Mining Excavator

Operating Weight with Backhoe Attachment: 108.500 kg / 239,200 lb
Operating Weight with Shovel Attachment: 112.500 kg / 248,000 lb
Engine Output: 565 kW / 757 HP
Bucket Capacity @ 1,8 t/m³ / 3,000 lb/yd³: 7,00 m³ / 9.2 yd³
Shovel Capacity @ 1,8 t/m³ / 3,000 lb/yd³: 7,00 m³ / 9.2 yd³
### R 9100

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
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</table>
Productivity
Liebherr Mining Equipment enables superior productivity by loading and hauling maximum tonnage in the shortest amount of time.

Efficiency
Liebherr combines the proven capabilities of previous models with new features that improve operational efficiency.

Reliability
To maximize equipment reliability, Liebherr combines manufacturing expertise with monitoring and diagnostic capabilities.

Customer Support
Liebherr builds more than just mining equipment; Liebherr also builds customer partnerships.

Safety
Mining demands an ever-vigilant focus on safety, and Liebherr strictly adheres to industry standards. Liebherr equipment is designed to diminish risk even under the most extreme mining conditions.

Environment
Liebherr optimizes mining equipment for fuel economy, emission compliance, and extended service intervals.
Liebherr Diesel Engine

- V12 by Liebherr
- USA/EPA Tier 2
- Fuel consumption optimized version (option)
- Automatic idle control
- Max. altitude without derating: 3.900 m
- Eco-Mode selector
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 dump trucks. Offering a high level of versatility the R 9100 opens up new opportunities for a wide range of excavating applications.

**Engineered for Intense Mining**

**Powerful Drive System**

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 intense mining.

**Optimized Cycle Times**

Rather than using open hydraulic circuit, the R 9100 employs a closed-loop swing circuit to enable maximum swing torque while retaining the full oil flow for the working circuit. The independent swing circuit in combination with the powerful drive system leads to fast arm motion, which contributes to faster cycle times.

**Easy Machine Control**

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 high 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.

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**Liebherr Site-Specific Bucket**
- 4 to 5 passes to load a 50 t dump truck
- Three types of wear package
- Maximal bucket fill factor
- Integrated approach on machine capabilities
- Light weight bucket for max. loading capacities (option)

**Liebherr Ground Engaging Tools (GET)**

The new Liebherr Mining GET range is fully in line with the Liebherr buckets design, a synergy that enables easy material penetration while extending bucket steel structure lifetime:
- Three tooth profiles and five tooth sizes
- Innovative bucket lip and side wall protection
- One single locking system that limits tooling to one unique extraction tool
- Unique hammerless locking system
- Effortless and quick tooth removal
Machine Monitoring System
Integration of the Liebherr-made monitoring system also used on the R 9800:
• 10.5" LCD color 8-key screen
• Information interface to operator
• On-board diagnostics to service staff
• Real text information
• Long term data storage for maintenance
Efficiency

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

**Optimized for Maximum Profitability**

**Electro-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 electronically 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.

**Cooling System Efficiency**

The oversized independent oil- and water coolers in combination with low energy consumption fans and on-demand cooling controls enable to maximize available power for digging process.

**Optimized Service Intervals**

The R 9100’s high pressure hydraulic oil filtration systems remove contaminants from the fluid to offer the highest rate of hydraulic system efficiency. To maintain the oil quality, all return hydraulic oil flow goes through a 15/5 μm fine filtration system. To promote availability, the grease tank and fuel tanks are sized to considerably extend the time between service intervals.

**Modern Cab for Efficient Work**

**Superior Operator Comfort**

The new and modern large cab which equips the Liebherr 100 t series offers ideal working conditions and optimal operator’s comfort. Mounted on silent blocks, the R 9100’s cab design reduces vibrations and limit noise pollution to provide a quiet environment.

