

# Mining Excavator

## **R 9100**

Operating Weight with  
Backhoe Attachment:  
**108.5 tonnes / 120 tons**

Shovel Attachment:  
**112.5 tonnes / 124 tons**

Engine:  
**565 kW / 757 HP**

Bucket Capacity:  
**7.0 m<sup>3</sup> / 9.2 yd<sup>3</sup>**

Shovel Capacity:  
**7.0 m<sup>3</sup> / 9.2 yd<sup>3</sup>**



# **LIEBHERR**

*Courtesy of Machine.Market*



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**Productivity**

Working Harder and Faster



**Efficiency**

Moving More for Less







### Reliability

Ready to Work  
When You Need It



### Customer Service

World-Class Support,  
Everywhere, Every Day



### Safety

Protecting Your Most  
Important Assets



### Environment

Mining Responsibly







# Productivity



## Working Harder and Faster

Efficient and effective by design, the R 9100 sets a new standard in job performance and functions as the optimal tool for loading 50 t up to 100 t off highway trucks. Offering a unique level of versatility the R 9100 opens up new opportunities for a wide range of excavating applications.

## Fast and Precise Movement

### Liebherr Engine V12

The R 9100 is equipped with the long-lasting and proven Liebherr V12 diesel engine specifically designed to withstand extreme outside temperatures and high altitudes with low atmospheric pressure. Integrating the latest engine management system, the R 9100 is built for extreme conditions.

### Fast Cycle Time

Like all other Liebherr mining excavators, the R 9100 uses a closed-loop swing circuit. The main hydraulic circuit comprises a combination of three independent main valves fed by three working pumps, providing unrivaled flexibility of attachment control and force distribution, while allowing full oil flow integration for fast movement and lowest cycle times.

### Precise Machine Motions

The R 9100's hydraulic control system is optimized in order to improve combined machine motions. The ergonomically mounted joysticks on the suspended seat armrests allow the operator to precisely position the machine.

## High Digging and Lifting Capabilities

### High Digging Forces

Designed for the best mechanical force distribution, the production-tailored attachment delivers tough digging and lifting forces. Integrating Liebherr-made cylinders and a wide range of buckets with mining optimized GET, the R 9100's attachment ensures the highest forces, easy bucket penetration and high fill factor to perform even in the most demanding conditions.

### Power-Oriented Energy Management

The R 9100's attachment is equipped with the pressureless boom-down function to enable fast cylinder retraction without the need for pump energy. Intelligent energy management diverts the pump flow during boom lowering, allowing other cylinder motions to operate unimpeded.



### Liebherr Diesel Engine

- V12 by Liebherr
- US/EPA Tier 2/Tier 4i compliant
- Fuel consumption optimized version (optional)
- Automatic idle control
- Max. altitude without derating: 3,600 m
- Eco-Mode selector

### Liebherr Site-Specific Bucket

- 4 to 5 passes to load a 50 t off highway truck
- Three types of wear package
- Maximal bucket fill factor
- Integrated approach on machine capabilities
- Light weight bucket for max. loading capacities (optional)

### Exclusive Bucket Solution

- Innovative Liebherr bucket design to maximize bucket fill factor
- Optimized Liebherr GET and wear package according to customer application
- Ensures optimal penetration efficiency
- Single GET hammerless locking system for safe and easy maintenance
- Fully patented GET system design for optimal penetration/lifetime
- Four tooth profiles available for various range of applications





# Efficiency



## Moving More for Less

The R 9100 follows the Liebherr design philosophy of maximizing a machine's performance by improving the efficiency of all individual subsystems. Engineered for easy serviceability, the machine is designed to ensure maximum uptime. The R 9100's modern cab creates a comfortable working environment, ensuring peak operator performance at every shift.

## Built for Maximum Profitability

### Hydraulic System Efficiency

Liebherr advanced hydraulic technology contributes to the R 9100's energy optimization. The high-pressure hydraulic system and the optimized pipe and hose layout maximize usable power transmission. The hydraulic pumps are managed to provide optimal pressure compensation and oil flow management. The hydraulic system is independently regulated over the engine circuit for the best operational efficiency.

### Independent Cooling System

Oil and water cooling fans are independent and electronically managed. The on-demand cooling control enables to maximize available power for the working process. This technology contributes to maintain sustainable temperature of all the hydraulic components extending their life.

### Closed Loop Swing Circuit

The Liebherr Mining excavators are all equipped with a closed loop swing circuit. The kinematic energy can be saved when the swing motion is used during deceleration, to drive the main and auxiliary pumps, reducing fuel consumption and allowing faster boom lift motion.

## Comfortable Cab for Efficient Work

### Superior Operator Comfort

The modern large cab provides ideal working conditions and optimal operator's comfort. Mounted on silent blocks, the R 9100's cab design reduces vibrations and limits noise pollution to provide a quiet working environment.

