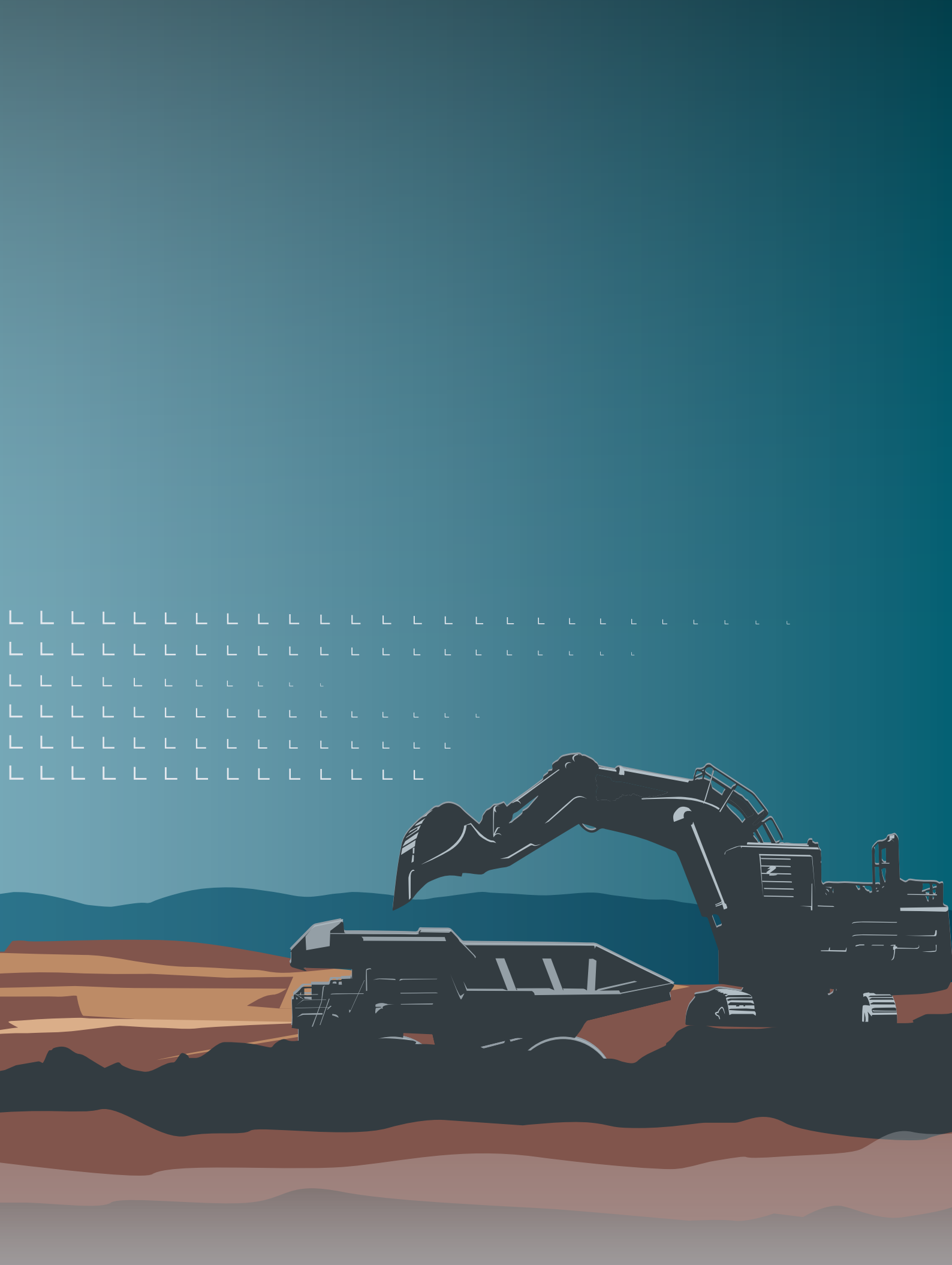
Groundbreaking

The latest from Liebherr Mining

2 | 2026

LIEBHERR



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The latest scoop

Key updates from Liebherr Mining

Ten years of pushing limits with the PR 776

A lot's happened since 2016. The first photograph of a black hole, three Summer Olympics, a global pandemic, the rise of generative AI and the fall of NFTs (non-fungible tokens, that is). But there was one particular event in 2016 that still holds a special place in our hearts at Liebherr – the launch of our 70-tonne dozer, the PR 776.

When the PR 776 was first introduced to the market at the Bauma exhibition in Munich (Germany) 10 years ago, it was the world's largest hydrostatic dozer and was designed for large quarrying and mining projects. The rest of the dozers in these markets were instead powered by mechanical drive systems with torque converters. Offering something new within an established market like this was not without its challenges. But Liebherr had been using hydrostatic transmissions in dozers since our founder, Hans Liebherr, first revolutionised construction equipment with the technology back in the mid-1950s – so we were confident it was a good fit for these larger applications.

'Back then, Hans Liebherr noticed that people in the industry were looking for a simpler, more efficient alternative to mechanical gearboxes in their dozers that wasn't as difficult to maintain. So, he engineered a new solution,' says Markus Wittwer, head of sales, PR 776 and mining, Liebherr-Werk Telfs GmbH. 'We've been perfecting hydrostatic transmissions ever since.'

So, as visitors to Bauma 2016 posed for photos with the latest in Liebherr dozing technology at the time, they were also capturing the result of more than 70 years of development in hydrostatic drive systems.

What is hydrostatic drive?
Simply speaking, a hydrostatic transmission uses hydraulic fluid, rather than gears, to make a machine move. These drive systems control the flow of the fluid between the hydraulic pumps and motors so operators can change speed and direction without needing to change gears. If you'd like a more in-depth look at hydrostatic systems, why not check out our technical spotlight piece on the subject over on page 48?

Having hydrostatic drives in our dozers provides a whole range of benefits, such as fuel efficiency, powerful drawbar pull, manoeuvrability, easy maintenance and a smooth, quiet experience in the cab. But when the dozer is pushing and ripping material day in and day out, what does all of this actually mean in practice? For Rudi Tangl, machine demonstrator at Liebherr-Werk Telfs GmbH who has experienced all kinds of machinery, it means a smoother, more secure and more straightforward ride.

'What comes to my mind first is how precise and well-balanced the PR 776 feels. Conventional torque converter dozers often have a bit of shake or instability, but the Liebherr hydrostatic dozer is incredibly smooth and predictable,' Tangl says. 'You can operate it with pedals like a conventional dozer, or simply use the joystick to control travel, making it easy for new operators to get up to speed quickly while still allowing a very high level of precision. Whether you're changing from forward to reverse, or steering in tight areas, every movement is smooth and controlled. Even on downhill sections, the machine stays exactly where you want it, giving you a real sense of confidence when positioning the dozer.'

'Hans Liebherr noticed that people in the industry were looking for a simpler, more efficient alternative to mechanical gearboxes in their dozers that wasn't as difficult to maintain. So, he engineered a new solution.'

Markus Wittwer
Head of sales, PR 776 and mining
Liebherr-Werk Telfs GmbH

Starting off on the right track
No matter how many benefits a new drive system may have, it still needs to earn the industry's trust. Site by site, shift by shift. To showcase the benefits of hydrostatic technology, we took a closer look at the performance of some of the pre-series units of the PR 776.

'Some of the earliest units of the PR 776 went to work in Australia, so that's where we based our early case studies. Collectively, these studies indicated that the PR 776 consumed less fuel than other comparable dozers when evaluated under the same operating conditions – all while demonstrating excellent manoeuvrability under load,' explains Wittwer.

We also made sure to speak with operators who were working with this 70-tonne dozer for the first time.

'In those early months, operators told us that the PR 776 exceeded their expectations in terms of visibility, pushing power, precision and accessibility for maintenance. Which are all fantastic things to hear about a new product!' enthuses Wittwer.

The PR 776 goes global
Since those early years, our global PR 776 fleet has expanded to reach all four corners of the world, with dozers working on mine sites across every continent, in applications ranging from aggregate to zirconium. This has meant that, in its decade on the market, the PR 776 has been tested in some of the most extreme conditions on the planet. Frigid, subarctic temperatures of -40 °C and lower in Canada. Scorching summer temperatures of 45 °C and higher in Western Australia. Drenching rains in Indonesia that can reach annual averages of more than 3,000 millimetres. Arid, dust-swept regions all over the world, including Chile, Mongolia, South Africa and Uzbekistan. And even mines at altitudes up to 5,400 metres on the Tibetan Plateau – also known as the Roof of the World!

‘By observing how this machine performs in such different climates and ground conditions, we’ve really been able to highlight the durability and reliability of the PR 776,’ says Wittwer.

The PR 776’s durability is truly exemplified in the fact that the majority of the initial machines delivered to customers are still in operation today.

‘The original PR 776, which was a Generation 6 machine, was designed for a service life of 45,000 hours and a number of those first machines have actually exceeded that timeframe by a considerable amount. In fact, one of those first machines is still in operation and has achieved a service life of more than 60,000 hours,’ explains Wittwer. ‘The latest generation of this dozer, the PR 776 Generation 8, has been designed to have a 33% longer service life. So we’re expecting to see these G8 machines still working hard for our customers well into the 2030s.’

Listening, learning, improving

We’re not fans of resting on our laurels at Liebherr. So, even though the PR 776 G6 was delivering good results around the world, there was still room for optimisation.

‘Over the years, we worked closely with our customers and, as a result, we were able to improve the reliability and availability of the PR 776 overall,’ says Wittwer.

When we launched the PR 776 G8 in 2024, the optimisations we’d made to the previous generation were fully integrated into the updated design. Plus, we also ensured the machine was compatible with the latest Liebherr mining technology. Arguably, the biggest change we made was to the PR 776’s electronic architecture. The PR 776 G8 has the latest generation of Liebherr’s electronic architecture as well as updated electronic pilot control for better command of the blade and the ripper. These updates to the electronics are what give

the PR 776 G8 its compatibility with our dozer Operator Assistance Systems as well as our teleoperations system, LiReCon.

'Our dozer technology products take the PR 776 G8 to a whole new level of productivity,' Wittwer says. 'The Operator Assistance Systems support efficiency for experienced and novice operators alike by actively stabilising the blade and automating repetitive blade and ripper movements. Meanwhile, LiReCon makes it possible for operators to control the dozer from a teleoperations stand outside of the pit. Not only does this open up areas of a mine that would be too dangerous to work otherwise, but it can also reduce time between shift changes while giving operators a more comfortable experience, away from the noise and the vibrations of the machine.'

In late 2025, the first PR 776 G8 dozers equipped with LiReCon technology were delivered to a customer in Chile so the company could reach areas of the site that are unstable, too hot, too dusty and too close to highwalls and dump sites for operators to reach safely.

'It's been an exciting first 10 years for the PR 776 and we're so excited to see what the next few years will bring!'

Markus Wittwer
Head of sales, PR 776 and mining
Liebherr-Werk Telfs GmbH

‘For this customer, LiReCon was not just another IT project but a strategic tool for productivity, competitiveness and growth,’ says Gonzalo Garcia, managing director, mining, Chile and Peru. ‘Properly integrating LiReCon into the PR 776 G8 dozers required technical know-how from our dozer factory in Austria and on-the-ground support and local expertise from Liebherr Chile. Both teams, as well as Liebherr’s global network, continue to collaborate so the customer has access to technical support, specialised training and critical spare parts.’

Getting tougher with age

While the electronic updates to the dozer usually headline discussions about the PR 776 G8, the optimisations we made to improve the reliability and ease of maintenance of the dozer are just as important. With this Generation 8 machine, we increased the durability of components throughout the dozer, such as the bogie pins, the tensioning device and the pivot shafts and seals. The hoses in the engine bay were also swapped to steel pipes, supporting both reliability and safety.

‘No matter how durable we make the PR 776, it will still need maintenance and even repair from time to time. So on top of the changes we made to make the machine’s components more robust, we moved the engine air filters and the fuel filtration system so service personnel can more easily access these parts of the machine, translating to simplified servicing and improved accessibility,’ says Wittwer.

The latest generation of our flagship mining dozer can now be found on mine sites across six continents, providing our customers with the latest in Liebherr dozing technology.

‘With the Generation 8’s electronic architecture, the PR 776 is ready for the future. We can more easily integrate our current range of technology products, like LiReCon or our Operator Assistance Systems, into the machine for customers wanting to introduce these into their operations. Plus, the new architecture has also prepared the machine for developing technologies such as autonomy,’ says Wittwer. ‘It’s been an exciting first 10 years for the PR 776 and we’re so excited to see what the next few years will bring!’

10 facts for 10 years of the R 9200

This year marks 10 years since the launch of the R 9200 200-tonne excavator at Bauma 2016! Take a trip down memory lane with us and see what this impressive machine has achieved in the last decade.

86 %
of units sold in backhoe configuration

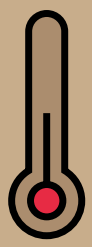
Operating in
18
countries
around the world

Up to
26 %
more productive than comparable machines in defined test conditions

12.5 m³
bucket capacity

Digging **19 commodities**, including (but not limited to!) basalt, chrome, gold, iron ore, lithium, phosphate, silicon, tantalum and zinc

Operating in **climates** from

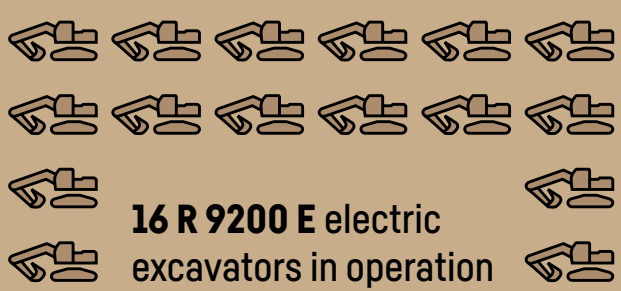


+55 °C
–40 °C

4,300,000+
operating hours achieved

Average cycle time of **25 seconds**

The R 9200 G7 offers up to
25 % better fuel efficiency
compared to the previous generation in defined conditions thanks to its hydraulic design combined with **Liebherr Power Efficiency**



16 R 9200 E electric excavators in operation

The R 9200 at work

2026 marks a full decade of the R 9200 excavator. Since launching in 2016, this 200-tonne beauty has been helping our customers all over the world. Just look at this one! This hard-working unit is currently loading material for our customer Darma Henwa at Bengalon coal mine in Indonesia's East Kalimantan province. And that's just one application where this machine thrives.

