UpLoad

The magazine for customers and friends of mobile and crawler cranes

1 | 2025

LIEBHERR

Front page
The crane and heavy haulage company Sarilar Group is using an LR 1800-1.0 at a wind farm in the Turkish province of Isparta. The 800-tonne crawler crane installs a 130-tonne rotor star with a diameter of 165 metres at a hub height of 100 metres.

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We use male pronouns simply to make our articles easier to read.
However, the content of the articles applies to all genders.

Dr Ulrich Hamme (left) and his successor Bernd Boos

Dear Readers,

“Hands on the future”
We will be welcoming many of you to Munich soon with this Bauma slogan. Bauma 2025 is just around the corner, and from 7 April we look forward to an exciting exchange and numerous discussions with you at the world’s largest construction machinery trade fair. And you can rest assured – we’re taking this motto seriously. Alternative drives, digital products, new appliances and future technologies – all this and much more can be discovered in almost 15,000 square metres of our Liebherr World.

Numerous crane operations around the world are also exciting: whether lifting a spaceship in the United States of America with Liebherr equipment (page 62), producing and tasting even better whisky in Scotland in future thanks to our cranes (p. 44) or placing a new pier in the water with the help of a telescopic crawler crane (page 38) – there are numerous applications that clearly demonstrate our expertise: cranes are needed everywhere. Reliable cranes, stable cranes, efficient cranes. A new crane is also being added directly: we are expanding our mobile construction crane product family with the MK 120-5.1, as you can find out from page 60 onwards. I am also pleased that our new LICCON3 equipment is spreading at a rapid pace. Whether an LTM 1110-5.2 in France (page 30) or the first LTM 1100-5.3 in the Netherlands and Belgium (page 26) – these are just a few examples of the well over 150 LICCON3 machines that have already been delivered.

The rising demand for energy is currently on everyone’s lips. Electric vehicles, electric heating and cooling, a growing world population, data centres, AI – all of these require energy. In order to cover this energy requirement, in the best case via renewable energy, our cranes are working on a variety of projects. An example overview of these applications for energy security can be found from page 52 onwards.

Hands on the future – this also applies to transport, where we are working with our partners to find sustainable solutions for our large appliances – read more on page 100! And on the subject of the future: I am also delighted to be able to introduce my successor to you today. From the 1st of May 2025, Bernd Boos, our long-standing Head of Construction and Development for Superstructures, will take up the position of Managing Director of Construction and Development in Ehingen. After more than 30 years as Managing Director of this division, I am looking forward to a somewhat different daily routine in the future and wish Bernd Boos every success and all the best in his future endeavours. I would also like to take this opportunity to thank you for the pleasant and cooperative partnership over the many years and look forward to the one-to-one conversations in Munich in April.

Enjoy reading our first UpLoad issue in 2025!

Dr. Ulrich Hamme
Managing Director, Construction and Development,
Liebherr-Werk Ehingen GmbH

The subjects of our articles.

Mobile and crawler cranes

Also online:
UpLoad is also available at liebherr.com to read, look at and download.

www.liebherr.com/upload

In focus

The world with Liebherr

Moments

Relief of traffic congestion
The Australian crane company Premier Cranes & Rigging is using an LTM 1450-8.1 for the West Gate Tunnel Project (WGTP) in Melbourne. A four-kilometre toll road is being built there, connecting the West Gate Freeway in Yarraville with the Port of Melbourne and the CityLink in the Docklands via two tunnels, a bridge and an elevated road section. The residential areas in the inner west of the city are to be relieved of lorry traffic in future this way.


PREMIER CRANES
PREMIER CRANES
PREMIER CRANES
PREMIER CRANES

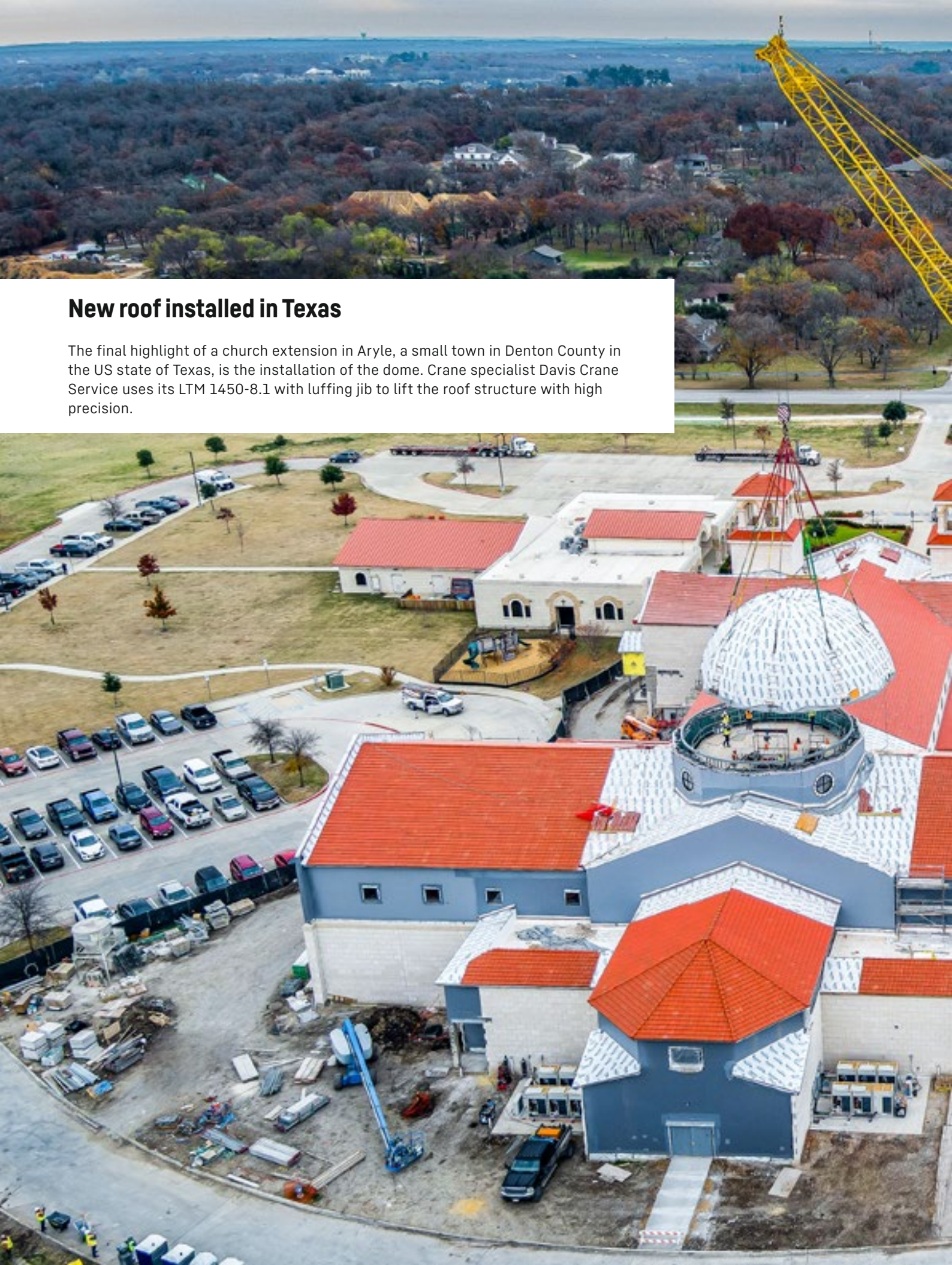

LIEBHERR
ROUP.CA
building for
127

Jingle Bells

At the 2024 Santa Claus Parade in Kamloops, Canada, Cutting Edge Consulting Inc. (CEC) transformed its LTM 1120-4.1 into a magical Christmas locomotive. Under the motto “Christmas movie magic”, the CEC Express travelled through the streets with steam, a horn and a specially built carriage. Fresh snow and the demonstration of the “crab walk” made the event a special highlight.

High-speed for Hokkaido

Sapporo is the capital of the mountainous, northern Japanese island of Hokkaido. The downhill skiing slopes and ski jumps of the 1972 Winter Olympics are located in the urban area. An LR 11350 from the crane and heavy haulage company Denzai is currently assembling components weighing up to 140 tonnes for the new Shinkansen high-speed railway line.

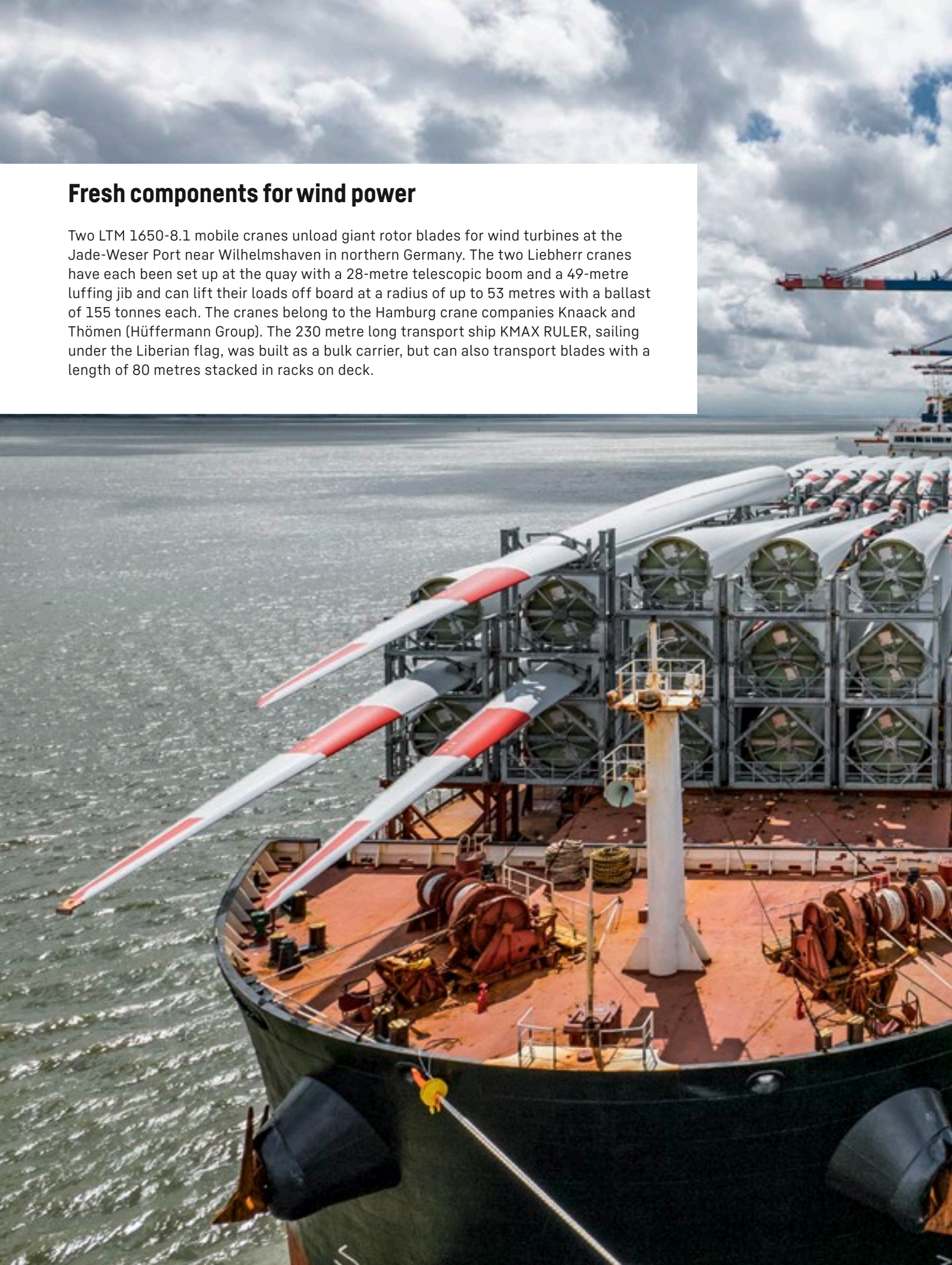


New roof installed in Texas

The final highlight of a church extension in Aryle, a small town in Denton County in the US state of Texas, is the installation of the dome. Crane specialist Davis Crane Service uses its LTM 1450-8.1 with luffing jib to lift the roof structure with high precision.

Fresh components for wind power

Two LTM 1650-8.1 mobile cranes unload giant rotor blades for wind turbines at the Jade-Weser Port near Wilhelmshaven in northern Germany. The two Liebherr cranes have each been set up at the quay with a 28-metre telescopic boom and a 49-metre luffing jib and can lift their loads off board at a radius of up to 53 metres with a ballast of 155 tonnes each. The cranes belong to the Hamburg crane companies Knaack and Thömen (Hüffermann Group). The 230 metre long transport ship KMAX RULER, sailing under the Liberian flag, was built as a bulk carrier, but can also transport blades with a length of 80 metres stacked in racks on deck.




