Mining Excavator R 9800

Operating Weight with Backhoe Attachment:	**800,000 kg / 1,763,698 lb**
Operating Weight with Shovel Attachment:	**810,000 kg / 1,785,742 lb**
Engine Output:	**2,984 kW / 4,000 HP**
Bucket Capacity:	**38.00 - 42.00 m³ / 49.7 - 54.9 yd³**
Shovel Capacity:	**38.00 - 42.00 m³ / 49.7 - 54.9 yd³**

LIEBHERR

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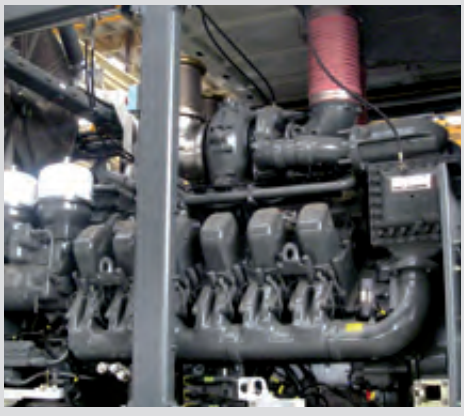
LIEBHERR

Liebherr Customized Buckets

- Capacity : 42 m³ @ 1.8 t/m³ / 3,000 lb/yd³
- Perfect match for trucks with 220 t payload and above
- Strong breakout and digging forces
- Integrated approach on machine capabilities, material properties and truck target payloads
- Customized and site-specific wear package configuration



Performance by Design

More than 50 years of proven experience and innovation in designing and manufacturing hydraulic excavators, Liebherr has developed the optimal loading tool for large scale mining operations: the R 9800.

High Productivity

Driven by two 1,492 kW / 2,000 HP 16-cylinder V-engines, the Liebherr R 9800 boasts a 42 m³ / 54.9 yd³ bucket capacity. In conjunction with rapid loading cycles and tremendous digging and breakout forces, the R 9800 offers high loading capacity and is the perfect loader for 220-t, 290-t and 360-t mining trucks. The R 9800 represents the latest proven technologies available on the market.

Reliability

Liebherr has consequently followed the design philosophy of improving the efficiency of all individual subsystems in order to maximize the efficiency and reliability of the overall machine, while in parallel reducing the operating cost. Its overall performance is based on Liebherr's robust hydraulic and auxiliary systems, delivering maximum uptime.

Operating and Servicing

Liebherr's ultra large hydraulic excavator integrates the latest ergonomic and safety principles in order to create the best possible working environment for the operator and the service crews. The super silent mining cab with its large front windshield allows superior overview over the entire machine and loading spot. To reduce downtime, the R 9800's conception is focused on ergonomic, safe and comfortable serviceability, offering easy inspection access and short maintenance times. All service fluids can easy and quickly be exchanged or refilled through the service flap. With extended service intervals of up 1.000 SMU*, Liebherr's R 9800 is the basis for maximum production hours.

Safety and Environment

Railings and catwalks help to easily access all relevant machine areas. The 45° access stair helps entering the machine comfortably. In case of emergency stops the stair is automatically activated. Liebherr's fully integrated optional electrical drive system allows for high operating efficiency and additional power. Due to the long service intervals of electrical machines uptime can be enhanced while maintenance costs are decreased. The silent electrical drive contributes to health, safety and environmental care.

*only available with Cummins engines configuration and the optional Oil Reserve System.

Engine / Motor Options

- Available engine options:
  - Two Cummins QSK 60 (2,984 kW / 4,000 HP @1800 rpm)
  - Two MTU 12V4000 (2,850 kW / 3,820 HP @1800 rpm)
- USA/EPA Tier 2
- Emission or fuel optimized setting
- Electric drive (3,400 kW / 4,559 HP)

Fuel Efficiency

- Pressure Less Boom Down Function
- Oversized cooling system with low fan power consumption
- Thermostatically regulated fan drive
- Optimized hydraulic piping and hose layout
- Close-loop swing circuit
- Customized bucket design for each application
- Litronic Plus control system
- Well balanced overall machine design

