

EN-US



LB 35.1

LB 2004.08
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LIEBHERR

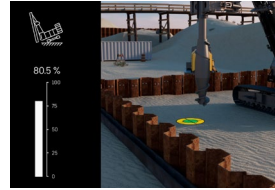
Drilling rigs

Assistance systems



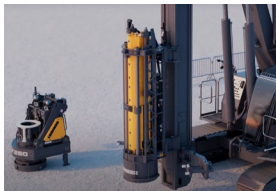
Remote-controlled assembly and disassembly

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.



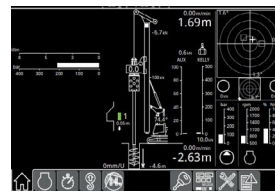
Automatic leader adjustment

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	185 gal 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	203 gal
Max. working pressure	5,584 PSI
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	0-1.2 mph
Track force	151,971 lbf
Grousers	Width 35.4 inch (option 27.5 and 31.5 inch)



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	67,433 lbf (1st layer)
Rope diameter	34 mm
Rope speed	0-249 ft/min



Auxiliary winch

Line pull effective	22,481 lbf (1st layer)
Rope diameter	20 mm
Rope speed	0-292 ft/min



Crowd system

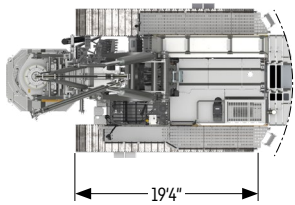
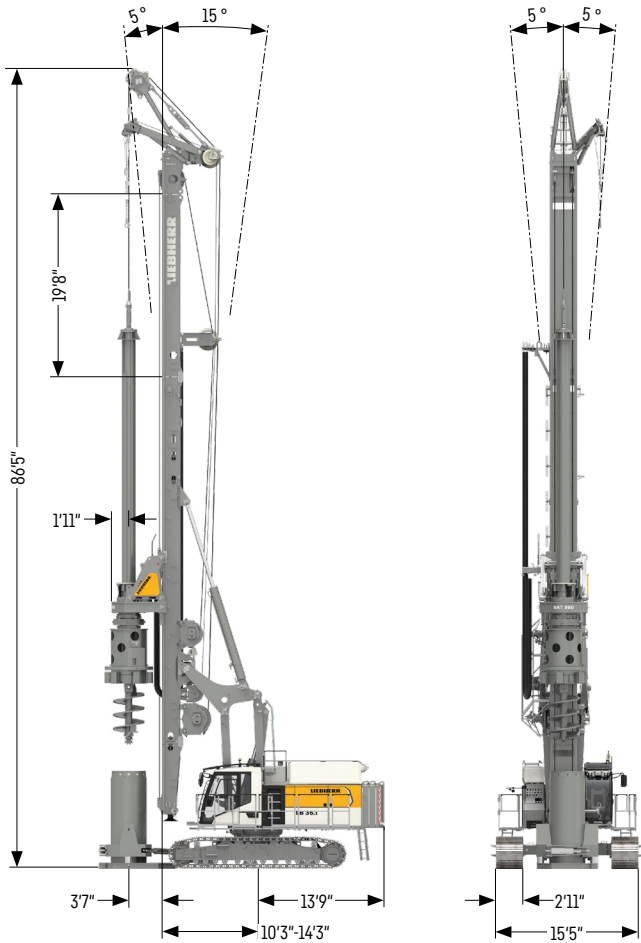
Crowd force	89,924/89,924 lbf (push/pull)
Line pull effective	44,962 lbf (1st layer)
Rope diameter	28 mm
Travel with standard leader between mechanical limit stops	58.7 ft
Rope speed	0-230 ft/min

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.

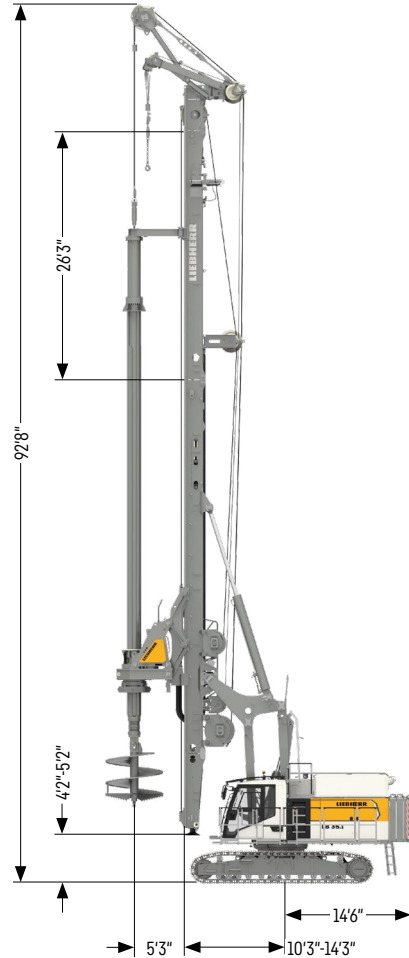
Dimensions

Standard



- R 14'0" (33,069 lbs)
- R 14'7" (39,683 lbs)
- R 14'9" (44,092 lbs)
- R 14'10" (39,683 lbs incl. rear support)