KNAACK

Impressive connection

Svinesund is a strait between Norway and Sweden. Two bridges connect the two Scandinavian countries there: The old, two-lane Svinesund bridge was put into operation in 1946 and can still be used by vehicles up to 3.5 tonnes. The new bridge was inaugurated in 2005. It has an impressive length of 704 metres and the road surface is 60 metres above sea level. The span width of the concrete central arch is 247 metres. The four-lane E6 motorway from Gothenburg to Oslo runs over the bridge. A Liebherr LR 1750 crawler crane was pushed to its limits during the assembly of several bridge segments.

New look for the Estadio Santiago Bernabéu

The Bernabéu stadium is one of the most famous football stadiums in the world and a landmark in the heart of Madrid. Santiago Bernabéu himself, who was first a player, then manager and finally president of Real Madrid, accomplished his lifelong dream with the stadium. He collected donations and was able to start construction work in 1944, during the Second World War. The stadium was then opened in 1947. From 2019 to 2024, it was completely redesigned to an ultra-modern arena. Over twenty mobile and crawler cranes from Liebherr were used in a team effort.

Today “Aida”, tomorrow “Carmen”

The Arena of Verona is the best-preserved Roman amphitheatre in the world. It was built in the first century AD to host gladiator games and contests. With a height of around 24 metres, the opera circular is the largest surviving ancient amphitheatre after the Colosseum in Rome and the Oval of Capua. With its excellent acoustics, the arena has established itself as a concert venue – from opera to rock. Since 1913, the famous Verdi opera “Aida” alone has been performed on more than 670 evenings. In 2019, an MK 140 ensured that the season could take place without any problems.

Made with Liebherr

Bold bridge connection between Sweden and Norway
The new Svinesund bridge connects the two countries and is also used as a border crossing on the E6 motorway between Gothenburg and Oslo. A Liebherr LR 1750 crawler crane was used to assemble parts of the mighty bridge segments. For over two months, the crane provided its strength on the construction site at Idefjord.

Months earlier, platforms had been blasted out of the rocks on which the heavy-duty crane was to be positioned high above the fjord for its operation. On the Norwegian side of the new bridge structure, the crane stood on the steeply sloping cliff edge 45 metres above sea level. At this point, the machine also had to cope with the most demanding lifting operations in terms of load and radius. The set up configuration of the LR 1750 with its 49-metre main boom and 70-metre luffing jib offered an impressive sight.

But the pulled loads were also impressive. The steel bridge segments had a length of 26.5 metres, were six metres in width and four metres in height. The crawler crane had to lift a gross load of up to 80 tonnes and position it over the fjord with a radius of up to 90 metres.

Team Liebherr plays for Real Madrid
After several renovations and extensions, the Santiago Bernabéu stadium, which is almost 80 years old, was completely redesigned in 2019: It now has an ultra-modern design with a hydraulically adjustable roof construction, retractable hybrid turf and new shopping, business and leisure functions. Today, LEDs can be used to illuminate the front in a wide range of scenarios in the evening hours. The stadium now has space for more than 78,000 spectators.

There were more than twenty Liebherr mobile and crawler cranes with lifting capacities from 40 to 1,200 tonnes on site. The crawler crane triple chain with an LR 1800-1.0 from Eurogruas 2000 and an LR 1600/2 and an LR 1600/2-W from Grúas Aguilar provided a particularly strong performance. These cranes were on site permanently from June to October 2020, performing a wide range of lifting operations.

The heavy loads, large radii and tight spaces next to the arterial road Paseo de la Castellana posed major challenges for the cranes and teams – which were overcome thanks to a cohesive team effort and a great deal of team spirit.

Secret star of the Arena of Verona
In the 2019 season, a fully electrically powered MK 140 mobile construction crane enabled the stage sets in the world-famous amphitheatre in the northern Italian city to be changed quietly and rapidly. This unusual assignment was awarded to the southern German crane and heavy haulage company Schmidbauer.

The 60-tonne machine played an extraordinary role behind the scenes. The crane from Munich was largely responsible for making the concert and opera season a success. With the Liebherr MK 140, the elements of the stage sets were swiftly changed – on one evening the column portals for “La Traviata”, on the next mighty towers for “Il Trovatore”, the Troubadour.

During the season, up to 22,000 spectators a day were able to view the professional work of the team and the crane for themselves.

Mobile and crawler cranes

Stay cool
Modern urban development in the midst of breathtaking nature: Vancouver, with its busy seaport on the west coast of British Columbia, is considered one of the most beautiful cities in Canada. Eagle Crane, a family business that has been providing crane services in the Vancouver area for more than 30 years, used an LTM 1160-5.2 for the installation of air conditioning systems.

Streamlined, strong, aiming high


EC-B
LIEBHERR
EIFFAGE

Our new LTM 1100-5.3 gets to work!

Our second LICCON3 crane, the LTM 1100-5.3, has been proving its worth in practice for several months now. We are delighted with the positive response from our partners and customers, which once again confirms that we are on the right track by offering modern mobile cranes with customised handling, attractive design and, above all, high functionality. As a highlight, this 5-axle mobile crane, the only one in the world with a width of just 2.55 metres, has a 62-metre boom on board in addition to the proven top features such as VarioBase® and VarioBallast®. It can also travel with an axle load of just nine tonnes or carry up to 16.9 tonnes of ballast. In Belgium and the Netherlands, we visited two of our new 100-tonne cranes on typical assignments.

The first stop is Harelbeke, a small town in the west of Belgium, close to the French border. Early in the morning, the LTM 1100-5.3 from the crane company Desutter arrives at the still fallow construction site. Its mission: the assembly of a 30-metre-high Liebherr tower crane. A classic urban construction site with little space for the crane and hardly any room for the incoming transport vehicles. But Steve Van Belle, driver of the red mobile crane, has his vehicle in position in no time at all and extends the support beams and cylinders by remote control. The ballast blocks are placed and bolted from the driver's cab. Finally, he has to telescope out the boom 40 metres and is ready for the lift a good half hour after his arrival with his machine.

"Only 2.55 metres wide is often quite practical."
Steve Van Belle in his new Liebherr crane. The position of the new touchscreen is clearly visible.

Change of location now to Almere in the Netherlands, a good 200 kilometres away. Greater Amsterdam area. Rogiër Leurink has already travelled a long way this morning in his LTM 1100-5.3. It is around 130 kilometres by motorway from Elsendorp, the main location of Haegens Kraanverhuur. "Our crane and heavy haulage company has taken delivery of the first of the new 100-tonne cranes in the Netherlands," says Rogiër. "In this small development of around 20 new tiny houses, we are to erect the last of the two-part buildings today." The lifting height is not an issue for the crane and driver. As the last house is being erected in the furthest corner of the housing estate, outreach is required.

Although Rogiër first has to drive his vehicle a long way backwards on a lane of metal plates to the assembly site, after around 40 minutes he has also set up his crane and is ready for the first lift. The mobile crane has also brought the ballast of over 15 tonnes that it needs for this job with it on the road – there is no need for separate transport. Setting up the tiny house is child's play. With a radius of 15 metres, the crane places the ground floor, which weighs over twelve tonnes, and then places the roof module on top. Building a house in three hours. The owner is already ready with her furniture.

Heaviest load case
The LTM 1100-5.3 may be an all-rounder, but with its 62-metre telescopic boom it is also predestined for erecting construction cranes. A gross load of over eight tonnes hangs from the hook with the slewing ring at a height of 30 metres.

Luxury cabin

How does he like his crane? Rogiër is full of praise. Although: he would like to reduce the amount of information shown on the smart display in the cab. “Otherwise, the operation of the LTM 1100-5.3 is clear and very simple. One major difference to the previous Liebherr mobile cranes is the lower driver’s cab. It’s a real luxury cabin,” he enthuses. “I simply really enjoy driving on the road. Super insulated, very quiet and the new gearbox shifts perfectly. A fantastic machine.”

Back to Belgium. In Harelbeke, Steve Van Belle still has to install the upper sections of the tower crane. The 30 metre high tower is already in place and the slewing ring is currently being installed. The crane precisely delivers the eight-tonne component to the fitters at the top. Finally, the lattice sections of the boom and a few ballast blocks – then Steve can also dismantle his LTM and drive back to the company headquarters in Harelbeke. Desutter has stationed over 30 Liebherr mobile cranes there and in the harbour of Ghent.

Only 2.55 metres wide

For Steve, one of the main advantages of his new crane is the large amount of ballast it can carry. “I have 15.4 tonnes with me. Thanks to the possibilities of VarioBallast®, this is almost always enough. I’ve been operating the crane for three months now and have only had to work with a full ballast twice.” He sees the compact design as another plus point: “With a width of just 2.55 metres, I can also manage well on narrow factory sites, roundabouts or narrow country lanes.” But there is one more thing Steve wants to get rid of before he leaves the construction site with his mobile crane: “There is one problem: The crane travels so smoothly and comfortably that you quickly exceed the permitted speed.”

“A fantastic machine.”
Rogiër Leurink drives the new LTM 1100-5.3 for Haegens Kraanverhuur. The company operates over 40 mobile, loader and crawler cranes in Elsendorp and Roermond.


LORIENT LA BASE

Cast off!

High speed and superb sensitivity

Bright sunshine beams over the coast of Brittany. Crisp north-westerly winds blow at 15 knots across the Atlantic off Lorient. 455 nautical miles, i.e. almost 850 kilometres, have to be covered in the 48-hour race – a stone's throw for the skippers, who will not only be competing against each other in the Défi Azimut in September, but also preparing for the "Vendée Globe" circumnavigation in November.

The protagonists of offshore sailing have been meeting in the French coastal town of Lorient for 14 years. Three disciplines have to be mastered – the "Courreaux de Groix", in which the skippers have to get the maximum speed out of their sailing boats over one nautical mile, a 48-hour race in which a solo loop of the Atlantic is sailed and the "Chrono Tour de Groix", in which the crews have to prove their strategy and performance.

The demanding offshore regatta, which takes place every year in September, requires professional preparation. Two Liebherr mobile cranes play a key role here: they don't just launch the eight-tonne, 18-metre-long boats in the port of Lorient La Base. They also mount the 29-metre high carbon masts on the racing sailboats with the utmost precision. French crane contractor Levouest is using two LTM 1110-5.2 mobile cranes for this project. These powerful cranes also mastered the challenging task at the 2024 regatta with flying colours and ensured that all technical requirements were met precisely on schedule.

High-tech and high-speed: the LTM 1110-5.2 is waiting to be deployed in the port of Lorient La Base.

Lorient, which has established itself as the centre of ocean sailing over the years, is not only the venue for many major sailing competitions, but also an important location for the maritime industry. Levouest's expertise and the reliability of Liebherr mobile cranes make them indispensable partners here. For the skippers, the event is always an ideal opportunity to test their boats and strategies under racing conditions just a few weeks before the Vendée Globe. The Défi Azimut not only serves as a sporting endurance test, but also as a meeting place for the entire offshore community – an exciting showcase of high-tech boats and sporting ambition.

The LTM 1110-5.2 mounts the 29-metre long carbon masts on a total of 34 racing sailboats.

The preparations for the Défi Azimut require a great deal of sensitivity.

The Construction Site Booster


TRANSGRUA

“Time saved 600 times” – LTR 1100 accelerates major project near Lisbon

Last year, a huge cold storage facility was built south of the Portuguese capital Lisbon. A new telescopic crawler crane owned by our customer Transgrua carried out the precast concrete construction of the 33,000-square-metre building. The LTR 1100, with its ability to move under load and reposition itself quickly, increased the speed of the construction site processes.

For Bruno Valente, senior foreman at construction company Garcia Garcia, which specialises in the construction of large logistics, industrial and residential buildings, the case is clear: “I assume that the crane will have to change its working position up to 600 times during the assembly of this large building and move between concrete pillars, walls and stored components. This LTR 1100 can do this on its crawler track in no time at all. A conventional mobile crane needs around 20 minutes to do this. Telescope the boom in and retract the supports, then move and support again. It all just takes time,” says the experienced site manager. “And if you add up all these 20 minutes, you end up with quite a lot of time by the end of the construction project. That shortens our construction time here considerably!”

The pace on the construction site near Montijo, south of the River Tagus, and the rapid construction progress are indeed impressive. When a heavy transporter laden with components arrives, the assembly team and João Neves, the crane operator of the LTR 1100, are already waiting. The crane is then usually already in position, wall elements are attached, pulled over the height of the building and then eased from above into the guides of the upright pillars. If a concrete component cannot be installed immediately, it is simply moved on the hook of the LTR 1100 to where it is needed later. “The prefabricated parts that I install all weigh between 14 and 18 tonnes,” says João. “The crane is perfect for work like this,” he enthuses. “If the radius is a little too large, I can simply drive a few metres closer to the load or the assembly site. Hanging loads can be moved really quickly.”