Technical Data

Engine

2 Cummins diesel engine
- Rating per SAE J 1995: 2 x 1,492 kW/2 x 2,000 HP at 1,800 rpm
- Model: QSK60 (USA/EPA Tier 2)
- Type: 16 cylinder V-engine
- Displacement: 60 l/3,661 in³
- Bore/Stroke: 159/190 mm/6.26/7.48 in

or

2 MTU diesel engine
- Rating per ISO 3046: 2 x 1,425 kW/2 x 1,910 HP at 1,800 rpm
- Model: 12V4000 (USA/EPA Tier 2)
- Type: 12 cylinder V-engine
- Displacement: 57.2 l/3,490 in³
- Bore /Stroke: 170/210 mm/6.69/8.26 in

Engine cooling system: fans driven via hydraulic piston motors

Air cleaner: dry-type air cleaner with pre-cleaner, automatic dust ejector, primary and safety elements

Fuel tank: 19,690 l/5,202 gal

Fuel filtration: 2 stage fuel filtration with water separator and electric priming pump

Engine lubrication: pre-lube starting system
ELIMINATOR™ engine oil automatic filtration system (Cummins) + centrifugal filtration
engine oil automatic filtration system (MTU) + centrifugal filtration

Electrical system
- Voltage: 24 V
- Batteries: 8 x 170 Ah/12 V starting batterie
  4 x 170 Ah/12 V service systems
- Alternator: 2 x 24 V/260 Amp (brushless)

Engine idling: electronically controlled

Electronic engine power management: engine power and speed sensing over the entire engine rpm range

Hydraulic System

Attachment and travel drive
- Hydraulic pumps: 10 variable flow axial piston pumps
- Max. flow: 10 x 750 l/min./10 x 198 gpm
- Max. hydr. pressure: 320 bar/4,641 psi

Swing drive
- Hydraulic pumps: 4 reversible swash plate pumps, closed-loop circuit
- Max. flow: 4 x 535 l/min./4 x 141 gpm
- Max. hydr. pressure: 350 bar/5,076 psi

Pump management: electronically controlled pressure and flow management with oil flow optimisation

Hydraulic tank capacity: 5,800 l/1,532 gal

Hydraulic system capacity: 10,000 l/2,642 gal

Hydraulic oil filter: 1 high pressure safety filter after each high pressure pump + fine filtration of entire return flow

Hydraulic oil cooler: 4 separate coolers, 4 temperature controlled fans driven via hydraulic piston motors

Main pump protection: automatic protection against low oil level

Hydraulic Controls

Servo circuit: independant, electronic over hydraulic proportional controls of each function

Emergency control: emergency lowering of the attachment to the ground

Power distribution: via monoblock control valves with integrated primary relief valves and flanged on secondary valves for travel and with integrated proportional and safety valves

Flow summation: to attachment and travel drive

Electro-hydraulic servo control
- Attachment and swing: electronic optimized control via proportional valves
- Travel: electronic optimized control via proportional valves

Electronic damping system: Liebherr designed electronic control of cylinder end-position

Electric System

Electric isolation: easy accessible battery isolations

Working lights: Xenon lights:
– 4 on working attachment
– 2 on RHS of uppercarriage
– 2 on LHS of uppercarriage
– 2 on counterweight

Emergency stop switches: at ground level, in hydraulic compartment, in engine compartment and in operator cab

Electrical wiring: heavy duty execution in IP 65 standard for operating conditions of – 50 °C to 100 °C/ – 58 °F to 212 °F

Swing Drive

Hydraulic motor: 4 Liebherr axial piston motors

Swing gear: 4 Liebherr planetary reduction gears

Swing ring: Liebherr, sealed triple roller swing ring, internal teeth

Swing speed: 0 – 3.6 rpm

Swing-holding brake: 4 hydraulically released, maintenance-free, external multi-disc brakes

Uppercarriage

Design: torsion resistant designed upper frame in box type structure for superior strength and durability