## Extended Components Lifetime

The R 9100's hydraulic oil filtration systems remove fluid contaminants to offer the highest rate of hydraulic components durability. To maintain oil quality, all return hydraulic oil flow goes through a fine filtration system (15/5 µm) and oil tank is sized to considerably extend the time between service intervals.



### Advanced Machine Monitoring

- 10.5" LCD color screen
- Information interface to operator
- On-board diagnostics to service staff
- Real text information
- Long term data storage for maintenance

### First-Class Service Arrangements

- Service friendly design allows easy and fast maintenance for maximum uptime:
- Service from one-side
  - Large catwalk and walkway
  - Refillable grease tanks instead of drums to be changed
  - Centralized lubrication system
  - Enhanced single-line lubrication system

### Comfort-Oriented Cab Design

- Tinted laminated safety glass
- Armored front window
- Adjustable air suspended seat
- A/C with dust filter in fresh / recirculated air
- Pressurization to prevent dust penetration (optional)
- Optional Operator Comfort Kit: sun blinds, bottle cooler, reading light, premium seat with cooling / airing system, electronic weight adjustment





# Reliability



## Ready to Work When You Need It

With over 50 years of innovative thinking, engineering and manufacturing excellence, Liebherr sets the industry standard for advanced equipment design and technology tools to provide the most up-to-date product, responding to the requirements of mining customers.



# Quality: the Liebherr Trademark

## Liebherr Components Integration

As an OEM, Liebherr has built a solid reputation for its development and production of high quality strategic mining components. The R 9100 integrates robust and reliable mining optimized components that are developed, manufactured and controlled by Liebherr ensuring reliable performance for the entire machine.

## Machine Reliability Survey

Based on years of experience and the systematic measurement of key performance indicators of the machine behavior in the field, the Liebherr Mining Reliability Engineering Group is constantly seeking new ways to enhance reliability.

## Quality Management Continuous Improvement

Liebherr quality begins during machine design and simulations. Liebherr meets the highest standards for special selection of steels and casting materials. Based on the expertise of certified internal auditors and a highly qualified workforce, all manufacturing process steps are devised to provide the most comprehensive control, monitoring and traceability. Liebherr-Mining Equipment Colmar SAS is ISO 9001 certified.

# Long-lasting Job Performances

## Maximized Components Lifetime

The R 9100 is equipped with an automatic single line lubrication system for the entire attachment and swing ring. All greasing points are suitably protected against external damages, extending component life and ensuring constant performance over the excavator's operational life.

## Rugged Undercarriage Structure

The R 9100 is mounted on a heavy duty fatigue resistant undercarriage and is equipped with the proven track chain system from heavier Liebherr excavators. Designed and built for both shovel and backhoe configuration, the R 9100 provides the necessary stability and reliability.



### Liebherr Component Integration

- Diesel engine
- Hydraulic pumps and motors
- Electronic and control technology
- Swing and travel drives
- Hydraulic cylinders
- Splitter box
- Swing ring
- GET

### Quality Commitment

- Liebherr-Mining Equipment Colmar, France, ISO 9001 certified
- Compliance of materials tested in laboratory
- Quality control during the stages of production
- Vertical integration practice

### Arctic Package (optional)

- Designed for reliability in regions with temperatures of down to  $-50^{\circ}\text{C}/-58^{\circ}\text{F}$ :
- Integrated into machine structure
  - Start up easily even at very low temperatures
  - Increases machine availability and component lifetime
  - Optimum operator comfort even in harsh temperature conditions
  - Facilitate machine servicing



# Customer Service



## World-Class Support, Everywhere, Every Day

By partnering with our customers, Liebherr implements tailored solutions from technical support, spare parts and logistics solutions to global maintenance for all types of equipment, all over the world.



## Customer Support

### International Service Organization

The Liebherr Service Support has always been an important focus for the company. Complete service during all operating phases from machinery installation to problem solving, spare parts inventory and technical service. Our service team is close to our customers, delivering the best specific maintenance solution to reduce both equipment downtime and repair costs.

### Complete Training Program

From fully trained technicians to a full team of certified field service engineers, Liebherr commits to provide you with world class training. Dedicated to mining, the Liebherr training team provides maintenance staff training programs to allow cost-efficient and safe operations.

## Remanufacturing

### Reduced Costs and Investment

Over the course of a mining machine's lifetime, major components must be replaced to ensure continued safety, productivity and reliability. The Liebherr Mining Remanufacturing Program offers customers an OEM alternative to purchasing brand new replacement components. Enabling customers to achieve lowest possible equipment lifecycle costs without compromising quality, performance or reliability.

### Fast Availability

A international service network and component facilities worldwide means that component repair services and exchange components are available to customers regardless of their location.

