

# Technical Description Hydraulic Excavator

# A 310 B

**Operating Weight** 11,1 - 11,9 t  
**Engine Output** 58 kW (79 HP)  
**Bucket Capacity** 0,10 - 0,45 m<sup>3</sup>



# LIEBHERR

# Technical Data



## Engine

Deutz-Diesel engine

Rating per ISO 9249 \_\_\_ 58 kW (79 HP) at 2300 RPM

Model \_\_\_ BF 4 M 1012 E

Typ \_\_\_ 4 cylinder-in-line, water-cooled, direct injection, turbo-charged

Air cleaner \_\_\_ dry-type air cleaner with pre-cleaner, primary and safety element

Fuel tank \_\_\_ 180 l

Electrical system

Voltage \_\_\_ 24 V

Batteries \_\_\_ 2 x 92 Ah/12 V

Alternator \_\_\_ 24 V/40 A

Option \_\_\_ sensor controlled engine idling



## Operator Cab

Cab \_\_\_ resiliently mounted, sound insulated, with large windows for excellent 360 degree view, front window stores overhead

Operator's seat \_\_\_ fully adjustable, shockabsorbing suspension, adjustable to operator's weight

Joysticks \_\_\_ integrated into adjustable seat consols

Monitoring \_\_\_ instrument and control panel within easy range of operator

Heating system \_\_\_ hot water heat exchanger, to provide heated fresh air, circulated air or fresh cool air

Noise emission

ISO 6396 \_\_\_  $L_{pA}$  (inside cab) = 76 dB(A)

2000/14/EC \_\_\_  $L_{wA}$  (surround noise) = 99 dB(A)



## Hydraulic System

Hydraulic pump \_\_\_ Liebherr variable displacement, swash plate, in line double pump

Max. flow \_\_\_ 2 x 103 l/min.

Max. hydr. pressure \_\_\_ 320 bar

Pump regulation \_\_\_ summated horsepower regulation, pressure compensation

Hydraulic tank \_\_\_ 160 l

Hydraulic system \_\_\_ 200 l

Hydraulic oil filter \_\_\_ 1 full flow filter in return line

ECO control \_\_\_ adjustment of machine performance to match application

- "High" mode setting for highest performance in severe applications
- "Econo" mode setting for general digging and loading
- "Fine control" mode setting for precision work and lifting



## Undercarriage

Drive \_\_\_ variable flow swashplate motor with automatic brake valves

Transmission \_\_\_ oversized two speed power shift transmission with additional creeper speed

Travel speed \_\_\_ 0- 2,5 km/h (creeper speed)

\_\_\_ 0- 6,0 km/h (cross country)

\_\_\_ 0- 8,3 km/h (creeper speed, road)

\_\_\_ 0-20,0 km/h (road travel)

Axles \_\_\_ 26 t excavator axles; automatic or operator controlled front axle oscillation lock

Brakes \_\_\_ hydraulically actuated maintenance-free wet multi-disc travel, digging and parking brake

Drawbar pull \_\_\_ max. 67 kN

Stabilization \_\_\_ standard prop up blade (adjustable during travel for dozing) or 2-point outriggers with separate control - exchangeable for prop up blade (optional) or blade in front and 2 point outriggers



## Hydraulic Controls

Power distribution \_\_\_ via single housing valve block with directly attached secondary valves

Flow summation \_\_\_ to boom and stick

Priority supply \_\_\_ to swing drive

Control type

Attachment and swing \_\_\_ proportional via joystick levers

Travel \_\_\_ proportional via foot pedal

Additional functions \_\_\_ via switch and/or proportional foot pedals



## Attachment

Hydraulic cylinders \_\_\_ Liebherr cylinders with special seal system. Shock absorption.

Offset attachment \_\_\_ left or right of center line

Pivots \_\_\_ sealed, extra long maintenance intervals, high performance bushings

Buckets \_\_\_ standard equipped with 5 t safety hook for lifting



## Swing Drive

Drive \_\_\_ swash plate motor with integrated brake valves

Transmission \_\_\_ planetary reduction gear

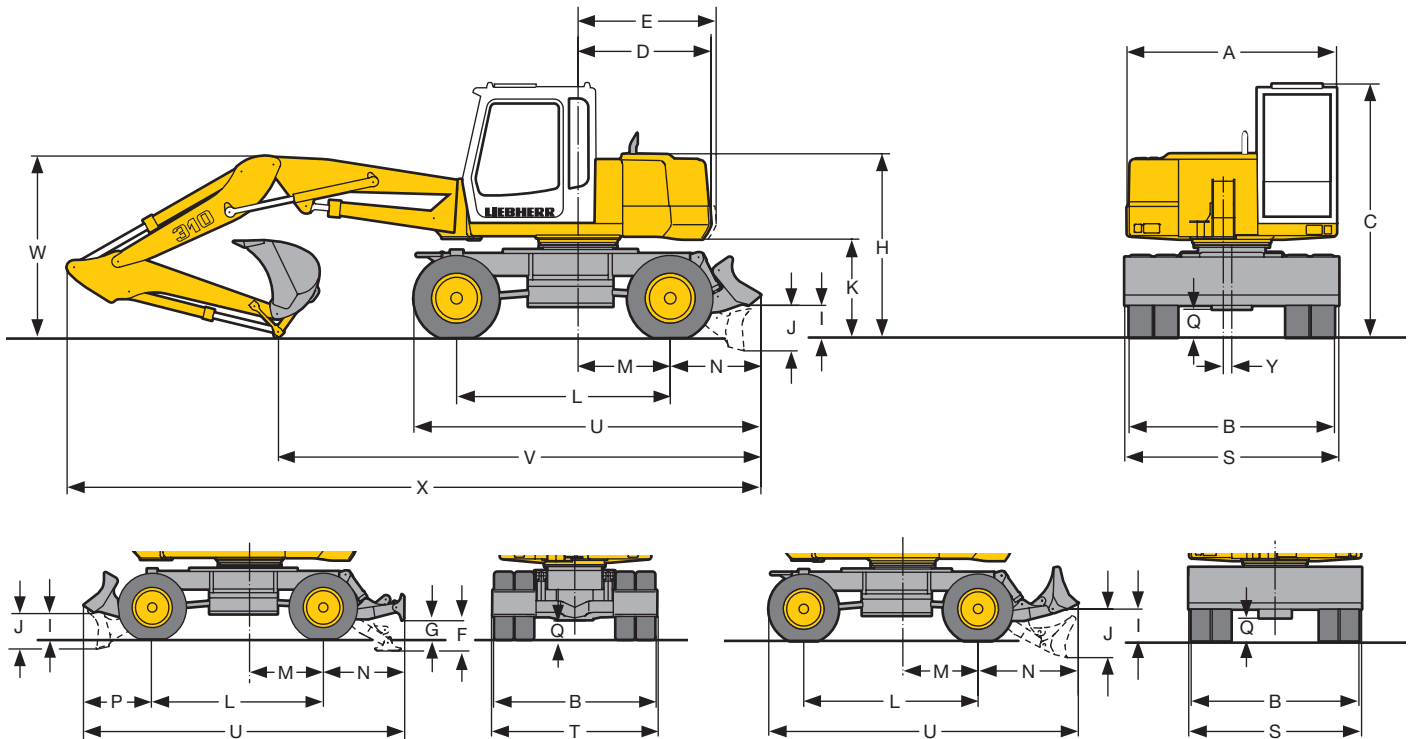
Swing ring \_\_\_ Liebherr sealed single race ball bearing swing ring, internal teeth

Swing speed \_\_\_ 0-9 RPM

Swing torque \_\_\_ 31,0 kNm

Positioning and holding brake \_\_\_ spring operated, pressure released multi-disc brake, maintenance-free