Attachment mounting: parallel longitudinal main girders in box-section structure

Machine access: 45° access system with handrails on the cab side of the uppercarriage. Full controlled descent in case of emergency stop. Additional emergency ladder fitted near the cab

Technical Data

Operator's Cab

Design	resiliently mounted, sound insulated, large windows for all-around visibility, integrated falling object protection FOPS
Operator's seat	suspended pneumatic seat, body-contoured with shock absorber, adjustable to operator's weight, additional "retractable passenger/trainer seat" seat heating
Cabin windows	20.5 mm/0.8 in tinted armored glass for front window and 15 mm/0.6 in for right hand side windows, all other windows in tinted safety glass, high pressure windshieldwasher-system with 75 l/20 gal watertank, sun louvers on all windows in heavy duty design
Heating system/ Air conditioning	heavy duty, fully automatic, high output air conditioner and heater unit
Cabin pressurization	ventilation unit with filters
Controls	joystick levers integrated into armrest of seat, armrest adjustable to seat position
Display	10.5 in color LCD-Display with low and high brightness settings
Condition monitoring	machine condition monitoring system with error reporting and operational information
Rear vision systems	camera installation on counterweight and right-hand side of the uppercarriage displayed over an additional LCD-Display
Safety function Automatic engine shut off	engine self controlled power limitation and shut off
Safety functions	additional gauges with constant display for: engine speed, hourmeter, voltmeter, safety mode for engine speed control and pump regulation
Noise level (ISO 6396)	L_{pA} (inside cab) = 77 dB(A) with oil/water fans at 100 % and AC fan at 65 %

Undercarriage

Design	3-piece undercarriage, box type structure for center piece and side frames, stress relieved
Hydraulic motor	3 axial piston motors per side frame
Travel gear	Liebherr planetary reduction gear
Travel speed	0 – 2.0 km/h, optional 0 – 2.5 km/h/ 1.2 mph/1.6 mph
Parking brake	spring engaged, hydraulically pressure released external wet multi-disc brakes for each travel motor, maintenance-free
Track components	maintenance-free dual pin cast link and pad combined
Track rollers/ Carrier rollers	6/3
Automatic track tensioner	pressurized hydraulic cylinder with accumulator, maintenance free
Transport	undercarriage side frames are removable

Service Flap

Design	hydraulically actuated service flap, easily accessible from ground level to including: – 2 fast fuel refill lines – hydraulic oil refill and drainage – engine oil exchange – splitterbox oil exchange – swing gearbox oil exchange (4 x draining / 4 x refill) – swing ring teeth grease barrel refilling with grease filter – attachment/swing ring bearing grease barrel refilling with grease filter – windshield washer water refilling – oil reserve system refilling (optional) – different couplings available on request

