Assistance systems

Get the best out of your Liebherr mining excavator

LIEBHERR

Mining excavators

IoMine

The best performance. Easy.

Excavator Assistance Systems enable you to ...

Measure and analyse every bucket payload for optimal truck loading

Manage fleet data with different views and advanced filtering

Display targeted productivity and actual payload with 99 % accuracy

Get up-to-date information about machine performance, operating time and fuel efficiency

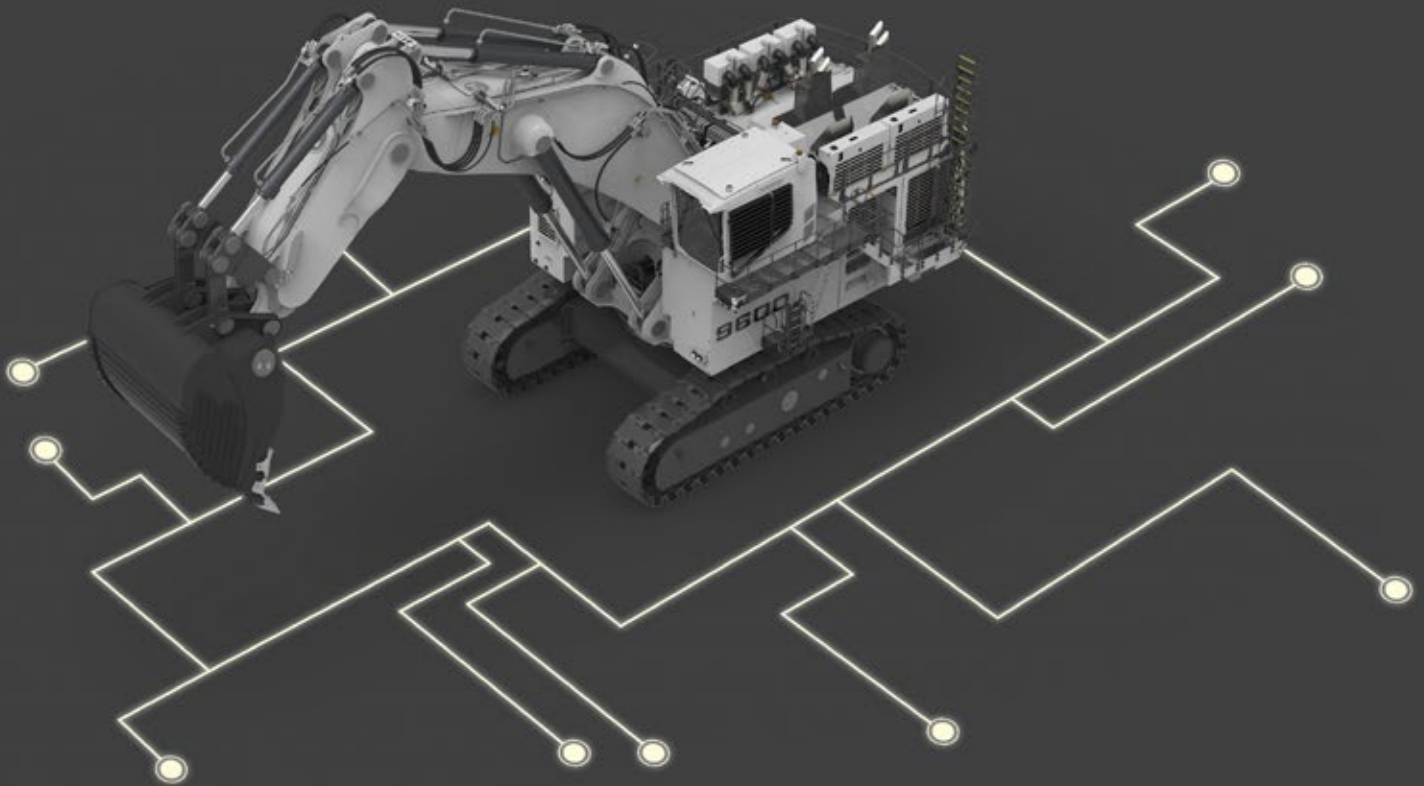Identify operational conformance and improve operator effectiveness

Track up-to-date machine information with state-of-the-art touchscreen displays

Make informed decisions

Increase productivity

IoMine

IoMine, Liebherr Mining's cutting-edge technology product line, supports our customers' transition to integrated operations. By adopting IoMine, customers can improve decision-making and provide greater operational safety – all while fostering sustainable development and ensuring cost optimisation in the management of their mines.

