
Buckets

Structural components

LIEBHERR

Mining



Tailored bucket solutions





Because each mine site and application is unique, Liebherr gives customers the opportunity to personalise their excavator buckets for their particular requirements and desired specifications.

Following customers' production and maintenance strategies

Liebherr offers tailored bucket solutions, designed to meet the specific needs and requirements of customers. With a dedicated team of skilled engineers that specialise in bucket development, Liebherr ensures that each bucket is customised and fully adapted for its intended purpose.

By working closely with customers, Liebherr is able to incorporate their input and feedback into the bucket design process, resulting in a solution that perfectly aligns with their operational goals and preferences. Furthermore, Liebherr's tailored bucket solutions follow customers' maintenance strategies, allowing for seamless integration into existing maintenance protocols. With state-of-the-art technology and innovative designs, Liebherr delivers cutting-edge bucket solutions that enhance performance, efficiency, and productivity across various industries.



Customisable depth, width, and height.

+11.2%

specific force

The lip length on Liebherr's buckets can be customised, which increases the breakout force while keeping bucket volume the same. For example: reducing the lip section while maintaining the same 18 m³ / 23.5 yd³ bucket volume results in an impressive 11.2% improvement in specific force.

Customer case study

Customer: Liebherr's customer, XINJIANG JINRUI ZHONGYAN, owned by TBEA, operates the largest open-cast coal mine in Xinjiang, China. The mine has a reserve of 11.4 billion tonnes and an annual production of 27 million tonnes.

Challenge: Improving the production capacity of the R 9100 without requiring significant modifications and without compromising the machine's durability.

Solution: By using Liebherr's tailor-made excavator buckets on site, operators can load trucks in eight passes, rather than nine. Combined with the unrivalled cycle times of the R 9100 excavator, the improvements made to this bucket increased production by 6.4% per hour, representing an annual production increase of 597,000 tonnes.



  **8**  passes instead of 9

+6.4%

production

Bucket refurbishing

Worn out or damaged Liebherr buckets can be carefully refurbished to regain their original performance and durability. The process involves thorough inspections, repairs, and replacements of any worn components, bringing buckets back to optimal condition. Using state-of-the-art techniques and adhering to OEM standards, Liebherr ensures that the refurbished buckets meet the same high-quality standards as their new counterparts. This approach not only reduces waste but also offers significant cost savings to customers while maintaining the performance and reliability they expect from Liebherr products.



Bucket fabrication

Liebherr's bucket fabrication process uses a combination of customer insight and OEM product expertise to manufacture products that perfectly match customer requirements, while also meeting Liebherr's strict quality standards.

Liebherr's bucket fabrication and refurbishing services are available through various authorised Liebherr service partners. Customers can reach out to their local Liebherr service centre to confirm if these services are offered.

Durability packages

As crucial assets on site, buckets require protection from challenging mining conditions. Liebherr's patented EVO buckets are available in three different levels of durability, each designed to work in specific applications with specific materials. These bucket packages cater to the entire range of Liebherr's excavators, from the R 9100 to R 9800.

GP | General purpose

Application:

Topsoil, coal seams, and well-blasted limestone

Wear package:

- Made of 400 to 450 HB steel
- Thicknesses between 15 mm and 20 mm
- Wear stripes on the outside of the bucket
- Minimal floor to side plate protection
- Optional lip and side shrouds



HD | Heavy duty

Application:

Overburden, gravel, clay, and copper

Wear package:

- Made of 400 to 500 HB steel
- Thicknesses between 20 mm and 30 mm
- Wear stripes on the outside of the bucket
- Wear plates or stripes on the outside of the side walls
- Wear plates or stripes inside the floor
- Heel shrouds or 400 HB corner protection available on request
- Lip shrouds
- One side shroud per side





XHD | Heavy duty rock

Application:

