

# Mining Excavator

# R 9400

Operating Weight with Backhoe Attachment:	345,500 kg / 760,594 lb
Operating Weight with Shovel Attachment:	353,000 kg / 778,230 lb
Engine Output:	1,250 kW / 1,675 HP
Bucket Capacity:	18.00–24.00 m <sup>3</sup> / 23.5–31.5 yd <sup>3</sup>
Shovel Capacity:	18.00–24.00 m <sup>3</sup> / 23.5–31.5 yd <sup>3</sup>



# LIEBHERR

# Technical Data



## Engine

1 Cummins diesel engine

Rating per SAE J 1995 \_\_\_\_\_ 1,250 kW/1,675 HP at 1,800 rpm

Model \_\_\_\_\_ QSK50 (USA/EPA Tier 2)

Type \_\_\_\_\_ 16 cylinder turbocharged V-engine after-cooler  
two separate water cooling circuits common rail

Displacement \_\_\_\_\_ 50 l/3,067 in<sup>3</sup>

Bore/Stroke \_\_\_\_\_ 159/159 mm/6.26/6.26 in

Engine cooling system \_\_\_\_\_ fans driven via hydraulic piston motor

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

Fuel tank \_\_\_\_\_ 6,908 l/1,825 gal

Electrical system

Voltage \_\_\_\_\_ 24 V

Batteries \_\_\_\_\_ 4 (+ 2) x 170 Ah/12 V

Alternator \_\_\_\_\_ 24 V/260 Amp

Engine idling \_\_\_\_\_ sensor controlled

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



## Electric Motor (optional)

1 electric motor

Power output \_\_\_\_\_ 1,350 kW/1,810 HP

Type \_\_\_\_\_ 3 phase AC squirrel cage motor

Voltage \_\_\_\_\_ 6,000 V, other voltage on request

Frequency \_\_\_\_\_ 50 Hz (or 60 Hz – dependent on country)

Revolutions \_\_\_\_\_ 1,500 rpm or 1,800 rpm

Motor cooling \_\_\_\_\_ integrated air-to-air heat exchanger

Starting method \_\_\_\_\_ reduction of inrush current



## Hydraulic System

Hydraulic pumps for attachment and travel drive \_\_\_\_\_ 4 variable flow axial piston pumps

Max. flow \_\_\_\_\_ 4 x 751 l/min./4 x 198 gpm

Max. hydr. pressure \_\_\_\_\_ 320 bar/4,640 psi

Hydraulic pump for swing drive \_\_\_\_\_ 2 reversible swash plate pumps, closed-loop circuit

Max. flow \_\_\_\_\_ 2 x 390 l/min./2 x 103 gpm

Max. hydr. pressure \_\_\_\_\_ 350 bar/5,076 psi

Pump management \_\_\_\_\_ electronically controlled pressure and flow management with oil flow optimisation

Hydraulic tank capacity \_\_\_\_\_ 2,200 l/581 gal

Hydraulic system capacity \_\_\_\_\_ 4,200 l/1,110 gal

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

Hydraulic oil cooler \_\_\_\_\_ 2 separate coolers, 2 temperature controlled fans driven via hydraulic piston motor



## Hydraulic Controls

Servo circuit \_\_\_\_\_ independant, electric over hydraulic proportional controls of each function

Emergency control \_\_\_\_\_ via accumulator for all attachment functions with stopped engine

Power distribution \_\_\_\_\_ via monoblock control valves with integrated primary relief valves and flanged on secondary valves

Flow summation \_\_\_\_\_ to attachment and travel drive

Control functions

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

Travel \_\_\_\_\_ proportional via foot pedals or hand levers

Bottom dump bucket \_\_\_\_\_ proportional via foot pedals



## Electric System

Electric isolation \_\_\_\_\_ easy accessible battery isolations

Working lights \_\_\_\_\_ high brightness halogen lights:

- 2 on working attachment
- 1 on RHS of uppercarriage
- 3 on LHS of uppercarriage
- 2 on counterweight

Xenon lights in option

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 \_\_\_\_\_ 2 Liebherr axial piston motors