**Working Environment Total Control**

Equipped with a large one-piece windscreen, the R 9100’s cab offers a panoramic view over the entire machine and loading spot. Two outside cameras show areas that cannot be observed directly. Long-distance halogen working lights promote efficient loading.

**1st-Class Service Arrangements**

Service friendly design allows for 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 (automatic in option)
- Enhanced single-line lubrication system

**Comfort-Oriented Cab Design**

An array of features:

- Tinted laminated safety glass
- Armored front window
- Adjustable air suspended seat
- A/C with dust filter in fresh air / recirculated
- Pressurization to prevent dust penetration (option)
- Operator Comfort Kit (option): sun blinds, bottle cooler, reading light, electronic operator weight adjustment
Numerical Structure Calculation

Capitalizing on past experiences while using modern tools for numerical structure calculation, Liebherr is able to provide customers with the most reliable solutions. The main computer-assisted tools for analysis used by Liebherr are:

- the Finite Element Analysis
- the Fatigue Life Analysis
More than 50 years of hydraulic excavator design and manufacturing experience is the basis for the R 9100’s outstanding reliability. The machine combines innovative technologies, design optimization and Liebherr components. Customers can expect durable performance from the R 9100 throughout the machine’s life.

**Quality: the Liebherr Trademark**

**Liebherr Vertical 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 reliability and high 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 selections of steels and special 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.

**Long-lasting Job Performances**

**Maximized Component Lifetime**

The R 9100 is equipped with a single line centralized lubrication system for the entire attachment and swing ring. All greasing points are suitably protected against external damages. This extends component life and ensures constant performance over the excavators’ operational life.

**Rugged Undercarriage Structure**

The R 9100 is mounted on a heavy duty fatigue-resistant undercarriage and is equipped with the oversized 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.

**Strengthened Attachment Design**

Backhoe or face shovel attachments are built to face all standard and specific applications:

- Use of advanced welding techniques
- Reinforced with strategically located castings in high stress areas
- Designed for maximum structure life
- Use of cutting-edge engineering tools

**Liebherr Vertical Integration**

Liebherr-made integrated parts are:

- Diesel engine
- Hydraulic pumps and motors
- Splitter box
- Electronic and control technology
  - Control and regulation electronics
  - Display and operation units
- Hydraulic cylinders
- Large diameter bearing (swing ring)
- Swing and travel drives
- Ground Engaging Tools
Liebherr Service Tools

Liebherr service tools for excavator-specific maintenance ensure safe working conditions even when handling large components.

- A wide range of tools
- OEM certified solution
- Designed for Liebherr mining excavators
- Cost-efficient maintenance
- Easy and fast component replacement
- High operational safety
As a global mining solutions provider, Liebherr is more than a mining equipment manufacturer. Ensuring a permanent dialogue with each machine owner, Liebherr provides tailored assistance to customer specific projects and site requirements.

**Proactive Service Supplying**

**Liebherr-Mining Network**

With a truly global network composed of Liebherr affiliates and exclusive representatives, Liebherr’s worldwide presence enables the highest level of service support irrespective of equipment location. Using advanced forecasting techniques and in-depth knowledge of regional populations, Liebherr service centers ensure that customers always have timely access to spare parts.

**Customized Service Support**

Liebherr tailored support solutions integrate components exchange and management agreements, service and maintenance on site or maintenance management agreements. Liebherr’s highly-trained service personnel ensures preventive and scheduled maintenance tasks and provides emergency service.

**Service Engineering Support**

Machines and components reliability data are collected and monitored through the Liebherr maintenance management system. Liebherr’s sales and service organization and product engineering groups provide fast and proactive support over the lifetime of the machine and promote mutual benefit for all involved.

**Customer Value Management**

**Liebherr Mining Exchange Components**

The Liebherr Mining Exchange Components program enables customers to minimize the total machine’s Owning and Operating Cost while maintaining peak productivity and reliability. Through 15 Liebherr-certified component rebuild facilities worldwide, customers can take advantage of this program regardless of the equipment location or fleet size.