To learn more about the R 9200, click here!

GO TO THE WEBSITE →

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Mining rock stars

Our amazing people and achievements

Friends in faraway places: getting to know Liebherr Chile

Chile is a powerhouse within the international mining industry. It's responsible for 24 % of the world's copper supply and is the second largest producer of lithium – both of which are crucial materials for decarbonisation. Liebherr Chile has been supporting mining companies in the region since 1999.

However, supporting customers in a country as geographically unique as Chile can be challenging. It's one of the longest countries in the world, spanning more than 4,300 kilometres from north to south, and so experiences everything from arctic, arid and alpine climates. It also happens to be one of the narrowest countries, with an average width of 175–180 kilometres. Gonzalo Garcia, managing director, mining, Chile and Peru, spoke with us about how he and his team at Liebherr Chile SpA support customers throughout the country.

What makes the Chilean mining industry different from other industries?
A defining factor of Chilean mining is that it isn't just important to Chileans – it's vital for the world. Our vast copper and lithium reserves make us a critical player for global energy, electromobility and technology chains. At the same time, being the world's top copper producer means that the commodity represents nearly 88 % of our mining exports as well as almost two-thirds of our exports overall. That being said, our copper industry is incredibly concentrated. Five companies are responsible for about 70 % of our copper production, which means few large-scale customers making complex purchasing decisions.

Gonzalo Garcia
Managing director, mining, Chile and Peru
Liebherr Chile SpA

Chilean mine sites are also uniquely intense within the industry. Operations are often in the desert, at geographical height, with low water availability, at long logistical distances and have lower grade deposits. As such, any mining equipment used in these environments needs to be incredibly robust and reliable. This makes Chilean mines the perfect place to test new machines and technologies: if it works here, it will likely work anywhere. In fact, operations in Chile are often the first to experience new products. In recent years, Chile has been a test bed for autonomous trucks, remote operations, AI, desalination, electrification and digital mining.

We're also seeing a rapid shift towards using desalinated seawater in mining operations throughout Chile rather than relying on inland resources. The Chilean Copper Commission, or COCHILCO, has predicted that demand for water from mining operations will increase from 18.5 m^3/s in 2024 to 20.6 m^3/s in 2034, which would put even more pressure on Chile's water resources. However, due to the increased investment and development of desalination projects, recent COCHILCO figures also suggest that about 68 % of all water used in Chilean mining by 2034 will be seawater – a 26.9 % increase compared to 2024 levels.

As Chile is one of the longest nations in the world, providing timely support to customers across the country must be challenging. How does Liebherr Chile overcome this?
A big part of our ability to provide effective support to our customers across Chile is our operational base in La Negra, near the Antofagasta mining region in the northern part of the country. Antofagasta is Chile's main mining region, home to the majority of our copper, lithium and nitrate mines.

Since its establishment in 2012, this service centre has become our strategic hub, where skilled groups of engineers and technicians are on hand to meet the demands of key mining operations. The centre spans 40,000 square metres, with a built area of 4,200 square metres that includes administrative offices, a remanufacturing centre and warehouses for storage of critical spare parts and components.

How has the Chilean mining landscape changed since you first started at Liebherr Chile – what are the main drivers for industry and how is Liebherr Chile responding to these?
Over the past four years, the Chilean mining industry has undergone one of its most significant transformations in decades. While productivity and operational reliability remain fundamental priorities, today's mining companies are increasingly driven by decarbonisation, digitalisation, automation, energy efficiency and workforce safety.

This evolution is taking place against a more complex global backdrop. Growing demand for copper driven by the energy transition, increasing geopolitical competition for critical minerals, supply chain disruptions, stricter environmental expectations and declining ore grades have all reshaped investment priorities across the industry.

As a result, customers are no longer evaluating equipment solely on payload or mechanical performance. They increasingly seek integrated solutions that aim to improve productivity, reduce emissions, optimise life cycle costs and support long-term operational resilience. Liebherr Chile, along with Liebherr's entire mining product segment, has evolved to meet these changing demands. And as part of that evolution, our team has played important roles in some exciting projects over the past few years. One such project was the commissioning of Chile's first fully operational trolley line at Collahuasi copper mine.

Liebherr Chile in a nutshell
- Liebherr Chile SpA first began operating in the city of Calama in 1999, with administrative offices and service facilities providing sales and service support for the mining and construction markets.
- In 2005, the main offices were established in the city of Santiago and were responsible for Liebherr's mining, tower cranes, mobile cranes and maritime cranes product segments.
- In 2012, the company opened an important component repair centre at the La Negra industrial complex in Antofagasta. Since then, it has provided technical services for mining trucks, excavators and dozers throughout the region, the country and abroad.
- Today, Liebherr Chile has 240 employees.

Another was the first deployment of Liebherr's teleoperations system, LiReCon, to a mining operation. Delivering these projects highlights how our team can adapt quickly to changing mining technologies and successfully deliver these to our customers.

Tell us more about the Collahuasi trolley project – it sounds exciting!
The Collahuasi project was particularly significant for us, and for Liebherr Mining more broadly, as Liebherr delivered the complete trolley solution rather than just supplying individual components. This included retrofitting the mine's existing T 284 ultra-class haul trucks to become trolley compatible, engineering and supplying the trolley infrastructure, integrating the electrical power system, commissioning the installation and training mining personnel. The trolley line itself was built to support an initial fleet of four trolley-compatible T 284 trucks at more than 4,500 metres above sea level in an area where winds can reach over 100 kilometres per hour.

Beyond the trolley line itself, this project showed us what we can do when our customers provide us with a challenge. Drawing on the expertise of our own team as well as from Collahuasi and the wider Liebherr community is what allowed us to deliver such a complex project while maintaining operational reliability. Plus, the success of this project gave us valuable operational experience that we can bring to future mine electrification projects.

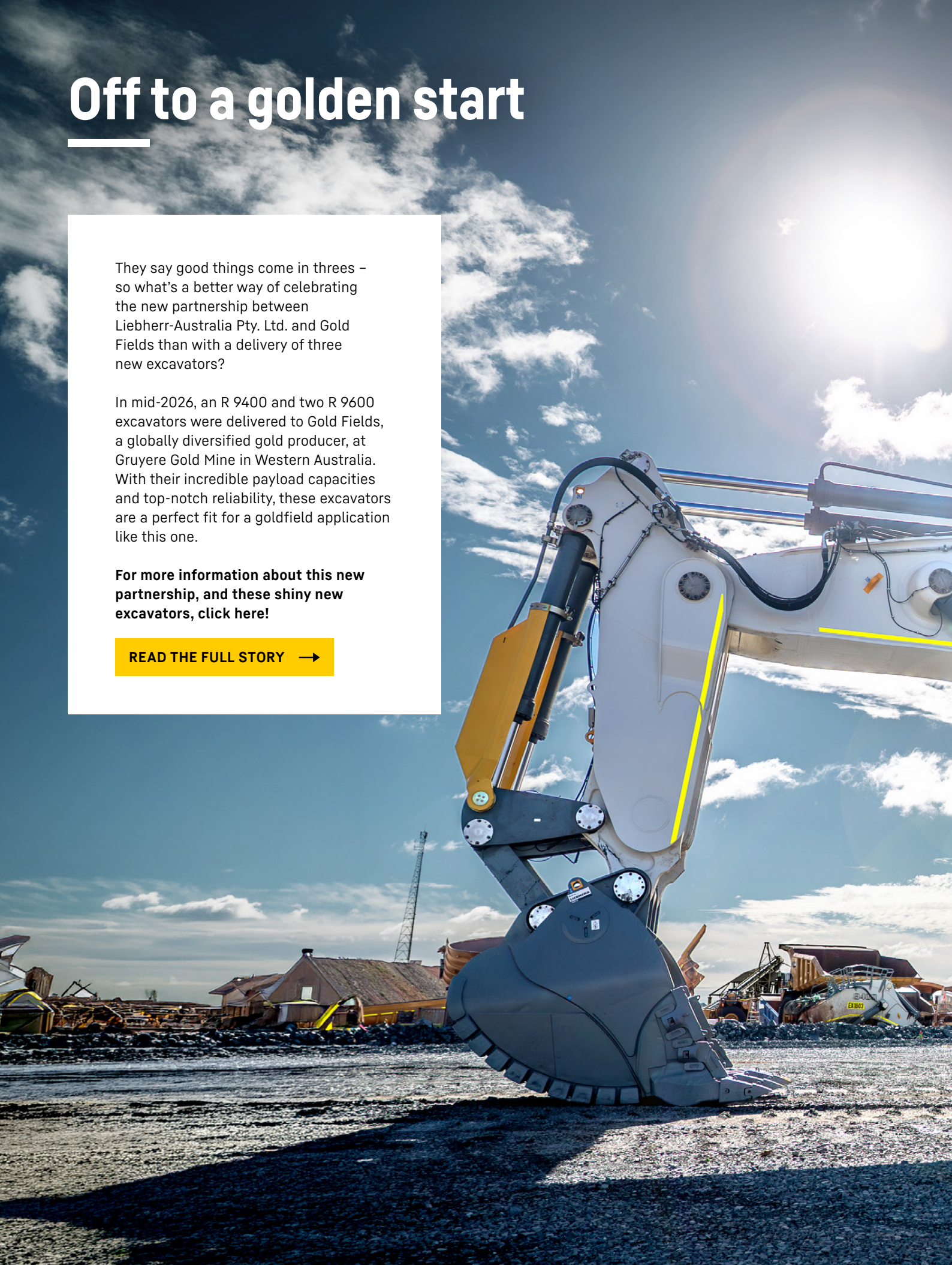
Is there a particular growth market that you identify for Liebherr Chile in the near future? How is Liebherr Chile well positioned within this market?
I see the strongest near-term growth opportunity in Chile's large-scale copper mining sector, particularly in ultra-class haulage, fleet electrification and life cycle services.

Chile has a substantial pipeline of copper expansions, replacement projects and mine-life extensions. We've also started to see that sales of hydraulic excavators are gaining more momentum, which is exciting as the primary loading tool in the copper industry has traditionally been rope shovels.

Combined, these conditions within the Chile's copper industry give us the opportunity to grow the installed base of ultra-class trucks and large excavators and to expand recurring aftermarket business through parts, component rebuilds, maintenance agreements, upgrades and performance-based services. Liebherr Chile is well positioned to meet this demand because we can offer more than individual machines. Our portfolio combines high-capacity trucks with trolley technology, hydraulic excavators, dozers and future digital and autonomous solutions.

Did you know...?
- The oldest mummies in the world, the Chinchorro mummies, were discovered in Chile and are believed to have been from 5050 BCE – making them almost two millennia older than the oldest Egyptian mummies.
- The Atacama Desert is the driest desert on earth, with an average yearly rainfall of 1.5 centimetres. Despite this, over one million people live in the desert; they use aquifers and snowmelt streams as water sources.
- After unusually heavy rainfall in the Atacama Desert, millions of dormant seeds and bulbs burst into life, covering the arid landscape in vibrant colours. This rare spectacle, known as the 'flowering desert', features over 200 plant species, many of which grow only in northern Chile.
- Chile is one of just a few countries with an officially funded UFO research bureau – in fact, it's part of the government office in charge of the country's airspace operations.

Off to a golden start



They say good things come in threes – so what's a better way of celebrating the new partnership between Liebherr-Australia Pty. Ltd. and Gold Fields than with a delivery of three new excavators?

In mid-2026, an R 9400 and two R 9600 excavators were delivered to Gold Fields, a globally diversified gold producer, at Gruyere Gold Mine in Western Australia. With their incredible payload capacities and top-notch reliability, these excavators are a perfect fit for a goldfield application like this one.

For more information about this new partnership, and these shiny new excavators, click here!

READ THE FULL STORY →

EX802
LIEBHERR
EX802
GOLD FIELDS
9600
EX802

Building bridges over international waters

When mining companies enter a new market outside their country of origin it can be difficult to navigate the regulations, customs and languages of that country while also trying to conduct everyday business. These are challenges Chinese mining companies face when investing in projects overseas. But Liebherr China can help.

China is a mining and mineral powerhouse. The country is the largest producer, consumer, importer and trader of minerals in the world. But despite being such a force within the global mining industry, China relies heavily on imports in order to fulfil growing demands for the critical minerals – such as iron, copper, cobalt and lithium – used to build the infrastructure of today and tomorrow. In fact, 60 % of China's critical minerals need to be imported, and often from a small number of countries. To secure China's access to important commodities, without needing to rely on third parties, the country is actively seeking to diversify its mineral portfolio by investing in mining projects all around the world.

However, operating Chinese-owned businesses on foreign soil has its own challenges. These businesses need to maintain contact with mainland China and with the mines themselves while at the same time ensuring that the staff on the ground speak a mixture of the local language and Chinese. Moreover, Chinese mining businesses prefer to employ high-quality mining machines on site to support high performance and efficiency. This is where Liebherr (China) Co., Ltd. comes in. Based in Shanghai but connected to Liebherr Mining's global network of factories and sales and service companies, Liebherr China is well positioned to connect Chinese mining businesses with the Liebherr equipment and support services required to unearth the critical minerals China needs.

Supporting customers wherever they are

Liebherr China is recognised as a full service provider within the Chinese mining industry for both domestic and international projects. With an experienced sales and service team based in China, as well as access to Liebherr Mining's global network of experts, support and machines, the company is able to support customers across a wide range of requirements, wherever they happen to be located. Plus, the shared cultural and linguistic background between Liebherr China and its customers allows the company to better understand customers' requirements and communicate these when customers are expanding their mining businesses overseas.

