

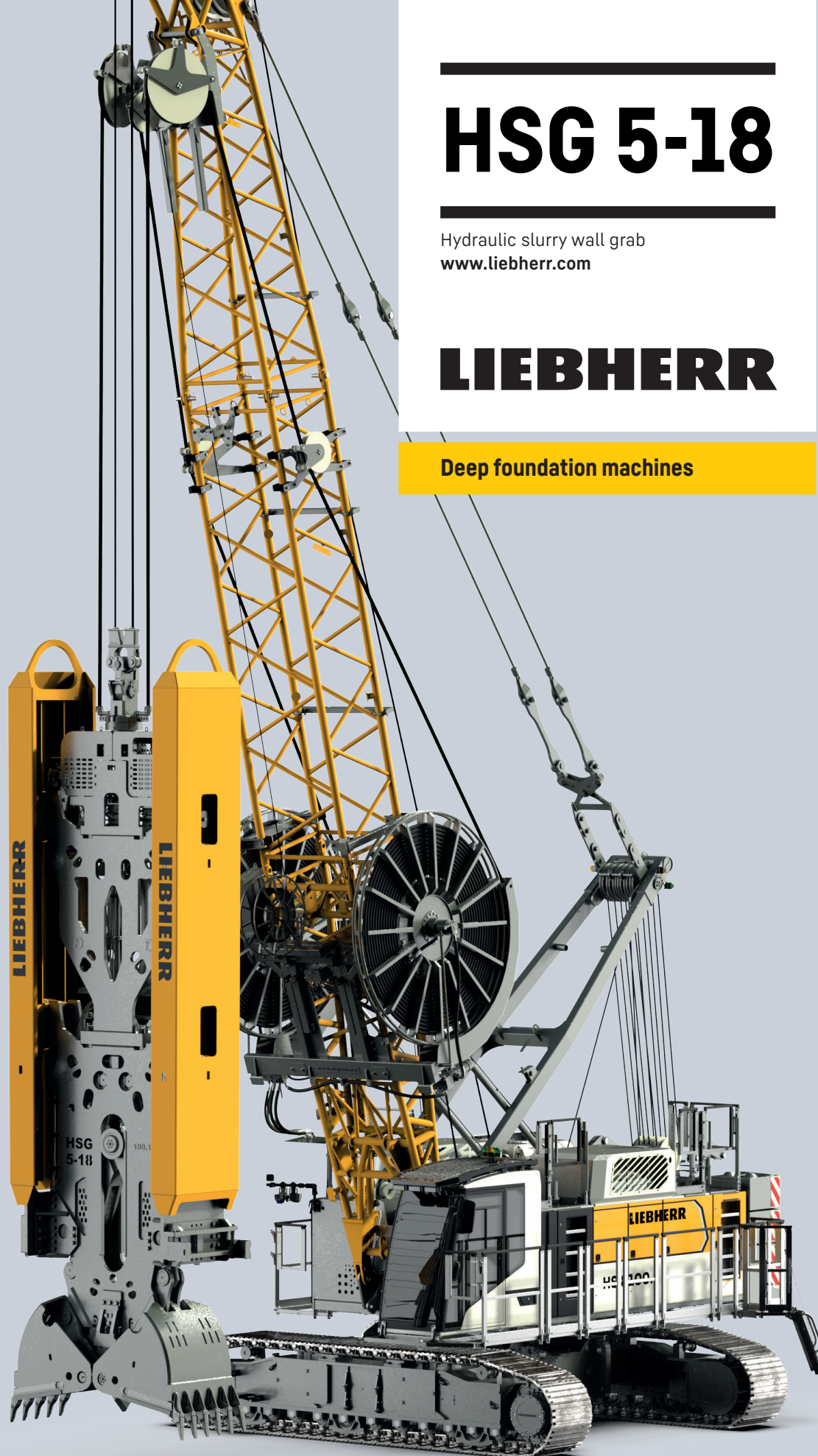
EN-US

HSG 5-18

Hydraulic slurry wall grab
www.liebherr.com

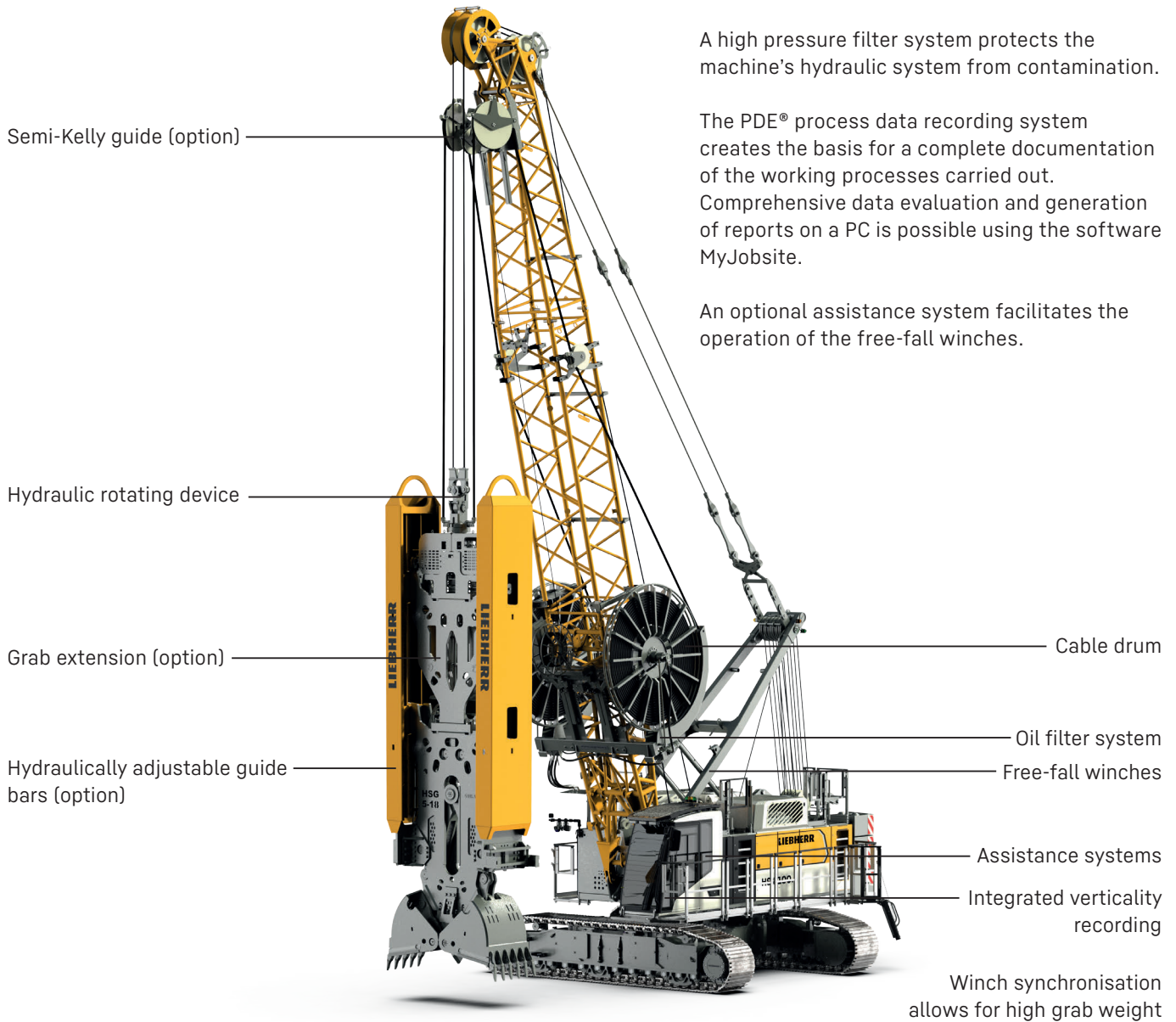
LIEBHERR

Deep foundation machines



Characteristics

Basic machine HS 8100.2 with hydraulic slurry wall grab HSG 5-18



Features of the HSG 5-18 slurry wall grab

