Mining Excavator

**R 9350**

- **Operating Weight**
  - Backhoe Configuration: 302 tonnes / 333 tons
  - Face Shovel Configuration: 310 tonnes / 342 tons

- **Engine Power**
  - 1,120 kW / 1,500 HP

- **Standard Bucket**
  - Backhoe Configuration: 18.7 m³ / 24.5 yd³
    - 34.0 tonnes / 37.5 tons
  - Face Shovel Configuration: 18 m³ / 23.5 yd³
    - 32.5 tonnes / 36.0 tons
Operating Weight
Backhoe Configuration
302 tonnes / 333 tons

Face Shovel Configuration
310 tonnes / 342 tons

Engine Power
1,120 / 1,500 HP

Standard Bucket
Backhoe Configuration
18.7 m³ / 24.5 yd³
34.0 tonnes / 37.5 tons

Face Shovel Configuration
18 m³ / 23.5 yd³
32.5 tonnes / 36.0 tons
The R 9350 is built to outperform all competitors in the medium class mining market. Boasting a 18.7 m³/24.5 yd³ bucket capacity in standard configuration, the R 9350 is the ideal machine to load a fleet of 100 t mining trucks. Available in both diesel or electric versions, the R 9350 offers the flexibility to perform many specific applications.
Fast and Precise Movement

**Powerful Drive System**
The R 9350 is equipped with a Cummins diesel engine which has been specifically adapted to withstand the most extreme environments and to reach the highest uptime performance for maximum productivity. The electric drive system provides superior performance when the machine is used in the most specific conditions.

**Fast Cycle Time**
Rather than using open hydraulic circuit, the R 9350 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.

**Precise Machine Motions**
The R 9350 design integrates the Litronic Plus electronic control system to allow for easy control even when simultaneous movements are required. The patented Liebherr electronic damping system provides controlled end-cushioning for smooth attachment motions.

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 9350’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 9350’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.

---

**Engine / Motor Options**
- Diesel engine available versions:
  - Cummins QSK 50 (US EPA Tier 2 compliant)
  - Cummins QSK 45 (US EPA Tier 1)
  - Fuel consumption optimized version on Tier 2 engine (optional)
- Electrical motor (optional)
- 3 phase AC squirrel cage motor
- Voltage on request
- 50 or 60 Hz frequency

**High Altitude Package (optional)**
Designed to offer maximum efficiency and productivity for operation in high altitude:
- Solution integrated in machine structure
- Adapted engine
- Pressurized hydraulic tank
- Available with the Arctic Package

**Exclusive EVO Bucket Solution**
- Liebherr patented EVO design to maximize the loading capacity
- 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
- 4 tooth profiles available for various range of applications
Moving More for Less

The R 9350 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 9350’s spacious cab creates a comfortable working environment ensuring peak operator performance, every shift.
Built for Maximum Profitability

Electro-Hydraulic System Efficiency
Liebherr hydraulic technology in combination with the precision of electronic control contributes to the R 9350’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
Liebherr’s large dimensioned cooling system reduces fan power consumption and ensures an ideal machine temperature. The hydrostatic fans operate always on the required level.

Closed Loop Swing Circuit
The Liebherr Mining excavators are all equipped with a closed loop swing circuit. Kinetic energy is recovered 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

The large and spacious cab which equips the R 9350 offers ideal working conditions and optimal operator’s comfort. Mounted on silent blocks, the cab design reduces vibrations and limit noise pollution to provide a quiet environment.

Extended Components Lifetime

The R 9350’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 and fuel tanks are sized to considerably extend the time between service intervals.

Hydraulic System Efficiency
The R 9350’s hydraulic system is designed for an optimized hydraulic power management via the:
- Closed-loop swing circuit
- Pressureless boom down function
- Electronic hydraulic pumps management
- Electro-hydraulic control system
- Optimized pipe and hose layout

Central Service Station
- Hydraulic oil refill
- Engine oil refill and drainage
- Splitter box and swing gearbox oil exchange
- Attachment/swing ring bearing grease barrel refilling with filters
- Windshield washer water refilling
- Fast fuel refilling line
- Non-pressurised refueling system in option

Comfort-Oriented Cab Design
An array of features:
- Tinted laminated safety glass
- Armored front and attachment side windows
- Heavy duty sun louvers on windows
- Adjustable air suspended seat
- A/C with dust filter in fresh air/recirculated
- Pressurization to prevent dust penetration
- Trainer seat
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 the 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 9350 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 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.