For international mining projects involving Chinese customers, Liebherr China acts as a key coordinator between the customer and the wider Liebherr Mining organisation. Depending on the specific project, Liebherr China coordinates communication, customer requirements and technical support with the responsible production companies: Liebherr-Export AG, a department within the Liebherr Group that handles export markets across multiple product segments; local Liebherr sales and service organisations; and approved service partners. By working together as one Liebherr team, the responsibilities of each party are defined on a project-by-project basis, taking into account applicable business rules, compliance requirements and local regulations.

Liebherr China's ability to be a true support to customers is something Armin Natter, Liebherr China's general manager for earthmoving and mining equipment, is exceptionally proud of.

'Conducting business in countries with completely different cultures and languages is a complicated process,' says Natter. 'Knowing our customers are confident in our ability to help them navigate part of it is truly an honour.'

While helping Chinese businesses with equipment and technical support for their overseas mines is an important part of what Liebherr China does, it's not all that it does. The company also works with international mining businesses that have projects within China's borders. These businesses have often worked with Liebherr mining equipment on their sites outside China and so know they can rely on Liebherr sales and service companies for quality equipment as well as for parts supply and routine machine maintenance.

The nuts and bolts of international support
There are a range of different ways that Liebherr China can support Chinese mining businesses working internationally. This support depends on what is already available in the area and what needs to be brought in – which differs depending on where in the world a customer's site is located.

Taking the lead
If there is no existing Liebherr Mining presence in the area around the customer's mine, Liebherr China becomes responsible for everything: getting the customer their Liebherr equipment, training onsite personnel and even organising spare parts. It's also the company's responsibility to find a partner on the ground that can look after the customer and their new Liebherr machine, or machines, on a day-to-day basis. This partner becomes the customer's service provider, helping with routine maintenance, emergency repairs and spare parts.

There are specific criteria that Liebherr China looks for when choosing a sales and service partner: the business must be based in China, be familiar with the habits and internal procedures of large mining companies and be able to assign a service team to the customer's site.

'A suitable sales and service partner for Liebherr China is one that can advocate for our products with local mining companies while also providing expert assistance to our customers. We work alongside these partners to supply products and solutions that meet customer requirements and help to maintain the performance of our equipment,' explains Natter. 'We have already developed partnerships with several businesses for customers around the world and will continue developing these partnerships to meet the requirements of new customers.'

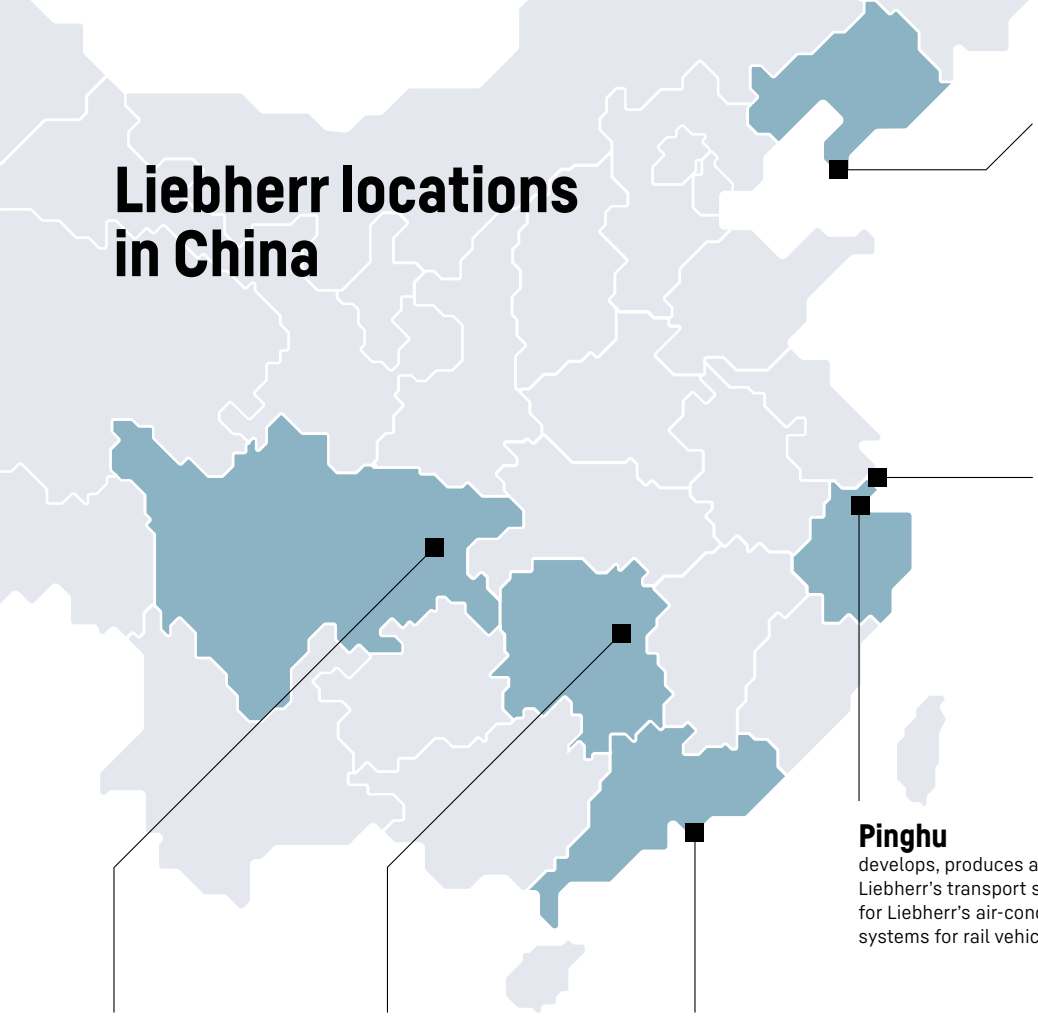
Once a suitable partner has been found, Liebherr China provides training to ensure everyone working with the machines has the necessary expertise to perform scheduled maintenance and to quickly resolve any unexpected issues that may arise. In some cases, the technicians from Liebherr China are embedded on site to ensure training is kept up to date.

'One of our customers has an enormous fleet of Liebherr machines operating in Pakistan. Because there was no Liebherr presence in the area, a team of our technicians is assigned to the site to keep the machines running smoothly,' says Natter. 'Our technicians organise weekly meetings with onsite personnel to share information about any challenges that have arisen and how these were rectified to ensure that everyone knows how to prevent the same issues happening again.'

'We are excited to be able to help our customers realise their international mining ambitions in a way that highlights Liebherr Mining's willingness and ability to share resources, knowledge and experience with colleagues and customers alike.'

Armin Natter
General manager, earthmoving and mining equipment
Liebherr (China) Co., Ltd.

Liebherr locations in China



Dalian
has two factories and one purchasing company. One factory produces crawler excavators, wheel loaders and material handling machines. The other produces bearings, drives and hydraulic cylinders. The purchasing company is responsible for Liebherr's global purchasing platform.

Shanghai
has two companies. One is the headquarters for Liebherr in China, which provides sales and customer services in the product areas of mobile and crawler cranes, earthmoving, mining, material handling technology, refrigerators and freezers, aerospace and transportation systems, components, gear technology and automation systems as well as maritime cranes. The other is a newly founded assembly facility for manufacturing aerospace components.

Pinghu
develops, produces and services components and systems for Liebherr's transport systems and is also an important base for Liebherr's air-conditioning technology and hydraulic actuation systems for rail vehicles both developed and manufactured in China.

Chongqing
assembles gear hobbing machines and generates grinding machines.

Changsha
develops and produces landing gear systems for the C919 and ARJ21 aircraft.

Hong Kong
provides sales and customer services for Liebherr's mobile and crawler cranes, maritime cranes, deep foundation, earthmoving and mining product segments. There is also a workshop for providing major components repair, sandblasting, painting and machine overhaul.

Teamwork makes the dream work
For some regions around the world, Liebherr China can work alongside Liebherr-Export to facilitate equipment deals and the subsequent machine support services. In these cases, Liebherr-Export generally has a dealer that they use in the region for machine maintenance and spare parts. However, Liebherr China is responsible for ensuring that the services provided by the dealer include Chinese-speaking personnel. If the dealer is unable to provide this, Liebherr China then embeds a team of its engineers on site.

'We have a customer that operates in Serbia with a number of our electric-drive mining excavators. To support round-the-clock machine operation, Liebherr China arranged for onsite service engineers to be responsible for training, machine maintenance and troubleshooting. A service team from Liebherr China's Chinese agent takes care of regular maintenance and repair work and Liebherr-Export and its local dealer are responsible for parts stock and coordination with factory,' says Natter.

Leveraging one another's expertise
In some cases, it may be a Liebherr Mining sales and service company that reaches out to Liebherr China for assistance in approaching a Chinese mining business operating in their region. In these cases, Liebherr China then becomes responsible for communication with the business: working with the customer to find a suitable equipment solution, liaising with the appropriate equipment factory to organise machine delivery and commissioning and installing technicians from Liebherr China on site to oversee personnel training and to ensure there is Chinese-speaking staff on site.

'The level of our involvement in these instances can differ,' explains Natter. 'If the local sales and service company can provide Chinese-speaking staff and a sufficient amount of onsite support for the machines, our involvement could well be minimal, likely not requiring any embedded employees from Liebherr China. However, if the sales and service company does not have enough resources to appropriately support the customer, we would then step in and fill in any gaps in the workforce with our own team members.'

Liebherr Mining as one team
Natter is exceptionally proud of the work Liebherr China accomplishes for customers within China as well as those spread across the globe. There is no one-size-fits-all model for supporting Chinese mining customers internationally. This is where Liebherr China's ability to collaborate with internal and external stakeholders to determine which team is best placed to handle specific tasks for their customers really comes in handy.

'Like all of our Liebherr Mining colleagues around the world, Liebherr China strives to provide our customers with products and services tailored to their operational needs. We are excited to be able to help our customers realise their international mining ambitions in a way that highlights Liebherr Mining's willingness and ability to share resources, knowledge and experience with colleagues and customers alike,' enthuses Natter. 'In fact, the Liebherr China team recently worked with our production facility in France as well as our sales and service company in Ghana to secure a deal with a gold mine project for the supply of two electric excavators.'

Liebherr in China
The Liebherr Group has been operating in China since 1978, when the company opened its first representative office in Beijing. Since then, the Group has greatly expanded its sales, service and manufacturing operations in China and now operates eight companies in the country that collectively offer Liebherr's entire product range.

Out of Liebherr's eight companies in China, Liebherr (China) Co., Ltd. is the one responsible for providing sales and customer services for not only Liebherr Mining, but also for Liebherr's other product segments: mobile and crawler cranes, earthmoving, material handling technology, refrigerators and freezers, aerospace and transportation systems, components, gear technology and automation systems and maritime cranes. Liebherr China was founded in 2000 and is located in Shanghai. Since its founding, the company has expanded and now has a workforce of 300 people.

Moments that matter

What's it like to be among the first to build a new mining machine in your country? Or to be part of the team that delivers your country's first fully operational trolley line? We spoke to two of our team members from around the world, Sahbuddin and Angelica, to find out!

Sahbuddin Tajuddin

Not many people can say that they've been the first to commission new machines in not just one but two different markets, but Sahbuddin Tajuddin of Saudi Liebherr Company Ltd. can. During his more than 20 years with Liebherr, Sahbuddin has been part of the teams that assembled – and then commissioned – the very first R 9350 excavator in Indonesia as well as Saudi Arabia.

A tale of two R 9350 excavators

The first time Sahbuddin commissioned the R 9350 was in 2005, when he was working as an electrician as part of the equipment assembly team for PT Liebherr Indonesia Perkasa. Before this commissioning, Sahbuddin had participated in the assembly of an R 994 excavator, the 300-tonne precursor to the R 9350, giving him invaluable hands-on experience that served him well when the next generation of our 300-tonne excavator hit Indonesia's shores.

About 15 years later, Sahbuddin took part in his second first commissioning of an R 9350 – this time in Saudi Arabia. In the years between these projects, Sahbuddin had accomplished a lot. He became a trainer, relocated 8,000 kilometres, accepted a role as a service engineer, worked on major infrastructure projects throughout Saudi Arabia and was promoted to supervisor.

After all that time, having the chance to introduce the R 9350 to another new market was a full circle moment for Sahbuddin.

'Being involved in the first R 9350 in both Indonesia and Saudi Arabia is a unique experience that very few people can claim. It is one of the milestones I am most proud of in my career,' Sahbuddin recalls.

Sahbuddin as service manager

Today, Sahbuddin is the service manager for the mining and earthmoving product segments at Liebherr Saudi Arabia. He leads teams of engineers and technicians, supports strategic customer relationships and contributes to the continued growth of Liebherr's service business in Saudi Arabia. His work combines technical expertise, operational leadership and customer relationship management, helping ensure that Liebherr machines operate reliably in the extreme heat, dust and high winds often found in Saudi Arabian mines.

'My journey with Liebherr has been built on learning, teamwork and a passion for supporting customers. Looking back, joining Liebherr Indonesia and later Liebherr Saudi Arabia were among the best decisions of my professional career. I am proud of what I have achieved so far and excited about what lies ahead,' he says.

Angelica Gonzalez Hernandez

Behind every Liebherr mining truck there's a team of people all over the world working behind the scenes to keep it hauling as much material as it can. As our regional customer support manager for trucks in South America, Angelica Gonzalez Hernandez, is responsible for coordinating the members of that team to make sure our customers have the resources and support they need, when they need it.

Our truck production facility, Liebherr Mining Equipment Newport News Co., is based in the US state of Virginia on the country's east coast. For our customers in South America, that's a distance of anywhere between 3,000 and more than 7,000 kilometres away. So to get those customers what they need, Angelica liaises with our sales and service companies on the ground and third-party suppliers as well as with our factory team.

Collaborating in Chile

One of the most noteworthy projects Angelica's been involved in was the delivery of the first high-altitude trolley line in Chile. She worked closely with Liebherr Chile SpA, our sales and service company in country, to align all stakeholders and streamline communication between them. She also visited the build pad, where the trucks that would be working under the new trolley line had their pantographs installed. This gave her first-hand insight into the challenges facing the teams on the ground, allowing her to effectively communicate them back to her coworkers in Virginia.

