

# Technical Description Hydraulic Excavator

**A 954 C HD**  
Litronic®

## Machine for Industrial Applications

Operating Weight 165,800 - 170,100 lb  
Engine Output 326 hp (240 kW)



# LIEBHERR

# Technical Data



## Engine

Rating per ISO 9249	240 kW (326 hp) at 1800 RPM
Model	Liebherr D 936 L
Type	6 cylinder in-line
Bore/Stroke	4.8/5.9 in
Displacement	640 cu in
Engine operation	4-stroke diesel unit pump system turbo-charged and after-cooled reduced emissions
Cooling	water-cooled and integrated motor oil cooler
Air cleaner	dry-type air cleaner with pre-cleaner, primary and safety elements, automatic dust discharge
Fuel tank	185 gal
Standard	sensor controlled engine idling
Electrical system	
Voltage	24 V
Batteries	2 x 170 Ah/12 V
Starter	24 V/6.6 kW
Alternator	three phase current 28 V/80 A



## Hydraulic System

Hydraulic pump for attachment and travel drive	two Liebherr variable flow, swash plate pumps
Max. flow	2 x 92 gpm
Max. pressure	5,075 PSI
Pump regulation	electro-hydraulic with electronic engine speed sensing regulation, pressure compensation, flow compensation, automatic oil flow optimizer
Hydraulic pump for swing drive	reversible, variable flow, swash plate pump, closed-loop circuit
Max. flow	55 gpm
Max. pressure	5,570 PSI
Hydraulic tank	120 gal
Hydraulic system	230 gal
Hydraulic oil filter	2 full flow filters in return line with integrated fine filter area (5 µm), 1 high pressure filter for each main pump
Hydraulic oil cooler	cooler unit, consisting of radiator for engine coolant with after-cooler core, sandwiched with cooler for hydraulic fluid with hydrostatically controlled fan drives
MODE selection	adjustment of machine performance and the hydraulics via a mode selector to match application
ECO	for especially economical and environmentally friendly operation
POWER	for maximum digging power and heavy duty jobs
LIFT	for lifting
FINE	for precision work and lifting through very sensitive movements
RPM adjustment	stepless adjustment of engine output via the rpm at each selected mode



## Hydraulic Controls

Power distribution	via control valves in single block with integrated safety valves
Flow summation	to boom and stick
Closed-loop circuit	for uppercarriage swing drive
Servo circuit	
Attachment and swing	proportional via joystick levers
Travel	proportional via foot pedal
Additional functions	via foot pedals or joystick push buttons



## Swing Drive

Drive by	Liebherr swash plate motor with integrated brake valves
Transmission	Liebherr compact planetary reduction gear
Swing ring	Liebherr, sealed single race ball bearing swing ring, internal teeth
Swing speed	0–6,6 RPM stepless
Swing torque	113,580 lb ft
Holding brake	wet multi-disc (spring applied, pressure released)
Option	pedal controlled positioning brake



## Operator's Cab

Cab	resiliently mounted, sound insulated, tinted windows, front window stores overhead, door with sliding window
Operator's seat	fully adjustable, shockabsorbing suspension, adjustable to operator's weight and size, 6-way adjustable Liebherr seat
Joysticks	integrated into adjustable consoles
Monitoring	menu driven query of current operating conditions via the LCD display. Automatic monitoring, display, warning (acoustical and optical signal) and saving machine data, for example, engine overheating, low engine oil pressure or low hydraulic oil level
Air conditioning	standard air conditioning, combined cooler/heater, additional dust filter in fresh air/recirculated
Noise emission	
ISO 6396	$L_{PA}$ (inside cab) = 75 dB(A)
2000/14/EC	$L_{WA}$ (surround noise) = 105 dB(A)



## Undercarriage

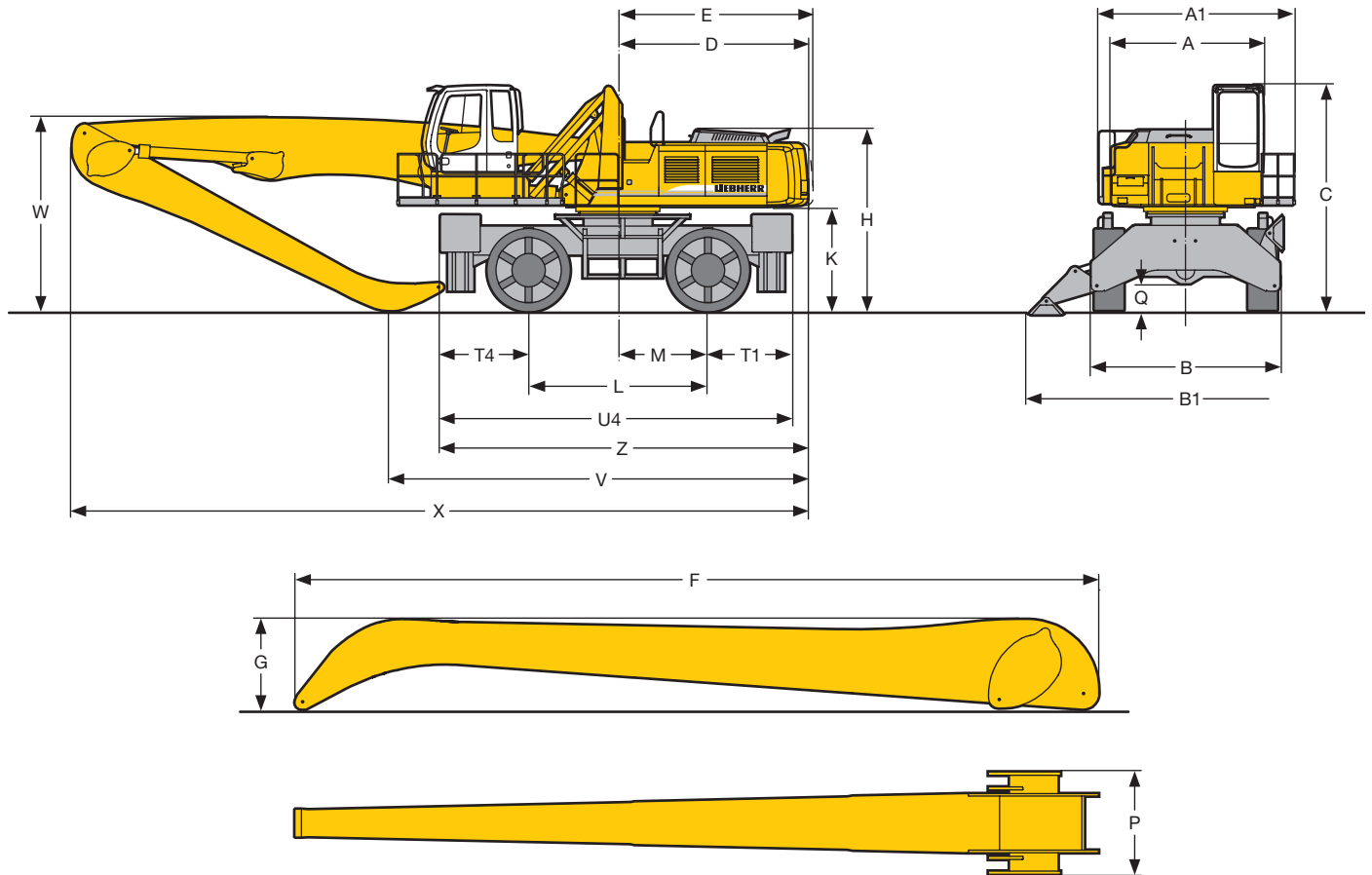
Drive	axial piston motor with brake valves
Travel speed	0–6.2 mph
Axles	198,400 lb excavator axles; oscillating steering axle with hydraulic lock (in any position)
Brakes	wet, maintenance-free multi disc brakes, hydraulically actuated travel and parking brake
Stabilization	4-point outriggers



## Attachment

Type	High-strength steel plates at highly-stressed points for the toughest requirements. Complex and stable mountings of attachment and cylinders. Unrivalled strength, even at high loads
Hydraulic cylinders	Liebherr cylinders with special seal system. Shock absorption
Pivots	sealed, low maintenance
Lubrication	Liebherr semi-automatic central lubrication system

# Dimensions



	ft in
A	9'10"
A1	11' 6"
B	12' 6"
B1	20'10"
C	17' 2"
D	12' 7"
E	12' 7"
H	11'11"
K	6'11"
L	11'10"
M	5'11"
Q	1' 9"
T1	5' 7"
T4	5'10"
U4	23' 3"
Z	24'

E = Tail radius

**Tires Ø 65", width 24"**

<b>Industrial-Type Straight Boom 34'5" and Industrial Stick</b>		ft in	25' 7"	29' 6"
V		ft in	27' 9"	24' 1"
W		ft in	13' 1"	14' 9"
X		ft in	49' 3"	49' 1"

<b>Industrial-Type Straight Boom 37'9" and Industrial Stick</b>		ft in	29' 6"	32'10"
V		ft in	26' 5"	23'11"
W		ft in	13' 1"	14' 9"
X		ft in	52' 4"	52' 4"

