

Mining Excavator

R 9350

Operating Weight with
Backhoe Attachment:
302 tonnes / 333 tons

Shovel Attachment:
310 tonnes / 342 tons

Engine:
1,120 kW / 1,500 HP

Bucket Capacity:
18 m³ / 23.5 yd³

Shovel Capacity:
18 m³ / 23.5 yd³



LIEBHERR

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Shovel Capacity:

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Productivity

Working Harder and Faster



Efficiency

Moving More for Less





Reliability

Ready to Work
When You Need it



Customer Service

Worldclass Support,
Everywhere, Every Day



Safety

Protecting Your Most
Important Assets



Environment

Mining Responsibly





Productivity



Working Harder and Faster

The R 9350 is built to outperform all competitors in the medium class mining market. Boasting a 18.00 m³/23.5 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 (USA/EPA Tier 2)
- Cummins QSK 45 (USA/EPA Tier 1)
- Fuel consumption optimized version on Tier 2 engine (option)
- Electrical motor (option):
- 3 phase AC squirrel cage motor
- Voltage on request
- 50 or 60 Hz frequency

High Altitude Kit (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 Kit

High Altitude Kit

- Innovative Liebherr bucket design to maximize bucket fill factor
- Optimized Liebherr GET and wear package according to customer application
- Ensure 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 9350 follows the Liebherr design philosophy of maximizing the machine's 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.

Optimized 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 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

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.



Electronic Cylinder Damping System

- Patented system based on electronic control
- Controlled end-cushioning for smooth attachment motions
- Allows the operator to focus on loading
- Intelligent energy management by energy saving
- Increase of cylinders reliability

Fast Maintenance System

The service flap is hydraulically actuated and accessible from the ground level allowing for fast maintenance:

- 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

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



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 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.

Long-lasting Job Performances

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



Customer Service



Worldclass 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 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.

Parts Business

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 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:

- 8 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

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



Environment



Mining Responsibly

Liebherr considers the preservation of the environment as a major challenge for the present and future. Liebherr take 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.

Minimized Impact on Life

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.

Controlled Emission Rejection

The R 9350 is powered by high horsepower diesel engines which comply with the USA/EPA Tier 2 or Tier 4i emission limits. This power drive makes the R 9350 cost effective without compromising productivity whilst reducing 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 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

Sound Attenuation Kit (Optional)

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)

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 Kit

Technical Data

Engine

| | |
|--|---|
| 1 Cummins diesel engine | |
| Rating per SAE J1995 | 1,120 kW (1,500 HP) at 1,800 rpm |
| Model | Cummins QSK45 (USA/EPA Tier 1) |
| Type | 12 cylinder turbocharged V-engine after-cooler two separate water cooling circuits direct injection system |
| Bore/Stroke | 159/190 mm / 6.26/7.48 in |
| Displacement | 45 l/2,745 in ³ |
| or | |
| 1 Cummins diesel engine | |
| Rating per SAE J1995 | 1,120 kW (1,500 HP) at 1,800 rpm |
| Model | Cummins QSK50 (USA/EPA Tier 2, Tier 4i or fuel consumption optimized setting) |
| Type | 16 cylinder turbocharged V-engine after-cooler two separate water cooling circuits common rail |
| Bore/Stroke | 159/159 mm / 6.26/6.26 in |
| Displacement | 50.3 l/3,069 in ³ |
| Engine cooling system | |
| Air cleaner | |
| fans driven via hydraulic piston motor 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 (+ 2) x 170 Ah/12 V |
| 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 | |

Electric Motor (optional)

| | |
|-------------------------|---|
| 1 electric motor | |
| Power output | 1,200 kW (1,610 HP) |
| Type | 3-phase AC squirrel cage motor |
| Voltage | 6,000 V or 6,600 V, other voltage on request |
| Frequency | 50 Hz (or 60 Hz) |
| Revolutions | 1,500 rpm or 1,800 rpm |
| Motor cooling | integrated air-to-air heat exchanger |
| Starting method | inrush current limited to 2.2 full load current |

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 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 |

