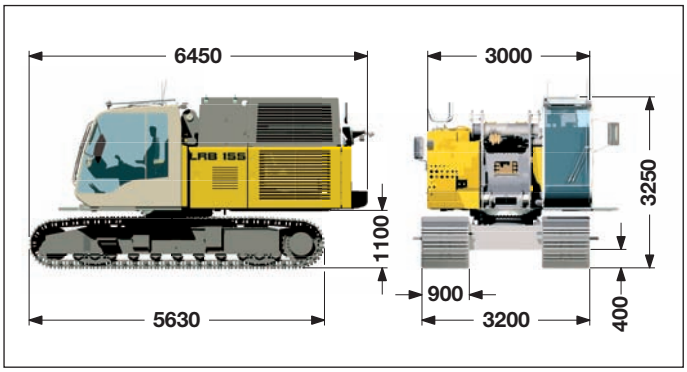


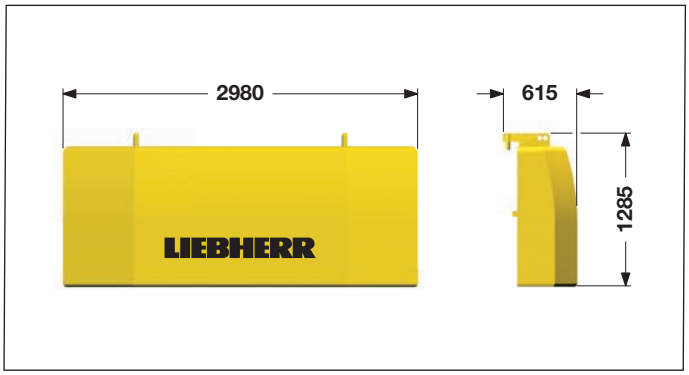
Transport leader

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

Dimensions and weights

Leader length	18.2 m	21.2 m	24.2 m
Weight	23.8 t	24.5 t	25.3 t





Transport basic machine

ready for operation

Basic machine	34.8 t

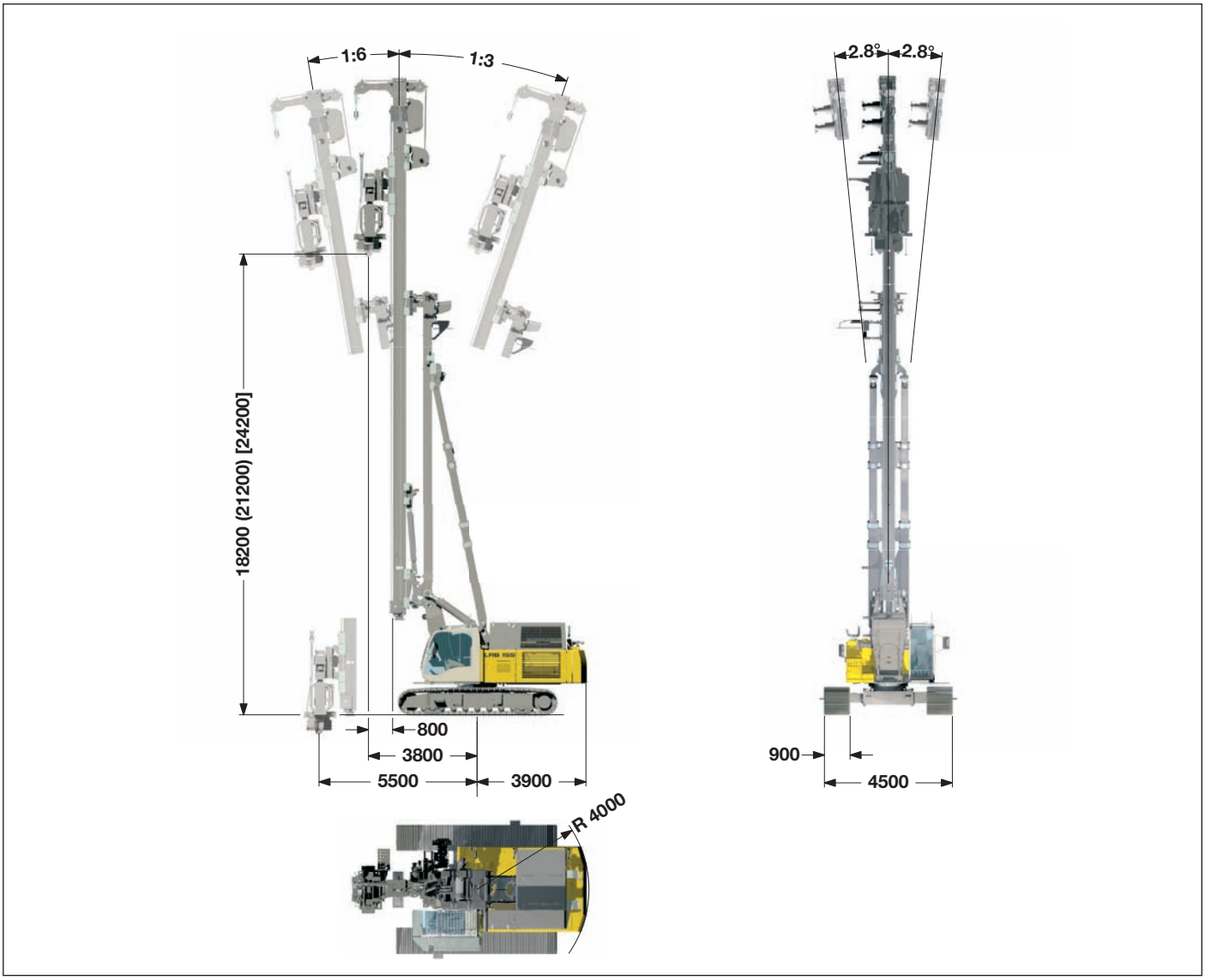
Weights

Counterweight	8.0 t

Weights can vary with the final configuration of the machine.

Dimensions

Basic machine LRB 155



Technical data

Leader length	18 — 21 — 24 m
Capacity hammer including cap plus pile	15 t
Max. hammer weight	8 t
Max. pile weight	7 t
Max. pull, leader on ground	30 t
Max. torque	220 kNm
Working radius machine center of rotation — front edge leader	3.0 — 4.7 m
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)	3 m
below ground level (depending on leader length)	5 m
Leader swing range	± 90°

Operating weight and ground pressure

Total weight with 900 mm 3–web shoes	66.6 t
Ground bearing pressure	0.79 kg/cm²

The operating weight includes the basic machine LRB 155 (leader length 18.2 m, without working tools) and 8.0 t 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 — 800 l 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 350 l/min
Separate pump for kinematics	190 l/min
Hydraulic oil tank	825 l
Max. working pressure	350 bar

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 – 1.5 km/h
Track force	632 kN
Width of 3-web track shoes	700 — 800 — 900 mm

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

Kelly winch with free fall

Line pull (effective)	160 kN
Rope diameter	26 mm
Line speed	0 - 94 m/min

Auxiliary winch

Line pull (effective)	80 kN
Rope diameter	20 mm
Drum diameter	320 mm
Line speed	0 - 73 m/min

Rope crowd system

Crowd force push/pull	300/300 kN
Line pull (effective)	150 kN
Rope diameter	24 mm
Line speed	0 - 60 m/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.