Senior foreman Bruno Valente from Garcia Garcia and crane operator João Neves (above) are in agreement: “An ideal piece of equipment!”

“A win”

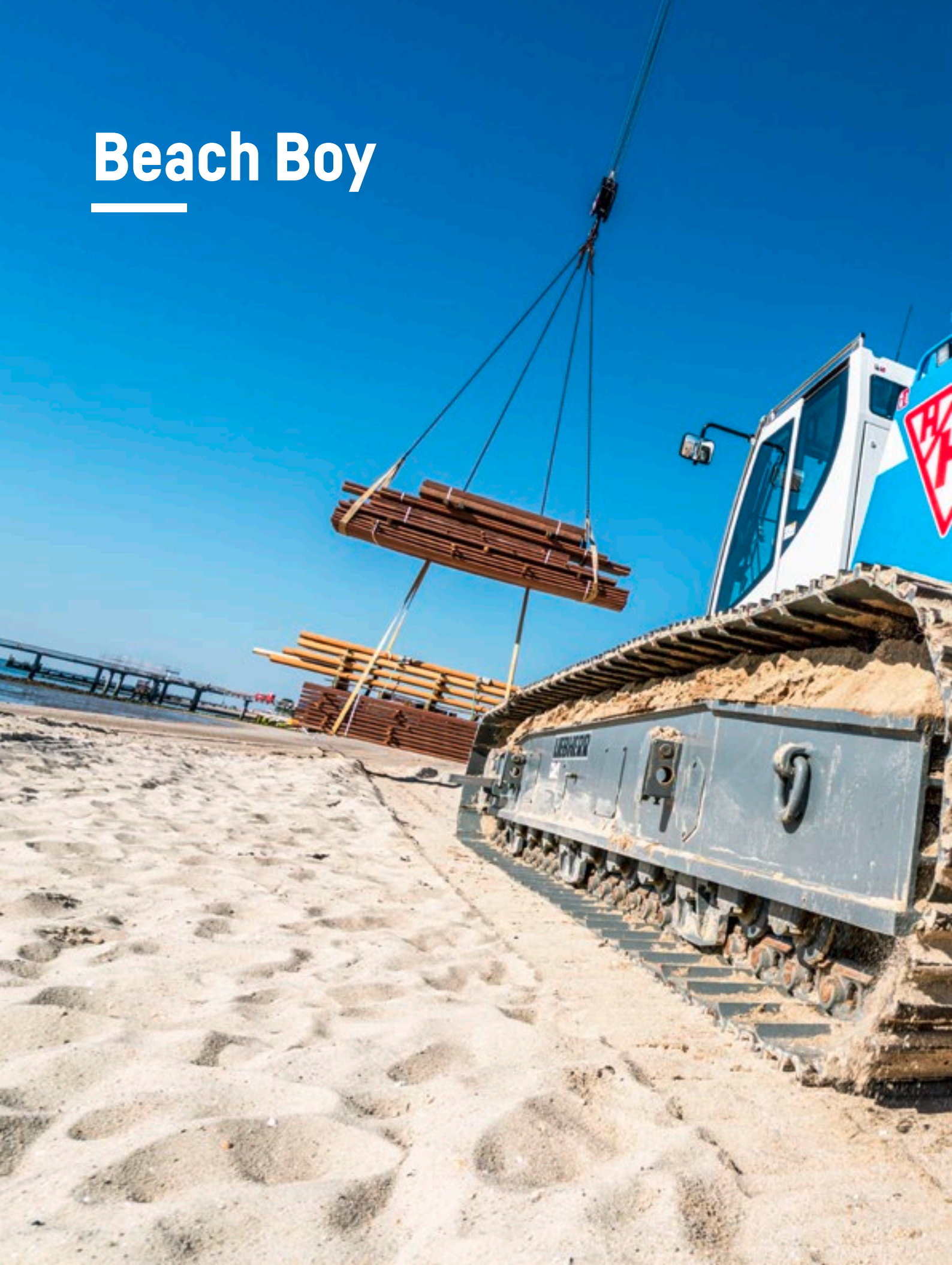
“We are around 20 to 30 per cent faster here with the crawler crane than with a conventional mobile crane,” estimates Bruno Valente with satisfaction. Travelling with a suspended load and the entire operating principle of the crane makes our work on this construction site much easier. It’s the first time I’ve worked with this type of crane. A real win.”

The LTR 1100 was also completely new territory for João, our driver, until this assignment. Five days of familiarisation – then he was sitting on his new white and blue crane, complete with stylish company logo made from an orange-coloured hookblock. “This is Transgrua’s first telescopic boom crawler crane and it is absolutely the right machine for this construction site. Even in mud after days of rain, the crane is easy to drive,” he explains. “A conventional mobile crane could easily get stuck in the mud here. Crawler carriers are just the ideal and reliable means of transport for this terrain. Together with its stability, it also makes working safe. Really safe.”

The machine’s favourable features have also convinced Transgrua, as we have already delivered another telescopic boom crawler crane to the Portuguese firm. This LTR 1060 complements the impressive fleet of 120 cranes and loading cranes managed by Transgrua, who also operates in Angola. And later this year, one of our brand new LTR 1150s will become the third telescopic crawler crane to be painted with the Transgrua logo.


TRANSGRUA
TRANSGRUA

Beach Boy




HC HAGEN
5t
5t
5t
IERR

42 long piles support the new “middle bridge”, which juts out around 150 metres into the North Sea at high tide. A good dozen protective fenders secure the pier on the water side.

Complex beach logistics for new pier on Föhr

The tranquil island town of Wyk on the German North Sea island of Föhr has been given a new pier. After 20 months of construction, the opening of the impressive “Middle Bridge” into the sea was celebrated last summer. The Hamburg-based construction company HC Hagemann realised the project on the beach and in the water with expertise, energy and enormous logistics. And with a Liebherr telescopic crawler crane, which was also responsible for transporting the huge quantities of material on site. A short visit to the beach.

Buckets, plastic shovels and toy diggers are usually the only tools that belong on a bathing beach. In Wyk on the island of Föhr, however, the little sandcastle builders have had a lot of competition over the last two summers. Because real construction machinery had to be mobilised to build a new pier. In autumn 2022, the old and increasingly dilapidated “Middle Bridge”, built in the 1960s, was closed to tourists and finally demolished. The traditional wooden bridge is now replaced by a stronger structure made of steel and wood. It is larger and protrudes further into the North Sea than its predecessor.

No way through for transport

Projects on islands often require a high level of transport logistics. On page 44 of this issue, we report on a job on a Scottish island that the crane could only reach by landing craft. The crane journey to Föhr was somewhat easier: the team from HC Hagemann – the Hamburg-based company specialising in port and hydraulic engineering, among other things – was able to bring its Liebherr crawler crane to the island on a low-loader using the regular ferry service. On the other hand, transporting the building materials on the last stretch to the construction site was tricky. The middle bridge is located in such a way that holidaymakers can easily walk from the centre of the resort to the pier via the car-free promenade. However, there is no way through for lorries or even large heavy goods vehicles. So the only option was across the mudflats along the beach.

The beach supplier
The transport along the beach took place at low tide and preferably in the early hours of the morning, when most holidaymakers were still having breakfast and not sitting in their colourful beach chairs.

"The complex transport logistics and scheduling were actually the biggest challenges for us here," says Torsten Gütschow about his first construction of a large pier. The graduate engineer was responsible for the construction management of the project on Föhr. "All the material came to the island on transporters by ferry from the mainland and was then trans-shipped in Wyk harbour. In the first few months, the material was loaded onto our workboat, which was responsible for placing the foundation pipes and then assembling the steel superstructure from the water with a Liebherr duty cycle crawler crane on board. Later, we used the crawler crane to transport all of our materials the 400 metres along the beach to the construction site."

Construction road leads into the sea
"I must have travelled up and down the route 100 times on my LTR 1060," estimates Heiko Woidtke. He is the driver of the busy crane. However, he was not only responsible for the beach transport, but also for the land-side assembly work on the pier. "We laid a 60 metre long construction road made of steel mats in the mudflats," explains Torsten Gütschow. "So we were able to use the crawler crane and its 40-metre telescopic boom for installation over the water at low tide." And a whole lot was assembled: the steel weight of the entire structure alone, with a walkable area of 1,500 square metres, was 750 tonnes.

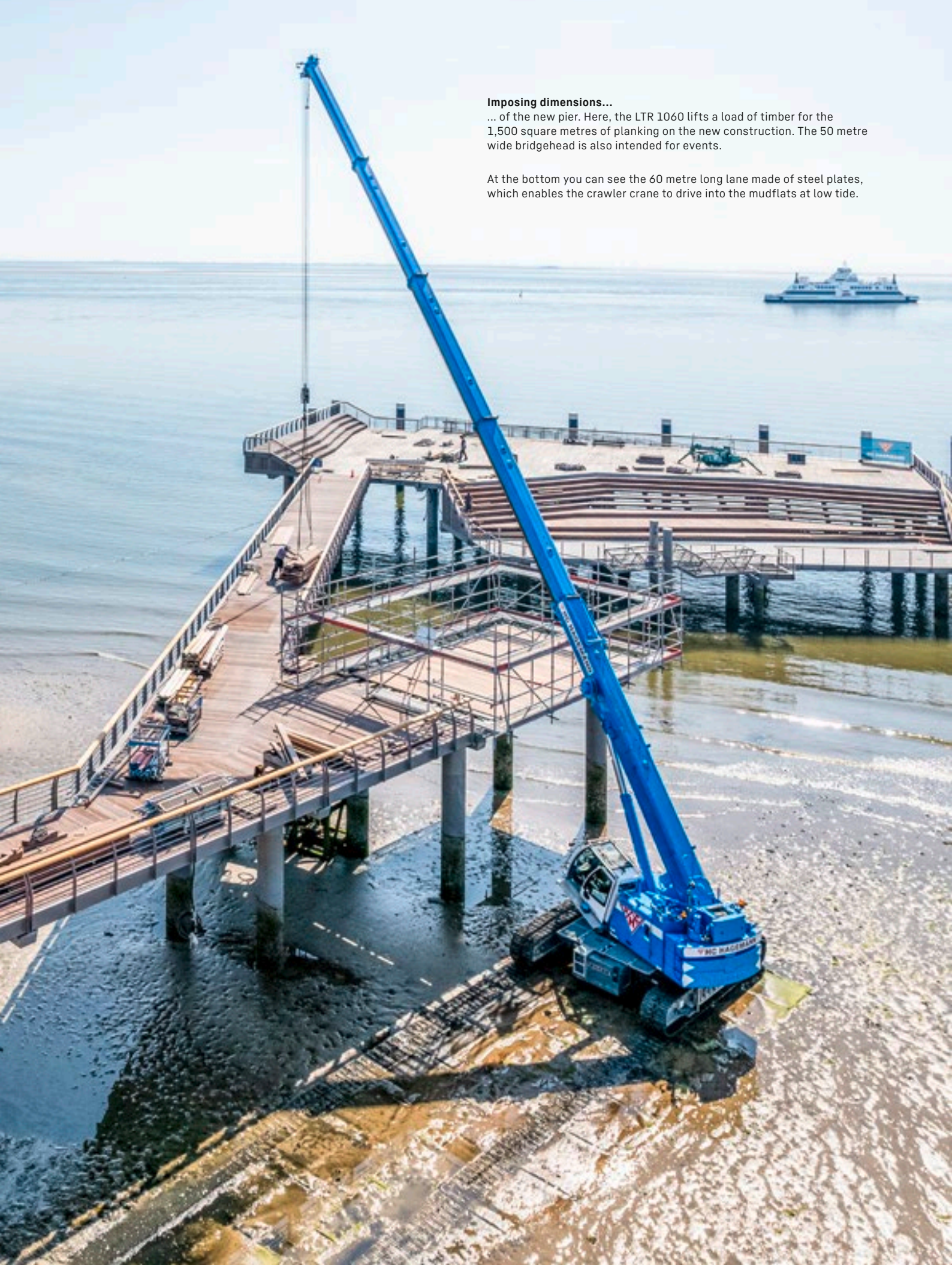
Job sharing
The Liebherr duty cycle crawler crane which, at the start of the construction work from the working vessel, drove the foundation piles for the structure into the seabed. On land, the crawler crane has taken over this task.

Finale
One of the last components of the new pier is installed here. A few weeks later, the inauguration was duly celebrated with a party. The men from HC Hagemann were there as well.

The steel pipes were up to 19 metres long, which the hydraulic cable excavator from the ship and the crawler crane on land jolted deep into the sand. “With the pipe and shaker, I had around twelve tonnes of load on the hook,” says Woidtke between two lifts, during which he transports timber for the planking onto the almost completed pier. “The assembly work, the transport journeys on the beach and the installation of the piles – the crane does it all with ease.”