Folding leader



Operating weights

Total weight with 31.5 inch 3-web grousers	lbs 218,258
Total weight with 35.4 inch 3-web grousers	lbs 219,139

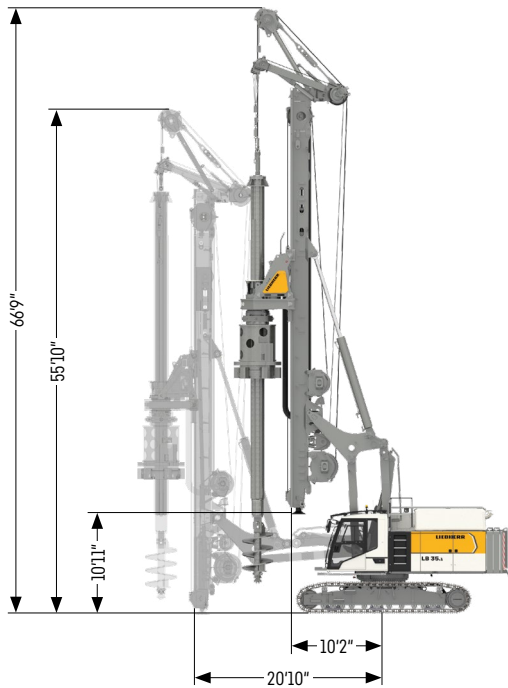
The operating weight includes the basic machine LB 35.1 with rotary, Kelly bar 28/3/30, 33,069 lbs counterweight and equipment for casing oscillator.

Operating weights

Total weight with 31.5 inch 3-web grousers	lbs 244,052
Total weight with 35.4 inch 3-web grousers	lbs 244,934

The operating weight includes the basic machine LB 35.1 with rotary, Kelly bar 28/4/54 and 44,092 lbs counterweight. Equipment for casing oscillator not included.

Low Head



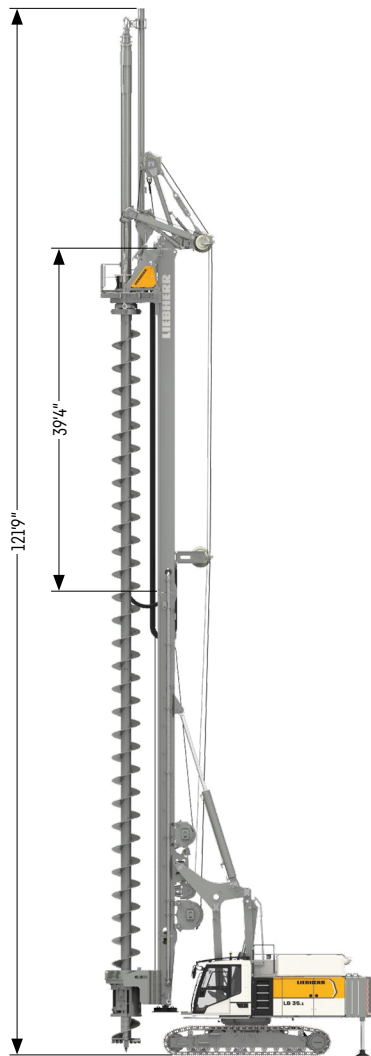
Operating weights

Total weight with 31.5 inch 3-web grousers	lbs 207,455
Total weight with 35.4 inch 3-web grousers	lbs 208,337

The operating weight includes the basic machine LB 35.1 with rotary, Kelly bar 28/3/30 and 33,069 lbs counterweight.

The line pull of the Kelly winch is reduced to 56,202 lbf when working at a radius exceeding 14.3 ft.

Single-pass

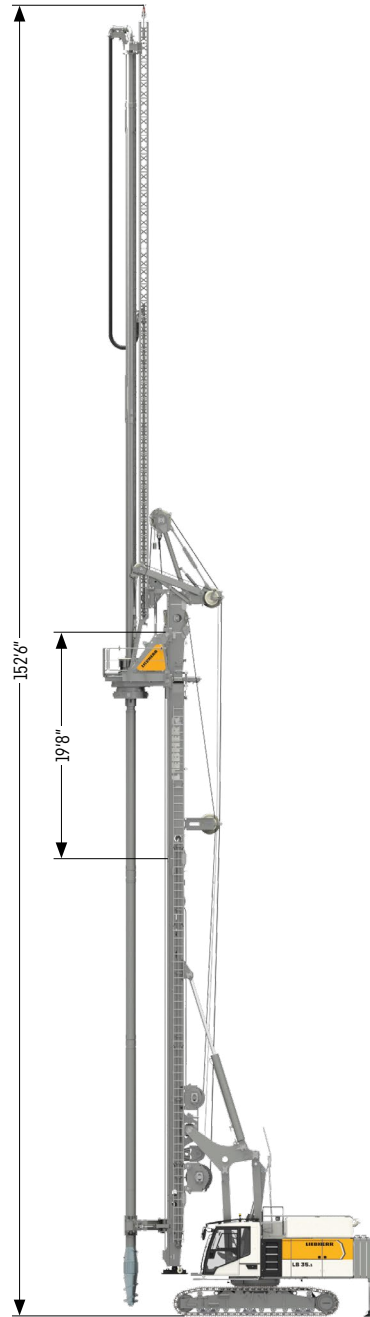


Operating weights

Total weight with 31.5 inch 3-web grousers	lbs 242,729
Total weight with 35.4 inch 3-web grousers	lbs 243,611

The operating weight includes the basic machine LB 35.1 with rotary, 26.2 ft Kelly extension, auger \varnothing 2.6 ft 82.0 ft, auger cleaner \varnothing 2.6 ft and 39,683 lbs counterweight. Equipment for casing oscillator not included.

