Crawler Excavator

R 946
Litronic®

Operating Weight with Backhoe Attachment:	**87,744 – 90,389 lb**
Engine Output (SAE J1349):	**268 HP / 200 kW**
Engine Output (ISO 9249):	**272 HP / 200 kW**
Bucket Capacity:	**1.60 – 3.30 yd³**

LIEBHERR

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Performance

Thanks to its innovative integrated excavator system technology, the R 946 crawler excavator has performance features that are truly unique. The energy efficient Positive Control dual-circuit hydraulic system is designed specifically to allow multiple functions or machine movement at the same time. The electronic pump control sets a new standard for performance and efficiency.

Reliability

Liebherr provides customers with solutions that lead the way for the future, solutions that fulfill the most extreme job demands. Backed by more than 50 years of experience designing and building hydraulic excavators, Liebherr designed the new generation of excavators to provide the maximum in reliability and performance.

Comfort

Designed to the latest ergonomic standards, the operators' cab provides exceptional comfort, ease of operation and an outstanding wide view to the working area. Hydraulic hoses are strategically arranged to allow for a wider field of vision, in addition, air conditioning and heating are considered standard features that assure pleasant working conditions in any type of weather. Liebherr comfort also applies to service, with centrally located service points and easy, rapid access.

Economy

Liebherr crawler excavators guarantee maximum productivity. The optimized interaction of hydraulics and electronics grant that individual movements as well as multiple functions can be performed at the same time without decreasing efficiency.

Modular quick-change system made by Liebherr

- Likufix – connects all hydraulically mounted tools without having to leave the operator's cab, maximum productivity due to tool change being performed in a matter of seconds
- The suitable digging tool for every application. Your machine is a multifunctional tool carrier and will pay for itself very quickly indeed
- Mechanic and hydraulic Liebherr quick-change adapter

Performance

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Integrated excavator system technology

High-tech for high performance

The R 946 excavator features the newly-developed integrated excavator system technology. This is based on the Positive Control hydraulic system, controlled by Liebherr electronics and the system software. The sensors located at strategic points on the machine form the basis for an intelligent system that allows for fast and efficient work.

Positive Control twin-circuit hydraulic system

When traveling straightforward, turning or performing work functions, the two hydraulic pump circuits are either grouped together or operated independently as needed. Operating separately, the pumps can supply components with different load pressures and flows independently, whereas combining the flow for maximum speed and multiple superimposed functions for optimum efficiency.

Power and speed

Faster work cycles

The R 946 excavator features quick working cycles attained as a result of the Liebherr swing drive and exceptionally high swing torque.

Operating pressure

With an operating pressure of 5,511 psi, the R 946 achieves higher hydraulically limited load capacities and higher digging forces, of up to 51,481 lbf, and break-out forces of up to 53,505 lbf; perfect for more difficult operational situations such as canal or pipeline construction.

Choice of work mode

The different work modes offered allow you to adapt the power of the excavator to the application

E Mode - Economy: for economical and ecologically-friendly operation. Minor restriction of power without affecting the load lifting and excavating capacities. Highly recommended for light and moderate working conditions

P Mode - Power: for high excavation capacities and difficult applications. Pump flow and power are not limited

S Mode - Sensitivity: for precision jobs and loading of materials. The pump flow and power are restricted to attain optimal sensitivity

P+ Mode - Full Power: especially designed for increased power; only recommended for extreme applications

Liebherr Engine

- New Tier 4i engine
- Designed specifically for construction applications
- Liebherr Common Rail Injection system with three times less load losses than a conventional Common Rail system
- Automatic fuel-saving idling system
- Two-stage turbocharging with intercooler, for increased power at low revs and reduced fuel consumption

LiDAT data transfer system

- Complete fleet management, all from one source
- Optimized economical performance of the machine park thanks to detailed view of the distribution of operating states and times
- Reports on capacity commitment and the use of the machine park can be called up daily via the Web portal
- Precise location of the machine
- Regional delimitation and fixed down-times increase safety and reliability

Reliability

Liebherr provides customers with solutions that lead the way for the future, solutions that fulfill the most extreme job demands. Backed by more than 50 years of experience designing and building hydraulic excavators, Liebherr designed the new generation of excavators to provide the maximum in reliability and performance.

High stability undercarriage

Better force distribution

The undercarriage concept leads to increased performance with improved service life. Thanks to the connection of the middle section being extended as far as the ends of the side frames, known as the X-design, the forces are better distributed, which increases the service life of the undercarriage.

Technology with perspective

Quality right down to the last detail

At-a-glance, the layout of the hydraulic, lubrication, and electric lines are perfectly placed and designed to create a truly reliable machine that achieves maximum equipment performance. Best possible corrosion protection is guaranteed by surface treating and giving a final coat of high grade paint to all components and modules before assembly.

Perfect optimization

Liebherr made components such as Liebherr diesel engine, drive train, operating pump, traction drive and hydraulic cylinder are used to build Liebherr excavators. This guarantees maximum reliability and longevity. Tailor-made machines that meet exact requirements for each respective application.

Safety of functionality

Safety of functionality ROPS cab structure

The cab is equipped with an integrated roll-over protection system (ROPS) in accordance with ISO 12117-2, guaranteeing driver safety in any situation.

Automatic control of functionality

The operator can focus entirely on his job, because the integrated on-board electronics as it continuously performs a comparison with pre-determined target data. Eventual deviations from the target parameters are shown on the display.

Key technologies – Made by Liebherr

- Liebherr made components such as Liebherr diesel engine, drive train, operating pump, traction drive and hydraulic cylinder are used to build Liebherr excavators
- Main steel components, such as undercarriage, equipment modules, and slewing superstructure, all designed by Liebherr

Spare Parts

- Extensive USA spare parts inventory located at Liebherr's Newport News, Virginia headquarters
- Parts support is supplemented by the western USA warehouse
- 24 / 7 parts support with a dedicated after hours support number

Touch-screen display

- 7-inch touch-screen with color display
- Wide range of adjustment, check, and monitoring possibilities
- Tough, reliable design (sealing tightness class IP 65)
- Video capacity with high resolution, reproduces the image from the rear area monitor camera in best possible quality

Comfort

Designed to the latest ergonomic standards, the operators' cab provides exceptional comfort, ease of operation and an outstanding wide view to the working area. Hydraulic hoses are strategically arranged to allow for a wider field of vision, in addition, air conditioning and heating are considered standard features that assure pleasant working conditions in any type of weather. Liebherr comfort also applies to service, with centrally located service points and easy, rapid access.