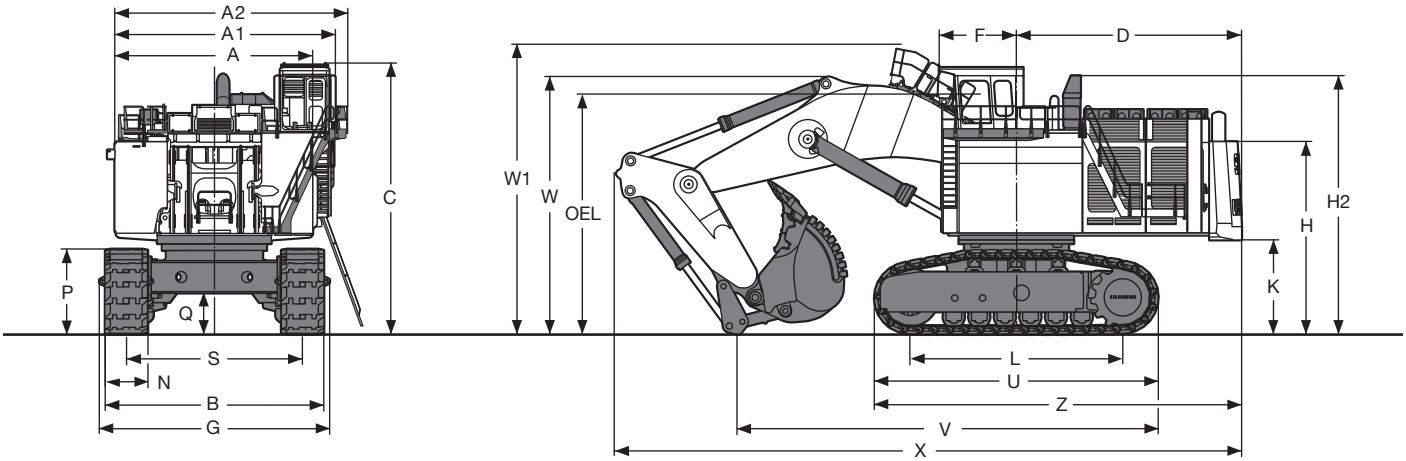
Central Lubrication System

Type	Lincoln Centromatic lubrication system for the entire attachment/swing ring bearing and teeth
Grease pumps	1 Lincoln Powermaster pump for attachment/swing ring bearing lubrication (second pump with switch over function in option) 1 Lincoln Flowmaster pump for swing ring teeth lubrication
Capacity	600 l/158.5 gal bulk container for attachment/swing ring bearing, separated 80 l/ 21 gal container for swing ring teeth
Refill	via the service flap for both containers with grease filters

Attachment

Design	box-type structure with large steel castings in all high-stress areas
Stick	wear protection underneath lower beam plate
Pivots	two floating pins per pivot, sealed covers, all bearings with wear resistant steel bushings, bolts hardened and chromium-plated
Hydraulic cylinder	Liebherr design, electronically controlled end-cushioning
Hydraulic connections	pipes and hoses equipped with SAE connections
Pivots bucket-to-stick/ bucket-to-link	O-ring sealed and completely enclosed
Lubrication	connected to the centralized lubrication system, each lubrication point independently lubricated

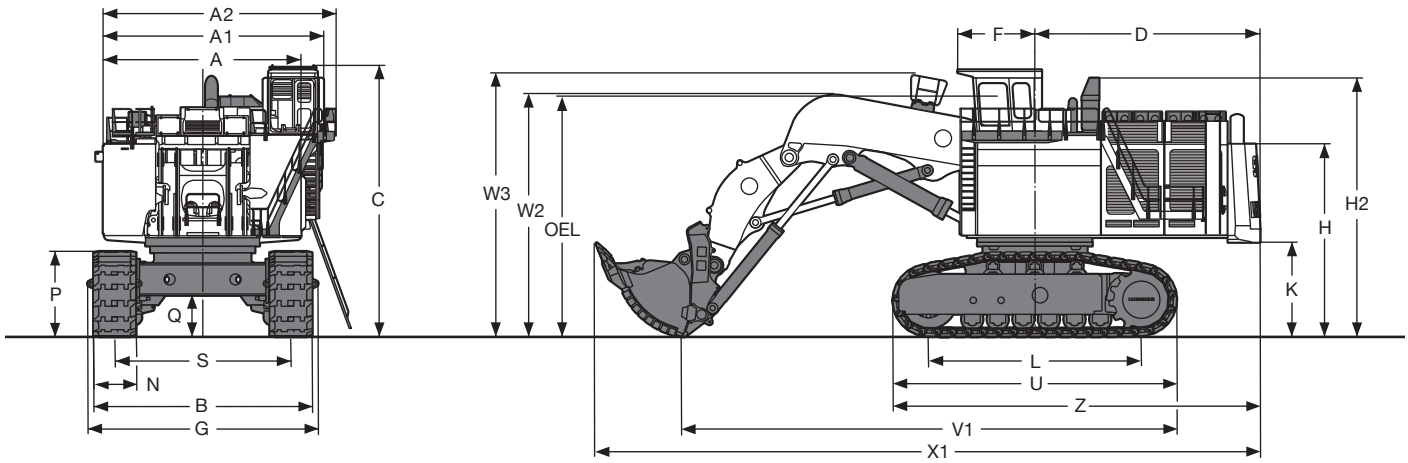
Dimensions



	mm/ft in
A	7,550/24’ 9”
A1	8,408/27’ 6”
A2	8,880/29’ 1”
C	10,338/33’10”
D	8,600/28’ 2”
F	2,955/ 9’ 8”
H	7,347/24’ 1”
H2	9,638/31’ 7”
K	3,597/11’ 9”
L	8,098/26’ 6”
P	3,261/10’ 8”
Q	1,574/ 5’ 1”

