

Mining Excavator

R 9100

Operating Weight with Backhoe Attachment:	110,100 kg / 242,729 lb
Operating Weight with Shovel Attachment:	114,000 kg / 251,327 lb
Engine Output:	565 kW / 757 hp
Bucket Capacity:	2.90 - 7.70 m ³ / 3.8 - 10.1 yd ³
Shovel Capacity:	5.60 - 8.70 m ³ / 7.3 - 11.4 yd ³



LIEBHERR



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Liebherr Diesel Engine

- Heavy duty diesel engine, specifically designed for operation in mining
- Maximum output at low engine speed
- Long life expectancy
- Common rail injection system
- USA/EPA Tier 2 and Tier 4i compliant
- Oil exchange interval of 500 SMU



Performance by Design

Liebherr's R 9100 commences a complete new machine generation in the 100 t mining excavator class. The machine sets new standards in productivity, reliability and cost effective machine operation.

Productivity and Efficiency

The new attachment kinematics combined with a high-level hydraulic system pressure provide high crowd and breakout forces. Even under tough conditions Liebherr's R 9100 high digging forces allow excellent bucket penetration and high bucket fill factors.

Reliability

Proven high-quality Liebherr systems and components are integrated into the R 9100. The enhanced single-line lubrication system and the fuel and oil filtration system contribute to the high reliability of the mining excavator. The Liebherr machine design and components ensure maximum availability and performance throughout the whole equipment life.

Operating and Servicing

The new large operator cab offers ideal working conditions and first class comfort. The enhanced position of the operator station and the large panorama windows provide an outstanding visibility over the whole working environment. Two cameras displayed over the new 10.5 inch screen showing areas that cannot be observed directly. The cab's effective insulation sets up quiet working environment for best productivity. All service points are within reach from one machine side and at superior machine level. Hinged louvers allow for easy cleaning and maintenance tasks.

Safety and Environment

Large catwalks enable ergonomic component access for safe and fast servicing. Powered with the new Liebherr Mining diesel engine USA/EPA Tier 2 and Tier 4i compliant, the R 9100 enables fuel-efficient operations meeting the latest emission standards. The separated coolers for hydraulic oil and radiator with independent hydrostatic fans allow an optimum temperature control of the machine. This cooling concept provides an efficient and low energy specific consumption of the auxiliary system whilst ensuring operation even under extreme mining conditions.

Machine Monitoring and Control System

- Information interface to operator and service crew
- In display camera view
- Major machine information display
- Real text maintenance information
- Allows modification of system settings
- Multiple languages



New Cab Design

- Outstanding visibility over the whole working environment
- Air condition
- Tinted laminated safety glass
- FOPS structure (option)
- Armored glass in front and right-hand side front windows (option)
- Cab pressurization (option)
- Low vibration and super silent
- Optional « Operator Comfort Kit » with sun blinds, cool box, additional light ...

Technical Data



Engine

1 Liebherr diesel engine
 Rating per ISO 9249 _____ 565 kW/757 hp at 1,800 rpm
 Model _____ Liebherr D9512
 (USA/EPA Tier 2 and Tier 4i compliant)

Type _____ V12 cylinder engine
 Bore/Stroke _____ 128/157 mm/5.04/6.18 in
 Displacement _____ 24.24 l/1,479 in³
 Engine operation _____ 4-stroke diesel
 common-rail direct injection
 turbo-charged

Cooling _____ water-cooled
 Air cleaner _____ dry-type air cleaner with pre-cleaner,
 primary and safety elements, automatic
 dust discharge

Fuel tank _____ 1,585 l/419 gal
 Engine idling _____ electronically controlled

Electrical system
 Voltage _____ 24 V
 Batteries _____ 4 x 144 Ah/12 V
 Starter _____ 24 V/2 x 8.4 kW
 Alternator _____ 24 V/140 A

RPM adjustment _____ stepless adjustment of engine output via
 rpm at each selected mode