# Dimensions



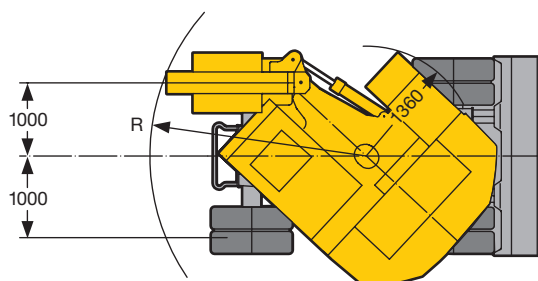
	Standard Prop Up Blade mm	Optional Prop Up Blade mm	2 Point Outriggers mm	Blade and 2 Point Outriggers mm
A	2500	2500	2500	2500
B	2455	2455	2455	2455
C	3045	3045	3045	3045
D	1590	1590	1590	1590
E	1650	1650	1650	1650
F	-	-	450	450
G	-	-	270	270
H	2195	2195	2195	2195
I	385	465	-	385
J	545	710	-	545
K	1175	1175	1175	1175
L	2550	2550	2550	2550
M	1100	1100	1100	1100
N	1085	1465	1215	1215
P	-	-	-	1035
Q	335	335	335	335
S	2550	2550	2485	-
T	-	-	-	2485
U	4145	4530	4275	4800
Y	100	100	100	100

	Stick m	Hydr. Adjustable Boom			
		Standard Prop Up Blade mm	Optional Prop Up Blade mm	2 Point Outriggers mm	Blade and 2 Point Outriggers mm
V	1,60	6500	6900	6650	6650
	2,00	5800	6200	5950	5950
W	1,60	2450	2450	2450	2450
	2,00	2300	2300	2300	2300
X	1,60	8450	8850	8600	8600
	2,00	8400	8800	8550	8550

	Stick m	Gooseneck Boom 4,40 m			
		Standard Prop Up Blade mm	Optional Prop Up Blade mm	2 Point Outriggers mm	Blade and 2 Point Outriggers mm
V	1,60	6800	7200	6950	6950
	2,00	6050	6450	6200	6200
W	1,60	2450	2450	2450	2450
	2,00	2350	2350	2350	2350
X	1,60	8700	9100	8850	8850
	2,00	8650	9050	8800	8800

E = Tail radius  
Attachment always over front axle

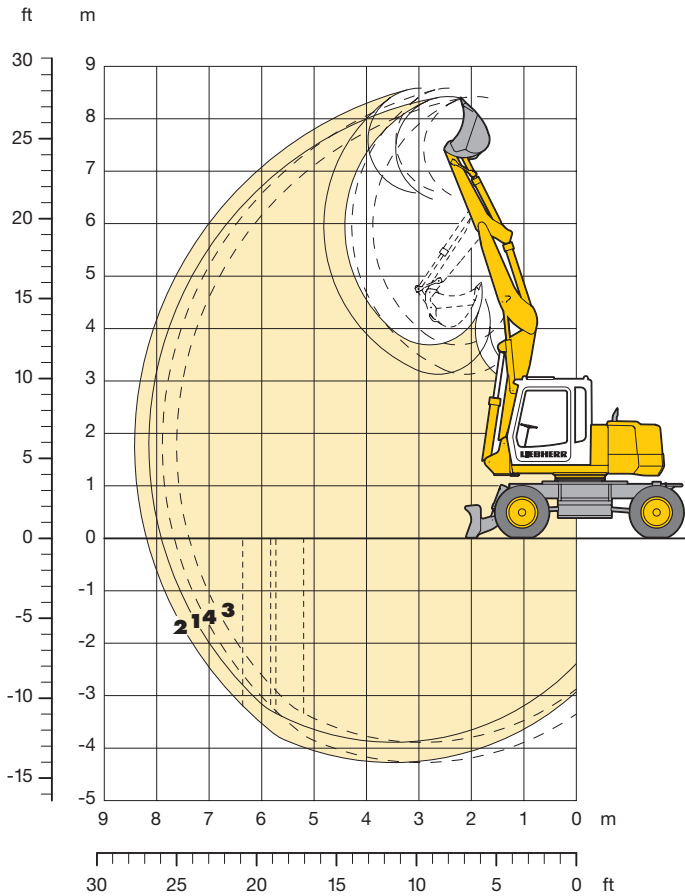
## Tires 9.00-20



Boom	Top view showing max. offset of attachment		
	Stick m	R mm	min. 180° clearance-circle mm
Hydr. Adjustable Boom	1,60	2900	4550
Gooseneck Boom	1,60	3000	4650
Hydr. Adjustable Boom	2,00	2750	4400
Gooseneck Boom	2,00	2850	4500

# Backhoe Attachment

## with Hydr. Adjustable Boom



### To Order a Complete Machine You Need the Following:

Basic machine with extra hydr. control for hydr. swivel	see page 12
Auxiliary circuit in basic machine AHS 1	
Hoist cylinders	
Basic boom for hydr. adjustable boom	
Main boom for hydr. adjustable boom with piping for hydr. swivel	
Stick with piping for hydr. swivel	
1,60 m	
2,00 m	
Bucket	see chart below

### Digging Envelope

		1	2
Stick length	m	1,60	2,00
Max. digging depth	m	3,85	4,25
Max. reach at ground level	m	7,90	8,20
Max. dumping height	m	6,50	6,60
Max. teeth height	m	8,45	8,60
Min. attachment radius *	m	3,10	2,75

Max. digging force	52,6 kN (5,4 t)
Max. breakout force	65,7 kN (6,7 t)

- 1** with stick 1,60 m
- 2** with stick 2,00 m
- 3\*** with stick 1,60 m
- 4\*** with stick 2,00 m

\* at max. attachment offset

### Buckets

Cutting width	mm	200 <sup>1)</sup>	300 <sup>1)</sup>	400 <sup>2)</sup>	500	600	750	850	1000
Capacity ISO 7451*	m <sup>3</sup>	0,10	0,14	0,19	0,20	0,25	0,35	0,40	0,45
Max. material weight	t/m <sup>3</sup>	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8
Weight of bucket	kg	280	220	280	180	210	240	250	270
<b>For machine stability per ISO 10567 the max. stick length is:</b>									
Stabilizers raised	m	2,00	2,00	2,00	2,00	2,00	2,00	2,00	–
Standard prop up blade down	m	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00
2 point outriggers down	m	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00
Blade + 2 point outriggers down	m	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00

\* comparable with SAE (heaped)

<sup>1)</sup> Bucket with ejector (max. digging depth 1,0 m, since bucket suspension is wider than bucket)