**Complete Training Programs**

The Liebherr Mining Training System provides operator and maintenance staff blended training sessions that encourage productive, cost-effective and safe mining operation. The Liebherr Mining Training System employs online learning programs, factory and on-site sessions and simulator training.

**Components Exchange Program**

Exchange and repair programs for components are conducted by Liebherr-certified rebuild facilities using the latest OEM rebuild specifications and the complete range of genuine Liebherr parts to ensure:

- Value: significantly reduce total cost of ownership
- Quality: guaranteed as-new performance and reliability
- Availability: global network of components rebuild facilities
Machine Access
Designed for safe access on the machine upperstructure via:
• Ladder and catwalk with handrails
• Walkway with slip-resistant surfaces
• Emergency ladder available near the cab
The Liebherr R 9100 provides uncompromising safety for operators and maintenance crew. As it is designed to be serviced from one side, the R 9100 allows effortless access facilities to the major service points for quick and safe maintenance. The R 9100’s newly designed cab is reinforced for operator safety.

**Service-Friendly Machine Design**

**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.

**Easy Inspection and Component Replacements**

All components have been located in areas that allow for effortless inspection and replacement. The R 9100 is equipped with robust hinged louvers for easy cleaning and maintenance. Numerous service lights are strategically located in the main service areas to sustain suitable maintenance conditions, day or night.

**Secure Maintenance**

The R 9100 eliminates hazards to ensure a safe environment for the service staff during maintenance. Emergency stops are strategically located in the cab and in the engine compartment for service crew accessibility. The battery switches are manually operated to safely isolate the battery power. The attachment can safely be lowered to the ground even if the engine is off.

**Safety First Working Conditions**

**Safety-First Cab Design**

In addition to its ergonomic design, the R 9100’s cab provides maximum protection for the operator. The structure is composed of strong, low stress tubing and safety glass. The Falling Object Protection System (FOPS) and the front guard are available as an option for even more safety.

**Engine Compartment Provision of Security**

The engine compartment integrates a protection 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 highly resistant material.

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**Machine Improved Visibility**

The machine is easily visible even by night or in extremely dusty working environments thanks to:

- Reflective stripes on counterweight
- Four long-range working halogen lights located on attachment and upperstructure (xenon in option)
- Travel alarm system with light and buzzer

**Rear and Side Vision System**

The machine ergonomically integrates a rear and side vision system composed of:

- One camera on counterweight
- One camera on right-hand side of uppercarriage
- One LCD color screen to display cameras view
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
Liebherr considers the preservation of the environment as a major challenge for the present and future. Sustainability underpins Liebherr’s machines; from raw materials selection to employed manufacturing processes. Liebherr provides solutions that allow customers to balance high performance with environmental consciousness.

**Minimized Impact on Life**

**Low Fuel Consumption**

Constant power regulation of the hydraulic system and engine output optimizes machine fuel efficiency, depending on the application. The automatic idling system reduces the engine speed when the machine is at rest. When less power is required, “Eco-Mode” can be selected via the machine monitor panel to reduce engine load, improve fuel efficiency and reduce carbon emissions.

**Controled Emission Rejections**

The R 9100 is powered by a high horsepower diesel engine which complies with the USA/EPA Tier 2 emission limits. This power drive makes the R 9100 cost effective without compromising productivity whilst reducing the machines impact on the environment.

**Sustainable Design and Manufacturing Process**

**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 cost of ownership.

**Product Life-Cycle Management**

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 materials.

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*REACH is the European Community Regulation on chemicals and their safe use (EC1907/2006) It deals with the Registration, Evaluation, Authorisation and Restriction of Chemical Substances.