<b>Industrial-Type Gooseneck Boom 37'9" and Industrial Stick</b>		ft in	29' 6"	32'10"
V		ft in	-	-
W		ft in	14'10"	14'10"
X		ft in	52' 6"	52' 6"

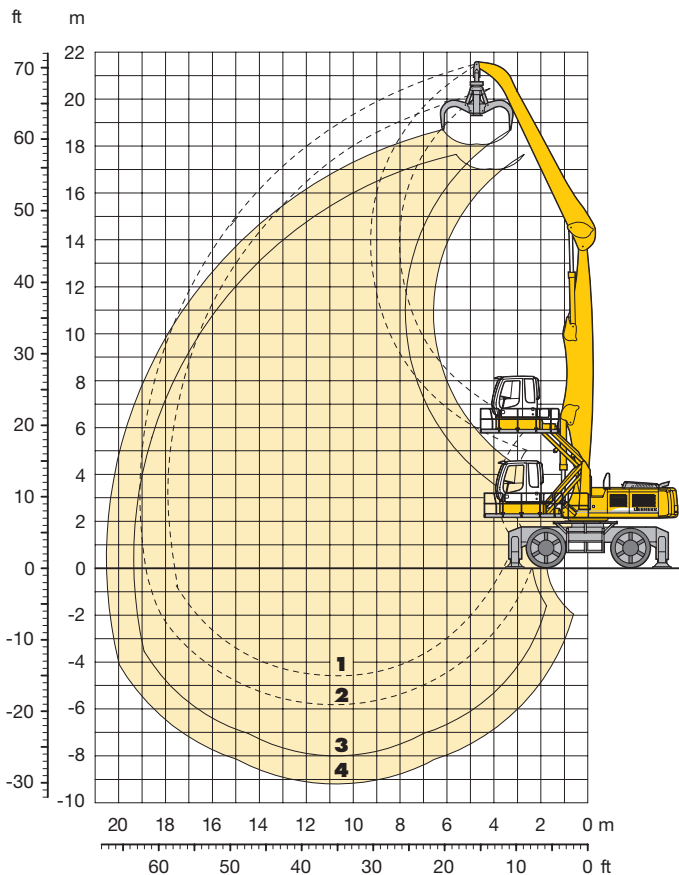
<b>Industrial-Type Straight Boom 41' and Industrial Stick</b>		ft in	29' 6"	32'10"
V		ft in	29' 8"	27' 1"
W		ft in	13' 1"	14' 9"
X		ft in	55' 7"	55' 7"

<b>Industrial Stick</b>		ft in	25' 7"	29' 6"	32'10"
F		ft in	26' 9"	30' 8"	33'11"
G		ft in	3' 7"	3' 7"	3' 7"
P		ft in	4' 1"	4' 1"	4' 1"

Dimensions are with attachment over steering axle

# Industrial Attachment

with Industrial-Type Straight Boom 34'5"



## Attachment Envelope

Kinematic variants 2A/3B

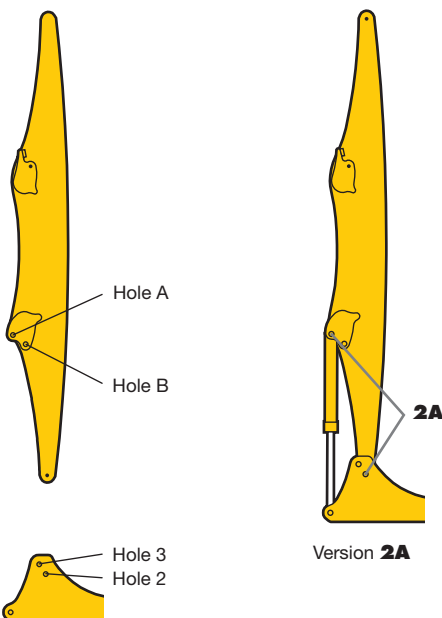
- 1** with industrial stick 25'7"
- 2** with industrial stick 29'6"
- 3** with industrial stick 25'7" and grapple model 72 B
- 4** with industrial stick 29'6" and grapple model 72 B

## Operating Weight

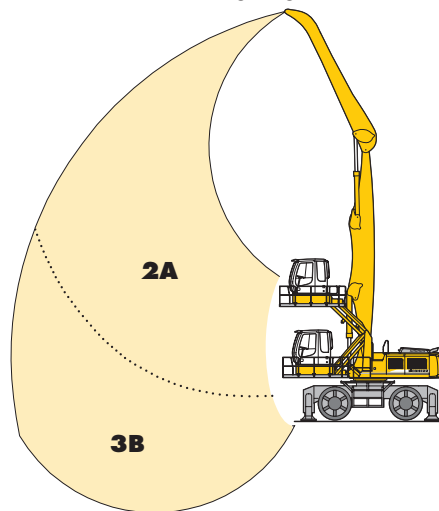
Operating weight includes basic machine and industrial attachment with:

	Weight
Industrial-type straight boom 34'5"	
Industrial stick 25'7"	
Grapple model 72 B/1.80 yd <sup>3</sup> with 5 semi-closed tines	165,800 lb
Industrial-type straight boom 34'5"	
Industrial stick 29'6"	
Grapple model 72 B/1.80 yd <sup>3</sup> with 5 semi-closed tines	166,550 lb

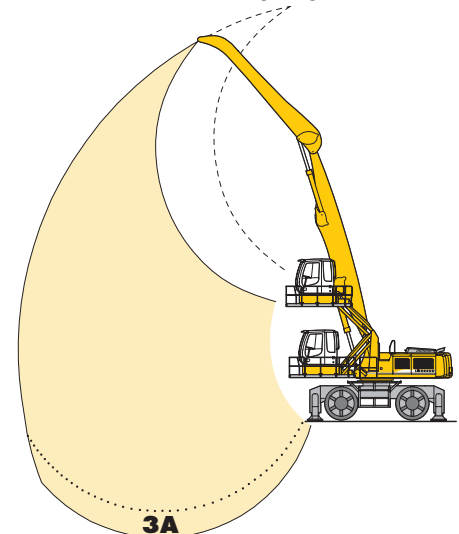
## VarioliftPlus



**VarioliftPlus:** Variable boom mounting positions for optimised lift capacities with **the same** working range with a **different** working range



- Kinematic variant 2A:** Increased lift capacities above ground level
- Kinematic variant 3B:** Increased lift capacities below ground level and when working at large outreach



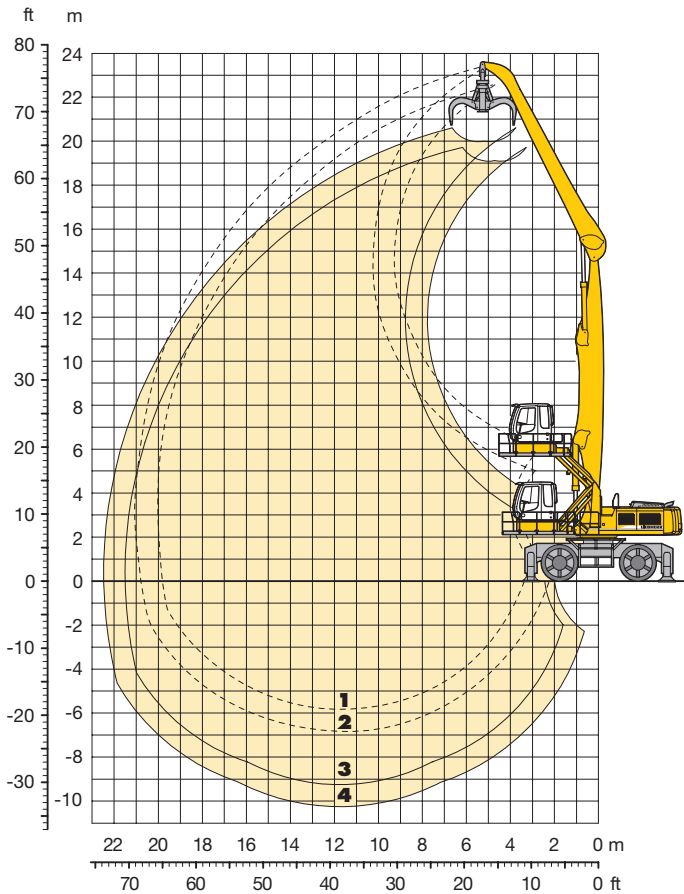
- Kinematic variant 3A:** Altered range curve with additional reach depth, e.g. for unloading from ships





# Industrial Attachment

with Industrial-Type Straight Boom 37'9"