The modular design of the grab promises a high level of flexibility and enables the optimum adaptation to jobsite requirements.

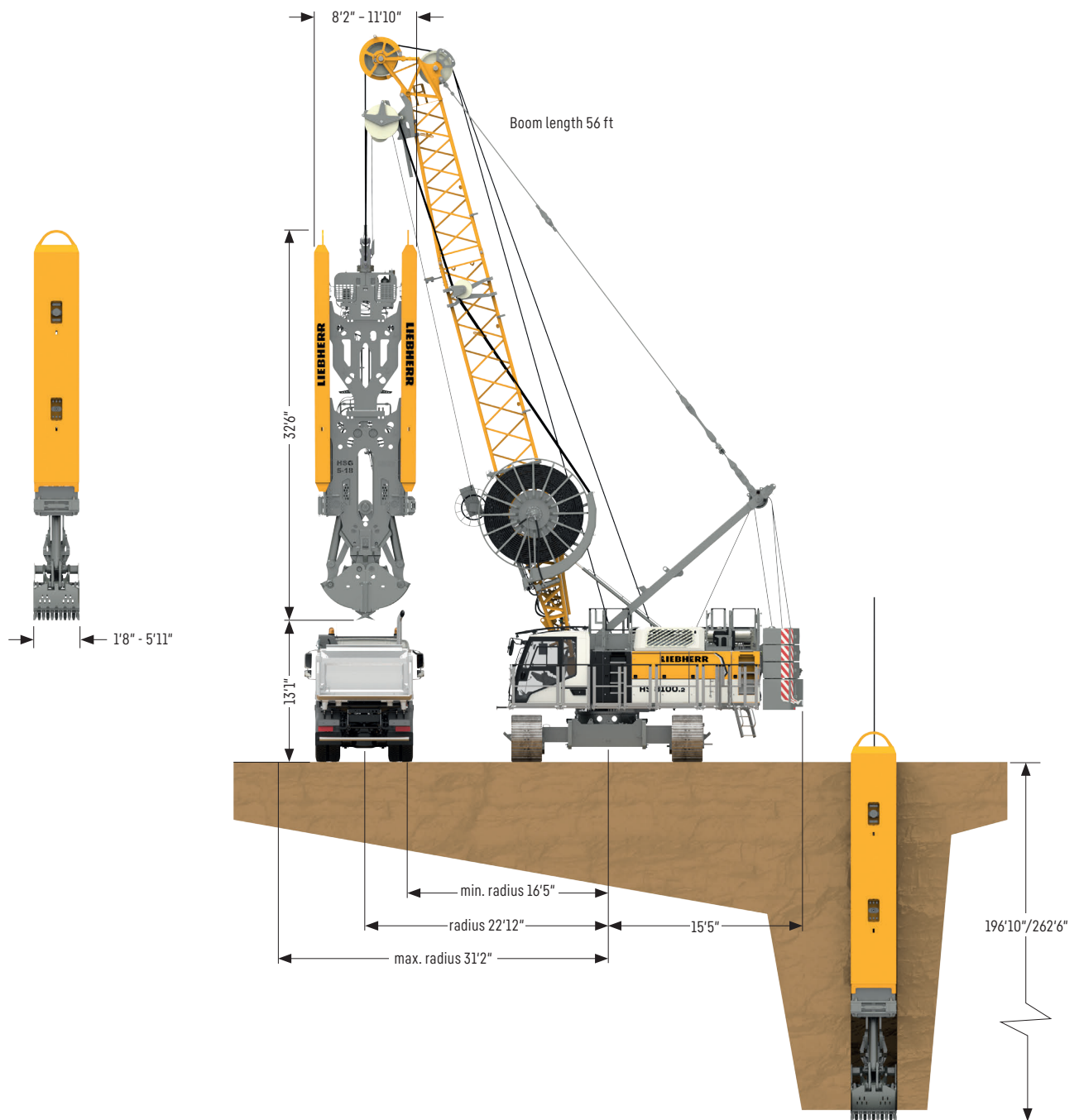
The hydraulic slurry wall grab package is based on the proven HS series. It unites precision, power and economy. At the same time the multifunctionality of the carrier machine is maintained 100%.