Safe work – with a clear layout

A pleasant workplace

The entirely new design of the cab provides plenty of room, and creates a pleasant sense of space. Cab windows in the front, the roof, and on the right are made of break-resistant two-pane safety glass. The front windshield is a two-part design and can be completely retracted. The cab meets ROPS requirements, providing the driver with even more protection.

High-resolution color display

The 7-inch high-resolution color display can be operated as a touch-screen system. Thanks to its high resolution, the video-style display reproduces the image from the rear area monitoring camera in the best possible quality. It comes with versatile adjustment, control, and monitoring capabilities, and is designed to be glare-free.

Wide camera field of vision

The camera for the R 946, fitted as standard, provides a wide-ranging view of the area behind the machine.

Fully automatic climate control system

The climate control system has more than 12 adjustable vents for individual control of air flow, and can be operated via the display.

Minimal noise and vibration

The new cab on the Liebherr crawler excavator meets the standards for noise emissions and whole-body vibrations, which makes work a pleasure.

Hydraulic reservoir stop valve

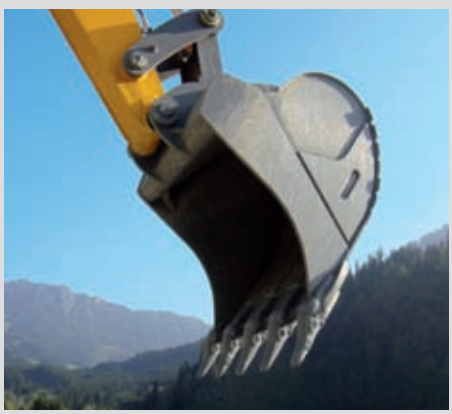
- Easy and quick interruption of the oil circuit between hydraulic reservoir and hydraulic system
- No drainage of fluid necessary for service or repair work on the hydraulic system

Extremely maintenance-friendly

- All maintenance points are easily accessible
- Daily routine servicing work can be carried out very rapidly, reliably, and in comfort
- The R 946 comes as standard with a fully-automatic central lubrication system

Liebherr particle filter

- Designed and manufactured by Liebherr, it eliminates more than 99% (VERT certification) of fine particle emissions
- Active regeneration of the particle filter, causing no interruption to the operator and without reducing the machine's performance
- The central module (filter unit) is removable and easily accessible for maintenance



Economy

Liebherr crawler excavators guarantee maximum productivity. The optimized interaction of hydraulics and electronics grant that individual movements as well as multiple functions can be performed at the same time without decreasing efficiency.

Economic use around the clock

Liebherr Engine

The Liebherr engine delivers full power even at low speeds. It is equipped with common rail direct injection, turbocharger and intercooling and has an excellent torque characteristic with high power reserves.

Automatic idling

Fuel consumption and emission levels can be reduced thanks to this selectable feature: when the excavator is not moving or in operation, the engine speed is automatically reduced to idle.

Service oriented

Safe, non-slip steps and ergonomically positioned handles ensure safe access to all maintenance areas. All necessary maintenance work can be carried out quickly and cost-effectively thanks to the efficient design.

Top technology for maximum profitability

Electronic engine speed sensing control

This regulating system causes an efficient conversion of the engine output in hydraulic performance – which results in better utilization of the available engine power. The result: higher digging forces, shorter cycle times and lower fuel consumption.

Liebherr Tool-Management-System

A unique range of digging tools and quick coupler modules guarantee an economical advantage for jobs with frequent tool changes. Based on years and years of field experience, all components of the Liebherr Tool-Management System originate from its own research and production.

Innovative tooth system

- Patented tooth system, consisting of tooth holder, tooth, securing bolts, and protective plugs
- Teeth can be replaced rapidly and without the use of force
- Tooth shapes for every operational situation

Central lubrication system

- The fully-automatic central lubrication system, fitted as standard, allows for rapid maintenance: It saves time-consuming individual lubricating and downtime
- All the lubrication points on the superstructure of the vehicle and the attachment hydraulics are supplied, with the exception of the connecting plate
- Safety aspect: The driver no longer needs to leave the cab to carry out lubrication

Technical Data

Engine

Rating per SAE J1349	268 HP (200 kW) at 1,800 rpm
Rating per ISO 9249	272 HP (200 kW) at 1,800 rpm
Model	Liebherr D 936 A7
Type	6 cylinder in-line
Bore/Stroke	4.8/5.9 in
Displacement	640 in³
Engine operation	4-stroke diesel Common-Rail, bi-turbo
Exhaust gas treatment	particle filter with active regeneration emission standard level Tier 4i
Cooling	water-cooled and integrated motor oil cooler, after-cooled and fuel cooled
Air cleaner	dry-type air cleaner with pre-cleaner, primary and safety elements
Fuel tank	206 gal
Electrical system	
Voltage	24 V
Batteries	2 x 180 Ah/12 V
Starter	24 V/7.8 kW
Alternator	three phase current 28 V/100 A
Engine idling	sensor-controlled
Motor management	connection to the integrated excavator system controlling via CAN-BUS to the economical utilization of the service that is available

Hydraulic System

Hydraulic system	Positive Control. Dual circuit hydraulic system for independent and need-based quantity allotment via the hydraulic pumps; sensor-guided. Features high system dynamics and sensibility provided by integrated system controlling
Hydraulic pump	Liebherr variable displacement pump built in transversal plate style, in parallel arrangement with integrated transfer box
Max. flow	2 x 81 gpm
Max. pressure	5,511 psi
Pump management	electronic pump management via the integrated system controlling (CAN-BUS) synchronous to the control block
Hydraulic tank	90 gal
Hydraulic system	max. 156 gal
Hydraulic oil filter	1 full flow filter (10 µm) 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, gearbox oil cooler, fuel cooler and after-cooler cores and hydrostatically driven fan
MODE selection	adjustment of engine and hydraulic performance via a mode pre-selector to match application, e.g. for especially economical and environmentally friendly operation or for maximum digging performance and heavy-duty jobs
RPM adjustment	stepless adjustment of engine output via RPM at each selected mode
Tool Control	10 preadjustable pump flows and pressures for add-on tools

Hydraulic Controls

The controlling is conducted via the integrated excavator system technology, input and output modules, communicated via the CAN-BUS with the electronic central unit.