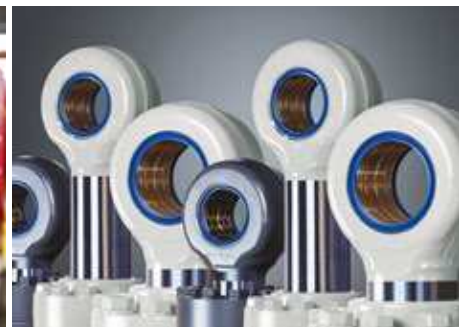
## Genuine Parts

### Performance

Using genuine Liebherr components ensures the best interaction within your machine, encouraging optimal performance and most effective machine operation and you can be sure that you are in line with the latest improvements and updates on parts: providing peace-of-mind as all major components are tracked in the Liebherr Maintenance Management System.

### Partnership

Liebherr regularly reviews requirements for parts and components for individual machines, based on operating hours, consumption and planned maintenance, resulting in minimized down time for customers. With access to the Global stock via all Liebherr Mining Warehouses, you will improve productivity by having the part you need, when you need it.



### Troubleshoot Advisor Platform

- Unique maintenance system to help you identify problems
- Easy and friendly-user interface
- Compatible with mobile, tablet or laptop
- Regular updating of the database
- Procedures described by specialist with images and videos

### Repair and Remanufacturing Programs

- Liebherr certified quality
- As-new warranty
- OEM expertise
- Reduced costs and investment
- Fast availability

### Easy Access Parts Online

- Available any time anywhere
- User friendly interface
- Online ordering
- Save time and money





# Safety



## Protecting Your Most Important Assets

The Liebherr R 910 provides uncompromising safety for operators and maintenance crew. As it is designed to be serviced from one side, the R 910 allows effortless access facilities to the major service points for quick and safe maintenance. The R 910's newly designed cab is reinforced for operator safety.



# Safety-First Working Conditions

## Safe Service Access

The R 9100 is fitted with ergonomic access for fast and safe maintenance. All service points are within reach from one side and at machine level. The R 9100's upperstructure is accessible via a robust fixed ladder and integrates one large central platform equipped with slip resistant surfaces.

## Secure Maintenance

All components have been located to allow for effortless inspection and replacement. Numerous service lights are strategically located in the service areas to sustain suitable maintenance conditions, day or night. Emergency stops have been strategically placed in the cab, engine compartment and at ground level. The R 9100 eliminates hazards to ensure a safe environment for the service staff during maintenance.

# Efficient Machine Protection

## Protection Against Fire Ignition

The engine compartment integrates a bulkhead wall that separates the engine from the hydraulic pumps. This reduces the risk of hydraulic oil entering the engine compartment. The turbochargers and exhaust systems are heat shielded, and all the hydraulic hoses are made from a fire resistant material.

## Automatic Fire Suppression System

The R 9100 can be equipped with a fully integrated fire suppression, employing a dual agent solution to prevent and protect the machine. The fire suppression system has both automatic and manual release capabilities, emergency stop devices are strategically located on the machine to be easily accessible in any case by the operator.



## User Friendly Maintenance

- All walkways with slip-resistant surfaces
- Emergency ladder available near the cab
- Wide open service access
- Reflective stripes on counterweight
- 45° hydraulic driven access stair (optional)

## Working Environment Control

- Rear and side camera system
- LCD color screen to display cameras view
- 4 Long-range working halogen lights (xenon /LED in option)

## Commitment to Employees Safety

- Safe and protected access to the components
- Major components centralized to be easily accessible
- Optional ground-level fluid maintenance hub
- E-stops located for the operator and maintenance staff



# Environment



## Mining Responsibly

Liebherr considers the conservation and preservation of the environment as a major challenge for the present and future. Liebherr are considerate of environmental issues in designing, manufacturing and managing machine structures, providing solutions that allow customers to balance performance with environmental consciousness.



# Minimized Impact on Life

## Optimized Energy Consumption, Fewer Emissions

The intelligent energy management system facilitates interaction between the hydraulic system and engine output with the goal of maximum performance with minimum consumption. In "Eco-Mode" setting, the machine is set up to reduce engine load, significantly improve fuel consumption and reduce emissions.

## Controlled Emission Rejection

The R 9100 is powered by a high horsepower diesel engine which complies with the US/EPA Tier 2 or Tier 4i compliant emission limits. This power drive makes the R 9100 cost effective without compromising productivity and reduces the machines impact on the environment.

# Sustainable Design and Manufacturing Process

## Certified Environment Management Systems

Subject to the stringent European program for the regulation of the use of chemical substances in the manufacturing process (REACH\*), Liebherr undertakes a global evaluation to minimize the impacts of hazardous material, pollution control, water conservation, energy and environmental campaigns.

## Extended Components and Fluids Lifetime

Liebherr is constantly working on ways to extend component life. Through the Exchange Components program, superior lubrication systems and the reinforcement of parts under stress, Liebherr can reduce frequency of part replacement. The result minimizes environmental impact and lowers the overall total cost of ownership.