'I worked with colleagues from the truck factory, Liebherr Chile and Liebherr Electronics and Drives GmbH in Germany to organise and coordinate the activities required for the installation and successful commissioning of the trolley trucks, rather than the construction of the trolley line itself,' explains Angelica. 'Being part of initiatives like this – where you can connect teams, solve real challenges and see tangible results – is incredibly rewarding.'

Bringing the future to South America

Angelica is now four years into her role and what matters most to her is the tangible difference she can make in customers' operations – offering solutions that can improve productivity and reduce operational greenhouse gas emissions. One of Angelica's next big professional goals is to see Liebherr's latest innovations in haulage implemented in South America.

'Being part of an organisation that combines technological excellence with strong values makes me proud of the work we do every day,' she says.

Where modernity begins

Right now, in mine sites all over the world, there are trucks like these hauling hundreds of tonnes of material. Material that will eventually be refined and turned into your next smartphone, electric car, computer or even your next house.

Almost everywhere you turn, you can see echoes of mining. And we are proud to play our part by providing the equipment that moves these materials to where they need to go.

On the ground

Our mining solutions in action all around the world

A trusted trio for 21 years

When you think of important milestone numbers, 8 and 21 may not be the first that come to mind. But for Liebherr, Monnis Group and Erdenet Mining Corporation, these two numbers represent something important: a decades-long partnership built on support, mutual trust and the power of electric excavators.

Eight electric excavators in 21 years. That's what was being celebrated on 18 May this year at Erdenet copper mine in northern Mongolia – one of the largest copper mines in Asia. Senior management and technical representatives from Erdenet Mining Corporation and Monnis Group, as well as Liebherr's regional sales manager for Asia and France's ambassador to Mongolia, all came together to welcome the eighth R 9350 E electric excavator to the site. Clad in hard hats and hi vis, the group cut ribbons, held a giant key and even christened the excavator's 18 m^3 bucket with champagne to mark the occasion.

'Every single machine sale goes through a tendering process, and every time it is highly challenging as all of the OEMs are present and eager to do business with Erdenet,' says Mr Bedo, regional sales manager, Asia, Liebherr-Mining Equipment Colmar SAS. 'As such, events like this ceremony provide a valuable opportunity to meet all key stakeholders, from maintenance teams to CEOs, gather feedback and strengthen relationships in a relaxed atmosphere.'

With representatives of all three companies under the watchful eye of a brand-new 300-tonne-class excavator, this event was a powerful reminder of the close partnership built over the past 21 years.

A bit of backstory

The collaboration between these three companies began back in 2005. At the time, Erdenet was on the hunt for an electric excavator capable of handling the relentless Mongolian climate while also moving enough material to meet the site's ambitious production targets. Enter Monnis. The organisation was established as Liebherr's official dealer in the East Asian nation three years prior and was working hard to familiarise the Mongolian mining industry with Liebherr's range of machines that had, and still has, a reputation for high performance and incredible reliability.

'When we first introduced Liebherr mining equipment to Mongolia, electric mining excavators of this scale were still relatively new to the Mongolian market. Securing that first project with Erdenet was therefore about much more than supplying a machine – it was about building confidence in the technology and demonstrating that we could support it locally,' says Mr Chuluunbaatar, chief executive officer and president, Monnis.

'Monnis has been working with Liebherr and its machines for almost 25 years. The experience and expertise our people have developed over that time – as well as the comprehensive training provided by Liebherr's factory teams – allows them to support customers with most anything they could need on a day-to-day basis.'

Mr Byambadorj
Sales director
Monnis Group

The delivery of that first R 9350 E not only marked the beginning of an enduring partnership but also established that machine as the very first 300-tonne-class electric excavator in all of Mongolia.

'I still clearly remember the assembly of the first electric excavator in 2005. Large cranes were difficult to source in Mongolia at the time, so Monnis brought in two cranes specifically for the project, and our team worked side by side with Erdenet's people for nearly two months to complete the assembly and commissioning. Liebherr also provided dedicated onsite specialist support following commissioning,' recalls Chuluunbaatar. 'That experience laid the foundation for the trust and long-term partnership that continues between Erdenet, Liebherr and Monnis today.'

Around about the time that this excavator was delivered, Mongolia's mining sector was entering a period of rapid change. Discoveries of enormous copper-gold and coal deposits in the early years of the new millennium meant that there was growing interest in mining projects throughout the country; so much so that mining began to outpace agriculture – the driving force behind Mongolia's economy for approximately 70 years – as the biggest contributor to Mongolia's GDP. It was during this period of growth that mining companies like Erdenet were able to invest in the latest mining technologies, such as electric excavators, with minimal risk, as these solutions had already been tried and tested elsewhere. All these mining companies needed to do was choose the machines best suited to their unique operations. Which, for Erdenet, was the R 9350 E.

The returning champion

Since that first delivery, R 9350 E excavators have been a constant presence at Erdenet mine, with further units joining that initial machine over the years. But even the most durable mining machines do, eventually, need to retire. For Erdenet, the time comes when these excavators reach 100,000 service hours. Which means that that first unit delivered in 2005 is now just a fond memory.

'By the time that first excavator reached 100,000 operating hours, it had moved a total of 45.5 million cubic metres of material,' explains Mr Bayarbat, chief engineer of the open-pit mine, Erdenet. 'It is difficult for any machine to achieve this kind of milestone, but we have shown that it is possible. This result also reflects the work of our mechanics and operators and the way they care for and maintain these machines.'

But that memory of Erdenet's first R 9350 E lives on in the newer units of the same machine that have arrived over the past two decades. Because, for Erdenet, the only choice for 300-tonne-class electric excavators is the R 9350 E.

'This latest R 9350 E, in the same way as its predecessors, was configured to meet Erdenet's specific production requirements and to operate reliably under Mongolia's extreme climatic and demanding mining conditions,' says Mr Byambadorj, sales director, Monnis. 'Its proven productivity, reliability, long service life and compatibility with the mine's existing electrical infrastructure are among the key reasons Erdenet continues to select Liebherr electric mining excavators.'

The power behind performance
Another key reason that Erdenet continues to work with these Liebherr machines is because of Monnis' ability to provide fast and dependable support as Liebherr's official dealer in Mongolia. When the team at Erdenet mine requires local technical support, spare parts supply, commissioning assistance or after-sales services, Monnis leverages its local resources and its access to Liebherr's extensive global network to provide exactly what's needed as quickly as possible.

'Monnis has been working with Liebherr and its machines for almost 25 years. The experience and expertise our people have developed over that time – as well as the comprehensive training provided by Liebherr's factory teams – allows them to support customers with most anything they could need on a day-to-day basis,' says Byambadorj.

Erdenet's experiences with Monnis and Liebherr over the past two decades gives the company confidence that the partnership between the three companies will continue to grow over the years to come.

'As ore grades decline, the amount of overburden we need to remove and the volume of ore we need to mine continue to increase. For this reason, we aim to select equipment that offers high productivity, high availability, low operating costs and a high level of comfort for our excavator operators,' explains Mr Yondon, general director, Erdenet. 'The Liebherr brand has been successfully established within our operations as our engineers, technical specialists and operators have been familiar with its products for more than 20 years. Therefore, as part of our objective to maintain the volume of concentrate we produce and prevent it from declining, we intend to further expand our cooperation.'

The partnership between Erdenet, Liebherr and Monnis has evolved over the past 21 years and now includes other mining equipment, mobile cranes and crushing equipment. But that doesn't mean the R 9350 E fleet is done expanding! In fact, another new R 9350 E excavator is scheduled for delivery to Erdenet mine before the end of 2026. Further proof that this decades-long partnership still has plenty of room to grow.

A partnership in motion

Delivering 10 R 9200 E electric excavators in less than four years is a pretty excellent way to cement the working relationship between Liebherr India and Dilip Buildcon Limited. And backing those deliveries up with a comprehensive 10-year maintenance and repair contract shows that this partnership is built to go the distance.

At the end of 2023, a shiny new R 9200 E electric excavator rolled into Siarmal coal mine for the first time, heralding the beginning of Liebherr's relationship with Dilip Buildcon Limited (DBL) – India's largest engineering, procurement and construction company. In the three years since that first delivery, the relationship between the two companies has evolved and expanded to the point that, as of Q1 2027, there will be a total of 10 R 9200 Es moving material at Siarmal mine in India's Odisha region.

The R 9200 E is a 200-tonne electric excavator that's based on Liebherr's proven R 9200 platform. Its combination of an efficient electric drive system with stable digging performance makes the machine a reliable partner in the pit.

Comprehensive support
All 10 of these electric excavators will be supported by a 10-year MARC contract with Liebherr's sales and service company in the country, Liebherr India Private Limited. MARC contracts, or maintenance and repair contracts, are full-service agreements that keep Liebherr customers' machines running smoothly. These contracts cover, as you may have guessed, machine maintenance and repair, as well as spare parts supply and support from Liebherr's experienced technicians for both planned and unplanned downtime. And all of this is tailored to suit the needs of each customer's operations.

With such a promising start to Liebherr India's relationship with DBL, it will be exciting to see what the future brings!

Learning about Liebherr in India
Liebherr India Private Limited was the first Liebherr company to be established in India. Founded in 2006 in Navi Mumbai, the sales and service company is responsible for the maritime cranes, earthmoving, mining, mobile and crawler cranes, tower cranes, components and concrete technology product segments.

Since that time, further branches have opened throughout the South Asian country to accommodate the growing interest in Liebherr products in the region. Liebherr Appliances India Private Limited in Chhatrapati Sambhajinagar produces and sells Liebherr's refrigeration solutions for the Indian market and also provides maintenance and repair support to the aerospace and transportation systems product segment. In Bangalore, Liebherr Machine Tools India Private Limited manufactures gear cutting machines primarily for the Asian market and also supports Indian commercial and defence aircraft operators and manufacturers. And Liebherr CMCtec India Private Limited produces tower cranes in Pune.

With a team of dedicated employees across all of these branches, Liebherr India provides fantastic support to customers in a wide range of different industries!

Getting ultra-classy at the Super Pit

In July 2026, an R 9600 was the very first ultra-class Liebherr excavator to get its enormous teeth dirty moving material for Northern Star Resources at one of Australia's largest open-pit gold mines: the Super Pit. Before this delivery, Northern Star Resources – which also happens to be one of the world's biggest gold producers – had mostly been operating our 150- and 400-tonne-class excavators at the Western Australian site. So, to help the R 9600 hit the ground running, Liebherr-Australia Pty. Ltd. has increased the number of spare parts and components at its two closest branches, Kalgoorlie and Perth; expanded its Kalgoorlie team; and provided comprehensive training for the Northern Star Resources team.

But don't worry, the R 9600 won't be the only ultra-class Liebherr excavator at the site for long! A second one is due for delivery before the end of the year.

Click to read more about this important delivery!

READ THE FULL STORY →

EX015
LIEBHERR
EX015
NORTHERN STAR
9600

Breaking new ground in Zimbabwe

A new R 9350 excavator is an impressive sight. At 8.5 metres tall, gleaming a pristine Liebherr white and weighing 300 tonnes, the machine cuts a striking figure. But for the team at Karo Platinum Project in Zimbabwe, the February 2026 delivery of this behemoth meant a whole lot more than a powerful machine joining their fleet.

That first R 9350 arrived at Karo Platinum Project in early 2026, right at the beginning of the mine's operational life, as part of EPSA Group's fleet – the international earthmoving services company that secured the contract for this greenfield operation. As soon as it hit dirt, the excavator began helping to shape the mine for its future success, moving buckets and buckets of material as part of the site's initial development phase.

'EPSA is preparing for the first ore at Karo to be milled in the second half of 2027, and we're proud that Liebherr machines will play a role in reaching this critical point,' says Claus Dieter Homberg, regional sales manager, Liebherr-Mining Equipment Colmar SAS.

Big plans need big machines

Karo Platinum Project is an impressive first home for the R 9350 in Zimbabwe. The mine is a landmark greenfield project that spans the eastern and western flanks of Zimbabwe's Great Dyke – the longest igneous complex in the world and home to the second-largest deposit of platinum-group minerals. For the mine's first 10 years, it'll be an open-pit operation before the work moves underground. So, because of that, EPSA Group needs machines in its fleet powerful enough to move the dense material on site and durable enough to withstand the considerable wear they'll face every day. And with a reputation for reliability and productivity, EPSA Group decided that the R 9350 was its perfect match.

Teams, assemble!

Liebherr also has another reason to be proud of the R 9350 at Karo Platinum Project and the teams that delivered it: it's the first mining class machine that has been delivered within Zimbabwe.

Bringing the machine into the southern African country was very much a team effort. Liebherr's excavator production facility in Colmar (France) worked with EPSA Group to bring the R 9350 itself into Zimbabwe. Once on site, a product support representative from Colmar led the assembly crew, which was mostly from Liebherr-Africa (Pty) Ltd – the closest Liebherr sales and service company to Zimbabwe – but also included personnel from Liebherr's Zimbabwean dealer, R&S DieselPro Services.

The representative from Colmar remained in Zimbabwe for a further seven weeks to provide additional product support as well as on-the-job training for the teams that would be working with the machine on a regular basis.

Trust earned over time

EPSA Group has worked with Liebherr in mine sites all over the world for the past 15 years and has developed genuine confidence and trust in Liebherr's ability to supply reliable machines and on-the-ground support across a wide range of applications. Liebherr's closest sales and service company to Karo Platinum Project is Liebherr-Africa. However, it is still more than 800 kilometres away from the site. So R&S DieselPro Services will be the one to handle day-to-day maintenance, technical support and parts supply to make sure EPSA Group and its Liebherr fleet has the support they need.

'Being associated with the commissioning and support of this flagship machine is a testament to our commitment to delivering world-class equipment, technical expertise and after-sales support to Zimbabwe's growing mining sector,' says Kevin Wilson, general manager, technical, R&S DieselPro Services.