Power distribution	via control valve with integrated safety valves
Servo circuit	
Attachment and swing	proportional via joystick lever
Travel	– with proportionally functioning foot pedals and removable hand levers – speed pre-selection
Additional functions	proportional regulation via slide switches or foot pedals

Swing Drive

Drive	Liebherr swash plate motor, shockless and anti-reaction
Transmission	Liebherr compact planetary reduction gear
Swing ring	Liebherr, sealed single race ball bearing swing ring, internal teeth
Swing speed	0 – 10 rpm stepless
Swing torque	92,195 lbf ft
Holding brake	wet multi-disc (spring applied, pressure released)

Operator's Cab

Cab	ROPS safety cab structure with individual windscreens, work headlights integrated in the roof, a door with a side window (can be opened on both sides), large storage possibilities, shock-absorbing suspension, sounddamping insulating, tinted laminated safety glass, separate window shades for the sunroof window and windscreen, 12 V plug, storage bins, lunchbox, cup holder
Operator's seat	Comfort seat, airsprung with automatic weight adjustment, vertical and horizontal seat damping including consoles and joysticks. Seat and armrests adjustable separately and in combination, seat heating as standard
Control system	arm consoles, swinging with the seat
Operation and displays	large high resolution color display with self-explanatory operation via touch screen, video, versatile adjusting, control and monitoring facilities, e.g. climate control, implement and tool parameters
Air-conditioning	standard automatic air-conditioning, ambient air function, fast de-icing and demisting at the press of a button, air vents can be operated via a menu; ambient air and fresh air filters can be easily replaced and are accessible from the outside; heating-cooling unit, designed for extreme outside temperatures, sensors for solar radiation, inside and outside temperatures
Noise emission	
ISO 6396	L_{pA} (inside cab) = 72 dB(A)
2000/14/EC	L_{WA} (surround noise) = 105 dB(A)

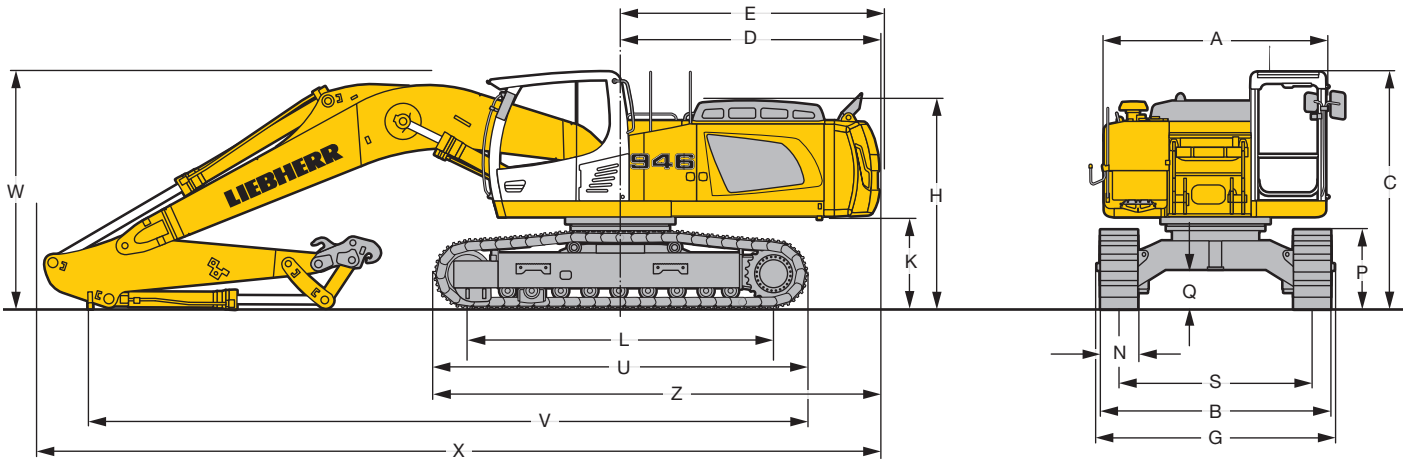
Undercarriage

LC	gauge 8'6"
Drive	Liebherr swash plate motors with integrated brake valves on both sides
Transmission	Liebherr planetary reduction gears
Travel speed	low range – 2.0 mph high range – 3.7 mph
Net drawbar pull on crawler	67,668 lbf
Track components	D7, maintenance-free
Track rollers/Carrier rollers	9/2
Tracks	sealed and greased
Track pads	triple-grouser
Digging locks	wet multi-discs (spring applied, pressure released)
Brake valves	integrated into travel motor
Lashing eyes	integrated

Attachment

Type	combination of resistant steel plates and cast steel components
Hydraulic cylinders	Liebherr cylinders with special seal-system, shock protection
Pivots	sealed, low maintenance
Lubrication	automatic central lubrication system (except link and tilt geometry)
Hydraulic connections	pipes and hoses equipped with SAE splitflange connections
Bucket	fitted as standard with Liebherr tooth system