Construction helmet instead of swimming trunks
In the summer heat with helmet and construction boots against the backdrop of Wyk: site manager Torsten Gütschow, crane operator Heiko Woidtke and steelworker Czaba Tamasz (from left).

Seasonal, storm and winter breaks
There were several reasons why the construction time for this exciting project took around 20 months. Due to the bathing season on the popular holiday island, work was interrupted in the summer of 2023 after all the foundation pipes had been rammed in the spring. Then there was the wind and weather. “We had a few stormy days here when we couldn’t work. From a wind force of seven Beaufort, which corresponds to a wind speed of around 14 metres per second, we also had to stop work with the cable dredger from the ship.” In addition, there was a three-month winter break with heavy storms and snow on the island. From December to February, the construction site was deserted and the LTR 1060 spent the winter protected in a higher and therefore flood-proof neighbourhood.



Imposing dimensions...
... of the new pier. Here, the LTR 1060 lifts a load of timber for the 1,500 square metres of planking on the new construction. The 50 metre wide bridgehead is also intended for events.

At the bottom you can see the 60 metre long lane made of steel plates, which enables the crawler crane to drive into the mudflats at low tide.

Whisky Waves


FERGUSON
STODDART CRANE HIRE
CARLY

A crane trip to the epicentre of Scotch whisky

Do you fancy some sea air, stunningly beautiful nature and a bit of holiday feeling, dear readers? Plus a scent of and even a trace to George Orwell and perhaps a sip of a strong alcoholic beverage? Then join us on a picturesque journey to the north of Great Britain. Let's go to Scotland! Or to be more precise: on a crane trip through the native country of single malt. We start our small trip not far from the legendary Loch Ness and its monster. Our business partner and customer, Stoddart Crane Hire, have their base slightly to the north, in Muir of Ord, a village in the Highlands. From here, the busy family owned company operates its mobile cranes throughout Scotland and – quite literally – far beyond, as one of their specialties is crane work on the numerous islands off the Scottish coast. Accompany the Stoddart crew on their expedition to the island of Jura off the west coast.

Fully committed
The men from Stoddart are building the provisional ramp on Jura in order that their Liebherr crane can roll ashore from the deck of the landing craft. “Our cranes are constantly in use on the Scottish islands,” says Ewan Stoddart (second from right). A launch pad for space rockets is currently being built on the Shetlands. The blue and yellow cranes from Stoddart are also involved.

Without ballast or hookblock
The island looks somewhat enchanted in low clouds as the LTM 1230-5.1 drives from the landing place on the island’s only road to its destination. If you follow the path in the opposite direction, you will reach a small house almost at the northern end of Jura, where George Orwell wrote his novel ‘1984’.

In Scotland, with roughly 150 whisky distilleries, there are naturally several hotspots for the coveted national alcoholic beverage. However, the island of Islay (pronounced ‘Eye-la’) is the heartland with 13 Scotch producers, some of them very well-known. For whisky fans, mentioning Islay and the neighbouring island of Jura with its distillery of the same name in the same breath is almost a sacrilege due to the different characteristics of the alcoholic beverages. Why? Because in the only distillery on Jura, in a small place called Craighouse, single malt is bottled with significantly less smoke and peat aromas and is therefore somewhat milder. Instead, connoisseurs will discover a slight flavour of fruit and dark chocolate in addition to malt and sea. Like on Islay, where capacities have been expanded for several years, disused distilleries have been reactivated and even new ones have been founded, Jura is also trying to benefit from the global whisky boom and is expanding. In any case, Stoddart Crane Hire received a request from there to install a new boiler to modernise the distillery. It soon became clear: The largest mobile crane in Stoddart’s fleet was needed to place the 40-tonne component on its base: the LTM 1230-5.1. The question remained how to get the crane to the small island and the construction site.

A case for junior manager Ewan Stoddart: “On Islay, we have worked for all producers of these whiskies, some of which are world-famous. Thanks to the large ferries, our cranes can easily get there from the mainland. On Jura, by contrast, there is only a landing place for a small car ferry. From there, the only narrow road, some of it built on peat, leads to the distillery. We cannot drive on this road with the mobile crane. So we had to find another solution to get to the construction site with our large 230-tonne vehicle,” Ewan tells us.

At the destination
The end of a long journey: the LTM 1230-5.1 arrives at the distillery in Craighouse.

Divers in action
This is where the expertise that makes Stoddart Crane Hire so special is involved. The family business, which Ewan runs together with sister Kerri and father David, also specialises in crane operations on the Scottish islands. For this purpose, Stoddart have established an astonishing logistics system to bring cranes and transport operations to the site. Together with long-standing business partner, Ferguson Transport & Shipping, the job on Jura has been planned, inspected and tested for almost two years. Even divers are in action to find a spot on the coast that allows the construction of a provisional pier and the landing of a transport ship and is at the same time not too far away from the distillery location.

Last spring, the time finally came for Ewan and his men to get started. And of course also for our Liebherr crane. From the company headquarters, the mighty five-axle vehicle winds its way for two hours over the rolling hills of the Highlands to the west coast of Scotland – past endless yellow fields of blooming gorse bushes. It passes eight lakes – lochs of different sizes and names. Its destination – Loch Kishorn with access to the open sea. There, 'Carly',

Across the Highlands to the west coast and south by ship – Stoddart Crane Hire specialises in island operations.

the landing craft painted bright red, is already waiting to take the LTM 1230-5.1 to the Isle of Jura. Together with the ship's crew, Ewan and his men have to wait on the shore for a few hours. The tide is still too high. Then, when the water level is ideal within the tides, the men carefully guide the crane over the concrete ramp leading into the water onto the transport ship. To minimise the weight of the load for the sea voyage, the ballast blocks and the hookblock are brought to the construction site separately. On board, the mobile crane is secured with heavy chains, then the 'Carly' casts off and heads for its destination: the Isle of Jura.

On the island

Two days later, the landing craft has completed the 130 nautical miles or 250 kilometres to the south. In the meantime, on Jura, work is being carried out at full speed on the provisional landing place and parts of the route are already covered with metal plates. The significant effort involved is worth it: The ship and its heavy cargo can land without any problems and crane operator Nikki easily steers his vehicle off the ship over the ramp made of concrete blocks, gravel and heavy Bongossi timbers. After a brief check, the two-mile journey to the whisky distillery begins. We make our way quickly to Craighouse past a small group of grey seals dozing unimpressed on large rocks near the shore. In the only larger village on

Mission accomplished
The LTM 1230-5.1 starts its return trip to the Scottish mainland. The makeshift landing place was built especially for the transport ship.

the island with a hotel, camping site and small shops, the mobile crane pushes its way up to the dominant white brick buildings of the distillery, past the curious tourists who are already on the island in large numbers in May.

By the way, if you take the narrow road in the opposite direction until it ends at a barrier, you will come very close to the birthplace of a masterpiece of world literature. Those who don't mind the subsequent hike will eventually reach Barnhill, a compact, whitewashed cottage. After the Second World War, the writer George Orwell found his home here in the final years of his life and – as he wrote – he also found refuge and peace in the harsh beauty of the island. It was in this isolation that he wrote his novel '1984', his last and, alongside 'Animal Farm', best-known work.

24,482 casks of whisky

Whether the passionate smoker Orwell bought himself single malt on the island is not known. Graham Geddes cannot confirm this either. Graham comes from a small family dynasty of Scottish whisky distillers and started in the industry as a masher more than 20 years ago. He finally became a distiller, he explains. He is now standing in front of us as Managing Director of the Isle of Jura distillery. And in front of thousands of whisky casks. "There are exactly 24,482 casks here in our three warehouses," says the new distillery manager. He naturally knows much, much more and is happy to tell us. About the distillery's 200-year history with its many changes of owner and its closure around 1900, which lasted six decades. About the demolition of the old buildings and the reconstruction in the 1960s. Or about the fact that each of his distilled products is first stored for a few years in

Majestic inhabitants
The Isle of Jura has a very sparse population of about 200 inhabitants. However, that only applies to Homo sapiens. Cervus elaphus – the red deer – is the real ruler of the island. There is a good chance of spotting some of the estimated 5,000 or more specimens on a hike.

Idyllic coast with high proof
Jura's neighbouring island of Islay is home to some of the best-known producers of single malt whisky: Laphroaig, Lagavulin or, like here, the pretty and beautifully located distillery of Ardbeg with its striking, pagoda-shaped chimney towers of the kilns. The germinated barley is dried over a peat fire in these small houses. That gives the malt and thus the later whisky its smoky flavour. The cranes from Stoddart Crane Hire have been used in all the distilleries on the island.

former Bourbon casks before being transferred to casks for refinement that were previously used for storing rye mash, wine or rum. Depending on the desired finish.

And he describes the logistical challenges posed by the remote location on the island – including for the planned extension of the distillery. "Here at the production site, we are reaching the limits of our capacity with warehouses that are full to the brim," continues Graham. "We currently have to transport all new distilled products to the Scottish mainland for maturing. That is also because one of the four huge warehouses had to be demolished to make room for a new, modern plant. This forward-looking project is aiming at further reducing the CO_2 footprint of our distillery. This is why we are installing a large biomass boiler for the first time."

Compared to the preparations and hardships of the adventurous trip, the boiler is installed on site the next day by Ewan Stoddart and his men using the large mobile crane in a completely unspectacular manner within only a few hours. A small Liebherr compact crane is also involved. This LTC 1045-3.1 has been in use for all sorts of work on the construction site for many weeks now. It will remain on the island for quite some time to position smaller plant components, then provide assembly support in the steel construction and be used for the construction of a silo. However, after its use, the large crane will go straight back to the landing place of the landing craft, which will take it back to the mainland. There, new tasks are waiting for it and the men from Stoddart Crane Hire. Including on the many islands in the Scottish Sea.

Fake whisky in the glass
When work was almost done, we nudged the men from Stoddart into the well equipped bar of the 'Jura Hotel'. Simply too tempting was the final image of this charming trip into the world of our mobile cranes. (Incidentally, for the photo of this likeable squad, coke had to be diluted with tap water until the colour in the glass resembled that of Jura whisky). On the left-hand bar stool: Ewan Stoddart, one of the Managing Directors of the family business. Nikki Webster, Steven Sharpe and Steven Stoddart are simulating the drink next to him. Thanks guys & cheers. Or rather in Scottish: Slàinte.

Shaping the future of energy

Hydroelectric power
On the left, an MK 88 is shown building a foundation at the foot of the vast dam wall of the Grimsel lake reservoir in the Swiss Alps. All Liebherr mobile construction cranes can be operated at low noise level and without emissions at the construction site using electricity.

Achieving the energy transition. With cranes from Liebherr.

The transition to green energy is a key topic of the present and of the coming decades. Necessary technological innovations and massive infrastructural changes pose major challenges for society. Demands are placed on us too, because cranes play a decisive role in the important contribution that renewable energies will make to our future. They are indispensable for the construction and maintenance of plants that utilise renewable energy sources.

The installation of solar panels on buildings, the construction of geothermal plants, the installation of efficient power lines or the redevelopment of mighty hydroelectric dams in the mountains – mobile and crawler cranes play a key role in almost all renewable energy projects. Of course, this applies in particular to the significant wind energy sector. Liebherr cranes are of vital importance here, both

Repowering
Even on the hilltops of the Black Forest in south-west Germany, ageing wind turbines have to make way for modern, more efficient systems. Here, an LTM 1750-9.1 is dismantling the complete blade star of a wind turbine that is over 20 years old. In its place today, a modern wind turbine with an overall height of 229 metres supplies four times the amount of energy.

Geothermal power
In 2023, a borehole was drilled at a depth of 4,500 metres south of Munich to tap geothermal energy. Numerous mobile cranes and mobile construction cranes from Liebherr were used in the construction of the plant. The images show an LTM1250-5.1 and an LTM 1130-5.1 during completion of the drilling rig of the geothermal plant, which is over 50 metres in height.

for offshore and onshore installations. Hundreds of mobile and crawler cranes from our factory in Ehingen are in use worldwide for the construction of onshore wind turbines. The dimensions of these systems have multiplied over the past decades. This places high demands on our design engineers, as our cranes have to keep pace with the growing demands on construction sites in terms of lifting height and lifting capacity.

Next world record: 199 metre hub height
While wind turbines were still built on 30 to 40 metre high towers in the 1980s, tower heights reached the 100 metre mark at the turn of the millennium. Today, the industry has already exceeded 150 metres and currently has hub heights of 165 metres. Our LR 11000 crawler crane is the perfect choice for this. It provides all the necessary performance parameters at the construction site. The cover picture on the previous pages shows one of these 1000-tonne crawler cranes from the Austrian Felbermayr Group, which assembled two of these large wind turbines on the hills of the Black Forest in south-west Germany. Hub heights of up to 166 metres needed to be coped with here. However, this height is by no means the end of the story.