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 | |
| Max. flow | 4 x 754 l/min. / 4 x 199 gpm |
| Max. pressure | 320 bar/4,640 psi |
| for swing drive | |
| 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 manage- ment 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

| | |
|---------------------------------|---|
| Electric isolation | easy accessible battery isolations |
| Working lights | |
| high brightness halogen lights: | |
| – 2 on working attachment | |
| – 1 on RHS of uppercarriage | |
| – 3 on LHS of uppercarriage | |
| – 2 on counterweight | |
| Xenon or LED lights in option | |
| Emergency stop switches | at ground level, in hydraulic compartment, in engine compartment and in operator cab |
| Electrical wiring | heavy duty execution in IP 65 standard for operating conditions of –50 °C to 100 °C/–58 °F to 212 °F |

Uppercarriage

| | |
|--|--|
| Design | torque resistant designed upper frame in box type construction for superior strength and durability |
| Attachment mounting | parallel longitudinal main girders in boxsection construction |
| Machine access | |
| (Tier 1) hydraulically driven access ladder on the cab side of the uppercarriage | |
| (Tier 2) 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 | |



Operator's Cab

| | |
|---|--|
| Design | resiliently mounted, sound insulated, large windows for all around visibility, integrated falling object protection FOPS |
| Operator's seat | suspended, body-contoured with shock absorber, adjustable to operator's weight |
| Cabin windows | 20.5 mm/0.8 in tinted armored glass for front window and 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 |
| Cabin pressurization | ventilation with filter |
| Controls | joystick levers integrated into armrest of seat |
| Monitoring | via LCD-display, data memory |
| Rear vision system | camera installation on counterweight and right-hand side of the uppercarriage displayed over an additional LCD-display |
| Automatic engine shut off | engine self-controlled shut off |
| Destroking of main pumps | in case of low hydraulic oil level |
| Safety functions | additional gauges with constant display for: engine speed, hourmeter, voltmeter, safety mode for engine speed control and pump regulation |
| Noise level (ISO 6396) | Diesel: L_{pA} (inside cab) = Tier 1: 76 dB(A) Tier 2: 78 dB(A) with oil / water fans at 100 % and AC fan at 65 % Electric: L_{pA} (inside cab) = 75 dB(A) with oil / water fans at 100 % and AC fan at 65 % |



Undercarriage

| | |
|--|---|
| Design | 3-piece undercarriage, box-type structures for center piece and side frames (stress relieved as a standard) |
| Hydraulic motor | 2 axial piston motors per side frame |
| Travel gear | Liebherr planetary reduction gear |
| Travel speed | 0 – 2.5 – 3.3 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: <ul style="list-style-type: none"> – fuel fast refill – hydraulic oil refill – engine oil quick change – splitterbox oil quick change – swing gearbox oil quick change – swing ring teeth grease barrel refilling via grease filter – attachment / swing ring bearing grease barrel refilling via grease filter – windshield wash water refilling – other coupler type on request |
|---------------|---|



Central Lubrication System

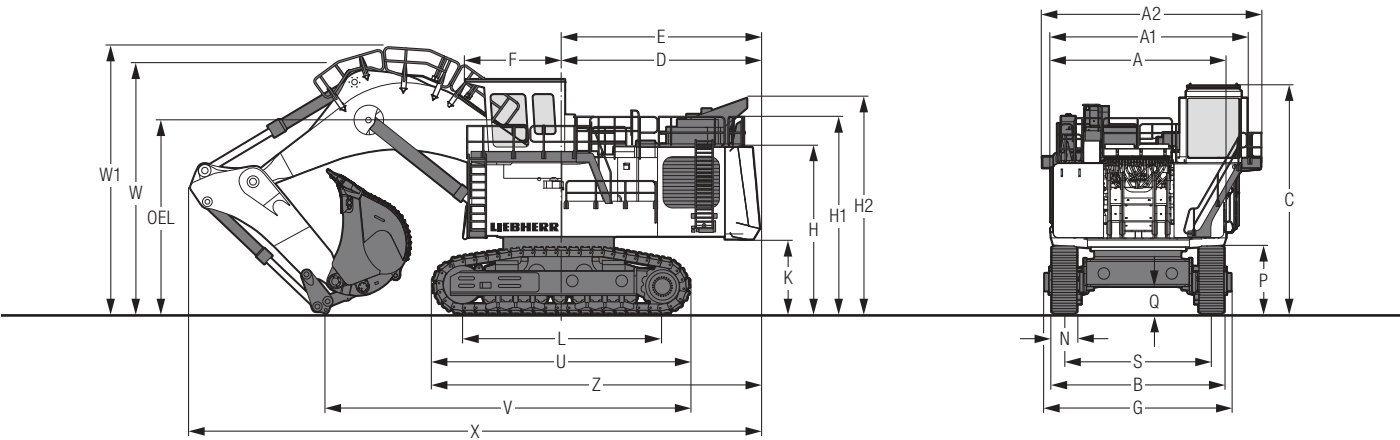
| | |
|---------------------|---|
| Type | single line lubrication system, for the entire attachment / swing ring bearing and teeth |
| Grease pumps | hydraulic pumps for both circuits |
| Capacity | 200 l/53 gal bulk container for attachment / swing ring bearing, separated 80 l/21 gal container for swing ring teeth |
| Refill | via the service flap for both containers, fill line with grease filters |