Liebherr Assistance Systems are advanced onboard products and are designed to support operators to become more efficient through analytics. These products help maintenance and site management personnel to improve safety, maintenance and overall equipment effectiveness.

An integrated Liebherr solution

By combining hardware and software, as only an OEM can, Liebherr increases the performance of mining excavators. With the vertical integration of Liebherr components in its mining equipment, Liebherr has the advantage of being able to deliver the highest value to the customer in terms of component reliability and efficiency.
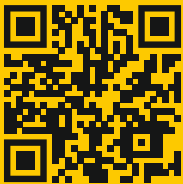
Want to live the real experience?

Scan this QR code and see our Assistance Systems in action as if you were in the cab of a Liebherr mining excavator.

Truck Loading Assistant

Helps operators achieve optimal truck payloads without over- or underloading trucks.

Performance Monitoring

Tracks crucial productivity KPIs such as truck loading times, truck exchange times and phases of a loading cycle, swing angle and bench height.

Operational Conformance

Monitors and detects non-conforming operational events to improve operator effectiveness.

Application Severity

Assesses application, reports severity indicators and provides an overall application severity score.

Truck Loading Assistant

Optional automatic truck selection

Unprecented loading efficiency

Reduction of truck overloading

Optimal payload compliance

The Truck Loading Assistant notifies the operator of KPIs such as the pass loading strategy, the loading tendency and the actual payload per pass before loading material into the truck. It also helps the operator consistently obtain target truck payloads with confidence.

Increase truck loading accuracy
Continuously monitor and report payloads for individual buckets and trucks, providing operators with immediate, actionable insights to optimise load distribution and efficiency.

Reduce under- and overloading of trucks
Use detailed, real-time information to determine the precise number of passes required per truck class, reducing the number of cycles and maximising operational productivity.
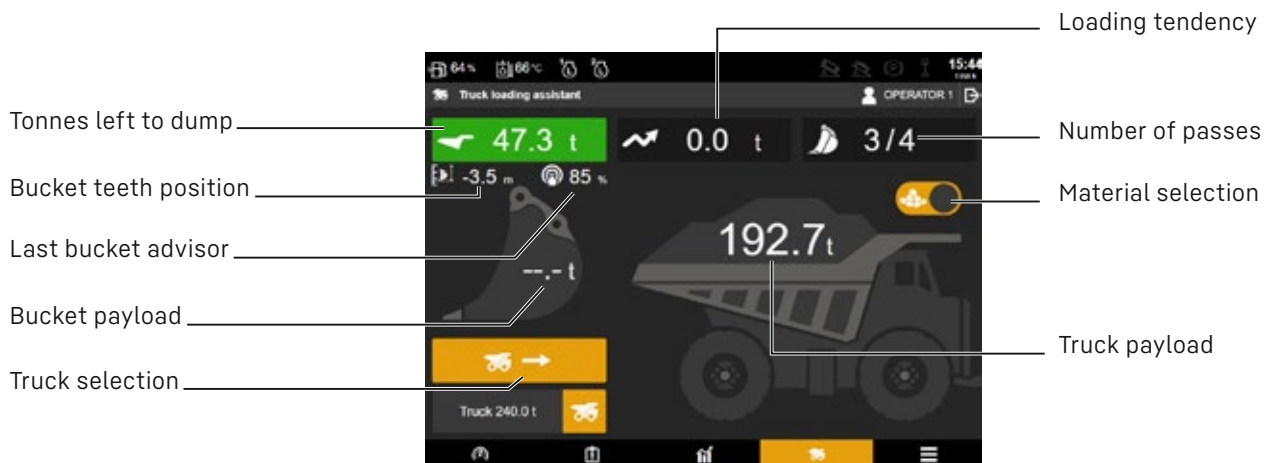
Increase operational efficiency
Implement either manual or optional automated truck recognition systems with pass-by-pass payload tendency analysis, ensuring accurate and efficient load handling for every haul.

99 %
accuracy

The Truck Loading Assistant ensures optimum precision for reliable, high-performance results.

Optimise every load with automatic truck selection. Identify which truck to load and reduce waiting times and maximise excavator efficiency.

