EN

LB 35.1

LB 2004.08
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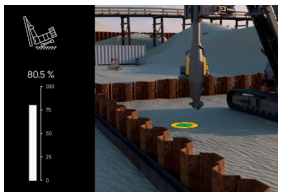
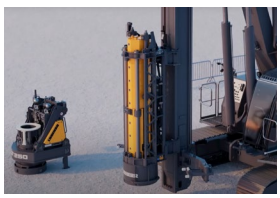
Drilling rigs

Assistance systems

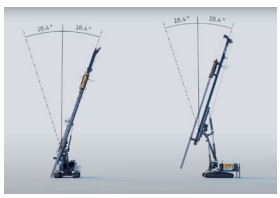
Remote-controlled assembly and disassembly
The remote control facilitates the safe assembly and disassembly of the machine. The operator can change position and thus has a better view of collision points.



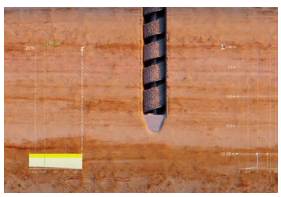
Ground pressure visualisation
Changes in the leader position or swinging the uppercarriage lead to a shift in the centre of gravity. Centres of gravity, load moments and ground pressure distribution under the crawler are calculated in real time.



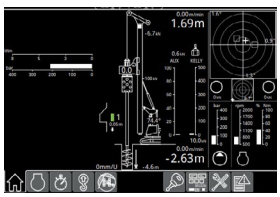
Attachment recognition
The basic machine's control system detects attachments, records their operating hours and optimises oil quantities and pressures. Operating parameters and faults are recorded and can be recalled via LiDAT.



Automatic leader adjustment
The operator can save the leader inclination. At the touch of a button, the leader can be set to the desired inclination at the piling or drilling point for each new working step. This saves time and ensures precise results.



Drilling assistant for single-pass method
The rope crowd system, rotary drive and the amount of flowing concrete are optimally matched during drilling and subsequent extraction.



Assistance systems for Kelly drilling
- Automatic shake-off function for working tools
- Kelly visualisation
- Auger filling level display for drilling tools
- Kelly winch with freewheeling and with slack rope monitoring and prevention
- Crowd booster

Technical description

Diesel engine

Power rating according to ISO 9249	450 kW (603 hp) at 1700 rpm
Engine type	Liebherr D 966 A7-05
Fuel tank capacity	700 l with continuous level indicator and reserve warning
Exhaust certification	EU 2016/1628 Stage V EPA/CARB Tier 4f non-certified emission standard

Hydraulic system

Hydraulic oil tank capacity	770 l
Max. working pressure	385 bar
Hydraulic oil	electronic monitoring of all filters use of synthetic environmentally friendly oil possible

Crawlers

Drive system	with fixed axial piston hydraulic motors
Crawler side frames	maintenance-free, with hydraulic chain tensioning device
Brake	hydraulically released, spring-loaded multi-disc holding brake
Drive speed	0-1.8 km/h
Track force	676 kN
Grousers	Width 900 mm (option 700 and 800 mm)

Swing gear

Drive system	with fixed axial piston hydraulic motors, planetary gearbox, pinion
Swing ring	Roller bearing with external teeth
Brake	hydraulically released, spring-loaded multi-disc holding brake
Swing speed	0-2.4 rpm continuously variable

Kelly winch with freewheeling

Line pull effective	300 kN (1st layer)
Rope diameter	34 mm
Rope speed	0-76 m/min

Auxiliary winch

Line pull effective	100 kN (1st layer)
Rope diameter	20 mm
Rope speed	0-89 m/min

Crowd system

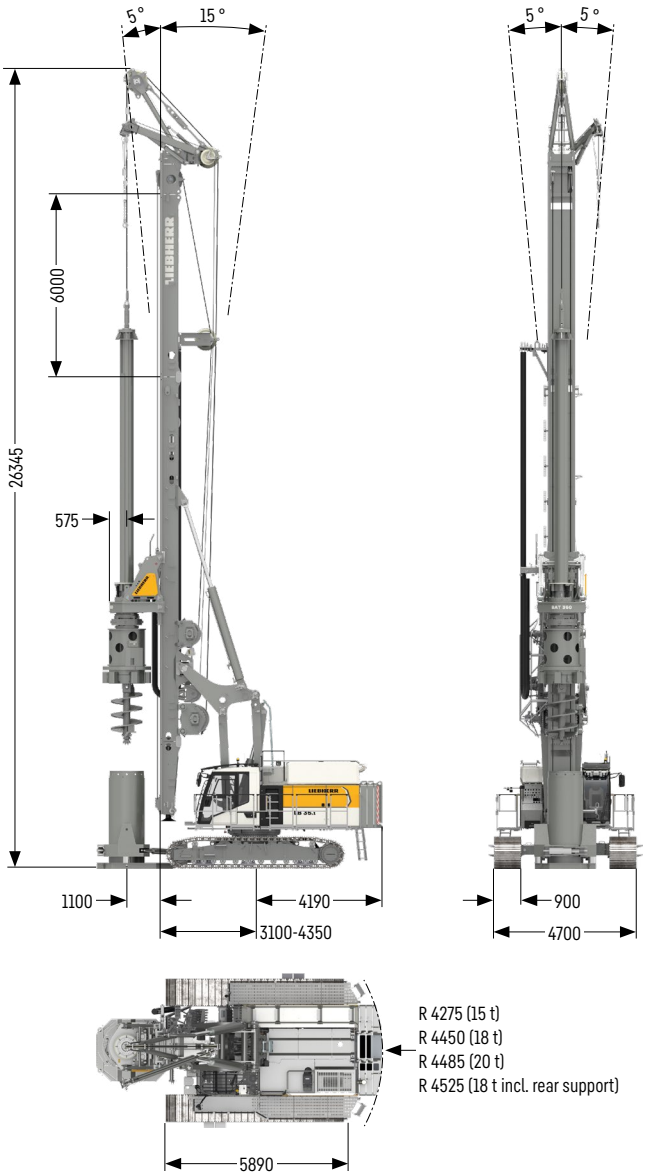
Crowd force	400/400 kN (push/pull)
Line pull effective	200 kN (1st layer)
Rope diameter	28 mm
Travel with standard leader between mechanical limit stops	17.9 m
Rope speed	0-70 m/min