Attachment

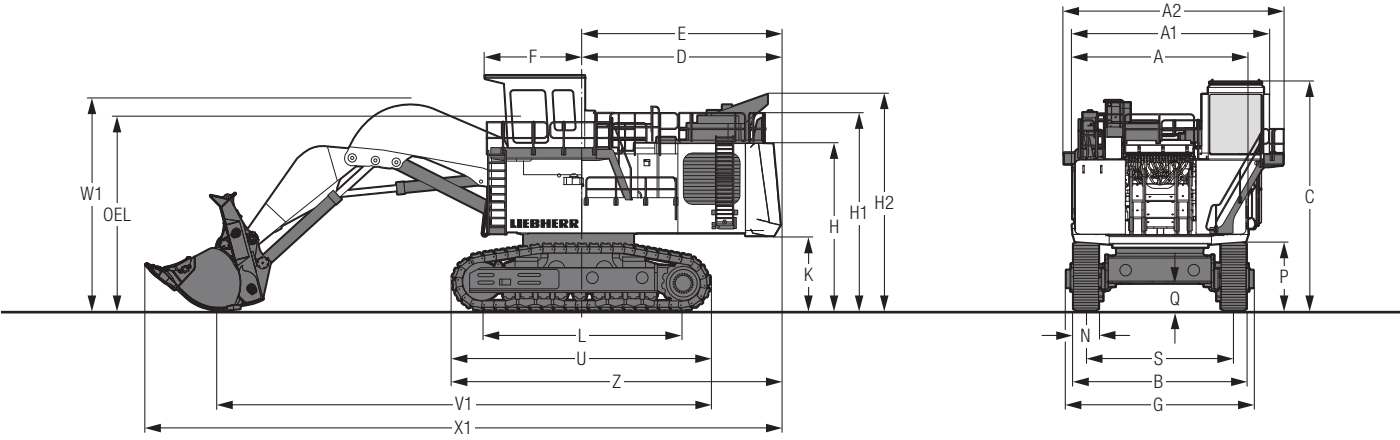
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|------------------------------|--|
| Design | box-type structure with large steel castings in all high-stress areas |
| Pivots | sealed with double side centering with 1 single floating pin per side, all bearings with wear resistant steel bushings, 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 |

Dimensions - Tier 1



| | mm/ft in |
|----|--------------|
| A | 5,800/19' |
| A1 | 6,720/22' |
| A2 | 7,400/24' 3" |
| B | 5,850/19' 2" |
| C | 7,800/25' 7" |
| D | 6,395/20'11" |
| E | 6,395/20'11" |
| F | 3,100/10' 2" |
| G | 6,410/21' |
| H | 5,480/17'11" |
| H1 | 6,500/21' 3" |
| H2 | 7,075/23' 2" |
| K | 2,280/ 7' 5" |