Loading tendency

Tonnes left to dump

Number of passes

Bucket teeth position

Material selection

Last bucket advisor

Bucket payload

Truck payload

Truck selection

47.3 t   0.0 t   3/4

-3.5 m   85 %

192.7t

Truck 240.0 t

Performance Monitoring

Comprehensive performance insights for enhanced operational efficiency
Performance Monitoring helps to visualise and improve operator and machine performance through analysis and comparison of previous work patterns.

Performance Monitoring is only available if customers are already subscribed to the Truck Loading Assistant.

Comprehensive understanding of operational performance
Monitor and visualise machine performance using a range of measures for a holistic understanding of your onboard and offboard operations.

Enhanced accuracy and efficiency
Data filters ensure you get the precise insights needed to optimise your operations

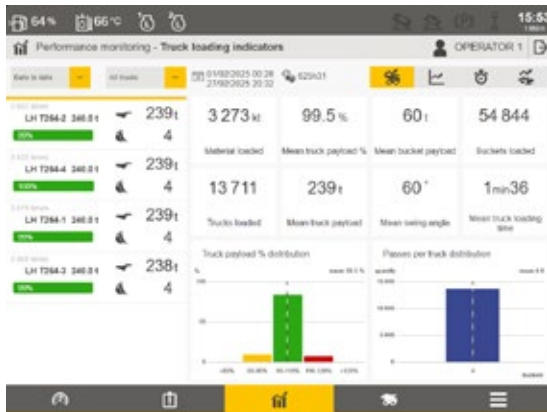**Optimised durability and performance**
Analyse truck loading times, truck exchange times and the various phases of the loading cycle to streamline processes and improve overall efficiency.

Performance Monitoring provides access to four levels of performance analysis, as follows:

Truck Loading Indicators

This page displays automatically calculated data about truck loading performance for any given time period and specific truck. Performance Monitoring also analyses the data and creates graphs of the different results.
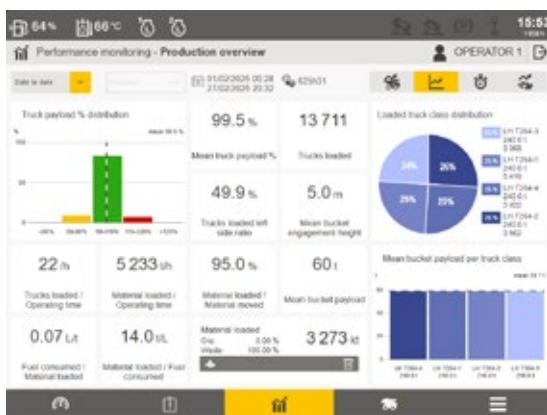
Time Distribution

This page displays real or average times, including:
- The time required to complete specified tasks
- The duration the machine operates in designated modes or statuses

Performance Monitoring also analyses the data and creates graphs of the different results for any given time period and specific truck.

Production Overview

This page displays automatically calculated data about the excavator's productivity and the interaction between the excavator and the truck for any given time period.

