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. 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**

![Diagram of the machine](image)

**Technical data**

- Leader length: 18 m — 21 m — 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: 300 kN
- 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 mm – 800 mm – 900 mm

**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

<table>
<thead>
<tr>
<th>Static moment</th>
<th>0 – 23 kgm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. speed</td>
<td>2300 rpm</td>
</tr>
<tr>
<td>Max. centrifugal force</td>
<td>1350 kN</td>
</tr>
<tr>
<td>Amplitude</td>
<td>0 - 17 mm</td>
</tr>
<tr>
<td>Total weight without clamp</td>
<td>4000 kg</td>
</tr>
<tr>
<td>Dynamic weight with clamp</td>
<td>5250 kg</td>
</tr>
</tbody>
</table>
Sheet pile press
Model 4080

Effective length – 21 m

Technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Push force</td>
<td>4x 800 kN</td>
</tr>
<tr>
<td>Pull force</td>
<td>4x 700 kN</td>
</tr>
<tr>
<td>Stroke of cylinders</td>
<td>400 mm</td>
</tr>
<tr>
<td>Sheet piles U and Z profile</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>7000 kg</td>
</tr>
</tbody>
</table>

Display for sheet pile press
Pre-drill
Model BA 45

Effective length – 21 m

Display for continuous flight auger drilling

Technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drilling drive – torque</td>
<td>45 kNm</td>
</tr>
<tr>
<td>Drilling drive – speed</td>
<td>95 rpm</td>
</tr>
<tr>
<td>Max. drilling diameter</td>
<td>800 mm</td>
</tr>
</tbody>
</table>
High frequency ring vibrator
Model 20 VMR

Effective length – 34 m

Ring vibrator with concreting system

Display for vibrating

Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static moment</td>
<td>0 – 20 kgm</td>
</tr>
<tr>
<td>Max. speed</td>
<td>2300 rpm</td>
</tr>
<tr>
<td>Max. centrifugal force</td>
<td>1160 kN</td>
</tr>
<tr>
<td>Max. pull force</td>
<td>300 kN</td>
</tr>
<tr>
<td>Max. pull down</td>
<td>300 kN</td>
</tr>
<tr>
<td>Amplitude</td>
<td>0 - 6.5 mm</td>
</tr>
<tr>
<td>Casing diameter</td>
<td>355 - 510 mm</td>
</tr>
<tr>
<td>Total weight</td>
<td>6200 kg</td>
</tr>
<tr>
<td>Max. hydraulic pressure</td>
<td>350 bar</td>
</tr>
<tr>
<td>Hydraulic flow</td>
<td>550 l/min</td>
</tr>
</tbody>
</table>
Hydraulic hammer
Model H 85

Technical data

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

*) The 7000 kg ram can be replaced by a 5000 kg ram.
Double rotary drilling
Model DBA 200

Technical data

<table>
<thead>
<tr>
<th>Drilling drive I – speed</th>
<th>1st gear</th>
<th>7 rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drilling drive I – torque</td>
<td>1st gear</td>
<td>196 kNm</td>
</tr>
<tr>
<td>Drilling drive I – speed</td>
<td>2nd gear</td>
<td>14 rpm</td>
</tr>
<tr>
<td>Drilling drive I – torque</td>
<td>2nd gear</td>
<td>98 kNm</td>
</tr>
<tr>
<td>Drilling drive II – speed</td>
<td>1st gear</td>
<td>15 rpm</td>
</tr>
<tr>
<td>Drilling drive II – torque</td>
<td>1st gear</td>
<td>98 kNm</td>
</tr>
<tr>
<td>Drilling drive II – speed</td>
<td>2nd gear</td>
<td>30 rpm</td>
</tr>
<tr>
<td>Drilling drive II – torque</td>
<td>2nd gear</td>
<td>49 kNm</td>
</tr>
</tbody>
</table>

Performance data

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

*) Other drilling diameters and drilling depths available on request.
Kelly drilling
Model BA 220

Technical data

<table>
<thead>
<tr>
<th>Drilling drive - torque</th>
<th>1st gear</th>
<th>220 kNm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drilling drive - speed</td>
<td>1st gear</td>
<td>25 rpm</td>
</tr>
<tr>
<td>Drilling drive - torque</td>
<td>2nd gear</td>
<td>110 kNm</td>
</tr>
<tr>
<td>Drilling drive - speed</td>
<td>2nd gear</td>
<td>50 rpm</td>
</tr>
</tbody>
</table>

Performance data

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

<table>
<thead>
<tr>
<th>Kelly bars</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>(mm)</td>
</tr>
<tr>
<td>MD 28/3/24</td>
</tr>
<tr>
<td>MD 28/3/27</td>
</tr>
<tr>
<td>MD 28/3/30</td>
</tr>
<tr>
<td>MD 28/3/33</td>
</tr>
<tr>
<td>MD 28/3/36</td>
</tr>
<tr>
<td>MD 28/4/36</td>
</tr>
<tr>
<td>MD 28/4/42</td>
</tr>
<tr>
<td>MD 28/4/48</td>
</tr>
<tr>
<td>MD 28/4/54</td>
</tr>
</tbody>
</table>

*) Other drilling diameters available on request.

Line pull Kelly winch: 160 kN, Line speed Kelly winch: 0 – 94 m/min.

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

Technical data
- Drilling drive - torque 1st gear: 220 kNm
- Drilling drive - speed 1st gear: 25 rpm
- Drilling drive - torque 2nd gear: 110 kNm
- Drilling drive - speed 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): 460 kN
- Max. push force (weight of rotary and auger to be added): 200 kN
- 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

<table>
<thead>
<tr>
<th>Drilling drive - torque</th>
<th>1st gear</th>
<th>2nd gear</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st gear</td>
<td>35 kNm</td>
<td>17.5 kNm</td>
</tr>
<tr>
<td>2nd gear</td>
<td>120 rpm</td>
<td>120 rpm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drilling drive - speed</th>
<th>1st gear</th>
<th>2nd gear</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st gear</td>
<td>60 rpm</td>
<td>120 rpm</td>
</tr>
<tr>
<td>2nd gear</td>
<td>120 rpm</td>
<td>120 rpm</td>
</tr>
</tbody>
</table>
Process data recording system - PDE®

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

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.