

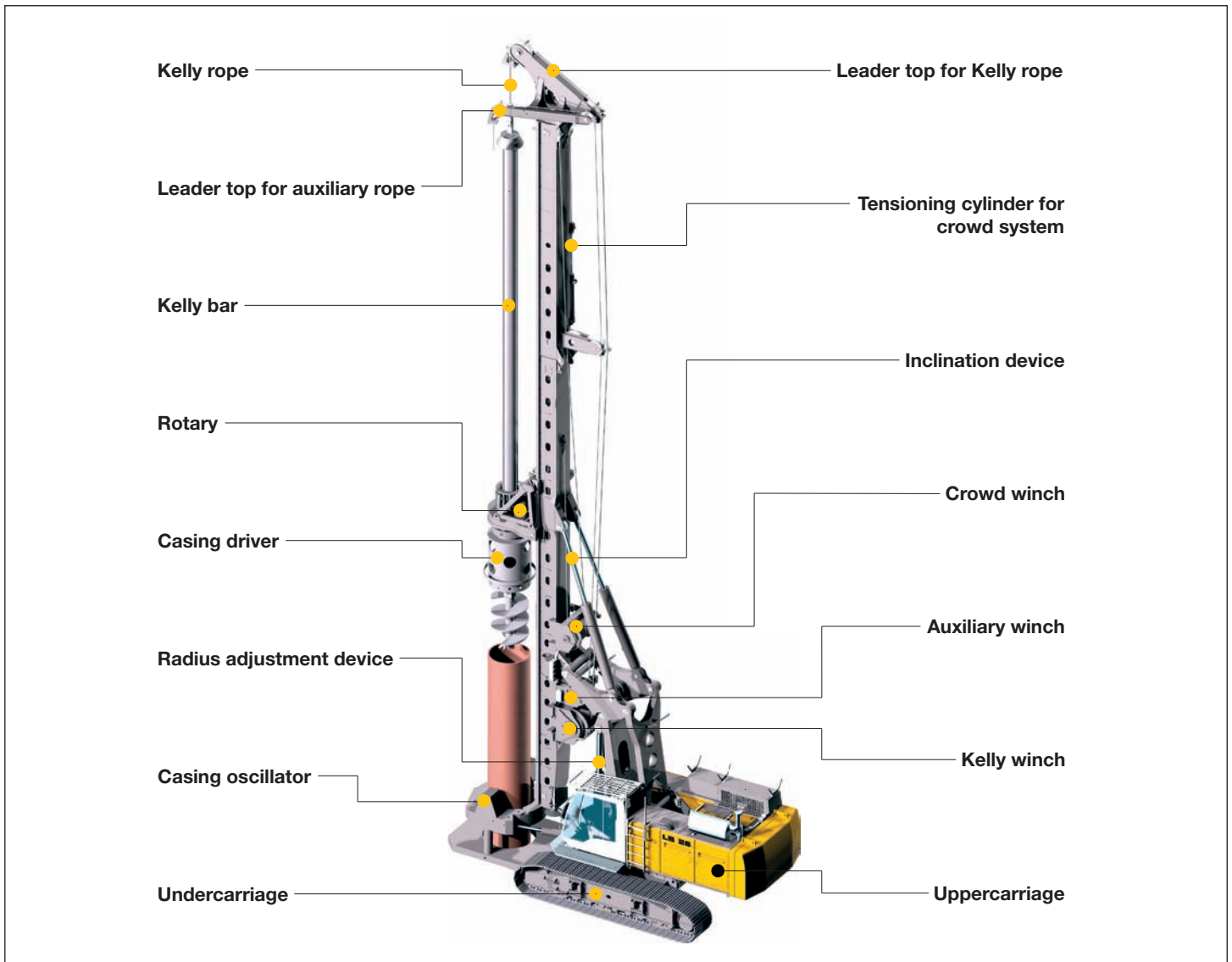
**Technical data**  
**Drilling rig**

**LB 28**  
Litronic®



**LIEBHERR**

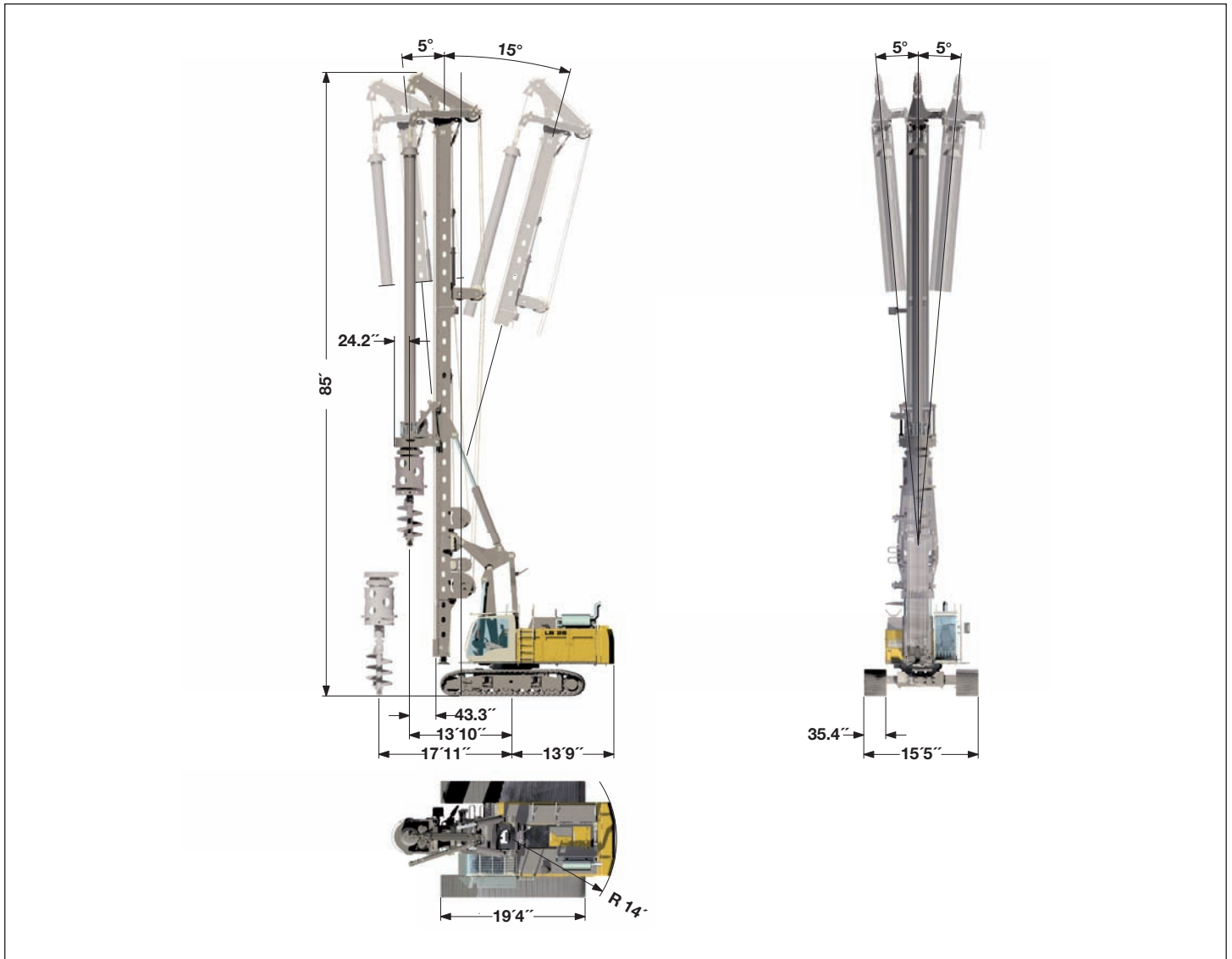
# Concept and characteristics



- 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 pull and push forces
- High torque
- Completely self-rigging (no auxiliary machines required)
- Large range of working tools (all common drilling works can be performed)
- Stepless leader inclination 5° forward - 15° backward depending on type of equipment
- Automatic vertical alignment
- High alignment forces
- Simultaneous control of several movements via Load-sensing multi-circuit hydraulics
- Quick assembly of rotary possible through quick connection