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**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)

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**Sustainable Manufacturing Process**

With an ever-present green focus, Liebherr contributes to the sustainable development:

- Systematic risk analysis for new materials qualification
- Promoted recovery-waste management
- Controlled non-recyclable waste elimination
- Eco-friendly material selection (95% of material used on machine is recyclable)
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 or fuel consumption optimized setting)  
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, hydrostatic fan drive  
Air cleaner dry-type air cleaner with pre-cleaner, primary and safety elements, automatic dust discharge  
Fuel tank 1.478 l/390 gal  
Engine idling electronically controlled  
Electrical system  
Voltage 24 V  
Batteries 4 x 170 Ah/12 V  
Starter 24 V/2 x 8.4 kW  
Alternator 24 V/140 A  
RPM adjustment brushless adjustment of engine output via rpm selector

**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 1.400 l/370 gal  
Hydraulic oil filter 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  
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 (can be combined with fuel optimized setting)  
POWER for maximum digging power and heavy duty jobs

**Hydraulic Controls**

Power distribution 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  
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 isolators  
Working lights high brightness halogen lights:  
– 2 on working attachment  
– 1 on RHS of uppercarriage  
– 1 on LHS of uppercarriage  
Xenon or LED 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  
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 adjusted 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.
- Noise level (ISO 6396): Diesel: $L_{PA}$ (inside cab) = 73 dB(A) with oil/water fans at 70% and AC fan at 65%.

### 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 per side frame.
  - Track pads: double grouser.
- Track tensioner: spring with grease tensioner.
- 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 with 30 l/7.9 gal bulk container refillable via quick connection and grease filter).
- Grease pump: 1 Lincoln P203 (electric) pump for swing teeth lubrication.
- Capacity: 8 l/2.1 gal bulk container for swing ring teeth.
- Refill: via quick connector, refill line with grease filter.

### 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

<table>
<thead>
<tr>
<th>Stick Length</th>
<th>Gooseneck Boom 7,60 m/24’11”</th>
<th>Gooseneck Boom 9,20 m/30’2”</th>
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<td>4.50/14’9”</td>
<td>9.930/32’6”</td>
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<td>812/ 2’ 7”</td>
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<tr>
<td>D</td>
<td>4.630/15’ 2”</td>
<td>3.900/12’ 9”</td>
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<td>G</td>
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<td>6.107/20’</td>
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<td>K</td>
<td>1.803/ 5’10”</td>
<td>Operator’s Eye Level</td>
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with Gooseneck Boom 7,60 m/24'11"

Digging Envelope

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<th></th>
<th>m</th>
<th>ft in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stick length</td>
<td>3,20</td>
<td>10'5&quot;</td>
</tr>
<tr>
<td>Max. digging depth</td>
<td>7,15</td>
<td>23'5&quot;</td>
</tr>
<tr>
<td>Max. reach at ground level</td>
<td>13,00</td>
<td>42'7&quot;</td>
</tr>
<tr>
<td>Max. dump height</td>
<td>8,65</td>
<td>28'4&quot;</td>
</tr>
<tr>
<td>Max. teeth height</td>
<td>12,70</td>
<td>41'7&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max. digging force (ISO 6015)</th>
<th>kN</th>
<th>lbf</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>415</td>
<td>93,296</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max. breakout force (ISO 6015)</th>
<th>kN</th>
<th>lbf</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>560</td>
<td>125,893</td>
</tr>
</tbody>
</table>

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 7,00 m³/9.2 yd³.

<table>
<thead>
<tr>
<th>Undercarriage</th>
<th>HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pad width</td>
<td>mm/ft in</td>
</tr>
<tr>
<td>Weight</td>
<td>kg/lb</td>
</tr>
<tr>
<td>Ground pressure*</td>
<td>kg/cm²/psi</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>600/1'11&quot;</th>
<th>750/2'5&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>108,500</td>
<td>109,615</td>
</tr>
<tr>
<td>Weight</td>
<td>239,200</td>
<td>241,650</td>
</tr>
<tr>
<td>Ground pressure*</td>
<td>1,72/24.40</td>
<td>1,39/19.72</td>
</tr>
</tbody>
</table>

