

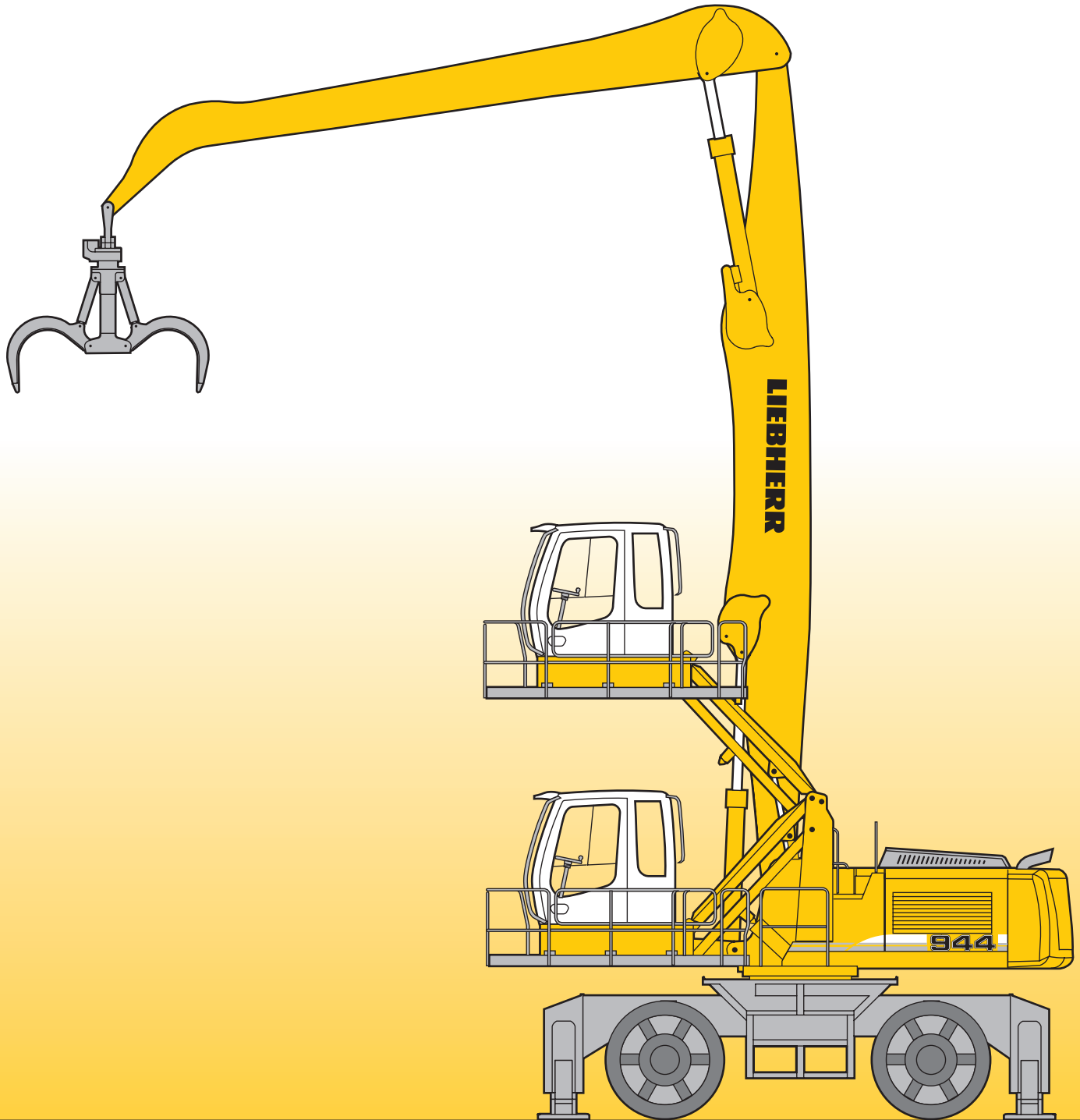
Technical Description Hydraulic Excavator

A 944 C HD

Litronic®

Machine for Industrial Applications

Operating Weight 126,300 - 128,900 lb
Engine Output 258 hp (190 kW)