Lattice boom extension








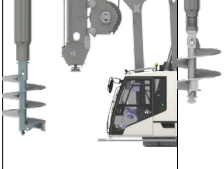





Operating weights

Total weight with 31.5 inch 3-web grousers	lbs 252,870
Total weight with 35.4 inch 3-web grousers	lbs 253,752

The operating weight includes the basic machine LB 35.1 with rotary, 59.0 ft Kelly extension, drill rod 68.9 ft and 39,683 lbs counterweight. Equipment for casing oscillator not included.

Combined applications

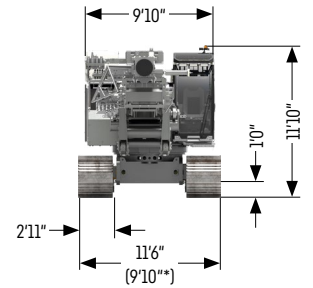
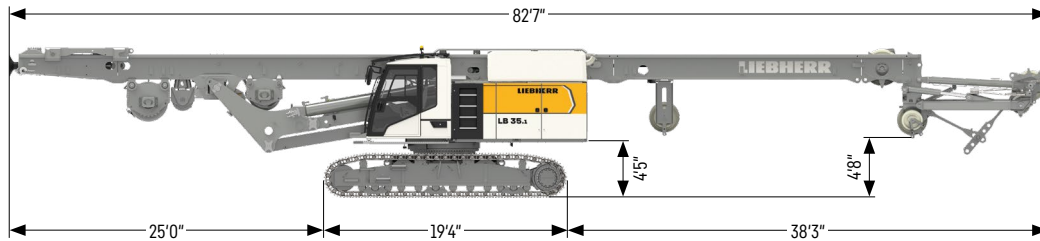
Combined applications

							
 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

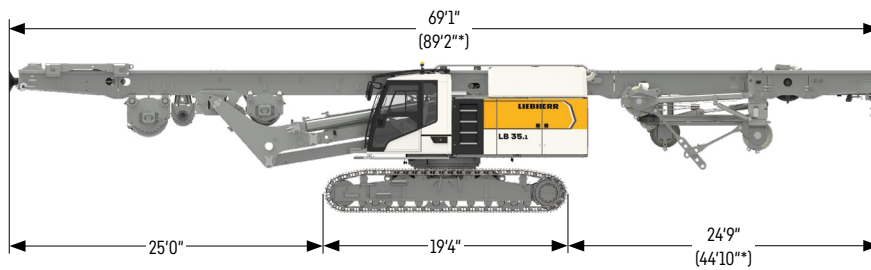
Transport dimensions and weights



Standard leader (19.7 ft 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 lbs 152,119

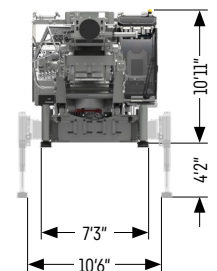
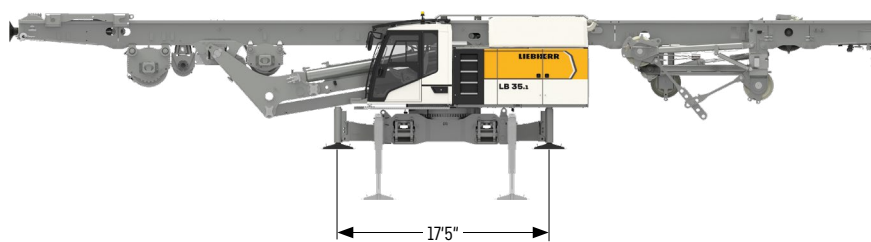
* Optional transport width with 2.3 ft grousers and non-detachable crawlers. With this option, the transport weight is reduced by 5,291 lbs compared to the version with standard undercarriage.



Folding leader (26.2 ft leader upper part)

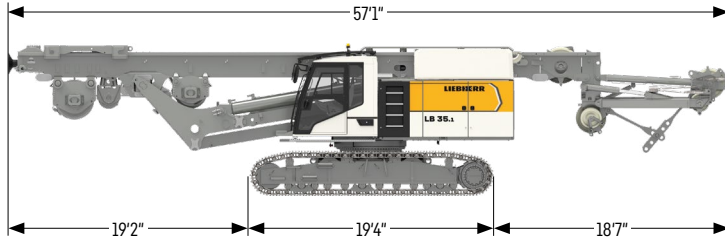
includes the basic machine (fully tanked and ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.), without counterweight and without adapter for casing oscillator lbs 154,985