Dimensions



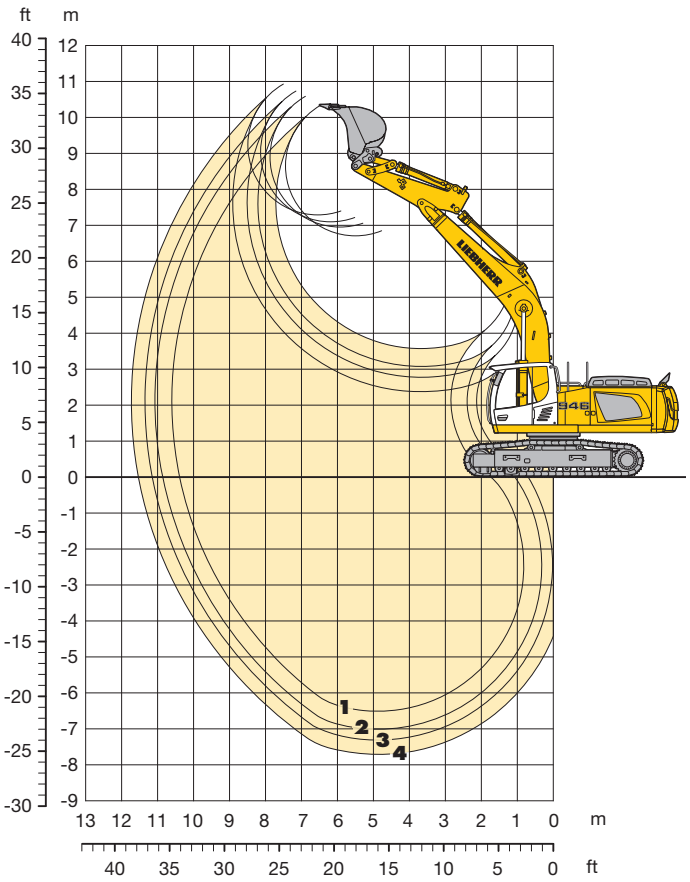
	LC	ft in
A*		9’10”
C		10’ 5”
D		11’ 5”
E		11’ 6”
H		9’ 3”
K		4’
L		13’ 6”
P		3’ 6”
Q		1’ 9”
U		16’ 6”
S		8’ 6”
N	20” 24”	30”
B	10’ 1” 10’ 6”	10’11”
G	10’ 5” 10’ 5”	11’ 5”
Z		19’ 8”

* without door stop device and spacer

	Stick Length ft in	Mono Boom 21’2” ft in	Straight Mono Boom 22’4” ft in
V	6’11”	33’6”	–
	8’ 6”	31’6”	22’12”
	9’ 6”	30’8”	22’ 4”
	10’10”	29’4”	21’ 2”
	13’ 5”	–	18’ 4”
W	6’11”	10’8”	–
	8’ 6”	10’8”	9’ 8”
	9’ 6”	10’8”	9’10”
	10’10”	10’8”	10’ 4”
	13’ 5”	–	10’ 6”
X	6’11”	37’3”	–
	8’ 6”	37’1”	38’ 7”
	9’ 6”	37’1”	38’ 7”
	10’10”	37’1”	38’ 9”
	13’ 5”	–	38’ 9”

Backhoe Bucket

with Mono Boom 21’2” and Heavy Counterweight



Digging Envelope
with Quick Coupler

		1	2	3	4
Stick length	ft in	6’11”	8’ 6”	9’ 6”	10’10”
Max. digging depth	ft in	21’ 4”	22’12”	23’11”	25’ 3”
Max. reach at ground level	ft in	34’ 1”	35’ 7”	36’ 7”	37’11”
Max. dump height	ft in	21’12”	22’10”	23’ 4”	23’11”
Max. teeth height	ft in	33’10”	34’ 9”	35’ 3”	35’11”

Digging Forces
with Quick Coupler

		1	2	3	4
Digging force ISO	lbf	48,559	42,939	40,241	36,869
	lb	48,722	42,990	40,124	38,817
Breakout force ISO	lbf	46,760	46,760	46,760	46,760
	lb	46,738	46,738	46,738	46,738
without Quick Coupler					
Digging force ISO	lbf	51,481	45,187	42,039	38,667
	lb	51,368	45,195	42,108	38,581
Breakout force ISO	lbf	53,505	53,505	53,505	53,505
	lb	53,352	53,352	53,352	53,352

Max. breakout force with ripper bucket and without quick coupler: 67,443 lbf (67,461 lb)

Operating Weight and Ground Pressure

Operating weight includes basic machine with heavy counterweight, mono boom 21’2”, stick 8’6”, quick coupler 66 and bucket 2.30 yd³ (3,130 lb).

Undercarriage		LC		
Pad width	in	20”	24”	30”
Weight	lb	87,744	88,736	90,169
Ground pressure	psi	12.7	10.8	8.9

Stick	ft in	6’11”	8’6”	9’6”	10’10”
Weight	lb	4,410	4,630	4,850	5,070

Buckets Machine stability per ISO 10567* (75% of tipping capacity)

	Cutting width	Capacity ISO 7451	Weight[3]	Weight[4]	LC-Undercarriage, Stick length (ft in) without quick coupler				with quick coupler			
	in	yd³	lb	lb	6’11”	8’6”	9’6”	10’10”	6’11”	8’6”	9’6”	10’10”
STD[1]	47”	1.60	2,822	2,730	□	□	□	□	□	□	□	□
	53”	2.00	3,020	2,930	□	□	□	□	□	□	□	□
	59”	2.30	3,220	3,130	□	□	□	□	□	□	□	□
	65”	2.60	3,480	3,400	□	□	□	△	□	□	△	△
	65”	3.00	3,730	3,640	□	△	△	△	□	△	△	■
	73”	3.30	3,990	3,900	△	△	■	■	△	■	■	▲
HD[2]	47”	1.60	3,040	2,950	□	□	□	□	□	□	□	□
	53”	2.00	3,240	3,150	□	□	□	□	□	□	□	□
	59”	2.30	3,440	3,350	□	□	□	□	□	□	□	□
	65”	2.60	3,750	3,660	□	□	□	△	□	□	△	△
	65”	3.00	4,010	3,920	□	△	△	■	△	△	■	■
	73”	3.30	4,390	4,300	△	■	■	■	△	■	■	▲

* Indicated loads are based on ISO 10567 max. stick length, lifted 360° on firm
1) Standard bucket with teeth Z 50
2) HD bucket with teeth Z 50
3) Bucket for direct fitting
4) Bucket for fitting to quick coupler
Other backhoes available on request

Max. material weight □ = ≤ 3,034 lb/yd³, △ = ≤ 2,528 lb/yd³, ■ = ≤ 2,023 lb/yd³, ▲ = not authorized