Iron ore, platinum, and gold

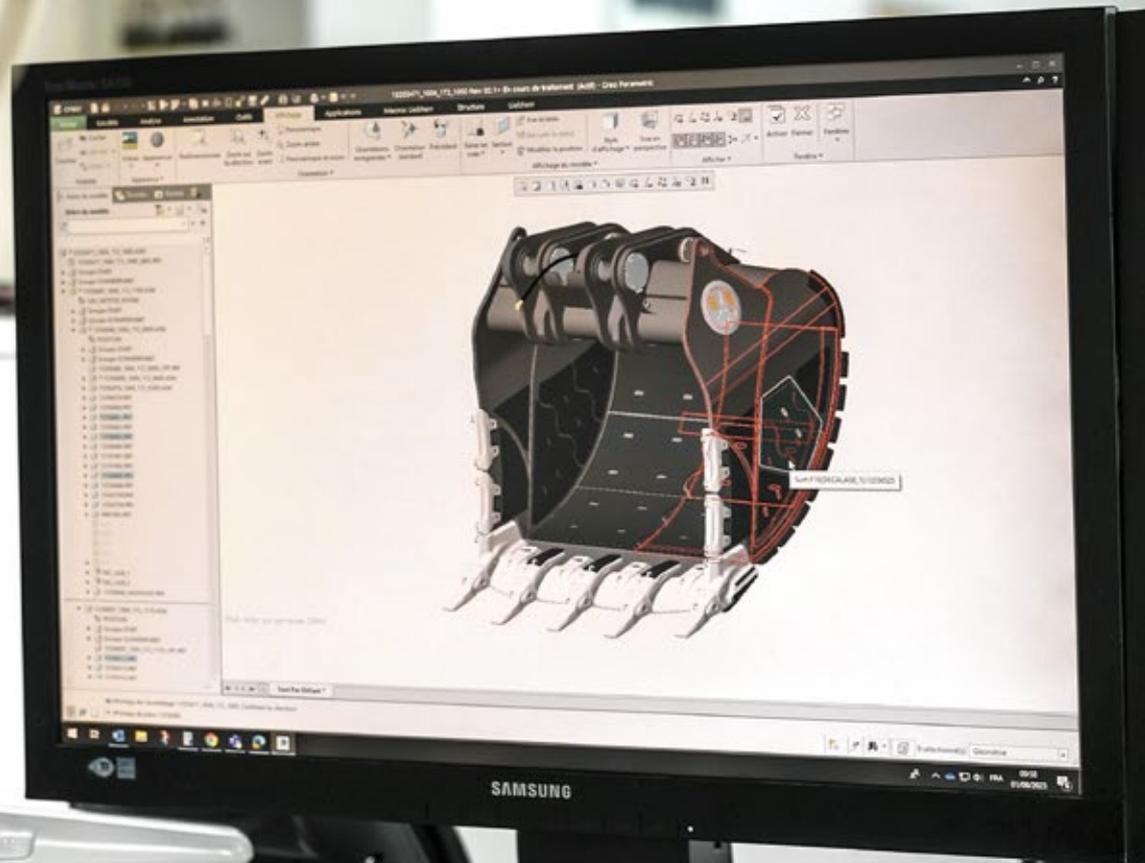
Wear package:

- Made of 500 HB steel or carbide overlay plates
- Thicknesses between 20 mm and 30 mm
- Wear stripes on the outside of the bucket
- Wear plates or stripes on the outside of the side walls
- Wear plates or stripes inside the floor
- Wear plates or stripes on the inside of the side walls
- Medium or large heel shrouds
- Lip shrouds
- Two side shrouds per side