Remarks:

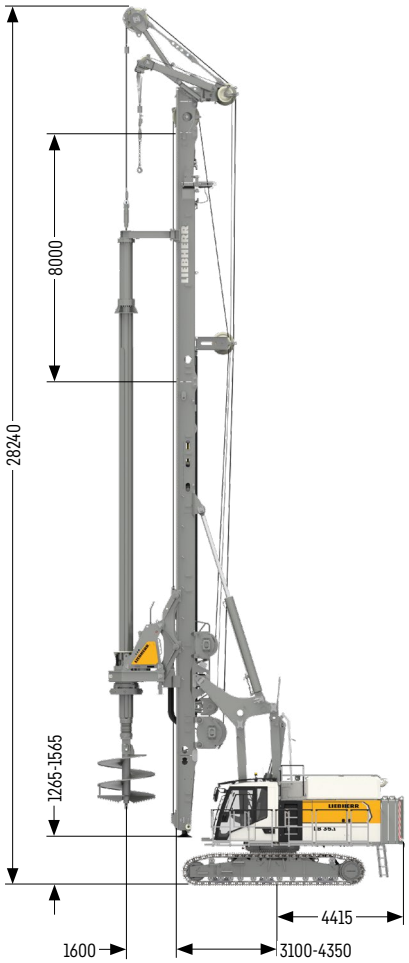
- Illustrations showing the types of application (e.g. Kelly drilling, continuous flight auger drilling etc.) are examples only.
- Weights and transport dimensions can vary with the final configuration of the machine. The figures in this brochure may include options which are not within the standard scope of supply of the machine.

Dimensions

Standard



Folding leader



Operating weights

Total weight with 800 mm 3-web grousers	t	99.0
Total weight with 900 mm 3-web grousers	t	99.4

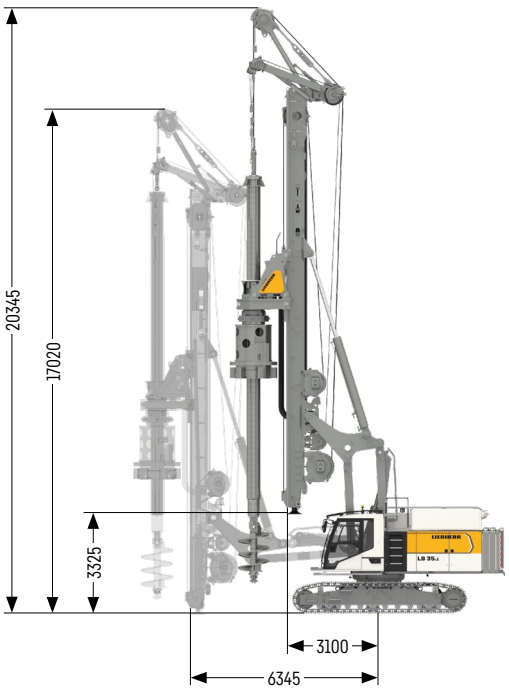
The operating weight includes the basic machine LB 35.1 with rotary, Kelly bar 28/3/30, 15 t counterweight and equipment for casing oscillator.

Operating weights

Total weight with 800 mm 3-web grousers	t	110.7
Total weight with 900 mm 3-web grousers	t	111.1

The operating weight includes the basic machine LB 35.1 with rotary, Kelly bar 28/4/54 and 20 t counterweight. Equipment for casing oscillator not included.

Low Head

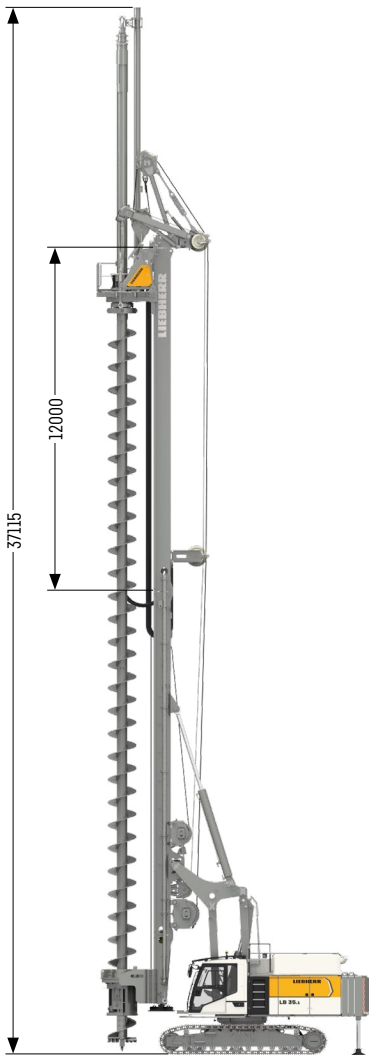


Operating weights

Total weight with 800 mm 3-web grousers	t	94.1
Total weight with 900 mm 3-web grousers	t	94.5

The operating weight includes the basic machine LB 35.1 with rotary, Kelly bar 28/3/30 and 15 t counterweight.
The line pull of the Kelly winch is reduced to 250 kN when working at a radius exceeding 4350 mm.