- Equipment design according to latest European regulations and standards
- All components designed to fulfill the special requirements of a drilling rig
- High manufacturing quality through quality control by the PDE®-system

# Dimensions

## Basic machine LB 28



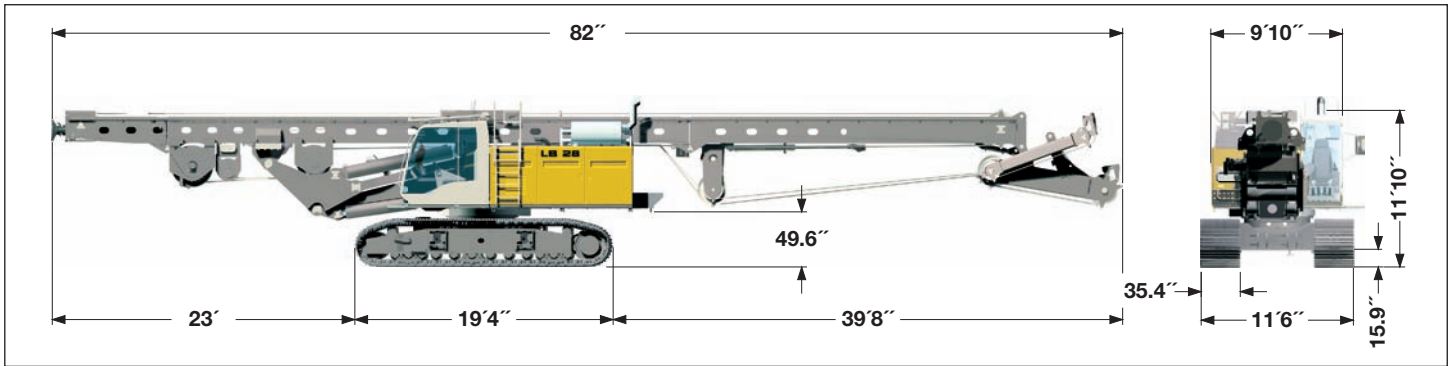
### Technical data

Total height	85 ft
Max. pull, leader on ground	89,950 lbs
Max. torque	210,950 lbf-ft
Stepless lead inclination	
Lateral inclination	± 5°
Forward inclination	5°
Backward inclination	15°

### Operating weight

Total weight with 31.5 inch 3-web shoes	209,450 lbs
Total weight with 35.4 inch 3-web shoes	210,770 lbs
The operating weight includes the basic machine LB 28 (with rotary and Kelly bar MD 28/3/30) and 33,730 lbs counterweight.	