Lift Capacities

with Mono Boom 21’2” and Heavy Counterweight

Stick 6’11”

ft	Under-carriage	5 ft		10 ft		15 ft		20 ft		25 ft		30 ft		35 ft				ft in
35	LC																	
30	LC																	
25	LC															15,5*	15,5*	22’ 8”
20	LC							23,1*	23,1*	18,3	21,3*					15,1*	15,1*	26’
15	LC					33,7*	33,7*	24,8	26,0*	17,7	22,3*					14,8	15,3*	28’
10	LC					34,6	41,5*	23,3	29,3*	17,0	23,8*					13,6	16,2*	29’ 1”
5	LC					32,8	41,2*	22,1	31,9*	16,3	25,2*					13,2	17,8*	29’ 2”
0	LC					32,4	44,5*	21,5	32,8*	15,9	25,2					13,5	20,6*	28’ 5”
- 5	LC			38,3*	38,3*	32,5	41,7*	21,4	31,7*	15,9	24,7*					14,7	22,7*	26’ 7”
-10	LC			46,1*	46,1*	33,1	36,5*	21,7	28,2*							17,5	22,8*	23’ 7”
-15	LC					27,2*	27,2*									21,5*	21,5*	18’10”
-20	LC																	

Stick 8’6”

ft	Under-carriage	5 ft		10 ft		15 ft		20 ft		25 ft		30 ft		35 ft				ft in
35	LC																	
30	LC																	
25	LC															12,4*	12,4*	24’10”
20	LC									18,5	19,8*					12,0*	12,0*	27’11”
15	LC			48,3*	48,3*	30,8*	30,8*	24,3*	24,3*	17,8	21,1*					12,1*	12,1*	29’10”
10	LC					35,5	38,8*	23,6	28,0*	17,1	22,9*	12,9	17,7*			12,5	12,7*	30’ 8”
5	LC					33,2	44,0*	22,3	31,0*	16,3	24,5*	12,6	19,6			12,1	13,7*	30’10”
0	LC			16,5*	16,5*	32,3	45,0*	21,5	32,5*	15,8	25,1	12,4	16,4*			12,3	15,5*	30’ 1”
- 5	LC			34,5*	34,5*	32,3	43,1*	21,2	32,2*	15,6	24,9					13,3	18,7*	28’ 5”
-10	LC			52,1*	52,1*	32,7	38,8*	21,4	29,6*	15,9	22,4*					15,4	21,5*	25’ 7”
-15	LC			40,4*	40,4*	31,1*	31,1*	22,1	23,2*							20,3	21,0*	21’ 4”
-20	LC																	

Height **Can be slewed though 360°** **In longitudinal position of undercarriage** **Max. reach** *** Limited by hydr. capacity**

The lift capacities on the load hook of the Liebherr quick coupler 66 without attachment are stated in lb x 1,000, and can be lifted 360° on firm, level supporting surface. Adjacent values are valid for the undercarriage when in the longitudinal position. Capacities are valid for 30” wide triple-grouser pads. Indicated loads are based on ISO 10567 standard and do not exceed 75 % of tipping or 87 % of hydraulic capacity (indicated by *) or are limited through the allowed lift capacity of the load hook on the quick coupler (39,683 lb). Without quick coupler the lift capacities will increase by 992 lb, without bucket cylinder, link and lever they increase by an additional 1,378 lb.

Lift Capacities

with Mono Boom 21’2” and Heavy Counterweight

Stick 9’6”

ft	Under-carriage	5 ft		10 ft		15 ft		20 ft		25 ft		30 ft		35 ft				ft in
35	LC																	
30	LC																	
25	LC									14,5*	14,5*					11,0*	11,0*	26’
20	LC									18,5	18,9*					10,6*	10,6*	28’11”
15	LC							23,2*	23,2*	17,9	20,3*	13,3	14,5*			10,7*	10,7*	30’10”
10	LC					36,0	37,0*	23,7	27,0*	17,1	22,2*	12,9	19,5*			11,1*	11,1*	31’ 8”
5	LC					33,3	43,0*	22,3	30,3*	16,3	24,0*	12,5	19,5			11,5	12,0*	31’10”
0	LC			19,0*	19,0*	32,2	44,8*	21,4	32,2*	15,7	25,0	12,2	19,2			11,6	13,4*	31’ 1”
- 5	LC			32,9*	32,9*	32,0	43,6*	21,0	32,2*	15,5	24,8					12,5	15,9*	29’ 5”
-10	LC	37,0*	37,0*	48,3*	48,3*	32,3	39,9*	21,1	30,1*	15,6	23,1*					14,3	20,7*	26’10”
-15	LC			43,9*	43,9*	32,9*	32,9*	21,7	24,7*							18,4	20,5*	22’ 8”
-20	LC																	

Stick 10’10”

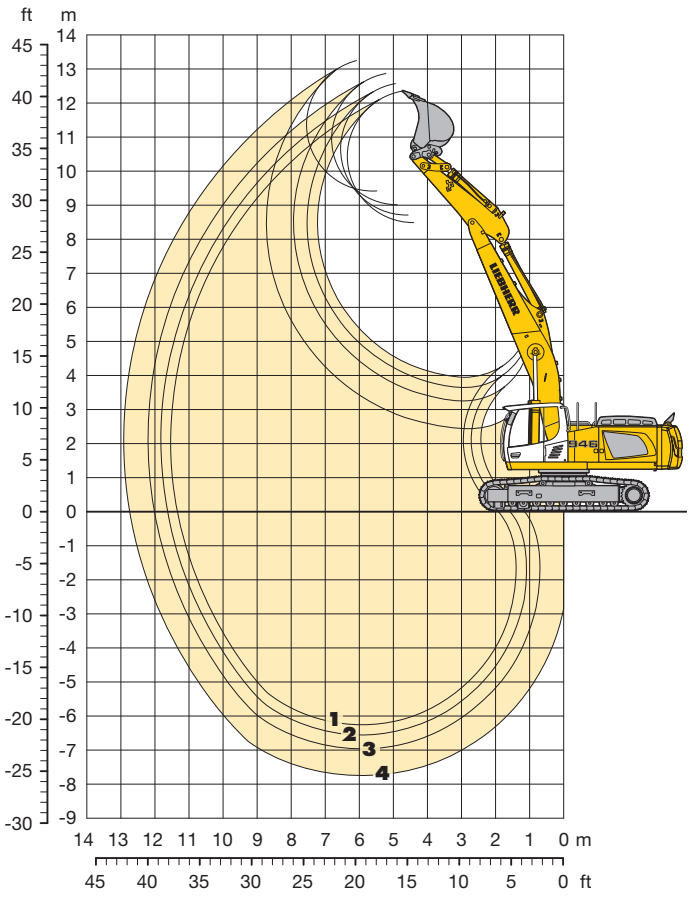
ft	Under-carriage	5 ft		10 ft		15 ft		20 ft		25 ft		30 ft		35 ft				ft in
35	LC																	
30	LC																	
25	LC									15,6*	15,6*					9,4*	9,4*	27’ 6”
20	LC									17,8*	17,8*	10,4*	10,4*			9,1*	9,1*	30’ 4”
15	LC							21,8*	21,8*	18,0	19,3*	13,3	16,4*			9,1*	9,1*	32’ 1”
10	LC			21,6*	21,6*	34,7*	34,7*	23,9	25,7*	17,1	21,3*	12,9	18,8*			9,5*	9,5*	32’11”
5	LC					33,7	41,5*	22,4	29,3*	16,3	23,3*	12,4	19,5			10,1*	10,1*	33’
0	LC			20,2*	20,2*	32,2	44,4*	21,4	31,6*	15,7	24,7*	12,1	19,1			10,9	11,2*	32’ 4”
- 5	LC	22,4*	22,4*	31,0*	31,0*	31,8	44,0*	20,9	32,1*	15,3	24,6	11,9	18,9			11,5	13,1*	30’10”
-10	LC	33,1*	33,1*	44,1*	44,1*	32,0	41,1*	20,8	30,6*	15,3	23,6*					13,1	16,6*	28’ 4”
-15	LC			48,3*	48,3*	32,7	35,1*	21,3	26,4*							16,3	19,8*	24’ 5”
-20	LC					23,7*	23,7*									18,3*	18,3*	18’ 6”