## Attachment Envelope

Kinematic variants 2A/3B

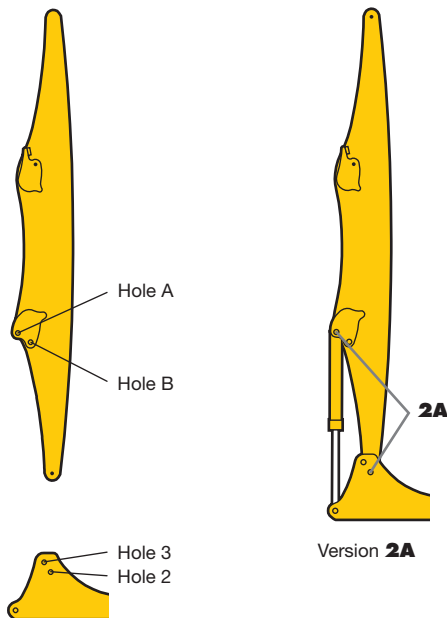
- 1** with industrial stick 29' 6"
- 2** with industrial stick 32'10"
- 3** with industrial stick 29' 6" and grapple model 72 B
- 4** with industrial stick 32'10" and grapple model 72 B

## Operating Weight

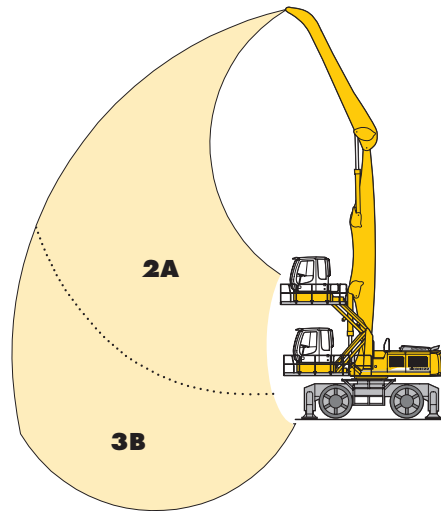
Operating weight includes basic machine and industrial attachment with:

	Weight
Industrial-type straight boom 37'9"	168,000 lb
Industrial stick 29'6"	
Grapple model 72 B/1.80 yd <sup>3</sup> with 5 semi-closed tines	
Industrial-type straight boom 37'9"	168,900 lb
Industrial stick 32'10"	
Grapple model 72 B/1.80 yd <sup>3</sup> with 5 semi-closed tines	

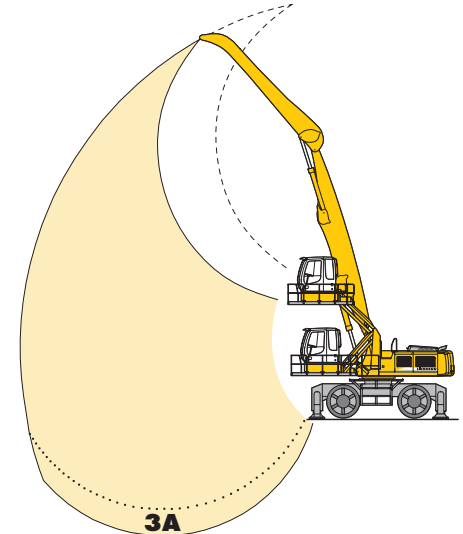
## VarioLiftPlus



**VarioLiftPlus:** Variable boom mounting positions for optimised lift capacities with **the same** working range with a **different** working range



**Kinematic variant 2A:** Increased lift capacities above ground level  
**Kinematic variant 3B:** Increased lift capacities below ground level and when working at large outreach



**Kinematic variant 3A:** Altered range curve with additional reach depth, e.g. for unloading from ships

# Lift Capacities

## with Industrial-Type Straight Boom 37'9" (Variant 2A)

### Industrial Stick 29'6"

Height (ft)	Undercarriage	Radius of load from centerline of machine (ft)													
		10	15	20	25	30	35	40	45	50	55	60	65	70	
80	Stabilizers raised 4 pt. outriggers down														
75	Stabilizers raised 4 pt. outriggers down														
70	Stabilizers raised 4 pt. outriggers down				26,200x (26,200x) 26,200x (26,200x)										
65	Stabilizers raised 4 pt. outriggers down					26,300x (26,300x) 26,300x (26,300x)	21,600x (21,600x) 21,600x (21,600x)								
60	Stabilizers raised 4 pt. outriggers down					28,600x (28,600x) 28,600x (28,600x)	25,800x (25,800x) 25,800x (25,800x)	19,800 (21,700x)							
55	Stabilizers raised 4 pt. outriggers down					29,800x (29,800x) 29,800x (29,800x)	26,600 (28,000x) 26,600 (28,000x)	20,600 (22,800 )	16,000 (17,800 )						
50	Stabilizers raised 4 pt. outriggers down						26,900 (28,400x) 26,900 (28,400x)	20,900 (23,100) 20,900 (23,100)	16,400 (18,200 )	12,800 (14,400 )					
45	Stabilizers raised 4 pt. outriggers down							26,800 (28,400x) 26,800 (28,400x)	20,900 (23,100) 20,900 (23,100)	16,500 (18,300 )	13,100 (14,600 )				
40	Stabilizers raised 4 pt. outriggers down								26,800 (28,400x) 26,800 (28,400x)	20,900 (23,100) 20,900 (23,100)	16,500 (18,300 )	13,100 (14,600 )	10,200 (11,500 )		
35	Stabilizers raised 4 pt. outriggers down									22,700x (22,700x) 22,700x (22,700x)	20,500x (20,500x) 20,500x (20,500x)	16,800x (16,800x) 16,800x (16,800x)	13,300x (13,300x) 13,300x (13,300x)	10,300 (11,700 )	
30	Stabilizers raised 4 pt. outriggers down										16,000 (17,800 )	12,800 (14,300 )	10,200 (11,600 )	8,100 ( 9,300 )	
25	Stabilizers raised 4 pt. outriggers down											12,800 (14,300 )	10,200 (11,600 )	8,100 ( 9,300 )	
20	Stabilizers raised 4 pt. outriggers down	21,500x (21,500x) 21,500x (21,500x)	38,300x (38,300x) 38,300x (38,300x)	47,800x (47,800x) 47,800x (47,800x)	37,300 (41,600 ) 37,300 (41,600 )	27,800 (31,000) 27,800 (31,000)	21,600 (24,100 ) 21,600 (24,100 )	17,200 (19,200 ) 17,200 (19,200 )	13,900 (15,600 ) 13,900 (15,600 )	11,300 (12,800 ) 11,300 (12,800 )	9,300 (10,600 ) 9,300 (10,600 )	7,600 ( 8,800 ) 7,600 ( 8,800 )	6,200 ( 7,200 )		
15	Stabilizers raised 4 pt. outriggers down														
10	Stabilizers raised 4 pt. outriggers down														
5	Stabilizers raised 4 pt. outriggers down														
0	Stabilizers raised 4 pt. outriggers down														
- 5	Stabilizers raised 4 pt. outriggers down														
- 10	Stabilizers raised 4 pt. outriggers down														
- 15	Stabilizers raised 4 pt. outriggers down														
- 20	Stabilizers raised 4 pt. outriggers down														
- 25	Stabilizers raised 4 pt. outriggers down														

### Industrial Stick 32'10"

Height (ft)	Undercarriage	Radius of load from centerline of machine (ft)													
		10	15	20	25	30	35	40	45	50	55	60	65	70	
80	Stabilizers raised 4 pt. outriggers down														
75	Stabilizers raised 4 pt. outriggers down				27,300x (27,300x) 27,300x (27,300x)										
70	Stabilizers raised 4 pt. outriggers down														
65	Stabilizers raised 4 pt. outriggers down														
60	Stabilizers raised 4 pt. outriggers down														
55	Stabilizers raised 4 pt. outriggers down														
50	Stabilizers raised 4 pt. outriggers down														
45	Stabilizers raised 4 pt. outriggers down														
40	Stabilizers raised 4 pt. outriggers down														
35	Stabilizers raised 4 pt. outriggers down														
30	Stabilizers raised 4 pt. outriggers down														
25	Stabilizers raised 4 pt. outriggers down														
20	Stabilizers raised 4 pt. outriggers down														
15	Stabilizers raised 4 pt. outriggers down														
10	Stabilizers raised 4 pt. outriggers down														
5	Stabilizers raised 4 pt. outriggers down														
0	Stabilizers raised 4 pt. outriggers down														
- 5	Stabilizers raised 4 pt. outriggers down														
- 10	Stabilizers raised 4 pt. outriggers down														
- 15	Stabilizers raised 4 pt. outriggers down														
- 20	Stabilizers raised 4 pt. outriggers down														
- 25	Stabilizers raised 4 pt. outriggers down														

The lift capacities are stated in lb on the lifting gear's stick tip, and can be lifted 360° on firm, level supporting surface with closed steering 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 (x). Lift capacities do not include the weight of a grapple, clamshells, magnet or other lifting devices, which must be deducted from the above figures. Lifting capacity of the excavator is limited by machine stability, hydraulic capacity and maximum permissible load of the load hook.