Single-pass

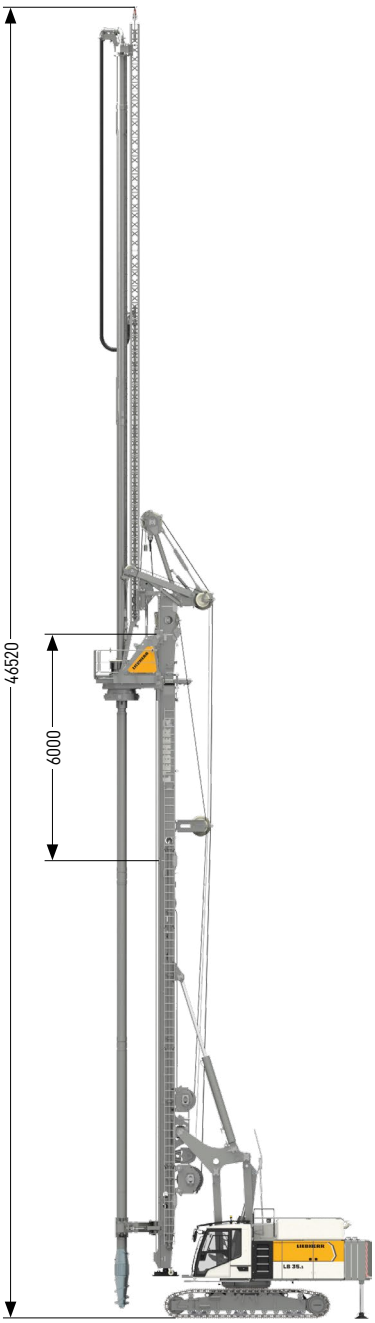


Operating weights

Total weight with 800 mm 3-web grousers	t	110.1
Total weight with 900 mm 3-web grousers	t	110.5

The operating weight includes the basic machine LB 35.1 with rotary, 8 m Kelly extension, auger ⌀ 800 mm 25 m, auger cleaner ⌀ 800 mm and 18 t counterweight.
Equipment for casing oscillator not included.

Lattice boom extension



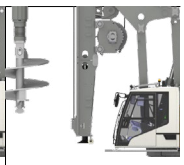
Operating weights

Total weight with 800 mm 3-web grousers	t	114.7
Total weight with 900 mm 3-web grousers	t	115.1

The operating weight includes the basic machine LB 35.1 with rotary, 18 m Kelly extension, drill rod 21 m and 18 t counterweight.
Equipment for casing oscillator not included.

Combined applications

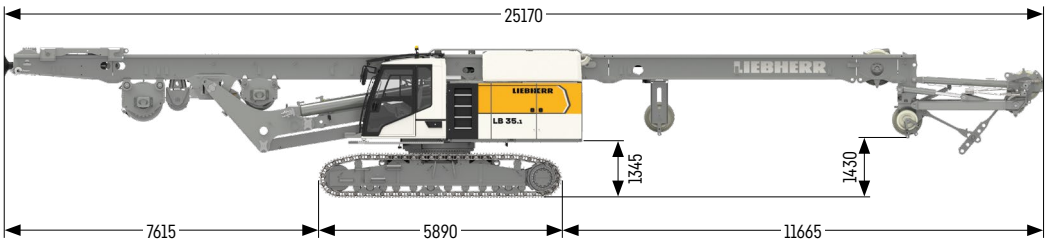
Combined applications

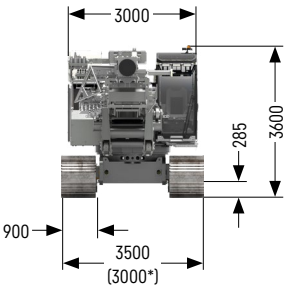
	 Long crowd distance	 Short crowd distance	 Drilling axis 1100 mm*	 Drilling axis 1600 mm*	 Lattice boom extension	 Short leader lower part	 Standard leader lower part
 Standard leader	Kelly CFA FDD CCFA DTH WSM	Kelly	Kelly CFA FDD CCFA DTH WSM	Kelly	FDD	Kelly WSM	Kelly CFA FDD CCFA DTH WSM
 Folding leader	Kelly CFA FDD CCFA DTH WSM	Kelly	Kelly CFA FDD CCFA DTH WSM	Kelly		Kelly WSM	Kelly CFA FDD CCFA DTH WSM
 Low Head	Kelly CFA FDD CCFA DTH WSM		Kelly CFA FDD CCFA DTH WSM	Kelly		Kelly WSM	Kelly CFA FDD CCFA DTH WSM
 Single-pass	CFA FDD WSM CCFA DTH		CFA FDD WSM CCFA DTH			WSM	CFA FDD WSM CCFA DTH

* Distance from drilling axis to front edge of leader

Kelly	Kelly drilling
CFA	Continuous flight auger drilling
FDD	Full displacement drilling
CCFA	Double rotary drilling
DTH	Down-the-hole drilling
WSM	Soil mixing

Transport dimensions and weights

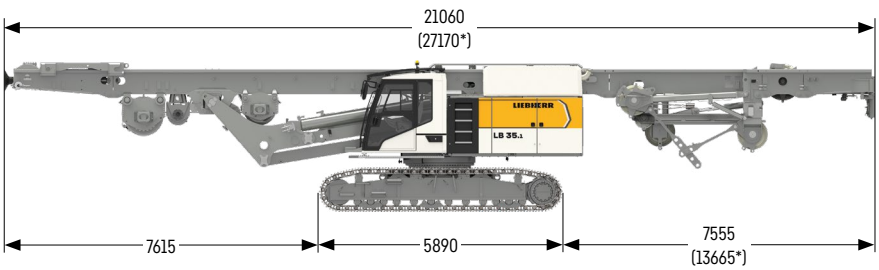




Standard leader (6 m leader upper part)

includes the basic machine (fully tanked and ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator	t	69.0