Hydraulic System

Hydraulic pump
 for attachment and
 travel drive _____ 3 Liebherr variable flow axial piston pumps
 Max. flow _____ 3 x 435 l/min./3 x 115 gpm
 Max. pressure _____ 350 bar/5,076 psi
 Pump management _____ electronically controlled pressure and flow
 management with oil flow optimisation

Hydraulic pump
 for swing drive _____ 1 Liebherr reversible swash plate pump,
 closed-loop circuit
 Max. flow _____ 420 l/min./111 gpm
 Max. pressure _____ 380 bar/5,511 psi

Hydraulic tank _____ 1,000 l/264 gal
 Hydraulic system _____ 1,250 l/330 gal
 Hydraulic oil filter _____ 1 high pressure safety filter after each high
 pressure pump + fine filtration of entire
 return flow

Hydraulic cooler _____ 1 separated cooler, temperature controlled
 fan driven via 1 hydraulic piston motor

MODE selection _____ adjustment of machine performance and
 the hydraulics via a mode selector to match
 application

ECO _____ for economical operation
 POWER _____ for maximum digging power and heavy
 duty jobs



Hydraulic Controls

Power distribution _____ via monoblock control valves with inte-
 grated primary relief valves and flanged
 on secondary valves

Flow summation _____ to attachment and travel drive
 Closed-loop circuit _____ for uppercarriage swing drive

Servo circuit
 Attachment and
 swing _____ proportional via hydraulic joystick levers
 Travel _____ proportional via hydraulic pedals or
 removable hand levers

Shovel flap functions _____ proportional via hydraulic pedals



Electric System

Electric isolation _____ easy accessible battery isolations
 Working lights _____ high brightness halogen lights:
 - 2 on working attachment
 - 1 on RHS of uppercarriage
 - 1 on LHS of uppercarriage
 Xenon lights in option

Emergency stop switches _____ in the cab/in option in engine compartment

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

Drive by _____ 2 Liebherr axial piston motors
 Transmission _____ 2 Liebherr planetary reduction gears
 Swing ring _____ Liebherr, sealed single race ball bearing
 swing ring, internal teeth

Swing speed _____ 0 - 6 rpm stepless
 Parking brake _____ wet multi-disc brakes, spring applied,
 hydraulically released



Uppercarriage

Design _____ torque resistant modular design upper
 frame

Attachment mounting _____ parallel length girders
 Catwalks _____ large catwalk on the left-hand side

Technical Data



Operator's Cab

Cab	sound insulated, tinted windows. Front window armored glass, door with sliding window
Operator's seat	air suspended, body-contoured with shock absorber, adjustable to operator's weight
Joysticks	joystick levers integrated into armrest of seat, armrest adjustable to seat position
Condition monitoring	machine condition monitoring system with error reporting and operational information
Display	color LCD-display with low and high brightness settings
Rear vision system	camera installation on counterweight and right-hand side of the uppercarriage displayed over the LCD-display
Heating system	standard automatic air conditioning, combined cooler/heater, additional dust filter in fresh air/recirculated



Undercarriage

Version HD	heavy duty
Drive	Liebherr swash plate motors
Transmission	Liebherr planetary reduction gears
Travel speed	0 – 3.5 km/h / 0 – 2.17 mph
Track components	track pitch 280 mm/11.02 in, maintenance-free
Track rollers/ Carrier rollers	8/2
Track pads	double grouser
Parking brake	wet multi-discs (spring applied, pressure released)
Brake valves	integrated in main valve block