Swing gear \_\_\_\_\_ 2 Liebherr planetary reduction gears

Swing ring \_\_\_\_\_ Liebherr, sealed triple roller swing ring, internal teeth

Swing speed \_\_\_\_\_ 0 - 3.9 rpm

Swing-holding brake \_\_\_\_\_ hydraulically released, maintenance-free, multi-disc brakes integrated in each swing gear



## Uppercarriage

Design \_\_\_\_\_ torque resistant designed upper frame in box type construction for superior strength and durability

Attachment mounting \_\_\_\_\_ parallel longitudinal main girders in box-section construction

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



## Service Flap

Design \_\_\_\_\_ hydraulically actuated service flap, with lighting easily accessible from ground level to allow:

- fuel fast refill
- hydraulic oil refill
- engine oil quick change
- splitterbox oil quick change
- swing gearbox oil quick change
- swing ring teeth grease barrel refilling via grease filter
- attachment/swing ring bearing grease barrel refilling via grease filter
- windshield wash water refilling

Quick couplers on request



# 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, body-contoured with shock absorber, adjustable to operator's weight
Cabin windows	20.5 mm/0.8 in tinted armored glass for front window and right hand side windows, all other windows in tinted safety glass, high pressure windshield-washer system 75 l/20 gal watertank, aluminium sun louvers on all windows
Heating system/ Air conditioning	1 heating system + air conditioning (double unit optionally available) fully automatic
Cabin pressurization	ventilation with filter
Controls	joystick levers integrated into armrest of seat
Monitoring	via LCD-Display, data memory
Rear vision system	camera installation on counterweight and right-hand side of the uppercarriage displayed over an additional LCD-display
Automatic engine shut off	engine self-controlled shut off
Destroking of main pumps	in case of low hydraulic oil level
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 structures for center piece and side frames (stress relieved steel work component as a standard)
Hydraulic motor	2 axial piston motors per side frame
Travel gear	Liebherr planetary reduction gear
Travel speed	0 – 2.7 km/h/0 – 1.67 mph
Parking brake	spring engaged, hydraulically pressure released external wet multi-disc brakes for each travel motor, maintenance-free
Track components	maintenance-free, forged double grouser pad, tractor-type chain, optional maintenance-free dual pin cast link and pad combined
Track rollers/ Carrier rollers	9/2
Automatic track tensioner	pressurized hydraulic cylinder with accumulator
Transport	undercarriage side frames are removable



## Central Lubrication System

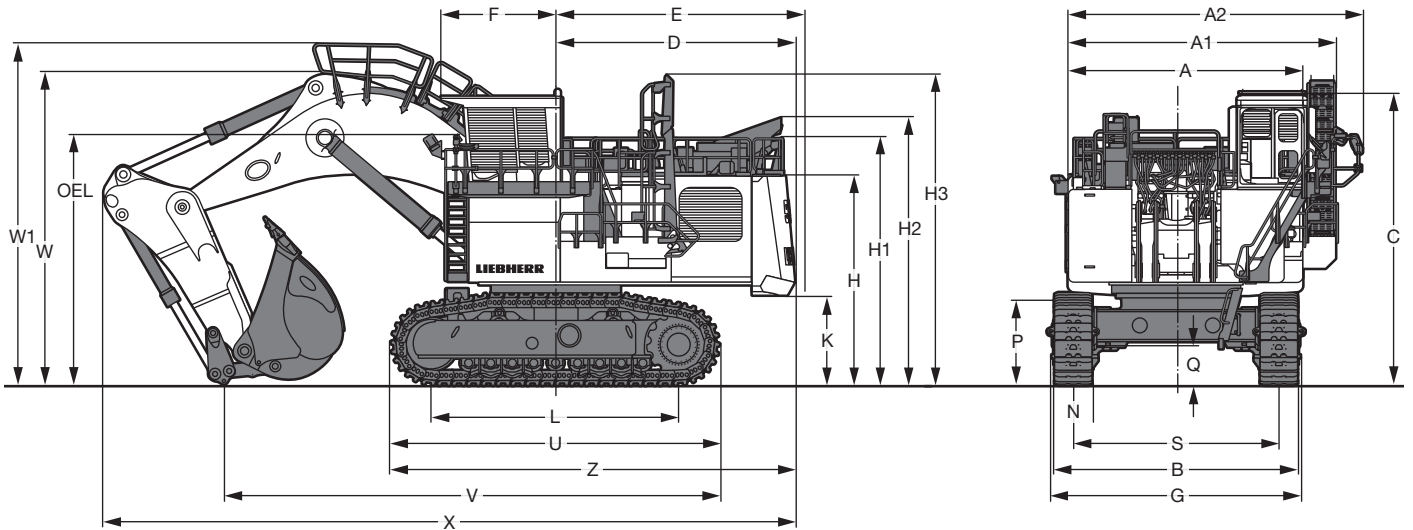
Type	Lincoln Centromatic lubrication system for the entire attachment/swing ring bearing and teeth
Grease pumps	Lincoln Powermaster pump plus separate pump for swing ring teeth
Capacity	200 l/53 gal bulk container for attachment/swing ring bearing, separated 80 l/21 gal container for swing ring teeth
Refill	via the service flap for both containers, fill lines with grease filter