# Transport dimensions and weights

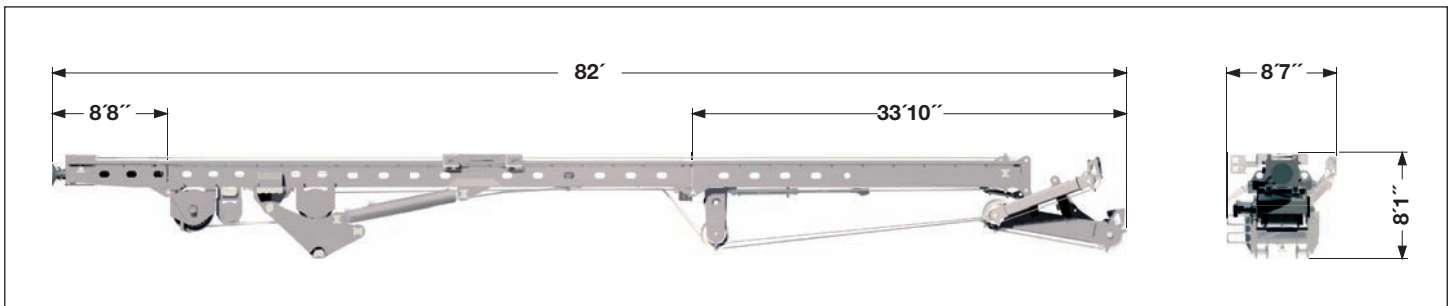


## Transport with leader

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

## Dimensions and weights

Leader length	72.2 ft
Weight complete without counterweight	150,355 lbs



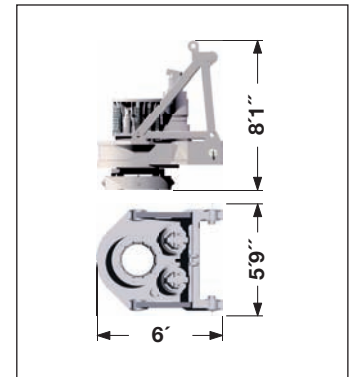
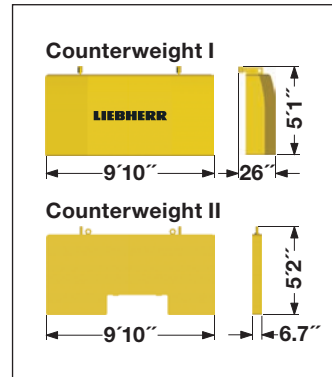
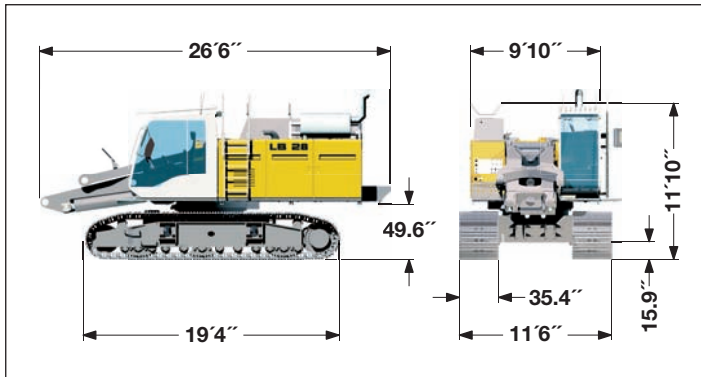
## Transport leader

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

## Dimensions and weights

Leader length	72.2 ft
Weight complete	53,350 lbs
Lower part of the leader	3,310 lbs
Upper part of the leader with leader top	10,140 lbs

# Transport dimensions and weights



## Transport basic machine

ready for operation, without counterweight.