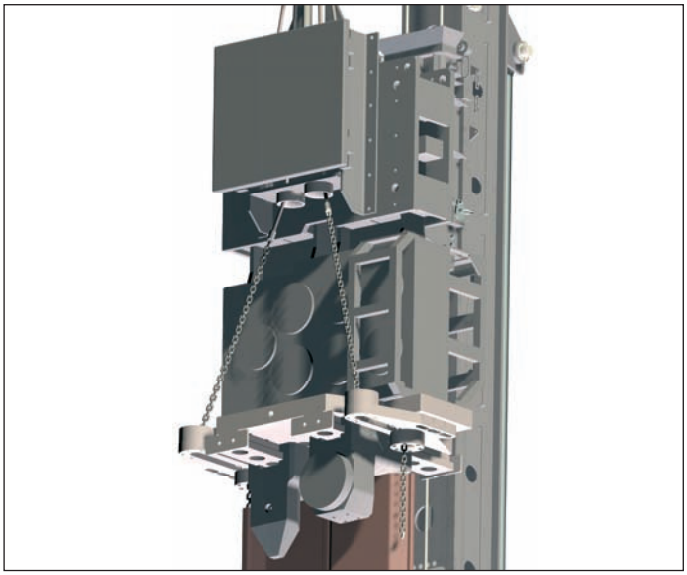
Noise emission

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

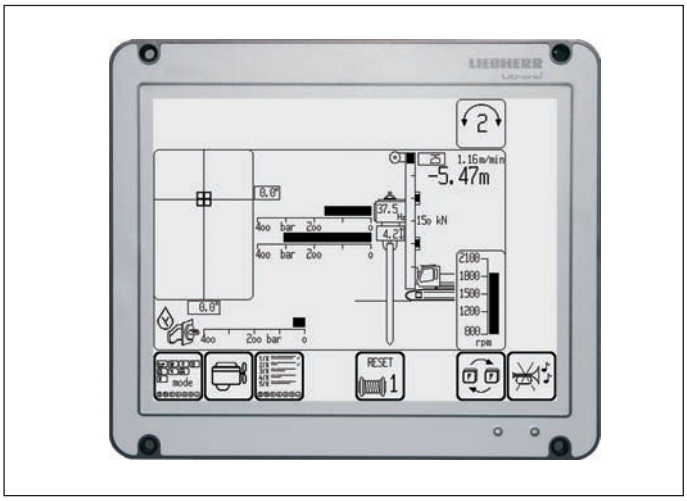
High frequency vibrator

Model 23 VML with hydraulic sheet pile feeder

Effective length – 21 m



Double clamp and hydraulic sheet pile feeder



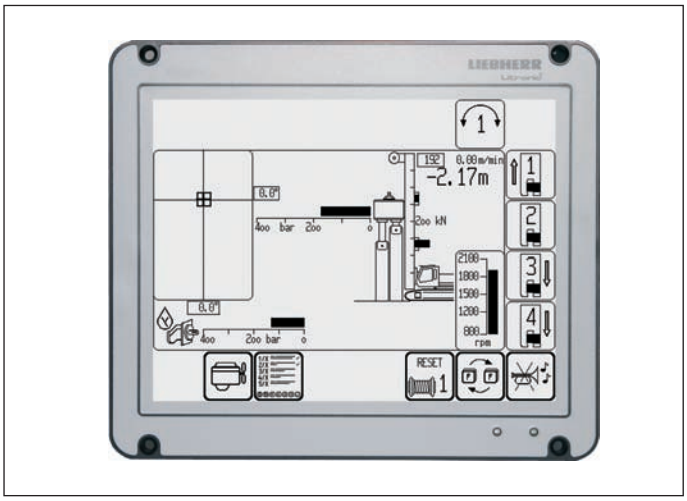
Display for vibrating

Technical data

Static moment	0 – 23	kgm
Max. speed	2300	rpm
Max. centrifugal force	1350	kN
Amplitude	0 - 17	mm
Total weight without clamp	4000	kg
Dynamic weight with clamp	5250	kg

Sheet pile press
Model 4080

Effective length – 21 m



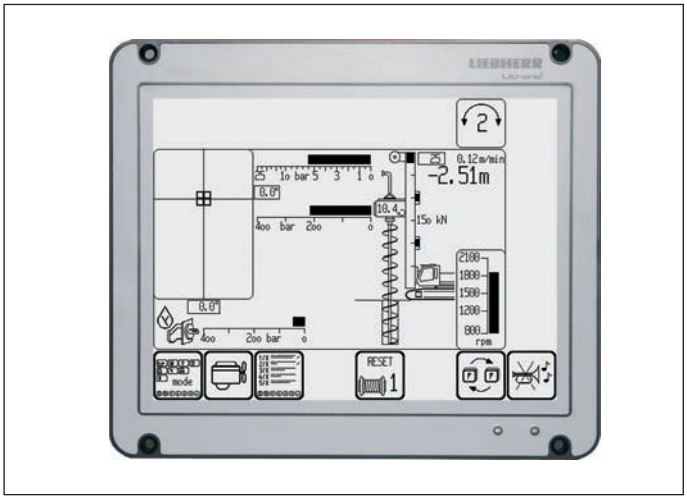
Display for sheet pile press

Technical data

Push force	4x 800 kN
Pull force	4x 700 kN
Stroke of cylinders	400 mm
Sheet piles	U and Z profile
Weight	7000 kg