<sup>2)</sup> Bucket with ejector

# Lift Capacities

## with Hydr. Adjustable Boom

### Stick 1,60 m

Height (m)	Undercarriage	Radius of load from centerline of machine (m)					
		2,0	3,0	4,0	5,0	6,0	7,0
7,0	Stabilizers raised			2,5 (2,9#)			
	Standard prop up blade down			2,9 (2,9#)			
	2 point outriggers down			2,9 (2,9#)			
	Blade + 2 point outriggers down			2,9# (2,9#)			
6,0	Stabilizers raised			2,6 (2,7#)	1,7 (2,7#)		
	Standard prop up blade down			2,7# (2,7#)	2,0 (2,7#)		
	2 point outriggers down			2,7# (2,7#)	2,0 (2,7#)		
	Blade + 2 point outriggers down			2,7# (2,7#)	2,6 (2,7#)		
5,0	Stabilizers raised			2,5 (2,6#)	1,8 (2,8#)	1,2 (2,4 )	
	Standard prop up blade down			2,6# (2,6#)	2,0 (2,8#)	1,4 (2,5#)	
	2 point outriggers down			2,6# (2,6#)	2,1 (2,8#)	1,4 (2,5#)	
	Blade + 2 point outriggers down			2,6# (2,6#)	2,6 (2,8#)	1,9 (2,5#)	
4,0	Stabilizers raised			2,5 (3,3#)	1,8 (3,1#)	1,2 (2,4#)	
	Standard prop up blade down			2,9 (3,3#)	2,1 (3,1#)	1,4 (2,6#)	
	2 point outriggers down			2,9 (3,3#)	2,1 (3,1#)	1,5 (2,6#)	
	Blade + 2 point outriggers down			3,3# (3,3#)	2,6 (3,1#)	1,9 (2,6#)	
3,0	Stabilizers raised		3,6 (6,1#)	2,4 (4,5#)	1,8 (3,1 )	1,2 (2,4 )	0,8 (1,8 )
	Standard prop up blade down		4,2 (6,1#)	2,8 (4,7#)	2,0 (3,4#)	1,4 (2,6#)	1,0 (2,2#)
	2 point outriggers down		4,3 (6,1#)	2,8 (4,7#)	2,1 (3,4#)	1,4 (2,6#)	1,0 (2,2#)
	Blade + 2 point outriggers down		5,7 (6,1#)	3,6 (4,7#)	2,6# (3,4#)	1,9 (2,6#)	1,4 (2,2#)
2,0	Stabilizers raised			2,4 (4,4 )	1,7 (3,2#)	1,2 (2,4 )	0,8 (1,8 )
	Standard prop up blade down			2,7 (4,9#)	1,9 (3,5#)	1,4 (2,7#)	1,0 (2,2#)
	2 point outriggers down			2,8 (4,9#)	2,0 (3,5#)	1,4 (2,7#)	1,0 (2,2#)
	Blade + 2 point outriggers down			3,5 (4,9#)	2,5 (3,5#)	1,8 (2,7#)	1,4 (2,2#)
1,0	Stabilizers raised			2,2 (4,5 )	1,5 (3,2 )	1,1 (2,3 )	0,8 (1,8 )
	Standard prop up blade down			2,5 (5,0#)	1,8 (3,5#)	1,3 (2,7#)	1,0 (2,1#)
	2 point outriggers down			2,6 (5,0#)	1,8 (3,5#)	1,3 (2,7#)	1,0 (2,1#)
	Blade + 2 point outriggers down			3,4 (5,0#)	2,4 (3,5#)	1,8 (2,7#)	1,3 (2,1#)
0	Stabilizers raised		3,0 (7,2 )	2,0 (4,4 )	1,5 (3,1 )	1,0 (2,2 )	0,8 (1,7 )
	Standard prop up blade down		3,6 (8,6#)	2,4 (5,1#)	1,7 (3,6#)	1,2 (2,7#)	0,9 (1,8#)
	2 point outriggers down		3,7 (8,6#)	2,4 (5,1#)	1,8 (3,6#)	1,3 (2,7#)	1,0 (1,8#)
	Blade + 2 point outriggers down		5,1 (8,6#)	3,2 (5,1#)	2,3 (3,6#)	1,7 (2,7#)	1,3 (1,8#)
-1,0	Stabilizers raised	6,1 (6,9#)	3,0 (7,2 )	2,0 (4,3 )	1,4 (3,0 )	1,0 (2,2 )	
	Standard prop up blade down	6,9# (6,9#)	3,6 (8,3#)	2,3 (5,1#)	1,6 (3,5#)	1,2 (2,3#)	
	2 point outriggers down	6,9# (6,9#)	3,7 (8,3#)	2,4 (5,1#)	1,7 (3,5#)	1,2 (2,3#)	
	Blade + 2 point outriggers down	6,9# (6,9#)	5,0 (8,3#)	3,2 (5,1#)	2,2 (3,5#)	1,7 (2,3#)	
-2,0	Stabilizers raised	6,2 (8,7#)	3,1 (6,7#)	1,9 (4,0#)	1,3 (2,4#)	1,0# (1,0#)	
	Standard prop up blade down	7,8 (8,7#)	3,7 (6,7#)	2,3 (4,0#)	1,6 (2,4#)	1,0# (1,0#)	
	2 point outriggers down	8,1 (8,7#)	3,7 (6,7#)	2,3 (4,0#)	1,6 (2,4#)	1,0# (1,0#)	
	Blade + 2 point outriggers down	8,7# (8,7#)	5,1 (6,7#)	3,1 (4,0#)	2,2 (2,4#)	1,0# (1,0#)	
-3,0	Stabilizers raised		2,3# (2,3#)	1,3# (1,3#)			
	Standard prop up blade down		2,3# (2,3#)	1,3# (1,3#)			
	2 point outriggers down		2,3# (2,3#)	1,3# (1,3#)			
	Blade + 2 point outriggers down		2,3# (2,3#)	1,3# (1,3#)			