Transport weight ————— 97,000 lbs

## Weights

Counterweight I — 22,500 lbs

Counterweight II — 11,500 lbs

## Rotary

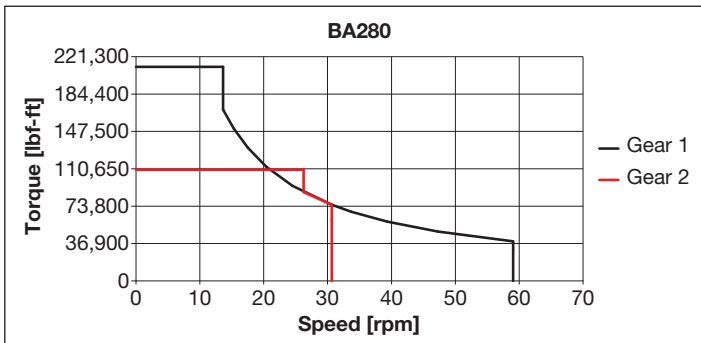
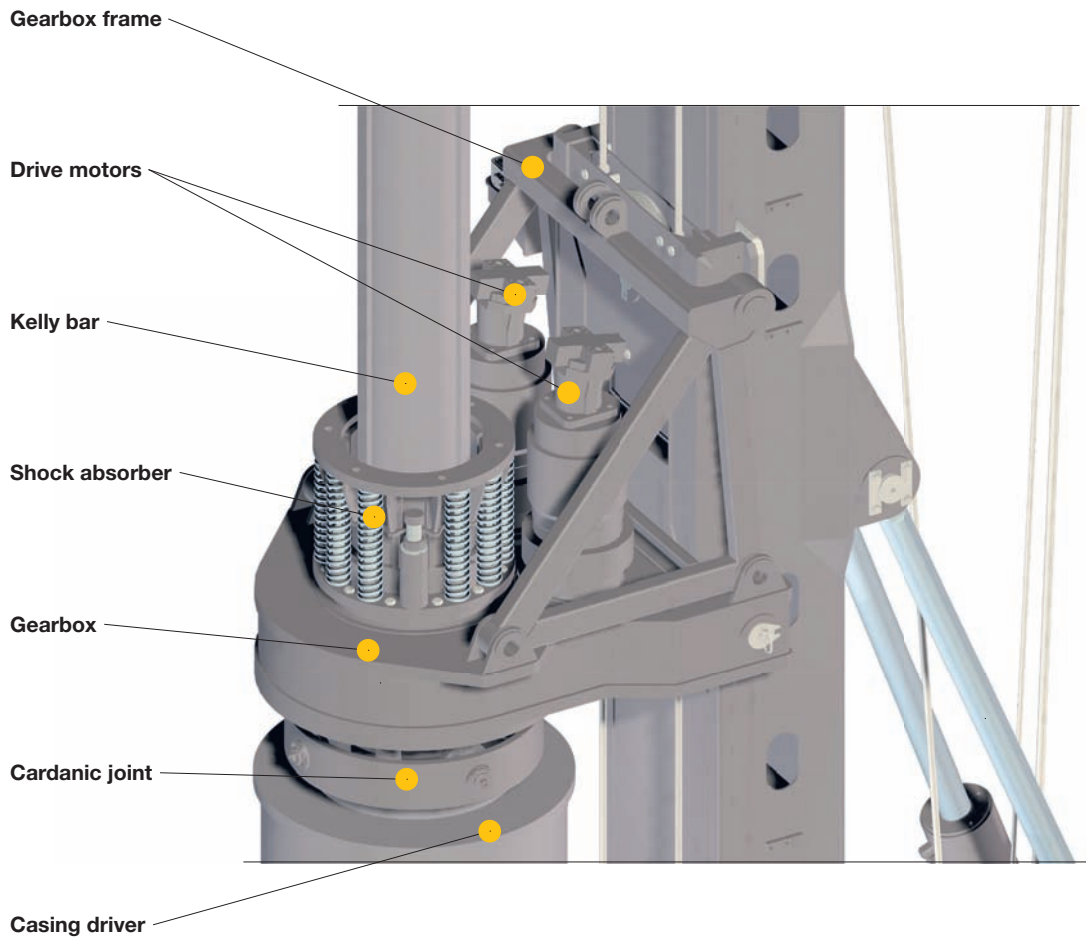
Transport weight

BA 280 ————— 14,770 lbs

Weights can vary with the final configuration of the machine.