\*REACH is the European Community Regulation on chemicals and their safe use (EC 1907/2006) It deals with the Registration, Evaluation, Authorization and Restriction of Chemical Substances.



## Remanufacturing Program

- Second life for your major components
- Liebherr certified quality
- Reduced environmental impact
- Reduced costs and investment

## Eco-Mode

The Eco-Mode can be manually selected by the operator when maximal power is not required according to job need for:

- An improved fuel efficiency
- Less load on the engine
- Less noise pollution
- Less dioxide carbon emissions

## Automatic Idle Control

Electronic idle control of the engine results in:

- Less fuel consumption
- Less load on the engine
- Reduced emissions
- More comfort to the operator (reduced noise pollution)

# Technical Data



## Engine

<b>1 Liebherr diesel engine</b>	
<b>Rating per ISO 9249</b>	565 kW (757 HP) at 1,800 rpm
<b>Model</b>	Liebherr D9512 (US/EPA Tier 2, Tier 4i compliant or fuel consumption optimized setting)
<b>Type</b>	V12 cylinder engine
Bore/Stroke	128/157 mm / 5.04/6.18 in
Displacement	24.24 l / 1,479 in <sup>3</sup>
<b>Engine operation</b>	4-stroke diesel common-rail direct injection turbo-charged
<b>Cooling</b>	water-cooled, hydrostatic fan drive
<b>Air cleaner</b>	dry-type air cleaner with pre-cleaner, primary and safety elements, automatic dust discharge
<b>Fuel tank</b>	1,478 l / 390 gal (2,580 l / 682 gal optional)
<b>Engine idling</b>	electronically controlled
<b>Electrical system</b>	
Voltage	24 V
Batteries	4 x 75 Ah / 12 V
Starter	24 V / 2 x 8.4 kW
Alternator	24 V / 140 A
<b>RPM adjustment</b>	brushless adjustment of engine output via rpm selector



## Hydraulic Controls

<b>Power distribution</b>	via monoblock control valves with integrated primary relief valves and secondary valves
Flow summation	to attachment and travel drive
Closed-loop circuit	for uppercarriage swing drive
<b>Servo circuit</b>	
Attachment and swing	proportional via hydraulic joystick levers
Travel	proportional via hydraulic pedals or removable hand levers
<b>Shovel flap functions</b>	proportional via hydraulic pedals



## Swing Drive

<b>Hydraulic motor</b>	2 Liebherr axial piston motors
<b>Swing gear</b>	2 Liebherr planetary reduction gears
<b>Swing ring</b>	Liebherr, sealed single race ball bearing swing ring, internal teeth
<b>Swing speed</b>	0 – 6.0 rpm
<b>Swing-holding brake</b>	wet multi-disc brakes, spring applied, hydraulically released



## Hydraulic System

<b>Hydraulic pump</b>	
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
for swing drive	1 Liebherr reversible swashplate pump, closed-loop circuit
Max. flow	420 l/min. / 111 gpm
Max. pressure	350 bar / 5,076 psi
<b>Pump management</b>	electronically controlled pressure and flow management with oil flow optimisation
<b>Hydraulic tank capacity</b>	1,000 l / 264 gal
<b>Hydraulic system capacity</b>	1,400 l / 370 gal
<b>Hydraulic oil filter</b>	1 high pressure safety filter after each high pressure pump + extra-fine filtration of entire return flow with integrated by-pass filtration (15/5 µm) + dedicated leak-oil filtration
<b>Hydraulic oil cooler</b>	1 separated cooler, temperature controlled fan driven via 1 hydraulic piston motor
<b>MODE selection</b>	adjustment of machine performance and the hydraulics via a mode selector to match application
ECO	for economical operation (can be combined with fuel optimized setting)
POWER	for maximum digging power and heavy duty jobs





## Electric System

<b>Electric isolation</b>	easy accessible battery isolators
<b>Working lights</b>	high brightness halogen lights: – 2 on working attachment – 1 on RHS of uppercarriage – 1 on LHS of uppercarriage Xenon or LED lights in option
<b>Emergency stop switches</b>	in the cab/in engine compartment
<b>Electrical wiring</b>	heavy duty execution in IP 65 standard for operating conditions of –50 °C to 100 °C / –58 °F to 212 °F



## Uppercarriage

<b>Design</b>	torque resistant modular design upper frame
<b>Attachment mounting</b>	parallel length girders
<b>Catwalks</b>	large catwalk on the left-hand side



