Liebherr-Mining
Bucket Solution
Why Liebherr?

The Philosophy of Excellence

As an OEM service provider, Liebherr delivers an innovative bucket solution that complies with our six pillars philosophy: productivity, efficiency, reliability, customer service, safety and environment, leading to reduced owning and operating costs.

The Liebherr bucket is a fully OEM-integrated design to suit all mining applications - even the harshest ones.
Productivity
Easy Material Penetration
The bucket design and the self-sharpening tooth design provide an optimal combination of bucket penetration and loading capacity.

Reliability
Designed for Tough Applications
In collaboration with customers, Liebherr undertakes intensive factory and field testing programs to diagnose genuine technical constraints in severe environments. The strength of our field testing program is underpinned by repetition and consistency, giving the highest possible value.

Safety
Truly Hammerless
To increase safety on-site and reduce tooling to one unique extraction tool, the teeth, shrouds and wing shrouds are equipped with one single hammerless locking system.

Efficiency
Reduced Owning and Operating Costs
Along with the bucket solution, Liebherr offers a high quality range of buckets, Ground Engaging Tools and wear parts solutions to increase wear life, leading to increased maintenance intervals.

Customer Service
Inspect, Recommend and Plan
As a global mining solution provider, Liebherr is more than just a mining equipment manufacturer. Ensuring ongoing dialogue with our customers, Liebherr provides tailored assistance to specific projects and site requirements. In addition, using advanced forecasting techniques and in-depth knowledge of regional populations, our global service network ensures 24/7 customer support.

Environment
Optimized Wear Life Ratio
The Liebherr Bucket Solution is designed for longer service life. The bucket structure is fully protected from wear while most of the Liebherr Ground Engaging Tools parts are symmetrical to ease parts inventory management.
Liebherr EVO Backhoe Bucket

Innovative Bucket Solution
For Higher Productivity

Liebherr-Mining has designed an innovative backhoe bucket called the "EVO Bucket" to offer higher loading capacity.
New Bucket Design
Liebherr has engineered a patented bucket design to meet its customers’ expectations, even in the toughest mining applications.

Weight Optimization
By optimizing the bucket shape, Liebherr managed to reduce weight by 10% compared to traditional designs. To do so, Liebherr has reallocated the weight by reducing the bearing block and lip width, which are the heaviest areas of the bucket.

Easy Maintenance
Increased protections on key components such as the greasing system mean increased maintenance intervals. The aluminium covers can be easily handled manually, saving maintenance cost and time.

Enhanced Bucket Capacity
With its innovative back and global optimized profile as well as bended sidewalls, the Liebherr EVO Bucket provides a higher machine payload and reduces weight load/volume ratio.

Higher Productivity Output
This new bucket design provides customers with the benefit of an additional bucket volume from 0.5 m³ (0.7 yd³) to 1.5 m³ (2.0 yd³) depending on the excavator size-class and application.

1 Increased protection plate cover
2 Reduced weight aluminium cover, cover box and bucket width
3 Increased capacity contoured sidewalls and augmented depth

<table>
<thead>
<tr>
<th>Increased Volume</th>
<th>Easier Maintenance</th>
<th>Better Digging Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>The EVO Bucket helps increase the overall productivity of the excavator.</td>
<td>The bucket has been designed to increase the machine uptime.</td>
<td>Reduced bucket lip width enables a higher penetration performance.</td>
</tr>
</tbody>
</table>
Liebherr Face Shovel Bucket

Reliable Attachment
Efficient Solution

Customers can rely on Liebherr expertise and experience for face shovel attachments to reach highest productivity levels while reducing owning and operating costs of their machine.
**Reliable Face Shovel Design**

Liebherr face shovel buckets are designed using the most advanced welding techniques and fatigue resistant steel structure. Heat treatment is also used to reduce residual stresses and increase fatigue life. Liebherr mining face shovels can rely on their robust structure to face harshest conditions and help maximize the machine’s performance.