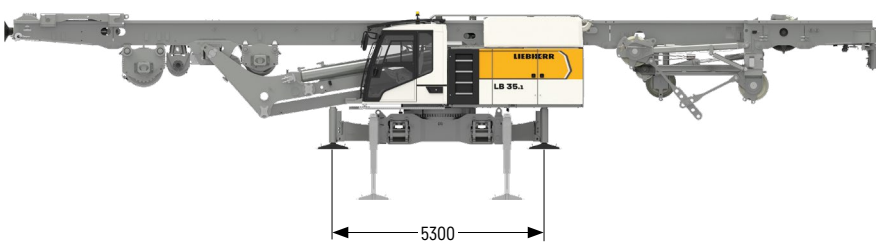
* Optional transport width with 700 mm grousers and non-detachable crawlers.
With this option, the transport weight is reduced by 2.4 t compared to the version with standard undercarriage.

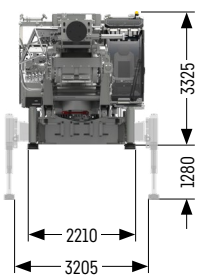


Folding leader (8 m leader upper part)

includes the basic machine (fully tanked and ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator	t	70.3

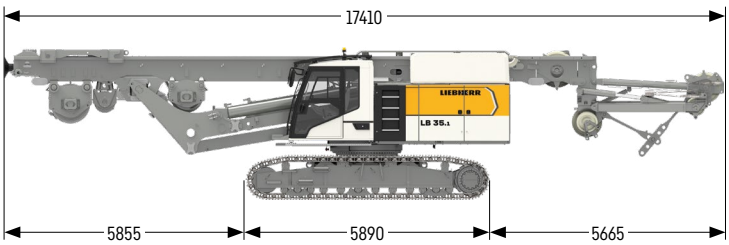
* Transport length leader not folded





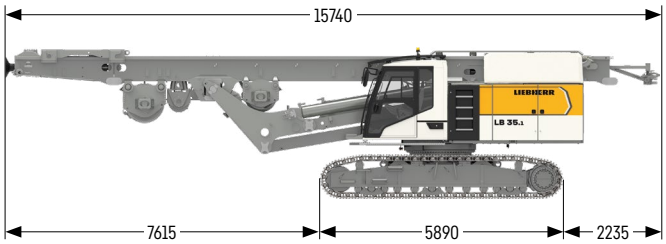
Folding leader without crawlers

includes the basic machine (fully tanked and ready for operation) with leader, jack-up system and adapter for casing oscillator, without attachments (such as rotary, Kelly bar etc.), without counterweight and without crawlers	t	59.3



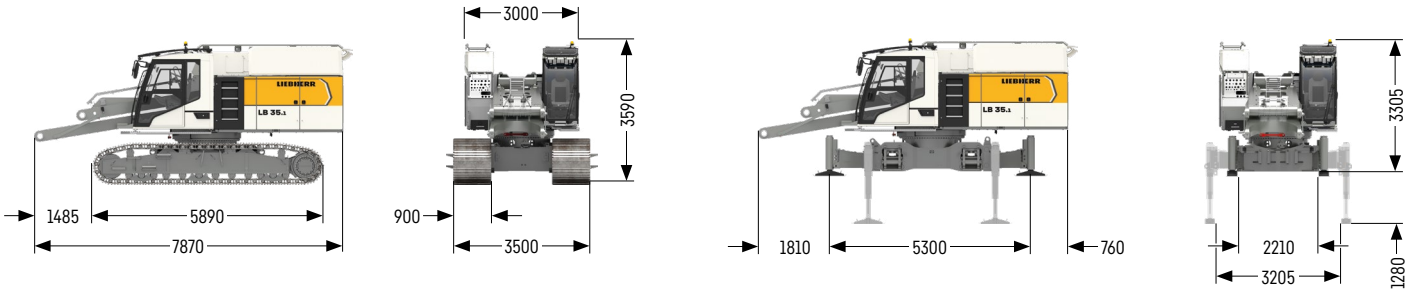
Low Head

includes the basic machine (fully tanked and ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator	t	65.7



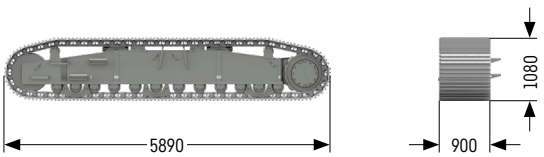
Single-pass

Single-pass without 12 m leader extension and leader top includes the basic machine (fully tanked and ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.) and without counterweight	t	63.9
12 m leader extension with leader top	t	5.9