LIEBHERR

Technical Data



Engine

Rating per ISO 9249	258 hp (190 kW) at 1800 RPM
Model	Liebherr D 936 L according to Tier 3/level 3A
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	174.4 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 80 gpm
Max. pressure	4980 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	54 gpm
Max. pressure	5570 PSI
Hydraulic tank	121.5 gal
Hydraulic system	195.5 gal
Hydraulic oil filter	2 full flow filters in return line with integrated fine filter area (5 µm)
Hydraulic oil cooler	compact cooler, consisting of a water cooler, sandwiched with hydraulic oil cooler and after-cooler cores and hydrostatically driven fan
MODE selection	adjustment of machine performance and the hydraulics via a mode selector to match application
ECO	for 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 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	0–8.0 RPM stepless
Swing torque	92,195 lb ft
Holding brake	wet multi-disc (spring applied, pressure released), 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, shock absorbing 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

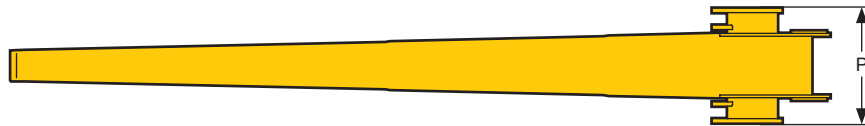
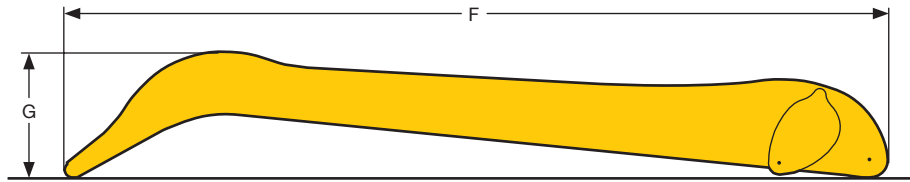
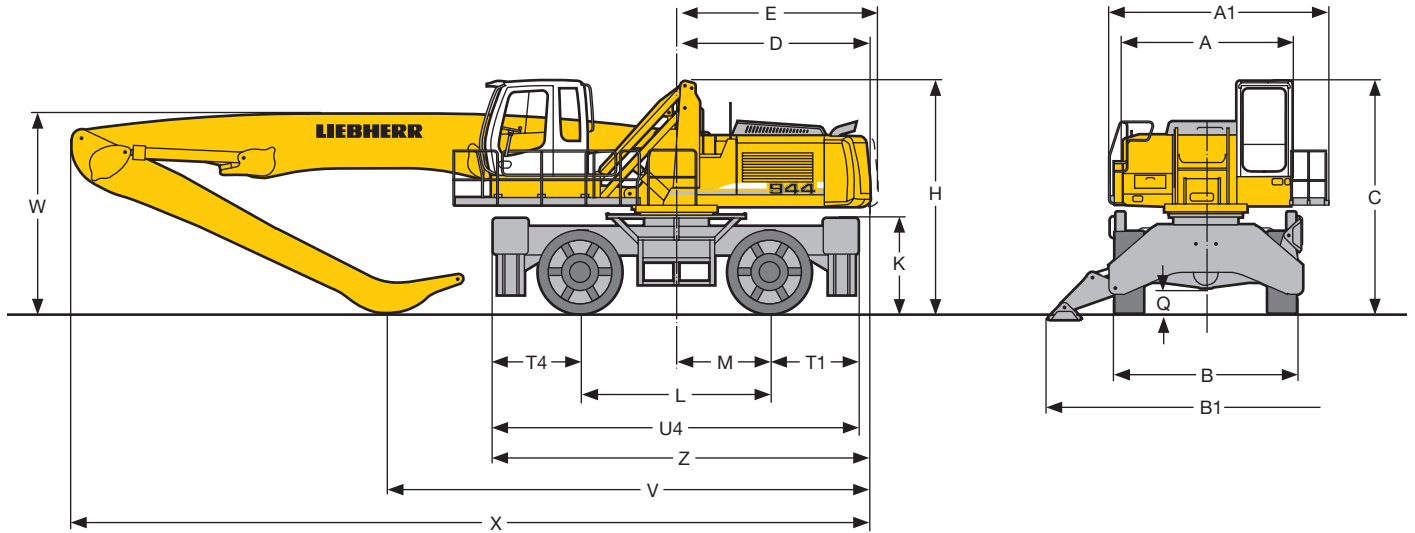
Drive	Liebherr variable flow swashplate motor with automatic brake valves
Travel speed	0–6.8 mph
Axles	154,324 lb excavator axles; oscillating steering axle with hydraulic lock (in any position)
Brakes	discs brakes hydraulically actuated digging and parking brake
Stabilization	4-point outriggers