Pre-drill
Model BA 45

Effective length – 21 m



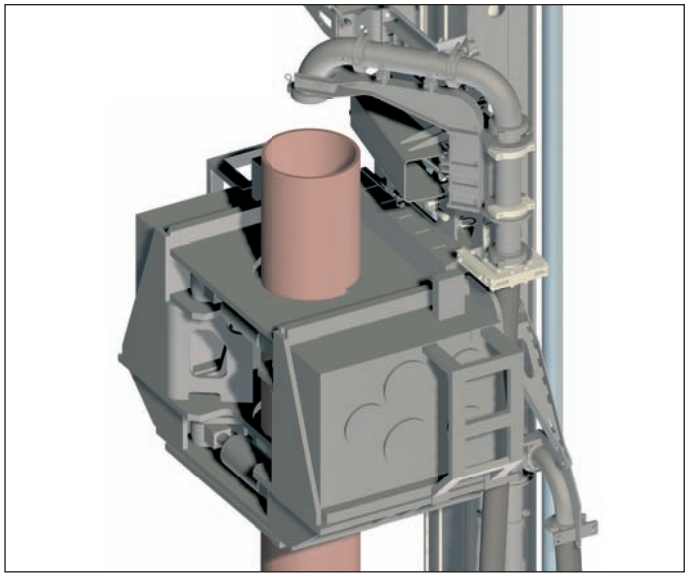
Display for continuous flight auger drilling

Technical data

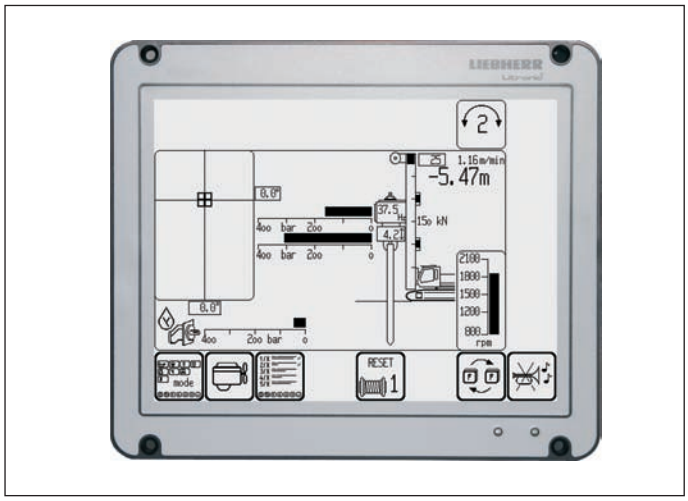
Drilling drive – torque	45 kNm
Drilling drive – speed	95 rpm
Max. drilling diameter	800 mm

High frequency ring vibrator
Model 20 VMR

Effective length – 34 m



Ring vibrator with concreting system



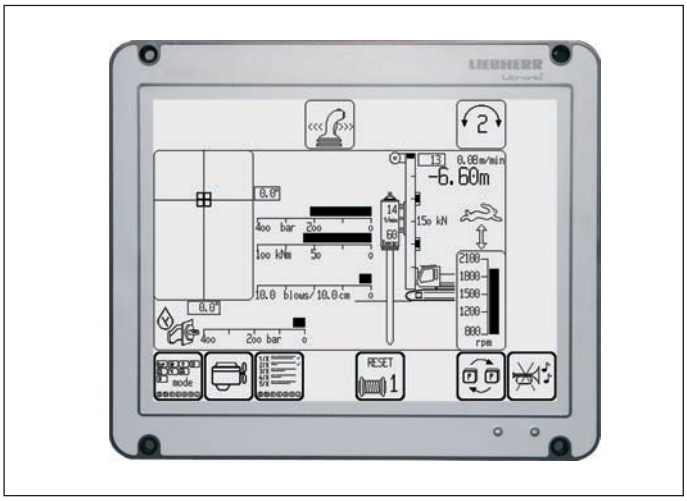
Display for vibrating

Technical data

Static moment	0 – 20	kgm
Max. speed	2300	rpm
Max. centrifugal force	1160	kN
Max. pull force	300	kN
Max. pull down	200	kN
Amplitude	0 - 6.5	mm
Casing diameter	355 - 510	mm
Total weight	6200	kg
Max. hydraulic pressure	350	bar
Hydraulic flow	550	l/min