## Attachment

Design	box-type structure with large steel castings in all high-stress areas
Pivots	sealed with double side centering with 1 single floating pin per side, all bearings with wear resistant steel bushings, bolts hardened and chromium-plated
Hydraulic cylinder	Liebherr design and made, all cylinders located in well protected areas
Hydraulic connections	pipes and hoses equipped with SAE split-flange connections
Kinematics	Liebherr parallel face shovel attachment geometry, backhoe bucket pivoting angle 150°, electronic controlled end-cushioning

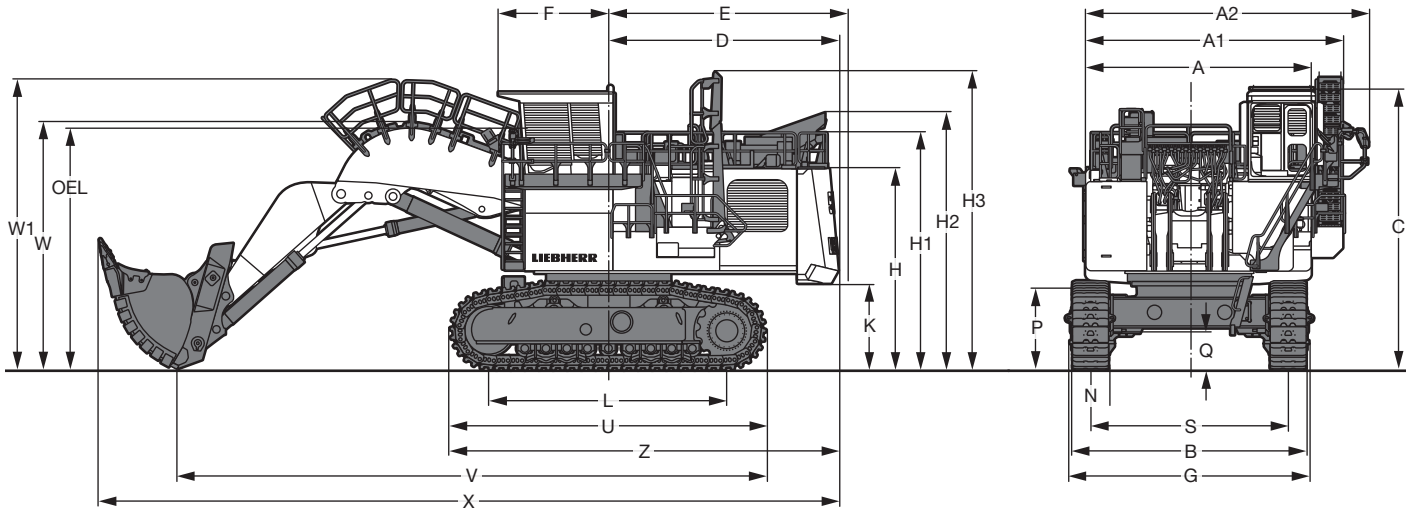
# Dimensions



	mm/ft in
A	6,405/21'
A1	7,184/23' 6"
A2	7,900/25'10"
C	7,957/26' 1"
D	6,400/20'11"
E	6,665/21'10"
F	3,100/10' 2"
H	5,664/18' 6"
H1	6,653/21' 9"
H2	7,227/23' 8"
H3	8,343/27' 4"
K	2,434/ 7'11"
L	6,645/21' 9"

	mm/ft in
P	2,494/ 8' 2"
Q	1,187/ 3'10"
S	5,516/18' 1"
U	8,825/28'11"
Z	10,657/34'11"
N	1,000/ 3' 3"
B	6,516/21' 4"
G	6,926/22' 8"
V	13,279/43' 6"
W	8,421/27' 7"
W1	9,243/30' 3"
X	18,560/60'10"
OEL	Operator's Eye Level
	6,740/22' 1"