* Transport length leader not folded



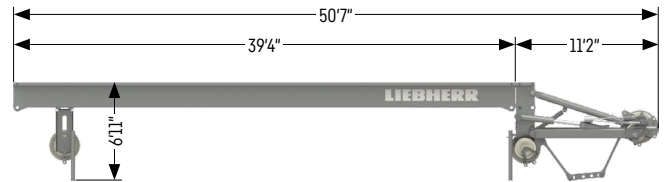
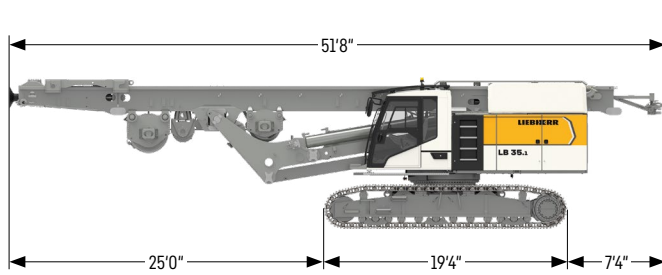
Folding leader without crawlers

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 lbs 130,734



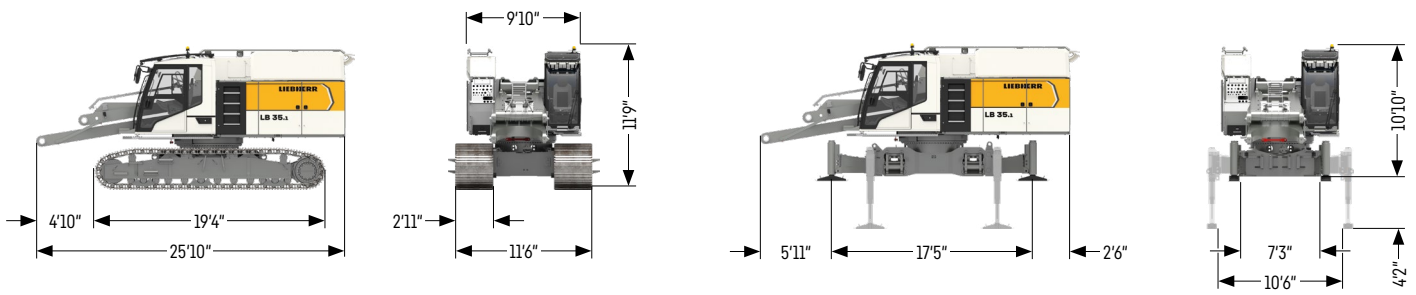
Low Head

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 lbs 144,844



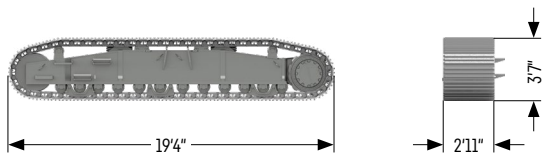
Single-pass

Single-pass without 39.4 ft leader extension and leader top lbs 140,875
 includes the basic machine (fully tanked and ready for operation) with leader, without attachments (such as rotary, Kelly bar etc.) and without counterweight
 39.4 ft leader extension with leader top lbs 13,007



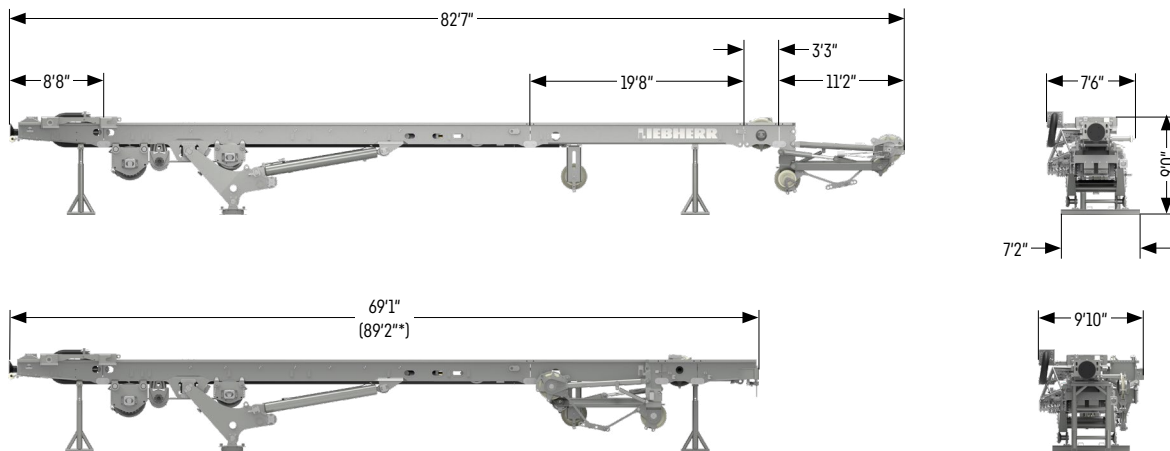
Carrier machine versions

without jack-up system, counterweight and adapter for casing oscillator	lbs 96,342
with jack-up system and adapter for casing oscillator, without counterweight and crawlers	lbs 72,091



Crawler

Left/right	lbs 16,535
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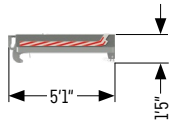
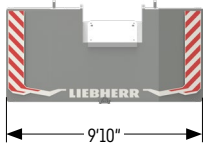
Leader versions

Standard leader	lbs 58,643
Folding leader	lbs 61,288
Standard leader lower part	lbs 3,747
19.7 ft leader extension	lbs 5,070
26.2 ft leader extension	lbs 7,495
39.4 ft leader extension	lbs 8,377
Leader top	lbs 4,188
3.2 ft leader extension with pulley support	lbs 1,763
Short leader lower part	lbs 1,102