Hydraulic hammer
Model H 85

Effective length – 21 m



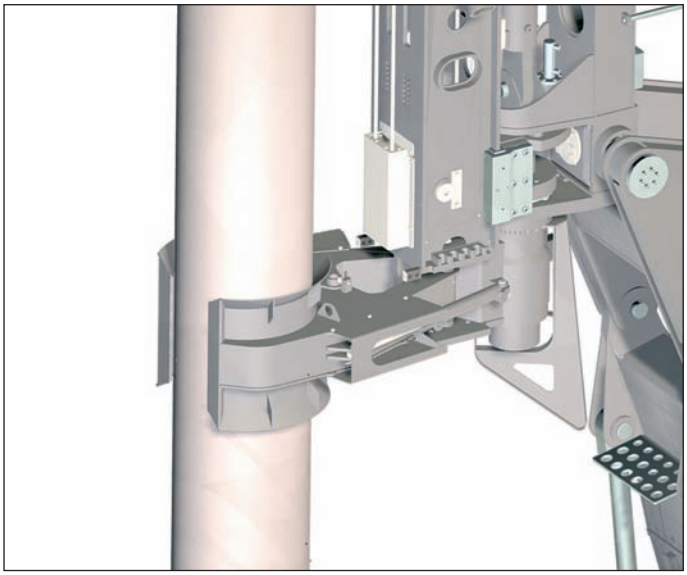
Display for impact driving

Technical data

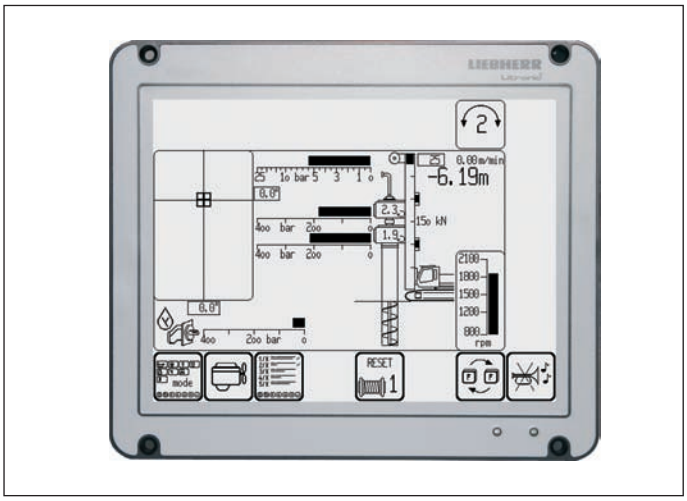
Hammer model	H 85/7	H 85/5*	
Ram weight	7000	5000	kg
Max. rated energy	83	60	kNm
Blow rate	45-100	50-100	blows/min
Hammer weight incl. ram	10200	8300	kg
Hydraulic pressure	240	240	bar
Hydraulic flow	200	200	l/min

*) The 7000 kg ram can be replaced by a 5000 kg ram.

Double rotary drilling
Model DBA 200



Hydraulic casing guide



Display for double rotary drilling

Technical data

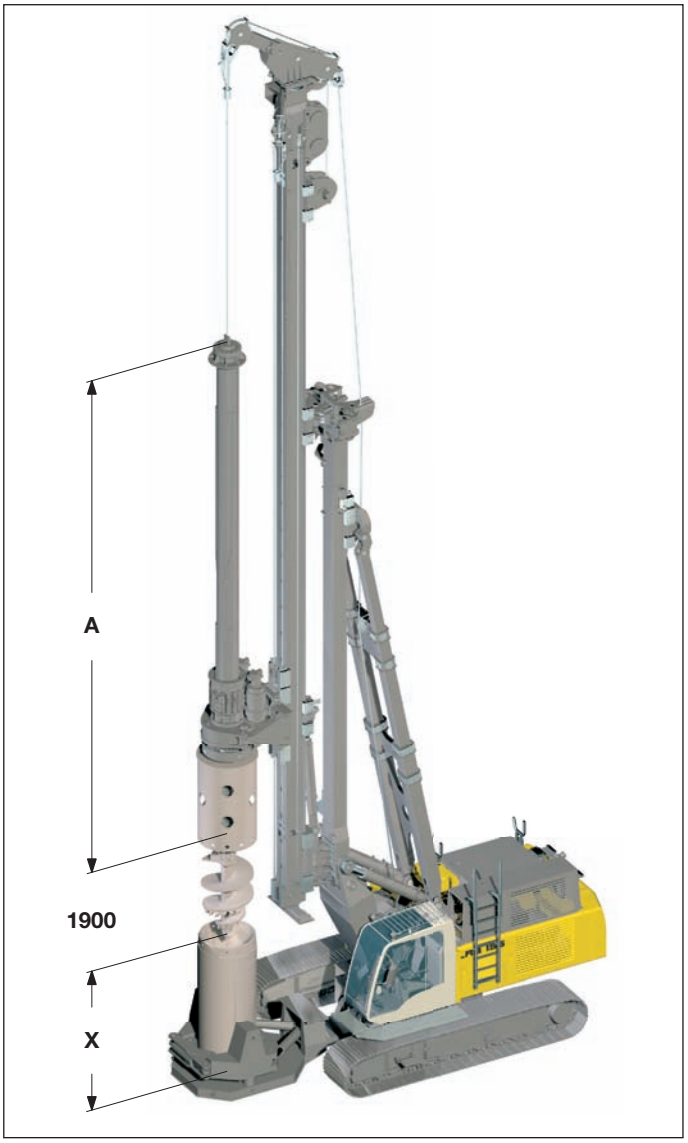
Drilling drive I – speed	1st gear	7 rpm
	2nd gear	14 rpm
Drilling drive II – speed	1st gear	15 rpm
	2nd gear	30 rpm
Drilling drive I – torque	1st gear	196 kNm
	2nd gear	98 kNm
Drilling drive II – torque	1st gear	98 kNm
	2nd gear	49 kNm