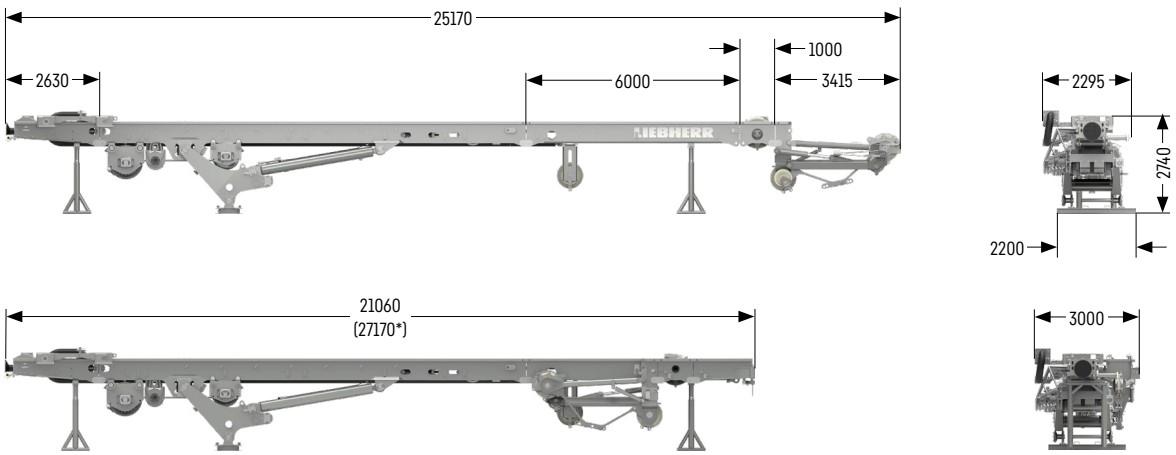
Carrier machine versions

without jack-up system, counterweight and adapter for casing oscillator	t	43.7
with jack-up system and adapter for casing oscillator, without counterweight and crawlers	t	32.7



Crawler

Left/right	t	7.5



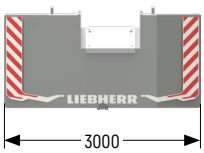
Leader versions

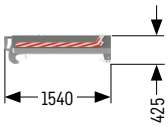
Standard leader	t	26.6
Folding leader	t	27.8
Standard leader lower part	t	1.7
6 m leader extension	t	2.3
8 m leader extension	t	3.4
12 m leader extension	t	3.8
Leader top	t	1.9
1 m leader extension with pulley support	t	0.8
Short leader lower part	t	0.5

* Transport length folding leader

Options

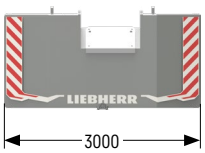
Jack-up system	t	2.9
Adapter for casing oscillator	t	1.2
Concrete supply line	t	0.6
All round platform with railings	t	0.5

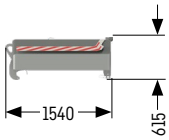




Counterweight

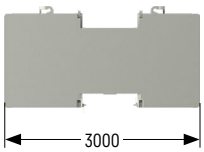
Weight	t	5.0

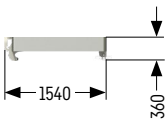




Counterweight

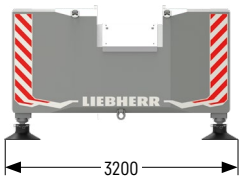
Weight	t	8.0

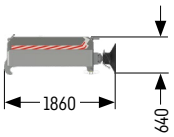




Intermediate slab

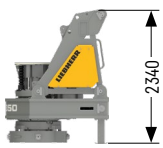
Weight	t	5.0

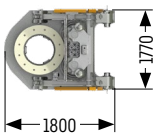




Rear counterweight with rear support

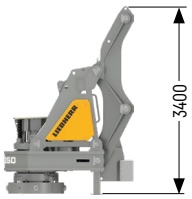
Weight	t	8.0

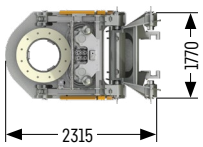




BAT 350

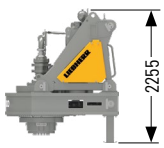
Transport weight	t	7.0

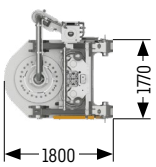




BAT 350 with adapter for drilling axis 1600 mm

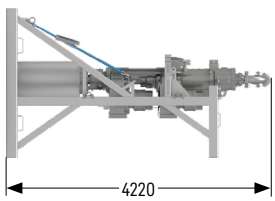
Transport weight	t	8.6

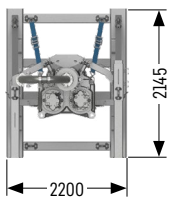




MA 220

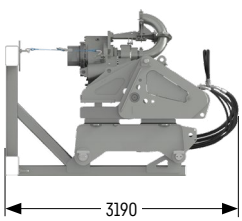
Transport weight	t	6.4

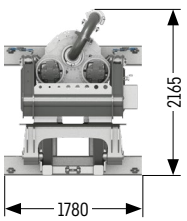




DBA 220

Transport weight	t	8.8





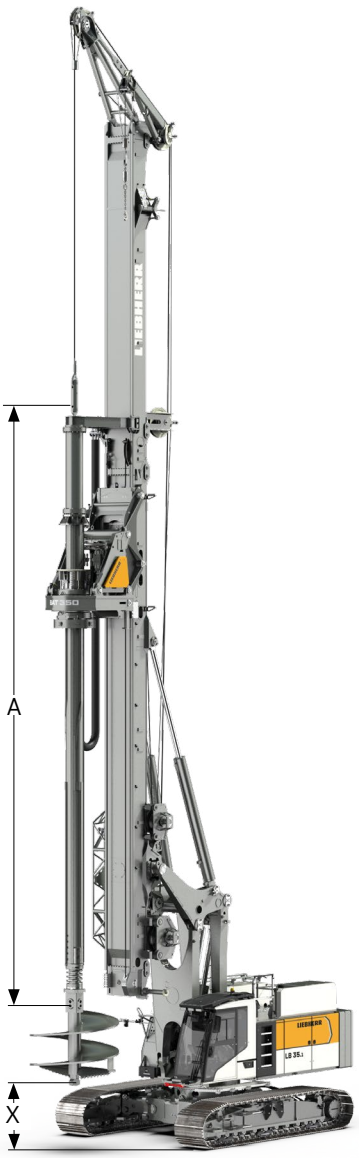
DHR 220

Transport weight	t	6.9

Kelly drilling

Standard

Folding leader (large drilling axis)



Performance data

Rotary drive - torque	kNm	0-347	
Rotary drive - speed	rpm	0-46	
		Drilling axis 1100 mm	Drilling axis 1600 mm
Max. drilling diameter cased*	mm	1500	2500
Max. drilling diameter uncased	mm	1900	2900
Max. drilling diameter uncased with short leader lower part	mm	3400	4100

Above applications are sample illustrations. Other drilling diameters available on request.
* Depending on casing driver configuration.