* Transport length folding leader

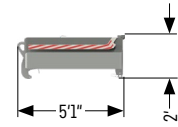
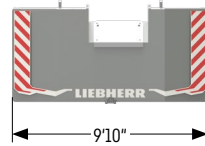
Options

Jack-up system	lbs 6,393
Adapter for casing oscillator	lbs 2,645
Concrete supply line	lbs 1,323
All round platform with railings	lbs 1,105



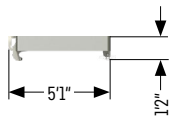
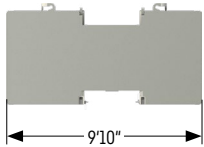
Counterweight

Weight lbs 11,023



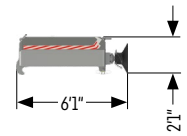
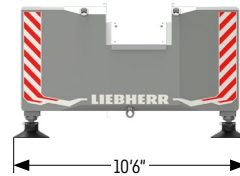
Counterweight

Weight lbs 17,636



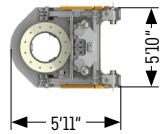
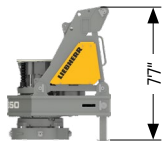
Intermediate slab

Weight lbs 11,023



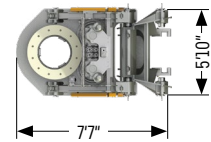
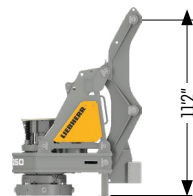
Rear counterweight with rear support

Weight lbs 17,636



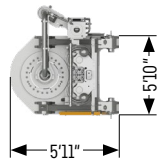
BAT 350

Transport weight lbs 15,432



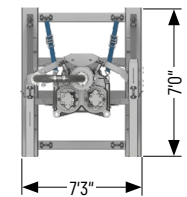
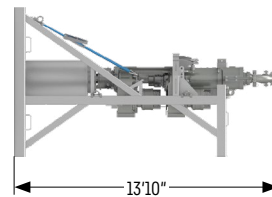
BAT 350 with adapter for drilling axis 5.2 ft

Transport weight lbs 18,960



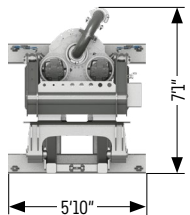
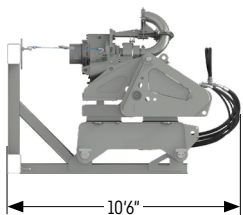
MA 220

Transport weight lbs 14,110



DBA 220

Transport weight lbs 19,401



DHR 220

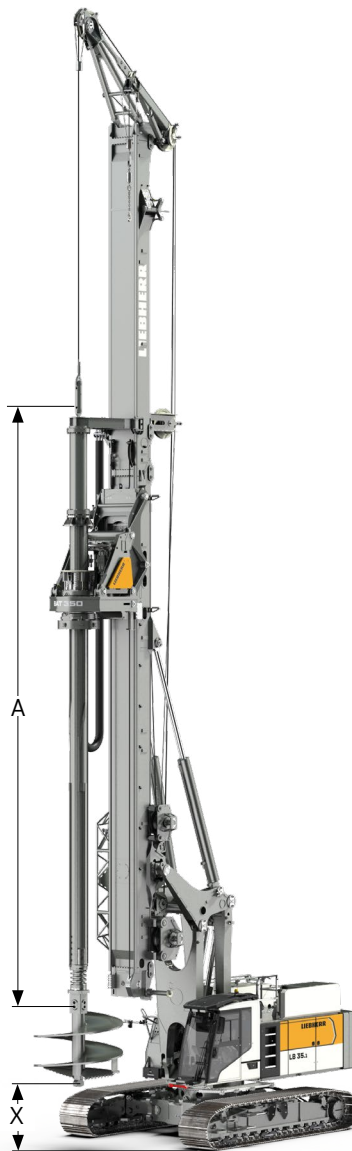
Transport weight lbs 15,212

Kelly drilling

Standard



Folding leader (large drilling axis)



Performance data

Rotary drive - torque	lbf-ft	0-255,934	
Rotary drive - speed	rpm	0-46	
		Drilling axis 3.6 ft	Drilling axis 5.2 ft
Max. drilling diameter cased*	ft	4.9	8.2
Max. drilling diameter uncased	ft	6.2	9.5
Max. drilling diameter uncased with short leader lower part	ft	11.1	13.5