**Maximized Components Lifetime**
The R 9350 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. This extends component life and ensures constant performance over the excavator’s operational life.

**Rugged Undercarriage Structure**
The R 9350 is mounted on a heavy duty fatigue resistant undercarriage. The swing ring is reinforced to provide an improved superstructure weight distribution. Designed and built for both shovel and backhoe configurations, the enlarged undercarriage offers an efficient ground bearing pressure repartition providing the necessary stability and reliability.

**Arctic Package (optional)**
Designed for maximum reliability in regions with temperatures of down to -50°C/ -58°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

**Reliable 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
- Heat treatment to reduce residual stresses and increase fatigue life
- Designed for maximum structure life
- Use of cutting-edge engineering tools such as Finite Element Analysis and Fatigue Life Analysis

**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
- EC certified product (2006/42/EC)
World-Class Support, Everywhere, Every Day

A daily partner to the customer, for global long term sustainable performances, 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 Programs
The Liebherr Mining Training System provides blended training sessions for operator and maintenance staff to 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.

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
With an international service network and component facilities world-wide, 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. For all major components, Liebherr relies on its Liebherr Maintenance Management System to follow and monitor service life while predicting maintenance activities.

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
Advisory 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

The Liebherr-Mining Remanufacturing Program
- Liebherr certified quality
- As-new warranty
- OEM expertise
- Reduced costs and investment
- Fast availability

MyLiebherr Customer Portal
- Easy access parts online
- Available any time anywhere
- User friendly interface
- Online ordering
- Save time and money
Protecting Your Most Important Assets

The Liebherr R 9350 provides uncompromising safety for operators and maintenance crews. Equipped with the service flap accessible from the ground level and integrating wide open accesses, the R 9350 allows quick and safe maintenance. The R 9350’s cab provides numerous features for operator safety.
Safety-First Working Conditions

**Safe Service Access**
The R 9350’s top structure is accessible via a powered 45° stairway as standard on the Tier 2 version. The robust service flap provides easy ground level access to the main service points.

**Secure Maintenance**
All components have been located allowing 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 9350 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 highly resistant material to prevent the risk of fires.

**Automatic Fire Suppression System**
The R 9350 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.

Improved Accessibility

**Ease of Maintenance**
The machine is easily visible even by night or in extremely dusty working environments thanks to:
- 12 long-range working lights located on attachment, uppercarriage and counterweight
- Travel alarm system with light and buzzer

**Machine Access**
Designed for safe access on the machine upperstructure via:
- Stairway and catwalks with handrails and perforated steps
- Walkways with slip-resistant surfaces
- Emergency egress with handrails in front of the excavator
- 45° access system

**Commitment to Employees Safety**
- Safe and protected access to the components
- Major components centralized to be easily accessible
- E-stops located for the operator and maintenance staff
- Maintenance fluids reach at ground level in option
- Rear and Side Vision System
Liebherr considers the preservation of the environment as a major challenge for the present and future. Liebherr takes greater account of environmental issues in designing, manufacturing and managing machine’s structures. This commitment provides solutions that allow customers to balance high performance with environmental consciousness.
Optimized Energy Consumption, Fewer Emissions

The intelligent energy management system coordinates optimal interaction between the hydraulic system and engine output with the goal of a maximum performance with a minimum consumption. With the “Eco-Mode”, the machine is set up to reduce engine load, improve significantly fuel consumption and optimize emissions.

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.

Controlled Emission Rejection

The R 9350 is powered by high horsepower diesel engines which comply with the US EPA Tier 2 compliant emission limits. This power drive makes the R 9350 cost effective without compromising productivity whilst reducing the machines impact on the environment.

Extended Components and Fluids Lifetime

Liebherr is constantly working on ways to extend component life. Through the Remanufacturing 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.