## Operator's Cab

<b>Design</b>	sound insulated, tinted windows, front window armored glass, door with sliding window
<b>Operator's seat</b>	air suspended, body-contoured with shock absorber, adjustable to operator's weight
<b>Joysticks</b>	joystick levers integrated into armrest of seat, armrest adjusted to seat position
<b>Condition monitoring</b>	machine condition monitoring system with error reporting and operational information
<b>Display</b>	color LCD-display with low and high brightness settings
<b>Rear vision system</b>	camera installation on counterweight and right-hand side of the uppercarriage, displayed over the LCD-display
<b>Heating system</b>	standard automatic air conditioning, combined cooler/heater, additional dust filter in fresh air/recirculated
<b>Noise level (ISO 6396)</b>	Diesel: $L_{pA}$ (inside cab) = 78 dB(A) with oil/water fans at 70 % and AC fan at 65 %



## Undercarriage

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



## Central Lubrication System

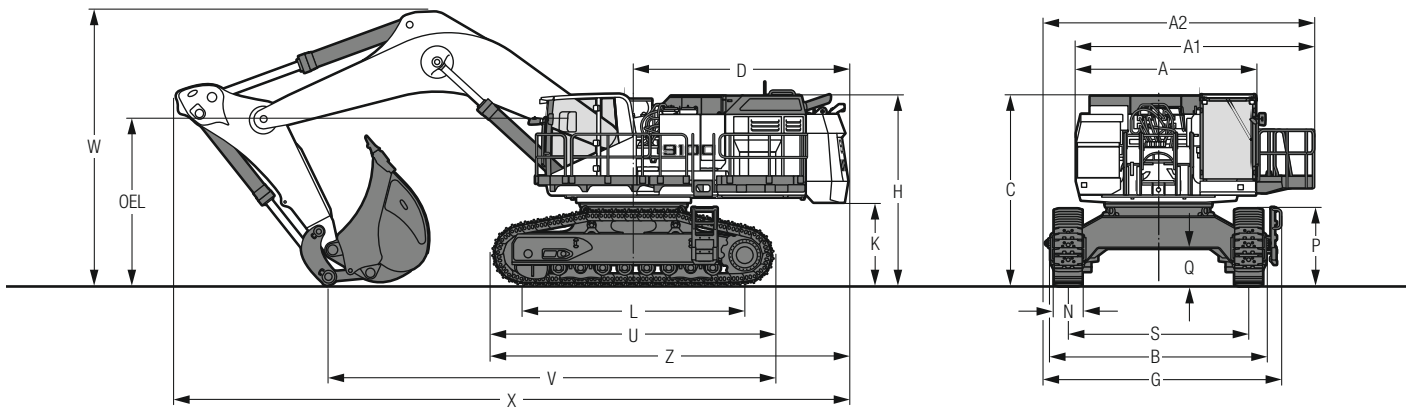
<b>Type</b>	centralised manual lubrication system for the entire attachment / swing ring bearing (automatic system in option with 30 l / 7.9 gal bulk container refillable via quick connection and grease filter) automatic lubrication system for the swing ring teeth
<b>Grease pump</b>	1 electric pump for swing teeth lubrication
<b>Capacity</b>	8 l / 2.1 gal bulk container for swing ring teeth
<b>Refill</b>	via quick connector, refill line with grease filter



## Attachment

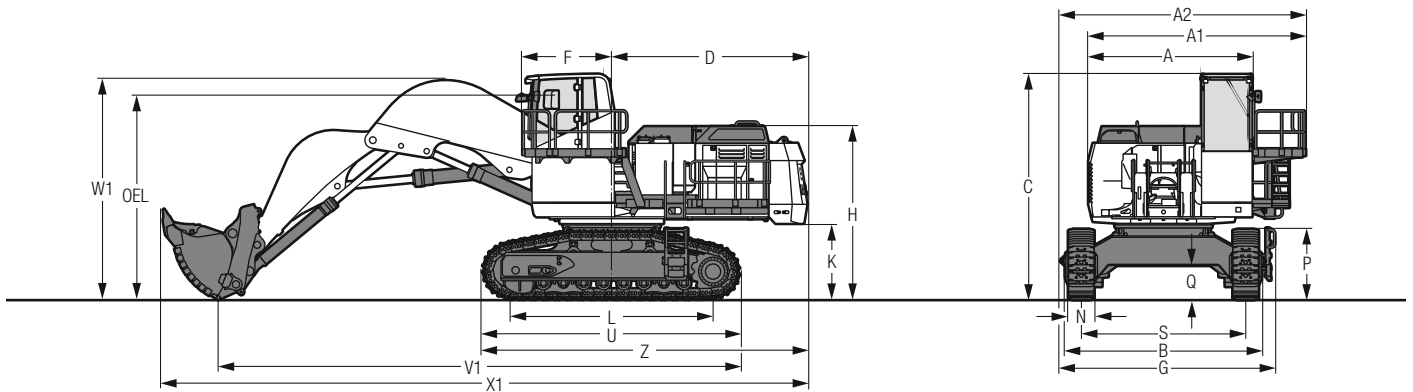
<b>Design</b>	box-type, combination of resistant steel plates and cast steel components
<b>Hydraulic cylinders</b>	Liebherr design
<b>Hydraulic connections</b>	pipes and hoses equipped with SAE flange connections
<b>Pivots</b>	sealed, low maintenance
<b>Pivots bucket-to-stick</b>	O-ring sealed and completely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