Central Lubrication System

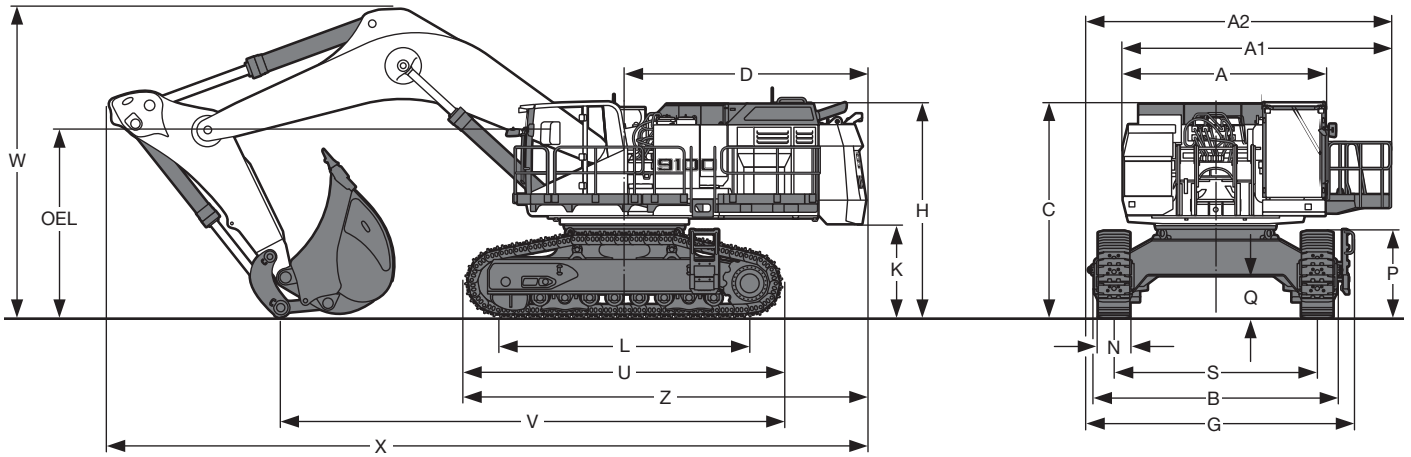
Type	centralised manual lubrication system for the entire attachment/swing ring bearing (automatic system in option) automatic Lincoln lubrication system for the swing ring teeth
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Attachment

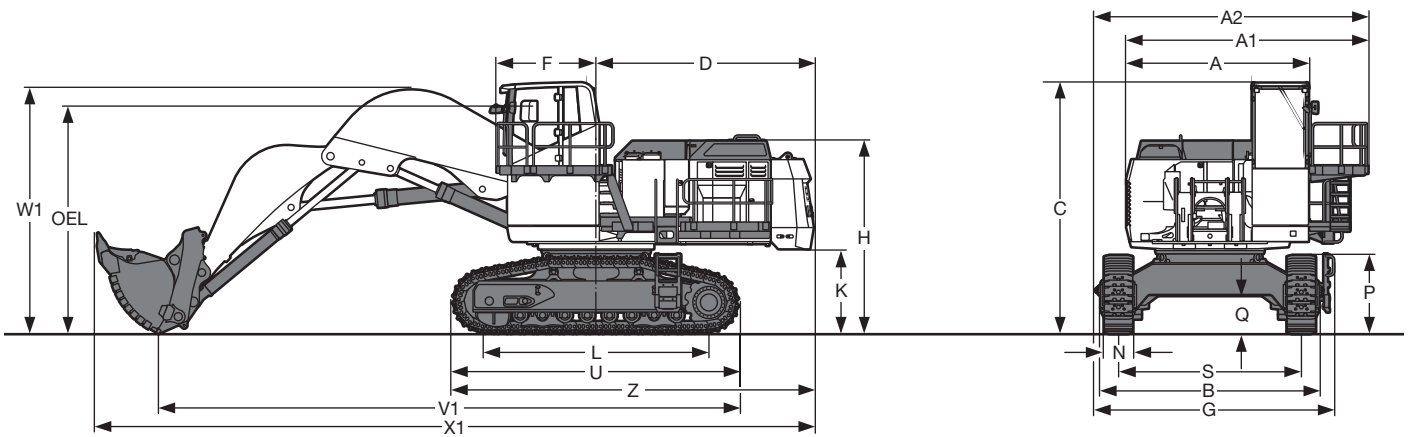
Type	box-type, combination of resistant steel plates and cast steel components
Hydraulic cylinders	Liebherr design
Pivots	sealed, low maintenance
Pivots bucket-to-stick bucket-to-link	O-ring sealed and completely enclosed
Hydraulic connections	pipes and hoses equipped with SAE flange connections