Performance Monitoring also analyses the data and creates graphs of the different results.
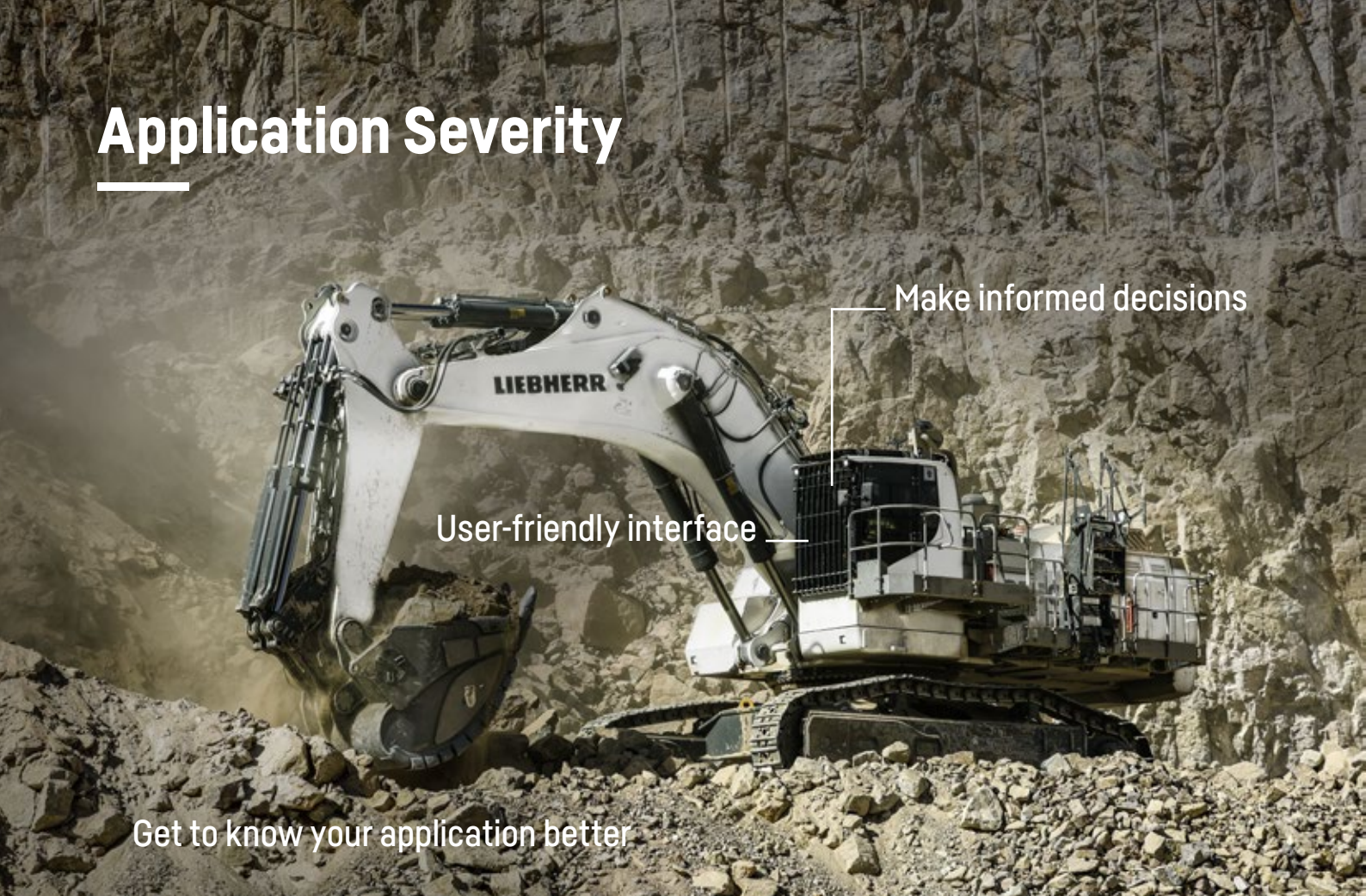
Excavator Efficiency

This page displays information about the efficiency and the energy consumption of the excavator in all of its activities both with and without the truck recognition capabilities of the Truck Loading Assistant.

Application Severity

Make informed decisions

User-friendly interface

Get to know your application better

Understand your application
Detect and monitor crucial application metrics, including machine inclination and excavator engine load factor, ensuring precise and reliable performance insights.

Make operational decisions with KPIs
Obtain application severity scores that help you assess and manage machine operating conditions, reducing the risk of excessive wear and tear.

Maximise financial potential through strategic decision-making
Gain insights about possible future costs through the machine's ability to sense its environment.

Assess machine and environment working conditions
Leverage our cutting-edge Assistance Systems to detect and monitor critical application metrics.

Designed to provide detailed evaluations of the site application. Application Severity uses sensors on the machine to quantify and report severity indicators in the operating environment to create an overall severity score for a selected period. The algorithm provides actionable insights regarding the application's impact on operating costs, productivity and reliability throughout the machine's life cycle.

Application Severity also gives information about the underfoot conditions, temperature profile, engine load factor, suspended load and more – a major benefit for the drill and blast optimisation.

With Application Severity you can evaluate machine and environmental working conditions because the system:
– provides an evaluation of machine environment and state
– computes characteristic Application Severity Indicators to notify operator and supervisors
– automatically quantifies, monitors and assesses indicators

Operational Conformance

Ensure consistent machine use with detailed KPI analysis
Monitors non-conforming operational events to improve operator effectiveness by detecting when the machine is used outside machine design scope.

Non-conforming operational events can decrease the availability and the lifetime of the components and the machine.

To minimise the impact of these events, Operational Conformance:
– continuously monitors the machine and senses when these specified events occur
– records related information

This system also lets you identify and analyse the events through different intuitive graphical views such as overview, logbook and detailed views.