### Stick 2,00 m

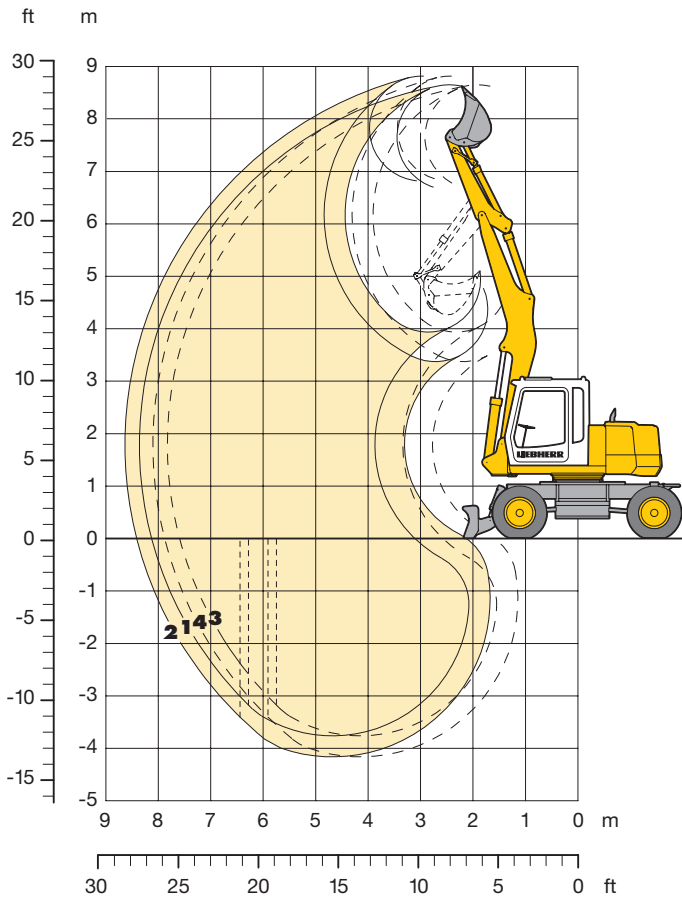
Height (m)	Undercarriage	Radius of load from centerline of machine (m)					
		2,0	3,0	4,0	5,0	6,0	7,0
7,0	Stabilizers raised			2,2# (2,2#)			
	Standard prop up blade down			2,2# (2,2#)			
	2 point outriggers down			2,2# (2,2#)			
	Blade + 2 point outriggers down			2,2# (2,2#)			
6,0	Stabilizers raised				1,8 (2,1#)	1,2 (1,5#)	
	Standard prop up blade down				2,0 (2,1#)	1,4 (1,5#)	
	2 point outriggers down				2,1 (2,1#)	1,4 (1,5#)	
	Blade + 2 point outriggers down				2,1# (2,1#)	1,5# (1,5#)	
5,0	Stabilizers raised			2,1# (2,1#)	1,8 (2,3#)	1,3 (2,1#)	
	Standard prop up blade down			2,1# (2,1#)	2,0 (2,3#)	1,5 (2,1#)	
	2 point outriggers down			2,1# (2,1#)	2,1 (2,3#)	1,5 (2,1#)	
	Blade + 2 point outriggers down			2,1# (2,1#)	2,3# (2,3#)	1,9 (2,1#)	
4,0	Stabilizers raised			2,5 (2,6#)	1,7 (2,7#)	1,3 (2,4#)	0,9 (1,8#)
	Standard prop up blade down			2,6# (2,6#)	2,0 (2,7#)	1,5 (2,4#)	1,0 (1,8#)
	2 point outriggers down			2,6# (2,6#)	2,0 (2,7#)	1,5 (2,4#)	1,1 (1,8#)
	Blade + 2 point outriggers down			2,6# (2,6#)	2,6 (2,7#)	1,9 (2,4#)	1,4 (1,8#)
3,0	Stabilizers raised		3,7 (7,1#)	2,4 (4,4#)	1,8 (3,1#)	1,2 (2,4 )	0,8 (1,8 )
	Standard prop up blade down		4,3 (7,1#)	2,8 (4,4#)	2,0 (3,2#)	1,4 (2,5#)	1,0 (2,1#)
	2 point outriggers down		4,4 (7,1#)	2,8 (4,4#)	2,1 (3,2#)	1,5 (2,5#)	1,0 (2,1#)
	Blade + 2 point outriggers down		5,8 (7,1#)	3,6# (4,4#)	2,5 (3,2#)	1,9 (2,5#)	1,4 (2,1#)
2,0	Stabilizers raised		3,6 (6,8#)	2,4 (4,4 )	1,7 (3,1 )	1,2 (2,4 )	0,8 (1,8 )
	Standard prop up blade down		4,3 (6,8#)	2,7 (4,9#)	1,9 (3,4#)	1,4 (2,6#)	1,0 (2,1#)
	2 point outriggers down		4,4 (6,8#)	2,8 (4,9#)	2,0 (3,4#)	1,4 (2,6#)	1,0 (2,1#)
	Blade + 2 point outriggers down		5,6 (6,8#)	3,5 (4,9#)	2,5 (3,4#)	1,8 (2,6#)	1,4 (2,1#)
1,0	Stabilizers raised	3,6# (3,6#)	3,4 (7,5#)	2,2 (4,4 )	1,6 (3,1#)	1,1 (2,3 )	0,8 (1,8 )
	Standard prop up blade down	3,6# (3,6#)	4,0 (7,7#)	2,6 (5,0#)	1,8 (3,5#)	1,3 (2,6#)	1,0 (2,1#)
	2 point outriggers down	3,6# (3,6#)	4,1 (7,7#)	2,6 (5,0#)	1,9 (3,5#)	1,3 (2,6#)	1,0 (2,1#)
	Blade + 2 point outriggers down	3,6# (3,6#)	5,5 (7,7#)	3,4 (5,0#)	2,4 (3,5#)	1,8 (2,6#)	1,3 (2,1#)
0	Stabilizers raised	4,7# (4,7#)	3,1 (7,3 )	2,0 (4,4 )	1,5 (3,1 )	1,0 (2,2 )	0,8 (1,7 )
	Standard prop up blade down	4,7# (4,7#)	3,7 (8,4#)	2,4 (5,0#)	1,7 (3,5#)	1,2 (2,7#)	0,9 (2,0#)
	2 point outriggers down	4,7# (4,7#)	3,8 (8,4#)	2,5 (5,0#)	1,8 (3,5#)	1,3 (2,7#)	0,9 (2,0#)
	Blade + 2 point outriggers down	4,7# (4,7#)	5,2 (8,4#)	3,3 (5,0#)	2,3 (3,5#)	1,7 (2,7#)	1,3 (2,0#)
-1,0	Stabilizers raised	6,0# (6,0#)	3,0 (7,2 )	1,9 (4,3 )	1,4 (3,0 )	1,0 (2,2 )	
	Standard prop up blade down	6,0# (6,0#)	3,6 (8,5#)	2,3 (5,1#)	1,6 (3,6#)	1,2 (2,5#)	
	2 point outriggers down	6,0# (6,0#)	3,7 (8,5#)	2,4 (5,1#)	1,7 (3,6#)	1,2 (2,5#)	
	Blade + 2 point outriggers down	6,0# (6,0#)	5,0 (8,5#)	3,2 (5,1#)	2,2 (3,6#)	1,6 (2,5#)	
-2,0	Stabilizers raised	6,1 (6,7#)	3,0 (7,2 )	1,9 (4,2 )	1,3 (2,9#)	1,0 (1,6#)	
	Standard prop up blade down	6,7# (6,7#)	3,6 (7,6#)	2,2 (4,5#)	1,6 (2,9#)	1,2 (1,6#)	
	2 point outriggers down	6,7# (6,7#)	3,7 (7,6#)	2,3 (4,5#)	1,6 (2,9#)	1,2 (1,6#)	
	Blade + 2 point outriggers down	6,7# (6,7#)	5,0 (7,6#)	3,1 (4,5#)	2,2 (2,9#)	1,6# (1,6#)	
-3,0	Stabilizers raised	6,3 (8,4#)	3,0 (4,0#)	1,9 (2,3#)	1,1# (1,1#)		
	Standard prop up blade down	7,8 (8,4#)	3,6 (4,0#)	2,2 (2,3#)	1,1# (1,1#)		
	2 point outriggers down	8,1 (8,4#)	3,7 (4,0#)	2,3 (2,3#)	1,1# (1,1#)		
	Blade + 2 point outriggers down	8,4# (8,4#)	4,0# (4,0#)	2,3# (2,3#)	1,1# (1,1#)		

The lift capacities are stated in metric tonnes (t) on the backhoe bucket's load hook, and can be lifted 360° on firm, level supporting surface with blocked oscillating axle. Capacities shown in brackets are valid when the undercarriage is in longitudinal position and are established over the steering axle (travel position) with stabilizers raised, and over rigid axle with stabilizers down. Capacities are valid with adjusting cylinder(s) in optimal position. Indicated loads are based on ISO 10567 standard and do not exceed 75 % of tipping or 87 % of hydraulic capacity (#). Maximum load for the backhoe bucket's load hook is 5 t. Without bucket (0,40 m³), the lift capacities will increase by 245 kg, without bucket cylinder, link and lever they increase by an additional 130 kg. Lifting capacity of the excavator is limited by machine stability, hydraulic capacity and maximum permissible load of the load hook.

According to European Standard, EN 474-5: In the European Union excavators have to be equipped with an overload warning device and automatic check valves on the hoist cylinders, when they are used for lifting operations which require the use of lifting accessories.

# Backhoe Attachment

with Gooseneck Boom 4,40 m



## To Order a Complete Machine You Need the Following:

Basic machine with extra hydr. control for hydr. swivel	see page 12
Hoist cylinders	
Gooseneck boom 4,40 m with piping for hydr. swivel	
Stick with piping for hydr. swivel	
1,60 m	
2,00 m	
Bucket	see chart below

## Digging Envelope

		1	2
Stick length	m	1,60	2,00
Max. digging depth	m	3,75	4,15
Max. reach at ground level	m	8,10	8,40
Max. dumping height	m	6,70	6,80
Max. teeth height	m	8,65	8,80
Min. attachment radius *	m	3,15	2,85
Max. digging force		52,6 kN (5,4 t)	
Max. breakout force		65,7 kN (6,7 t)	

- 1** with stick 1,60 m
- 2** with stick 2,00 m
- 3\*** with stick 1,60 m
- 4\*** with stick 2,00 m

\* at max. attachment offset

## Buckets

Cutting width	mm	200 <sup>1)</sup>	300 <sup>1)</sup>	400 <sup>2)</sup>	500	600	750	850	1000
Capacity ISO 7451*	m <sup>3</sup>	0,10	0,14	0,19	0,20	0,25	0,35	0,40	0,45
Max. material weight	t/m <sup>3</sup>	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8
Weight of bucket	kg	280	220	280	180	210	240	250	270
<b>For machine stability per ISO 10567 the max. stick length is:</b>									
Stabilizers raised	m	2,00	2,00	2,00	2,00	2,00	2,00	2,00	–
Standard prop up blade down	m	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00
2 point outriggers down	m	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00
Blade + 2 point outriggers down	m	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00