Dimensions



	mm/ft in
A	3,920/12'10"
A1	4,337/14' 2"
A2	5,134/16'10"
C	4,143/13' 7"
D	4,630/15' 2"
H	4,114/13' 5"
K	1,803/ 5'10"
L	4,810/15' 9"
P	1,663/ 5' 5"
Q	812/ 2' 7"
S	3,900/12' 9"
U	6,107/20'
N	500/1'7" 600/1'11" 750/ 2' 5"
B	4,780/15' 8"
G	5,031/16' 6"
Z	7,683/25' 2"
OEL	Operator's Eye Level 2,873/ 9' 5"

Stick Length	Gooseneck Boom	Gooseneck Boom	
	7.60 m/24'11"	9.20 m/30'2"	
m/ft in	mm/ft in	mm/ft inn	
V	3.20/10'5"	9,660/31'8"	11,445/37'6"
	4.50/14'9"	-/-	9,930/32'6"
	5.60/18'4"	-/-	9,890/32'5"
W	3.20/10'5"	6,035/19'9"	6,210/20'4"
	4.50/14'9"	-/-	6,800/22'3"
	5.60/18'4"	-/-	7,550/24'9"
X	3.20/10'5"	14,560/47'9"	16,080/52'8"
	4.50/14'9"	-/-	15,385/50'5"
	5.60/18'4"	-/-	14,825/48'7"

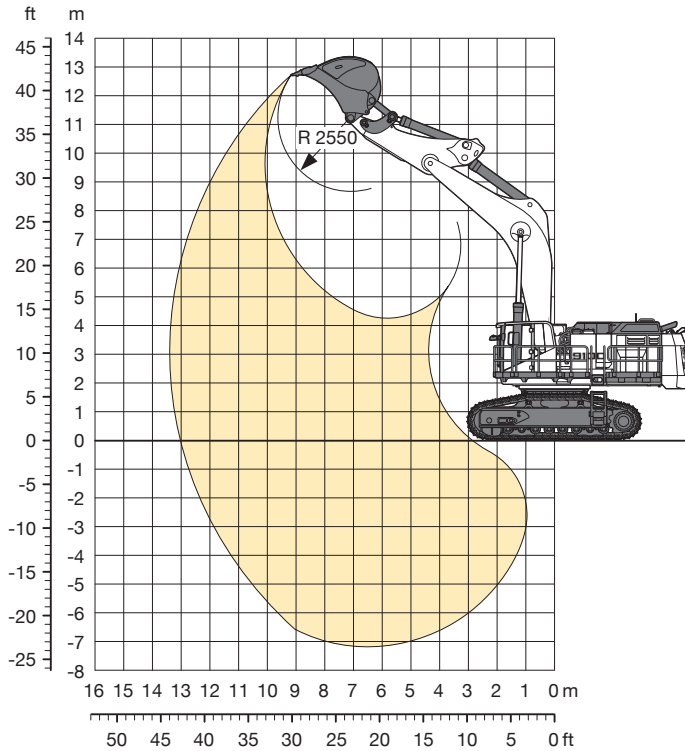


	mm/ft in
A	3,920/12'10"
A1	4,337/14' 2"
A2	5,134/16'10"
C	4,148/13' 7"
D	4,630/15' 2"
F	2,000/ 6' 6"
H	4,114/13' 5"
K	1,803/ 5'10"
L	4,810/15' 9"
P	1,663/ 5' 5"
Q	812/ 2' 7"

	mm/ft in
S	3,900/12' 9"
U	6,107/20'
Z	7,683/25' 2"
N	500/1'7" 600/1'11" 750/ 2' 5"
B	4,780/15' 8"
G	5,031/16' 6"
V1	12,350/40' 6"
W1	5,300/17' 4"
X1	13,700/44'11"
OEL	Operator's Eye Level 4,073/13' 4"