# Dimensions

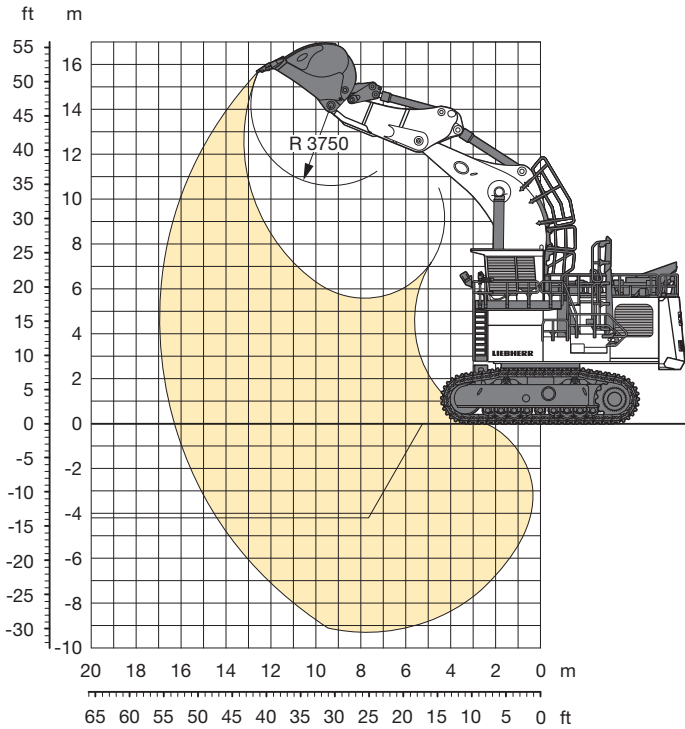


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Q	1,187/ 3'10"
S	5,516/18' 1"
U	8,825/28'11"
Z	10,657/34'11"
N	1,000/ 3' 3"
B	6,516/21' 4"
G	6,926/22' 8"
V	16,400/53' 9"
W	6,800/22' 3"
W1	8,100/26' 6"
X	20,600/67' 6"
OEL	Operator's Eye Level 6,740/22' 1"

# Backhoe Attachment

with Gooseneck Boom 9.30 m/30'6"



## Digging Envelope

Stick length	4.20 m/13' 9"
Max. reach at ground level	16.30 m/53' 5"
Max. teeth height	15.50 m/50'10"
Max. dump height	10.50 m/34' 5"
Max. digging depth	9.50 m/31' 1"
Max. digging force (ISO)	1000 kN/224,809 lbf
Max. breakout force (ISO)	1050 kN/236,049 lbf

## Operating Weight and Ground Pressure

The operating weight includes the basic machine with backhoe attachment and a 22.00 m<sup>3</sup>/28.78 yd<sup>3</sup> bucket.

Pad width	mm/ft in	1,000/3'3"
Weight	kg/lb	345,500/760,594
Ground pressure	kg/cm <sup>2</sup> /psi	2.60/36.98