Further options available on request for XHD package

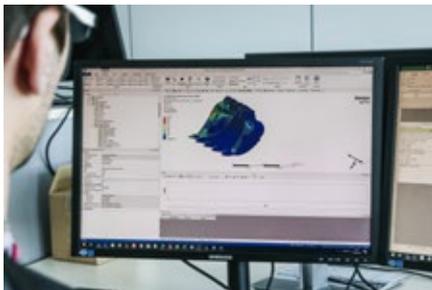
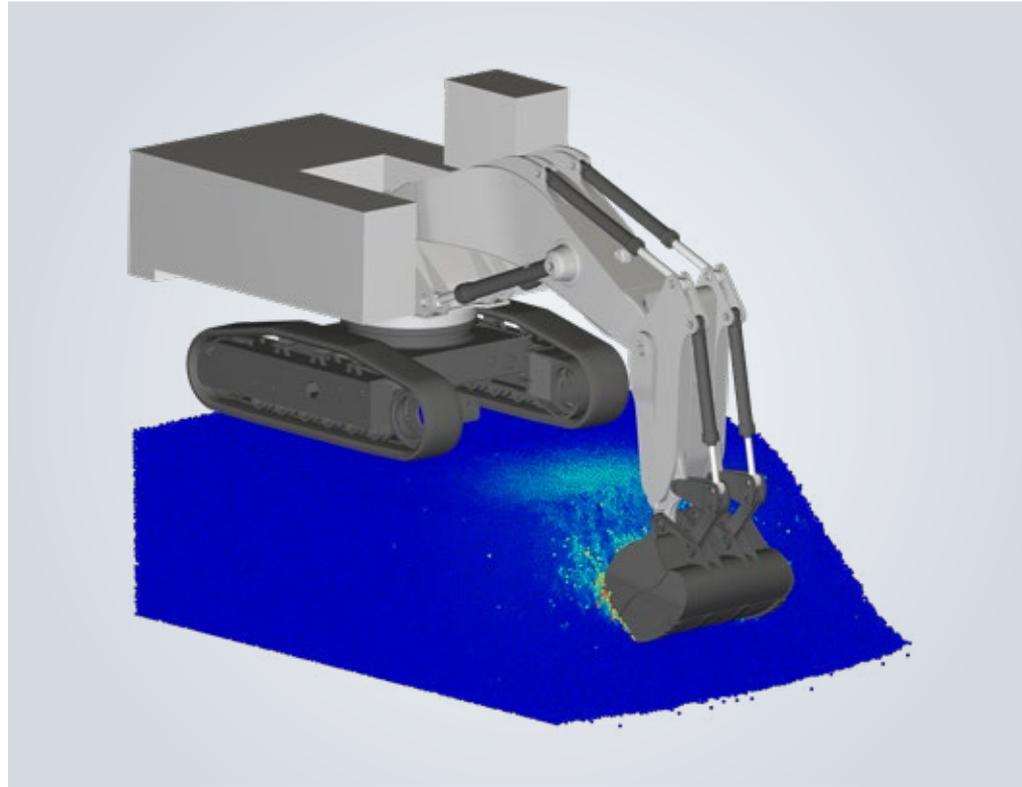


Precision manufacturing process



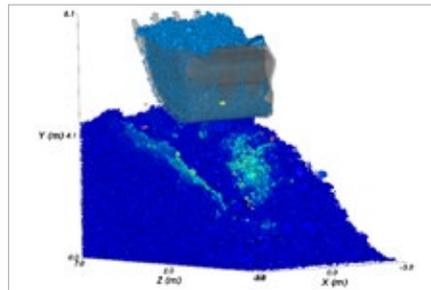
As an OEM, Liebherr designs its buckets to perfectly match its excavators, ensuring optimal performance and unlocking the machines' full potential.

Liebherr uses cutting-edge engineering tools such as Finite Element Analysis, Fatigue Life Analysis, and DEM Analysis to ensure the exceptional quality and performance of its buckets.



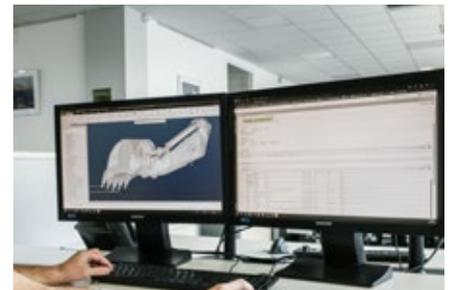
Finite Element Analysis

Liebherr uses Finite Element Analysis to accurately simulate and evaluate the structural behaviour of its buckets. By subjecting virtual models to a range of operating conditions and loads, Liebherr gains valuable insights into bucket strength, stress distribution, and overall performance. This process helps to optimise Liebherr's bucket design and ensure that it is robust enough to withstand the demanding conditions of a mine site.



DEM Analysis

With DEM Analysis, Liebherr can better understand the digging process in order to optimise the profile and shape of Liebherr buckets.