# Lift Capacities

with Industrial-Type Straight Boom 37'9" (Variant 3B)

## Industrial Stick 29'6"

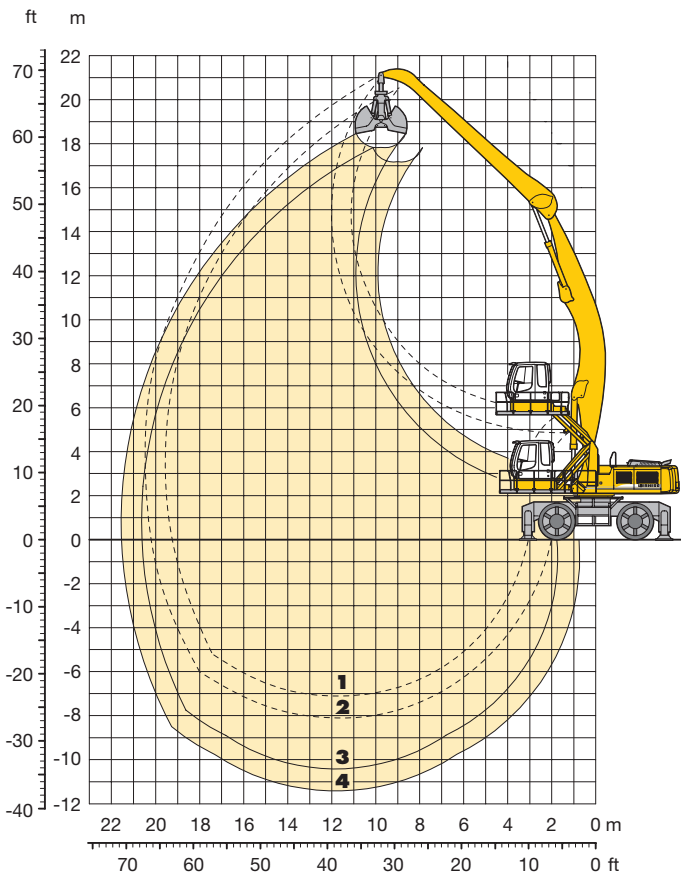
Height (ft)	Undercarriage	Radius of load from centerline of machine (ft)																	
		10	15	20	25	30	35	40	45	50	55	60	65	70					
80	Stabilizers raised																		
	4 pt. outriggers down																		
75	Stabilizers raised																		
	4 pt. outriggers down																		
70	Stabilizers raised				27,500x (27,500)														
	4 pt. outriggers down				27,500x (27,500)														
65	Stabilizers raised					26,500x (26,500)	23,000x (23,000)												
	4 pt. outriggers down					26,500x (26,500)	23,000x (23,000)												
60	Stabilizers raised					25,200x (25,200)	23,100x (23,100)	19,900 (21,500)											
	4 pt. outriggers down					25,200x (25,200)	23,100x (23,100)	21,500x (21,500)											
55	Stabilizers raised							22,400x (22,400)	20,600 (20,800)	16,100 (17,900)									
	4 pt. outriggers down							22,400x (22,400)	20,800x (20,800)	19,700x (19,700)									
50	Stabilizers raised								22,100x (22,100)	20,500x (20,500)	16,400 (18,200)	12,900 (14,400)							
	4 pt. outriggers down								22,100x (22,100)	20,500x (20,500)	19,300x (19,300)	18,300x (18,300)							
45	Stabilizers raised									22,100x (22,100)	20,500x (20,500)	16,400 (18,200)	13,000 (14,600)						
	4 pt. outriggers down									22,100x (22,100)	20,500x (20,500)	19,200x (19,200)	18,100x (18,100)	17,300x (17,300)					
40	Stabilizers raised							24,600x (24,600)	22,400x (22,400)	20,500 (20,700)	16,200 (18,000)	12,900 (14,500)	10,300 (11,600)						
	4 pt. outriggers down							24,600x (24,600)	22,400x (22,400)	20,700x (20,700)	19,300x (19,300)	18,100x (18,100)	17,100x (17,100)						
35	Stabilizers raised							25,500x (25,500)	23,100x (23,100)	19,900 (21,200)	15,800 (17,600)	12,700 (14,200)	10,200 (11,500)	8,000 (9,300)					
	4 pt. outriggers down							25,500x (25,500)	23,100x (23,100)	21,200x (21,200)	19,600x (19,600)	18,300x (18,300)	17,200x (17,200)	16,300x (16,300)					
30	Stabilizers raised					30,400x (30,400)	26,800x (26,800)	24,000x (24,000)	19,100 (21,200)	15,200 (17,000)	12,200 (13,800)	9,900 (11,200)	7,900 (9,100)						
	4 pt. outriggers down					30,400x (30,400)	26,800x (26,800)	24,000x (24,000)	21,800x (21,800)	20,000x (20,000)	18,600x (18,600)	17,300x (17,300)	16,300x (16,300)						
25	Stabilizers raised			33,600x (33,600)	33,000x (33,000)	28,500x (28,500)	22,800 (25,200)	18,000 (20,100)	14,500 (16,200)	11,700 (13,200)	9,500 (10,900)	7,700 (8,900)							
	4 pt. outriggers down			33,600x (33,600)	33,000x (33,000)	28,500x (28,500)	25,200x (25,200)	22,600x (22,600)	20,600x (20,600)	18,900x (18,900)	17,600x (17,600)	16,400x (16,400)							
20	Stabilizers raised	23,800x (23,800)	43,100x (43,100)	44,400x (44,400)	36,000x (36,000)	27,200 (30,400)	21,200 (23,700)	16,800 (18,900)	13,600 (15,400)	11,100 (12,600)	9,100 (10,400)	7,400 (8,700)	6,100 (7,100)						
	4 pt. outriggers down	23,800x (23,800)	43,100x (43,100)	44,400x (44,400)	36,000x (36,000)	30,400x (30,400)	26,500x (26,500)	23,500x (23,500)	21,200x (21,200)	19,400x (19,400)	17,800x (17,800)	16,500x (16,500)	14,900 (15,300)						
15	Stabilizers raised		25,600x (25,600)	44,600 (49,800)	32,300 (36,500)	24,600 (27,700)	19,400 (21,900)	15,600 (17,600)	12,700 (14,500)	10,400 (12,000)	8,600 (10,000)	7,100 (8,300)	5,900 (7,000)						
	4 pt. outriggers down		25,600x (25,600)	49,800x (49,800)	39,100x (39,100)	32,400x (32,400)	27,800x (27,800)	24,400x (24,400)	21,900x (21,900)	19,800x (19,800)	18,100x (18,100)	16,600x (16,600)	14,700 (15,200)						
10	Stabilizers raised		5,300x ( 5,300)	28,600x (28,600)	28,300 (32,400)	22,100 (25,100)	17,600 (20,100)	14,400 (16,400)	11,800 (13,600)	9,800 (11,300)	8,200 (9,500)	6,800 (8,000)	5,700 (6,800)						
	4 pt. outriggers down		5,300x ( 5,300)	28,600x (28,600)	41,900x (41,900)	34,300x (34,300)	29,100x (29,100)	25,300x (25,300)	22,500x (22,500)	20,200x (20,200)	18,300x (18,300)	16,600 (17,000)	14,600 (15,100)						
5	Stabilizers raised		4,500x ( 4,500)	15,900x (15,900)	25,200 (29,100)	19,900 (22,900)	16,100 (18,500)	13,200 (15,300)	11,000 (12,700)	9,200 (10,700)	7,700 (9,100)	6,500 (7,700)	5,600 (6,700)						
	4 pt. outriggers down		4,500x ( 4,500)	15,900x (15,900)	44,000x (44,000)	35,700x (35,700)	30,100x (30,100)	26,000x (26,000)	22,900x (22,900)	20,500x (20,500)	18,500x (18,500)	16,300 (16,700)	14,400 (14,900)						
0	Stabilizers raised		6,100x ( 6,100)	14,100x (14,100)	23,000 (26,900)	18,200 (21,200)	14,800 (17,200)	12,300 (14,300)	10,300 (12,000)	8,700 (10,200)	7,400 (8,700)	6,300 (7,500)	5,500 (6,600)						
	4 pt. outriggers down		6,100x ( 6,100)	14,100x (14,100)	30,900x (30,900)	26,600x (26,600)	23,700x (23,700)	20,500x (20,500)	18,200x (18,200)	16,300x (16,300)	14,600x (14,600)	13,000 (13,500)	11,600 (12,100)						
- 5	Stabilizers raised		8,500x ( 8,500)	14,900x (14,900)	21,600 (25,500)	17,100 (20,000)	13,900 (16,300)	11,600 (13,600)	9,800 (11,500)	8,300 (9,800)	7,100 (8,400)	6,200 (7,400)	5,500 (6,600)						
	4 pt. outriggers down		8,500x ( 8,500)	14,900x (14,900)	27,200x (27,200)	22,200x (22,200)	19,700x (19,700)	17,100x (17,100)	15,000x (15,000)	13,200x (13,200)	11,600x (11,600)	10,200 (10,600)	9,000 (9,400)						
- 10	Stabilizers raised			16,800x (16,800)	21,000 (24,800)	16,400 (19,300)	13,400 (15,700)	11,100 (13,100)	9,400 (11,100)	8,000 (9,500)	7,000 (8,300)								
	4 pt. outriggers down			16,800x (16,800)	27,000x (27,000)	36,100x (36,100)	30,500x (30,500)	26,200x (26,200)	22,900x (22,900)	20,100x (20,100)	17,600x (17,600)								
- 15	Stabilizers raised					18,200 (19,100)	13,100 (15,400)	10,900 (12,900)	9,200 (10,900)	7,900 (9,400)									
	4 pt. outriggers down					34,600x (34,600)	29,400x (29,400)	25,300x (25,300)	22,000x (22,000)	19,200x (19,200)									
- 20	Stabilizers raised																		
	4 pt. outriggers down																		
- 25	Stabilizers raised																		
	4 pt. outriggers down																		