\* comparable with SAE (heaped)

<sup>1)</sup> Bucket with ejector (max. digging depth 1,0 m, since bucket suspension is wider than bucket)

<sup>2)</sup> Bucket with ejector

# Lift Capacities

## with Gooseneck Boom 4,40 m

### Stick 1,60 m

Height (m)	Undercarriage	Radius of load from centerline of machine (m)					
		2,0	3,0	4,0	5,0	6,0	7,0
7,0	Stabilizers raised			2,6 (2,9#)			
	Standard prop up blade down			2,9 (2,9#)			
	2 point outriggers down			2,9# (2,9#)			
	Blade + 2 point outriggers down			2,9# (2,9#)			
6,0	Stabilizers raised			2,6 (2,6#)	1,8 (2,7#)	1,2 (2,0#)	
	Standard prop up blade down			2,6# (2,6#)	2,0 (2,7#)	1,4 (2,0#)	
	2 point outriggers down			2,6# (2,6#)	2,1 (2,7#)	1,5 (2,0#)	
	Blade + 2 point outriggers down			2,6# (2,6#)	2,6 (2,7#)	1,9 (2,0#)	
5,0	Stabilizers raised			2,5 (2,6#)	1,7 (2,8#)	1,3 (2,5 )	
	Standard prop up blade down			2,6# (2,6#)	2,0 (2,8#)	1,5 (2,5#)	
	2 point outriggers down			2,6# (2,6#)	2,0 (2,8#)	1,5 (2,5#)	
	Blade + 2 point outriggers down			2,6# (2,6#)	2,6 (2,8#)	1,9 (2,5#)	
4,0	Stabilizers raised			2,4 (3,9#)	1,7 (3,2#)	1,2 (2,4 )	0,9 (1,9 )
	Standard prop up blade down			2,7 (3,9#)	1,9 (3,2#)	1,4 (2,6#)	1,1 (2,2#)
	2 point outriggers down			2,8 (3,9#)	2,0 (3,2#)	1,4 (2,6#)	1,1 (2,2#)
	Blade + 2 point outriggers down			3,6 (3,9#)	2,5 (3,2#)	1,9 (2,6#)	1,4 (2,2#)
3,0	Stabilizers raised				1,5 (3,1 )	1,2 (2,4 )	0,9 (1,8 )
	Standard prop up blade down				1,8 (3,4#)	1,4 (2,7#)	1,1 (2,2#)
	2 point outriggers down				1,8 (3,4#)	1,4 (2,7#)	1,1 (2,2#)
	Blade + 2 point outriggers down				2,4 (3,4#)	1,8 (2,7#)	1,4 (2,2#)
2,0	Stabilizers raised				1,4 (3,0 )	1,1 (2,3 )	0,9 (1,8 )
	Standard prop up blade down				1,7 (3,6#)	1,3 (2,7#)	1,0 (2,2#)
	2 point outriggers down				1,7 (3,6#)	1,3 (2,7#)	1,0 (2,2#)
	Blade + 2 point outriggers down				2,3 (3,6#)	1,8 (2,7#)	1,4 (2,2#)
1,0	Stabilizers raised				1,4 (2,9 )	1,1 (2,2 )	0,8 (1,8 )
	Standard prop up blade down				1,6 (3,5#)	1,3 (2,7#)	1,0 (2,1#)
	2 point outriggers down				1,7 (3,5#)	1,3 (2,7#)	1,0 (2,1#)
	Blade + 2 point outriggers down				2,2 (3,5#)	1,7 (2,7#)	1,4 (2,1#)
0	Stabilizers raised			1,9 (3,0#)	1,3 (2,9 )	1,0 (2,2 )	0,8 (1,8 )
	Standard prop up blade down			2,2 (3,0#)	1,6 (3,1#)	1,2 (2,5#)	1,0 (1,8#)
	2 point outriggers down			2,3 (3,0#)	1,6 (3,1#)	1,3 (2,5#)	1,0 (1,8#)
	Blade + 2 point outriggers down			3,0# (3,0#)	2,2 (3,1#)	1,7 (2,5#)	1,3 (1,8#)
-1,0	Stabilizers raised		2,3# (2,3#)	1,9 (3,0#)	1,3 (2,6#)	1,0 (2,0#)	
	Standard prop up blade down		2,3# (2,3#)	2,2 (3,0#)	1,6 (2,6#)	1,2 (2,0#)	
	2 point outriggers down		2,3# (2,3#)	2,3 (3,0#)	1,6 (2,6#)	1,3 (2,0#)	
	Blade + 2 point outriggers down		2,3# (2,3#)	3,0# (3,0#)	2,2 (2,6#)	1,7 (2,0#)	
-2,0	Stabilizers raised		1,3# (1,3#)	1,9 (2,0#)	1,4 (1,8#)	1,1 (1,3#)	
	Standard prop up blade down		1,3# (1,3#)	2,0# (2,0#)	1,6 (1,8#)	1,3# (1,3#)	
	2 point outriggers down		1,3# (1,3#)	2,0# (2,0#)	1,7 (1,8#)	1,3# (1,3#)	
	Blade + 2 point outriggers down		1,3# (1,3#)	2,0# (2,0#)	1,8# (1,8#)	1,3# (1,3#)	
-3,0	Stabilizers raised			0,5# (0,5#)	0,5# (0,5#)		
	Standard prop up blade down			0,5# (0,5#)	0,5# (0,5#)		
	2 point outriggers down			0,5# (0,5#)	0,5# (0,5#)		
	Blade + 2 point outriggers down			0,5# (0,5#)	0,5# (0,5#)		