Drilling depths with Low Head, standard and folding leader

Technical data Kelly bars

Kelly bars			Drilling depths											
			Low Head				Standard				Folding leader			
Model	Length A [mm]	Weight [t]	X [m]		Depth [m]		X [m]		Depth [m]		X [m]		Depth [m]	
			1100	1600	1100	1600	1100	1600	1100	1600	1100	1600	1100	1600
28/3/24	9885	5.3	5.8	5.7	22.4	23.0	11.8	11.7	22.4	23.0	13.8	13.7	22.4	23.0
28/3/27	10885	5.8	4.8	4.7	25.4	26.0	10.8	10.7	25.4	26.0	12.8	12.7	25.4	26.0
28/3/30	12045	6.4	3.6	3.6	28.4	29.0	9.6	9.6	28.4	29.0	11.6	11.6	28.4	29.0
28/3/33	12885	6.7	2.8	2.7	31.4	32.0	8.8	8.7	31.4	32.0	10.8	10.7	31.4	32.0
28/3/36	14045	7.3	1.6	1.6	34.4	35.0	7.6	7.6	34.4	35.0	9.6	9.6	34.4	35.0
28/4/36	11450	7.7	4.2	4.1	34.5	35.0	10.2	10.1	34.5	35.0	12.2	12.1	34.5	35.0
28/4/42	12950	8.7	2.7[1]	2.6	40.4[1]	41.0	8.7	8.6	40.4	41.0	10.7	10.6	40.4	41.0
28/4/48	14450	9.6	1.2[1/2]	1.1[1]	46.5[1/2]	47.0[1]	7.2	7.1	46.5	47.0	9.2	9.1	46.5	47.0
28/4/54	15950	10.6	-	-	-	-	5.7	5.6	52.5	53.0	7.7	7.6	52.5	53.0
28/4/60	17450	11.6	-	-	-	-	4.2	4.1	58.5	59.0	6.2	6.1	58.5	59.0
28/4/66	18950	12.5	-	-	-	-	2.7[1]	2.6	64.5[1]	65.0	4.7	4.6	64.5	65.0
28/4/72	20620	13.5	-	-	-	-	1.1[1/2]	1.0[1]	70.4[1/2]	71.0[1]	3.1[1]	3.0	70.4[1]	71.0
28/4/78	22100	13.7	-	-	-	-	-	-	-	-	1.6[1/2]	1.6[1]	77.0[1/2]	77.5[1]

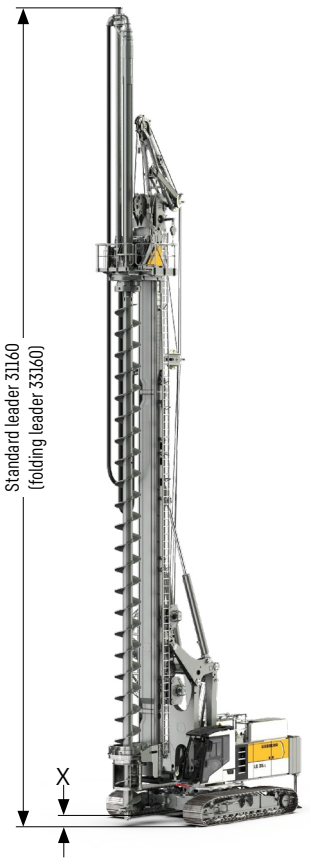
[1] When using a short leader lower part an assist crane is required for installation.
[2] Installation only possible using auxiliary equipment

Drilling axis 1100 mm
Drilling axis 1600 mm

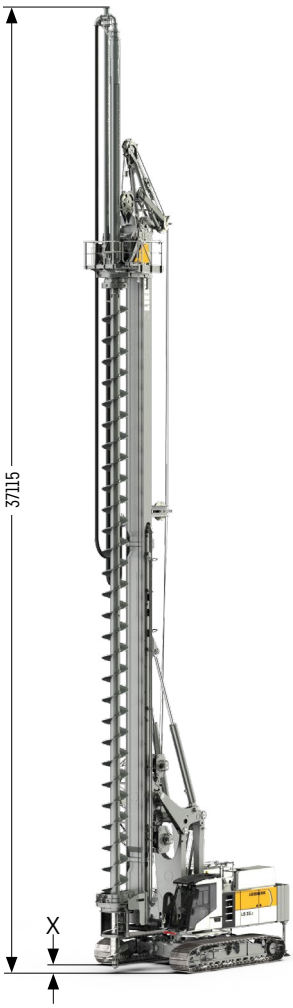
Other Kelly bars available on request.
When using a casing oscillator (standard 118/120 KL, 150 KL, 180 KL and 200 KL), dimension X must be reduced by 1600 mm.
Other casing oscillators available on request.
When using a Kelly bar guide, dimension X has to be reduced by 1400 mm for a drilling axis of 1100 mm, and by 2305 mm for a drilling axis of 1600 mm.
When using a short leader lower part the drilling depth is reduced by 1750 mm for a drilling axis of 1100 mm, and by 2320 mm for a drilling axis of 1600 mm.
Length of drilling tool 1900 mm