“The hub heights are continuing to increase, that is quite clear. We have enquiries from the wind power industry for 2026 and 2027 for which installation heights of 185 metres need be achieved,” reports Marc Bernschneider, authorised signatory and field service manager at Thömen in Hamburg. Bernschneider should know, as the wind energy sector is an important market for the crane and heavy haulage company operating under the umbrella of the Hüffermann Group.

“The LR 11000 will be able to handle a hub height of 180 metres for load cases of around 110 tonnes,” explains Nino Münch, product manager for crawler cranes at our company. “We at Liebherr are observing the market and its development with interest and great attention. We have been doing this for decades. Although we are of course constantly developing new, more powerful cranes, we are also continuously optimising existing

District heating
A superlative crane application was on show in Delft in the Netherlands last year. A total of twelve Liebherr mobile cranes were used to install a pipeline for the city's district heating system.

Electric drives
The Scandinavian countries are pioneers in the reduction of CO_2 emissions at construction sites. Electrically driven construction machinery is increasingly being used, as here in the Norwegian capital of Oslo. A Liebherr LTC 1050-3.1E compact crane is connected to the power supply.

crane types. These upgrades are essential to ensure that our customers can meet increasing requirements in the wind energy sector with their equipment sustainably and in the long term." After all, the industry is characterised by high dynamics – height records for wind turbines usually don't last long. Max Bögl, the major manufacturer of hybrid towers, is already working on the next world record in Sengenthal, Bavaria: A seven-megawatt plant with a hub height of 199 metres is to be implemented next year.

Customised equipment
Experience shows that a new crane type or a further development of an existing model is required approximately every five years to be able to adequately cover the market. We have always achieved this at Liebherr. The development of the LG 1750 and LG 1800-1.0 lattice boom cranes can even be traced back to suggestions from the wind power industry. The same applies to the successful narrow-track versions of our powerful crawler cranes. In addition, we have developed rooster sheaves, fixed jibs and their geometry as well as reinforced boom systems according to the desires and requirements of our customers. The aim is to always provide customised and powerful equipment for crane work in the wind power sector. Another focus is on the environmental footprint of the cranes we build. This is also reflected by the fact that for some years now, all of our new mobile and crawler cranes can be run on pure HVO fuel made from hydrogenated vegetable oils, which results in a significant reduction in CO_2 emissions. We are also continuously expanding our range of electrically driven construction machinery throughout the Group. Small crawler cranes, hydraulic excavators and a large number of other Liebherr machines are already available with emission-free drives. The range of cranes with electric drives is also being expanded at the Ehingen plant. In Scandinavia, 20 LTC 1050-3.1E compact cranes are already in operation successfully in current mode. All MK mobile construction cranes can also be operated emission-free and virtually without noise using construction-site power. The new MK 120-5.1 will be one of over ten Liebherr machines with hybrid or all-electric drive on exhibition at the construction machinery trade fair in Munich. We will also be presenting the first electrically driven LTM mobile crane there. Therefore stay tuned.

Wind power and hydroelectric power
An LTM 11200-9.1 during the erection of the tower of a wind turbine. A Liebherr telescopic crawler crane had previously been used to create a large water basin around the base. This combination of wind energy and pumped storage power station built by the Max Bögl company is for establishing a powerful electricity storage facility for flexible power supply.

Stored energy
It looks like an oversized thermos flask: the energy storage facility in Heidelberg in southern Germany. The available volume of the thermally insulated cylinder holds 12,800 cubic metres of water at up to 115 degrees, which is fed in from the district heating system when there is a surplus. This thermal energy can be utilised as required and can compensate for peak electricity and heat demands. An LTM 1090-4.2 is assembling the final elements of the steel structure here, which is now used as a restaurant and viewing platform, at a height of over 50 metres.

Compact size, maximum power


MK 120-5.1

The five-axle crane is a perfect fit for the tried-and-tested taxi crane concept and can cover several sites in one day.

Addition to the mobile construction crane family

Compact, powerful and manoeuvrable – characteristics that perfectly describe the MK 120-5.1, the latest member of the mobile construction crane family. The five-axle machine bridges the gap between the MK 88-4.1 and the MK 140-5.1. Alongside plenty of lifting power, it features a new display and an optional smaller load hook for working in confined spaces. Find out what else the new model can do here.

With a jib measuring in at 52 metres and a maximum lifting capacity of 2,100 kilograms at its jib head, the new MK 120-5.1 delivers impressive performance. The crane marks an expansion of Liebherr's existing MK portfolio and bridges the gap between the MK 88-4.1 and the MK 140-5.1. The mobile construction crane also impresses with its high manoeuvrability, which enables it to manoeuvre in narrow streets and intersections thanks to its small turning circle.

The new crane is based on the established MK 140-5.1. This is a huge advantage, as crane operators who have already been trained on this model can be deployed on the new crane without extensive additional training.

New crane, new display
The MK 120-5.1 is equipped with the new Liebherr TC-OS display. The TC-OS (Tower Crane Operating System) user interface focuses on ease of use and flexible customisation by the crane operator. Its twelve-inch touch display can be used in split and full screen mode. This means that diverse information can be displayed across different screen areas.

Smaller load hook for optimal load positioning
The MK 120-5.1 can be ordered with an optional smaller load hook. This version really comes into its own on sites with existing buildings where scaffolding is in place and the load has to be moved between the building and the scaffolding. It only takes a few minutes to change the load hook on site. The best thing about it: the smaller load hook can handle the same lifting capacity as its large counterpart.

"Exactly the right crane for our fleet"
The first customers are already full of praise for the latest addition to Liebherr's mobile construction crane range. "The MK 120-5.1 is exactly the right crane for our fleet. Its jib length and lifting capacity make it ideal for our customers' construction sites," says Stephan Zaugg, Managing Director at Zaugg AG Rohrbach (Switzerland). "We are excited to be the first ever customer to acquire the new MK. Reliability, customer service and the great reputation of Liebherr's mobile construction cranes were deciding factors for our purchase."

Belgian crane contractor Desutter has also ordered an MK 120-5.1 and decided in favour of the new mobile construction crane during the development phase. The new MK is the ideal addition between the MK 88-4.1 and the MK 140-5 and will be used at Desutter throughout Europe. The jib length of 52 metres, the Load Plus feature and the ability to adjust working heights and support in a variable manner convinced the Belgian company. Alongside the outstanding performance of the MK 120-5.1, the quality and high resale value of the Liebherr cranes played a decisive role. Deliveries will start in summer 2025.

Lift-off in Los Angeles


Genie ZX-135/70
United Rentals

On tour: Endeavour on its spectacular transport to the Samuel Oschin Air and Space Center building.

Liebherr cranes move space shuttle into launch position

25 missions, 299 days in space and an unimaginable 198 million kilometres travelled – we're talking about the space shuttle Endeavour. After 20 years in the service of US space travel, the historic space shuttle finally ended its space career in 2011 and has since delighted over 20 million visitors from all over the world at the California Science Center in Los Angeles – albeit in a horizontal position. The Endeavour has now embarked on what is expected to be its final journey to a new exhibition area of the museum. The exhibit was set up in a 100,000-square-metre exhibition space at the Samuel Oschin Air and Space Center in a ready-to-launch "liftoff" position. Several Liebherr cranes were used to assemble all the components of the 20-storey space shuttle. This makes the Endeavour the only space shuttle system in the world to be exhibited in an authentic launch configuration.

Complex assembly process

In order to realise a project of this size, precise planning in advance was essential: it took the Californian crane and heavy lifting company Bragg Companies more than 6,000 working hours, including 1,400 hours for planning the lifts, 20 technical plans and a good two years of construction preparation to complete the entire space shuttle system. The complex process to bring the individual components into the starting position took six months and began in July 2023 with the transport of the aft skirts from Mojave, California, to Los Angeles. From here, the Liebherr LR 1750/2 crawler crane, which was equipped with a counterweight of 665 tonnes, took over. With a maximum radius of 46 metres and a lifting height of 120 metres, the aft skirts were placed in their final position in the building, which is still under construction. Bragg Companies provided the LR 1750/2 with an LTM 1160-5.2 mobile crane as an assistant for lifting the 46 metre long fuel tank, the largest component, and the solid fuel rockets. Both cranes demonstrated sensitivity and precision when lifting and setting down the components.

Lift of the solid-fuel rockets onto the mounted aft skirts.

80 tonnes of history on the hook
Last but not least, the centrepiece was inserted: with a weight of 80 tonnes, a length of 37 metres and a wingspan of 24 metres, the legendary space shuttle was the largest element to be manoeuvred. After a difficult and spectacular transport process through the streets of Los Angeles, Endeavour was lifted with the help of the LR 1750/2, righted and finally set inside the new building of the Samuel Oschin Air and Space Center. The crawler crane was supported in its painstaking work by two Liebherr mobile cranes: an LTM 1400-7.1 and an LTM 1160-5.2. The most difficult part of assembling all the units was attaching the external tank to the Endeavour. This had to be skilfully threaded through the scaffolding without coming into contact with other parts. In addition, the tight tolerances of the mating points to the solid rocket boosters made insertion difficult. After almost fourteen hours of highly concentrated work, the Endeavour was completely detached from the crane and finally positioned and assembled between the two solid rocket boosters and in front of the external fuel tank. Mission completed.

Justin Lambert, General Manager at Bragg Crane & Rigging, is delighted that the Orbiter has finally found a home and is very pleased with the performance of the Liebherr crawler crane: “The ability of the LR 1750/2 to electronically limit the lifting and slewing speed was crucial to the success of the lifting operations due to the extremely tight tolerances on site and the changing wind speeds.” Proud to have moved a piece of history, he adds: “When ‘flying’ priceless NASA artefacts like the Endeavour and its components, it’s reassuring to know you can rely on the quality, efficiency and accuracy of a Liebherr product.”

Defying the weather

Strong winds and rain hampered the Bragg Companies team in their work. Due to the enormous dimensions of the flight components and the large surface areas, the lifting operations had to be carried out in the calmest wind conditions possible. These usually occurred in the early hours of the morning, so that several night shifts had to be put in to ensure that the complex lifts could be carried out safely. Despite all the challenges, the project was successfully completed without any incidents or significant damage.

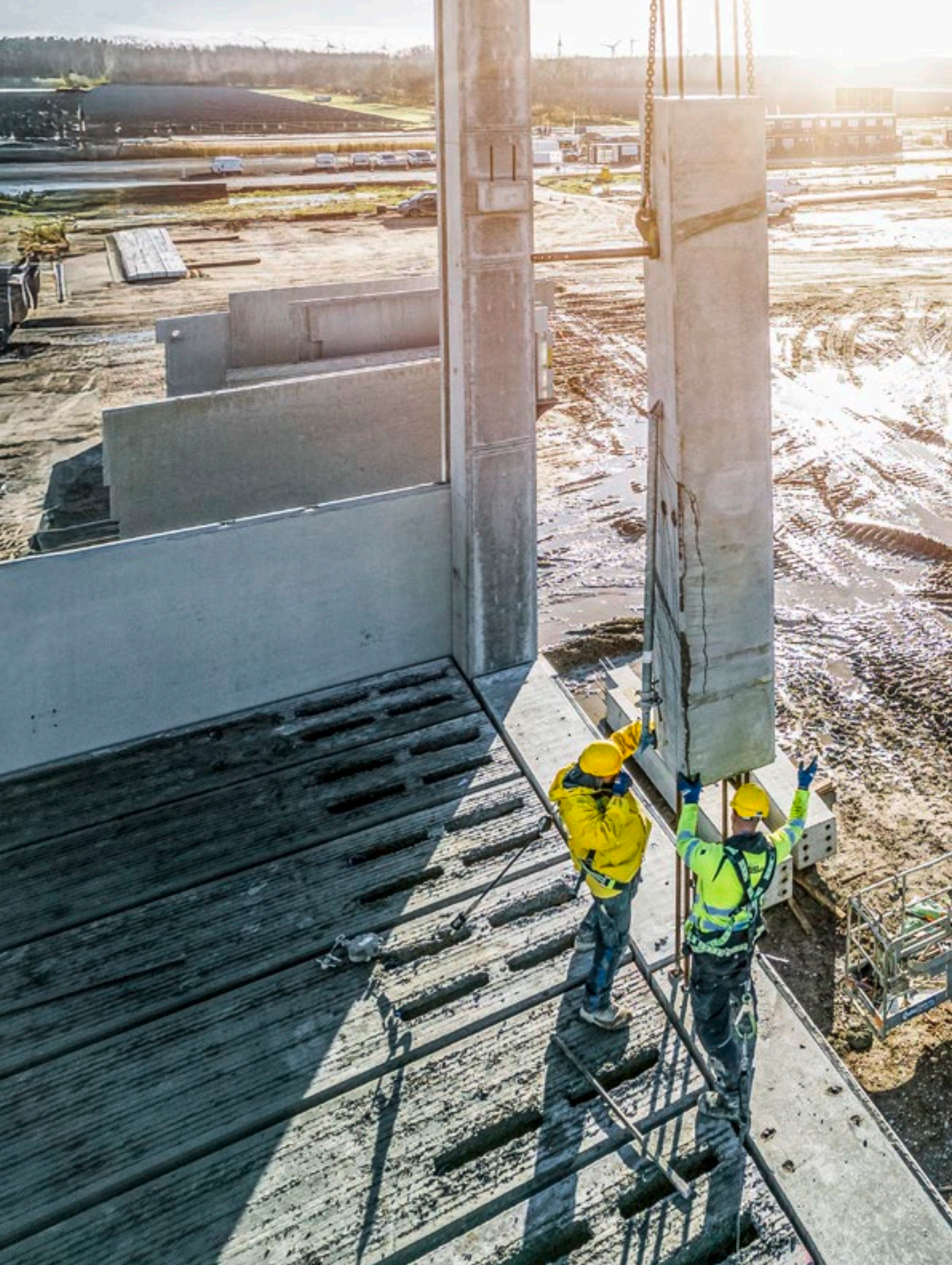
20 technical plans and over 1,400 hours of work for the perfect planning of the lifts.