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	11' 6"
B1	18' 10"
C	13' 10"
D	11' 7"
E	11' 7"
H	11' 5"
K	6' 4"
L	11' 2"
M	5' 7"
Q	1' 6"
T1	5' 4"
T4	5' 4"
U4	21' 10"
Z	22' 5"

E = Tail radius

Tires Ø 59", width 21"

Industrial-Type Straight Boom 31'2" and Industrial Stick		ft in	23' 11"	28' 10"
V		ft in	25' 5"	22' 12"
W		ft in	12' 4"	18' 4"
X		ft in	44' 5"	43' 12"

Industrial-Type Gooseneck Boom 31'2" and Industrial Stick		ft in	23' 11"	28' 10"
V		ft in	-	-
W		ft in	15' 1"	19' 4"
X		ft in	44' 5"	43' 12"

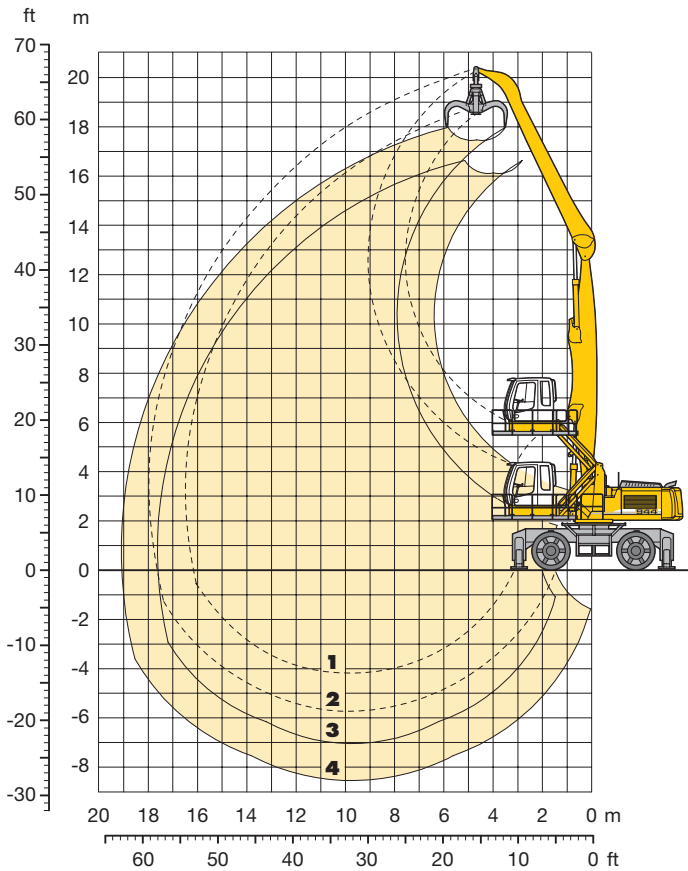
Industrial-Type Straight Boom 34'5" and Industrial Stick		ft in	28' 10"	31' 2"
V		ft in	23' 5"	22' 10"
W		ft in	12' 4"	16' 9"
X		ft in	47' 9"	47' 9"

Industrial Stick		ft in	23' 11"	28' 10"	31' 2"
F		ft in	25' 1"	30'	32' 4"
G		ft in	4' 1"	4' 3"	4' 3"
P		ft in	3' 7"	3' 7"	3' 7"

Dimensions are with attachment over steering axle

Industrial Attachment

with Industrial-Type Straight Boom 31'2"