Liebherr-Africa has worked with R&S DieselPro Services since 2017, first with Liebherr's range of earthmoving equipment before expanding the partnership to include mining machines in 2025. As such, the Zimbabwean service company has extensive experience with Liebherr products. But should anything arise on site that requires more specialised Liebherr knowledge, the team at Liebherr-Africa is only a phone call and a plane ride away.

Looking forward

A second R 9350 arrived at Karo Platinum Project in July of the same year, with another set to arrive by the end of 2026. All of these machines will support the lead-up to the mine processing its first ore in 2027.

'Behind every Liebherr machine is a team committed to keeping it performing at its best,' says Homberg. 'We're look forward to supporting EPSA Group as operations at Karo continue to grow and evolve over the coming years.'

Preparing for the winter

How do you keep Liebherr excavators working through the intense Canadian winter?

By rugging them up with our Arctic Kits, that's how!

These kits keep the excavators' hydraulic fluids from solidifying and the metal from becoming brittle while also making it possible to preheat the machines so that they can start, even in the middle of the frosty months.

Hammerstone Infrastructure Materials has been using our R 9150 excavators at Muskeg Quarry, one of the biggest limestone quarries in Western Canada, since 2018 and all of them are equipped with our Arctic Kits. The latest delivery was in June 2026, bringing Hammerstone's total number of these 130-tonne machines to three.

The team at Liebherr-Canada Ltd.'s Fort McKay branch in Alberta also provides technical support for these R 9150s to make sure they're always running at their best.

To read more about Hammerstone's R 9150 excavators, click here!

READ THE FULL STORY →

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LIEBHERR

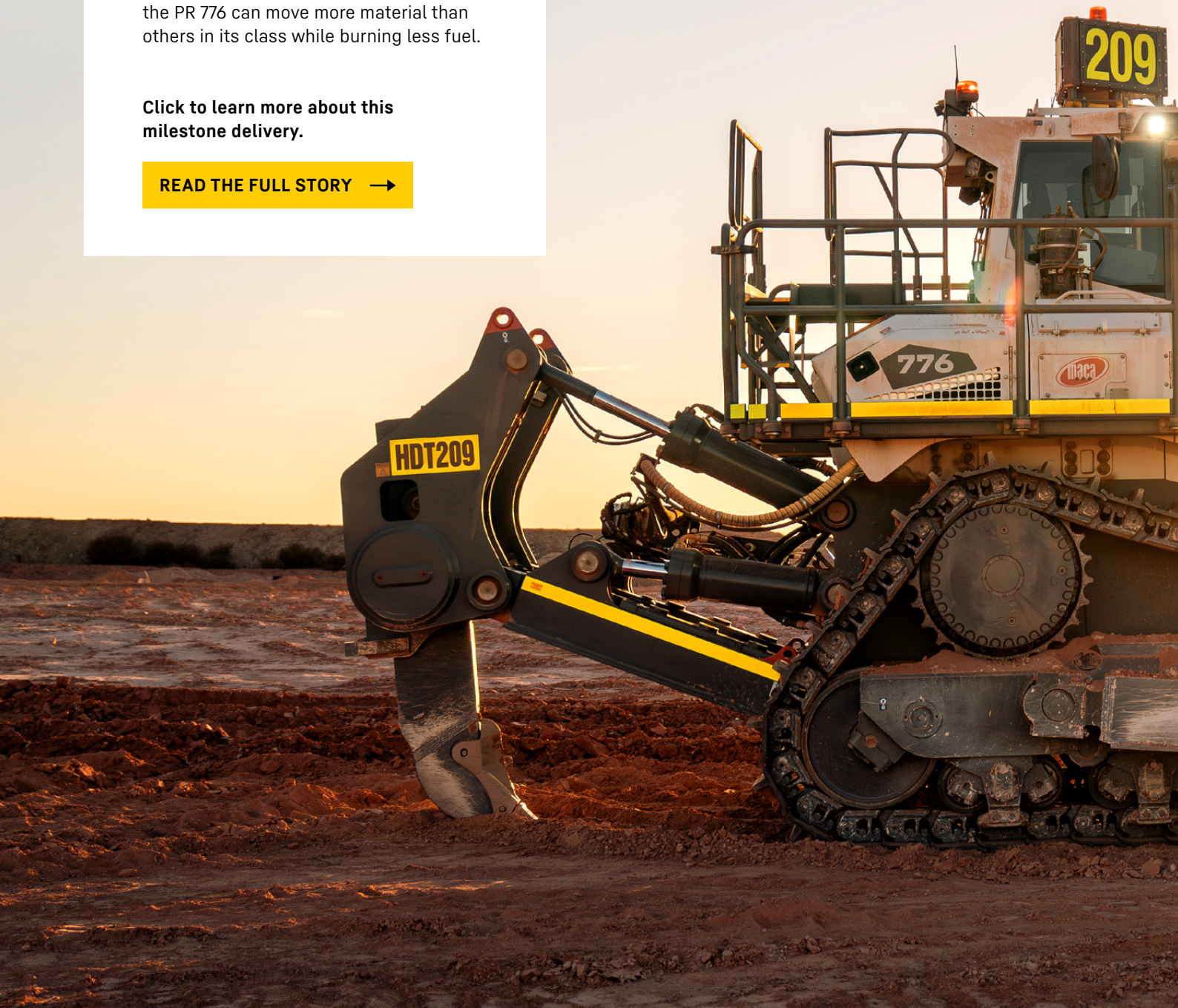
MACA meets the PR 776 G8

In mid-2026, MACA received a very special delivery at Duketon Gold Project in Western Australia: three shiny new PR 776 G8 dozers!

While every new Liebherr machine is worth celebrating, these ones also happen to be MACA's first ever Liebherr dozers. And the fact that these are PR 776 dozers is also a pretty big deal. As the world's largest hydrostatic dozer, the PR 776 can move more material than others in its class while burning less fuel.

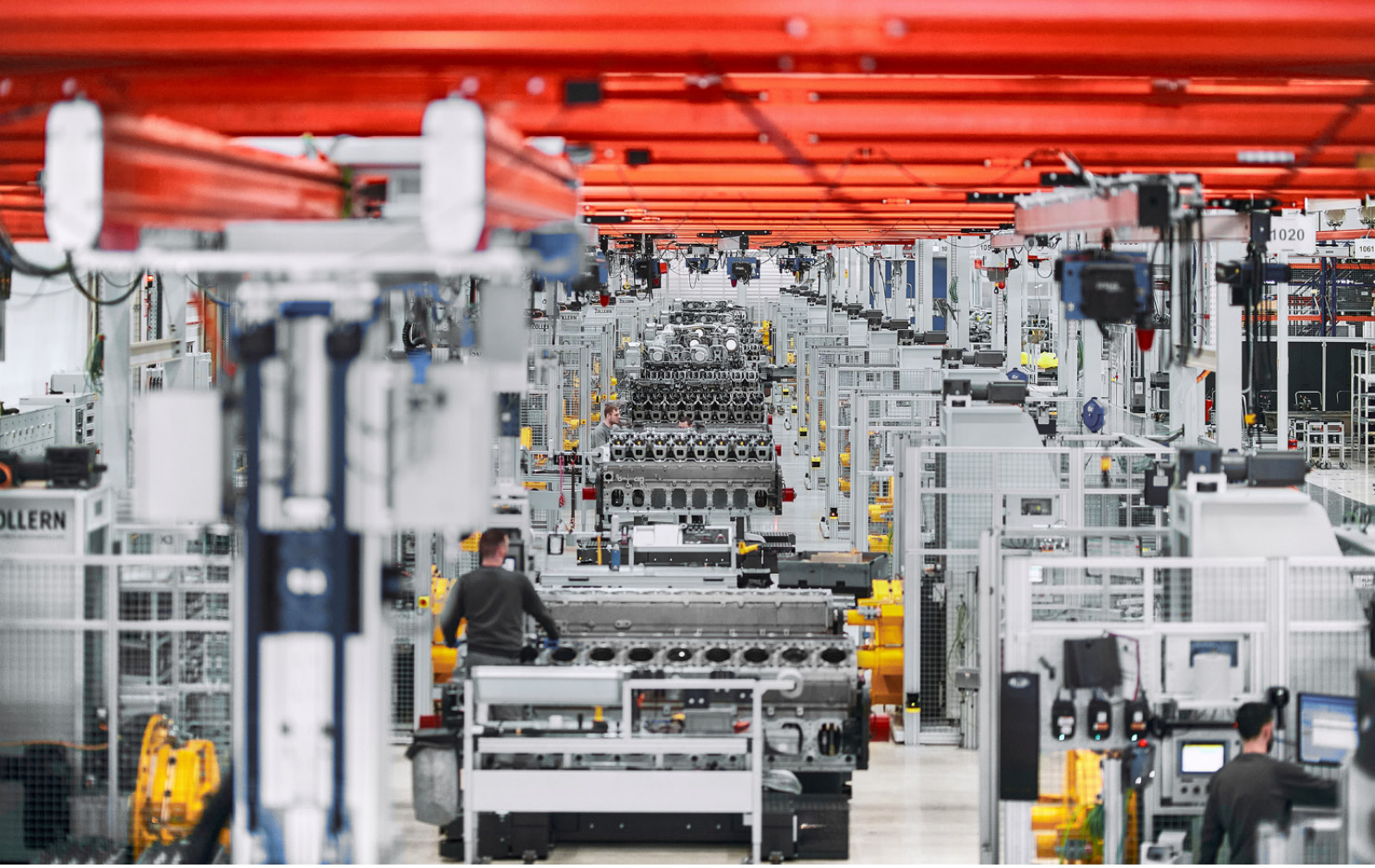
Click to learn more about this milestone delivery.

READ THE FULL STORY →



Product spotlight

An in-depth exploration of Liebherr Mining solutions



Power that keeps on digging

In the decade since their 2016 introduction to the mining industry, our D98 engines have shown themselves to be terrific partners for our machines. The 12-cylinder D9812 in particular is a fantastic option for our R 9400, R 9600 and R 9800 excavators and has led to tangible efficiency gains that our customers thoroughly appreciate.

The Liebherr Group has been developing engines since 1984. So when engine production began in Colmar (France) in the 2010s, the Group had already accrued decades of experience in this arena. The D98 series of engines was the brainchild of two of our Colmar production facilities: Liebherr-Mining Equipment Colmar SAS, Liebherr Mining's production facility for excavators; and Liebherr-Components Colmar SAS, Liebherr-Components' production facility for the D98 and D99 series of high-power combustion engines.

Engineered to endure

Designing an engine that's efficient and easy to maintain, while also being robust enough to power excavators in the unrelenting dust, wind and extreme temperatures often found on mine sites, required the combined expertise of both the mining and components product segments. As the 'load' part of a mine's load and haul cycle, excavators generally work 24 hours per day to remove overburden or fill mining trucks with the raw resources hiding beneath the ground. Because of their crucial role, it's vital that these machines – and the engines that power them – work as hard as they can for as long as they can.

To do this, the Liebherr Mining and Liebherr-Components teams optimised D98 engines for the full gamut of mining conditions they would likely encounter in our excavators. We designed them with support bearings on the crankshaft to reduce vibrations, used double-walled metal pipes to minimise the risk of leaks, enclosed the wiring harness in sleeves to guard against dust and friction and installed heat shields on turbochargers and exhaust lines to decrease fire hazards.

But that's not all!

To extend maintenance intervals and keep servicing time to a minimum, we also lowered the engines' rated speed from the industry standard of 1,800 rpm to 1,500 rpm so the components would be under less stress and therefore last longer. In addition, the two teams found a way to reduce the number of cylinders in these engines, without sacrificing power, to make servicing easier.

'We use our 12-cylinder D9812 engine in our 400-tonne-class excavators and above. Generally speaking, other machines in these size classes use 16-cylinder engines. But because our engines have higher displacement than others in the market, we're able to use fewer cylinders. This makes for a more compact engine as well as for more cost-efficient overhauls than in a V16,' says Emmanuel Goetschy, product manager, Liebherr-Mining Equipment Colmar SAS.

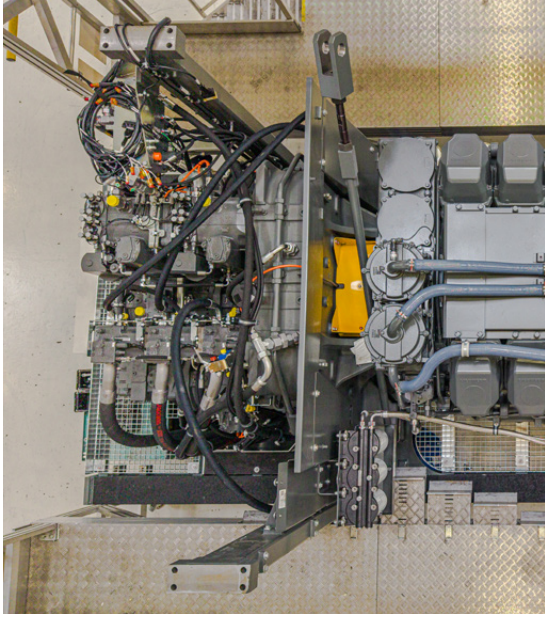
Pit proven

In 2023, the D9812 engine became the standard configuration for our fuel consumption optimised (FCO) powertrains. Since that time, over 45% of our R 9400, R 9600 and R 9800 excavators that have been delivered, or are currently in the delivery pipeline, include a D9812 engine. With so many of these engines in the field – working in multiple countries and in a range of different commodities – we've been able to see them truly thrive in real-world mining conditions.