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											
Model	Length A [ft]	Weight [lbs]	Low Head				Standard				Folding leader			
			X [ft]		Depth [ft]		X [ft]		Depth [ft]		X [ft]		Depth [ft]	
			3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2
28/3/24	32.4	11,685	19.0	18.7	73.5	75.4	38.7	38.4	73.5	73.5	45.3	44.9	73.5	73.5
28/3/27	35.6	12,787	15.7	15.4	83.3	85.3	35.4	35.1	83.3	85.3	42.0	41.7	83.3	85.3
28/3/30	39.5	14,110	11.8	11.8	93.2	95.1	31.5	31.5	93.2	95.1	38.1	38.1	93.2	95.1
28/3/33	42.2	14,771	9.2	8.9	103.0	105.0	28.9	28.5	103.0	105.0	35.4	35.1	103.0	105.0
28/3/36	46.0	16,094	5.9	5.9	112.9	114.8	24.9	24.9	112.9	114.8	31.5	31.5	112.9	114.8
28/4/36	37.6	16,976	13.8	13.5	113.2	114.8	33.5	33.1	113.2	114.8	40.0	39.7	113.2	114.8
28/4/42	42.5	19,180	8.9 ¹	8.5	132.5 ¹	134.5	28.5	28.2	132.5	134.5	35.1	34.8	132.5	134.5
28/4/48	47.4	21,164	3.9 ^{1/2}	3.6 ¹	152.6 ^{1/2}	154.2 ¹	23.6	23.3	152.6	154.2	30.2	29.9	152.6	154.2
28/4/54	52.3	23,369	-	-	-	-	18.7	18.4	172.2	173.9	25.3	24.9	172.2	173.9
28/4/60	57.3	25,574	-	-	-	-	13.8	13.5	191.9	193.6	20.3	20.0	191.9	193.6
28/4/66	62.2	27,558	-	-	-	-	8.9 ¹	8.5	211.6 ¹	213.3	15.4	15.1	211.6	213.3
28/4/72	67.7	29,762	-	-	-	-	3.6 ^{1/2}	3.3 ¹	231.0 ^{1/2}	232.9 ¹	10.2 ¹	9.8	231.0 ¹	232.9
28/4/78	72.5	30,203	-	-	-	-	-	-	-	-	5.2 ^{1/2}	5.2 ¹	252.6 ^{1/2}	254.3 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 3.6 ft

Drilling axis 5.2 ft

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 5.2 ft.

Other casing oscillators available on request.

When using a Kelly bar guide, dimension X has to be reduced by 4.6 ft for a drilling axis of 3.6 ft, and by 7.6 ft for a drilling axis of 5.2 ft.

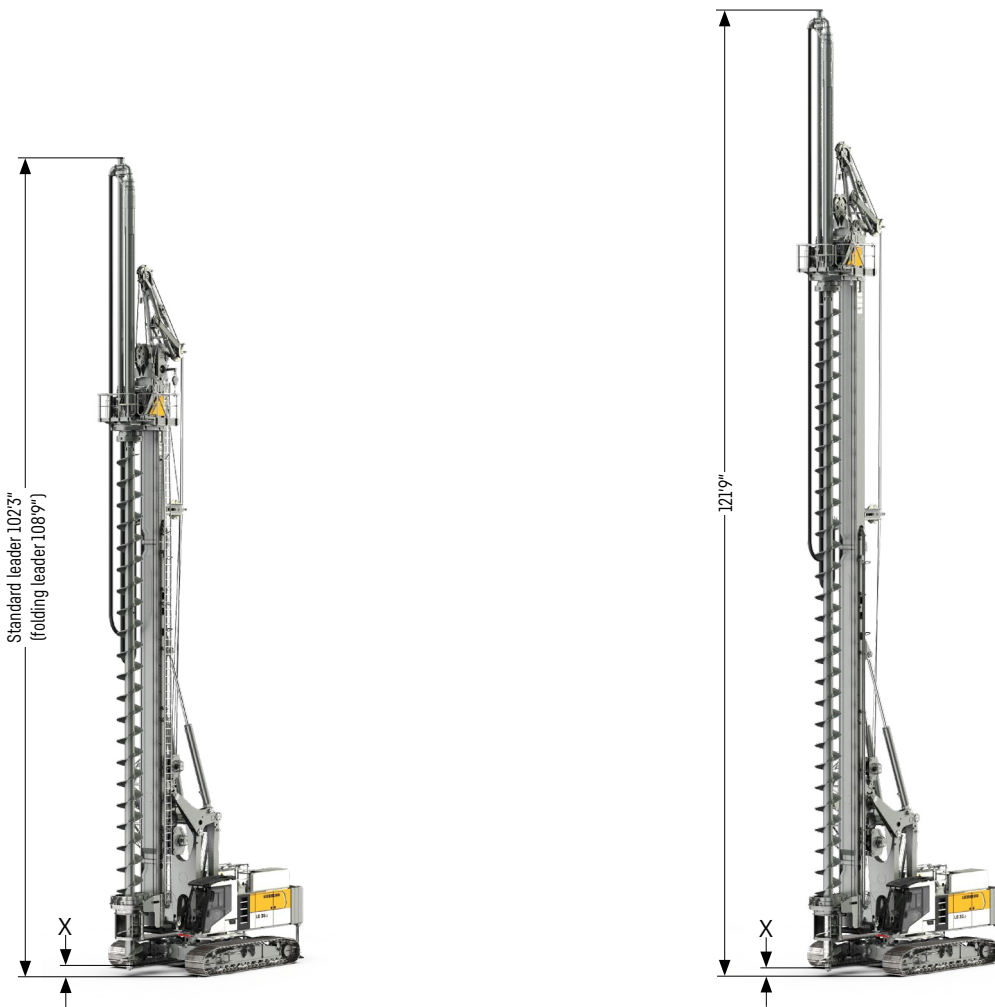
When using a short leader lower part the drilling depth is reduced by 5.7 ft for a drilling axis of 3.6 ft, and by 7.6 ft for a drilling axis of 5.2 ft.