The grab convinces with its robust design and high closing force. These properties provide a decisive advantage especially for hard soil conditions.

Thanks to the synchronisation of the hoisting winches high grab weights are viable and the lifting capacity of the basic machine is optimally utilized. As a standard the free-fall winches are also synchronised and can be controlled using a pedal.

Dimensions

Basic machine HS 8100.2 with hydraulic slurry wall grab HSG 5-18



Overview carrier machines



HS 8070.1

Technical data

Engine power	kW	320
2x free-fall winches (line pull 1 st layer)	lbf	44,962
Rope diameter	mm	30
Effective rope length	ft	476
Max. admissible line pull in 2-rope operation	lbf	67,443
Max. recommended weight of hydr. slurry wall grab (full)	lbs	50,706



HS 8100.2

Technical data

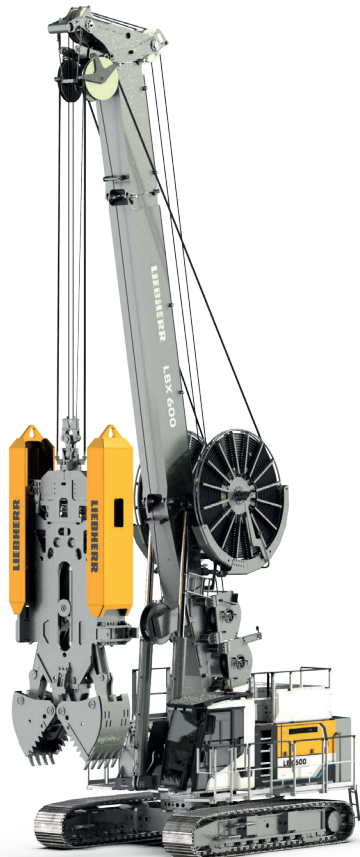
Engine power	kW	450
2x free-fall winches (line pull 1st layer)	lbf	66,319
Rope diameter	mm	34
Effective rope length	ft	463
Max. admissible line pull in 2-rope operation	lbf	93,745
Max. recommended weight of hydr. slurry wall grab (full)	lbs	66,139



HS 8130.1

Technical data

Engine power	kW	565
2x free-fall winches (line pull 1st layer)	lbf	78,683
Rope diameter	mm	36
Effective rope length	ft	764.4
Max. admissible line pull in 2-rope operation	lbf	119,145
Max. recommended weight of hydr. slurry wall grab (full)	lbs	88,185



LBX 600/LBX 600 unplugged

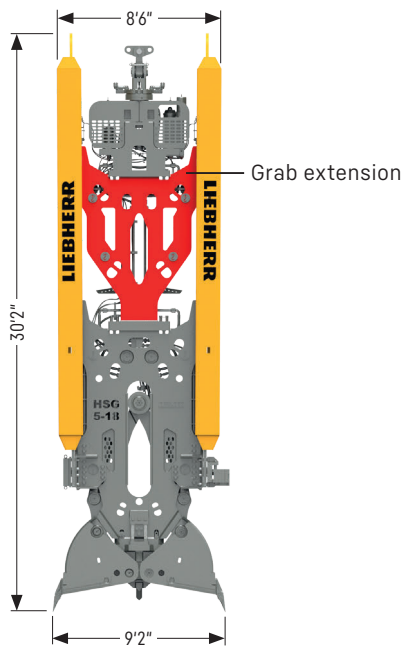
Technical data

Engine power	kW	320/390*
Max. working depth	ft	262
Max. admissible grab weight, full	lbs	66,139
Max. pull force in grab operation (dual-winch operation)	lbf	101,164
Max. pull force in recovery mode (dual-winch operation)	lbf	134,885
2x free-fall winches (line pull 1st layer)	lbf	67,443
Can be equipped with a hoist winch (reeving on the grab)	option	

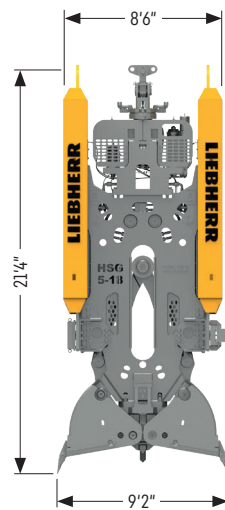
* LBX 600 unplugged

Grab sizes

HSG 5-18 C/L



HSG 5-18 L

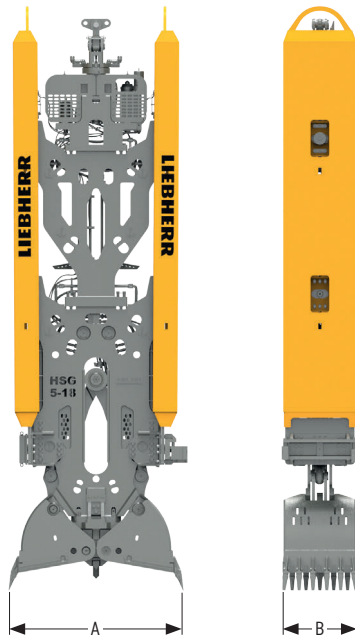


HSG 5-18 C

The grab extension increases weight and length of the grab and therefore enhances the verticality of the trench. The extension is recommended for deep trenches.

Example dimensions of HSG 5-18 C/L for jaw opening width of 9.2 ft.
Different opening widths result in different dimensions.

Technical data



The following configurations are included in the given grab weights

Stop-end guide	see table
Hydraulically adjustable guide bars	lbs 1,1
Accumulator for accelerated opening	lbs 728
Verticality sensor	lbs 88
Reinforcement guide bars (from 3.9 ft slurry wall thickness)	lbs 1,477
Standard closing cylinder (180/140)	
Standard grab jaws with scrapers	
Signal and data transmission via cable	

Weights of optional equipment

Signal and data transmission via radio	lbs -551
Connector semi-Kelly	lbs 220
Generator	lbs 44
Additional weight	lbs 9,766
Additional weight	lbs 14,462
Heavy duty grab jaws	on request
Further jaw widths 8.2 – 11.8 ft	on request

Other jaw opening widths on request.