		mm/ft in
S		6,700/21’11”
U		10,846/35’ 6”
Z		14,023/45’11”
N		1,630/ 5’ 4”
B		8,330/27’ 3”
G		8,778/28’ 9”
V		16,055/52’ 7”
W		9,834/32’ 3”
W1		11,063/36’ 3”
X		23,907/78’ 4”
OEL	Operator’s Eye Level	8,800/28’10”

Dimensions



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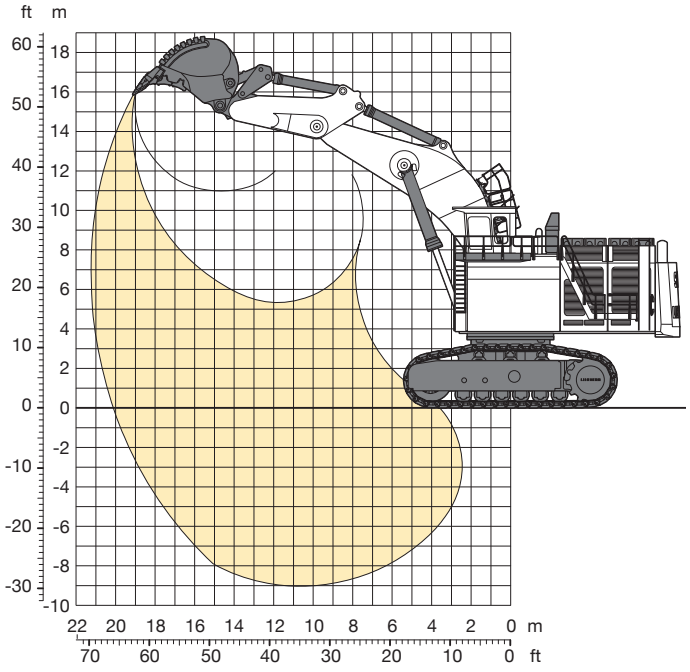
Z		14,023/45’11”
N		1,630/ 5’ 4”
B		8,330/27’ 3”
G		8,778/28’ 9”
V1		18,850/61’ 9”
W2		9,280/30’ 5”
W3		10,050/32’11”
X1		25,330/83’
OEL	Operator’s Eye Level	8,800/28’10”

Backhoe Attachment

with Gooseneck Boom 11.75 m/38’6”



Digging Envelope

Stick lenth	5.00 m/16’ 4”
Max. reach at ground level	20.10 m/65’11”
Max. teeth height	16.20 m/53’ 1”
Max. dump height	10.90 m/35’ 9”
Max. digging depth	9.00 m/29’ 6”
Max. digging force	1760 kN/395,664 lbf
Max. breakout force	1920 kN/431,633 lbf

Operating Weight and Ground Pressure

The operating weight includes the basic machine with backhoe attachment and a 42.00 m³/54.9 yd³ bucket.