## Industrial Stick 32'10"

Height (ft)	Undercarriage	Radius of load from centerline of machine (ft)																	
		10	15	20	25	30	35	40	45	50	55	60	65	70					
80	Stabilizers raised																		
	4 pt. outriggers down																		
75	Stabilizers raised																		
	4 pt. outriggers down				23,700x (23,700)														
70	Stabilizers raised																		
	4 pt. outriggers down				23,700x (23,700)														
65	Stabilizers raised							24,000x (24,000)	19,600x (19,600)										
	4 pt. outriggers down							24,000x (24,000)	19,600x (19,600)										
60	Stabilizers raised							24,400x (24,400)	22,300x (22,300)	19,900x (19,900)									
	4 pt. outriggers down							24,400x (24,400)	22,300x (22,300)	19,900x (19,900)									
55	Stabilizers raised									21,300x (21,300)	19,900x (19,900)	16,300 (18,100)							
	4 pt. outriggers down									21,300x (21,300)	19,900x (19,900)	18,800x (18,800)							
50	Stabilizers raised									20,800x (20,800)	19,400x (19,400)	16,900 (18,300)	13,200 (14,700)						
	4 pt. outriggers down									20,800x (20,800)	19,400x (19,400)	18,300x (18,300)	17,400x (17,400)						
45	Stabilizers raised									20,500x (20,500)	19,100x (19,100)	17,200 (18,000)	15,500 (15,100)						
	4 pt. outriggers down									20,500x (20,500)	19,100x (19,100)	18,000x (18,000)	17,100x (17,100)	16,300x (16,300)					
40	Stabilizers raised									20,900x (20,900)	19,400x (19,400)	16,900 (18,000)	15,100 (14,700)	8,200 (9,500)					
	4 pt. outriggers down									20,900x (20,900)	19,400x (19,400)	18,100x (18,100)	17,000x (17,000)	16,100x (16,100)	13,900x (13,900)				
35	Stabilizers raised									21,500x (21,500)	19,800x (19,800)	16,400 (18,200)	13,100 (14,700)	10,500 (11,900)	8,300 (9,500)	6,400 (7,500)			
	4 pt. outriggers down									21,500x (21,500)	19,800x (19,800)	18,400x (18,400)	17,200x (17,200)	16,200x (16,200)	15,300x (15,300)	12,900x (12,900)			
30	Stabilizers raised									24,800x (24,800)	22,400x (22,400)	15,800 (17,600)	12,600 (14,200)	10,200 (11,500)	8,100 (9,300)	6,400 (7,500)			
	4 pt. outriggers down									24,800x (24,800)	22,400x (22,400)	20,500x (20,500)	18,900x (18,900)	17,500x (17,500)	16,400x (16,400)	15,400x (15,400)	14,500x (14,500)		
25	Stabilizers raised						29,800x (29,800)	26,400x (26,400)	23,500x (23,500)	18,800 (20,900)	15,000 (16,800)	12,000 (13,600)	9,700 (11,100)	7,800 (9,100)	6,300 (7,400)				
	4 pt. outriggers down						29,800x (29,800)	26,400x (26,400)	23,500x (23,500)	21,300x (21,300)	19,400x (19,400)	17,900x (17,900)	16,600x (16,600)	15,500x (15,500)	14,600x (14,600)				
20	Stabilizers raised																		
	4 pt. outriggers down				31,100x (31,100)														
15	Stabilizers raised																		
	4 pt. outriggers down																		

# Industrial Attachment

with Industrial-Type Gooseneck Boom 37'9"



## Attachment Envelope

Kinematic variant 3D

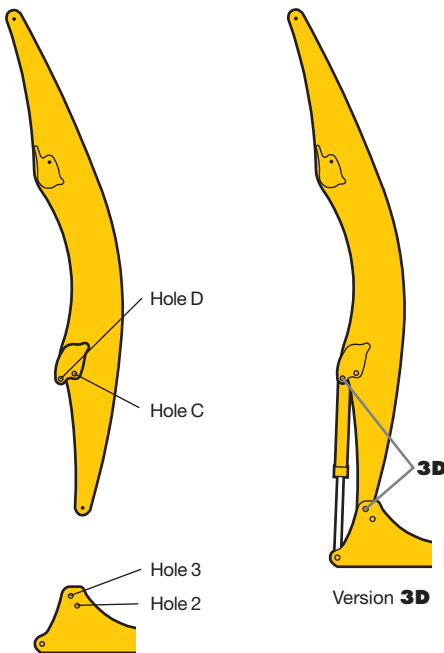
- 1** with industrial stick 29' 6"
- 2** with industrial stick 32'10"
- 3** with industrial stick 29' 6" and clamshell model 22 B
- 4** with industrial stick 32'10" and clamshell model 22 B

## Operating Weight

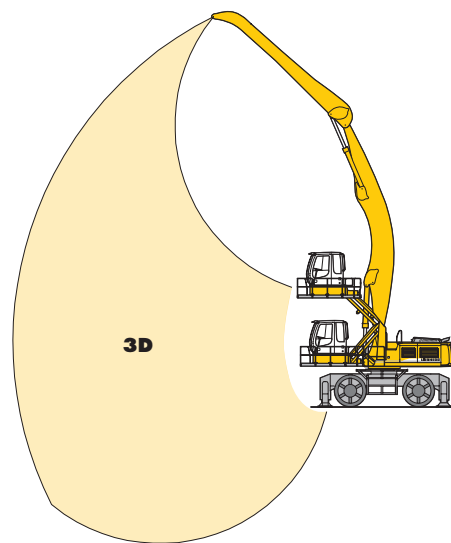
Operating weight includes basic machine and industrial attachment with:

	Weight
Industrial-type gooseneck boom 37'9"	
Industrial stick 29'6"	
Clamshell model 22 B/3.30 yd <sup>3</sup>	167,550 lb
Industrial-type gooseneck boom 37'9"	
Industrial stick 32'10"	
Clamshell model 22 B/3.30 yd <sup>3</sup>	168,300 lb

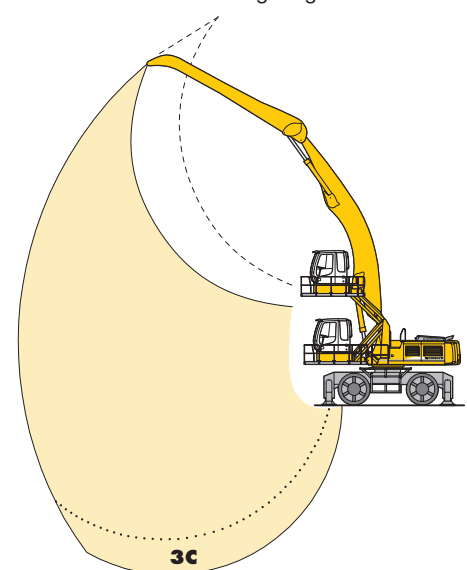
## VarioLiftPlus



**VarioLiftPlus:** Variable boom mounting positions for optimised lift capacities with a **different** working range



**Kinematic variant 3D:**  
Increased lift capacities below ground level and when working at large outreach

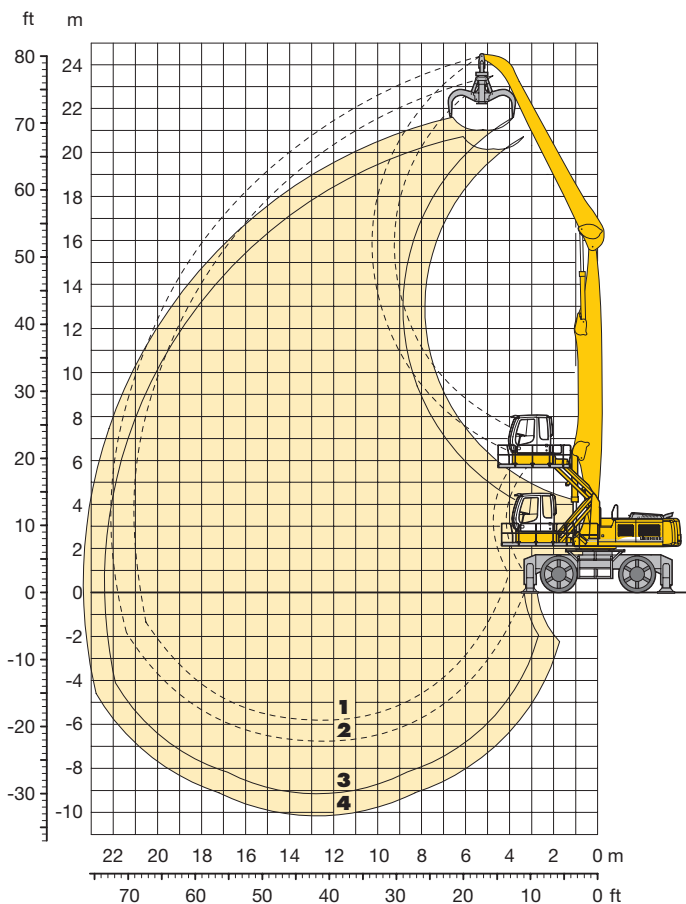


**Kinematic variant 3C:**  
Altered range curve with additional reach depth, e.g. for unloading from ships



# Industrial Attachment

with Industrial-Type Straight Boom 41'