**Optimal Penetration and Digging Force**

Liebherr face shovel buckets are made to ensure high penetration efficiency, even in heavy duty applications such as rock and compact soil. The Liebherr GET system is fully integrated with the Liebherr bucket design.

---

**Advanced Engineering**

Use of cutting-edge engineering tools such as Finite Element Analysis and Fatigue Life Analysis.

**Tailored Solution**

Liebherr offers the face shovel solution to best suit customer requirements, needs with a large range of bucket size, wear parts and GET.

**Strengthened Cast Part**

Reinforced design with strategically located castings in high stress areas.

1. Sole bearing casting
2. Wear parts
3. Under slung arch hoses to improve lifetime
4. Liebherr GET
Higher Productivity
Reduced Operating and Owning Costs

With its unique design philosophy and innovative approach, the Liebherr-Mining Ground Engaging Tools solution is able to meet the most stringent customer expectations. The Liebherr solution reduces operating and owning costs by extending the equipment life.
1. **Wing Shroud**
   To optimize the wear life and reduce parts inventory, Liebherr has designed symmetrical wing shrouds that are fully interchangeable from top to bottom, right to left.

2. **Wear Cap**
   Designed to optimize the adapters protection and does not require any locking device.

3. **Teeth**
   The self-sharpening teeth size and profile are designed to optimize ground penetration, service life and wear ratio.

4. **Lip Shroud**
   The Lip Shroud is designed to protect the lip and increase its service life.

5. **Adapters**
   Liebherr has developed center and corner adapters that are perfectly balanced in terms of weight and resistance to breakout force.

6. **Corner Wear Cap**
   The corner wear caps are symmetrical and can be easily interchanged from right to left corner, optimizing service life.

7. **Locking Device**
   To reduce tooling, the teeth, shrouds and wing shrouds are equipped with one single locking system requiring only one extraction tool.
Liebherr has developed a complete mining Ground Engaging Tools solution to complement mining backhoe and face shovel bucket design for machines from 100 to 400 tonnes. A synergy that enables easy material penetration while extending the life of the bucket.
**Truly Hammerless System**  
A single and easy-to-carry double headed (1/2" ; 3/4") extraction tool designed by Liebherr to match the complete range of tooth sizes.

**Tooth Sizes**  
The Liebherr GET system is available in different sizes and profiles to cover an extensive range of machine sizes and application types, from well-blasted material to very hard ground.

**Self-Sharpening Design**  
The self-sharpening tooth design provides an optimal combination of bucket penetration and high fill factor over the teeth lifetime.

**One Single Locking System**  
The teeth, shrouds and wing shrouds are equipped with one single locking system requiring only one extraction tool. In addition the wear cap does not require any locking system as it is slipped on the adaptor and locked by the tooth.

---

**Innovative Design**  
The Liebherr-Mining Ground Engaging Tools contribute to extend the equipment life and to reduce owning and operating costs.

**Easy Serviceability**  
The Liebherr Z Tooth System consists of tooth adapter, tooth, securing bolt with a locking arrangement and a protective plug. All that is required to replace the tooth is one simple tool - a truly hammerless system.

**Wear Templates**  
Liebherr has designed tooth and adapter wear templates to help the end user in monitoring and following up the teeth and adapter wear life.
Liebherr Ground Engaging Tools

Optimal Material Penetration Efficiency

Liebherr-Mining offers a complete range of mining Ground Engaging Tools designed to maximize machine uptime and reduce cost per ton.
**Fit to Any Application**
The Liebherr GET system is available in four sizes and five teeth profiles to cover an extensive range of application types, from well-blasted material to very hard ground.

**Higher Productivity**
By choosing the perfect Liebherr GET match for specific working conditions, customers will benefit from optimized digging forces.