Height **Can be slewed though 360°** **In longitudinal position of undercarriage** **Max. reach** *** Limited by hydr. capacity**

The lift capacities on the load hook of the Liebherr quick coupler 66 without attachment are stated in lb x 1,000, and can be lifted 360° on firm, level supporting surface. Adjacent values are valid for the undercarriage when in the longitudinal position. Capacities are valid for 30” wide triple-grouser pads. Indicated loads are based on ISO 10567 standard and do not exceed 75 % of tipping or 87 % of hydraulic capacity (indicated by *) or are limited through the allowed lift capacity of the load hook on the quick coupler (39,683 lb). Without quick coupler the lift capacities will increase by 992 lb, without bucket cylinder, link and lever they increase by an additional 1,378 lb.

Backhoe Bucket

with Straight Mono Boom 22’4” and Heavy Counterweight



Digging Envelope

with Quick Coupler

		1	2	3	4
Stick length	ft in	8’ 6”	9’6”	10’10”	13’ 5”
Max. digging depth	ft in	20’ 6”	21’6”	22’10”	25’ 5”
Max. reach at ground level	ft in	37’ 3”	38’3”	39’ 4”	41’10”
Max. dump height	ft in	27’11”	28’7”	29’ 6”	30’10”
Max. teeth height	ft in	40’ 6”	41’2”	42’ 2”	43’ 6”

Digging Forces

with Quick Coupler

		1	2	3	4
Digging force ISO	lbf	42,939	44,241	36,869	31,923
	lb	42,770	40,124	37,038	31,747
Breakout force ISO	lbf	46,760	46,760	46,760	46,760
	lb	46,738	46,738	46,738	46,738
without Quick Coupler					
Digging force ISO	lbf	45,187	42,039	38,667	33,047
	lb	45,195	42,108	38,581	33,069
Breakout force ISO	lbf	53,505	53,505	53,505	53,505
	lb	53,352	53,352	53,352	53,352

Max. breakout force with ripper bucket and without quick coupler: 67,443 lbf (67,461 lb)

Operating Weight and Ground Pressure

Operating weight includes basic machine with heavy counterweight, straight mono boom 22’4”, stick 8’6”, quick coupler 66 and bucket 2.00 yd³ (2,930 lb).

Undercarriage		LC		
Pad width	in	20”	24”	30”
Weight	lb	87,964	88,956	90,389
Ground pressure	psi	12.7	10.8	8.9

Stick	ft in	8’6”	9’6”	10’10”	13’5”
Weight	lb	4,630	4,850	5,070	5,510

Buckets Machine stability per ISO 10567* (75% of tipping capacity)

	Cutting width	Capacity ISO 7451	Weight[3]	Weight[4]	LC-Undercarriage, Stick length (ft in), without quick coupler				with quick coupler			
	in	yd³	lb	lb	8’6”	9’6”	10’10”	13’5”	8’6”	9’6”	10’10”	13’5”
STD[1]	47”	1.60	2,822	2,730	□	□	□	□	□	□	□	□
	53”	2.00	3,020	2,930	□	□	□	△	□	□	□	△
	59”	2.30	3,220	3,130	□	□	△	■	□	△	△	■
	65”	2.60	3,480	3,400	□	△	△	■	△	△	■	▲
	65”	3.00	3,730	3,640	△	■	■	▲	■	■	■	▲
	73”	3.30	3,990	3,900	■	■	▲	▲	■	▲	▲	▲
HD[2]	47”	1.60	3,040	2,950	□	□	□	□	□	□	□	□
	53”	2.00	3,240	3,150	□	□	□	△	□	□	□	△
	59”	2.30	3,440	3,350	□	□	△	■	□	△	△	■
	65”	2.60	3,750	3,660	△	△	■	▲	△	■	■	▲
	65”	3.00	4,010	3,920	△	■	■	▲	■	■	▲	▲
	73”	3.30	4,390	4,300	■	▲	▲	▲	▲	▲	▲	▲

* Indicated loads are based on ISO 10567 max. stick length, lifted 360° on firm

1) Standard bucket with teeth Z 50

2) HD bucket with teeth Z 50

3) Bucket for direct fitting

4) Bucket for fitting to quick coupler

Other backhoes available on request

Max. material weight □ = ≤ 3,034 lb/yd³, △ = ≤ 2,528 lb/yd³, ■ = ≤ 2,023 lb/yd³, ▲ = not authorized