## Attachment Envelope

Kinematic variants 2A/3B

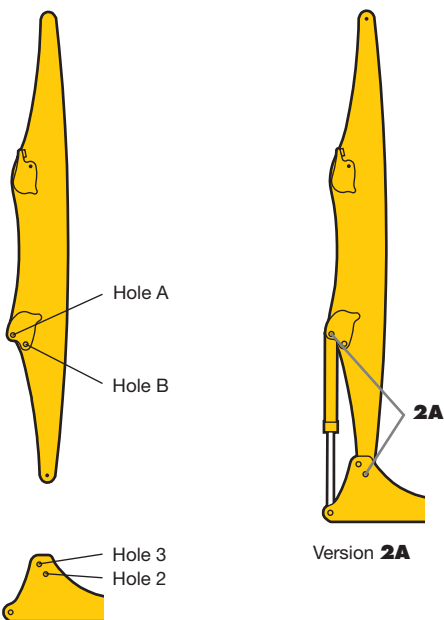
- 1** with industrial stick 29' 6"
- 2** with industrial stick 32'10"
- 3** with industrial stick 29' 6" and grapple model 72 B
- 4** with industrial stick 32'10" and grapple model 72 B

## Operating Weight

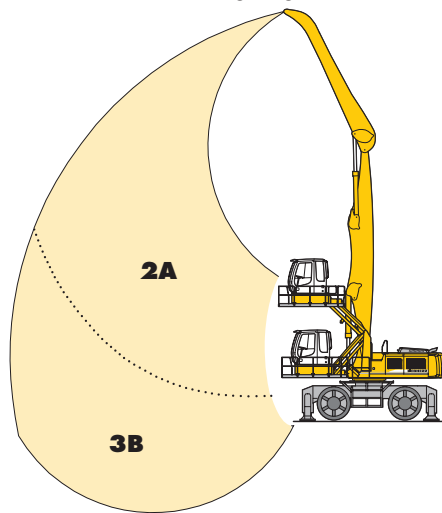
Operating weight includes basic machine and industrial attachment with:

	Weight
Industrial-type straight boom 41'	169,200 lb
Industrial stick 29'6"	
Grapple model 72 B/1.60 yd <sup>3</sup> with 5 semi-closed tines	170,100 lb
Industrial-type straight boom 41'	
Industrial stick 32'10"	
Grapple model 72 B/1.60 yd <sup>3</sup> with 5 semi-closed tines	

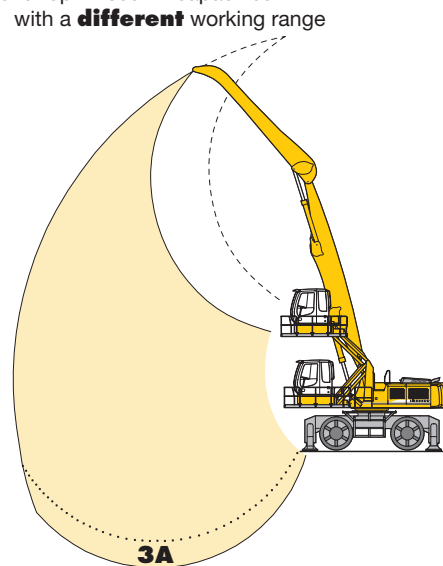
## VarioliftPlus



**VarioliftPlus:** Variable boom mounting positions for optimised lift capacities with **the same** working range



- Kinematic variant 2A:** Increased lift capacities above ground level
- Kinematic variant 3B:** Increased lift capacities below ground level and when working at large outreach



**Kinematic variant 3A:** Altered range curve with additional reach depth, e.g. for unloading from ships

# Lift Capacities

## with Industrial-Type Straight Boom 41' (Variant 2A)

### Industrial Stick 29'6"

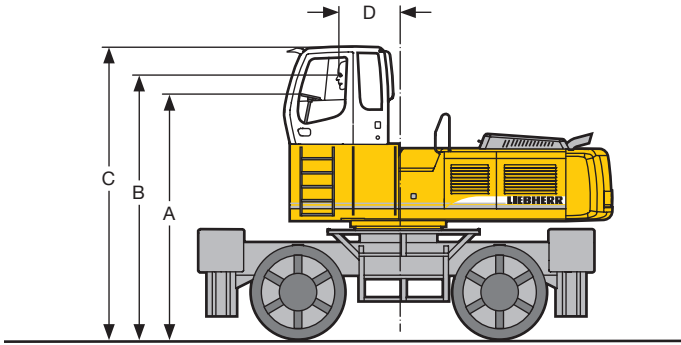
Height (ft)	Undercarriage	Radius of load from centerline of machine (ft)												
		10	15	20	25	30	35	40	45	50	55	60	65	70
80	Stabilizers raised 4 pt. outriggers down													
75	Stabilizers raised 4 pt. outriggers down			29,500x (29,500x)										
70	Stabilizers raised 4 pt. outriggers down			29,500x (29,500x)	28,900x (28,900x)	25,300x (25,300x)								
65	Stabilizers raised 4 pt. outriggers down				28,900x (28,900x)	25,300x (25,300x)	25,200x (25,200x)	19,300 (20,900x)						
60	Stabilizers raised 4 pt. outriggers down						28,100x (28,100x)	25,200x (25,200x)	20,900x (20,900x)					
55	Stabilizers raised 4 pt. outriggers down						29,400x (29,400x)	26,500 (27,600x)	20,400 (22,500 )	15,700 (17,500 )				
50	Stabilizers raised 4 pt. outriggers down						29,400x (29,400x)	27,600x (27,600x)	24,900x (24,900x)	20,700x (20,700x)	12,600 (14,100 )			
45	Stabilizers raised 4 pt. outriggers down							26,900 (28,100x)	20,900 (23,000 )	16,300 (18,100 )	10,000 (11,300 )			
40	Stabilizers raised 4 pt. outriggers down							27,000 (28,000x)	21,000 (23,100 )	16,400 (18,300 )	12,900 (14,500 )	10,000 (11,300 )		
35	Stabilizers raised 4 pt. outriggers down							28,000x (28,000x)	24,700x (24,700x)	22,100x (22,100x)	19,700x (19,700x)	17,600x (17,600x)	7,900 (9,100 )	
30	Stabilizers raised 4 pt. outriggers down							31,600x (31,600x)	26,600 (28,100x)	20,700 (22,900 )	16,300 (18,200 )	12,900 (14,500 )		
25	Stabilizers raised 4 pt. outriggers down							31,600x (31,600x)	28,100x (28,100x)	24,700x (24,700x)	22,000x (22,000x)	19,700x (19,700x)	17,600x (17,600x)	
20	Stabilizers raised 4 pt. outriggers down							32,600x (32,600x)	28,200x (28,200x)	24,800x (24,800x)	22,000x (22,000x)	19,700x (19,700x)	17,600x (17,600x)	7,900 (9,100 )
15	Stabilizers raised 4 pt. outriggers down							32,800 (33,000x)	25,000 (27,600 )	19,500 (21,600 )	15,500 (17,300 )	12,400 (13,900 )	9,900 (11,200 )	7,800 (9,000 )
10	Stabilizers raised 4 pt. outriggers down							33,000x (33,000x)	28,500x (28,500x)	25,000x (25,000x)	22,100x (22,100x)	19,600x (19,600x)	17,500x (17,500x)	15,500x (15,500x)
5	Stabilizers raised 4 pt. outriggers down							36,100x (36,100x)	30,900 (33,600x)	23,600 (26,200 )	18,500 (20,600 )	14,700 (16,500 )	11,800 (13,400 )	9,500 (10,900 )
0	Stabilizers raised 4 pt. outriggers down							36,100x (36,100x)	33,600x (33,600x)	28,900x (28,900x)	25,100x (25,100x)	22,100x (22,100x)	19,600x (19,600x)	17,400x (17,400x)
-5	Stabilizers raised 4 pt. outriggers down							30,400x (30,400x)	39,500x (39,500x)	38,500 (41,200x)	28,500 (31,700 )	21,900 (24,500 )	17,300 (19,400 )	13,900 (15,600 )
-10	Stabilizers raised 4 pt. outriggers down							30,400x (30,400x)	39,500x (39,500x)	41,200x (41,200x)	34,200x (34,200x)	29,100x (29,100x)	25,200x (25,200x)	22,100x (22,100x)
-15	Stabilizers raised 4 pt. outriggers down							72,800x (72,800x)	48,200 (53,400x)	34,200 (38,500 )	25,700 (28,900 )	20,000 (22,600 )	16,000 (18,000 )	12,900 (14,700 )
-20	Stabilizers raised 4 pt. outriggers down							72,800x (72,800x)	53,400x (53,400x)	42,100x (42,100x)	34,600x (34,600x)	29,200x (29,200x)	25,100x (25,100x)	21,900x (21,900x)
-25	Stabilizers raised 4 pt. outriggers down							4,500x ( 4,500x)	46,400x (46,400x)	42,200x (42,200x)	34,500x (34,500x)	29,100x (29,100x)	24,900x (24,900x)	21,600x (21,600x)
	Stabilizers raised 4 pt. outriggers down							13,000x (13,000x)	25,500 (29,600 )	20,200 (23,200 )	16,200 (18,700 )	13,300 (15,300 )	10,900 (12,700 )	9,000 (10,600 )
	Stabilizers raised 4 pt. outriggers down							13,000x (13,000x)	41,300x (41,300x)	33,900x (33,900x)	28,500x (28,500x)	24,400x (24,400x)	21,100x (21,100x)	18,300x (18,300x)
	Stabilizers raised 4 pt. outriggers down							1,000x ( 1,000x)	9,100x ( 9,100x)	22,400 (25,700x)	17,900 (20,900 )	14,600 (17,000 )	12,100 (14,100 )	10,000 (11,800 )
	Stabilizers raised 4 pt. outriggers down							1,000x ( 1,000x)	9,100x ( 9,100x)	25,700x (25,700x)	32,400x (32,400x)	27,400x (27,400x)	23,500x (23,500x)	20,200x (20,200x)
	Stabilizers raised 4 pt. outriggers down							3,100x ( 3,100x)	9,200x ( 9,200x)	20,300 (20,400x)	16,200 (19,200 )	13,300 (15,700 )	11,100 (13,100 )	9,300 (11,000 )
	Stabilizers raised 4 pt. outriggers down							3,100x ( 3,100x)	9,200x ( 9,200x)	20,400x (20,400x)	30,100x (30,100x)	25,700x (25,700x)	22,100x (22,100x)	19,000x (19,000x)
	Stabilizers raised 4 pt. outriggers down							10,700x (10,700x)	19,100 (19,500x)	15,100 (18,000 )	12,400 (14,700 )	10,300 (12,300 )	8,700 (10,400 )	7,400 ( 8,900 )
	Stabilizers raised 4 pt. outriggers down							10,700x (10,700x)	19,500x (19,500x)	26,900x (26,900x)	23,300x (23,300x)	20,200x (20,200x)	17,400x (17,400x)	14,900x (14,900x)
	Stabilizers raised 4 pt. outriggers down							18,600 (20,400x)	14,500 (17,400 )	11,800 (14,100 )	9,800 (11,800 )	8,300 (10,000 )	7,100 ( 8,600 )	6,100 ( 7,400 )
	Stabilizers raised 4 pt. outriggers down							20,400x (20,400x)	22,900x (22,900x)	20,300x (20,300x)	17,700x (17,700x)	15,300x (15,300x)	13,000x (13,000x)	10,700x (10,700x)
	Stabilizers raised 4 pt. outriggers down							14,300 (17,200 )	11,500 (13,900 )	9,600 (11,500 )	8,100 ( 9,800 )	6,900 ( 8,400 )	6,000 ( 7,300 )	5,200 ( 6,200x)
	Stabilizers raised 4 pt. outriggers down							18,200x (18,200x)	16,500x (16,500x)	14,600x (14,600x)	12,600x (12,600x)	10,500x (10,500x)	8,200x ( 8,200x)	