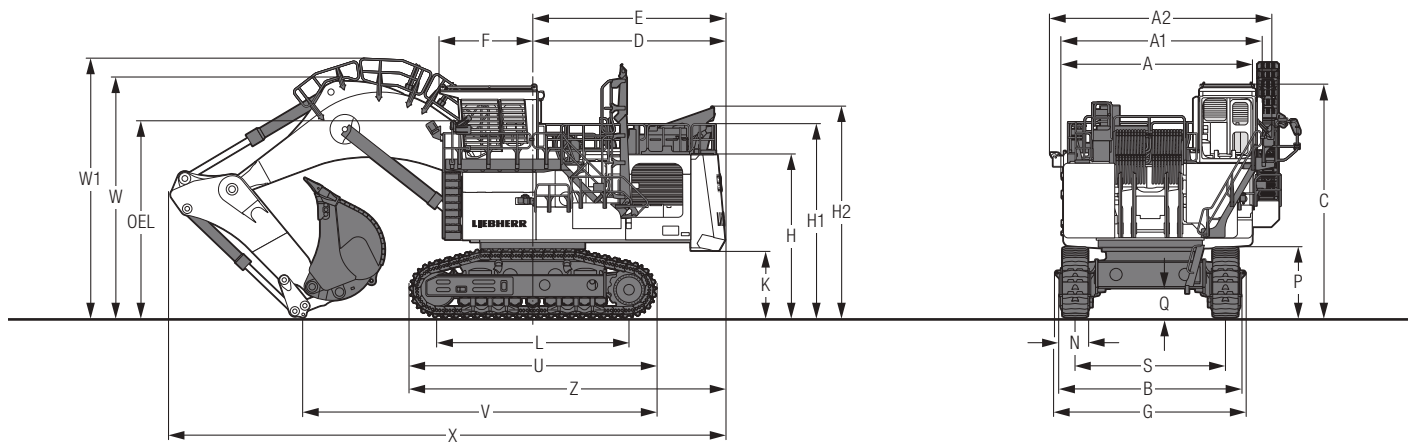
| | mm/ft in |
|-----|-----------------------------------|
| L | 6,400/20'11" |
| N | 850/ 2' 9" |
| P | 2,375/ 7' 9" |
| Q | 994/ 3' 3" |
| S | 5,000/16' 4" |
| U | 8,344/27' 4" |
| V | 11,800/38' 8" |
| W | 8,100/26' 6" |
| W1 | 8,700/28' 6" |
| X | 18,450/60' 6" |
| Z | 10,470/34' 4" |
| OEL | Operator's eye level 6,600/21' 7" |



| | mm/ft in |
|----|--------------|
| A | 5,800/19' |
| A1 | 6,720/22' |
| A2 | 7,400/24' 3" |
| B | 5,850/19' 2" |
| C | 7,800/25' 7" |
| D | 6,395/20'11" |
| E | 6,395/20'11" |
| F | 3,100/10' 2" |
| G | 6,410/21' |
| H | 5,480/17'11" |
| H1 | 6,500/21' 3" |
| H2 | 7,075/23' 2" |

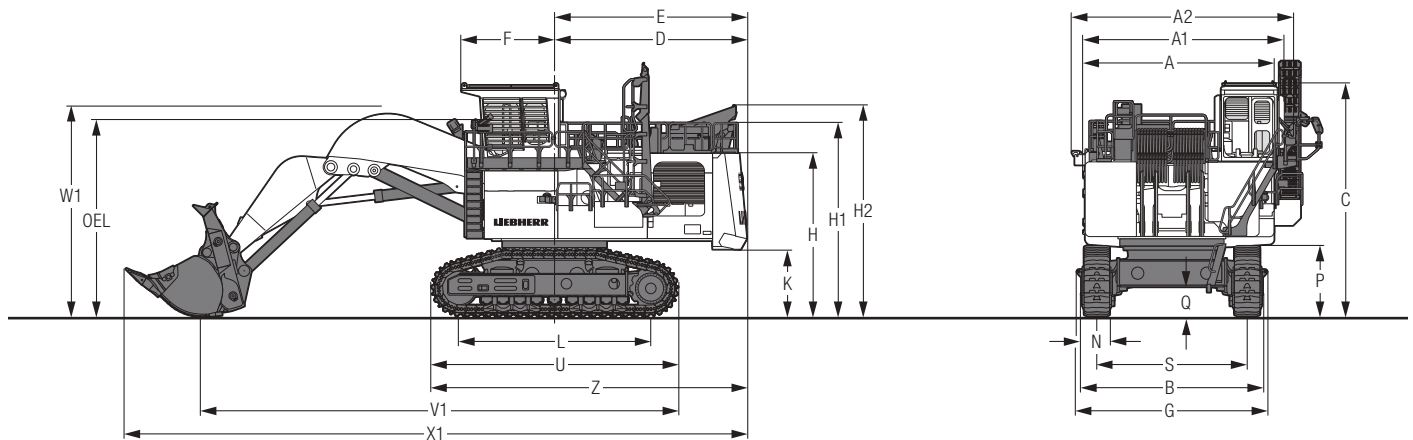
| | mm/ft in |
|-----|-----------------------------------|
| K | 2,280/ 7' 5" |
| L | 6,400/20'11" |
| N | 850/ 2' 9" |
| P | 2,375/ 7' 9" |
| Q | 994/ 3' 3" |
| S | 5,000/16' 4" |
| U | 8,344/27' 4" |
| V1 | 15,900/52' 1" |
| W1 | 7,100/23' 3" |
| X1 | 20,700/67'10" |
| Z | 10,470/34' 4" |
| OEL | Operator's eye level 6,600/21' 7" |