Length of drilling tool 6.2 ft

Continuous flight auger drilling

Standard

Single-pass



Performance data

Rotary drive - torque	lbf-ft	0-255,934			
Rotary drive - speed	rpm	0-46			
Max. drilling diameter*	ft	3.3			
		Low Head	Standard	Folding leader	Single-pass
Drilling depth without Kelly extension	ft	35.1	54.8	61.3	74.5
Drilling depth with 26.2 ft Kelly extension	ft	61.3	81.0	87.6	100.7
Max. pull force	lbf	224,808	224,808	224,808	188,839

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 0.6 ft (see above illustration).

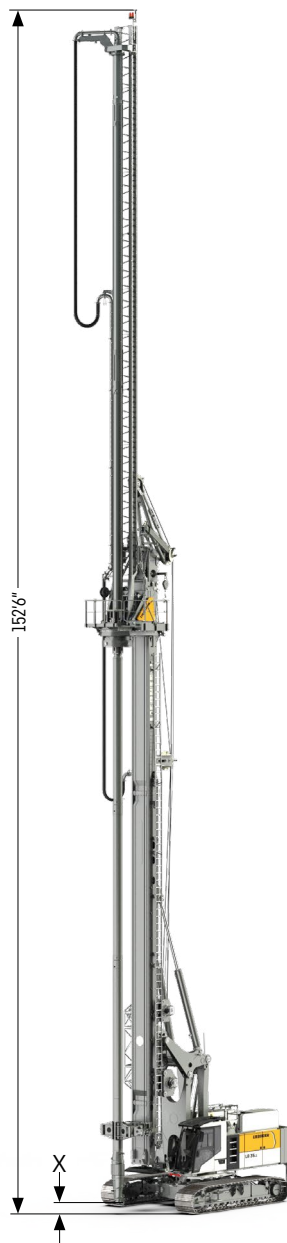
* Other drilling diameters available on request

Full displacement drilling

Folding leader



Lattice boom extension



Performance data

Rotary drive - torque	lbf-ft	0-255,934			
Rotary drive - speed	rpm	0-46			
Max. drilling diameter*	ft	2'0"			
		Low Head	Standard	Folding leader	Single-pass
Drilling depth without Kelly extension	ft	37.7	57.4	64.0	76.8
Drilling depth with 26.2 ft Kelly extension	ft	64.0	83.7	90.2	103.0
Drilling depth with 59.1 ft lattice boom extension	ft	-	116.5	123.0	-
Max. pull force	lbf	224,808	224,808	224,808	188,839

Above drilling depths are valid for the use of standard tools and for an X dimension of 1.2 ft (see above illustration).

* Other drilling diameters available on request

Double rotary drilling

DBA 220



Performance data

Rotary drive I - torque	lbf-ft	0-161,526			
Rotary drive I - speed	rpm	0-22			
Rotary drive II - torque	lbf-ft	0-80,394			
Rotary drive II - speed	rpm	0-37			
Max. drilling diameter*	ft	2.5			
		Low Head	Standard	Folding leader	Single-pass
Drilling depth**	ft	36.1	55.8	62.3	75.1
Max. pull force	lbf	157,366	157,366	157,366	184,343

Above drilling depths are valid for the use of standard tools and for an X dimension of 2.9 ft (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 1.2 ft.

Soil mixing

MA 220 / BAT 350



Performance data MA 220

Rotary drive - torque	lbf-ft	0-162,264			
Rotary drive - speed	rpm	0-80			
Max. mixing diameter*	ft	4.9			
		Low Head	Standard	Folding leader	Single-pass
Mixing depth	ft	37.1	56.8	63.3	76.4
Mixing depth with 26.2 ft Kelly extension	ft	63.3	83.0	89.6	102.7
Max. pull force	lbf	224,808	224,808	224,808	134,885

Performance data BAT 350

Rotary drive - torque	lbf-ft	0-347			
Rotary drive - speed	rpm	0-46			
Max. mixing diameter*	ft	1900			
		Low Head	Standard	Folding leader	Single-pass
Mixing depth	ft	37.1	56.8	63.3	76.4
Mixing depth with 26.2 ft Kelly extension	ft	63.3	83.0	89.6	102.7
Max. pull force	lbf	224,808	224,808	224,808	134,885

Above mixing depths are valid for the use of standard tools and for the X dimension of 1.7 ft shown in the illustration.