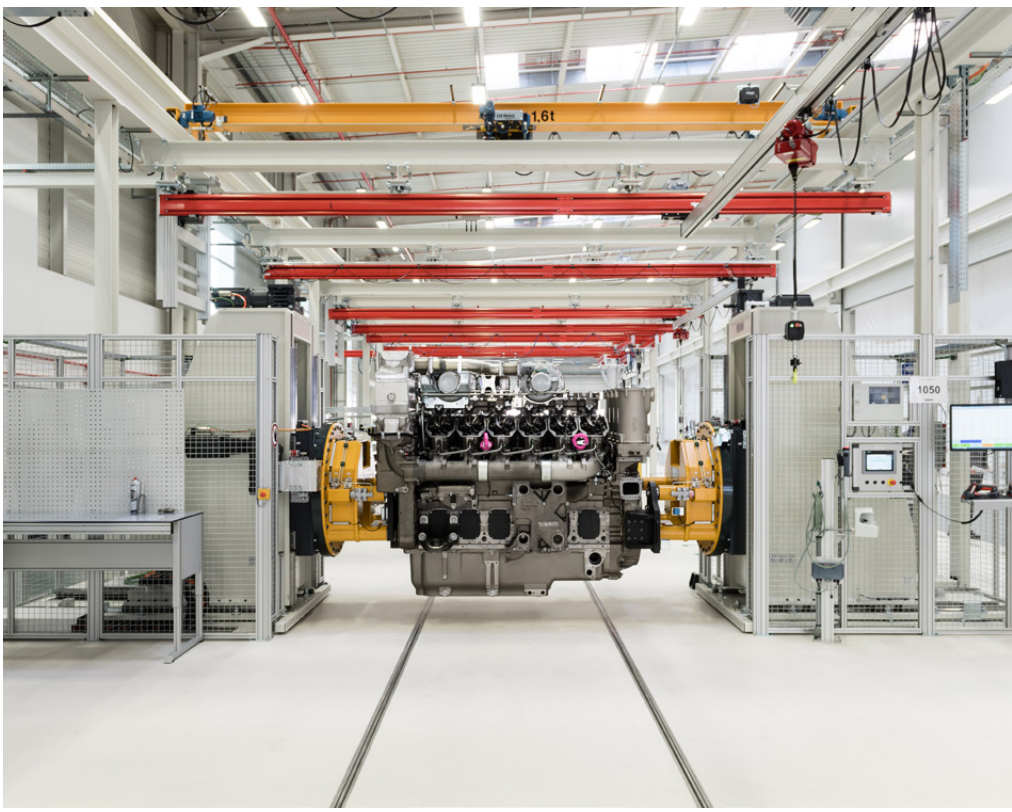
'Based on field data we've seen from R 9400, R 9600 and R 9800 excavators, customers operating these machines when they're powered by D9812 engines recorded approximately 5% lower fuel consumption on average than those with third-party engines – lower fuel consumption means lower fuel-related greenhouse gas emissions during operation,' Goetschy says. 'We've seen some R 9400 excavators reach as much as 11.7% better fuel efficiency with the D9812 engine than those powered by engines from other manufacturers.'

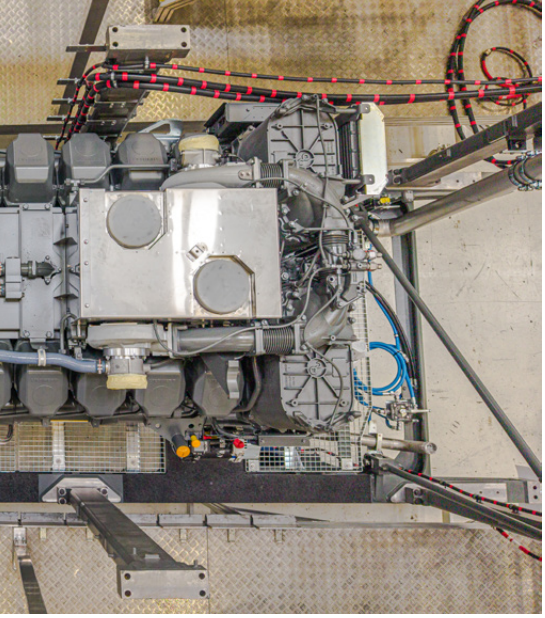
Prepared for the future

Working in a dynamic industry like mining means that what works for a mine today may not be the right fit tomorrow. So if customers decide that putting D98 engines into their existing excavator fleets will better support their needs moving forward, they can. And our modular approach to excavator design makes it a fairly straightforward process.



'The engines in our larger excavators, from the 400-tonne-class and above, sit within a module called a "power pack". As well as the engine, these power packs house the excavator's cooling system, working hydraulics and associated components in a single, interchangeable unit. So, if a customer wants to replace their excavator's original engine with a





D98, all we have to do is remove the entire power pack and replace it with a version that includes that Liebherr engine. No need to worry about reattaching different components to each other – everything is already connected and ready to go!' explains Goetschy.

Because of the D98 engines' large energy volume displacement, they can run on a range of different fuels, including hydrotreated vegetable oil – also known as HVO – and up to 30% biodiesel. With this fuel flexibility, customers can still rely on our D98 engines for their excavators, even if their fuel needs evolve.

'To be a full solution provider for our customers, we need to be able to support them even as their plans change. With the D98 series of engines, we're able to do just that, while also supporting fuel-efficient operations,' says Goetschy.

Liebherr-Components Colmar SAS
Liebherr-Components Colmar SAS was founded in 2011 in Colmar (France) as a dedicated production facility for large combustion engines. Before 2011, the Group had been developing and manufacturing combustion engines at Liebherr Machines Bulle SA in Switzerland since 1984. However, as the mining business within Liebherr grew, as well as the need for powerful and robust power generation, the decision was made to leverage Liebherr's decades of experience from the Swiss site and create a space dedicated to designing, building and testing these larger engines.

Today, Liebherr-Components Colmar SAS is primarily responsible for two of the Group's largest engine product lines: the D98 and the D99. The D98 series was engineered to combine rugged resilience with exceptional power in order to power mining equipment that works 24 hours a day, every day, in truly extraordinary environments. In a similar vein, the D99 series has been specifically engineered for true robustness as these engines are typically using in critical infrastructure such as hospitals and airports as well as data centres.

Technical spotlight: hydrostatic drive systems for mining dozers

Did you know that Liebherr is a pioneer of hydrostatic drive systems for mining dozers? While the majority of the industry uses hydrodynamic systems in its dozers, we've been using hydrostatic technology since 1954. But if hydrodynamic systems are the norm, why did Liebherr take a different approach? We're so glad you asked!

Hydrodynamic and hydrostatic systems couldn't be more different from one another. Even though both have a diesel engine and a final drive, that's where the similarities end. At the core of a hydrodynamic system is a torque converter – a fluid coupling that transfers torque from the engine to the mechanical transmission. While this system is great for vehicles like trucks that maintain high speeds during operation, it introduces some inefficiencies with fuel consumption and drawbar pull in dozer applications where speeds need to be kept low but drawbar pull needs to be kept high. This is why Liebherr opted for a hydrostatic system for its dozers.

The hydrostatic difference

Instead of using torque converters and gear boxes, hydrostatic systems use hydraulic pumps with swash plates. The swash plate is a revolving disc that sits at an angle within the pump. When the swash plate's angle changes, so does the oil flow within the pump. The closer the swash plate gets to its maximum angle, the more oil flow there is. This determines the speed and the direction of the system as the oil flow from the pump moves the motor.

But what moves that swash plate in the first place? The operator, in the cab, with the joystick.

This direct connection between the joystick and the swash plate is a big part of why there are no gears in a hydrostatic system. There's no need to choose a gear when the joystick is telling the dozer exactly how fast it should be moving. The other piece of this no-gears puzzle is that the system itself automatically changes its internal pressure in response to environmental load so it can generate the torque needed to achieve the operator's desired speed. The amount of torque needed depends on a number of different factors: material density under the machine, slope of the ground and even how much weight the dozer is currently pushing. But no matter what the machine is doing, the hydrostatic system continuously matches the amount of torque it puts out to meet activity requirements.

Hydrostatic drives in practice

But what does all of this mean for everyday operations? Well, for one thing, because hydrostatic systems have no use for gears, they have far fewer components than their hydrodynamic counterparts. No gears? No gearbox, clutch or differential steering gear. With fewer components there are fewer things that experience wear or need replacing, so maintenance personnel don't have to spend as much time maintaining hydrostatic machines. Which is a big win for uptime.

Not having gears also allows the hydrostatic engine to run at a constant rpm the entire time it's operating. For our mining dozers, the engines stay at 1,600 rpm – the most efficient operating pace for these machines. The swash plate in the pump always rotates at the same speed, which in turn means the motor maintains that same pace. This means the engine never has to speed up or slow down to reach target speeds; it just keeps chugging along at the same rate. This consistency can reduce our customers' fuel consumption and related greenhouse gas emissions – depending on the operating conditions and the type of fuel used – and therefore their fuel costs.

Another benefit of zero gear changes? Uninterrupted pushing power. In a hydrodynamic drive system, changing gears disrupts the connection between the engine and the final drive. Even though each disruption only lasts for a fraction of a second, it still causes dips in the machine's pushing force, or drawbar pull.

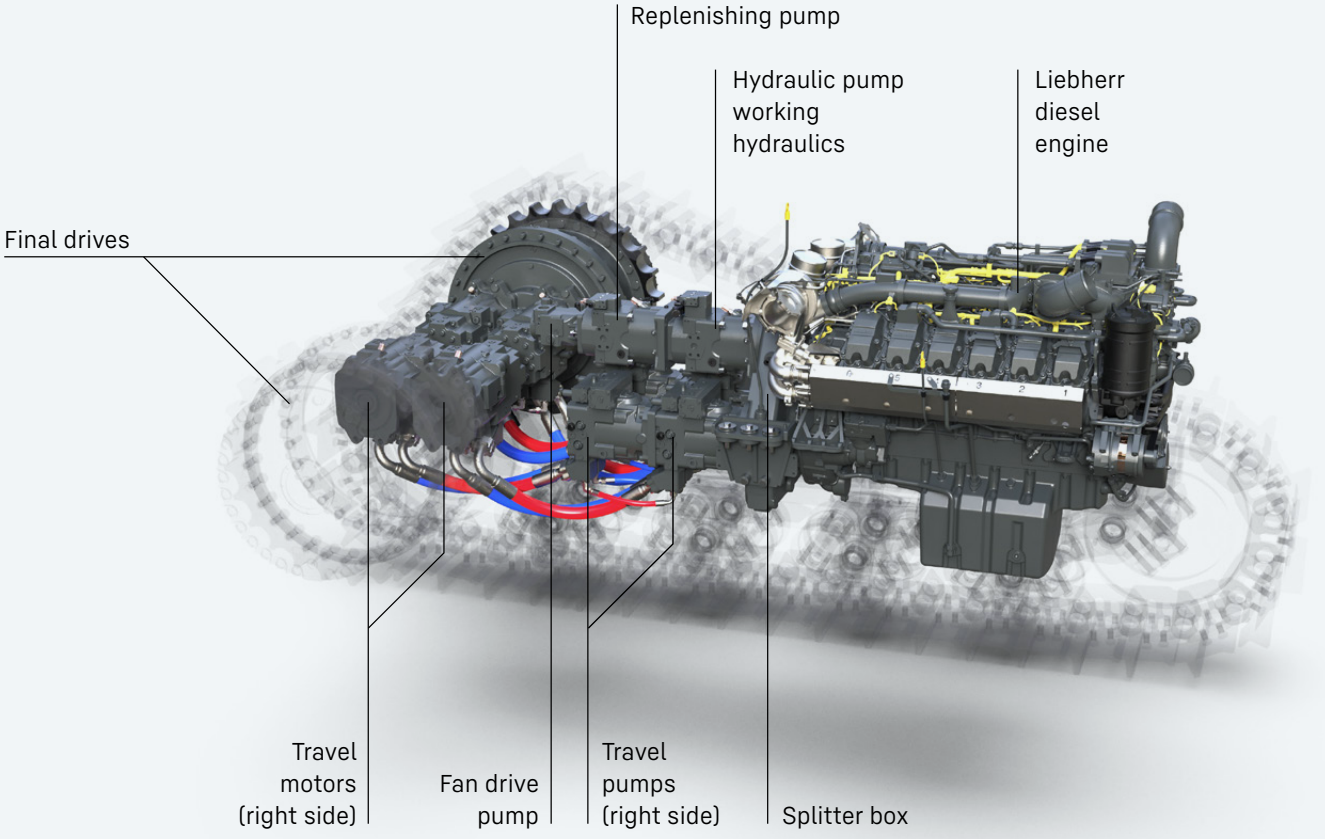
We don't have this problem with hydrostatic drives. No gear changes, means no disruptions, means consistent drawbar pull. Over the course of a shift that consistency translates to hydrostatic machines pushing material more effectively than hydrodynamic ones. Case in point: the PR 776 G8 has the highest drawbar pull in the 70-tonne class.

Importance of independence
There are two independent sets of pumps and their motors in our hydrostatic system – one on each side of the transmission – and each controls its respective track. This setup is one of the key reasons our hydrostatic dozers are highly manoeuvrable. Because operators can control each track independently, they're able to turn the dozer much more tightly than they could in a hydrodynamic machine. To accomplish these tight turns, operators simply slow the outer track with the joystick to reduce its oil flow. All the while, the dozer never loses drawbar pull, so no productivity is lost. This comes in handy not only when operators steer the dozer with a loaded blade but also when they're pushing with an unevenly loaded blade, like at a waste dump.

We carefully considered the best way to connect the hydraulic pumps and motors to each other. Instead of using rigid pipes as our connectors, we used flexible hoses. These hoses gave us the, well, flexibility to organise the drive system's components in a way that would give our customers the most benefits: better weight distribution, fewer vibrations, less noise and more straightforward access for maintenance teams. All of which helps to make working in and around our hydrostatic dozers an enjoyable experience.

No brakes (sort of)!
The relationship between the engine and the hydraulic pumps and motors is what puts the 'static' in 'hydrostatic drive system'. When all of these components work together, they form a closed loop circuit. The oil within the circuit moves from the pumps to the motors then back to the pumps, rather than returning to a tank first. This continuous flow keeps the circuit under constant pressure, making it nearly impossible for the motors to create enough force to turn the pumps on their own. And so the dozer stays at a standstill. This is why hydrostatic systems are self-locking. Operators can bring these enormous machines to a stop just by using the joystick – no mechanical brakes required. But just to be extra sure that our dozers don't go anywhere once they're stationary, they do still have a parking brake. This brake can also be used as a fallback solution in an emergency in the unlikely event it's needed. Think of it like a handbrake in a car.