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 Remanufacturing 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.

The Liebherr-Mining Remanufacturing Program

- Second life for your components
- Liebherr certified workshops
- Reduced environmental impact
- Reduced costs and investment
- Alternative to purchase brand-new replacement components

Sound Attenuation Package (Optional)

- Machine noise attenuation without power loss
- Ideal for operation close to residential area
- Full integration into machine structure
  - Noise-optimised fan regulation
  - Larger and additional mufflers with tail pipe absorbers
  - Sound attenuation on louvers, doors and walls
- Developed with the latest noise measurement technologies

Electric Drive Version

The electric drive system is an efficient alternative to diesel engine allowing:
- Less vibration resulting in higher component lifetime
- Lower maintenance costs
- Less noise pollution
- No exhaust gas emissions
- High motor efficiency
- Maximum efficiency in cold climate conditions when combined with the Arctic Package

*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.
Engine

1 Cummins diesel engine
Rating per SAE J1995 1,120 kW (1,500 HP) at 1,800 rpm
Model Cummins QSK45
Type 12 cylinder turbocharged V-engine
Bore/Stroke 159/150 mm / 6.26/7.48 in
Displacement 45 l/2,745 in³

or

1 Cummins diesel engine
Rating per SAE J1995 1,120 kW (1,500 HP) at 1,800 rpm
Model Cummins QSK50
Type 16 cylinder turbocharged V-engine
Bore/Stroke 159/159 mm / 6.26/6.26 in
Displacement 50.3 l/3,069 in³

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 (Tier 1) 5,815 l/1,536 gal
Fuel tank (Tier 2) 6,908 l/1,825 gal

Electrical system
Voltage 24 V
Batteries 4 x 180 Ah / 12 V service systems
Alternator 24 V / 260 Amp
Engine idling automatic engine idling
Electronic engine control system engine speed sensing over the entire engine RPM range, Provides integration of engine with other machine systems

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

Hydraulic System

Hydraulic pump
for attachment and travel drive 4 variable flow axial piston pumps
Max. flow 4 x 754 l/min. / 4 x 199 gpm
Max. pressure 320 bar / 4,640 psi
for swing drive 2 reversible swashplate pumps, closed-loop circuit
Max. flow 2 x 390 l/min. / 2 x 103 gpm
Max. 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 (15/5 μm)

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

Electric System

Easy accessible battery isolations
Working lights high brightness LED lights:
– 4 on working attachment
– 2 on cabin
– 3 on RHS of uppercarriage
– 3 on LHS of uppercarriage
Emergency stop switches at ground level, in hydraulic compartment, in engine compartment, at valve bank 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

Electro-Hydraulic Controls

Servo circuit independent, 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

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

Technical Data
**Operator’s Cab**

- **Design**: resiliently mounted, sound insulated, large windows for all around visibility, integrated falling object protection FOPS (ISO 10262)
- **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 18 mm / 0.7 in for right-hand side windows, all other windows in tinted safety glass, high pressure windshield-washer system, 75 l / 20 gal watertank, steel sun louvers on all windows in heavy duty design
- **Heating system/ Air conditioning**: heavy duty, fully automatic, high output air conditioner and heater unit, contains fluorinated greenhouse gases HFC 134a with a Global Warming Potential (GWP) of 1430, the AC circuit contains 7.5 kg / 16.5 lb of HFC-134 representing an equivalent of 10.7 tonnes / 11.6 tons of CO₂, the 2nd AC circuit (optional) contains 4.8 kg / 10.6 lb of HFC-134 representing an equivalent of 6.9 tonnes / 7.6 tons of CO₂
- **Cabin pressurization**: ventilation with filter, minimum pressurization of 50 Pa (ISO 10263-3)
- **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)**
  - Diesel: LₚA (inside cab) = Tier 1: 76 dB(A)
  - Tier 2: 78 dB(A)
  - Electric: LₚA (inside cab) = 75 dB(A)