# Dimensions



	mm/ft in	
A	3,920/12'10"	
A1	4,337/14' 2"	
A2	5,752/18'10"	
B	4,780/15' 8"	
C	4,143/13' 7"	
D	4,630/15' 2"	
G	5,031/16' 6"	
H	4,114/13' 5"	
K	1,803/ 5'10"	
L	4,810/15' 9"	
N	500/1'7" 600/1'11"	750/ 2' 5"
P	1,663/ 5' 5"	
Q	812/ 2' 7"	
S	3,900/12' 9"	
U	6,107/20'	
Z	7,683/25' 2"	
OEL	Operator's eye level 3,533/11' 7"	

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



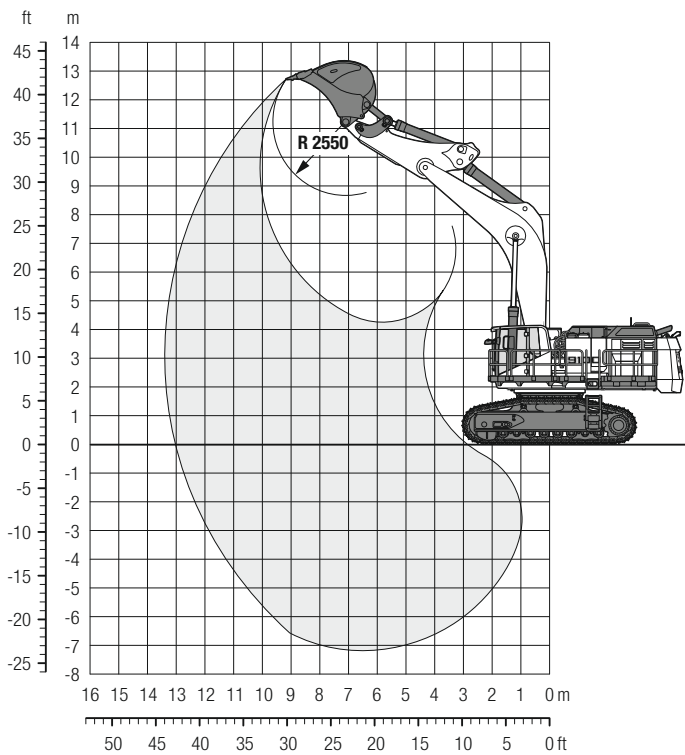
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G	5,031/16' 6"	
H	4,114/13' 5"	
K	1,803/ 5'10"	
L	4,810/15' 9"	

	mm/ft in	
N	500/1'7" 600/1'11"	750/ 2' 5"
P	1,663/ 5' 5"	
Q	812/ 2' 7"	
S	3,900/12' 9"	
U	6,107/20'	
V1	12,350/40' 6"	
W1	6,035/19' 8"	
X1	15,530/51'	
Z	7,683/25' 2"	
OEL	Operator's eye level 4,733/15' 6"	



# Backhoe Attachment

with Mono 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. dumping height	m	8.65
	ft in	28'4"
Max. teeth height	m	12.70
	ft in	41'7"
Max. digging force (ISO 6015)	kN	415
	lbf	93,296
Max. breakout force (ISO 6015)	kN	560
	lbf	125,893

## Operating Weight and Ground Pressure

The operating weight includes the basic machine with mono boom 7.60 m/24'11", stick 3.20 m/10'5" and bucket 7.00 m<sup>3</sup>/9.2 yd<sup>3</sup>.

Undercarriage		HD	
Pad width	mm / ft in	600/1'11"	750/2'5"
Weight	kg / lb	108,500/239,200	109,615/241,650
Ground pressure*	kg/cm <sup>2</sup> / psi	1.72/24.40	1.39/19.72

\* according to ISO 16754

## Backhoe Buckets

For materials class according to VOB, Section C, DIN 18300	< 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	HD	HD	HD	XHD	XHD	XHD
Capacity ISO 7451								
	m <sup>3</sup>	8.50	7.70	7.70	7.00	6.20	7.00	6.00
	yd <sup>3</sup>	11.1	10.1	10.1	9.2	8.1	9.1	7.9
Suitable for material up to a specific weight of								
	t/m <sup>3</sup>	1.5	1.65	1.5	1.8	2.1	1.65	2.0
	lb/yd <sup>3</sup>	2,530	2,782	2,530	3,035	3,541	2,782	3,373
Weight								
	kg	7,100	6,900	7,560	7,200	6,700	8,110	7,420
	lb	15,653	15,212	16,667	15,873	14,771	17,879	16,358