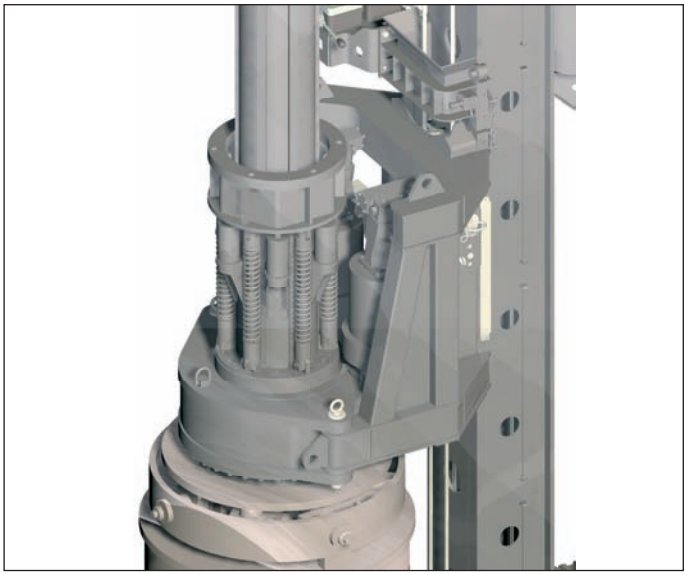
Performance data

Max. drilling diameter*	620	mm
Max. drilling depth*	15	m
Max. pull force (crowd winch and Kelly winch)	460	kNm

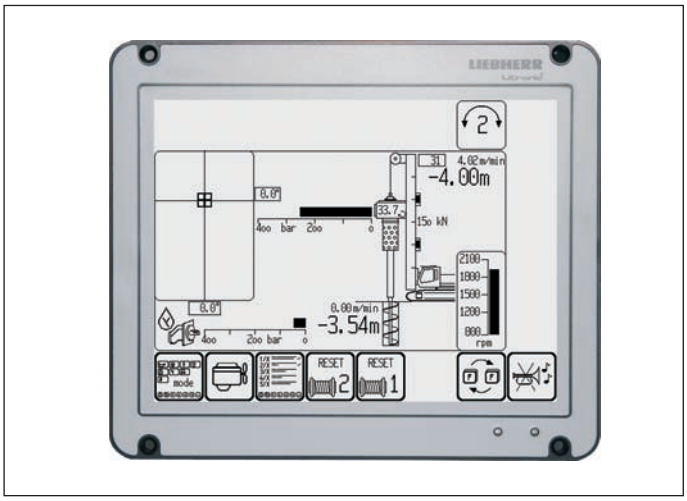
*) Other drilling diameters and drilling depths available on request

Kelly drilling
Model BA 220





Shock absorber for Kelly bar



Display for Kelly drilling

Technical data

Drilling drive - torque	1st gear	220	kNm
	2nd gear	110	kNm
Drilling drive - speed	1st gear	25	rpm
	2nd gear	50	rpm

Performance data

Max. drilling diameter with adapter*	2500	mm
Max. drilling diameter without casing oscillator*	2200	mm
Max. drilling diameter with casing oscillator*	1500	mm
Line pull Kelly winch	160	kNm
Line speed Kelly winch	0 – 94	m/min