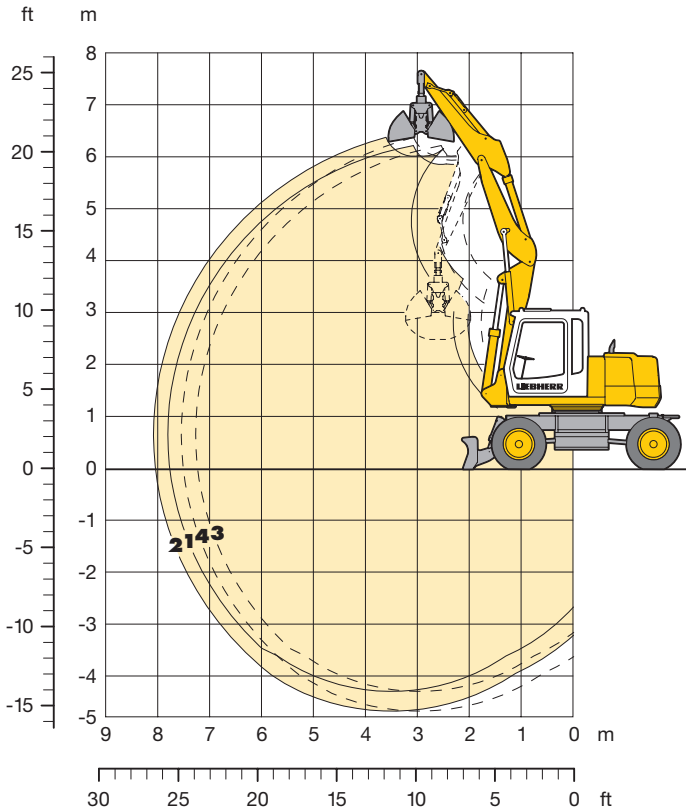
### Stick 2,00 m

Height (m)	Undercarriage	Radius of load from centerline of machine (m)					
		2,0	3,0	4,0	5,0	6,0	7,0
7,0	Stabilizers raised				1,8 (1,8#)		
	Standard prop up blade down				1,8# (1,8#)		
	2 point outriggers down				1,8# (1,8#)		
	Blade + 2 point outriggers down				1,8# (1,8#)		
6,0	Stabilizers raised				1,8 (2,1#)	1,3 (1,8#)	
	Standard prop up blade down				2,0 (2,1#)	1,5 (1,8#)	
	2 point outriggers down				2,1 (2,1#)	1,5 (1,8#)	
	Blade + 2 point outriggers down				2,1# (2,1#)	1,8# (1,8#)	
5,0	Stabilizers raised			2,1# (2,1#)	1,7 (2,3#)	1,3 (2,2#)	
	Standard prop up blade down			2,1# (2,1#)	2,0 (2,3#)	1,5 (2,2#)	
	2 point outriggers down			2,1# (2,1#)	2,0 (2,3#)	1,5 (2,2#)	
	Blade + 2 point outriggers down			2,1# (2,1#)	2,3# (2,3#)	1,9 (2,2#)	
4,0	Stabilizers raised		2,7# (2,7#)	2,4 (2,9#)	1,7 (2,9#)	1,2 (2,4 )	0,9 (1,9 )
	Standard prop up blade down		2,7# (2,7#)	2,8 (2,9#)	1,9 (2,9#)	1,4 (2,5#)	1,1 (2,0#)
	2 point outriggers down		2,7# (2,7#)	2,8 (2,9#)	2,0 (2,9#)	1,4 (2,5#)	1,1 (2,0#)
	Blade + 2 point outriggers down		2,7# (2,7#)	2,9# (2,9#)	2,5 (2,9#)	1,9 (2,5#)	1,4 (2,0#)
3,0	Stabilizers raised			2,2 (4,5 )	1,6 (3,2 )	1,2 (2,4 )	0,9 (1,8 )
	Standard prop up blade down			2,6 (4,6#)	1,8 (3,3#)	1,4 (2,6#)	1,0 (2,1#)
	2 point outriggers down			2,6 (4,6#)	1,9 (3,3#)	1,4 (2,6#)	1,1 (2,1#)
	Blade + 2 point outriggers down			3,4 (4,6#)	2,4 (3,3#)	1,8 (2,6#)	1,4 (2,1#)
2,0	Stabilizers raised			2,0 (4,3 )	1,5 (3,0 )	1,1 (2,3 )	0,9 (1,8 )
	Standard prop up blade down			2,3 (4,5#)	1,7 (3,5#)	1,3 (2,7#)	1,0 (2,2#)
	2 point outriggers down			2,4 (4,5#)	1,7 (3,5#)	1,3 (2,7#)	1,0 (2,2#)
	Blade + 2 point outriggers down			3,2 (4,5#)	2,3 (3,5#)	1,7 (2,7#)	1,4 (2,2#)
1,0	Stabilizers raised			1,9 (3,2#)	1,4 (2,9 )	1,1 (2,2 )	0,8 (1,8 )
	Standard prop up blade down			2,2 (3,2#)	1,6 (3,5#)	1,2 (2,7#)	1,0 (2,1#)
	2 point outriggers down			2,3 (3,2#)	1,7 (3,5#)	1,3 (2,7#)	1,0 (2,1#)
	Blade + 2 point outriggers down			3,1 (3,2#)	2,2 (3,5#)	1,7 (2,7#)	1,3 (2,1#)
0	Stabilizers raised		1,6# (1,6#)	1,8 (3,9#)	1,3 (2,9 )	1,0 (2,2 )	0,8 (1,7 )
	Standard prop up blade down		1,6# (1,6#)	2,2 (3,9#)	1,6 (3,3#)	1,2 (2,5#)	1,0 (2,0#)
	2 point outriggers down		1,6# (1,6#)	2,2 (3,9#)	1,6 (3,3#)	1,2 (2,5#)	1,0 (2,0#)
	Blade + 2 point outriggers down		1,6# (1,6#)	3,0 (3,9#)	2,2 (3,3#)	1,7 (2,5#)	1,3 (2,0#)
-1,0	Stabilizers raised		3,0 (3,1#)	1,9 (3,5#)	1,3 (2,8#)	1,0 (2,2 )	0,8 (1,6#)
	Standard prop up blade down		3,1# (3,1#)	2,2 (3,5#)	1,6 (2,8#)	1,2 (2,2#)	1,0 (1,6#)
	2 point outriggers down		3,1# (3,1#)	2,3 (3,5#)	1,6 (2,8#)	1,2 (2,2#)	1,0 (1,6#)
	Blade + 2 point outriggers down		3,1# (3,1#)	3,0 (3,5#)	2,2 (2,8#)	1,6 (2,2#)	1,3 (1,6#)
-2,0	Stabilizers raised		2,5# (2,5#)	1,9 (2,5#)	1,3 (2,1#)	1,0 (1,6#)	
	Standard prop up blade down		2,5# (2,5#)	2,2 (2,5#)	1,6 (2,1#)	1,2 (1,6#)	
	2 point outriggers down		2,5# (2,5#)	2,3 (2,5#)	1,6 (2,1#)	1,2 (1,6#)	
	Blade + 2 point outriggers down		2,5# (2,5#)	2,5# (2,5#)	2,1# (2,1#)	1,6# (1,6#)	
-3,0	Stabilizers raised			1,2# (1,2#)	1,0# (1,0#)		
	Standard prop up blade down			1,2# (1,2#)	1,0# (1,0#)		
	2 point outriggers down			1,2# (1,2#)	1,0# (1,0#)		
	Blade + 2 point outriggers down			1,2# (1,2#)	1,0# (1,0#)		

The lift capacities are stated in metric tonnes (t) on the backhoe bucket's load hook, and can be lifted 360° on firm, level supporting surface with blocked oscillating axle. Capacities shown in brackets are valid when the undercarriage is in longitudinal position and are established over the steering axle (travel position) with stabilizers raised, and over rigid axle with stabilizers down. Indicated loads are based on ISO 10567 standard and do not exceed 75 % of tipping or 87 % of hydraulic capacity (#). Maximum load for the backhoe bucket's load hook is 5 t. Without bucket (0,40 m³), the lift capacities will increase by 245 kg, without bucket cylinder, link and lever they increase by an additional 130 kg. Lifting capacity of the excavator is limited by machine stability, hydraulic capacity and maximum permissible load of the load hook. According to European Standard, EN 474-5: In the European Union excavators have to be equipped with an overload warning device and automatic check valves on the hoist cylinders, when they are used for lifting operations which require the use of lifting accessories.

# Clamshell Attachment

## with Hydr. Adjustable Boom



### To Order a Complete Machine You Need the Following:

Basic machine with extra hydr. control for hydr. swivel	see page 12
Auxiliary circuit in basic machine AHS 1	
Hoist cylinders	
Basic boom for hydr. adjustable boom	
Main boom for hydr. adjustable boom with piping for hydr. swivel	
Stick with piping for hydr. swivel	
1,60 m	
2,00 m	
Clamshell model 5 B	see clamshell spec sheet

### Digging Envelope

		1	2
Stick length	m	1,60	2,00
Max. digging depth	m	4,50	4,90
Max. reach at ground level	m	7,75	8,00
Max. dumping height	m	5,75	5,95
Min. attachment radius*	m	3,45	3,30

Max. tooth force	39 kN (4,0 t)
Max. torque of hydr. swivel	0,69 kNm

- 1** with stick 1,60 m
- 2** with stick 2,00 m
- 3\*** with stick 1,60 m
- 4\*** with stick 2,00 m