### Industrial Stick 32'10"

Height (ft)	Undercarriage	Radius of load from centerline of machine (ft)												
		10	15	20	25	30	35	40	45	50	55	60	65	70
80	Stabilizers raised 4 pt. outriggers down													
75	Stabilizers raised 4 pt. outriggers down				25,700x (25,700x)	21,800x (21,800x)								
70	Stabilizers raised 4 pt. outriggers down				25,700x (25,700x)	21,800x (21,800x)	25,000x (25,000x)	22,100x (22,100x)	17,600x (17,600x)					
65	Stabilizers raised 4 pt. outriggers down						25,000x (25,000x)	22,100x (22,100x)	17,600x (17,600x)					
60	Stabilizers raised 4 pt. outriggers down							24,400x (24,400x)	20,700 (21,800x)	15,800 (17,600 )				
55	Stabilizers raised 4 pt. outriggers down							24,400x (24,400x)	21,800x (21,800x)	17,900x (17,900x)	12,800 (14,400 )			
50	Stabilizers raised 4 pt. outriggers down							25,700x (25,700x)	21,500 (23,700 )	16,700 (18,500 )	10,200 (11,600 )			
45	Stabilizers raised 4 pt. outriggers down							25,700x (25,700x)	23,900x (23,900x)	21,300x (21,300x)	17,300x (17,300x)			
40	Stabilizers raised 4 pt. outriggers down							26,500x (26,500x)	24,100x (24,100x)	21,500x (21,500x)	19,300x (19,300x)	16,000x (16,000x)		
35	Stabilizers raised 4 pt. outriggers down							27,100x (27,100x)	21,900 (24,000x)	17,200 (19,000 )	13,500 (15,100 )	10,600 (12,000 )	8,000 ( 9,200 )	
30	Stabilizers raised 4 pt. outriggers down							27,100x (27,100x)	24,000x (24,000x)	21,400x (21,400x)	19,200x (19,200x)	17,200x (17,200x)	13,700x (13,700x)	
25	Stabilizers raised 4 pt. outriggers down							27,200x (27,200x)	21,700 (23,800 )	17,000 (18,900 )	13,500 (15,100 )	10,600 (12,000 )	8,200 ( 9,500 )	
20	Stabilizers raised 4 pt. outriggers down							27,200x (27,200x)	24,000x (24,000x)	21,400x (21,400x)	19,200x (19,200x)	17,200x (17,200x)	13,700x (13,700x)	
15	Stabilizers raised 4 pt. outriggers down							27,200 (27,200x)	21,100 (23,300 )	16,700 (18,500 )	13,200 (14,800 )	10,500 (11,900 )	8,200 ( 9,500 )	6,300 ( 7,400 )
10	Stabilizers raised 4 pt. outriggers down							29,200x (29,200x)	27,400x (27,400x)	24,100x (24,100x)	21,500x (21,500x)	19,200x (19,200x)	17,200x (17,200x)	15,300x (15,300x)
5	Stabilizers raised 4 pt. outriggers down							29,200x (29,200x)	27,700x (27,700x)	24,300x (24,300x)	21,500x (21,500x)	19,200x (19,200x)	17,100x (17,100x)	15,300x (15,300x)
0	Stabilizers raised 4 pt. outriggers down							31,500x (31,500x)	24,800 (27,400 )	19,300 (21,500 )	15,300 (17,100 )	12,200 (13,800 )	9,800 (11,200 )	6,100 ( 7,400 )
-5	Stabilizers raised 4 pt. outriggers down							31,500x (31,500x)	28,000x (28,000x)	24,500x (24,500x)	21,600x (21,600x)	19,200x (19,200x)	17,100x (17,100x)	15,100x (15,100x)
-10	Stabilizers raised 4 pt. outriggers down							32,900x (32,900x)	30,300 (33,200x)	23,100 (25,700 )	18,100 (20,200 )	14,400 (16,200 )	11,500 (13,100 )	9,300 (10,700 )
-15	Stabilizers raised 4 pt. outriggers down							32,900x (32,900x)	33,200x (33,200x)	28,400x (28,400x)	24,600x (24,600x)	21,600x (21,600x)	19,100x (19,100x)	16,900x (16,900x)
-20	Stabilizers raised 4 pt. outriggers down							37,000 (41,000x)	27,400 (30,700 )	21,100 (23,700 )	16,700 (18,800 )	13,300 (15,100 )	10,800 (12,300 )	8,700 (10,100 )
-25	Stabilizers raised 4 pt. outriggers down							41,000x (41,000x)	33,800x (33,800x)	28,600x (28,600x)	24,700x (24,700x)	21,500x (21,500x)	18,900x (18,900x)	16,700x (16,700x)
	Stabilizers raised 4 pt. outriggers down							37,600x (37,600x)	44,800 (51,100x)	32,200 (36,400x)	24,300 (27,500 )	19,000 (21,500 )	15,200 (17,200 )	12,200 (14,000 )
	Stabilizers raised 4 pt. outriggers down							37,600x (37,600x)	53,100x (53,100x)	41,600x (41,600x)	34,000x (34,000x)	29,600x (29,600x)	24,500x (24,500x)	21,300x (21,300x)
	Stabilizers raised 4 pt. outriggers down							4,500x ( 4,500x)	26,800x (26,800x)	27,500 (31,600 )	21,300 (24,400 )	16,900 (19,400 )	13,700 (15,700 )	11,200 (12,800 )
	Stabilizers raised 4 pt. outriggers down							4,500x ( 4,500x)	26,800x (26,800x)	41,300x (41,300x)	33,700x (33,700x)	28,300x (28,300x)	24,200x (24,200x)	20,900x (20,900x)
	Stabilizers raised 4 pt. outriggers down							3,000x ( 3,000x)	13,000x (13,000x)	23,600 (27,600 )	18,700 (21,700 )	15,000 (17,500 )	12,300 (14,300 )	10,100 (11,900 )
	Stabilizers raised 4 pt. outriggers down							3,000x ( 3,000x)	13,000x (13,000x)	38,900x (38,900x)	32,700x (32,700x)	27,500x (27,500x)	23,500x (23,500x)	20,300x (20,300x)
	Stabilizers raised 4 pt. outriggers down							4,100x ( 4,100x)	10,900x (10,900x)	20,800 (24,700x)	16,500 (19,500 )	13,500 (15,900 )	11,100 (13,100 )	9,200 (10,900 )
	Stabilizers raised 4 pt. outriggers down							4,100x ( 4,100x)	10,900x (10,900x)	24,700x (24,700x)	30,900x (30,900x)	26,100x (26,100x)	22,400x (22,400x)	19,300x (19,300x)
	Stabilizers raised 4 pt. outriggers down							5,900x ( 5,900x)	11,300x (11,300x)	19,000 (21,200x)	15,000 (18,000 )	12,300 (14,600 )	10,200 (12,200 )	8,500 (10,200 )
	Stabilizers raised 4 pt. outriggers down							5,900x ( 5,900x)	11,300x (11,300x)	21,200x (21,200x)	28,300x (28,300x)	24,200x (24,200x)	20,800x (20,800x)	17,900x (17,900x)
	Stabilizers raised 4 pt. outriggers down									12,700x (12,700x)	17,900 (20,700x)	14,100 (17,000 )	11,400 (13,800 )	9,500 (11,500 )
	Stabilizers raised 4 pt. outriggers down									1				