Backhoe Attachment

with Gooseneck Boom 7.60 m/24'11"



Digging Envelope

Stick length	m	3.20
	ft in	10'5"
Max. digging depth	m	7.15
	ft in	23'5"
Max. reach at ground level	m	13.00
	ft in	42'7"
Max. dump height	m	8.65
	ft in	28'4"
Max. teeth height	m	12.70
	ft in	41'7"
Max. digging force (SAE)	kN	404
	lbf	90,823
Max. breakout force (SAE)	kN	512
	lbf	115,102

Operating Weight and Ground Pressure

The operating weight includes the basic machine with gooseneck boom 7.60 m/24'11", stick 3.20 m/10'5" and bucket 6.80 m³/8.89 yd³.

Undercarriage		HD	
Pad width	mm/ft in	600/1'11"	750/2'5"
Weight	kg/lb	110,100/242,729	111,120/244,977
Ground pressure	kg/cm ² /psi	1.91/27.17	1.54/21.90

Buckets

For materials classe according to VOB, Section C, DIN 18300		< 5	< 5	< 5	5 – 6	5 – 6	5 – 6	7 – 8	7 – 8	7 – 8
Typical operation according to VOB, Section C, DIN 18300		GP	GP	GP	HD	HD	HD	XHD	XHD	XHD
Capacity ISO 7451	m ³	7.70	7.00	6.30	7.50	6.80	6.10	6.50	6.00	5.50
	yd ³	10.07	9.16	8.24	9.81	8.89	7.98	8.50	7.85	7.19
Suitable for material up to a specific weight of	t/m ³	1.6	1.8	2.0	1.6	1.8	2.0	1.6	1.8	2.0
	lb/yd ³	2,698	3,035	3,373	2,698	3,035	3,373	2,698	3,035	3,373
Cutting width	mm	2,600	2,400	2,250	2,550	2,400	2,250	2,600	2,500	2,500
	ft in	8'6"	7'10"	7'4"	8'4"	7'10"	7'4"	8'6"	8'2"	8'2"
Weight	kg	7,000	6,700	6,700	7,300	7,100	7,100	8,900	8,500	7,700
	lb	15,432	14,771	14,771	16,094	15,653	15,653	19,621	18,739	16,976

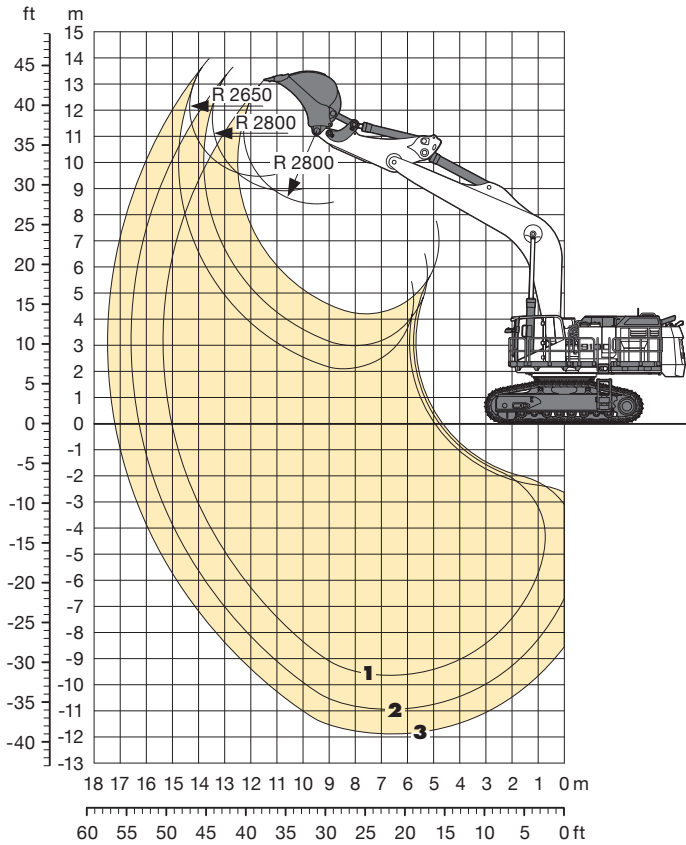
GP: General purpose bucket with Liebherr Z90 teeth