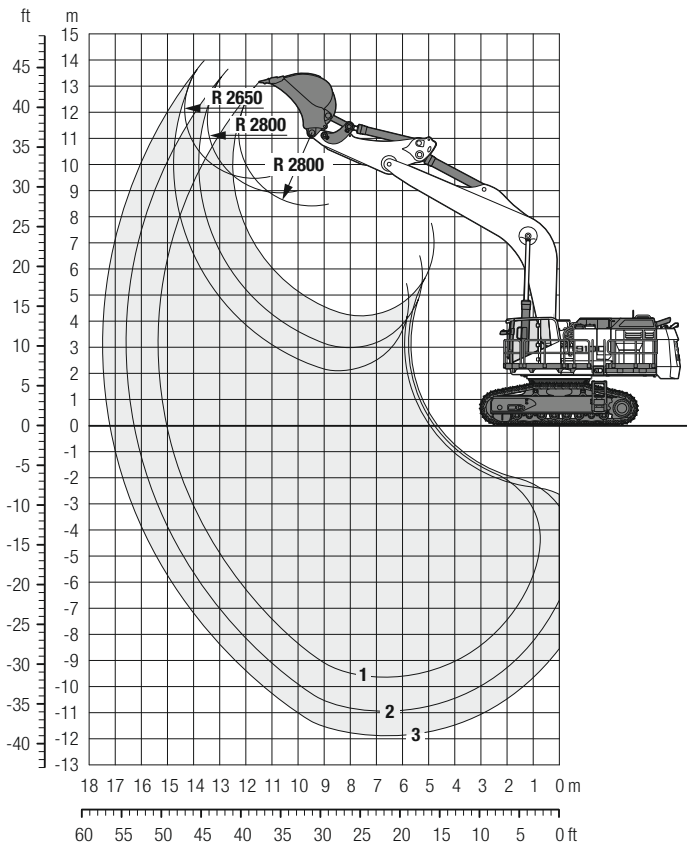
GP: General purpose bucket with Liebherr Z90 teeth

HD: Heavy-duty bucket with Liebherr Z100 teeth

XHD: Heavy-duty rock bucket with Liebherr Z100 teeth

# Backhoe Attachment

with Mono 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	17.20
	ft in	49'3"	53'1"	56'4"
Max. dumping height	m	8.40	8.90	9.40
	ft in	27'6"	29'2"	30'8"
Max. teeth height	m	13.16	13.60	13.90
	ft in	43'1"	44'6"	45'6"
Max. digging force (ISO 6015)	kN	410	330	285
	lbf	92,172	74,186	64,070
Max. breakout force (ISO 6015)	kN	530	530	530
	lbf	119,149	119,149	119,149

## Operating Weight and Ground Pressure

The operating weight includes the basic machine with mono boom 9.20 m/30'2", stick 4.50 m/14'9" and bucket 4.20 m<sup>3</sup>/5.5 yd<sup>3</sup>.

Undercarriage		HD	
Pad width	mm / ft in	600 / 1'11"	750 / 2'5"
Weight	kg / lb	111,060 / 244,850	112,080 / 247,100
Ground pressure*	kg/cm <sup>2</sup> / psi	1.76 / 25.03	1.42 / 20.20

\* according to ISO 16754

## Backhoe Buckets

For materials class 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 <sup>3</sup>	6.20	5.50	5.20	4.20	3.50	2.90
	yd <sup>3</sup>	8.1	7.2	6.8	5.5	4.6	3.8
Suitable for material up to a specific weight of							
with stick 3.20 m	t/m <sup>3</sup>	1.2	1.5	1.8	2.0	2.2	–
with stick 10'5"	lb/yd <sup>3</sup>	2,024	2,530	3,035	3,373	3,710	–
with stick 4.50 m	t/m <sup>3</sup>	–	1.2	1.5	1.8	2.0	2.2
with stick 14'9"	lb/yd <sup>3</sup>	–	2,024	2,530	3,035	3,373	3,710
with stick 5.60 m	t/m <sup>3</sup>	–	–	1.2	1.5	1.8	2.0
with stick 18'4"	lb/yd <sup>3</sup>	–	–	2,024	2,530	3,035	3,373
Weight	kg	6,800	7,100	6,400	5,300	4,600	4,000
	lb	14,991	15,653	14,110	11,684	10,141	8,818