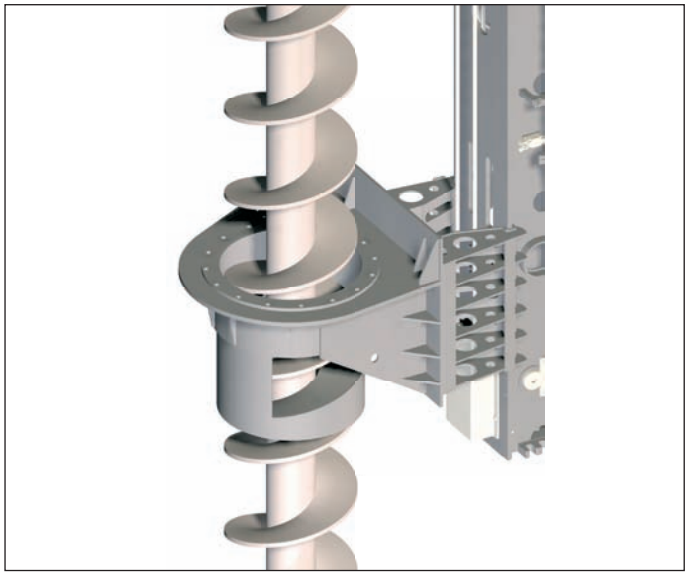
*) Other drilling diameters available on request.

Kelly bars

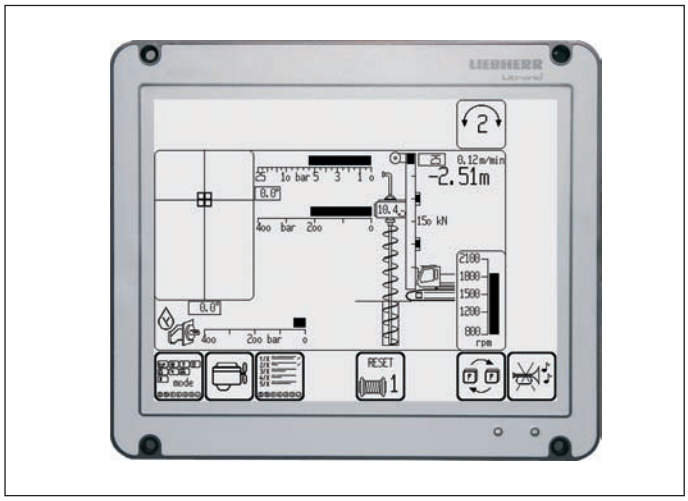
Kelly type	A	X	Drilling depth	Weight	Kelly Ø
	(mm)	(mm)	(m)	(t)	(mm)
3/24	10000	11000	22	6.0	406
3/28	11000	10000	26	6.6	406
3/32	12500	8500	30	7.3	406
3/36	13500	7500	34	8.0	406
4/48	14000	7000	46	8.5	406
4/65	17500	3500	63	10.5	406

Other Kelly bars available on request. When using a casing oscillator, value X has to be reduced by 1500 mm.

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	220	kNm
	2nd gear	110	kNm
Drilling drive - speed	1st gear	25	rpm
	2nd gear	50	rpm

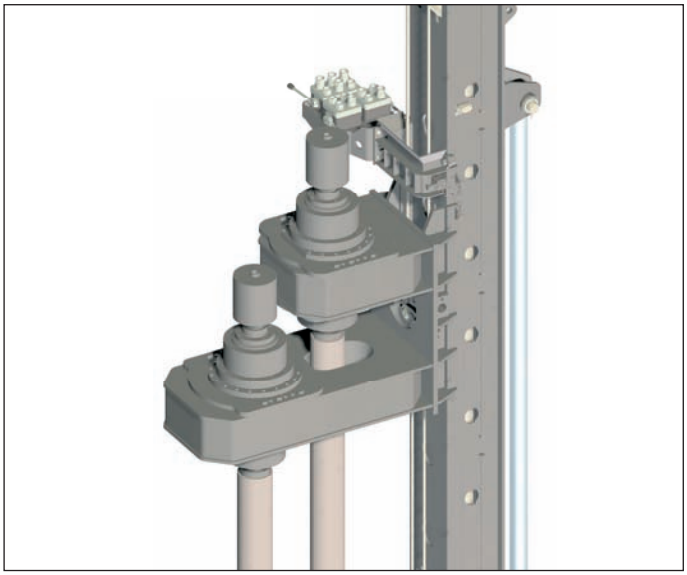
Performance data

Drilling depth without auger cleaner*	17.5	m
Drilling depth with auger cleaner*	16	m
Max. pull force (crowd winch and Kelly winch)	46	t
Max. push force (weight of rotary and auger to be added)	20	t
Max. drilling diameter*	700	mm