Dimensions - Tier 2



| | mm/ft in |
|----|--------------|
| A | 6,350/20' 9" |
| A1 | 6,700/21'11" |
| A2 | 7,600/24'11" |
| B | 5,850/19' 2" |
| C | 7,820/25' 7" |
| D | 6,400/20'11" |
| E | 6,665/21'10" |
| F | 3,090/10' 1" |
| G | 6,410/21' |
| H | 5,500/18' |
| H1 | 6,520/21' 4" |
| H2 | 7,100/23' 3" |
| K | 2,300/ 7' 6" |

| | mm/ft in |
|-----|-----------------------------------|
| L | 6,400/20'11" |
| N | 850/ 2' 9" |
| P | 2,375/ 7' 9" |
| Q | 994/ 3' 3" |
| S | 5,000/16' 4" |
| U | 8,344/27' 4" |
| V | 11,800/38' 8" |
| W | 8,100/26' 6" |
| W1 | 8,700/28' 6" |
| X | 18,450/60' 6" |
| Z | 10,470/34' 4" |
| OEL | Operator's eye level 6,600/21' 7" |

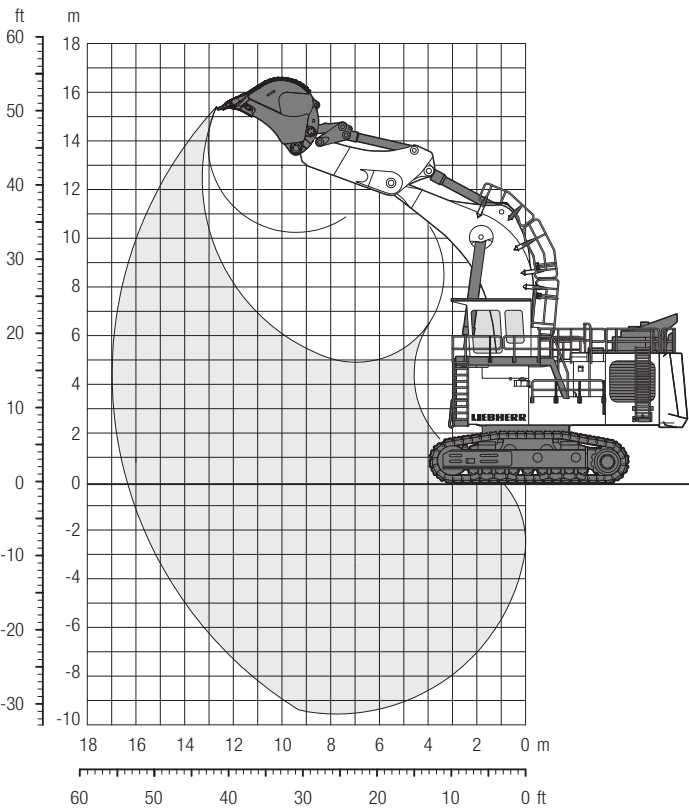


| | mm/ft in |
|----|--------------|
| A | 6,350/20' 9" |
| A1 | 6,700/21'11" |
| A2 | 7,600/24'11" |
| B | 5,850/19' 2" |
| C | 7,820/25' 7" |
| D | 6,400/20'11" |
| E | 6,665/21'10" |
| F | 3,090/10' 1" |
| G | 6,410/21' |
| H | 5,500/18' |
| H1 | 6,520/21' 4" |
| H2 | 7,100/23' 3" |