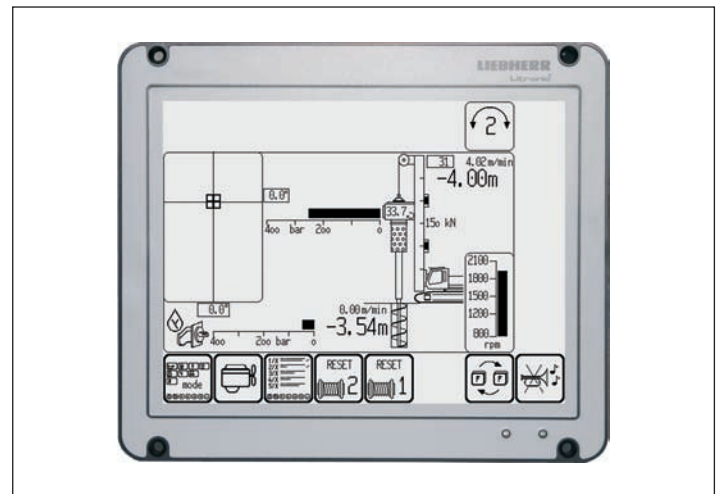
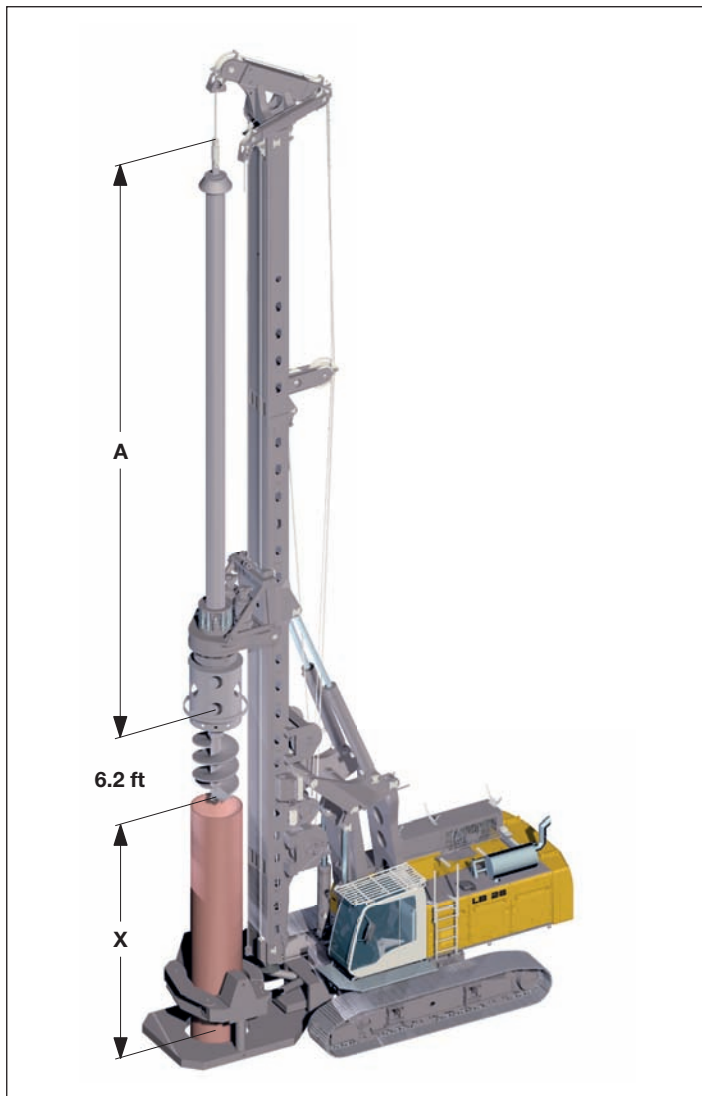
The figures in this brochure may include options which are not within the standard scope of supply of the machine.

# Rotary BA 280 with shock absorber



- 2-stage-gear drive for flexible adaptation to soil conditions
- Due to stepless speed control via joystick optimum and precise alignment and rock drilling is possible even at low speed levels; it is not required to preselect an operating mode
- Kelly shock absorber and rubber bearing relieve the material and reduce noise emission
- Thanks to the Kelly shock absorber the Kelly bar is guided at greater length
- Various drive adapters provide compatibility with other systems

# Kelly drilling



Display for Kelly drilling

## Technical data

Drilling drive - torque	1 <sup>st</sup> gear	210,950 lbf-ft
Drilling drive - speed	1 <sup>st</sup> gear	30 rpm
Drilling drive - torque	2 <sup>nd</sup> gear	109,160 lbf-ft
Drilling drive - speed	2 <sup>nd</sup> gear	59 rpm