With a counterweight of 665 tonnes, a maximum radius of 46 metres and a hoisting height of 120 metres, the LR 1750/2 positions historical components on site.

Launch pad for innovations

For the California Science Center, the arrival of the new exhibit is the fulfilment of a long-cherished dream. “With the lift and setting of the Endeavour, we have successfully installed the very last space shuttle. A dream that has been dreamt for over 20 years. And a tremendous feat that has never been done before outside of NASA or the Air Force,” explains Jeffrey Rudolph, President and CEO of the California Science Center, enthusiastically.

The construction of the Samuel Oschin Air and Space Center is a significant expansion of the California Science Center. Once completed, the area will serve as a launch pad for creativity and innovation and inspire future generations of scientists, engineers and researchers. The 200,000-square-metre extension will almost double the exhibition space of the California Science Center and house an impressive collection of exhibits and artefacts. The museum is expected to be completed and open its doors to visitors in mid-2025.



Powerful transport marvel

Debut in the Netherlands – the new telescopic crawler crane

It has become a telescopic crawler crane in a class of its own: our new LTR 1150. Located between the models with a lifting capacity of 100 and 220 tonnes, the powerful new crane can be transported completely with its crawler travel gear and a total weight of 60 tonnes, just like the LTR 1100. The first construction site for the LTR 1150 was near Lelystad in the Netherlands, an hour's drive from Amsterdam.

Our business partner and customer Vema Crane, based in Breda in the Netherlands, received the first new telescopic crawler crane and sent it brand new to the IJsselmeer in December for the construction of a huge logistics centre. The LTR 1150 had to cope with walls, base plates and pillars made of reinforced concrete with unit weights of up to 14 tonnes. "A really practical crane for concrete construction," explains Henk Poot in the cab of the new machine. "I'm driving it here with a 45-metre telescopic boom and fully ballasted."

Crane driver Henk Poot
"A major benefit is the fast relocation from one construction site to the next."

Henk confidently copes with all requirements on his first day in his new machine. The crane does it all. The crawler carriers push through the muddy construction site without any problems. "I can get through everywhere," says Henk, "and later, when the space becomes less and less or several stored elements take up too much space, I can adjust the crawler carriers to a narrower track." Three different track widths from 3.5 to 5.8 metres are available to the crane driver – the narrowest version is also the measure for the transport width of the first telescopic crawler crane equipped with VarioBase®. Henk Poot, who claims he is more of a mechanic than a crane driver, gets on very well in his crane operator's cab when manoeuvring and setting the concrete parts. "I'm just starting to work with the new crane today, so I still need some practice. But I am enjoying these first few hours with the LTR 1150."

Long and powerful
Lattice jibs can be added to the 52-metre telescopic boom. Hook heights of up to 83 metres are possible.

“Maximum lifting capacity machine with efficient transport.”
And another customer is also clearly pleased with the machine: Tom Vanpassel, Managing Director of the Belgian branch of the Willy Naessens construction group, has arrived with three colleagues especially for the first deployment of the LTR 1150. “We are considering adding a few LTR 1150 vehicles to our fleet and want to get an idea of the crane today.” For him, the dimensions of the telescopic crawler crane are crucial for efficient transport. “When we move a small lattice boom crawler crane from one construction site to another, it takes us four days. Two days for disassembly and assembly, one day for transport and another day for testing and acceptance of the assembled crane.” A special regulation in the Benelux countries and necessary when a construction machine is reassembled from its individual parts. “This specification does not apply to the LTR 1150, which we can fully transport with crawler carriers. One day is sufficient for us to get the crane to the next site. Ballast on top, done. The LTR 1150 is the machine with the highest lifting capacity on the market that can be transported in its entirety. The telescopic crawler crane also requires significantly less space, as there is no need to mount a lattice boom on the ground.”

Belgian invasion
Tom Vanpassel (right), Managing Director of Belgian construction company Willi Naessens, inspects the brand-new construction equipment with his colleagues.

In focus

The way to the heart is through the calves
We know that many people who work with our cranes on a daily basis are big fans of the Liebherr brand. But the tattoo of an LTM 1500-8.1 that crane driver Tobias Schade wears on his left calf is real proof of love, isn't it?

Why don’t you become a hairdresser?

A generation of “Titans” is growing up in our steel construction division. For the first time, a trained female metalworker takes on the role of training mentor and passes on her knowledge to the next apprentice: 16-year-old Sina is a trainee fitter. Women are rare in this profession, but mixed teams benefit from different approaches and new perspectives. Ultimately, this also advances the entire steel construction industry.

“We have to get it out of people’s heads that it’s a competition between men and women,” says Reinhold Windauer, production foreman in steel construction. “A woman in a metal profession doesn’t have to prove herself any more than a man. The physical requirements may differ – but I can fill all positions with men and women, regardless of the area. Because everyone brings important skills that help us move forward together.”

Windauer has been working in his profession for 45 years. He trained as a machine fitter in 1979. For the last decade of his career, he always wanted to have a female fitter on the team and pass on all his knowledge to her. This wish is now being fulfilled twice over.

From left to right: Chantal Degen, Sina Scheuten, Anna Schenzle, Reinhold Windauer

Steel toe caps instead of high heels
Training mentor Chantal Degen attaches adapters for lattice jibs that will be hanging at a height of 170 metres. The work step is very complex – it requires a lot of dexterity and fine motor skills. “The smaller and thinner the metal pipes are, the more difficult it is to weld and recognise a good seam,” says the tradeswoman. The thinnest pipes are 2.9 millimetres thick; ultrasound for checking weld seams is not possible below 8 millimetres. The production quality of the weld seams must therefore be perfect straight away.

What Chantal is welding in this work step are known as concealed seams. The welding supervisors have to be able to rely on her work as Chantal installs a pipe above it in the next step. Quality assurance verifies whether Chantal’s weld seams meet the highest requirements. NDT inspector Anna Schenzle is one of the people responsible for this. She is a trained office administrator and swapped high heels for steel toe caps three years ago, as she says. She feels at home here in steel construction – in the mornings she checks weld seams in production and in the afternoons she creates the necessary logs on the computer. “I like the working atmosphere here in the department. Sure, you have to be able to dish it out a bit. But my colleagues are open, honest and straightforward – I really appreciate that.”

For the love of metal
“In order to secure the next generation of fitters, we fill twelve apprenticeships every year,” says Windauer. The training programme lasts three and a half years. Sina Scheuten, a second-year apprentice, chose this profession at the age of 15. Her mother has already trained as a metalworker. She often told Sina about her work and showed her pictures. “I’ve been so interested in working with metal since primary school that I later did an internship at Liebherr. And I liked it so much that I’m now doing my apprenticeship here,” says Sina. Many have asked her why she wouldn’t learn a profession “for women” and some men still find it difficult to have confidence in the next generation of women. Sina rises above it. Just like Chantal: “I don’t care whether my colleagues are men or women, whether we differentiate linguistically in German between male fitters and female fitters. The job is the same. The output is the same. And we are all treated equally here,” explains Chantal.

There are certainly situations in which Sina and her training mentor Chantal cannot work in the same way as their male colleagues. “But that’s not a problem – we compensate for it. Where men find it easier to lift heavy objects, for example, we use the law of leverage,” explains Chantal and Sina adds: “Chantal can give good tips and tricks. I simply see how it works and then weigh up whether her approach or that of my male colleagues is easier. I then always choose the solution that suits me best.”

Titan at work
Overhead welding requires special concentration.

In two-shift operation, a total of 56 people in Windauer’s area tack weld, weld and plaster slewing platforms, lattice booms and sub-assemblies. The age spectrum is broad and there is an incredible amount of expertise that needs to be passed on. Windauer is proud of his team: “At a time when expertise and craftsmanship are of great value, Chantal shows how important it is to pass on this knowledge. It shows how you can achieve great things through commitment and dedication!”

“Whether man or woman: It’s just the approach that makes a difference at work. Apart from that, we are on a par.”

Chantal Degen

Rolling and lifting

Riadh Tarsim is Managing Director of ATM Levage in Valenton near Paris. Founded in 1996 as a transport company, Riadh expanded the company's range of services in 2008 to include crane hire. However, transport and lifting operations are not the 51-year-old family man's only passion – he also enjoys top-class sport. As a disabled athlete, he was runner-up in para-cycling (H3 category) in 2018 and two-time world champion in 2021 and 2022, as well as winning the silver medal at the 2020 Paralympic Games in Tokyo. We spoke to him about how to tackle challenges.

Riadh Tarsim at the Customer Days 2024 in Ehingen.

As we conduct the interview, the June sun beats down on the concrete surface behind the Liebherr repair centre. Hundreds of Customer Day visitors marvel at the new products from Ehingen. Just a few metres away from us, a black LTR 1060 gleams in the light – it is the latest addition to Riadh Tarsim's fleet of cranes. "When we started crane hire at ATM Levage, I started with two second-hand machines. A year later, I bought three new cranes from Liebherr. And since then? I've been a satisfied Liebherr customer," laughs Riadh.

With passion for the cause

The company now has a total of around 90 machines in its fleet – in addition to a wide variety of cranes, for example, spider lifts, truck-mounted working platforms, working platforms on crawlers, mini electric and spider cranes as well as crawler cranes – in order to fulfil all of its customers' lifting requirements with a comprehensive range of products. In addition to the boss himself, 160 employees are also involved – all of whom put their heart and soul into their work. The question is, how do you manage to be an elite athlete alongside your full-time job? It should be noted that Riadh has been a member of the French national handbike team for nine years. "That's quite simple: It's the passion. I take the time to do things right – in all areas. When I ride my handbike, I'm in sport mode. When I'm in the office, I'm working. And when I'm with my family, I dedicate my time to them."

Mindfulness is the key word here. The father of three sons manages to spend at least two to three hours a day on his handbike. Even more at the weekend. Perhaps it is also the strong will to accept and master challenges and to have a clear goal in mind: "People often come to me and say that they have a problem. I then reply that I have the solution. Sometimes they are surprised by my answer at first, but they know that they can rely on me. Another advantage is that we invest in our machinery accordingly and have a very broad base – this sets us apart in the industry and allows us to respond to all lifting requirements."

Before the Olympic Games
Setting up the grandstands for the disabled football tournament: CECIFOOT behind the Eiffel Tower.

Seeing challenges as opportunities
The economic and property crisis of 2008 was a decisive event in pursuing this entrepreneurial strategy. Riadh knew how to make good use of this. “Many companies have not survived the crisis. To prevent this from happening to us, I had to diversify our portfolio. So, I studied cranes – from the drive train to the boom. As I’ve been in a wheelchair since a skiing accident 29 years ago, I wasn’t able to ride my first crane. But I had to know every detail in order to make the right purchase decision.” And he succeeded.

Riadh and his team are busy with new and exciting projects every day. One of these is the assembly of support masts with an LTM 1120-4.1 for the first cable car in the Île-de-France region in the Val-de-Marne department. It will serve five stations in 2025 and take suburban residents quickly to the nearest underground railway.

ATM Levage was also involved in the “Grand Paris Express” construction site, the new metro of superlatives, with a wide variety of transport equipment and a wide range of configurations, as well as in the preparations for the Olympic Games in the French capital. “I may not have competed in the 2024 Paralympics, but I brought the Olympic flame to my city and we helped to build the athletes’ village. We also carried out several lifts at the Stade de France and the new water sports stadium.”

And what’s next? Whether in his professional or private life: Riadh will continue to tackle all challenges head-on. “Sport is the best method to be successful at it.”