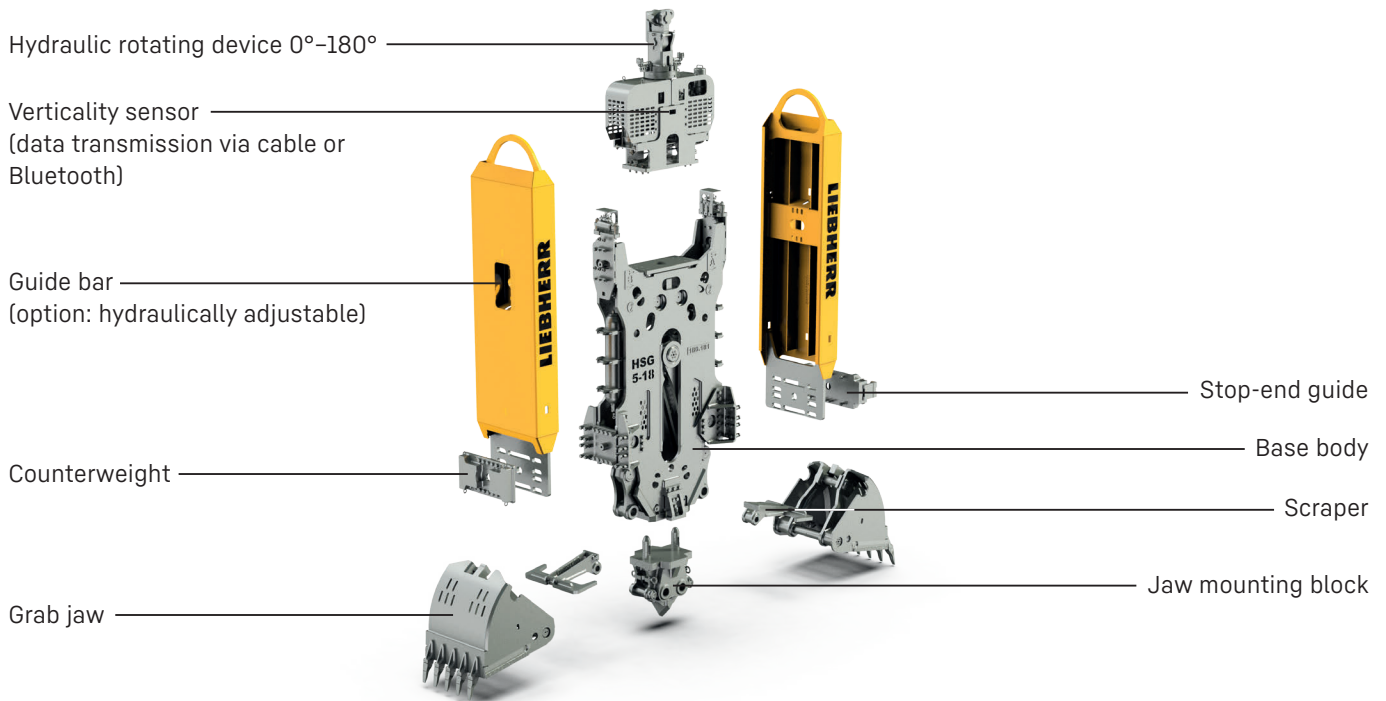
Technical data HSG 5-18 C/L

Jaw opening width A	Slurry wall thickness B	Grab capacity	Grab weight empty		Grab weight full*		Weight stop-end guide (included)
			HSG C	HSG L	HSG C	HSG L	
[ft]	[in]	[cubic yard]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]
9.2	19.7	0.81	32,430	40,367	35,076	43,012	860
	23.6	1.02	33,334	41,271	36,861	44,798	882
	31.5	1.44	37,060	45,658	41,910	50,508	1,080
	39.4	1.86	39,904	48,943	46,077	55,116	1,279
	47.2	2.25	42,924	53,065	50,420	60,561	1,720
	59.0	2.89	47,399	57,320*	57,100	67,021*	2,006
	70.9	3.52	48,700	59,282*	60,605	71,187*	
10.5	19.7	1.03	33,973	41,910	37,501	45,437	860
	23.6	1.30	35,098	43,034	39,507	47,443	882
	31.5	1.82	38,823	47,421	44,996	53,594	1,080
	39.4	2.35	41,667	50,486	49,604	58,422	1,279
	47.2	2.88	44,688	54,829	54,388	64,529	1,720
	59.0	3.68	49,163	59,084*	61,509	71,430*	2,006
	70.9	4.46	50,243	61,046*	65,235	76,037*	

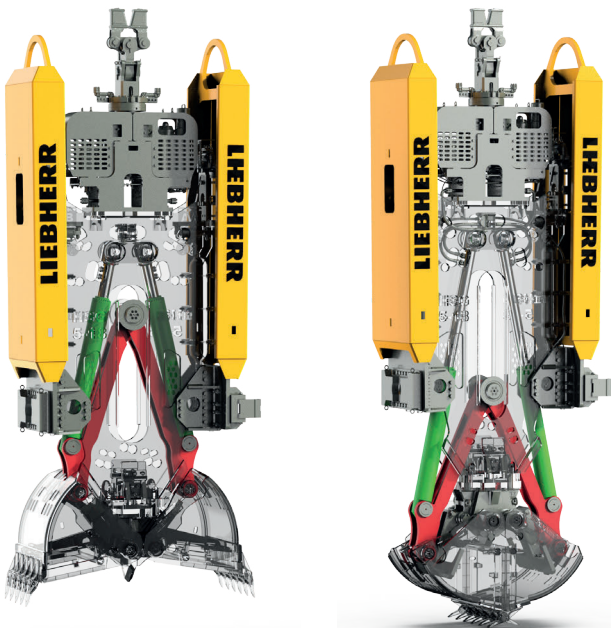
* density of excavated material 20,044 lb/gal

Please note: the suitable carrier machine must be selected taking into account the maximum permissible grab weight (see pages 4 and 5).