| | mm/ft in |
|-----|-----------------------------------|
| K | 2,300/ 7' 6" |
| L | 6,400/20'11" |
| N | 850/ 2' 9" |
| P | 2,375/ 7' 9" |
| Q | 994/ 3' 3" |
| S | 5,000/16' 4" |
| U | 8,334/27' 4" |
| V1 | 15,900/52' 1" |
| W1 | 7,100/23' 3" |
| X1 | 20,700/67'10" |
| Z | 10,470/34' 4" |
| OEL | Operator's eye level 6,600/21' 7" |

Backhoe Attachment

with Mono Boom 9.30 m/30'6"



Digging Envelope

| | |
|--------------------------------|----------------------|
| Stick length | 4.20 m/13'9" |
| Max. digging depth | 9.50 m/31'1" |
| Max. reach at ground level | 16.30 m/53'5" |
| Max. dumping height | 10.20 m/33'5" |
| Max. teeth height | 15.40 m/50'6" |
| Max. digging force (ISO 6015) | 870 kN/195,584 lbf |
| Max. breakout force (ISO 6015) | 1,020 kN/229,305 lbf |

Operating Weight and Ground Pressure

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

| | | |
|------------------|--------------------------|-----------------|
| Pad width | mm / ft in | 850/2'9" |
| Weight | kg / lb | 302,000/665,800 |
| Ground pressure* | kg/cm ² / psi | 2.51/35.63 |

* according to ISO 16754

Backhoe Buckets

| | | | | | |
|--|--------|--------|--------|--------|--------|
| For materials class according to VOB, Section C, DIN 18300 | < 5 | 5 – 6 | 5 – 6 | 5 – 6 | 7 – 8 |
| Typical operation according to VOB Section C, DIN 18300 | GP | HD | HD | HD | XHD |
| Capacity ISO 7451 | | | | | |
| m ³ | 20.00 | 17.00 | 18.00 | 19.00 | 15.30 |
| yd ³ | 26.2 | 22.2 | 23.5 | 24.9 | 20.0 |
| Suitable for material up to a specific weight of | | | | | |
| t/m ³ | 1.7 | 1.9 | 1.8 | 1.6 | 1.9 |
| lb/yd ³ | 2,867 | 3,204 | 3,035 | 2,698 | 3,204 |
| Cutting width | | | | | |
| mm | 3,700 | 3,400 | 3,400 | 3,600 | 3,400 |
| ft in | 12'1" | 11'1" | 11'1" | 11'9" | 11'1" |
| Weight | | | | | |
| kg | 16,150 | 18,250 | 18,350 | 19,600 | 20,350 |
| lb | 35,605 | 40,234 | 40,455 | 43,211 | 44,864 |

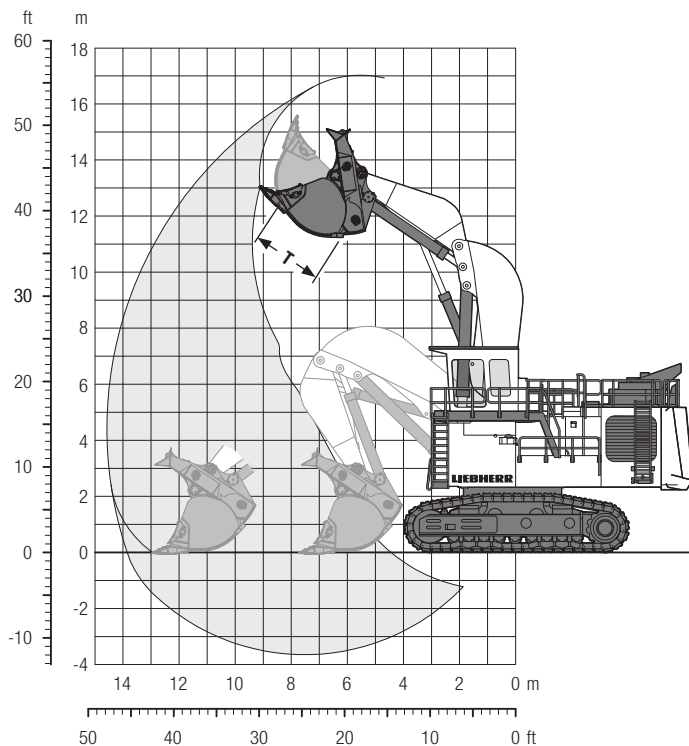
GP: General purpose bucket with Liebherr Z140 teeth