Attachment Envelope

Kinematic variants 3B Standard/2A

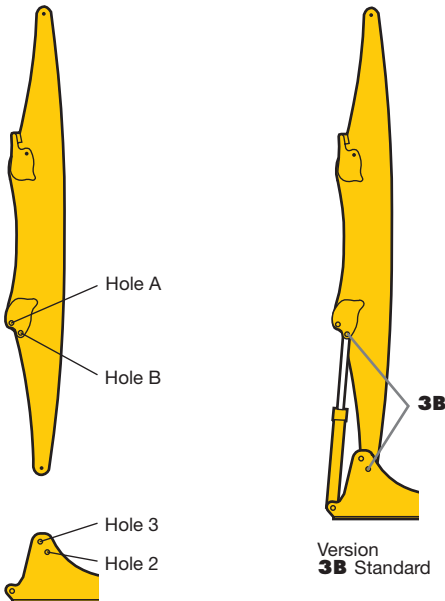
- 1** with industrial stick 23'11"
- 2** with industrial stick 28'10"
- 3** with industrial stick 23'11" and grapple model 70 C
- 4** with industrial stick 28'10" and grapple model 70 C

Operating Weight

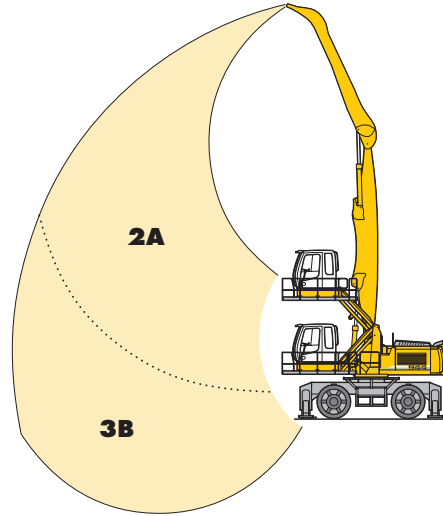
Operating weight includes basic machine and industrial attachment with:

	Weight
Industrial-type straight boom 31'2"	126,500 lb
Industrial stick 23'11"	
Grapple model 70 C/1.44 yd ³ with 5 semi-closed tines	
Hydraulic cab elevation	
Industrial-type straight boom 31'2"	126,900 lb
Industrial stick 28'10"	
Grapple model 70 C/1.44 yd ³ with 5 semi-closed tines	
Hydraulic cab elevation	

VarioLiftPlus

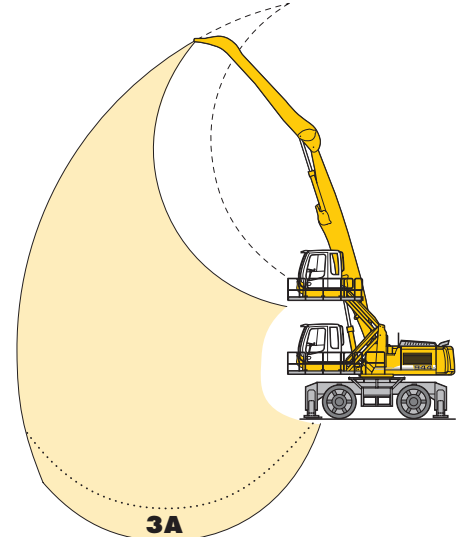


VarioLiftPlus: Variable boom mounting positions for optimized lift capacities with **the same** working range with a **different** working range



Kinematic Variant 3B Standard:
Increased lift capacities below ground level and when working at extended reach

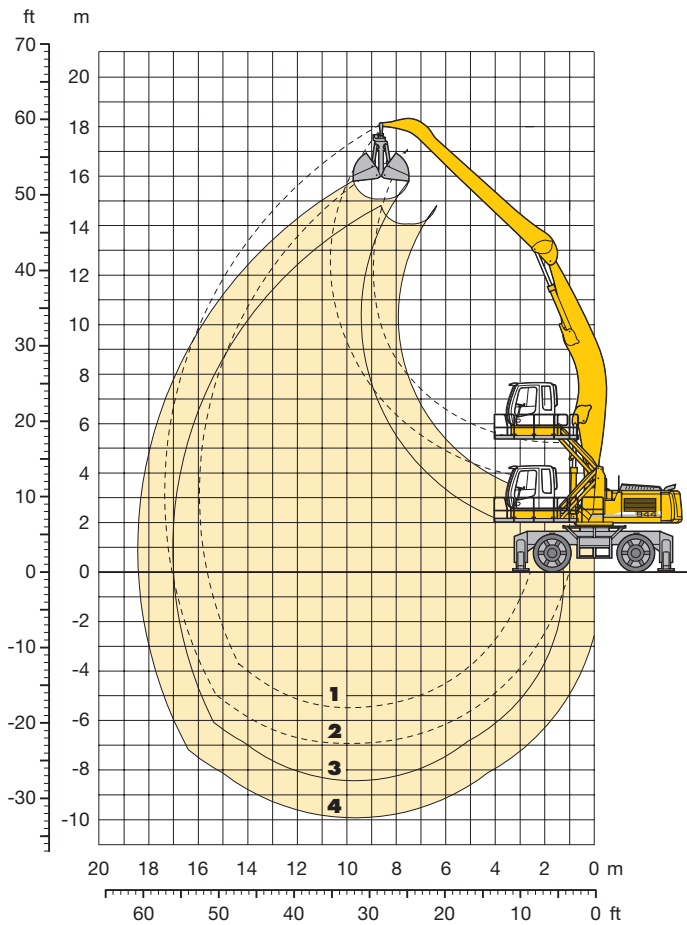
Kinematic Variant 2A:
Increased lift capacities above ground level