Modular design



Grab closing mechanism



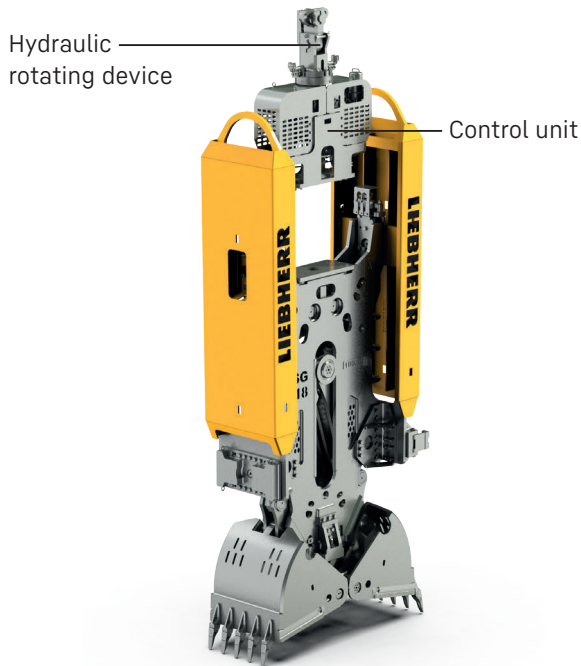
Opening and closing of the grab is actuated by two direct-acting cylinders. These are installed with the piston rods at the top, which means they are protected inside the grab body. The robust cylinder barrels are positioned downwards.

Synchronised opening or closing of the grab jaws is mechanically ensured via push rods. This mechanism is reliable and easy to maintain.

Cylinder 180/140 (standard)	PSI 4,351
Cylinder force (2 cylinders)	lbf 343,283
Max. closing force at teeth (9.2 ft)	lbf 213,119
Opening/closing speed approx.	sec 10/9
Opening speed with accumulator for accelerated opening approx.	sec 8

Cylinder 200/140 (option)	PSI 4,351
Cylinder force (2 cylinders)	lbf 423,765
Max. closing force at teeth (9.2 ft)	lbf 263,026
Opening/closing speed approx.	sec 11
Opening speed with accumulator for accelerated opening approx.	sec 8

Hydraulic rotating device



The rotating device allows for easy rotation and alignment of the grab after each grab cycle.

Advantages of the rotating device

- Alignment of the grab in slurry wall direction, rotation range $2 \times 180^\circ$
- Storing of the grab position
- Rotation from 0° to 180° after each grab cycle

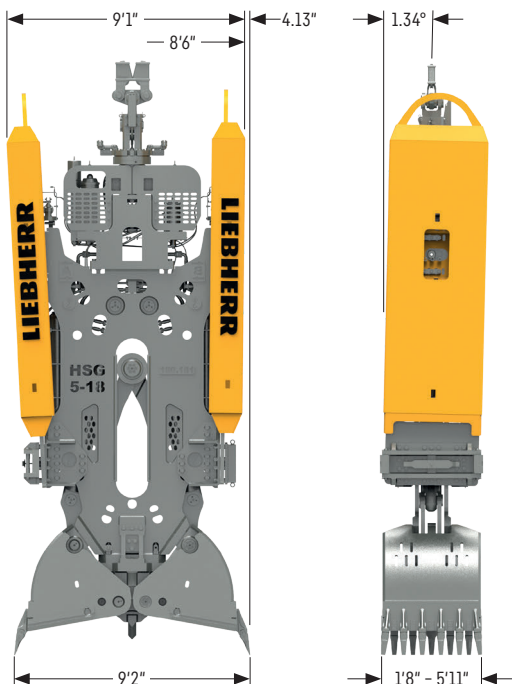
Signal and data transmission via radio

Control and sensor signals are transmitted via radio outside the trench.

Signal and data transmission via cable (option)

Control and sensor signals are transmitted via cable. If the cable is damaged, limited operation via radio is possible.

Adjustable guide bars (option)



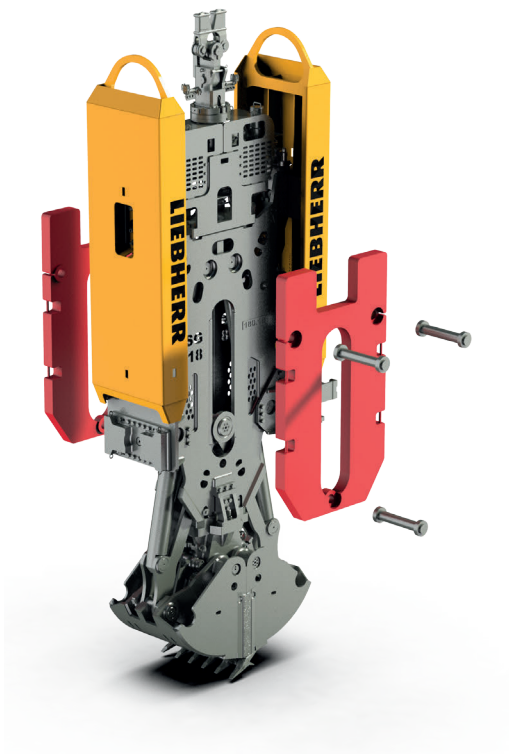
During excavation work the grab direction can be corrected using the guide bars and so higher verticality of the slurry wall is achieved. The system is driven hydraulically and can be controlled from the cabin.

In combination with the cable drum the guide bars can also be adjusted in the trench. The position of the guide bars is shown on the display.

Example dimensions of HSG 5-18 C for jaw opening width of 9.2 ft. Different opening widths result in different dimensions.

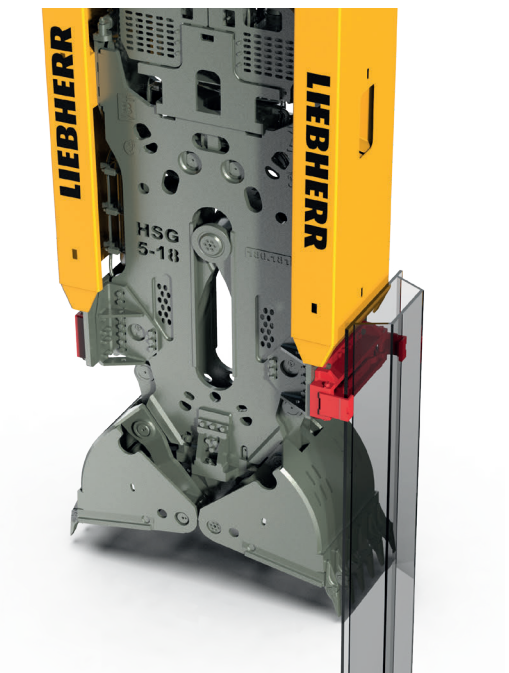
Additional weight (option)

Additional weight of 9,700 lbs or 14,330 lbs is available.