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

| | |
|---|----------------------|
| Stick length | 4.20 m/13'9" |
| Max. reach at ground level | 13.75 m/45'1" |
| Max. dumping height | 11.20 m/36'8" |
| Max. crowd length | 5.20 m/17' |
| Bucket opening width T | 2.35 m/ 7'8" |
| Max. crowd force at ground level (ISO 6015) | 995 kN/223,460 lbf |
| Max. crowd force (ISO 6015) | 1,280 kN/287,755 lbf |
| Max. breakout force (ISO 6015) | 1,000 kN/224,809 lbf |

Operating Weight and Ground Pressure

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

| | | |
|------------------|--------------|-----------------|
| Pad width | mm / ft in | 850/2'9" |
| Weight | kg / lb | 310,000/683,400 |
| Ground pressure* | kg/cm² / psi | 2.58/36.57 |

* according to ISO 16754

Face Shovel Buckets

| For materials class according to VOB, Section C, DIN 18300 | | < 5 | < 5 | < 5 | 5 – 6 | 5 – 6 | 7 – 8 | 7 – 8 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|
| Typical operation according to VOB Section C, DIN 18300 | | GP | GP | GP | HD | HD | XHD | XHD |
| Capacity ISO 7451 | m³ | 15.30 | 17.00 | 20.50 | 17.00 | 18.00 | 15.30 | 16.50 |
| | yd³ | 20.0 | 22.2 | 26.8 | 22.2 | 23.5 | 20.0 | 21.6 |
| Suitable for material up to a specific weight of | t/m³ | 2.2 | 2.0 | 1.6 | 1.9 | 1.8 | 1.9 | 1.7 |
| | lb/yd³ | 3,710 | 3,373 | 2,698 | 3,204 | 3,035 | 3,204 | 2,867 |
| Cutting width | mm | 4,100 | 4,100 | 4,100 | 4,100 | 4,100 | 4,100 | 4,100 |
| | ft in | 13'5" | 13'5" | 13'5" | 13'5" | 13'5" | 13'5" | 13'5" |
| Weight | kg | 29,900 | 30,600 | 31,000 | 31,620 | 31,900 | 35,000 | 35,950 |
| | lb | 65,918 | 67,461 | 68,343 | 69,710 | 70,327 | 77,162 | 79,256 |

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
Undercarriage bottom cover
Travel motor guard with access hatch

Uppercarriage

Banlaw fast fueling system
Fueling system with Multiflo Hydrâu-Flo
WigginsBanlaw counter plugs for fuel / lube trucks
Swing ring scrapers
Xenon lighting
LED lighting
Additional halogen working lighting
Additional service lighting
Greasing system with two grease pumps
Slewing ring with 90° installation arrangement

Hydraulic System

Oil cooler inlet screens

Engine

Fuel consumption optimized engine version (Tier non-certified)
Fuel/water separator
Cold application start aid
Automatic engine shut down (5 min.)
Cummins Cense™
Cummins Centinel™
Cummins Eliminator™

Operator's Cab

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

Attachment

Piston rod guard for bucket cylinders

Specific Solutions

Arctic package (–30 °C / –22 °F, –40 °C / –40 °F)
Sound attenuation package (until +40 °C / +104 °F)
High altitude kit

Safety

Automatic fire suppression system

General

Maritime transport packaging