HD: Heavy-duty bucket with Esco 70SV2 teeth

XHD: Heavy-duty rock bucket with Esco 70SV2 teeth

Backhoe Attachment

with Gooseneck Boom 9.20 m/30'2"



Digging Envelope

		1	2	3
Stick length	m	3.20	4.50	5.60
	ft in	10'5"	14'9"	18'4"
Max. digging depth	m	9.64	10.94	11.90
	ft in	31'7"	35'10"	39'
Max. reach at ground level	m	15.02	16.20	17.07
	ft in	49'3"	53'1"	55'11"
Max. dump height	m	8.40	8.70	9.08
	ft in	27'6"	28'6"	29'9"
Max. teeth height	m	13.16	13.45	13.57
	ft in	43'1"	44'1"	44'6"
Max. digging force (SAE)	kN	380	330	300
	lbf	85,427	74,187	67,443
Max. breakout force (SAE)	kN	450	450	478
	lbf	101,164	101,164	107,459

Operating Weight and Ground Pressure

The operating weight includes the basic machine with gooseneck boom 9.20 m/30'2", stick 4.50 m/14'9" and bucket 4.20 m³/5.49 yd³.

Undercarriage		HD	
Pad width	mm/ft in	600/1'11"	750/2'5"
Weight	kg/lb	112,660/248,372	113,680/250,621
Ground pressure	kg/cm ² /psi	1.95/27.74	1.58/22.47

Buckets

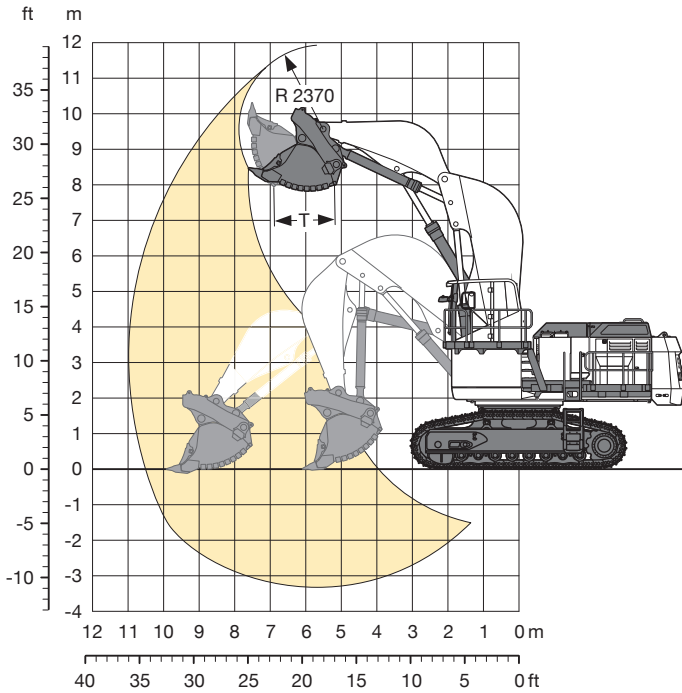
For materials classe according to VOB, Section C, DIN 18300		< 5	5 – 6	5 – 6	5 – 6	5 – 6	5 – 6
Typical operation according to VOB, Section C, DIN 18300		GP	HD	HD	HD	HD	HD
Capacity ISO 7451	m ³	6.30	5.80	5.20	4.20	3.50	2.90
	yd ³	8.24	7.59	6.80	5.49	4.58	3.79
Suitable for material up to a specific weight of							
with stick 3.20 m	t/m ³	1.2	1.5	1.8	2.0	2.2	–
with stick 10'5"	lb/yd ³	2,024	2,530	3,035	3,373	3,710	–
with stick 4.50 m	t/m ³	–	1.2	1.5	1.8	2.0	2.2
with stick 14'9"	lb/yd ³	–	2,024	2,530	3,035	3,373	3,710
with stick 5.60 m	t/m ³	–	–	1.2	1.5	1.8	2.0
with stick 18'4"	lb/yd ³	–	–	2,024	2,530	3,035	3,373
Cutting width	mm	2,250	2,250	1,900	1,500	1,400	1,300
	ft in	7'4"	7'4"	6'2"	4'11"	4'7"	4'3"
Weight	kg	6,700	6,800	6,100	5,700	4,600	3,800
	lb	14,771	14,991	13,448	12,566	10,141	8,378