## Performance data

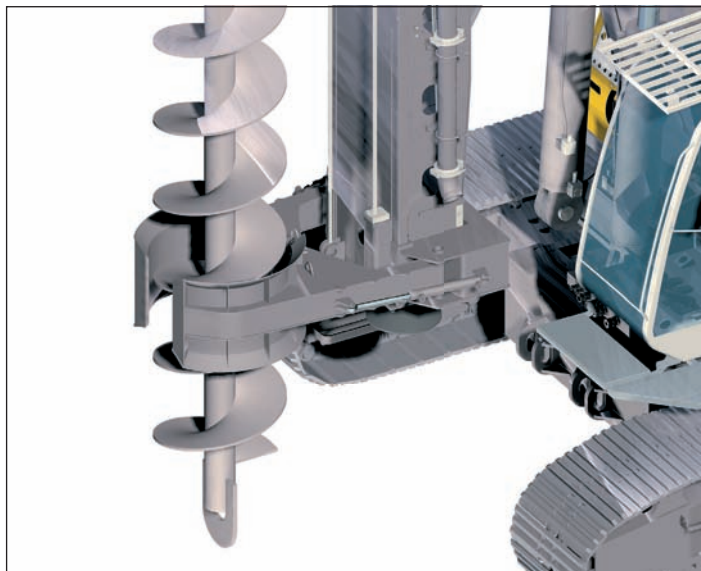
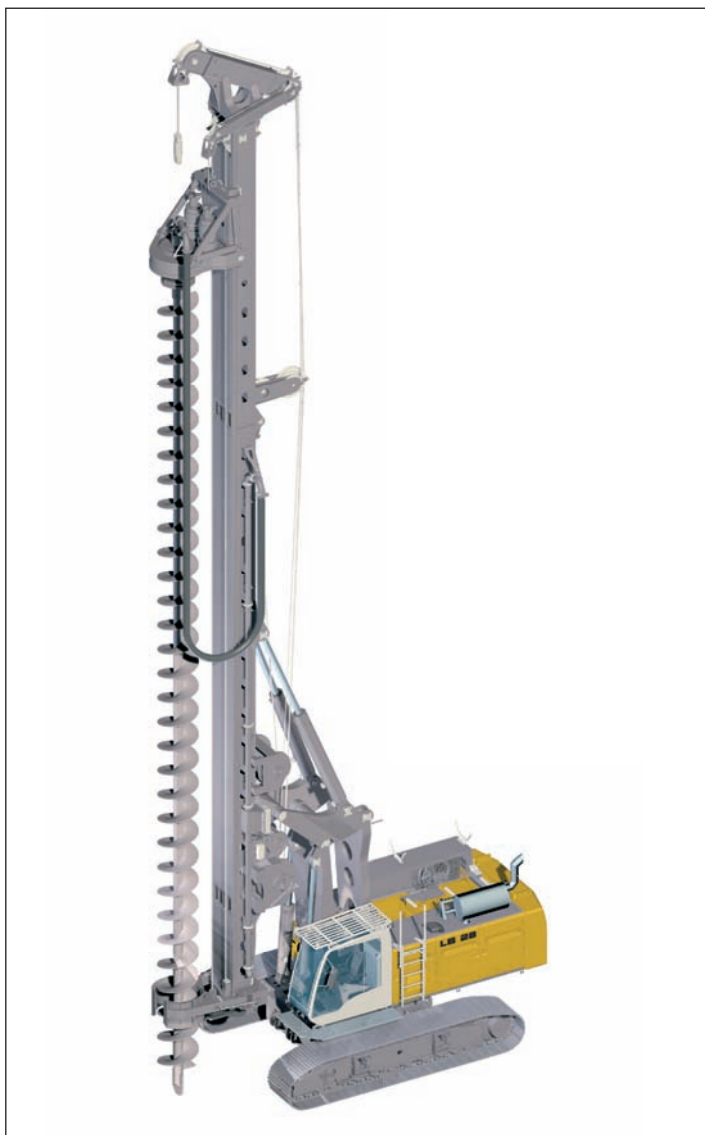
Max. drilling diameter*	6.2 ft uncased
Max. drilling diameter*	4.9 ft cased

\*) Other drilling diameters available on request.  
 Other Kelly bars available on request.  
 When using a casing oscillator, value X has to be reduced by 4.9 ft.

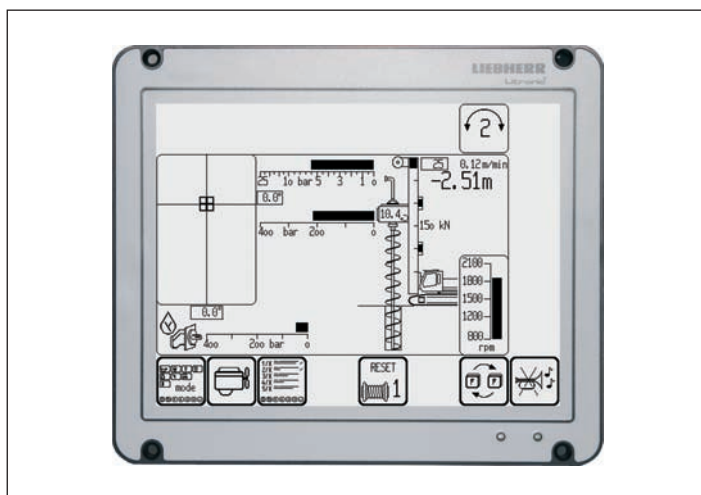
## Kelly bars

	A	X	Drilling depth	Weight	Kelly Ø
	(ft)	(ft)	(ft)	(lbs)	(inch)
MD 28/3/24	32.4	36.7	72.2	11,025	16.5
MD 28/3/27	35.7	33.5	82.0	12,125	16.5
MD 28/3/30	39.0	30.2	91.8	13,010	16.5
MD 28/3/33	42.3	26.9	101.7	14,110	16.5
MD 28/3/36	45.5	23.6	111.5	15,000	16.5
MD 28/4/36	37.6	31.8	111.5	16,095	16.5
MD 28/4/42	42.5	26.9	131.2	17,860	16.5
MD 28/4/48	47.4	22.0	150.9	19,845	16.5
MD 28/4/54	52.3	17.0	170.6	21,605	16.5
MD 28/4/60	57.3	12.1	190.3	23,590	16.5
MD 28/4/66	62.1	7.2	210.0	25,575	16.5
MD 28/4/72	67.1	2.3	229.6	27,340	16.5