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

Industrial Attachment

with Industrial-Type Gooseneck Boom 31'2"



Attachment Envelope

Kinematic variant 3D Standard

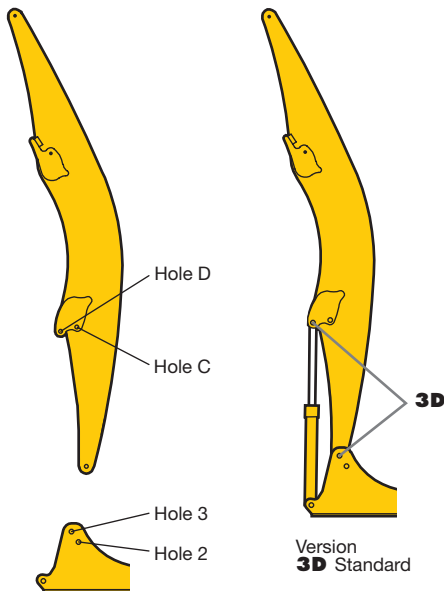
- 1** with industrial stick 23'11"
- 2** with industrial stick 28'10"
- 3** with industrial stick 23'11" and clamshell model 20 B
- 4** with industrial stick 28'10" and clamshell model 20 B

Operating Weight

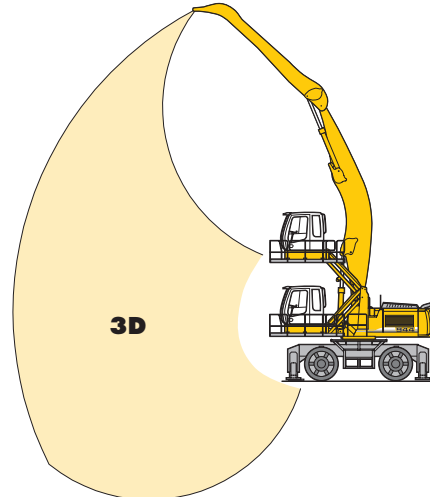
Operating weight includes basic machine and industrial attachment with:

	Weight
Industrial-type gooseneck boom 31'2"	126,300 lb
Industrial stick 23'11"	
Clamshell model 20 B/1.96 yd ³	
Hydraulic cab elevation	
Industrial-type gooseneck boom 31'2"	126,700 lb
Industrial stick 28'10"	
Clamshell model 20 B/1.96 yd ³	
Hydraulic cab elevation	

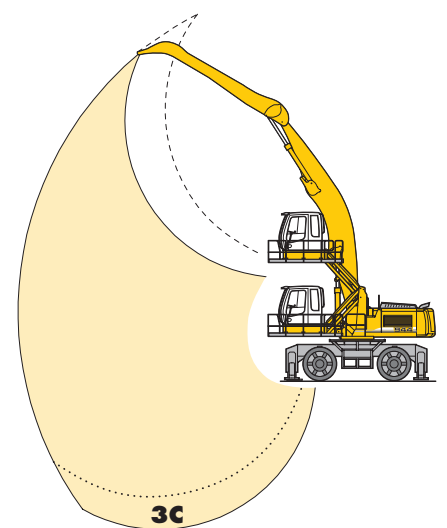
VarioLiftPlus



VarioLiftPlus: Variable boom mounting positions for optimized lift capacities with **the same** working range