GP: General purpose bucket with Liebherr Z90 teeth

HD: Heavy-duty bucket with Esco 70SV2 teeth

Shovel Attachment

with Shovel Boom 5.30 m/17'4"



Digging Envelope

Stick length	3.70 m/12'1"
Max. reach at ground level	10.50 m/34'5"
Max. dump height	8.10 m/26'6"
Max. crowd length	3.70 m/12'1"
Bucket opening width T	1,700 mm/ 5'6"
Max. crowd force at ground level SAE	545 kN/122,521 lbf
Max. crowd force SAE	671 kN/150,847 lbf
Max. breakout force SAE	544 kN/122,296 lbf

Operating Weight and Ground Pressure

The operating weight includes the basic machine with shovel attachment and a 7.00 m³/9.16 yd³ bucket.

Undercarriage		HD	
Pad width	mm/ft in	600/1'11"	750/2'5"
Weight	kg/lb	114,000/251,327	115,020/253,575
Ground pressure	kg/cm ² /psi	1.98/28.16	1.59/22.62

Bottom Dump Buckets

For materials classe according to VOB, Section C, DIN 18300		< 5	< 5	5 – 6	5 – 6	5 – 6	5 – 6	7 – 8	7 – 8	7 – 8
Typical operation according to VOB, Section C, DIN 18300		GP	GP	HD	HD	HD	HD	XHD	XHD	XHD
Capacity ISO 7546	m ³	8.70	7.50	7.50	7.00	6.40	5.60	7.00	6.40	5.60
	yd ³	11.38	9.81	9.81	9.16	8.37	7.32	9.16	8.37	7.32
Suitable for material up to a specific weight of	t/m ³	1.3	1.7	1.6	1.8	2.0	2.4	1.5	1.8	2.2
	lb/yd ³	2,192	2,867	2,698	3,035	3,373	4,047	2,530	3,035	3,710
Cutting width	mm	2,750	2,750	2,750	2,750	2,750	2,500	2,750	2,750	2,500
	ft in	9'	9'	9'	9'	9'	8'2"	9'	9'	8'2"
Weight	kg	12,600	11,400	12,000	11,400	11,000	10,400	13,200	12,400	11,600
	lb	27,778	25,133	26,455	25,133	24,251	22,928	29,101	27,337	25,574
Wear kit level		I	I	II	II	II	II	III	III	III

GP: General purpose bucket with Liebherr Z90 teeth

HD: Heavy-duty bucket with Esco 70SV2 teeth

XHD: Heavy-duty rock bucket with Esco 70SV2 teeth

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 100 companies with over 32,000 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 Eberl RG-BK-RP LFR/SP 11003235-1.5-03.10_enGB-US

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