\* at max. attachment offset

### Clamshell Model 5 B

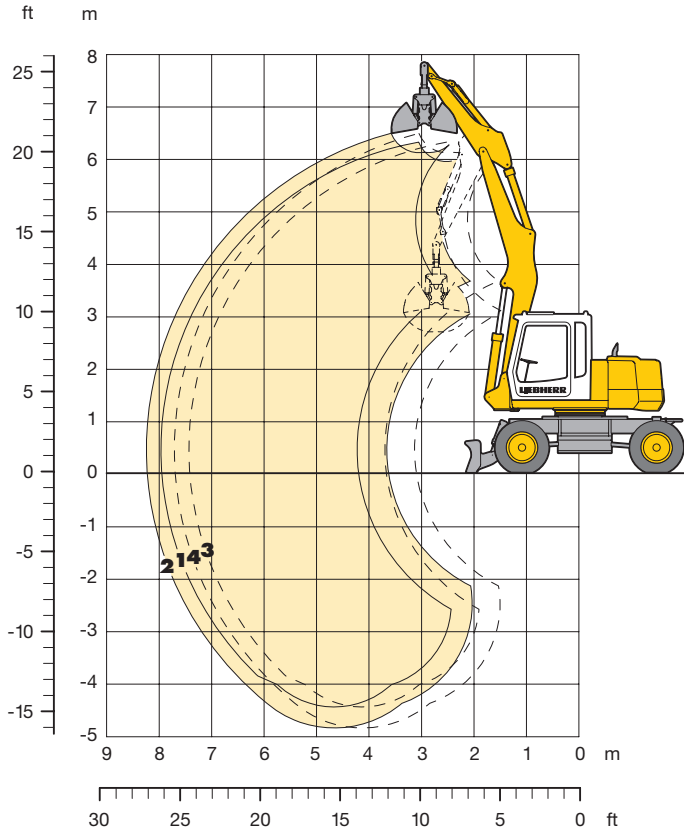
#### without ejector

#### with ejector

Width of shells	mm	300	400	600	800	300	400
Capacity	m <sup>3</sup>	0,10	0,13	0,20	0,27	0,10	0,13
Max. material weight	t/m <sup>3</sup>	1,8	1,8	1,8	1,8	1,8	1,8
Weight incl. suspension and hydr. swivel	kg	410	435	470	510	450	485
<b>For machine stability per ISO 10567 the max. stick length is:</b>							
Stabilizers raised	m	2,00	2,00	2,00	2,00	2,00	2,00
Standard prop up blade down	m	2,00	2,00	2,00	2,00	2,00	2,00
2 point outriggers down	m	2,00	2,00	2,00	2,00	2,00	2,00
Blade + 2 point outriggers down	m	2,00	2,00	2,00	2,00	2,00	2,00

# Clamshell Attachment

with Gooseneck Boom 4,40 m



## To Order a Complete Machine You Need the Following:

Basic machine with extra hydr. control for hydr. swivel	see page 12
Hoist cylinders	
Gooseneck boom 4,40 m with piping for hydr. swivel	
Stick with piping for hydr. swivel	
1,60 m	
2,00 m	
Clamshell model 5 B	see clamshell spec sheet

## Digging Envelope

		1	2
Stick length	m	1,60	2,00
Max. digging depth	m	4,40	4,80
Max. reach at ground level	m	7,95	8,25
Max. dumping height	m	6,00	6,15
Min. attachment radius *	m	3,50	3,40

Max. tooth force 39 kN (4,0 t)  
Max. torque of hydr. swivel 0,69 kNm

- 1 with stick 1,60 m
- 2 with stick 2,00 m
- 3\* with stick 1,60 m
- 4\* with stick 2,00 m

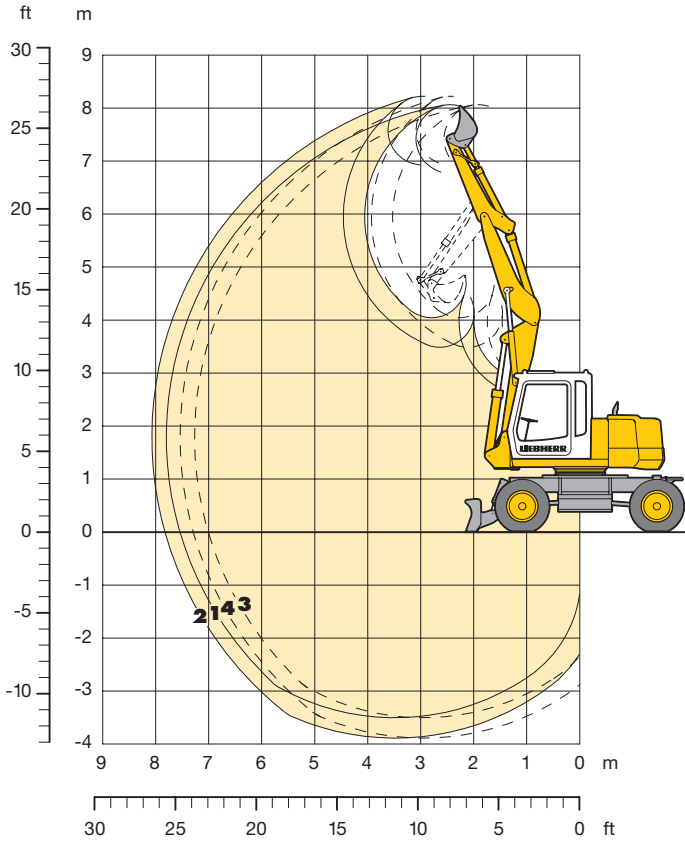
\* at max. attachment offset

## Clamshell model 5 B

		without ejector				with ejector	
Width of shells	mm	300	400	600	800	300	400
Capacity	m <sup>3</sup>	0,10	0,13	0,20	0,27	0,10	0,13
Max. material weight	t/m <sup>3</sup>	1,8	1,8	1,8	1,8	1,8	1,8
Weight incl. suspension and hydr. swivel	kg	410	435	470	510	450	485
<b>For machine stability per ISO 10567 the max. stick length is:</b>							
Stabilizers raised	m	2,00	2,00	2,00	2,00	2,00	2,00
Standard prop up blade down	m	2,00	2,00	2,00	2,00	2,00	2,00
2 point outriggers down	m	2,00	2,00	2,00	2,00	2,00	2,00
Blade + 2 point outriggers down	m	2,00	2,00	2,00	2,00	2,00	2,00

# Ditchcleaning Attachment

with Hydr. Adjustable Boom



## To Order a Complete Machine You Need the Following:

Basic machine with extra hydr. control for hydr. swivel	see page 12
Auxiliary circuit in basic machine AHS 1	
Hoist cylinders	
Basic boom for hydr. adjustable boom	
Main boom for hydr. adjustable boom with piping for hydr. swivel	
Stick with piping for hydr. swivel	
1,60 m	
2,00 m	
Ditchcleaning bucket	see chart below

## Digging Envelope

		1	2
Stick length	m	1,60	2,00
Max. digging depth	m	3,50	3,90
Max. reach at ground level	m	7,55	7,80
Max. dumping height	m	6,80	6,95
Max. teeth height	m	8,10	8,25
Min. attachment radius *	m	3,10	2,95