# Continuous flight auger drilling



Auger with auger guide



Display for continuous flight auger drilling

## Technical data

Drilling drive - torque	1 <sup>st</sup> gear	210,950 lbf-ft
Drilling drive - speed	1 <sup>st</sup> gear	30 rpm
Drilling drive - torque	2 <sup>nd</sup> gear	109,160 lbf-ft
Drilling drive - speed	2 <sup>nd</sup> gear	59 rpm

## Performance data

Drilling depth with auger cleaner*	56.8 ft
Drilling depth without auger cleaner*	58.4 ft
Drilling depth with 26.2 ft Kelly extension, without auger cleaner	84.6 ft
Max. pull force (crowd winch and Kelly winch)	202,350 lbf
Max. push force (weight of rotary and auger to be added)	44,960 lbf
Max. drilling diameter**	39.4 inch

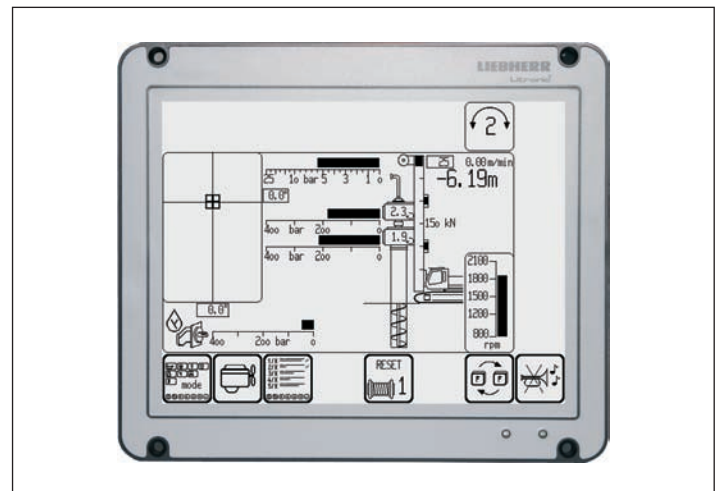
\*) Without Kelly extension

\*\*) Other drilling diameters available on request.



# Double rotary drilling

## Model DBA 200



Display for double rotary drilling

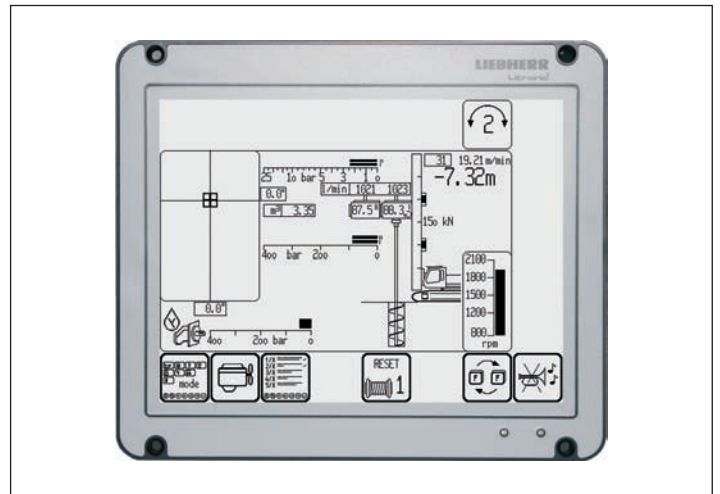
### Technical data

Drilling drive I - torque	1 <sup>st</sup> gear	143,825 lbf-ft
Drilling drive I - speed	1 <sup>st</sup> gear	9 rpm
Drilling drive I - torque	2 <sup>nd</sup> gear	71,545 lbf-ft
Drilling drive I - speed	2 <sup>nd</sup> gear	18 rpm
Drilling drive II - torque	1 <sup>st</sup> gear	75,970 lbf-ft
Drilling drive II - speed	1 <sup>st</sup> gear	17 rpm
Drilling drive II - torque	2 <sup>nd</sup> gear	37,615 lbf-ft
Drilling drive II - speed	2 <sup>nd</sup> gear	34 rpm
Max. drilling diameter*		24.4 inch
Max. drilling depth		58.4 ft
Max. pull force		202,330 lbf

\*) Other drilling diameters available on request

# Twin mix equipment

## Model DMA 35



Display for soil mixing

### Technical data

Drilling drive - torque	1 <sup>st</sup> gear	25,820 lbf-ft
Drilling drive - speed	1 <sup>st</sup> gear	55 rpm
Drilling drive - torque	2 <sup>nd</sup> gear	12,910 lbf-ft
Drilling drive - speed	2 <sup>nd</sup> gear	111 rpm
Max. drilling depth		58.4 ft
Max. diameter*		27.6 inch

\*) Other diameters available on request

# Technical description



## Engine

Power rating according to ISO 9249, 350 kW (469 hp) at 1900 rpm

Engine type \_\_\_\_\_ Liebherr D 846 A7

Fuel tank \_\_\_\_\_ 185 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 92.5 gal/min

Separate pump for kinematics \_\_\_\_\_ 47.5 gal/min

Hydraulic oil tank \_\_\_\_\_ 211 gal

Max. working pressure \_\_\_\_\_ 5076 PSI

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.