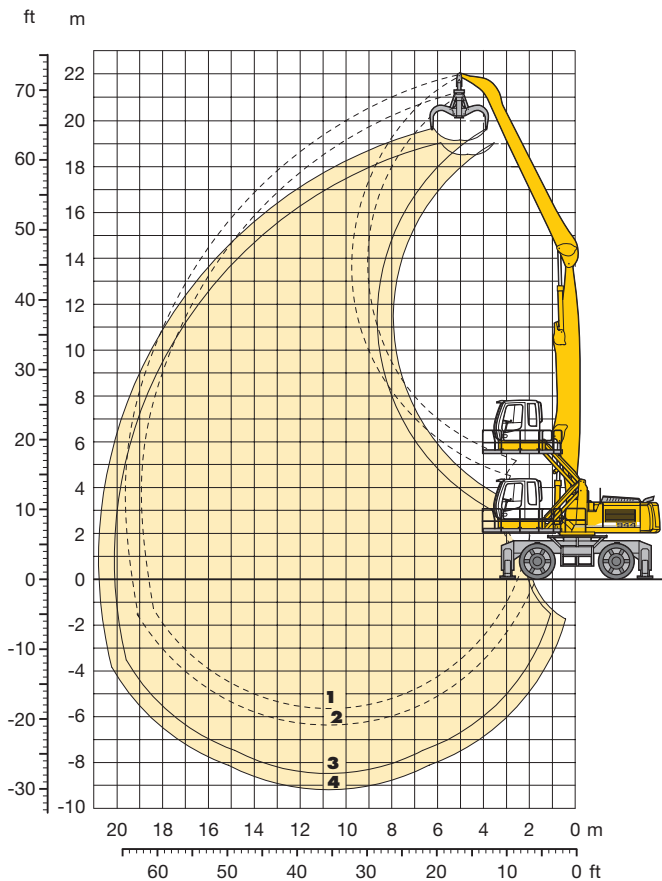
Kinematic Variant 3D Standard: Increased lift capacities below ground level and when working at extended reach



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

Industrial Attachment

with Industrial-Type Straight Boom 34'5"



Attachment Envelope

Kinematic variants 3B Standard/2A

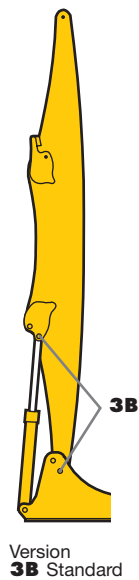
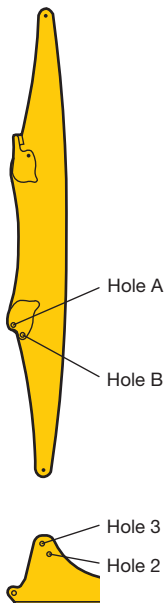
- 1 with industrial stick 28'10"
- 2 with industrial stick 31' 2"
- 3 with industrial stick 28'10" and grapple model 70 C
- 4 with industrial stick 31' 2" and grapple model 70 C

Operating Weight

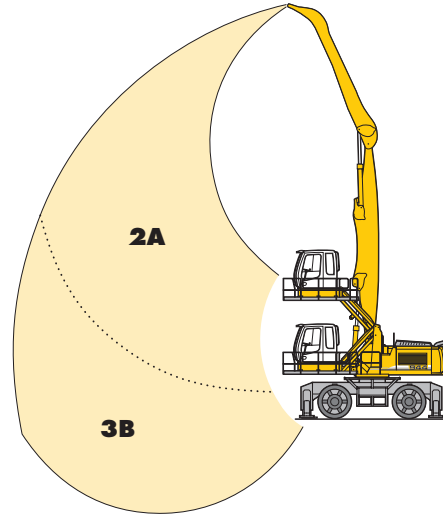
Operating weight includes basic machine and industrial attachment with:

	Weight
Industrial-type straight boom 34'5"	127,800 lb
Industrial stick 28'10"	
Grapple model 70 C/1.44 yd ³ with 5 semi-closed tines	
Hydraulic cab elevation	
Industrial-type straight boom 34'5"	128,900 lb
Industrial stick 31'2"	
Grapple model 70 C/1.44 yd ³ with 5 semi-closed tines	
Hydraulic cab elevation	