* Other mixing diameters on request

Down-the-hole drilling



Performance data DHR 220

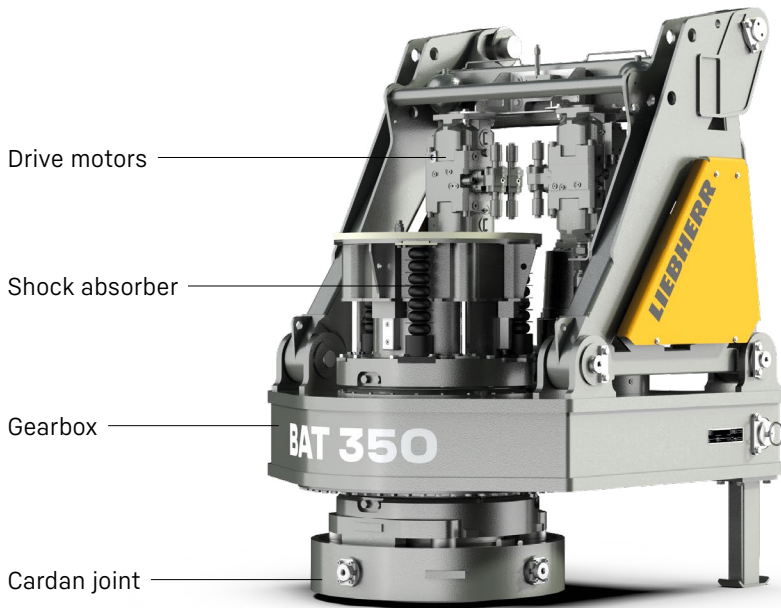
Rotary drive - torque	lbf-ft	0-160,788			
Rotary drive - speed	rpm	0-40			
		Low Head	Standard	Folding leader	Single-pass
Drilling depth	ft	37.4	57.1	63.6	76.4
Folding function	°	0-90			
Max. pull force	lbf	134,885*/179,847**	134,885*/179,847**	134,885*/179,847**	134,885*/134,885**

Above drilling depths are valid for the use of standard tools and for an X dimension of 1.6 ft (see above illustration).

* Max. pull force in drilling operation

** Max. pull force in recovery mode

BAT 350



Drive motors

Shock absorber

Gearbox

Cardan joint

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:

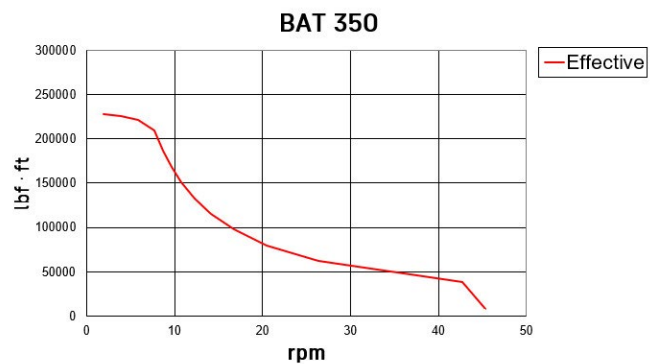
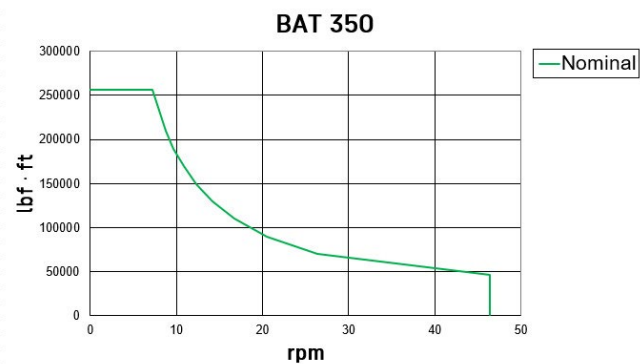
- No stopping required to change gears
- No interruption of the drilling process
- Continuous optimization of speed

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



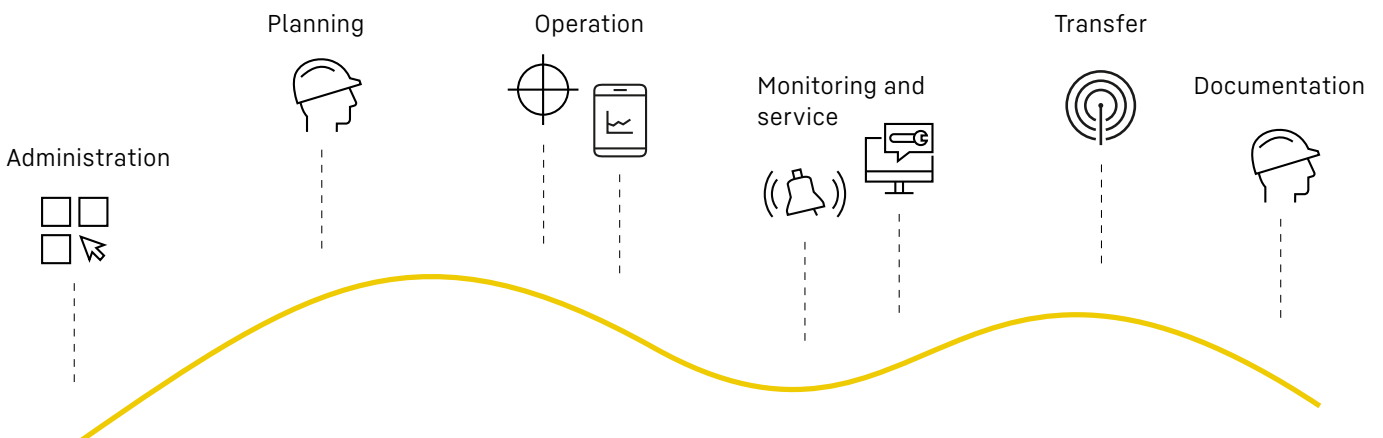
LiDAT

Data transfer and positioning system



MyNotifier

Monitoring tool for wind conditions and battery status





Download datasheet



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