Continuous flight auger drilling

Standard



Single-pass



Performance data

Rotary drive - torque	kNm	0-347			
Rotary drive - speed	rpm	0-46			
Max. drilling diameter*	mm	1000			
		Low Head	Standard	Folding leader	Single-pass
Drilling depth without Kelly extension	m	10.7	16.7	18.7	22.7
Drilling depth with 8 m Kelly extension	m	18.7	24.7	26.7	30.7
Max. pull force	kN	1000	1000	1000	840

Above drilling depths take into account that an auger cleaner is used and the cardan joint has been removed.
Above drilling depths are valid for the use of standard tools and for the X dimension of 170 mm (see above illustration).
* Other drilling diameters available on request

Full displacement drilling

Folding leader

Lattice boom extension

Performance data

Rotary drive - torque	kNm	0-347			
Rotary drive - speed	rpm	0-46			
Max. drilling diameter*	mm	600			
		Low Head	Standard	Folding leader	Single-pass
Drilling depth without Kelly extension	m	11.5	17.5	19.5	23.4
Drilling depth with 8 m Kelly extension	m	19.5	25.5	27.5	31.4
Drilling depth with 18 m lattice boom extension	m	-	35.5	37.5	-
Max. pull force	kN	1000	1000	1000	840

Above drilling depths are valid for the use of standard tools and for an X dimension of 380 mm (see above illustration).
* Other drilling diameters available on request

Double rotary drilling

DBA 220

Performance data

Rotary drive I - torque	kNm	0-219			
Rotary drive I - speed	rpm	0-22			
Rotary drive II - torque	kNm	0-109			
Rotary drive II - speed	rpm	0-37			
Max. drilling diameter*	mm	750			
		Low Head	Standard	Folding leader	Single-pass
Drilling depth**	m	11.0	17.0	19.0	22.9
Max. pull force	kN	700	700	700	820

Above drilling depths are valid for the use of standard tools and for an X dimension of 880 mm (see above illustration). Due to differences in the max. admissible load capacities, the combinations of drilling depth and drilling diameter may be limited.

* Other drilling diameters on request

** When using a protective hose, the maximum drilling depth has to be reduced by 370 mm.

Soil mixing

MA 220 / BAT 350

Performance data MA 220

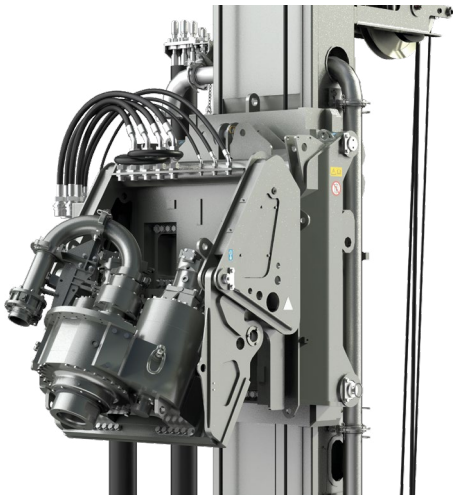
Rotary drive - torque	kNm	0-220			
Rotary drive - speed	rpm	0-80			
Max. mixing diameter*	mm	1500			
		Low Head	Standard	Folding leader	Single-pass
Mixing depth	m	11.3	17.3	19.3	23.3
Mixing depth with 8 m Kelly extension	m	19.3	25.3	27.3	31.3
Max. pull force	kN	1000	1000	1000	600

Performance data BAT 350

Rotary drive - torque	kNm	0-347			
Rotary drive - speed	rpm	0-46			
Max. mixing diameter*	mm	1900			
		Low Head	Standard	Folding leader	Single-pass
Mixing depth	m	11.3	17.3	19.3	23.3
Mixing depth with 8 m Kelly extension	m	19.3	25.3	27.3	31.3
Max. pull force	kN	1000	1000	1000	600

Above mixing depths are valid for the use of standard tools and for the X dimension of 530 mm shown in the illustration.
* Other mixing diameters on request

Down-the-hole drilling

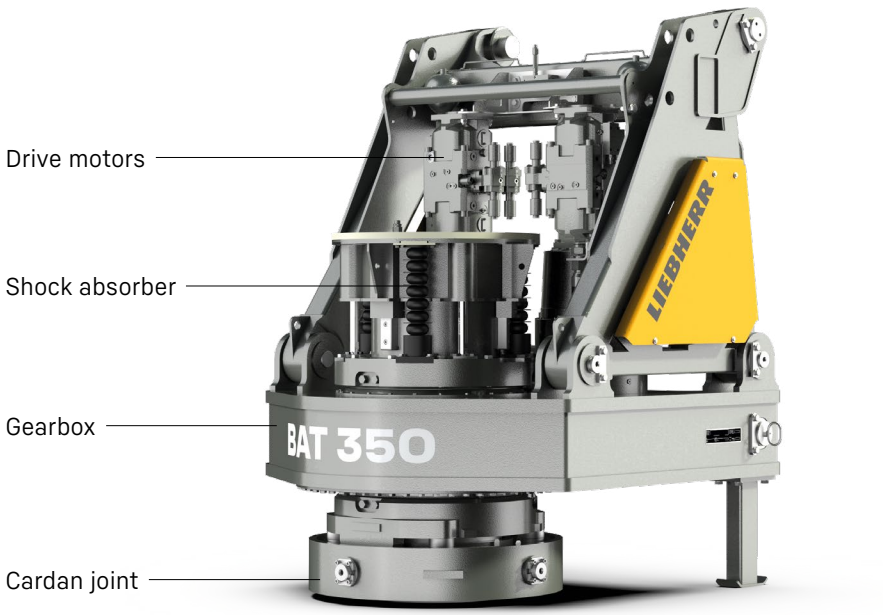


Performance data DHR 220

Rotary drive - torque	kNm	0-218			
Rotary drive - speed	rpm	0-40			
		Low Head	Standard	Folding leader	Single-pass
Drilling depth	m	11.4	17.4	19.4	23.3
Folding function	°	0-90	0-90	0-90	0-90
Max. pull force	kN	600*/800**	600*/800**	600*/800**	600*/600**