* according to ISO 16754

Buckets

For materials classe according to VOB, Section C, DIN 18300: < 5 < 5 5 – 6 5 – 6 5 – 6 7 – 8 7 – 8 7 – 8

<table>
<thead>
<tr>
<th>Typical operation</th>
<th>GP</th>
<th>GP</th>
<th>HD</th>
<th>HD</th>
<th>HD</th>
<th>XHD</th>
<th>XHD</th>
<th>XHD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity ISO 7451</td>
<td>m³</td>
<td>8.50</td>
<td>7.70</td>
<td>7.70</td>
<td>7.00</td>
<td>6.20</td>
<td>7.00</td>
<td>6.00</td>
</tr>
<tr>
<td></td>
<td>yd³</td>
<td>11.1</td>
<td>10.1</td>
<td>10.1</td>
<td>9.2</td>
<td>8.1</td>
<td>9.1</td>
<td>7.9</td>
</tr>
<tr>
<td>Suitable for material up to a specific weight of</td>
<td>t/m³</td>
<td>1.5</td>
<td>1.65</td>
<td>1.5</td>
<td>1.8</td>
<td>2.1</td>
<td>1.65</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>lb/yd³</td>
<td>2,530</td>
<td>2,782</td>
<td>2,530</td>
<td>3,035</td>
<td>3,541</td>
<td>2,782</td>
<td>3,373</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>7,100</td>
<td>6,900</td>
<td>7,560</td>
<td>7,200</td>
<td>6,700</td>
<td>8,110</td>
<td>7,420</td>
</tr>
<tr>
<td></td>
<td>lb</td>
<td>15,683</td>
<td>15,212</td>
<td>16,667</td>
<td>15,873</td>
<td>14,771</td>
<td>17,879</td>
<td>16,358</td>
</tr>
</tbody>
</table>

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 Gooseneck Boom 9,20 m/30’2”

**Digging Envelope**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stick length</td>
<td>m</td>
<td>ft</td>
<td></td>
</tr>
<tr>
<td>Max. digging depth</td>
<td>m</td>
<td>ft</td>
<td></td>
</tr>
<tr>
<td>Max. reach at ground level</td>
<td>m</td>
<td>ft</td>
<td></td>
</tr>
<tr>
<td>Max. dump height</td>
<td>m</td>
<td>ft</td>
<td></td>
</tr>
<tr>
<td>Max. teeth height</td>
<td>m</td>
<td>ft</td>
<td></td>
</tr>
<tr>
<td>Max. digging force (ISO 6015)</td>
<td>kN</td>
<td>lbf</td>
<td></td>
</tr>
<tr>
<td>Max. breakout force (ISO 6015)</td>
<td>kN</td>
<td>lbf</td>
<td></td>
</tr>
</tbody>
</table>

**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 m³/5.5 yd³.

<table>
<thead>
<tr>
<th></th>
<th>HD</th>
<th>HD</th>
<th>HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pad width</td>
<td>mm</td>
<td>ft</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>lb</td>
<td></td>
</tr>
<tr>
<td>Ground pressure</td>
<td>kg/cm²</td>
<td>psi</td>
<td></td>
</tr>
</tbody>
</table>

* according to ISO 16754

**Buckets**

For materials classe according to VOB, Section C, DIN 18300

Typical operation according to VOB, Section C, DIN 18300

Capacity ISO 7451

Suitable for material up to a specific weight of

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (with stick 3,20 m)</td>
<td>kg</td>
<td>lb</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (with stick 10’5”)</td>
<td>lb/yd³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (with stick 4,50 m)</td>
<td>lb/yd³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (with stick 14’9”)</td>
<td>lb/yd³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (with stick 5,60 m)</td>
<td>lb/yd³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (with stick 18’4”)</td>
<td>lb/yd³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GP: General purpose bucket with Liebherr Z90 teeth
HD: Heavy-duty bucket with Liebherr Z100 teeth
Shovel Attachment
with Shovel Boom 5.30 m/17'4"