Understand your application
Check progress against their KPIs at any time via overviews or with detailed views of defined operational conformance KPIs.

Ensure machine availability
Analyse KPIs in detail by filtering data based on specific dates, time periods, event counts and event durations, ensuring you access the precise information needed for informed decision-making.

Reduce operating costs
Gain a deeper understanding of your operational equipment use through detailed views of each of the KPIs, enabling you to identify trends, address issues and drive continuous improvement in operational conformance.

Scan here to discover more about our Assistance Systems

64 % 66 °C ¹ ² 14:35 1959 h

Operational conformance - Overview   OPERATOR 1

This session   05/08/2024 14:21
                Now

	Travelling off a bench with attachment for support	63		Travelling off a bench with idler in front of the undercarriage	62
	Digging on a grade greater than machine design specifications	63 6min41		Travelling on a grade greater than machine design specifications	61 0.0s
	Batter Pulling	0 0.0s		Double Benching Hard Conditions	0 0.0s
	Digging with swing brake activated	69 7min52		Swinging into digging face	55
	Turning by lifting the machine with the attachment	53		Bucket hitting track pads	0
	Rock breaking with bucket teeth	55		Engine stop before idler timer	58
	Travel drive in digging area	62 6min38			

F1 F2 F3   OK

Availability

Choose one or combine both of our Assistance System licences for a solution perfectly tailored to your needs:
– Truck Loading Assistant and Performance Monitoring
– Operational Conformance and Application Severity

Our Assistance Systems are available for following hydraulic
excavators **with internal combustion engines** at first fit, and retrofit:

	R 9100 G6	R 9150 G7	R 9200 G7	R 9300 G8	R 9350 G6	R 9400 G6	R 9600 G8	R 9800 G6
Backhoe (BH)	✗	✓	✓	✓	✗	✓	✓	✓
Face shovel (FS)	✗	✗	✗	✗	✗	✗	✗	✗
Retrofit Backhoe only	✗	✓	✓	✗	✗	✓	✗	✓

We are currently developing our assistance systems for hydraulic excavators **with electric drive**.
Initially, these systems will be available as first fit for the R 9300 E G8 and R 9600 E G8 models.

Get the licence in just a few clicks from MyLiebherr.
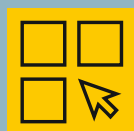
One portal, all services
MyLiebherr

MyLiebherr is Liebherr's customer portal, offering users centralised access to a range of services
and applications related to their machines and equipment. The portal enables users to order spare
parts, manage software licences and contact maintenance partners directly.

The next step for integrating your machines

IoMine not only offers onboard solutions to improve the performance of machines in the field but also goes further by enabling the collection and integration of data generated during operations directly into your IT ecosystem.

Liebherr Connect creates the conditions for access to a wide range of machine data, digital solutions and services.

Application Severity

Operational Conformance

Performance Monitoring

Truck Loading Assistant

Liebherr Connect

Data Services

Create value from data
Enable data integration in your onsite IT ecosystem and build your own data-driven decision-making tools. Liebherr's Data Services are available in three different levels:

– **Essential**
Transfer data generated by Liebherr machines and licensed technology to a system of your choice, directly from the machine.

– **Advanced – Available from S2/2025**
Collect and store machine data history for defined dataset in your IT landscape through a standardised interface. All APIs used follow ISO-15143.

– **Premium**
Fully integrate your Liebherr mining equipment into your IT ecosystem.

Data View

Visualise data and turn it into clear decisions
Compare machines within your fleet via health indicators based on machine-generated events and operational indicators to identify opportunities for optimisation.

The four pillars of
the Liebherr mining division

With more than 50 years of experience in the mining industry, Liebherr has identified four key factors of customer satisfaction: Performance, Safety, Service, and Sustainability. These pillars provide structure and focus for all our activities, and embody Liebherr's customer commitments.

Performance
Productive, efficient and reliable

Safety
Protecting your most
important assets

Service
Where you need it,
when you need it

Sustainability
Commited to our future

Mining excavator   Mining truck   Mining dozer   Mining dragline   Service tools   Customer service

Quality commitment

– Liebherr-Mining Equipment Colmar, France, ISO 9001 certified
– Compliance of materials tested in laboratory
– Quality control during all stages of production
– CE certified, MDG 15 & MDG 41 compliant