Above drilling depths are valid for the use of standard tools and for an X dimension of 500 mm (see above illustration).
* Max. pull force in drilling operation
** Max. pull force in recovery mode

BAT 350

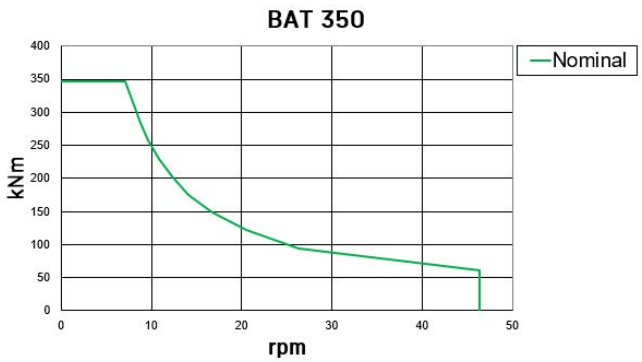


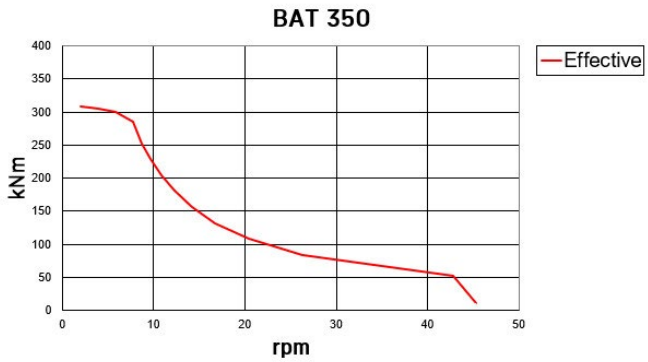
Kelly shock absorber:
- Newly developed Kelly shock absorber for highest demands
- Possibility of adjusting the strength of the Kelly shock absorber for different Kelly bar weights

Automatic gearbox for best operating comfort:
- No stopping required to change gears
- No interruption of the drilling process
- Continuous optimization of speed

Highest availability through easy set-up:
- No mechanical shift gearbox
- Low maintenance requirements

Flexibility through modular design:
- Exchangeable cardan joint for other casing drivers
- Exchangeable drive adapters for use of other Kelly bars
- Quickly exchangeable equipment for other methods of operation





Digital solutions

Liebherr-Werk Nenzing GmbH has set itself the goal of using digital solutions to network and optimise processes on the jobsite.
In the progression from an experienced machine manufacturer to a full-service provider Liebherr already has a number of digital solutions, which provide substantial support for all those involved in the construction site.

MyLiebherr

One portal, all services

PDE

Process data recording

MyJobsite

Your jobsite at a glance

LIPOS

Positioning system

XpertAssist

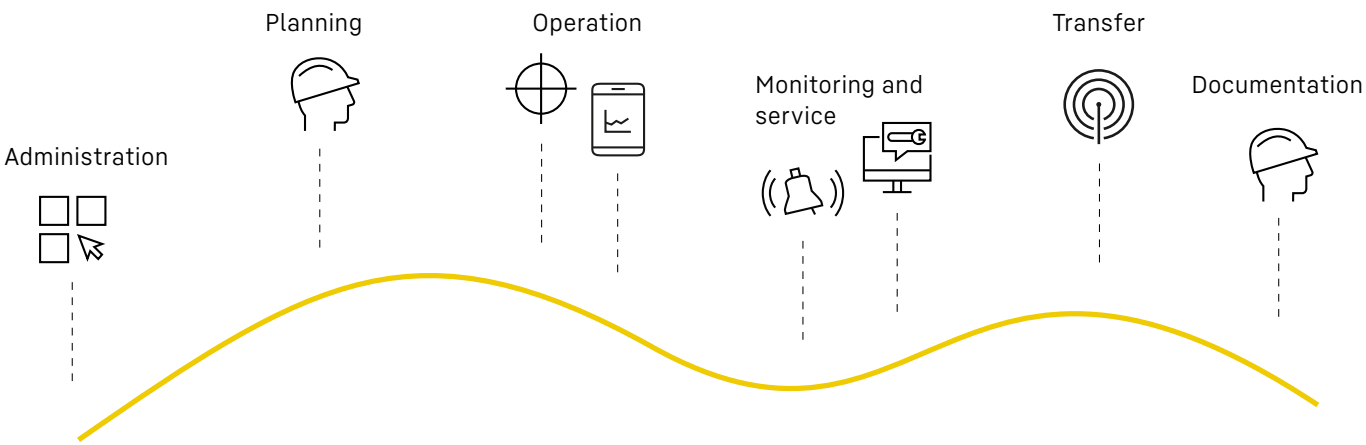
Remote support in real time

LiDAT

Data transfer and positioning system

MyNotifier

Monitoring tool for wind conditions and battery status



Download datasheet

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