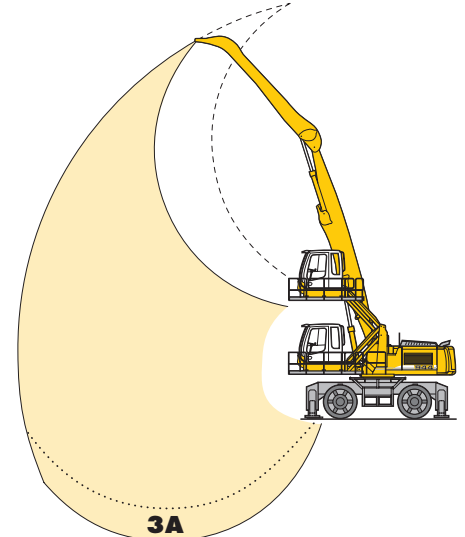
VarioLiftPlus



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

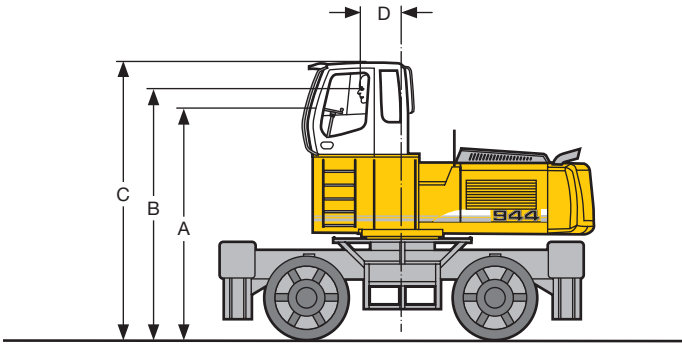


Kinematic Variant 3B Standard: Increased lift capacities below ground level and when working at extended reach
Kinematic Variant 2A: Increased lift capacities above ground level



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

Choice of Cab Elevation and Cab Protection

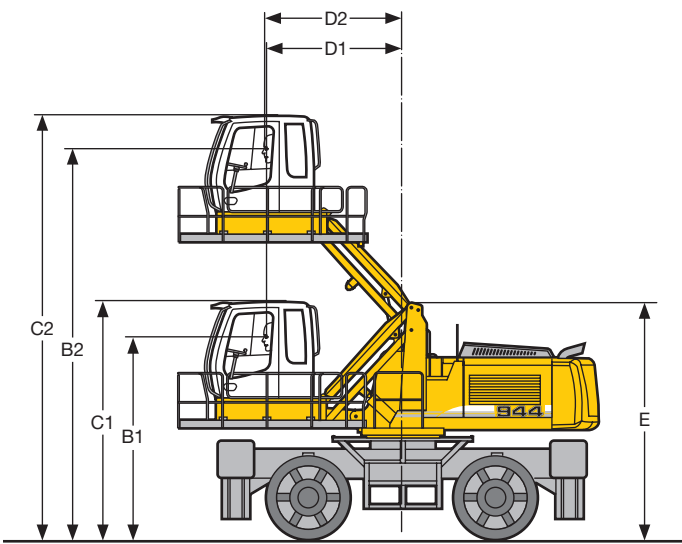


Rigid Cab Elevation

Height	2'7"	3'11"	4'11"	6'7"
A	12'7"	13'11"	14'11"	16'7"
B	13'9"	15' 1"	16'	17'8"
C	15'4"	16' 8"	17' 8"	19'4"
D	2'3"	2' 3"	2' 3"	2'3"

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.

Optional cab protection includes cab guards with and without screen as well as an optional front window screen.



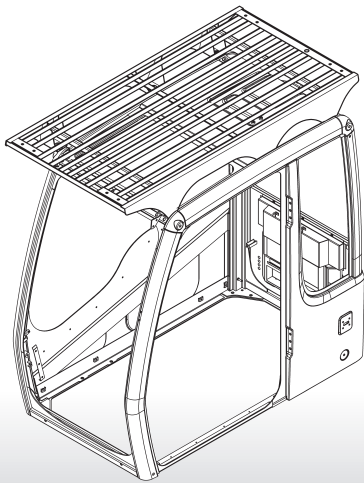
Hydraulic Cab Elevation (Parallelogram) + Intermediate Piece 1'2"