**1** with stick 1,60 m

**2** with stick 2,00 m

**3\*** with stick 1,60 m

**4\*** with stick 2,00 m

\* at max. attachment offset

## Ditchcleaning Buckets

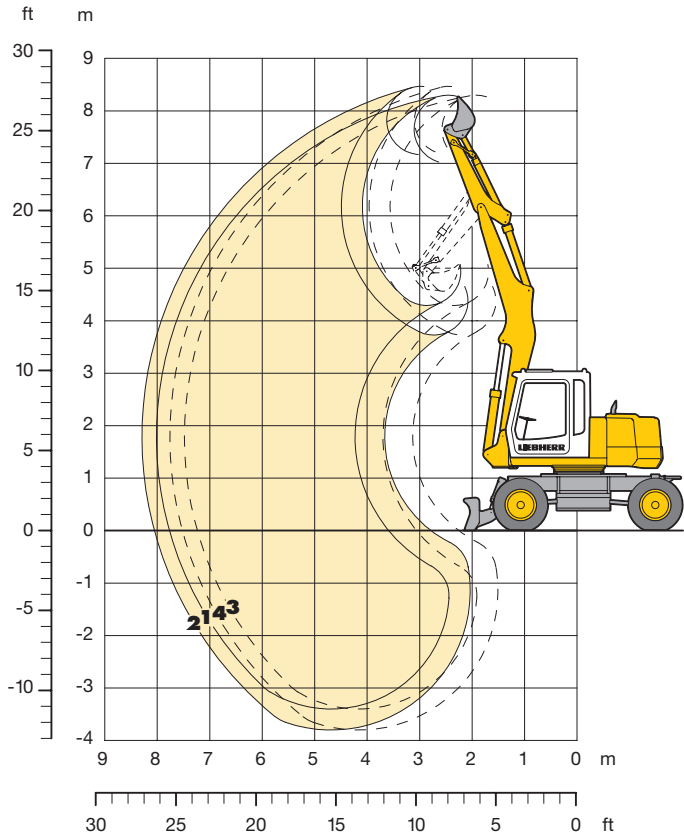
with 2 x 45° rotator

Cutting width	mm	1500	2000	1700
Capacity ISO 7451*	m <sup>3</sup>	0,33	0,45	0,37
Max. material weight	t/m <sup>3</sup>	1,8	1,8	1,8
Weight of bucket	kg	180	240	340
<b>For machine stability per ISO 10567 the max. stick length is:</b>				
Stabilizers raised	m	2,00	2,00	2,00
Standard prop up blade down	m	2,00	2,00	2,00
2 point outriggers down	m	2,00	2,00	2,00
Blade + 2 point outriggers down	m	2,00	2,00	2,00

\* comparable with SAE (heaped)

# Ditchcleaning Attachment

with Gooseneck Boom 4,40 m



## To Order a Complete Machine You Need the Following:

Basic machine with extra hydr. control for hydr. swivel	see page 12
Hoist cylinders	
Gooseneck boom 4,40 m with piping for hydr. swivel	
Stick with piping for hydr. swivel	
1,60 m	
2,00 m	
Ditchcleaning bucket	see chart below

## Digging Envelope

		1	2
Stick length	m	1,60	2,00
Max. digging depth	m	3,40	3,80
Max. reach at ground level	m	7,75	8,05
Max. dumping height	m	7,00	7,15
Max. teeth height	m	8,30	8,45
Min. attachment radius*	m	3,15	3,05

- 1** with stick 1,60 m
- 2** with stick 2,00 m
- 3\*** with stick 1,60 m
- 4\*** with stick 2,00 m

\* at max. attachment offset

## Ditchcleaning Buckets

with 2 x 45° rotator

Cutting width	mm	1500	2000	1700
Capacity ISO 7451*	m <sup>3</sup>	0,33	0,45	0,37
Max. material weight	t/m <sup>3</sup>	1,8	1,8	1,8
Weight of bucket	kg	180	240	340
<b>For machine stability per ISO 10567 the max. stick length is:</b>				
Stabilizers raised	m	2,00	–	–
Std. prop up blade down	m	2,00	2,00	2,00
2 point outriggers down	m	2,00	2,00	2,00
Blade + 2 point outriggers down	m	2,00	2,00	2,00

\* comparable with SAE (heaped)

# Contents Basic Machine and Operating Weight

## Standard Prop Up Blade

### Basic Machine

- Basic machine
- Standard prop up blade

### Operating Weight

- with hydraulically adjustable boom 11400 kg
- with gooseneck boom 11200 kg

## 2 Point Outriggers

### Basic Machine

- Basic machine
- Holding fixture support
- 2 point outriggers

### Operating Weight

- with hydraulically adjustable boom 11300 kg
- with gooseneck boom 11100 kg

## Optional Prop Up Blade

### Basic Machine

- Basic machine
- Holding fixture support
- Optional prop up blade

### Operating Weight

- with hydraulically adjustable boom 11600 kg
- with gooseneck boom 11400 kg

## Blade + 2 Point Outriggers

### Basic Machine

- Basic machine
- Blade in front
- Holding fixture support
- 2 point outriggers

### Operating Weight

- with hydraulically adjustable boom 11900 kg
- with gooseneck boom 11700 kg

## Available Tires

- 8 tires 9.00-20
- 4 tires 600/40-22.5

Operating weight includes basic machine and backhoe attachment with stick 2,00 m and bucket 0,35 m<sup>3</sup>.

# Equipment



## Undercarriage

	S	O
Two circuit travel brake with accumulator	•	
Wide tires		•
Travel motor protection		•
Clam travel bracket with outriggers/prop-up blade down on one side only	•	
Creeper speed electrically switchable from cab	•	
New tires	•	
Service free parking brake inside transmission	•	
Independent outrigger control	•	
Choice of tires		•
Auto check valve directly on each stabilizer cylinder	•	
Proportional power steering with mechanical back up	•	
Customized colors		•
Lockable storage box	•	
Two lockable storage boxes		•
Lockable storage box additional		•
Two-speed power shift transmission	•	



## Uppercarriage

	S	O
Electric fuel tank filler pump		•
Maintenance-free swing brake lock	•	
Handrails, Non slip surfaces	•	
Main switch for electric circuit	•	
Engine hood with lift help	•	
Pedal controlled positioning swing brake	•	
Reverse travel warning system		•
Sound insulation	•	
Customized colors		•
Pin lock upper/lower	•	
Maintenance-free HD-batteries	•	
Extended tool kit		•
Lockable tool box	•	
Tool kit	•	



## Hydraulics

	S	O
Hydraulic tank shut-off valve		
Extra hydr. control for hydr. swivel	•	
Pressure compensation	•	
Hook up for pressure checks	•	
Pressure storage for controlled lowering of attachments with engine turned off	•	
Filter with partial micro filtration (5 µm)		
Electronic pump regulation		
Stepless mode system (ECO)	•	
Flow compensation	•	
Four mixed modes, can also be adjusted		
Full flow micro filtration		•
Bio degradable hydraulic oil		•
Pressure compensation	•	
Flow summation	•	
Additional hydraulic circuits		•



## Engine

	S	O
Turbo charger	•	
Direct injection	•	
Cold start aid		
Sensor controlled engine idling		•
Air filter with pre-cleaner main- and safety element	•	



## Operator's Cab

	S	O
Storage tray		•
Displays for engine operating condition		•
Mechanical hour meters, readable from outside the cab		
Roof hatch		•
All-round adjustable roof vent		
6-way adjustable seat		•
Airpressure operator seat with heating and head-rest		•
Seat and consoles independently adjustable		•
Extinguisher		•
Removable customized foot mat		•
Dome light		•
Inside rear mirror		•
Cab heater with defroster		•
Cloth hook		•
Air conditioning		
Electric cool box		•
Steering wheel adjustable		•
Bullet proof window (fixed installation – can not be opened)		•
Stereo radio		•
Preparation for radio installation		•
Rain hood over front window opening		•
Beacon		•
All tinted windows		•
Door with sliding window		•
Optical and acoustical warning if outriggers are not fully retracted		
Auxiliary heating		•
Sun shade		•
Sun roller blind		•
Electronic drive away lock		•
Wiper/washer		•
Cigarette lighter and ashtray		•
Additional flood lights		•



## Attachment

	S	O
Flood lights on boom		•
Offset feature for complete attachment		•
Hydr. lines for clam operation on stick		•
Sealed pivots		•
Safety lift hook on hoe buckets		•
Liebherr line of clams		•
Safety check valves on hoist cylinder		•
Safety check valves on stick cylinder		•
SAE-dbl flange connection for all hi-pressure lines		
Hose quick connection	•	
Centralized lube points		
Hydraulic or manual quick change tool adapter		•
Customized colors		•
Special buckets and other tools		•
Overload warning device		•
Two way valves for bucket/clam use		•
Locking of connections for clam operation		•
Y-flange seals at bucket/stick pivot		•
Cylinders with shock absorber		•

S = Standard, O = Option

**Options and/or special attachments, supplied by vendors other than Liebherr, are only to be installed with the knowledge and approval of Liebherr to retain warranty.**