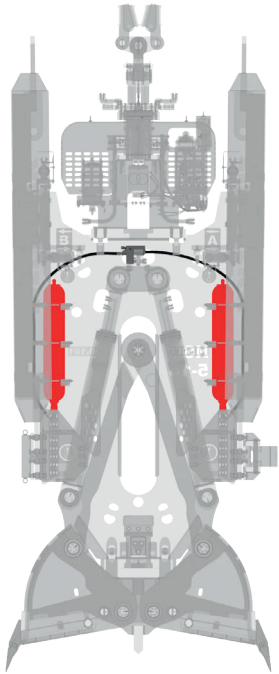


Stop-end guide (option)

The slurry wall grab is guided vertically along the stop-end element via the stop-end guide. Furthermore, this guide serves to scrape off and loosen the excess/seeping concrete from the stop-end element.



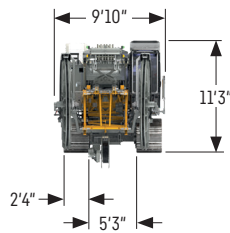
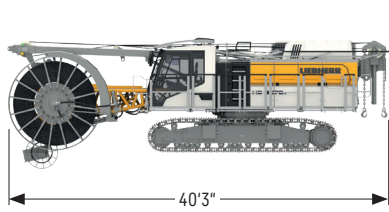
Accumulator for accelerated opening (option)



These additionally installed accumulators temporarily store the high oil flow that occurs when the jaws are opened. As a result, high opening speeds can be achieved despite generously dimensioned closing cylinders.

The actual speeds achieved depend on the size of the grab jaws and the cylinder installed.

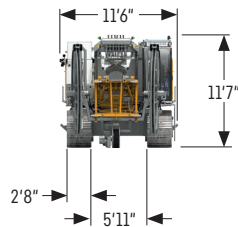
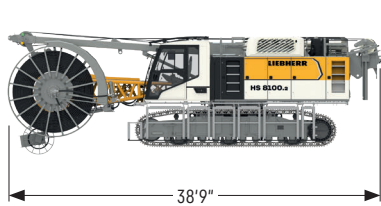
Transport dimensions and weights



Carrier machine HS 8070.1, crawlers non-detachable

with HD undercarriage, boom foot (1311.24), A-frame, 2x 44,962 lbf winches, without rear counterweight

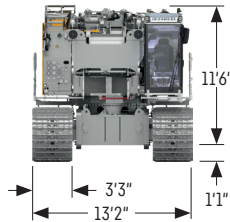
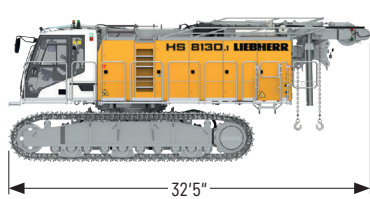
Width with 2.3 ft 3-web grousers	9'10"
Weight with 2.3 ft 3-web grousers	lbs 101,192
Width with 2.6 ft 3-web grousers	11'2"
Weight with 2.6 ft 3-web grousers	lbs 103,176
Width with 2.9 ft 3-web grousers	11'6"
Weight with 2.9 ft 3-web grousers	lbs 107,145
Weight of hoist ropes	lbs/ft 3.10



Carrier machine HS 8100.2

with HD undercarriage, boom foot (1311.24), A-frame, 2x 61,822 lbf winches including wire ropes (295.3 ft), without rear counterweight

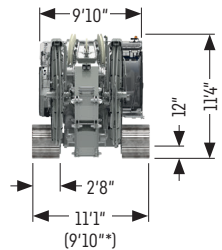
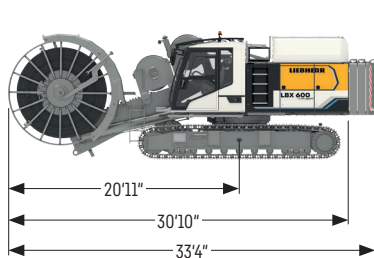
Width	11'6"
Weight with 800 mm 3-web grousers	lbs 131,285
Weight with 900 mm 3-web grousers	lbs 132,123
Weight of hoist ropes (2x 90 m)	lbs/ft 3.82



Carrier machine HS 8130.1, crawlers detachable

with HD undercarriage, A-frame, 2x 78,683 lbf winches and self-assembly system for rear counterweight, without boom foot and rear counterweight - fully tanked and ready for operation

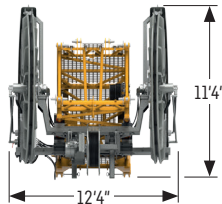
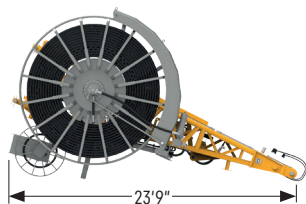
Width	13'2"
Weight without hoist ropes	lbs 171,961
Weight of hoist ropes (2x 295.3 ft)	lbs/ft 4.3
Width without crawlers	11'6"
Weight without crawlers	lbs 112,436



Carrier machine LBX 600/LBX 600 unplugged

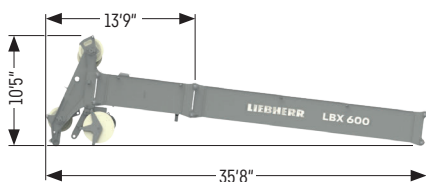
Weight with counterweight, with 31.5 inch 3-web grousers	lbs 145,505
Weight without counterweight, with 31.5 inch 3-web grousers	lbs 112,436
Weight without counterweight and hose drums, with 31.5 inch 3-web grousers	lbs 103,617