Fatigue Life Analysis

By using Fatigue Life Analysis, Liebherr can assess the fatigue resistance of its buckets. Comprehensive testing and examinations are used to evaluate bucket endurance under repetitive and dynamic loading conditions. The information gathered during this analysis helps to identify and mitigate potential fatigue-related issues to ensure the exceptional durability and long service life of Liebherr buckets.

Backhoe bucket





EVO design

Liebherr is committed to continuous evolution. As part of this commitment, Liebherr engineered the EVO bucket – a patented bucket design for backhoe excavators that optimises bucket shape while reducing bearing block width. The EVO bucket not only improves productivity without impacting cycle times or fuel consumption, but also helps to reduce downtime as it is easy to maintain.

**Better productivity and
lower cost per tonne**

+ 5 % loading
capacity

10 % weight
optimisation

Up to **15 %** productivity

EVO bucket design

Improved greasing system

The EVO bucket's greasing system allows for easy monitoring and maintenance of lubrication levels, enabling operators to quickly identify and address any issues.

Improved greasing system protection

For better protection against harsh mining conditions



EVO bucket

External greasing system

Highly exposed to dust/wear



Previous standard bucket



Aluminium cover

For easier handling

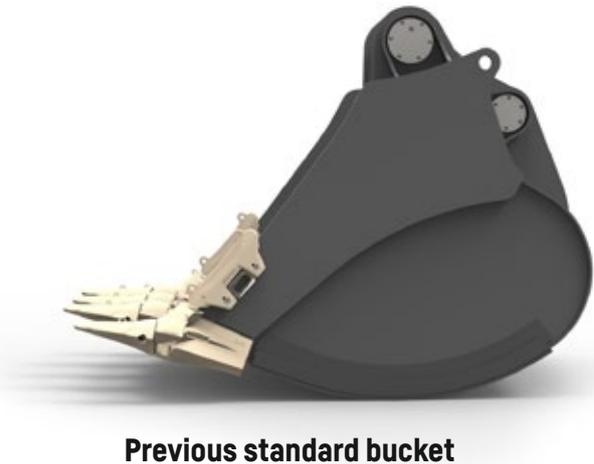
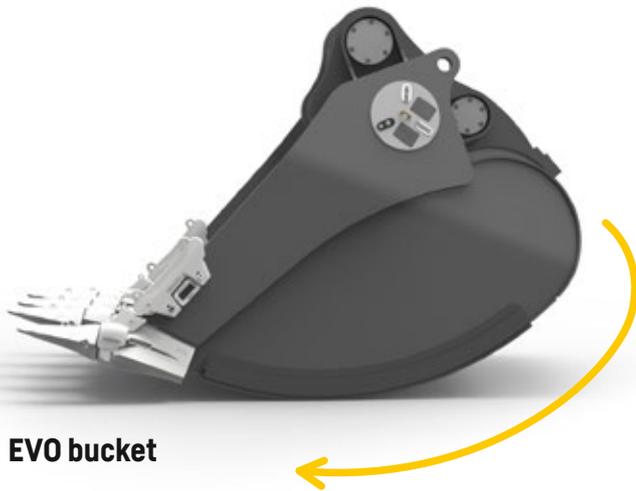
The aluminium cover allows for effortless manual handling, which significantly contributes to time and cost savings during maintenance activities.