**Digging Envelope**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stick length</td>
<td>3.70 m/12'1&quot;</td>
</tr>
<tr>
<td>Max. reach at ground level</td>
<td>10.70 m/35'1&quot;</td>
</tr>
<tr>
<td>Max. dump height</td>
<td>7.60 m/25'</td>
</tr>
<tr>
<td>Max. crowd length</td>
<td>3.70 m/12'1&quot;</td>
</tr>
<tr>
<td>Bucket opening width T</td>
<td>2.000 mm/ 6'6&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. crowd force at ground level</td>
<td>545 kN/122,521 lbf</td>
</tr>
<tr>
<td>(ISO 6015)</td>
<td></td>
</tr>
<tr>
<td>Max. crowd force (ISO 6015)</td>
<td>704 kN/158,265 lbf</td>
</tr>
<tr>
<td>Max. breakout force (ISO 6015)</td>
<td>585 kN/131,513 lbf</td>
</tr>
</tbody>
</table>

**Operating Weight and Ground Pressure**

The operating weight includes the basic machine with shovel attachment and a 7.00 m³/9.2 yd³ bucket.

<table>
<thead>
<tr>
<th>Undercarriage</th>
<th>HD</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pad width</td>
<td>mm/ft in</td>
<td>600/1'11&quot;</td>
</tr>
<tr>
<td>Weight</td>
<td>kg/lb</td>
<td>113.500/250,200</td>
</tr>
<tr>
<td>Ground pressure*</td>
<td>kg/cm²/psi</td>
<td>1.80/25.53</td>
</tr>
</tbody>
</table>

* according to ISO 16754

**Bottom Dump Buckets**

<table>
<thead>
<tr>
<th>For materials classe according to VOB, Section C, DIN 18300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical operation according to VOB, Section C, DIN 18300</td>
</tr>
<tr>
<td>Capacity ISO 7546</td>
</tr>
<tr>
<td>m³</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>8.70</td>
</tr>
<tr>
<td>1.3</td>
</tr>
<tr>
<td>2,192</td>
</tr>
<tr>
<td>12.600</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suitable for material up to a specific weight of t/m³/lb/yd³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>kg</td>
</tr>
<tr>
<td>GP: General purpose bucket with Liebherr Z90 teeth</td>
</tr>
<tr>
<td>HD: Heavy-duty bucket with Liebherr Z100 teeth</td>
</tr>
<tr>
<td>XHD: Heavy-duty rock bucket with Liebherr Z100 teeth</td>
</tr>
<tr>
<td>Wear kit level</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>Level II: For preblasted heavy rock, or deteriorated, cracked material (classification 5 to 6, according to DIN 18300)</td>
</tr>
<tr>
<td>Level III: For highly-abrasive materials such as rock with a high silica content, sandstone etc.</td>
</tr>
</tbody>
</table>
Optional Equipment

### Undercarriage
- Narrow track pad width (500 mm / 1'7")
- Wide track pad width (750 mm / 2'5")
- Removable side frames

### Operator’s Cab
- 4-point seat belt
- Cab elevation (1.200 mm / 3'9")
- Cab pressurization
- FOPS top guard
- Operator comfort kit
- Protective front grid

### Attachment
- Piston rod guard for bucket cylinder
- Quick change coupling

### Safety
- Additional Xenon lighting with timer (main access)
- Automatic fire fighting system (foam and powder)

### Specific Solutions
- Arctic kit – 20 °C / – 4 °F
- Arctic kit – 30 °C / – 22 °F
- Arctic kit – 40 °C / – 40 °F

### Hydraulics
- Oil cooler protection filter

### Engine
- Fuel consumption optimized engine version (Tier non-certified)

### General
- Maritime transport packaging