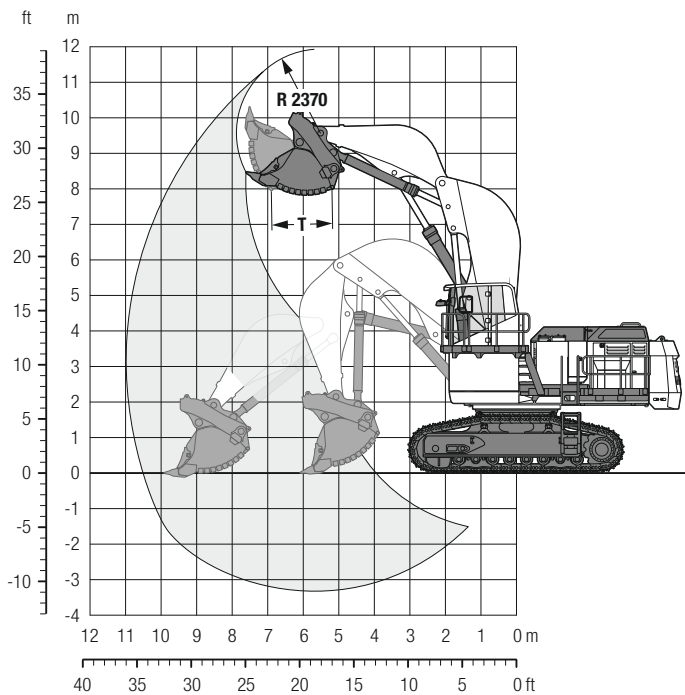
GP: General purpose bucket with Liebherr Z90 teeth

HD: Heavy-duty bucket with Liebherr Z100 teeth



# Face Shovel Attachment

with Shovel Boom 5.30 m / 17'4"



## Digging Envelope

Stick length	3.70 m / 12'1"
Max. reach at ground level	10.70 m / 35'1"
Max. dumping height	7.60 m / 25'
Max. crowd length	3.70 m / 12'1"
Bucket opening width T	2,000 mm / 6'6"
Max. crowd force at ground level (ISO 6015)	545 kN / 122,521 lbf
Max. crowd force (ISO 6015)	704 kN / 158,265 lbf
Max. breakout force (ISO 6015)	585 kN / 131,513 lbf

## Operating Weight and Ground Pressure

The operating weight includes the basic machine with shovel attachment and bucket  
7.00 m<sup>3</sup> / 9.2 yd<sup>3</sup>.

Undercarriage		HD	
Pad width	mm / ft in	600 / 1'11"	750 / 2'5"
Weight	kg / lb	113,500 / 250,200	114,600 / 252,650
Ground pressure*	kg/cm <sup>2</sup> / psi	1.80 / 25.53	1.45 / 20.62

\* according to ISO 16754

## Face Shovel Buckets

For materials class 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 7451									
	m <sup>3</sup>	8.70	7.50	7.50	7.00	6.40	5.60	7.00	6.40
	yd <sup>3</sup>	11.4	9.8	9.8	9.2	8.4	7.3	9.2	8.4
Suitable for material up to a specific weight of									
	t/m <sup>3</sup>	1.3	1.7	1.6	1.8	2.0	2.4	1.5	1.8
	lb/yd <sup>3</sup>	2,192	2,867	2,698	3,035	3,373	4,047	2,530	3,035
Weight									
	kg	12,600	11,400	12,000	11,400	11,000	10,400	13,200	12,400
	lb	27,778	25,133	26,455	25,133	24,251	22,928	29,101	27,337

GP: General purpose bucket with Liebherr Z90 teeth

HD: Heavy-duty bucket with Liebherr Z100 teeth

XHD: Heavy-duty rock bucket with Liebherr Z100 teeth

# Optional Equipment

## Undercarriage

Narrow track pad width (500 mm / 1'7")  
Large track pad width (750 mm / 2'5")  
Removable side frames  
HD travel gear for muddy applications  
Rock protection for idler wheel  
Rock protection for undercarriage center frame

## Uppercarriage

Electric-powered refueling pump  
Increased fuel tank capacity (24h operation)  
LED lighting (11 pieces)  
Xenon lighting (11 pieces)  
Grid protection for front headlights  
Semi-automatic swing brake with joystick control  
Wiggins/Banlaw/other brand name couplings for ground level access service  
Wiggins/Banlaw/other brand name counter plugs (service trucks)  
Wiggins/Banlaw/other brand name fast fueling system  
Wiggins/Banlaw/other brand name fast fueling system with Multiflo Hydrau-Flo®  
Steel grease lines on swing ring  
Hydraulically operated 45° access stair  
Swing ring scrapers  
Hydraulic-powered grease refill station  
Rock protection for swing gear and grease lines

## Hydraulic System

Oil cooler inlet screen

## Engine

Fuel consumption optimized engine version (non-certified)

## Operator's Cab

4-point seat belt  
Cab elevation (1,200 mm / 3'9")  
Cab pressurization  
FOPS top guard  
Operator comfort package  
Front protective grid  
Pre-heating system for cab

## Attachment

Piston rod guard for bucket cylinder (BH)  
Piston rod guard for hoist cylinders (FS)

## Specific Solutions

Arctic package (-20 °C/-4 °F, -30 °C/-22 °F, -40 °C/-40 °F, -50 °C/-58 °F)  
Sound attenuation package

## Safety

Additional LED lighting with timer (main access)  
Automatic fire suppression system

## General

Maritime transport packaging