Success Story

- Name: Riadh Tarsim
- Born: 22 October 1973
- World Championship 2018 in Maniago, Italy: Silver in paracycling on the road
- Summer Paralympics 2020 in Tokyo, Japan: Silver
- World Championship 2021 in Cascais, Portugal: Gold in paracycling on the road
- World Championship 2022 in Baie-Comeau, Canada: Gold in paracycling on the road
- World Championship 2024 in Zurich, Switzerland: 4th place in the time trial
- Several French championship titles in time trials and paracycling on the road

Pretty wild times


LTM 1130-5.1
LIEBHERR
CONVOI EXCEPTIONNEL

Today, sanctions against Russia prevent the direct transport of cranes from Ehingen to Central Asia. Dilapidated bridges force unnecessary detours during transports across Europe. Bureaucracy and the time required to apply for transport licences further complicate crane transfers. Was everything better in the past? Certainly not. Only different. We asked our former shipping manager Bruno Seele, company founder Josef Gerber from the transfer company of the same name and driver Heinz Zobel to tell us about crane transports to Iraq, Mauritania and the former Soviet Union. Here are a few anecdotes for you to enjoy.

Adventure into the unknown
Bruno Seele (left in the picture next to Josef Gerber): "Then as now, transporting our mobile cranes mainly involved high-capacity and heavy-duty transport operations with a wide variety of challenges depending on the transit countries, destination, seasonal influences, infrastructure conditions and a multitude of legal regulations as well as political influences. These are not off-the-peg transports, but often journeys that feel like grand adventures, where the script is only fully written in hindsight."

Never run out of petrol!
Josef Gerber: "One customer had a bad experience in the Mauritanian port of Nouadhibou – the crane had fallen off the ship into the quay wall during the lift. He didn't want to risk it a second time. Instead, the crane was transported overland on a 3,700-kilometre route from Casablanca, through the Sahara and Sahel regions, to a mine in Mauritania. We needed 3,500 litres of diesel for this drive. The problem was that petrol stations were scarce – and sometimes there was no diesel. Whether headed to Mauritania or other exotic destinations, we always had extra 80-litre canisters with us and filled the crane to the brim wherever possible."

Eat my dust
Josef Gerber: “At the border crossing from Western Sahara to Mauritania, the road was covered in sand. To stay in the right tracks, I followed two lorries ahead of me – for 80 kilometres. When you’re driving a crane out there, the traffic behind you can’t see anything at all. And if you drop below a certain speed, you can’t see anything either, because the desert dust overtakes you.”

Good relations
Josef Gerber: “Depending on the country, customs clearance during transit sometimes took two to three days. It was tough enough for the drivers, but standing around in the heat made it even worse. Most of the time, the journey continued after half a day, but if the border officials suddenly decided that a new form had to be completed – one we knew nothing about – that’s when the trouble began. Having good connections over the years was crucial and helped speed up the process.”

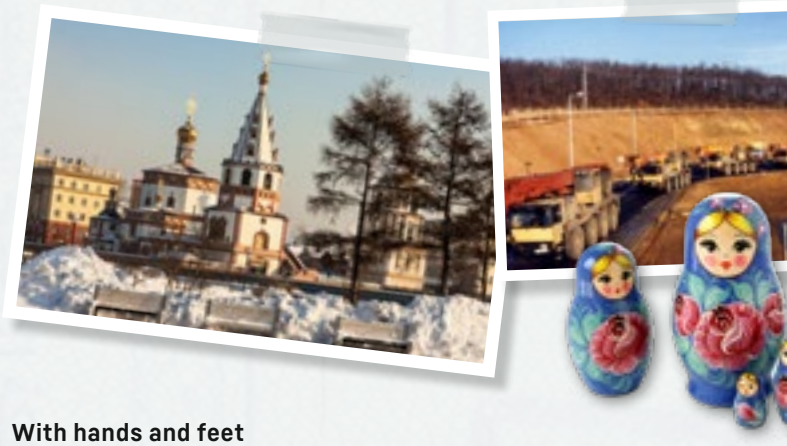
Better travelling in a group
Josef Gerber: “The return journey from Mauritania to Germany was almost as time-consuming than the crane transport itself. As the risk of terrorism in the country was high and booking a flight from Nouakchott was very difficult, I didn’t fly back to Germany alone. It was safer to return to Morocco first with the escort vehicle and the Moroccan lorry drivers, who were familiar with the local conditions. Only once there did I board a plane home.”

Carpe diem
Heinz Zobel: “There are no delineators in the desert. Animals roam freely, carts and pedestrians travel without lights. That’s why we only drove during the day. On one stretch, we once counted 44 dead donkeys.”

Heating for the diesel
Josef Gerber: “Whether crossing the Alpine passes to Italy or through the Carpathians, we were often travelling in wintry conditions. During the Cold War, a total of 16 cranes were shipped to Siberia under a special licence to build gas pipelines. To ensure the cranes could function at temperatures as low as -40°C, the fuel lines were fitted with heating wires to allow the engine to start. The tyres, however, posed a bigger challenge. The all-terrain cranes had lug tyres that were not designed for continuous speeds. Between Göttingen and Hamburg the route was flat and you could travel at a constant 70 to 80 km / h. This caused the outer casing of the special tyres to become detached from the inner casing after long drives.”

Bruno Seele: “Our customer service team reacted quickly. Overnight we dispatched replacement tyres to the convoy by lorry. At the same time, we collaborated with the tyre manufacturer to find a solution: regular breaks for the cranes en route to the port to allow the tyres to cool. Despite these challenges, the cranes arrived on the ship on time.”

Nailed down
Heinz Zobel: “The crane operator’s cabs were particularly vulnerable parts of the cranes. During transport on Russian railways, branches would often obstruct the route and occasionally strike the windows. To prevent any damage, the cabs were covered with wooden cladding – including a peephole, so the crane could still be manoeuvred, for example, onto a transport ship. The cladding had the additional advantage that it provided good protection against theft – the side mirrors and lights were popular targets in many countries, and on one occasion, we even had an entire axle stolen.”



With hands and feet
Heinz Zobel: “At some point, even speaking English doesn’t get you anywhere. In those situations, we communicated using hands and gestures, and somehow it always worked out. You couldn’t just give up when things became difficult. As with so many challenges ‘on the road’, it was also important to keep calm when it came to communication.”

Bruno Seele: “What also helped in difficult situations were the strong connections we had in each country – be it the customers themselves, our global service companies or internationally operating service providers, whose local branches and staff were always there to support us.”

Cash is king
Josef Gerber: “Almost everywhere we transported cranes, we always took enough money with us in local currency – otherwise you wouldn’t get very far. One exception was Iraq, where everything had to be paid for in dollars. One particularly nerve-wracking experience was the return transport of twelve cranes from Odessa to Germany. The transit costs in Bulgaria, i.e. the deposit to ensure that the cranes leave the country again after travelling through, had to be paid or deposited in cash. To remain as inconspicuous as possible, my wife Marianne sewed a six-figure amount in Deutsche Marks into the lining of an anorak – a movie-worthy adventure.”

An adventure every time
Bruno Seele: “Since I started working in dispatch at Liebherr in 1976, I’ve always placed great importance on having reliable partners and working with internationally oriented service providers who were represented locally. Direct contact was always a priority for me: I didn’t just want to talk to a representative from Stuttgart or Frankfurt, but also to the people from Baghdad, for example. This approach gave me a strong sense of the challenges and local nuances along each transport route. That intuition helped me make the right decisions.”


SAFETY FIRST
NO SMOKING
RAMP MAX LOAD 100t
RAMP MAX AXLE LOAD
36t / 4 WHEELS
10.1m
LIEBHERR

Nothing is impossible

Separate freight
The telescopic boom starts its 4,000 kilometre journey on its own low-loader.

LTM 1650-8.1 on new routes to Kazakhstan

Kazakhstan is one of the countries with the most resources in the world. Many cranes are also required for the construction and maintenance of conveyor systems. More than a hundred mobile and crawler cranes from our Liebherr plant in Ehingen are in use in this vast Central Asian country. Recently, Tengizchevroil, one of Kazakhstan's leading oil companies, added the powerful LTM 1650-8.1 to its fleet. Transporting the crane over 4,000 kilometres to its destination proved to be a significant logistical challenge.

"In the past, delivering our cranes to Kazakhstan followed a multimodal process. The mobile crane and its equipment from Ehingen were transferred onto broad-gauge wagons, ensuring a smooth journey by rail to Kazakhstan," explains Jens Bachmann, Crane Shipment Team Leader.

"This time we had to find an alternative to the usual route and explore new transport options," adds his colleague, Melanie Spomer. "We worked closely with our forwarding company, CIS+ International GmbH, to analyze various possibilities and ultimately identified a viable solution. While more complex than the previous approach, it allowed us to ensure successful delivery."

Basic crane
Crane equipment, ballast

Dismantled
LTM 1650-8.1 is ready for departure at the Ehingen plant. From left to right: Jens Bachmann, Melanie Spomer, Alexandr Gritsov, Charlotte Liebherr.

On roll trailer
At the port of Konstanza, the equipment components are waiting for the ferry.

Basic machine reduced to 60 tonnes

"We wanted to use rail and ship as much as possible. The focus is on environmental protection and economic efficiency," says Jens Bachmann. "However, because the size of the LTM 1650-8.1 does not allow transport by rail, we separated the basic machine and the equipment."

It proved to be beneficial to completely remove the boom of the LTM 1650-8.1 to reduce the weight of the basic machine to 60 tonnes. As this option frequently has benefits when transporting the 8-axle vehicle, it has already been taken into account in the design. The basic machine was transported on its own wheels to Antwerp and then onto a ship that set course across the Atlantic and the Mediterranean to Liman near Istanbul. It was loaded onto a low-loader at this Turkish port. The journey then continued on piggyback on roads through Turkey, Georgia and Azerbaijan to Baku. There at the port, the entire team boarded a ferry across the Caspian Sea to Kazakhstan. The final kilometres to the destination of Kulsary were covered by low-loaders with the basic crane on the road.

Broad gauge
On railway carriages through Asia.

The crane equipment takes a different route

"We decided to take a different approach for the equipment," explains Melanie Spomer. "A total of 19 lorries drove from Ehingen and Ahaus at the Dutch border, where the crane ballast was collected, through Germany, Austria, Hungary and Romania to the port of Constanta. There, the equipment was transferred onto roll trailers that drove it to a ferry. The journey then went by ship across the Black Sea to Poti. At this Georgian seaport, the equipment was loaded onto railway carriages, which took the valuable freight to Baku in Azerbaijan. The complete carriages were moved onto a railway ferry at the port there, which crossed the Caspian Sea and released them back onto solid ground in Kazakhstan. Without reloading, the equipment was finally transported by rail to the customer in Kulsary."

Mission accomplished! "398 tonnes of crane and accessories arrived safely at the customer's location," says Jens Bachmann happily. "We had to explore new options and everything worked out in the end. There is of course still room for improvement, but we have learnt a lot."

"It has once again been demonstrated that a good team can make the seemingly impossible possible. Thanks to our Shipment Department, our Forwarding Department, our Liebherr fitters in Azerbaijan who supported the loading of the equipment in Poti and to the fitters of our agent Caspian Kran Service LLP who set up the LTM 1650-8.1 at Tengizchevroil," adds Alexandr Gritsov, who is responsible for sales in Kazakhstan at Liebherr.

Manoeuvring in narrow points: LTM with RemoteDrive

Following the consistently enthusiastic response of crane operators to the RemoteDrive wireless remote control on the LTC 1050-3.1 compact crane, we will now also equip the LTM 1100-5.3 and LTM 1110-5.2 mobile cranes with the software and that as standard. This feature allows the crane to be moved completely from the outside by wireless remote control.

Philipp Mang played a key role in the development of RemoteDrive for the LTC and the LICCON3 mobile cranes.

Totally **digital**

“It is always more effective if the crane operator has a direct view of the narrow point where he needs to manoeuvre, instead of transmitting the narrow point to the driver’s cab using cameras,” explains product manager Florian Brunner. At the 2018 customer days, we demonstrated for the first time how easy it is to steer a crane with a wireless remote control, using our LTC 1050-3.1 as an example. That went down well. Since then, RemoteDrive has been available as an option for our compact cranes. We receive positive feedback without exception.

Standard for LICCON3 cranes

“Also providing the wireless remote control for larger cranes was only a matter of time,” says Brunner. Since October last year, the two LICCON3 cranes LTM 1100-5.3 and LTM 1110-5.2 have been equipped with the corresponding software as standard. To operate the crane by wireless remote control, all you need is the optional BTT-E console. “Incidentally, this console, into which the standard BTT control panel is simply plugged, is compatible between all LICCON3 and LICCON2 cranes and can therefore be used for any of these cranes – for both the superstructure and chassis control,” explains development engineer Philipp Mang.