**Undercarriage**

- **Design**: 3-piece undercarriage, box-type structures for center piece and side frames (stress relieved as a standard)
- **Hydraulic motor**: 2 axial piston motors per side frame
- **Travel gear**: Liebherr planetary reduction gear
- **Travel speed**: 0 – 2.5 – 3.9 km/h / 0 – 1.60 – 2.00 mph
- **Parking brake**: spring engaged, hydraulically pressure released wet multi-disc brakes for each travel motor, maintenance-free
- **Track components**: BMP 350, maintenance-free, forged double grouser pad
- **Track rollers/ Carrier rollers**: 9/2 per side frame
- **Automatic track tensioner**: pressurized hydraulic cylinder with accumulator and grease tensioner
- **Transport**: undercarriage side frames are removable

**Service Flap**

- **Design**: hydraulically actuated service flap, with lighting easily accessible from ground level to allow:
  - fuel fast 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
  - other coupler type on request

**Central Lubrication System**

- **Type**: single line lubrication system, for the entire attachment/swing ring bearing and teeth
- **Grease pumps**: hydraulic pumps for both circuits
- **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 line with grease filters
- **Monitoring**: via a specific Liebherr control module with data memory

**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, 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, electronic controlled end-cushioning
Backhoe Attachment
with Mono Boom 9.30 m / 30’6”

### Digging Envelope

<table>
<thead>
<tr>
<th></th>
<th>m</th>
<th>ft in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stick length</td>
<td>4.20</td>
<td>13’9”</td>
</tr>
<tr>
<td>Max. digging depth</td>
<td>9.50</td>
<td>31’1”</td>
</tr>
<tr>
<td>Max. reach at ground level</td>
<td>16.30</td>
<td>53’5”</td>
</tr>
<tr>
<td>Max. dumping height</td>
<td>10.20</td>
<td>33’5”</td>
</tr>
<tr>
<td>Max. teeth height</td>
<td>15.40</td>
<td>50’6”</td>
</tr>
</tbody>
</table>

### Forces

<table>
<thead>
<tr>
<th></th>
<th>kN</th>
<th>lbf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. digging force (ISO 6015)</td>
<td>870</td>
<td>195,584</td>
</tr>
<tr>
<td>Max. breakout force (ISO 6015)</td>
<td>1,020</td>
<td>229,305</td>
</tr>
</tbody>
</table>

### Operating Weight and Ground Pressure

- The operating weight includes the basic machine with backhoe attachment and backhoe bucket 18.70 m / 24.46 yd.
- Pad width mm / ft in | 850 / 2’9”
- Weight kg / lb | 302,000 / 665,800
- Ground pressure* kg/cm² / psi | 2.51 / 35.63

* according to ISO 16754

### Backhoe Buckets

<table>
<thead>
<tr>
<th></th>
<th>&lt;5</th>
<th>&lt;5</th>
<th>5 – 6</th>
<th>5 – 6</th>
<th>7 – 8</th>
<th>7 – 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity ISO 7451</td>
<td>m³</td>
<td>yd³</td>
<td>GP</td>
<td>GP</td>
<td>HD</td>
<td>HD</td>
</tr>
<tr>
<td></td>
<td>20.00</td>
<td>26.2</td>
<td>19.30</td>
<td>25.2</td>
<td>18.70</td>
<td>24.5</td>
</tr>
<tr>
<td></td>
<td>1.65</td>
<td>2.762</td>
<td>1.75</td>
<td>2.951</td>
<td>1.8</td>
<td>3.035</td>
</tr>
<tr>
<td></td>
<td>3,700</td>
<td>121”</td>
<td>3,700</td>
<td>11”</td>
<td>3,400</td>
<td>10”</td>
</tr>
<tr>
<td></td>
<td>16,950</td>
<td>37,368</td>
<td>16,200</td>
<td>37,715</td>
<td>16,400</td>
<td>36,156</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>kN</th>
<th>lbf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. digging force (ISO 6015)</td>
<td>870</td>
<td>195,584</td>
</tr>
<tr>
<td>Max. breakout force (ISO 6015)</td>
<td>1,020</td>
<td>229,305</td>
</tr>
</tbody>
</table>