B1	12' 2"
B2	23' 5"
C1	13'10"
C2	25' 1"
D1	8' 2"
D2	8' 2"
E	13'10"

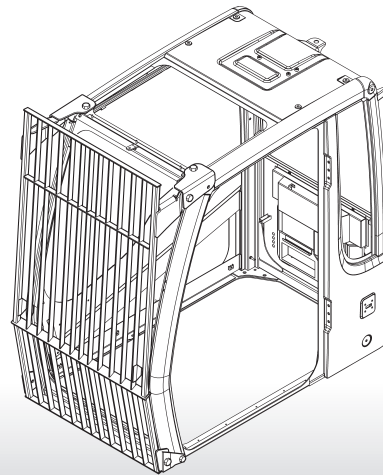
The parallelogram cab raiser allows the operator to choose his field of view between dimensions B1 and B2. For a transport height lower than C1 the shell of the cab can be removed. The overall height is then E.

An optional front window screen can be installed for additional cab protection.

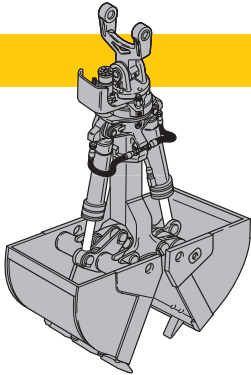
Grille above



Grilles in front



Variety of Tools

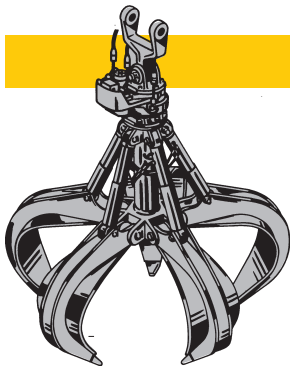


Shells for Loose Material

Clamshell Model 20 B

Shells for loose material with cutting edge (without teeth)

Cutting width of shells	ft in	3'3"	3'11"	5'3"
Capacity	yd ³	1.70	1.96	2.62
For loose material, specific weight up to	lb/yd ³	2,530	2,530	2,530
Total weight	lb	2,888	3,020	3,351



Multiple Tine Grapples

open tines

semi-closed tines

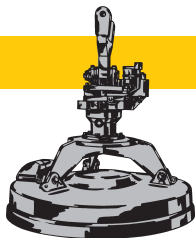
closed tines

Grapple Model 69 (4 tines)	Capacity	yd ³	1.05	1.44	1.05	1.44	1.05	1.44
	Weight	lb	2,601	2,932	3,197	3,946	3,924	4,277
Grapple Model 70 C (5 tines)	Capacity	yd ³	1.05	1.44	1.05	1.44	1.05	1.44
	Weight	lb	3,307	3,351	3,770	4,101	4,189	4,387



Crane Hook with Suspension

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



Electro Magnets with Suspension

Generator	kW	10	20
Dia of magnet	ft in	4' 5"	4'11"
Height with suspension	ft in	4'10"	4'12"
Total weight	lb	3,748	5,159

For further information see "Attachment-Information – Liebherr Hydraulic Clamshells and Grapples". To operate a magnet the installation of a generator is required; please contact your Liebherr dealer or the factory for further information.

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		
Outrigger cylinder rod guards		•
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	•	
Additional lockable storage box		
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 cylinder	•	
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 (adjustable)	•	
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		•
Adjustable roof vent		
6-way adjustable seat	•	
Airpressure operator seat with heating and head-rest		•
Independently adjustable seat and consoles		•
Extinguisher		•
Removable customized foot mat	•	
Dome light	•	
Rigid or hydraulic cab elevation		•
Cab heater with defroster	•	
Coat hook	•	
Air conditioning	•	
Electric cooler		•
Adjustable steering wheel	•	
Bullet proof window (fixed installation – can not be opened)		•
Stereo radio		•
Preparation for radio installation		•
Rain visor over front window opening	•	
Beacon		•
Tinted windows	•	
Door with sliding window	•	
Optical warning if outriggers are not fully retracted		•
Sun visor		•
Sun roller blind	•	
Auxiliary heating		•
Electronic theft protection		•
Wiper/washer	•	
Cigarette lighter and ashtray	•	
Additional flood lights		•



Attachment

	S	O
Flood 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.

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