* transport width with 2.3 ft grousers



Boom foot (23 ft) HS 8130.1

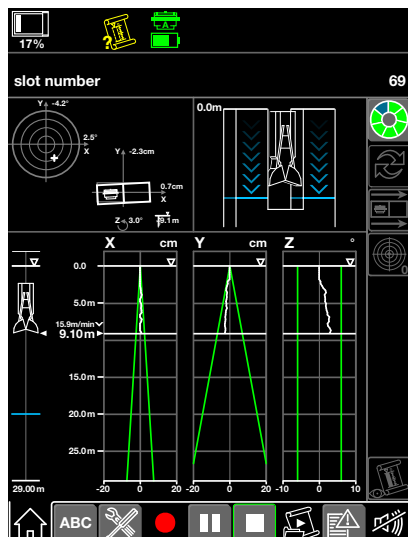
Width	12'4"
Weight incl. hose drum and 246 ft of hydraulic hose without oil	lbs 16,116



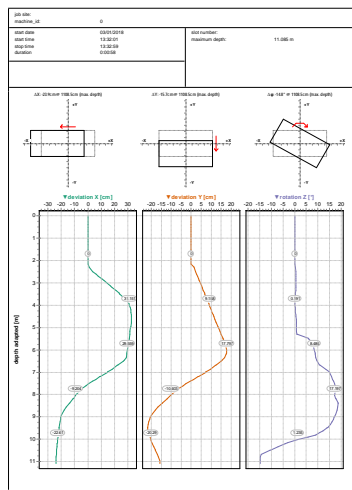
Boom system LBX 600/LBX 600 unplugged

Boom 35.8 ft (see illustration)	lbs 11,464
Boom section 21.7 ft	lbs 4,850
Boom section 9.2 ft	lbs 2,646
Base arm including hose drums and winches	lbs 36,156
Boom top	lbs 3,968

Verticality assistant



hydr. grab with Verticality Assistant



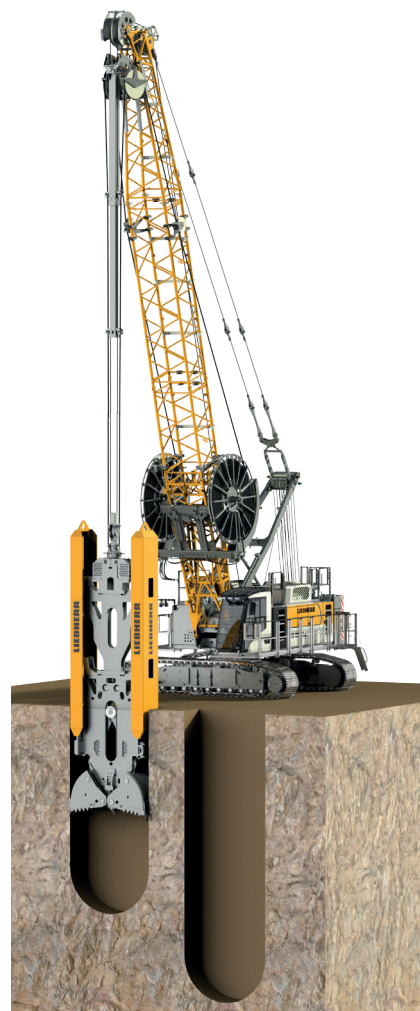
PDE



LiDAT



MyJobsite



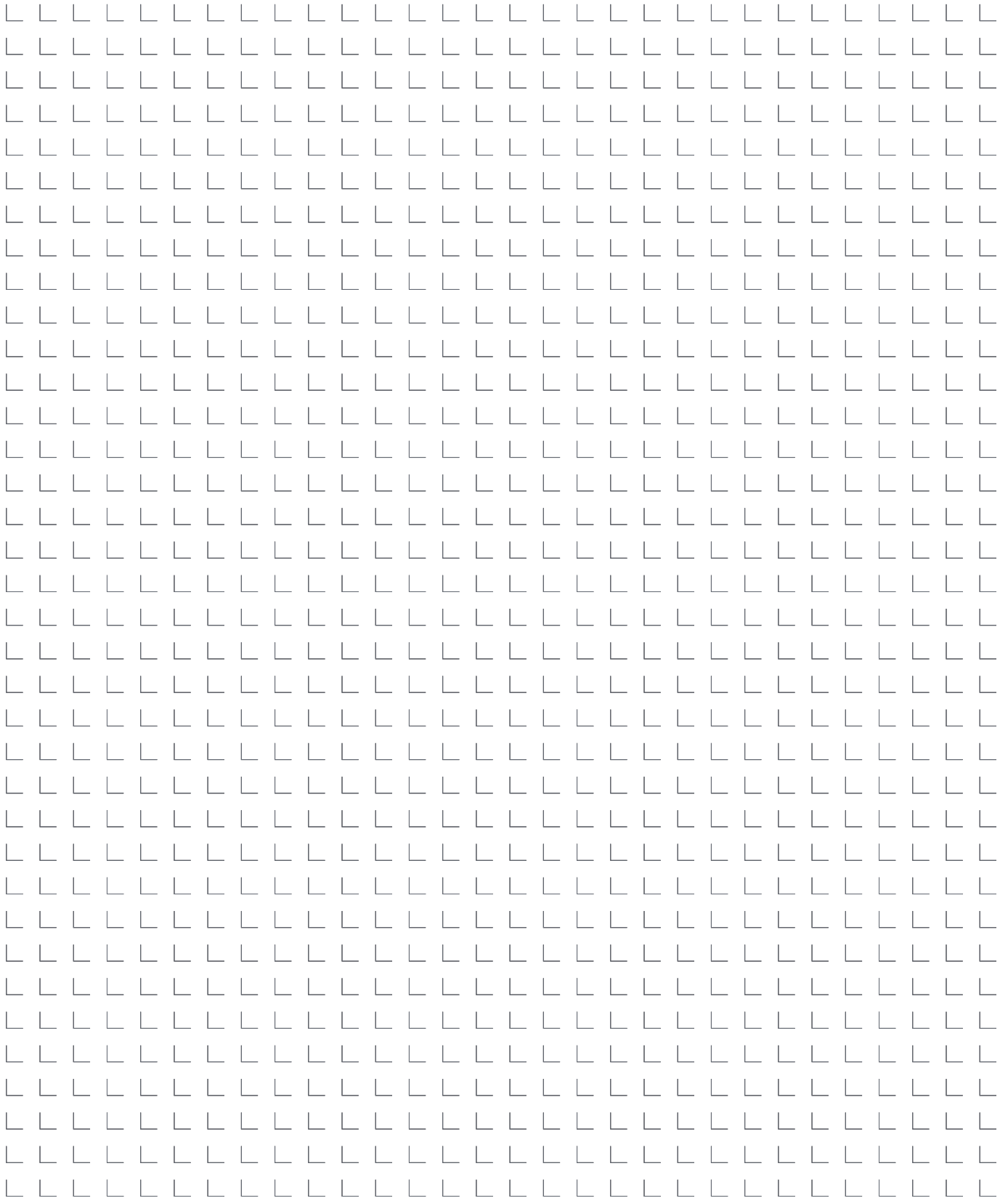
Verticality assistant for hydraulic and mechanical slurry wall grabs