Not needing brakes has much the same benefits as not needing gears: consistent rpm and drawbar pull. This can support efficient pushing power and lower fuel consumption – depending on the application and operating conditions the dozer is working in.



Hang on a second...
But perhaps you're reading this and thinking, 'I've sat in a Liebherr dozer before and there's definitely a brake pedal!'.

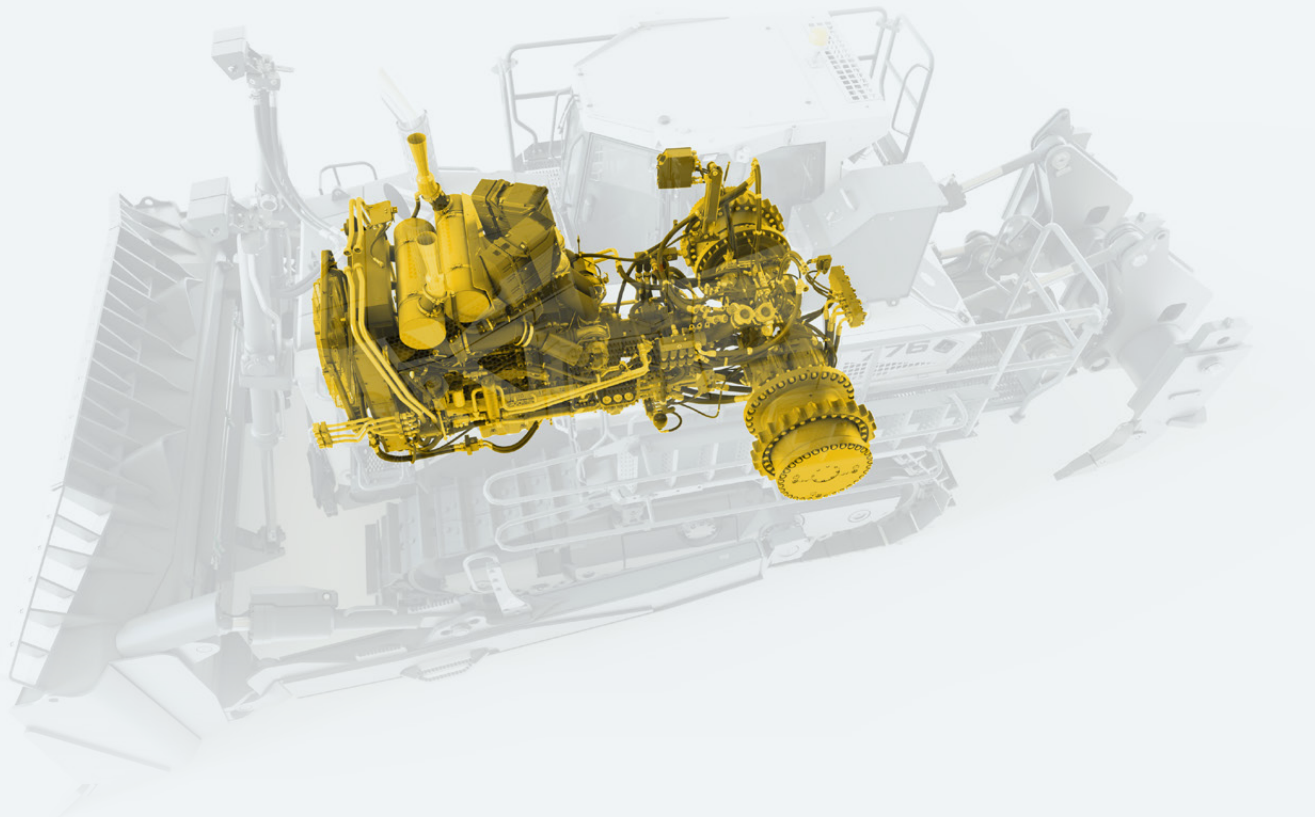
Technically speaking, the thing you're thinking of as a brake pedal is an 'inching pedal', which can also be called a 'deceleration pedal'. This pedal works in much the same way as the joystick in terms of speed. Pressing on it will reduce the oil flow to the pump, which stops the machine moving forward. Once the pedal is fully depressed, the mechanical brake engages. But by that point the machine has already come to a complete stop. Which means no brake wear.

Having a pedal that replicates the actions of another component seems redundant. But we absolutely have our reasons.

Including this inching pedal in our hydrostatic machines helps operators to acclimatise to Liebherr dozers. As mentioned, the majority of mining dozers have hydrodynamic drive systems, which are always primed to move at full speed. To manage this, these hydrodynamic machines use inching pedals to slow the machine down by taking power away from the transmission and reducing the engine's rpm. Most operators in the industry will be used to handling dozers this way, so not having an inching pedal can make operating Liebherr dozers feel strange. As such, while there's no technical need for this pedal, we include it to make operating our dozers feel more familiar. Because, at the end of the day, the person behind the joystick is the one moving material day in, day out, and so their comfort is one of our top priorities.

The bottom line
So what does it all mean?

Well, it boils down to this: hydrostatic drives offer a range of advantages for mining dozers. They support fuel-efficient operation, consistent pushing power, simplified maintenance, streamlined operator controls, a quieter cab and a self-locking drive system. Not bad for a drive system we've been using and refining for more than 70 years!



Liebherr undercarriage solutions: the foundation of performance

Millions of operating hours in a wide range of mining environments have shaped Liebherr's undercarriages. We spoke with Robin Florence, Liebherr Mining's product manager for service, to better understand how extensive field experience helps us engineer undercarriage solutions for reliability in demanding mining conditions.

Robin Florence has been product manager for Liebherr Mining's service department since 2023. Before that, he spent six years supporting Liebherr's D98 mining engine range in engineering, technical support and key account management roles. In his current position, he is responsible for the Mining Service portfolio, which includes support and parts for Liebherr mining equipment. As undercarriage solutions are an important part of this portfolio and Liebherr's scope of supply, we invited him to share his perspective on what makes Liebherr's undercarriage solutions so effective.

What does it mean to offer a complete undercarriage solution?
For us, offering a complete undercarriage solution means supporting customers through the entire undercarriage life cycle. We take the time to understand each customer's operating conditions and challenges, then deliver a tailored solution that can include components, logistics, installation, servicing and complete system refurbishment.

Our global service network helps with this. Through that network, our customers have access to personalised, ongoing support and solutions that can include our modular maintenance and remanufacturing programs as well as genuine Liebherr components and retrofit options. By bringing these services together, Liebherr helps customers extend undercarriage life, maintain machine availability and manage total cost of ownership. Undercarriages and wear parts account for a significant portion of a machine's life cycle cost – up to 25 %, depending on the application and operating conditions – which has a direct impact on total cost of ownership. Their performance also impacts machine availability and the frequency of planned and unplanned shutdowns.

Why do we tailor undercarriage track components to each application?
Operating conditions vary significantly from one mine to another. But our undercarriage track components must perform in any environment. This is why they are defined as per machine size and optimised following customer requests and site conditions.

Robin Florence
Product manager, service
Liebherr-Mining Equipment Colmar SAS

Our patented track chain design for the R 9600

Liebherr has extensive experience across mining excavators with operating weights from 100 to 800 tonnes. This is what has enabled us to design specific track components for our ultra-class machines. In fact, we have a patented design for the track chain of the R 9600 excavator to optimise contact pressure, which results in better operational control, lower wear rates and increased component life.

How do we customise our complete undercarriage solutions so they suit each customer?
Liebherr engineers work closely with our regional sales and service companies as well as our customers so that they have direct visibility of how machines and components perform in real mining conditions. Rather than relying on a standardised design approach, engineering decisions are continuously informed by field inspections, customer feedback and operational data from mines around the world.

This close collaboration enables continuous design improvements and the development of solutions tailored to mining operations.

For example, we have numerous customers working with R 9200 excavators in Indonesian coal mines where, due to the intense rainfall in these areas, mud is a real problem. The accumulation of mud blocks the carrier roller, resulting in premature failure. To solve this issue, we introduced a specific configuration with a large single carrier roller combined with two sliders that helps our excavators to run smoothly in these muddy environments. This gives peace of mind to customers using our R 9200 undercarriages and illustrates why our familiarity with the field conditions our machines work in allows us to offer the best solutions.

How do we ensure our undercarriage solutions can withstand the harsh conditions often found on mine sites?
It's vital that our undercarriage track components are as durable as possible. Not only are these the most heavily loaded components in a mining machine, but they also represent a significant share of life cycle costs.

These sliders help this R 9200 excavator to travel more easily in Indonesia's muddy conditions

Each and every component – from chains and rollers to shoes and frames – must perform under extreme loads and abrasive conditions. To reach this level of performance, our engineering team analyses customer feedback from millions of operating hours in the field to continuously improve our design. This approach has helped us to achieve significant milestones, such as some of our ultra-class excavators exceeding 30,000 operating hours in coal mine applications.

Another key factor influencing undercarriage life is heat treatment. Liebherr continuously refines its induction hardening processes to maximise the depth of the hardened layer in critical wear components. This hardened surface provides the high wear resistance required in demanding mining applications. By extending the depth of this protective layer, components maintain their performance for longer before wear reaches the softer core material, which can contribute to a longer service life. This is one of the areas where Liebherr's engineering and manufacturing expertise can make a tangible difference compared with many aftermarket alternatives.

What is the direct impact for customers?
Improving the durability of undercarriage track components reduces maintenance costs and increases machine availability across the equipment life cycle. But durability is only one piece of the life cycle cost puzzle. To further reduce these costs, we also offer a range of remanufacturing options for key undercarriage wear components in our 400- to 800-tonne excavators, such as travel drives, sprockets, carrier rollers, bottom (track) rollers and track tensioning systems comprising idlers, grease tensioners and hydraulic cylinders. Remanufacturing wear components during maintenance, rather than buying brand-new ones, can reduce replacement costs for our customers while delivering high levels of performance.

How are our undercarriage track components maintained?
Because we take a modular approach to the design of our undercarriages, maintenance teams can handle the undercarriage as a complete unit, rather than as dozens and dozens of discrete track components and parts. In regions where our modular maintenance program is available this means that complete undercarriage modules can be removed for refurbishment, while a fully remanufactured one is walked in underneath the machine. Not only does this save on downtime, but it also makes it possible for maintenance personnel to schedule servicing around the site's production requirements.

Our standard approach to this service is to refurbish the modules at the local Liebherr branch. But this isn't always feasible, particularly for customers in the most remote locations. We recently worked with a customer in Indonesia who was interested in modular maintenance for the track frames of the four R 9350 excavators in their fleet. But because of the remote location of their site, transporting the track frames to and from the local branch just wasn't practical. So, rather than sticking to our usual process, we found a way to adapt it to suit their needs – which meant doing the refurbishment on site. To accomplish this, the local Liebherr team provided the technical expertise and spare parts needed to ensure the refurbished track frames were restored in line with Liebherr quality standards.

To further simplify maintenance, we've also developed pre-assembled components, such as track roller frames for the PR 776 dozer. Much like the machine modules in our modular maintenance program, these components can be removed, reconditioned and replaced as complete units, rather than being handled as individual parts. This allows a previously refurbished component to be installed immediately so the machine can get back to work sooner, while the removed component is reconditioned for future use.

These maintenance approaches, combined with our global network of technical specialists, service teams and spare parts support, mean we can provide our customers with the knowledge and resources they need, whenever they need us.

Click here for more information about our undercarriage solutions.

LEARN MORE →

The world of Liebherr

A taste of the wider world of the Liebherr Group

The Group

At the beating heart of digitalisation – the Liebherr Digital Development Center

A single click, a quick glance at the screen, and somewhere on a construction site in Europe a wheel loader weighing several tonnes starts moving. All controlled by a software developed in Ulm (Germany). Here, inside the Liebherr Digital Development Center (LDC), beats the digital heart of the Group. The moment you step inside LDC, you sense that this is where the future is made.

‘You get a general sense of what other teams are doing. You can learn from each other and pick up new ideas.’

Lena Sommnitz
UX designer
Liebherr-Digital Development Center GmbH

The construction industry is on the verge of radical change: it’s no longer enough for machines to be powerful, they have to be intelligent too. Engineering that has been tried and tested for decades is coming face to face with the demands of the digital world. And that is precisely the challenge the team in Ulm is rising to.

‘I wrote my first codes in 1985,’ recalls managing director Heinz Klemm. ‘That passion for software has never left me.’

Today, he heads up a group that combines Liebherr’s mechanical engineering expertise with state-of-the-art software design to future-proof the construction sector.

Agility and team spirit
LDC is a melting pot of people from different fields, working side by side: computer technicians, mathematicians, engineers, UX designers and developers. Many bring with them expertise from the automotive industry or mobile telecoms to further strengthen our cloud systems, artificial intelligence and software processes. The working day is shaped by agile methods, daily meetings and open dialogue – both in the office and remotely.

UX designer Lena Sommnitz explains, ‘We start the day with a daily catch-up, then we carry on with our own work independently and meet up as teams or project groups as and when needed. It’s really important to keep the conversation going, either with “coffee calls” or in our lunch break.’

Michael Schwegler, team leader for data and AI, adds, ‘Events like the Tech Fair or group tours of the city are great for team spirit and allow us to fully experience Ulm together.’

Digital solutions that really add value
The digital experts from Ulm (Germany) are developing solutions that will dramatically improve the working day on construction sites and in workshops. Marco Sanna, a developer working in the Mobile Apps team, is currently working on an app that identifies construction machine parts from a photo – on site, anywhere in the world.

'What's really amazing is that one photo is all it needs to find the right spare part and order it. Soon the app will also incorporate maintenance information – for instance, when oil needs changing or a filter needs replacing.' Sanna says dialogue with the users is integral to this. 'We take an interactive approach to developing – we regularly gather feedback and adjust the app to meet real-life requirements.'