Pad width	mm/ft in	1,630/5’4”
Weight	kg/lb	800,000/1,763,696
Ground pressure	kg/cm²/psi	2.71/38.55

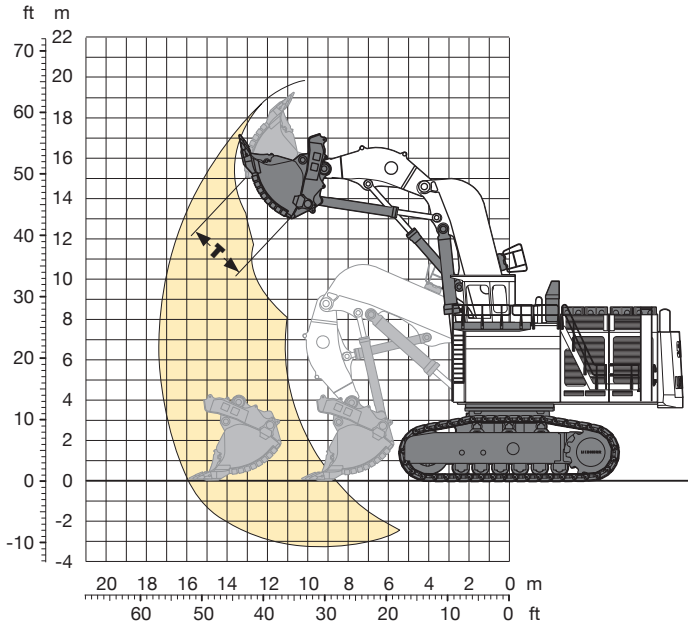
Buckets

For materials classe according to VOB, Section C, DIN 18300		5 – 6	5 – 6	5 – 6	7 – 8
Typical operation according to VOB, Section C, DIN 18300		HD	HD	HD	XHD
Capacity ISO 7451	m³	38.00	40.00	42.00	38.00
	yd³	49.70	52.32	54.94	49.70
Suitable for material up to a specific weight of	t/m³	2.0	1.9	1.8	1.9
	lb/yd³	3,373	3,204	3,035	3,204
Cutting width	mm	4,800	4,800	4,800	4,800
	ft in	15’8”	15’8”	15’8”	15’8”
Weight	kg	43,000	43,600	45,150	47,000
	lb	94,799	96,121	99,539	10,3617

HD: Heavy-duty bucket with Esco S145 teeth
XHD: Heavy-duty rock bucket with Esco S145 teeth

Shovel Attachment

with Shovel Boom 8.55 m/28’



Digging Envelope

Stick length	5.10 m/16’ 8”
Max. reach at ground level	15.90 m/52’ 1”
Max. dump height	13.00 m/42’ 7”
Max. crowd length	5.60 m/18’ 4”
Bucket opening width T	3.00 m/ 9’10”
Crowd force at ground level	2950 kN/663,186 lbf
Max. crowd force	3050 kN/685,667 lbf
Max. breakout force	2400 kN/539,541 lbf

Operating Weight and Ground Pressure

The operating weight includes the basic machine with shovel attachment and a 42,00 m³/54.9 yd³ bucket.

Pad width	mm/ft in	1,630/5’4”
Weight	kg/lb	810,000/1,785,742
Ground pressure	kg/cm²/psi	2.746/39.06

Bottom Dump Buckets

For materials classe according to VOB, Section C, DIN 18300		5 – 6	5 – 6	5 – 6	7 – 8
Typical operation according to VOB, Section C, DIN 18300		HD	HD	HD	XHD
Capacity ISO 7546	m³	38.00	40.00	42.00	38.00
	yd³	49.70	52.32	54.94	49.70
Suitable for material up to a specific weight of	t/m³	2.0	1.9	1.8	1.9
	lb/yd³	3,373	3,204	3,035	3,204
Cutting width	mm	5,600	5,600	5,600	5,600
	ft in	18’4”	18’4”	18’4”	18’4”
Weight	kg	75,000	75,300	75,500	79,000
	lb	165,347	166,008	166,449	174,165
Wear kit level		II	II	II	III

HD: Heavy-duty bucket with Esco S145 teeth
XHD: Heavy-duty rock bucket with Esco S145 teeth

Level II: For preblasted heavy rock, or deteriorated, cracked material (classification 5 to 6, according to DIN 18300)
Level III: For highly-abrasive materials such as rock with a high silica content, sandstone etc.

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, too. 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.

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 nearly 33,000 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.

www.liebherr.com

Printed in Germany by Typodruck RG-BK-RP LFR/SP 11003241-1-07.11_enGB-US

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