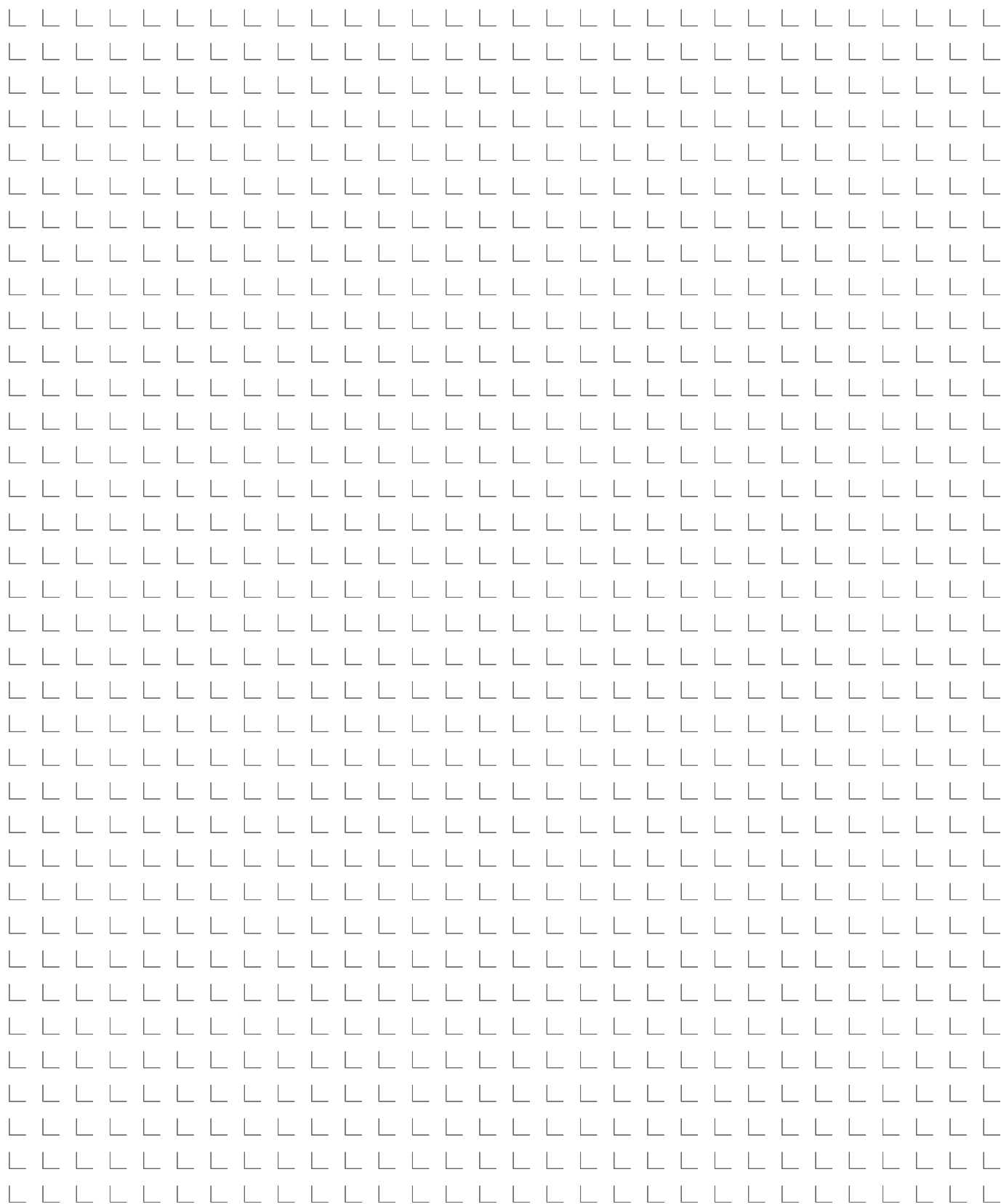
This assistance system is fully integrated in the Liebherr machine's control and process data recording system. It supports and records the slurry wall installation process. With the help of the verticality assistant deviations in the slurry wall along the X and Y axes, as well as the rotation round the Z axis are measured.

- Visualization of the measurements for the machine operator
- Two possible solutions for data transmission: Bluetooth transmission between sensor on the grab and receiver in the uppercarriage (delayed data visualization) or real-time transmission via cable
- Optimum support for the machine operator through an innovative, graphic control system in order to carry out successful measurements
- Ensures optimum measuring conditions by automatically limiting the hoisting speed with two options
 - (exact slow or accelerated measuring run)
- Simple guidelines for calibrating the verticality measuring system
- Mobile data transfer via the telematics system from the machine to the reporting software in the office (MyJobsite)

This system allows control of the precision for the whole depth of the trench. Reports can also be created in MyJobsite for the whole slurry wall installation process. These enable traceability of the application and proof of quality.

11/11/2016





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