Lift Capacities

with Straight Mono Boom 22’4” and Heavy Counterweight

Stick 8’6”

ft	Under-carriage	5 ft		10 ft		15 ft		20 ft		25 ft		30 ft		35 ft				ft in
35	LC																	
30	LC							21,3*	21,3*							13,9*	13,9*	22’ 6”
25	LC							24,1*	24,1*	18,4	19,9*					12,6*	12,6*	26’11”
20	LC							25,6*	25,6*	18,0	22,2*					12,1*	12,1*	29’ 8”
15	LC					37,3*	37,3*	24,3	28,1*	17,3	23,3*	13,0	20,1			11,9	12,0*	31’ 6”
10	LC					33,9	43,2*	22,7	30,8*	16,5	24,5*	12,6	19,6			11,2	12,3*	32’ 5”
5	LC					28,8*	28,8*	21,5	32,3*	15,8	25,1	12,2	19,2			10,9	13,1*	32’ 6”
0	LC					31,5	34,7*	20,8	31,9*	15,4	24,6	12,0	19,0			11,1	14,3*	31’10”
- 5	LC			25,2*	25,2*	31,7	37,1*	20,7	29,4*	15,2	23,1*	12,1	17,4*			11,9	16,5*	30’ 2”
-10	LC					30,4*	30,4*	21,0	24,8*	15,5	19,1*					13,7	15,4*	27’ 8”
-15	LC							16,8*	16,8*							12,4*	12,4*	23’ 6”
-20	LC																	

Stick 9’6”

ft	Under-carriage	5 ft		10 ft		15 ft		20 ft		25 ft		30 ft		35 ft				ft in
35	LC															15,0*	15,0*	17’ 5”
30	LC							20,5*	20,5*							12,3*	12,3*	23’11”
25	LC							22,5*	22,5*	18,5	19,7*					11,2*	11,2*	28’
20	LC							24,6*	24,6*	18,1	21,5*	13,3	14,7*			10,7*	10,7*	30’10”
15	LC					35,7*	35,7*	24,5	27,3*	17,4	22,7*	13,0	19,8*			10,6*	10,6*	32’ 6”
10	LC					34,3	42,0*	22,8	30,1*	16,5	24,0*	12,5	19,6			10,6	10,9*	33’ 5”
5	LC					32,0	33,6*	21,5	31,9*	15,7	24,9*	12,1	19,1			10,3	11,5*	33’ 6”
0	LC					31,3	35,7*	20,7	31,9*	15,2	24,5	11,9	18,8			10,5	12,5*	32’10”
- 5	LC			24,3*	24,3*	31,3	38,4*	20,5	29,9*	15,0	23,4*	11,8	18,1*			11,2	14,2*	31’ 4”
-10	LC			37,1*	37,1*	31,8	32,1*	20,7	25,7*	15,2	19,9*					12,8	15,0*	28’10”
-15	LC					22,8*	22,8*	18,5*	18,5*	12,3*	12,3*					12,2*	12,2*	25’ 1”
-20	LC																	

Height **Can be slewed though 360°** **In longitudinal position of undercarriage** **Max. reach** *** Limited by hydr. capacity**

The lift capacities on the load hook of the Liebherr quick coupler 66 without attachment are stated in lb x 1,000, and can be lifted 360° on firm, level supporting surface. Adjacent values are valid for the undercarriage when in the longitudinal position. Capacities are valid for 30” wide triple-grouser pads. Indicated loads are based on ISO 10567 standard and do not exceed 75 % of tipping or 87 % of hydraulic capacity (indicated by *) or are limited through the allowed lift capacity of the load hook on the quick coupler (39,683 lb). Without quick coupler the lift capacities will increase by 992 lb, without bucket cylinder, link and lever they increase by an additional 1,378 lb.

Lift Capacities

with Straight Mono Boom 22’4” and Heavy Counterweight

Stick 10’10”

ft	Under-carriage	5 ft		10 ft		15 ft		20 ft		25 ft		30 ft		35 ft				ft in
35	LC															12,6*	12,6*	19’10”
30	LC									13,0*	13,0*					10,5*	10,5*	25’ 8”
25	LC									18,5*	18,5*					9,6*	9,6*	29’ 7”
20	LC							21,9*	21,9*	18,2	20,6*	13,4	16,3*			9,2*	9,2*	32’ 2”
15	LC			51,2*	51,2*	33,7*	33,7*	24,7	26,1*	17,5	21,9*	13,0	19,2*			9,1*	9,1*	33’10”
10	LC					35,0	40,3*	23,0	29,2*	16,6	23,4*	12,5	19,6			9,3*	9,3*	34’ 8”
5	LC					32,3	40,3*	21,6	31,4*	15,7	24,5*	12,1	19,1			9,6	9,7*	34’10”
0	LC			11,7*	11,7*	31,2	37,1*	20,7	31,9*	15,2	24,5	11,7	18,7			9,8	10,5*	34’ 1”
- 5	LC			23,2*	23,2*	31,0	40,0*	20,3	30,4*	14,9	23,7*	11,6	18,6			10,4	11,8*	32’ 8”
-10	LC			36,0*	36,0*	31,4	34,2*	20,4	26,8*	14,9	20,9*	11,8	15,0*			11,7	14,1*	30’ 4”
-15	LC					25,7*	25,7*	20,6*	20,6*	15,0*	15,0*					12,2*	12,2*	26’10”
-20	LC																	

Stick 13’5”

ft	Under-carriage	5 ft		10 ft		15 ft		20 ft		25 ft		30 ft		35 ft				ft in
35	LC															8,8*	8,8*	23’ 8”
30	LC									13,5*	13,5*					7,6*	7,6*	28’ 8”
25	LC									15,2*	15,2*	11,9*	11,9*			7,0*	7,0*	32’ 2”
20	LC									16,7*	16,7*	13,5	14,8*			6,8*	6,8*	34’ 7”
15	LC							21,2*	21,2*	17,7	20,0*	13,1	17,4*	9,9	10,6*	6,7*	6,7*	36’ 2”
10	LC			35,2*	35,2*	36,5*	36,5*	23,6	27,1*	16,8	22,0*	12,5	18,8*	9,7	13,2*	6,9*	6,9*	37’
5	LC			12,4*	12,4*	33,2	42,1*	21,9	30,0*	15,8	23,5*	12,0	19,0	9,4	14,6*	7,2*	7,2*	37’ 1”
0	LC			15,9*	15,9*	31,3	43,8*	20,7	31,4*	15,1	24,4*	11,5	18,5	9,1	14,3*	7,8*	7,8*	36’ 5”
- 5	LC	15,6*	15,6*	23,1*	23,1*	30,6	42,1*	20,0	31,0*	14,6	23,9	11,3	18,2	9,1	9,3*	8,8*	8,8*	35’ 1”
-10	LC			32,2*	32,2*	30,7	37,7*	19,9	28,6*	14,5	22,2*	11,3	17,2*			10,0	10,4*	32’11”
-15	LC			39,8*	39,8*	30,7*	30,7*	20,2	23,9*	14,7	18,3*					11,8	12,6*	29’ 8”
-20	LC					20,2*	20,2*	15,7*	15,7*							11,2*	11,2*	24’ 1”