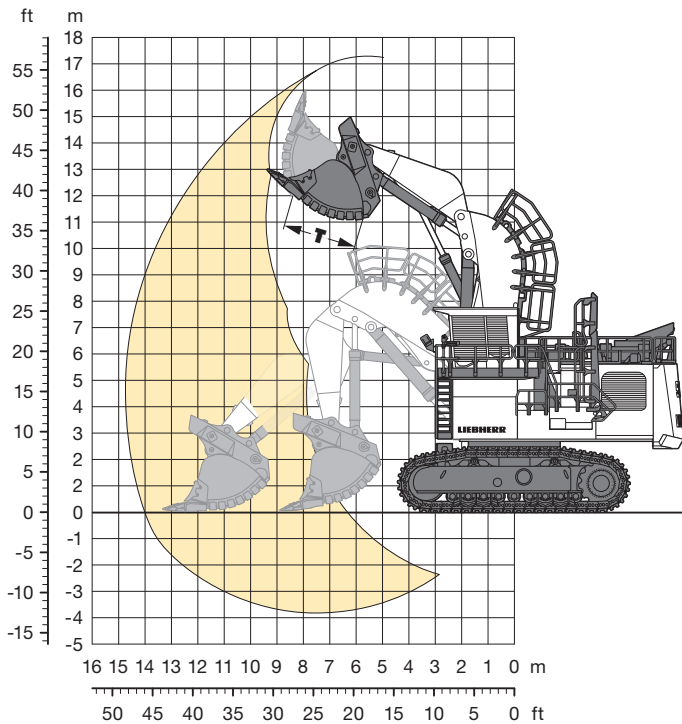
## Buckets

For materials classe according to VOB, Section C, DIN 18300		< 5	5 – 6	5 – 6	5 – 6	7 – 8	7 – 8
Typical operation according to VOB, Section C, DIN 18300		GP	HD	HD	HD	XHD	XHD
Capacity ISO 7451	m <sup>3</sup>	24.00	18.00	22.00	24.00	18.00	20.00
	yd <sup>3</sup>	31.39	23.54	28.78	31.39	23.54	26.16
Suitable for material up to a specific weight of	t/m <sup>3</sup>	1.7	2.2	1.8	1.6	2.0	1.8
	lb/yd <sup>3</sup>	2,867	3,710	3,035	2,698	3,373	3,035
Cutting width	mm	3,900	3,400	3,700	3,900	3,400	3,700
	ft in	12'9"	11'1"	12'1"	12'9"	11'1"	12'1"
Weight	kg	22,000	23,000	23,000	23,800	24,500	25,000
	lb	48,502	50,706	50,706	52,470	54,013	55,116

GP: General purpose bucket  
 HD: Heavy-duty bucket  
 XHD: Heavy-duty rock bucket

# Shovel Attachment

with Shovel Boom 6.75 m/22'1"



## Digging Envelope

Stick length	4.30 m/14' 1"
Max. reach at ground level	14.00 m/45' 11"
Max. dump height	11.20 m/36' 8"
Max. crowd length	4.50 m/14' 9"
Bucket opening width T	2.50 m/ 8' 2"
Crowd force at ground level (ISO)	1195 kN/268,647 lbf
Max. crowd force (ISO)	1610 kN/361,942 lbf
Max. breakout force (ISO)	1290 kN/290,004 lbf

## Operating Weight and Ground Pressure

The operating weight includes the basic machine with shovel attachment and a 22.00 m<sup>3</sup>/28.78 yd<sup>3</sup> bucket.

Pad width	mm/in	1,000/3'3"
Weight	kg/lb	353,000/778,230
Ground pressure	kg/cm <sup>2</sup> /psi	2.66/37.83

## Bottom Dump Buckets

For materials classe according to VOB, Section C, DIN 18300		< 5	< 5	5 – 6	5 – 6	7 – 8	7 – 8
Typical operation according to VOB, Section C, DIN 18300		GP	GP	HD	HD	XHD	XHD
Capacity ISO 7546	m <sup>3</sup>	24.00	22.00	18.00	22.00	18.00	19.00
	yd <sup>3</sup>	31.39	28.78	23.54	28.78	23.54	24.85
Suitable for material up to a specific weight of	t/m <sup>3</sup>	1.6	1.8	2.2	1.8	2.1	1.9
	lb/yd <sup>3</sup>	2,698	3,035	3,710	3,035	3,541	3,204
Cutting width	mm	4,250	4,250	4,250	4,250	4,250	4,250
	ft in	13'11"	13'11"	13'11"	13'11"	13'11"	13'11"
Weight	kg	36,700	35,400	35,400	35,400	37,500	38,500
	lb	80,910	78,044	78,044	78,044	82,673	84,878
Wear kit level		I	I	II	II	III	III

GP: General purpose bucket  
 HD: Heavy-duty bucket  
 XHD: Heavy-duty rock bucket

Level I: For non-abrasive materials, such as limestone, without flint inclusion, shot material or easily breakable rock, i.e., deteriorated rock, soft limestone, shale, etc.

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](http://www.liebherr.com)



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