EVO bucket

Enhanced bucket capacity

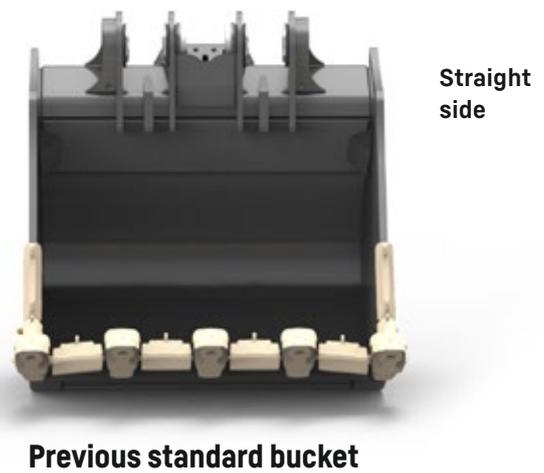
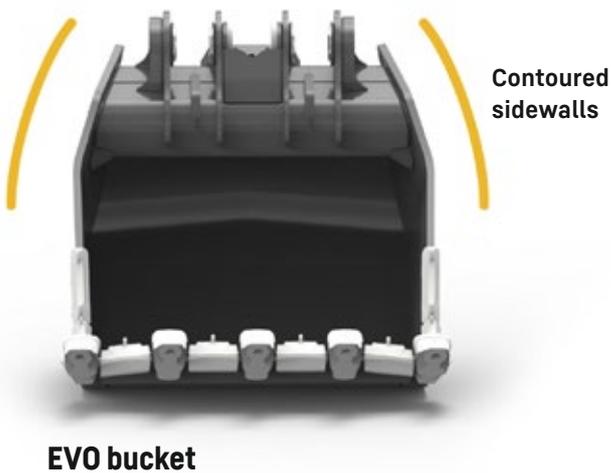
With its innovative back, global optimised profile, and curved sidewalls, the Liebherr EVO bucket provides an increased machine payload while reducing both the weight of the bucket and the bucket volume ratio.

The EVO bucket design also increases bucket volume from 0.5m³ to 1.5m³, depending on the size of the excavator and its application.



Weight optimisation

By introducing contoured sidewalls and reducing the bearing block and lip width in the EVO bucket, Liebherr made its patented bucket design 10% lighter than traditional designs.



Face shovel bucket



Optimal penetration and digging force

Liebherr's face shovel buckets are designed to provide high penetration, even in heavy duty applications like rock and compact soil, and come fully integrated with the Liebherr GET (Ground Engaging Tool) system.

Reliable design

Fatigue resistant steel and the most advanced welding techniques are used when manufacturing Liebherr's face shovel buckets. To ensure these buckets are able to face the harshest conditions while offering maximum performance, Liebherr uses heat treatment during the fabrication process to reduce residual stresses and increase fatigue life.



Worldwide support and assistance



Routine assessments are conducted on all Liebherr buckets and Ground Engaging Tools (GETs) to detect signs of wear and understand maintenance requirements. The data collected during these inspections is meticulously recorded. Liebherr then uses the data to create detailed reports for customers that offer valuable operational insights and actionable recommendations for preventative maintenance measures.

Liebherr offers comprehensive customer support in over 20 countries, going beyond bucket manufacturing and providing equipment inspections*, repair services, and customer assistance tailored to customers' unique site conditions, maintenance practices, and operational goals.

Customers can reach out to their local Liebherr service centre to confirm if this service is available.

* Inspection services are available through various authorised Liebherr service partners.



Technical specifications

Backhoe bucket	R 9100	R 9150	R 9200	R 9300	R 9350	R 9400	R 9600	R 9800
Bucket size (1.8 t/m ³) *	7/7.5	8.8	12.5	16.5	18.7	24	37.5	47.5
Width (mm)	2,400	2,500	2,900	3,400	3,400	4,100	4,600	4,900
Approx. payload (t)	13	15.8	22.5	29	32	43	67.5	85
Bucket size range (m ³) **	6 – 9	6.8 – 10.6	10 – 15.5	13 – 19	16 – 20	20 – 26	33.3 – 40	45 – 52

Face shovel bucket	R 9100	R 9150	R 9200	R 9300	R 9350	R 9400	R 9600	R 9800
Bucket size (1.8 t/m ³) *	7.3	8.3	12.5	16	18	22	37	42
Width (mm)	2,850	2,850	3,100	3,850	4,100	4,300	5,300	5,600
Approx. payload (t)	12.6	15	22.5	28.8	32.4	39.6	66.6	75.6
Bucket size range (m ³) **	5.8 – 9	7 – 9.3	10 – 14	12 – 18	15.3 – 20.5	18 – 24	34 – 39	38 – 44

* All bucket size values relate to Heavy duty (HD) bucket

** Depending on machine configuration, material density, and abrasivity