## Crawlers

Propulsion through axial piston motor, hydraulically released spring loaded multi-disc brake, maintenance free crawler tracks, hydraulic chain tensioning device.

Drive speed \_\_\_\_\_ 0 – 1.18 mph

Track force \_\_\_\_\_ 140,000 lbf

Width of 3-web track shoes \_\_\_\_\_ 35,4 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 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 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 freewheeling

Line pull effective (1<sup>st</sup> layer) \_\_\_\_\_ 56,200 lbf

Rope diameter \_\_\_\_\_ 34 mm

Max. line speed \_\_\_\_\_ 0-259 ft/min



## Auxiliary winch

Line pull effective (1<sup>st</sup> layer) \_\_\_\_\_ 22,480 lbf

Rope diameter \_\_\_\_\_ 20 mm

Drum diameter \_\_\_\_\_ 15,7 inch

Max. line speed \_\_\_\_\_ 0-292 ft/min



## Rope crowd system

Crowd force push/pull \_\_\_\_\_ 90,000/90,000 lbf

Line pull (effective) \_\_\_\_\_ 45,000 lbf

Rope diameter \_\_\_\_\_ 28 mm

Travel of working tool \_\_\_\_\_ 60 ft

Max. line speed \_\_\_\_\_ 0-230 ft/min

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.

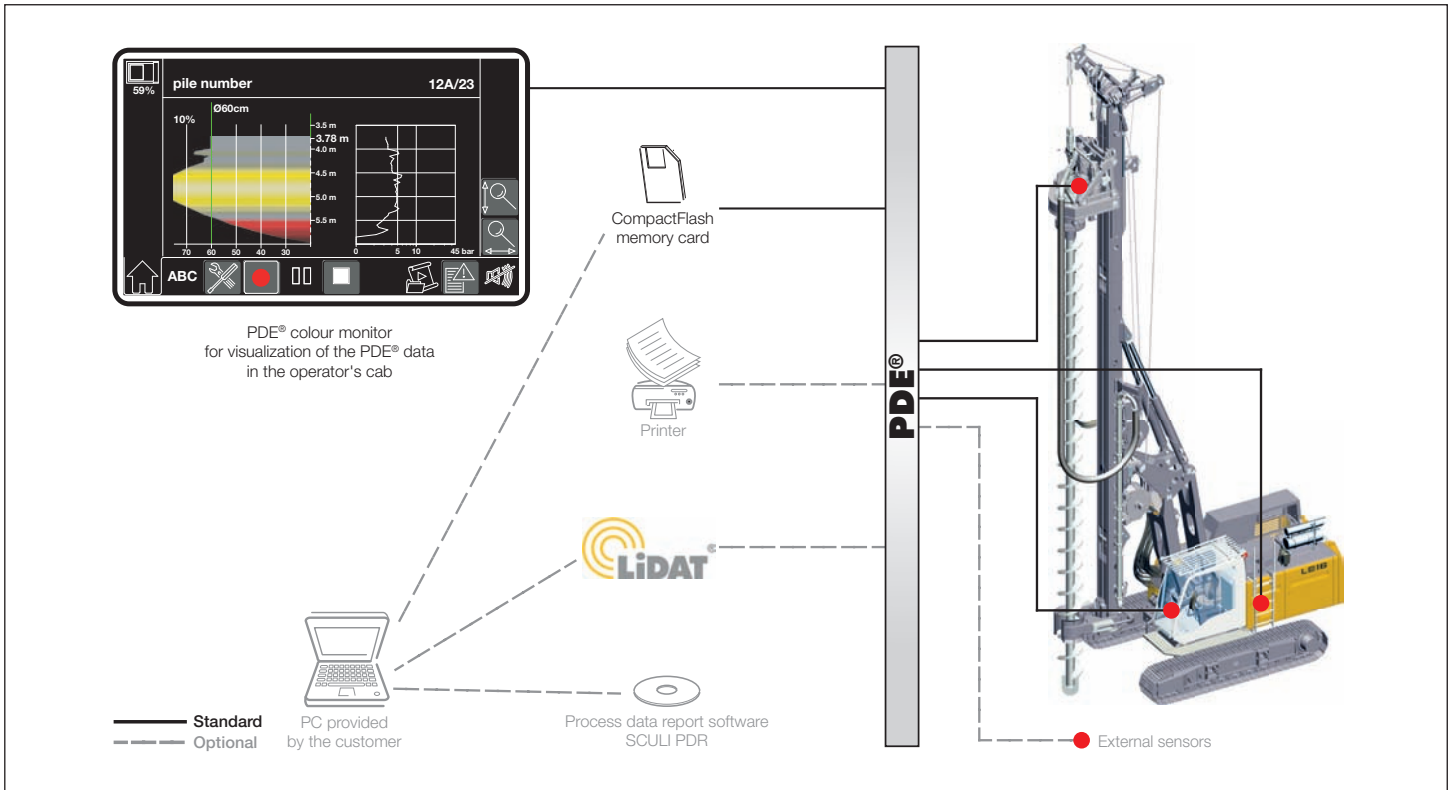


## Noise emission

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

# 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.