---

**Tooth profile: decision criteria**

<table>
<thead>
<tr>
<th>Material</th>
<th>Tooth Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft to medium, medium abrasive</td>
<td>CL</td>
</tr>
<tr>
<td>Soft to medium, high abrasive</td>
<td>CLH</td>
</tr>
<tr>
<td>Hard, low abrasive</td>
<td>CL-I</td>
</tr>
<tr>
<td>Hard, highly abrasive</td>
<td>CR</td>
</tr>
<tr>
<td>Soft compact, frozen ground, low abrasive</td>
<td>P</td>
</tr>
</tbody>
</table>

---

**CL / CLH Profile**
The long-drawn pointed shape provides a sharp cutting edge for superior penetration in rocky and blasted material up to medium compacted ground. The CLH extends the lifetime of the tooth and allows for other ground applications.
- Covers wide range of applications
- Sharp cutting edge for optimal penetration

**CR Profile**
The wide, thick tooth sole delivers long service life in abrasive soils and blasted rock applications; this profile perfectly fits a bottom dump bucket configuration.
- Long service life in hard rock applications
- Thick tooth for better resistance to material hardness

**P Profile**
The pointed shape offers optimal penetration for very hard and compacted ground applications.
- Optimal penetration
- Compact ground specific

**CL-I Profile**
The CL-I tooth profile offers better service life in hard and non-abrasive applications while keeping optimal penetration performance. A short but sharp tooth reduces the lever arm, and thus, the stress on the equipment.
- Long service life in hard and non-abrasive applications
- Sharp cutting edge for optimal penetration
Wear Parts

Protect Your Investment
Longer Service Life

Based on customers’ requirements and experience Liebherr offers the most suitable bucket wear configuration, ensuring that the total weight of the bucket does not exceed the rated suspended load of the machine.
A Full Bucket Solution
The Liebherr buckets combined with Liebherr GET are designed to work in harmony to deliver an optimised, vertically integrated mining solution.

Tailored Wear Package
Liebherr offers three types of wear packages to its customers. Liebherr is offering to its customers 3 types of wear packages in order to meet any application requirements but also to comply with the Approved Rated Suspended Load of the machine.

1. Banana Shroud
2. Wear Plates
3. Chock’bar
4. Wear Skid
5. Wear Button
6. Wear Heel
7. Inner Stripes

General Purpose Package
For light duty applications

Heavy Duty Package
For medium, hard and abrasive applications

Heavy Duty Rock Package
For very hard and abrasive applications
Customer Service

World-Class Support, Everywhere, Every Day

Liebherr strives to exceed the expectations of our customers by providing exceptional service and high-quality technical support for their bucket attachments. Liebherr personnel and facilities located around the world are equipped to support our customers everywhere and whenever it matters.
Proactive Service and Support
Liebherr is more than just a mining equipment manufacturer. By ensuring a permanent dialogue with each machine owner, Liebherr provides tailored assistance to customer specific projects and site requirements. With a truly global network composed of Liebherr affiliates and exclusive representatives, Liebherr’s worldwide presence enables the highest level of service support irrespective of equipment location. Using advanced forecasting techniques and in-depth knowledge of regional populations, Liebherr service centers ensure that customers are always well looked after.

Quality: the Liebherr Trademark
Our relentless desire to innovate combined with our long-standing tradition of high-quality product manufacture, has enabled Liebherr to produce the highest standard in wear resistance. In collaboration with customers, Liebherr GET undergoes intensive factory and field testing program to diagnose technical constraints that might occur in severe environment. The strength of our field testing program is underpinned by repetition and consistency, giving the highest possible value.

Inspection and Reporting
For preventive maintenance purposes, Liebherr can assist customers in inspecting Liebherr buckets and GET and providing technical guidance, such as bucket design recommendation.

Training
Liebherr offers specific and adaptable training for customers to ensure the machines are operated the best way.

On-Site Service Support
Liebherr does more than just manufacture and supply GET, by providing on-site support for lip conversion and welding.
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