Height **Can be slewed though 360°** **In longitudinal position of undercarriage** **Max. reach** *** Limited by hydr. capacity**

The lift capacities on the load hook of the Liebherr quick coupler 66 without attachment are stated in lb x 1,000, and can be lifted 360° on firm, level supporting surface. Adjacent values are valid for the undercarriage when in the longitudinal position. Capacities are valid for 30” wide triple-grouser pads. Indicated loads are based on ISO 10567 standard and do not exceed 75 % of tipping or 87 % of hydraulic capacity (indicated by *) or are limited through the allowed lift capacity of the load hook on the quick coupler (39,683 lb). Without quick coupler the lift capacities will increase by 992 lb, without bucket cylinder, link and lever they increase by an additional 1,378 lb.

Standard Equipment

Undercarriage

- Lifetime-lubricated track rollers
- Tracks sealed and greased
- Track guide at each track frame (three pieces)
- Sprocket with dirt ejector
- Lashing eyelets

Uppercarriage

- Heavy counterweight
- Handrails, non slip surfaces
- Liebherr full-automatic central lubrication system (except connecting link for bucket kinematics)
- Engine hood with lift assistance
- Sound insulation
- Maintenance-free swing brake lock
- Lockable tool box
- Extended tool kit

Hydraulics

- Hydraulic tank shut-off valve and pumps
- Pressure test ports for hydraulic
- Pressure storage for controlled lowering of equipment with engine turned off
- Filter with integrated fine filter area
- Stepless work mode selector

Engine

- Turbo charger
- Common-Rail system injection
- Conform with level Tier 4i emission standard
- Fuel filter and water separator
- After-cooled
- Liebherr particle filter
- Sensor-controlled automatic engine idling

Operator's Cab

- Storage bin
- Mechanical hour meters, readable from outside the cab
- Sunroof, right window and windshield with safety glass
- Operator seat Comfort
- Travel alarm system
- Cup holder
- Completely retractable windscreen
- Front windscreen (bottom) retractable
- Rubber floor mat
- Hydro mounts
- Dome light
- Coat hook
- Automatic air conditioning
- Fuel consumption indicator
- LiDAT Plus (Liebherr data transfer system)*
- 7" color multifunction display with touchscreen
- Emergency exit rear window
- Preparation for radio installation
- Rain visor over front window opening
- ROPS safety cab structure
- Rear space monitoring with camera
- Tinted windows
- Headlights (two pieces, Halogen)
- Door with sliding windows
- Seat belt
- Roll-down sun blind
- Storage space
- Wiper/washer
- Cigarette lighter and ashtray

Attachment

- Safety check valves hoist cylinder
- Safety check valves stick cylinder
- Headlight on boom (right, Halogen)
- Overload warning device

* optionally extendable after one year

Individual Options

Undercarriage

- Reinforced cover plate and base plate for centre section
- Straight track guide
- Track guide at each track frame (four pieces)
- Tool box

Uppercarriage

- Refuelling pump (electrical)
- Fuel anti-theft device
- Reversible fan drive
- Uppercarriage guard at bottom and sides
- Customized colors

Hydraulics

- Bypass filter

Engine

- Air pre-filter with dust trap
- Automatic engine shut-down (adjustable time-period)
- Lighting engine compartment
- Fuel pre-heating system

Operator's Cab

- Operator seat Premium (air conditioned)
- Fire extinguisher
- Footrest
- Electric cool box (12 V)
- Proportional controls Liebherr
- Engine shut-down (emergency stop) in cab
- Impact-resistant glass panel in roof
- Impact-resistant front window (one piece, fixed installation – can not be opened)
- Impact-resistant front window (two pieces, fixed installation – can not be opened)
- Radio Comfort
- Amber beacon
- Roof wiper
- Headlights (two pieces, Xenon)
- FOPS top guard
- FGPS front guard
- Sun visor
- Auxiliary heater with weekly timer
- Electronic theft protection
- Additional headlights or/and rear headlights (Halogen or Xenon)

Attachment

- High pressure circuit
- Security for hoist cylinder in grab or hammer operation
- Piston rod guard for bucket cylinder
- Liebherr automatic lubrication system for link geometry
- Hydraulic or mechanical quick coupler
- Liebherr line of buckets
- Liebherr tooth system
- LIKUFIX
- Middle pressure circuit
- Straight mono boom
- Headlights on boom (right, Xenon)
- Stick cylinder shut-down, adjustable
- Tool Control
- Tool Management
- Bottom boom protection for mono boom or stick
- Additional headlights on boom (left, Halogen or Xenon)

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

The Liebherr Group of Companies

Wide Product Range

The Liebherr Group is one of the largest construction equipment manufacturers in the world. Liebherr's high-value products and services enjoy a high reputation in many other fields. The wide range includes domestic appliances, aerospace and transportation systems, machine tools and maritime cranes.

Exceptional Customer Benefit

Every product line provides a complete range of models in many different versions. With both their technical excellence and acknowledged quality, Liebherr products offer a maximum of customer benefits in practical application.

State-of-the-art Technology

To provide consistent, top quality products, Liebherr attaches great importance to each product area, its components and core technologies. Important modules and components are developed and manufactured in-house, for instance the entire drive and control technology for construction equipment and mining trucks.

Worldwide and Independent

Hans Liebherr founded the Liebherr family company in 1949. Since that time, the enterprise has steadily grown to a group of more than 120 companies with over 35,000 employees located on all continents. The corporate headquarters of the Group is Liebherr-International AG in Bulle, Switzerland. The Liebherr family is the sole owner of the company.

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