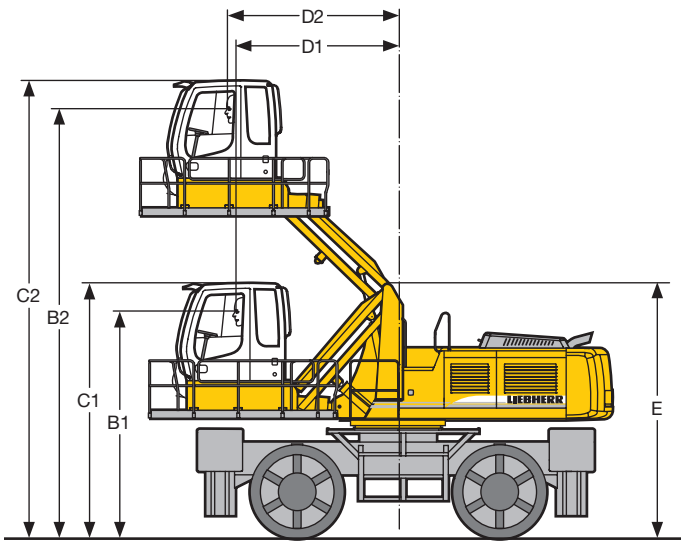
# Choice of Cab Elevation and Cab Protection



## Rigid Cab Elevation

Height	3'11"	4'11"	6'7"
A	14' 5"	15' 5"	17'1"
B	15' 6"	16' 6"	18'2"
C	17' 2"	18' 2"	19'9"
D	3' 8"	3' 8"	3'8"

A rigid cab elevation has a fixed eye level height. For a lower transport height the shell of the cab can be removed. The overall height is then dimension A.

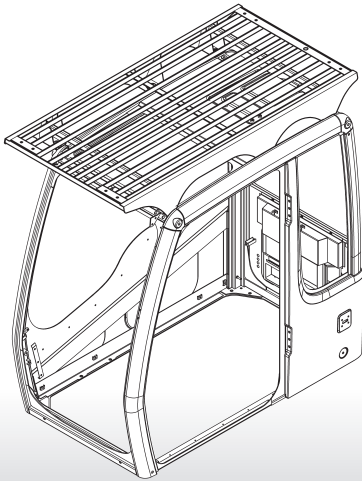


## Hydraulic Cab Elevation Parallelogram + Intermediate Piece 1'7"

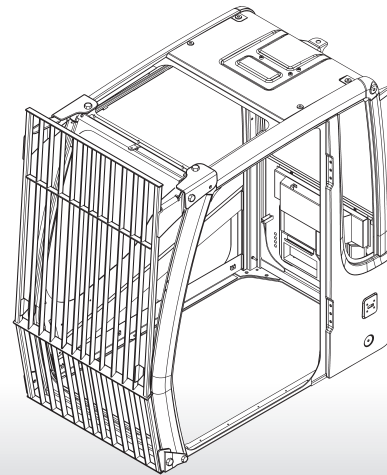
B1	13' 3"
B2	24'11"
C1	14'10"
C2	26' 7"
D1	9' 6"
D2	9'12"
E	14'10"

The parallelogram cab raiser allows the operator to choose his eye level between dimensions B1 and B2. For a transport height lower than C1 the shell of the cab can be removed. The overall height is then E.

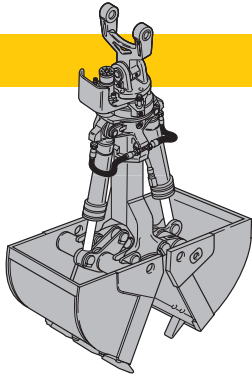
## Grille above



## Grilles in front



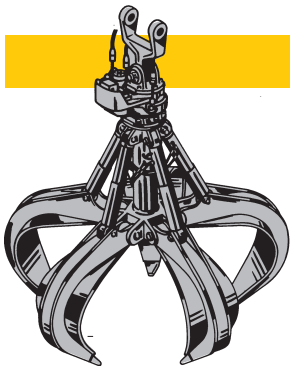
# Variety of Tools



## Shells for Loose Material **Clamshell Model 22**

Shells for loose material with cutting edge (without teeth)

Cutting width of shells	ft in	4'11"	4'11"	6'7"
Capacity	yd <sup>3</sup>	2.40	2.90	3.30
For loose material, specific weight up to	lb/yd <sup>3</sup>	2,500	2,000	1,700
Total weight	lb	5,049	5,159	5,732



## Multiple Tine Grapples

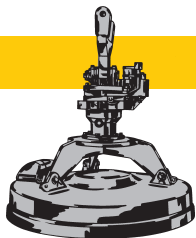
open tines                      semi-closed tines                      closed tines

<b>Grapple model 72 B</b> (4 tines)	Capacity	yd <sup>3</sup>	1.60	1.80	2.10	1.60	1.80	2.10	1.60	1.80	2.10
	Weight	lb	4,255	4,288	4,332	4,696	4,784	4,828	5,269	5,400	5,490
<b>Grapple model 72 B</b> (5 tines)	Capacity	yd <sup>3</sup>	1.60	1.80	2.10	1.60	1.80	2.10	1.60	1.80	2.10
	Weight	lb	5,247	5,313	5,357	5,842	5,930	5,997	6,548	6,724	6,834



## Crane Hook with Suspension

Max. load	lb	27,558
Height with suspension	ft in	4'1"
Total weight	lb	584



## Electro Magnets with Suspension

Magnet information on request

# 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	•	
Customized colors		•
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 gas strut	•	
Pedal controlled positioning swing brake	•	
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	•	
Additional hydraulic circuits		•



## Engine

	S	O
After-cooled	•	
Unit pump system	•	
Turbo charger	•	
Dry-type air cleaner w/pre-cleaner, main and safety element	•	
Air filter with automatic dust ejector	•	
Sensor controlled engine idling	•	
Engine cold starting aid		•



## 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	•	
Clothes hook	•	
Air conditioning	•	
Electric cool box		•
Steering wheel adjustable	•	
Bullet proof window (fixed installation – cannot 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 roller blind	•	
Electronic drive away lock		•
Wiper/washer	•	
Cigarette lighter and ashtray	•	
Additional flood lights		•



## Attachment

	S	O
Working lights	•	
Hydr. lines for clam operation in stick	•	
Industrial-type gooseneck sticks with remote hydraulic pin puller		•
Sealed pivots	•	
Safety lift hook	•	
Liebherr line of clams	•	
Liebherr semi-automatic central lubrication system	•	
Liebherr fully-automatic central lubrication system	•	
Likufix	•	
Safety check valves on hoist cylinder, regenerative	•	
Safety check valves on stick cylinder, regenerative	•	
Hose quick connection	•	
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		•
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.**