There's also a real focus on accessibility.

'With the new European Accessibility Act, digital products need to be accessible to all. We are making this a tangible talking point for everyone in the team – for example, by having stations where colleagues can experience the challenges of inaccessibility for themselves,' explains Sommnitz.

Another exciting development being worked on is a 3D user interface for autonomous wheel loaders. Alexander Breckel, cloud frontend software developer, explains the challenges this presents: 'It was a matter of creating an interface that people can trust – trust in machines weighing several tonnes moving around autonomously. Our 3D visualisation shows the operator what the machine is doing in real time and makes complex technology intuitive to operate.'

> ***'We take an interactive approach to developing – we regularly gather feedback and adjust the app to meet real-life requirements.'***
>
> **Marco Sanna**
> Developer
> Liebherr-Digital Development Center GmbH

Openness: a key to success
The special working atmosphere is plain to see in the openness between colleagues, in their conversations and in their willingness to learn from one another. Sommnitz describes the dynamic within LDC: 'You get a general sense of what other teams are doing. You can learn from each other and pick up new ideas. Regular events like the Tech Fair provide insights into all projects and allow us to join together.'

Ulm makes a great location, since it offers the perfect blend of city, nature, innovative strength and quality of life.

'Having the Science Park, the university and lots of international companies based here, Ulm is a veritable tech hub – making it the ideal place for us to start moulding the future,' enthuses Schwegler.

Tower cranes

Measuring on a higher level

Take a breath. Feel your lungs expand, the invisible air rushing in. That simple act ties you to a rainforest thousands of kilometres away – the Amazon. It is not just trees and rivers; it is a living regulator of the planet's breath and yours.

But as carbon dioxide levels rise to heights unseen in human history, scientists are asking: can the Amazon keep absorbing and recycling carbon at the pace our survival demands? To find answers, researchers launched AmazonFACE in 2014, with the infrastructure completed in 2025, creating a pioneering experiment deep inside a protected section of rainforest dedicated to scientific research, near Manaus (Brazil). Step deeper into the forest and look up: six steel rings rise above the canopy.

Inside each ring, 16 towers release carefully controlled amounts of carbon dioxide, raising the concentration inside the ring to levels expected several decades from now. The forest within the circle remains completely intact – no trees cut, no soil disturbed. Inside and around the rings, hundreds of sensors track how the forest responds.

To reach the treetops and collect vital measurements, scientists and researchers rely on the steady ascent of the Liebherr tower cranes on site. Each 45-metre ascent carries knowledge and data that could decide the Amazon's fate.

Choose your path

The Amazon is vast, ancient and fragile. Its billions of trees and millions of people sustain life locally and globally. If it falters, the upheaval will be felt everywhere.

This story does not unfold in a straight line. Like the forest itself, it opens into many paths. These paths exist because so many stand together: scientists and researchers from the AmazonFACE team, government organisations from Brazil and the United Kingdom, universities, funders and institutions such as the National Institute of Amazonian Research (INPA), Unicamp and the Met Office.

An adventure too big to miss

Bruna Prisco's children weren't sad that she was leaving for the Amazon. They were sad they couldn't come along. Bruna, an application engineer working at Liebherr in Brazil and mum of two children, told her son and daughter about the significance of AmazonFACE. The cranes she works with will not be lifting steel or concrete, but scientists and engineers like herself, carrying them high above the forest floor to study the future of the rainforest.

Bruna Prisco
Application engineer
Liebherr Brasil LTDA

‘Here in the Amazon rainforest, the use of the cranes is so that scientists can study nature conservation more efficiently. The four Liebherr 85 EC-B 5b tower cranes were chosen precisely because they can withstand the extremes of heat and humidity and not disturb the habitat,’ says Bruna.

Daytime temperatures regularly reach 31–33 °C, with humidity close to saturation, and heat waves can push above 35 °C. The cranes’ flat-top head design eliminates the traditional A-frame, reducing height above the jib and allowing multiple cranes to operate in close proximity without interfering with one another – a critical advantage in the dense rainforest canopy.

The compact design also protects critical systems, while corrosion-resistant materials ensure reliability in the wettest climate on Earth. With frequency controlled drives providing smooth, vibration-free lifting and slewing, sensitive scientific instruments can be transported safely through the forest layers to measurement height.

Equally important, the cranes occupy a minimal ground footprint, reducing their impact on the forest floor to the lowest possible level. This was vital for AmazonFACE, where preserving the surrounding ecosystem is as important as conducting the science itself.

Bruna plays a key role in preparing crane operators for success. She organises training sessions at Liebherr Brasil LTDA and on site in the rainforest, ensuring operators are equipped with the technical knowledge and safety skills needed to work in such challenging conditions. For her, this task is more than technical; it reflects the same empathy and dedication she brings to every part of her life. Her expertise is deeply connected to her love of nature, whether cycling, hiking or simply being outdoors.

‘I feel extremely proud to have contributed to this application. It is what I will carry with me for the rest of my life and tell everyone – my children, my relatives and my friends.’

Bruno Takeshi
Operations lead
AmazonFACE

A forest changing before his eyes
From an early age, Bruno Takeshi was captivated by one question: what does the Amazon truly mean for the world? As operations lead of AmazonFACE, he now steers one of the most ambitious scientific efforts ever undertaken in the tropics. The program was created by the Brazilian Ministry of Science, Technology and Innovation with a single purpose: to discover how resilient the Amazon truly is in the face of climate change.

For decades, researchers only had mathematical models to guess how the forest would react in the future. Through controlled experiments, Bruno and his team generate forecast data that offers a glimpse of the forest 30 to 40 years into the future.

When Bruno finally rose above the treetops in a Liebherr crane, it felt like flying. The sun was setting, vapours were rising from the forest floor and he saw clouds forming directly from the trees.

'It was a once-in-a-lifetime experience. A magical moment in my career,' he recalls.

Below him, waves of treetops moved like a living sea. At sunset, golden light revealed vapours rising from the forest, drifting upward in slow spirals. These were the beginnings of the 'Flying Rivers', the invisible highways of moisture that feed up to 30 % of the rain falling over central and southern Brazil.

Before the cranes, no one could safely reach the canopy to study its processes. Now, Bruno and his team capture daily measurements on photosynthesis, water transport, energy exchange and plant hydraulic behaviour across different canopy layers. With this access, the AmazonFACE team of over 150 specialists is uncovering how the ecosystem truly works.

AmazonFACE allows scientists to observe how rising CO_2 at global atmospheric levels affects plant growth, leaf survival and water transport and how evapotranspiration sustains the 'Flying Rivers.'

'25–30 % of the rain that falls in the Midwest and Southeast of Brazil comes from water vapour generated in the Amazon,' Bruno says.

More than 15 international research partners rely on findings from AmazonFACE to guide climate discussions, including Brazil's scientific contributions to COP30. Bruno carries a profound responsibility: the data generated today will help guide political decisions, shape conservation strategies and influence the future of entire populations.

In harmony with nature
Site engineer Maria Juliana Monte never expected that her career would pull her away from the typical construction site in the city and place her deep inside the Amazon rainforest. She describes it as 'an environment where traditional construction machines do not fit easily'. A place where everything she knew about engineering was redefined by nature. When she began a Master's degree in Climate and Environment at the National Institute for Amazonian Research (INPA), she studied forest dynamics, which opened up a new path for her. That program led Maria Juliana to a field discipline that required visiting a forest reserve; an experience that, as she puts it, 'made me understand its behaviour better'.

The Amazon is a constant source of awe for Maria Juliana and much more than a workplace. It is, in her words, 'one of the most beautiful things in the world, the eighth wonder of the world'.

Even after many climbs, the feeling remains the same: 'Standing above the canopy, seeing the sheer magnitude of a single tree and the vast green immensity around it.

Maria Juliana Monte
Site engineer
AmazonFACE

Every ascent is another chance to marvel at the Amazon and the cycles that shape it,' she says.

Today, Maria Juliana is the site engineer responsible for the CO_2 enrichment system, the heart of the AmazonFACE experiment. She oversees everything from the injection system to campaign logistics, ensures safety and supports researchers who arrive to study the forest's behaviour.

'My role is to embrace everyone and make the experiment flow really well, enough so the world begins to see what I see every day.'

From root growth to leaf photosynthesis, from soil respiration to micrometeorological instrumentation, Maria Juliana keeps the forest-scale experiment running so scientists can understand how the Amazon responds to rising CO_2.
And she knows exactly what would change if more people could witness what she sees: 'If people could see what I see in the forest every day, they would understand it as a place of survival – where food, health and daily life depend on its harmony. The Amazon is not a distant wilderness but a living home.'

A calling beneath the soil
Growing up in the savannah of Central Brazil, Carlos Alberto Quesada – senior researcher for AmazonFACE known as Beto – spent his childhood steeped in profound curiosity about nature. While his family focused on crops and cattle on their farm, Beto found himself transfixed by the ecosystem around him – the rhythms of soil, plants and climate. That fascination became a lifelong calling for ecological sciences.

'The Amazon was always on my mind, calling me. At the first opportunity I had, I left the savannah and came to the rainforest,' he says.

Studying forestry engineering and later pursuing a PhD, Beto realised how tightly vegetation and climate are bound together.

Small changes in rainfall or temperature could trigger cascading effects across ecosystems, altering the balance of the planet itself. This awareness shaped his career as a soil scientist, probing the hidden layers beneath the forest floor. Roots, fungi and microorganisms became his focus, because they hold the key to whether the Amazon can withstand rising carbon dioxide. Nutrient limitations such as phosphorus, nitrogen and others may decide whether the forest grows stronger or falters.

Through AmazonFACE, the Amazon transforms into a time machine, enabling scientists to simulate future atmospheric conditions. Beto warns that the local climate is changing, highlighting shifting rainfall patterns and rising temperatures.

'The impacts lead to an impact on humanity as a whole,' he emphasises, reminding us that the Amazon's fate is deeply intertwined with our own.

His research probes the question of whether extra carbon will genuinely help trees thrive. While increased photosynthesis might occur, without nutrients, trees cannot convert carbon into lasting growth. The Amazon has already lost 30 % of its carbon absorption capacity over the past three decades. Beto's work traces these fragile pathways, exploring how photosynthesis connects to soil chemistry. Each measurement he takes offers a preview of the Amazon's potential futures – a forest that endures and renews or collapses.

In the midst of this daunting reality, Beto finds a glimmer of hope.
The potential for trees to adapt to increased CO_2 in the atmosphere intrigues him.

'With more CO_2, it is possible that trees will become more productive and use water more efficiently,' he muses, envisioning a scenario where the forest's resilience could be bolstered, allowing it to withstand the anticipated droughts.

Carlos Alberto Quesada
Senior researcher
AmazonFACE

Transparency note
The tower cranes used by AmazonFACE were acquired based on technical and operational criteria, aimed at meeting the specific infrastructure needs of the experiment. The mention of Liebherr-branded equipment is purely informative and does not represent any form of institutional, commercial or reputational endorsement of the company or its corporate practices. The AmazonFACE program, which is scientifically coordinated by INPA, Unicamp and the Met Office, and supported by the Brazilian and UK governments, remains committed to science, transparency and integrity in all its actions.

Highlights from other product segments

Material handling technology

Liebherr launches new dragline: the LMD 1200

The LMD 1200 dragline was presented in June 2026 as part of the 50th anniversary of Liebherr-Werk Nenzing GmbH, a production facility in Austria that specialises in construction machines. The machine has a maximum lifting capacity of 30 tonnes, a working radius of 40 metres, can be equipped with a dragline of up to 12.25 cubic metres and can dig to depths of down to 25 metres. This latest dragline was specially developed for wet or dry mining applications and is available.

Earthmoving

100,000th wheel loader delivered

In April 2026, Liebherr-Werk Bischofshofen GmbH – Liebherr's production facility for wheel loaders in Austria – delivered its 100,000th wheel loader, an L 550 XPower. The machine was delivered to STORK Umweltdienste GmbH at a ceremonial handover. To celebrate the milestone, the L 550 XPower was decorated with a special '100,000' logo composed of historical images of Liebherr wheel loaders from the 1950s to today.

Components

Liebherr-Components Colmar enters next phase of its site expansion

Liebherr-Components Colmar SAS has broken ground on the €90 million expansion of its production site. The expansion includes 11,600 square metres for production and logistics, an increase in assembly capacity and the installation of two new high-power test benches, as well as the creation of a 7,800 square metre logistics centre. This strategic project supports the growth of Liebherr's activities in the field of combustion engines, particularly for power generation applications.

Aerospace and transportation systems

Liebherr-Aerospace installs new additive manufacturing machine at Campsas facility

Liebherr-Aerospace has invested in a state-of-the-art multi-laser machine for additive layer manufacturing at its site in Campsas (France). This new machine uses the laser powder bed fusion (L-PBF) process to apply fine metal powder in layers and melt it with a precise laser. The laser follows the contours of a 3D model, enabling the production of complex components with dimensional accuracy and without additional tools. Additive manufacturing has been used within the product segment for several years. The process makes it possible to add new functions to existing products and improve design and integration on board of an aircraft – all while reducing production lead times where possible. The addition of this new machine will increase productivity and simplify operator intervention.

Material handling technology

New Generation 8 material handlers

In May 2026, at the IFAT exhibition in Munich (Germany), Liebherr premiered its new Generation 8 material handling machines: the LH 18 M Industry and LH 22 M Industry E. The new Generation 8 machines offer high handling capacity thanks to their optimised technology, additional safety features and maintenance-friendly design. The upgrade also expands the portfolio of electric material handling machines across a range of tonnage classes.

Earthmoving

Construction of future driver's cab production facility begins

Construction of Liebherr-EMtec Nambsheim, a new €100 million manufacturing facility in France's Alsace region that will specialise in driver's cabs for Liebherr's earthmoving machines, officially began in June 2026. Once completed, this site will accommodate more than 200 employees and, in the years to come, boast a production capacity of up to 10,000 units per year.

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LIEBHERR

Liebherr Mining liebherrmining Liebherr Mining

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