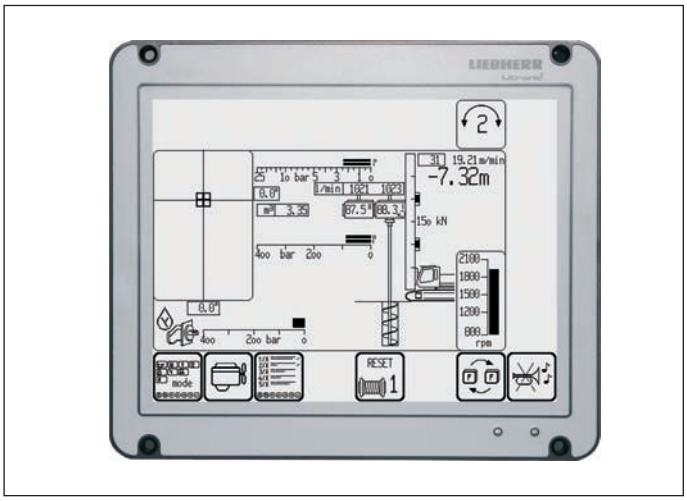
*) Other drilling diameters and drilling depths available on request

Twin mix equipment
Model DMA 35

Effective length – 17.5 m



Set up for operation on dams



Display for soil mixing

Technical data

Drilling drive - torque	1st gear	35	kNm
Drilling drive - speed	1st gear	60	rpm
Drilling drive - torque	2nd gear	17.5	kNm
Drilling drive - speed	2nd gear	120	rpm

PDE - Process data recording (Additional equipment)

This module constantly calculates and stores the current working processes.

Measurements

Measurements are constantly calculated during the working process. No special measuring process is required. External systems can also be connected to the system.

Display of measurement data

Measurement data relevant to the working process is displayed on the monitor in the cab.
The operator can then control the process and, if necessary, correct it.

Working process interruption

The working process and the measurement can be interrupted at any time.
The measurements are automatically continued upon resumption of work.

Storage of measurement and machine data

All data is stored on a memory card. This can be read via a PC. Thereby an evaluation and processing of data can also be performed at a later time. For example, for:

- client certifications
- conveying daily production data, down time, etc.
- Soil condition report

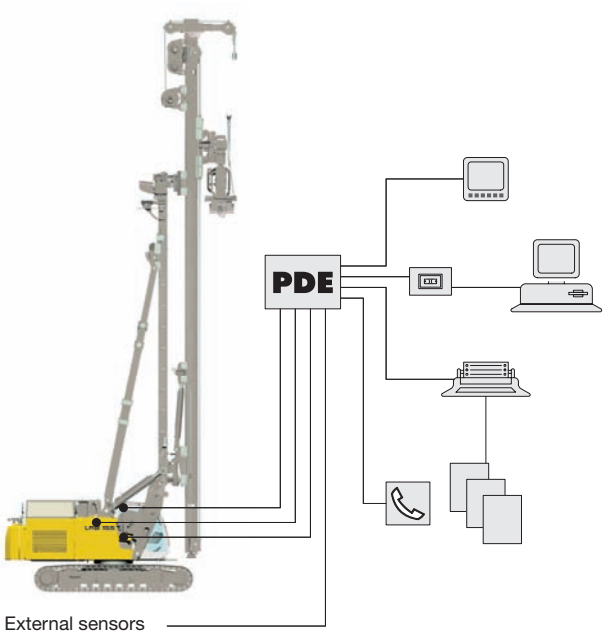
Printing data

A protocol can be printed out from the cab printer after each working process.

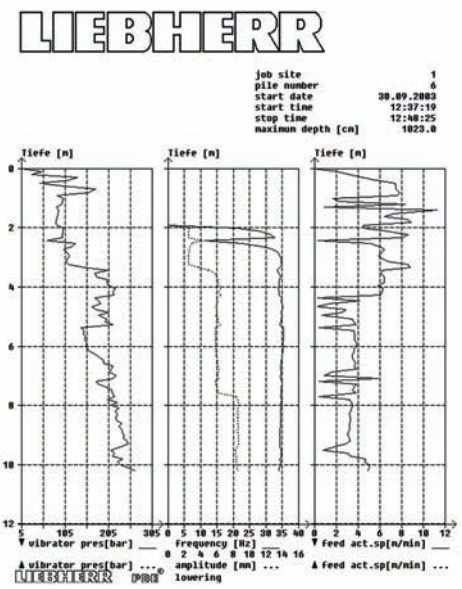
Data transmission

A GSM modem can be connected to the PDE making long distance data transmission possible.

PDE - diagram



Example of a protocol (in required language)



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