GP: General purpose bucket with Liebherr Z140 teeth
HD: Heavy-duty bucket with Liebherr Z140 teeth
XHD: Heavy-duty rock bucket with Liebherr Z140 teeth
Face Shovel Attachment
with Shovel Boom 6.75 m / 22'1"

Digging Envelope

<table>
<thead>
<tr>
<th>Description</th>
<th>m</th>
<th>ft in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stick length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. reach at ground level</td>
<td>m</td>
<td>ft in</td>
</tr>
<tr>
<td>Max. dumping height</td>
<td>m</td>
<td>ft in</td>
</tr>
<tr>
<td>Max. crowd length</td>
<td>m</td>
<td>ft in</td>
</tr>
<tr>
<td>Bucket opening width T</td>
<td>m</td>
<td>ft in</td>
</tr>
</tbody>
</table>

Forces

<table>
<thead>
<tr>
<th>Description</th>
<th>kN</th>
<th>lbf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. crowd force at ground level (ISO 6015)</td>
<td>995</td>
<td>223,460</td>
</tr>
<tr>
<td>Max. crowd force (ISO 6015)</td>
<td>1,280</td>
<td>287,755</td>
</tr>
<tr>
<td>Max. breakout force (ISO 6015)</td>
<td>1,000</td>
<td>224,809</td>
</tr>
</tbody>
</table>

Operating Weight and Ground Pressure

The operating weight includes the basic machine with shovel attachment and bucket 18.00 m³ / 23.5 yd³.

<table>
<thead>
<tr>
<th>Description</th>
<th>mm / ft in</th>
<th>kg / lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pad width</td>
<td>850 / 2'9&quot;</td>
<td>310,000 / 683,400</td>
</tr>
<tr>
<td>Weight</td>
<td>310,000 / 683,400</td>
<td></td>
</tr>
<tr>
<td>Ground pressure*</td>
<td>2.58 / 36.57</td>
<td></td>
</tr>
</tbody>
</table>

* according to ISO 16754

Face Shovel Buckets

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

<table>
<thead>
<tr>
<th>Description</th>
<th>m³</th>
<th>yd³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity ISO 7546</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical operation according to VOB Section C, DIN 18300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suitability for material up to a specific weight of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cutting width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>m³</th>
<th>yd³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical operation according to VOB Section C, DIN 18300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>mm</th>
<th>ft in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suitable for material up to a specific weight of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cutting width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>m³</th>
<th>yd³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical operation according to VOB Section C, DIN 18300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>mm</th>
<th>ft in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suitable for material up to a specific weight of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cutting width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>lb</td>
</tr>
</tbody>
</table>

GP: General purpose bucket with Liebherr Z140 teeth
HD: Heavy-duty bucket with Liebherr Z140 teeth
XHD: Heavy-duty rock bucket with Liebherr Z140 teeth
Optional Equipment

**Undercarriage**
- HD travel gear seal for muddy applications
- Undercarriage bottom cover
- Rock protection for idler wheel
- Travel motor guard with access hatch

**Operator's Cab**
- 4-point seat belt
- Additional back and side wipers
- Double A/C system
- Front protective grid
- Auxiliary cab heating system

**Uppercarriage**
- Banlaw fast fueling system
- Fueling system with Multiflo Hydrau-Flo®
- Wiggins/Banlaw counter plugs for fuel/lube trucks
- Swing ring scrapers
- Slewing ring with 90° installation arrangement

**Attachment**
- Piston rod guard for bucket cylinder (BH)

**Hydraulic System**
- Oil cooler inlet screens

**Engine**
- Fuel consumption optimized engine version (non-certified)
- Fuel/water separator
- Automatic engine shut down (5 min.)
- Cummins Centine™ kit
- Cummins Eliminator™ kit

**Specific Solutions**
- Arctic package (–30 °C/–22 °F, –40 °C/–40 °F, –50 °C/–58 °F)
- Sound attenuation package (until +40 °C/104 °F)
- High altitude package

**Safety**
- Automatic fire suppression system

**General**
- Maritime transport packaging
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. 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 applications.

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 then, the family business has steadily grown to a group of more than 130 companies with nearly 44,000 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