Coming up next

Since the feature was introduced for the two LTM cranes, several mobile cranes with RemoteDrive have already been delivered to customers all over the world. Of course, cranes from the same series that left our factory before autumn 2024 do not have to do without RemoteDrive. “They can simply be retrofitted with a software update. Our customer service team will notify the relevant customers in the near future,” says Mang. Brunner adds: “The function is also planned for future LICCON3 cranes – at least up to the 5-axle model.”

Efficient and easy as pie
To operate RemoteDrive, simply insert the standard BTT control panel into the optional BTT-E console. The highlight: the console is compatible with LICCON2 and LICCON3.

Operator’s manual redesigned

It’s not just our cranes that are getting an update with LICCON3 – the documentation department has also undergone a general overhaul. “Searching is often easy; finding is not always so” – in the words of the Swiss author Walter Ludin, the focus was on finding the necessary information more quickly. Tobias Berger’s team revised our tried-and-tested crane documentation, which also includes the operator’s manual. The content has been restructured and reduced to the essentials. The revised concept for safety information also improves the reading flow and thus promotes comprehensibility. All LICCON3 crane types and the LTR 1150 are currently supplied with the new version of the operator’s manual.

Michael Mahlenbrei has been working in technical editing for 28 years. Over 100 crane types have been described since then, and of course the writing style, layout and crane technology have gradually developed over this time. But the importance of precise, complete and comprehensible operator’s manual has also been increasingly recognised and appreciated. It is the basis for training courses and a reference work for all users. The operating instructions are a prerequisite for the intended use of our cranes and are therefore a necessary and mandatory part of the product. In order to maximise customer benefit, the entire work is structured and designed so that the user can find the necessary information quickly and easily.

Michael Mahlenbrei, Tobias Berger and Daniel Nickchen (from left to right)

“The introduction of the latest LICCON3 controller generation was the perfect time for us to review and revise the content of the entire crane documentation, including the operator’s manual. Due to the new control consoles and displays, it was necessary to adapt or create a lot of new content anyway,” explains Tobias Berger. “We also used a database-based editorial system for the first time. It enables the reuse of content in smaller modules and the use of dynamic links. The result is now clearer, more crane type-specific and more structured.” The new crane documentation is organised as follows:

Information for crane operators and assembly personnel
- Operator’s manual
- Use of the load charts
- Digital load charts
- Travelling when the crane is set up
- Wind speed charts for cranes out of operation

Information for maintenance and inspection personnel
- Maintenance and inspection

Michael Mahlenbrei summarises the **changes** to the operating instructions as follows: “Improvements have been made in almost all aspects of the operating instructions: the structure, layout, graphic design and of course the content. Particularly noteworthy is the new structure of the content, which is orientated towards the chronological sequence of the crane operation.”

The revision also brings advantages for the creation of documents. Mahlenbrei explains: “We have broken down the content into topic-orientated, small modules that can be easily combined and linked together for different processes. This makes the creation of documents more efficient, more specific and more flexible.”

Safe operating instructions are based on complete and comprehensible descriptions. Additional safety information must be designed consistently and with as little redundancy as possible. Daniel Nickchen adds: “A key component of the revised **safety concept** regulates how safety information is integrated: A **warning sign** indicates an immediate danger due to incorrect operation and is labelled with a corresponding symbol.

Safety instructions are designed for training purposes. For example, they regulate safe movement on the crane. The safety chapter is a prerequisite for the training content. It contains clear role definitions and requirements for the user groups.

With this classification, we were able to reduce the need for warnings and thus increase their impact.”

Types of information in instructions

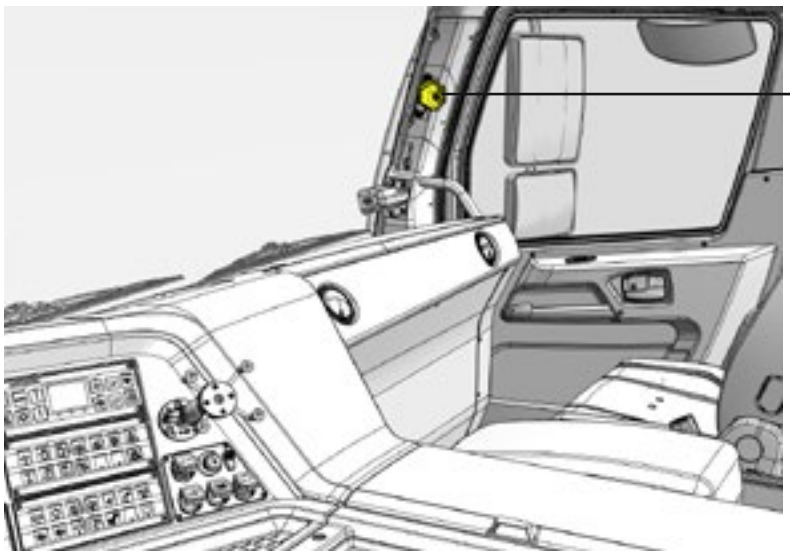
Descriptions
Descriptions make up the largest part of the instructions. Ultimately, descriptions contain the information that the user is looking for.

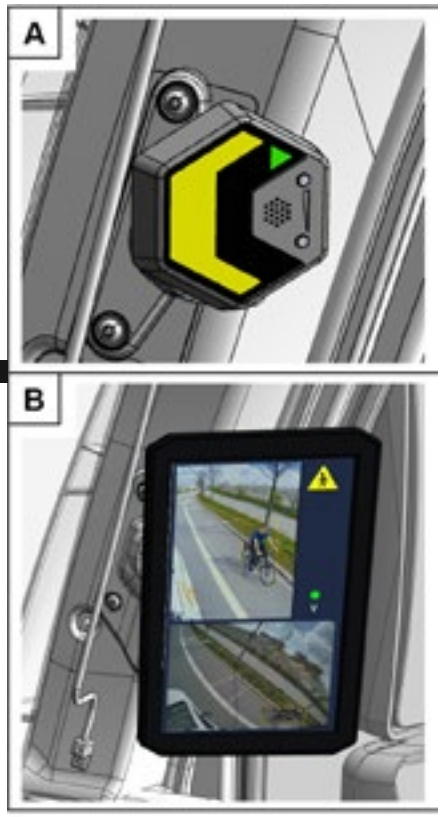
Safety instructions
Safety instructions explain the basic rules for crane work to the user. Safety instructions aim to create an awareness of dangers. It is therefore not necessary to label them with a warning symbol.

Warnings
Warning notices are used when an immediate danger arises during crane work. They are therefore always labelled with a warning symbol. In order not to lose their effect, warnings are used sparingly.

The new layout also supports users with links to more detailed information. This makes it easier to find and read up on related topics.

Our technical editors have put a lot of thought into the graphical representations of the operator's manual. The relevant control and operating elements are clearly displayed graphically. The new visual representations and drawings impress with perspective views, rendered graphics and colour highlighting in digital media.





Operator's manual

1. Intended use
2. Unintended use
3. Notes on the documentation
4. Product description
5. Safety
6. Control and operating elements
7. Transport and storage
8. Travel operation
9. Crane operation
10. Malfunction and emergency operation
11. Assembly and disassembly
12. Crane operator and assembly personnel maintenance
13. Disposal

Structure
- Oriented to the crane operating sequence
- Clear and concise content allocation

Safety
- Clearly structured safety instructions

Checklists
- Inspections before crane operation and travelling

Hazardous areas
- Graphically depicted danger zones

“The revised structure of our operator’s manual simplifies the handling of our complex products and thus helps both our customers and us trainers.”

Adrian Kukic
Handover center

New layout

Links
- Jump quickly and easily to linked topics

Graphical control elements
- Graphical representation of the control and operating elements

Improved display
- Clear visualisations
- Elements that are not addressed are greyed out

9.18.3.3 Spooling winch 1 up and out from the crane cab

Make sure that the following prerequisites are met:
- ❑ Winch 1 is released.
  (→ Locking and unlocking winches, p. 884)
- ❑ On the *control lever assignment 1* display, *winch 1* icons are displayed.
  (→ 9.15.5 Adjusting the control lever assignment, p. 858)
- ❑ Crane operation is released.
  (→ 9.7 Releasing crane operation, p. 742)

Fig. 2666: Status bar

Spool winch 1 up

▶ Move control lever 1 to the rear and hold.

Spool winch 1 out

▶ Move control lever 1 forward and hold.

9.18.3.4 Spooling winch 1 up and out with the expanded crane remote control

Make sure that the following prerequisites are met:
- ❑ The *crane operation* menu is displayed.
  (→ Opening the crane operation menu, p. 810)
- ❑ Winch 1 is released.
  (→ Locking and unlocking winches, p. 884)
- ❑ On the *control lever assignment 1* display, *winch 1* icons are displayed.
  (→ 9.15.5 Adjusting the control lever assignment, p. 858)
- ❑ Crane operation is released.
  (→ 9.7 Releasing crane operation, p. 742)

Fig. 2669: Crane operation menu

Spool winch 1 up

▶ Move control lever 1 to the rear and hold.

Standard for LICCON3 crane types: Liebherr design paint finish

New options for painting Liebherr mobile cranes

When you order a new car, you will hardly find more than eight colours to choose from in the corresponding price list. For our mobile cranes, hundreds of colours are available to our customers. The superstructure is frequently painted in a different colour than the chassis and it is not uncommon to find a third colour on the crane. How do we take this wide range into account in our price lists? Oliver Wekenmann from our order centre explains. He has been involved in crane painting and coordination with customers and foreign subsidiaries for 16 years.

Our standard paint finish has been a two-colour design for decades: Chassis in basalt grey (RAL 7012), driver's cab, crane superstructure and ballast in daffodil yellow (RAL 1007). We offer a **two-colour special painting** and a **three-colour special painting** for an additional charge. With these two options in the price list, we can cover the vast majority of customer requirements.

With the introduction of our new LICCON3 control generation, we not only wanted to become more technically advanced, but also offer our customers a more modern design. Together with the new control, we have introduced a new driver's cab and a new standard paint finish. We call it Liebherr design paint finish and it is included in the price for the basic machine: Chassis, superstructure cab,

Simply **explained**

"Our new paint finish options range from particularly cost-effective to multi-coloured and individual."

Oliver Wekenmann
Order Centre

Good value: 1-colour customer painting superstructure

Cost-effective: 1-colour customer painting complete crane

Individual: multi-coloured customer painting

telescopic sections and counterweight in anthracite (RAL 7016), superstructure and crane equipment in daffodil yellow (RAL 1007).

We now offer new options for customers with their own colours and designs. The **1-color customer painting superstructure** is particularly cost-effective. It enables the new Liebherr design to be transferred to the corporate colours of our customers. Only the superstructure is modified with a customer-specific RAL colour compared to the Liebherr design paint finish. The chassis, the superstructure cab and the ballast remain in anthracite (RAL 7016).

We have created the **1-colour customer painting complete crane** as an additional cost-effective option. Chassis, superstructure, crane equipment and counterweight: individual RAL colour.

Individual, multi-coloured customer paint finishes are more sophisticated and therefore naturally more expensive. The **individual customer painting (up to three colours)** price list option is provided for this purpose. Chassis, superstructure, crane equipment and counterweight: up to three individual RAL colours.

With the new paint finish options in the price lists for the LICCON3 cranes, we offer cost-effective alternatives on the one hand. It was also important to us to cover the vast majority of requirements of our customers. We will be happy to give you advice on any additional requirements you may have.

What's behind the type designation of Liebherr mobile construction cranes?

They combine the mobility of a classic mobile crane with the functional advantages of a tower crane: mobile construction cranes. At Liebherr, we call them MK. The current range extends from the MK 73-3.1 to the MK 140-5.1. Jens Walter, Product Manager specialising in MK cranes, explains the meaning of the type designation.

An MK 88-4.1 unfolds in Miami, Florida.

Background

"The capability of Liebherr mobile construction cranes is reflected in the type designation in the form of the load moment."

Jens Walter
Product Manager specialised in the MK series

The secret of the first part of the type designation is easy to guess: "MK" stands for mobile construction crane. This is no surprise, at least for readers of the German edition (Mobile construction crane in German: **M**obilbau**k**ran). On Liebherr tower cranes, the letter "K" also stands for trolley jib, i.e. cranes with a trolley (German: **K**atzausleger).

Now to the middle part of the type name. For mobile cranes, it has been standard practice for at least half a century to state the maximum lifting capacity in the name of the crane – so the LTM 1150-5.3 is a 150-tonne crane. However, if we look at the load capacity table for the MK 73-3.1 mobile construction crane, we find a maximum load capacity of only six tonnes, not 73 tonnes! The MK 140-5.1 does not have 140 tonnes, but eight tonnes. By now at the latest, we should remember that the crane superstructure of MK cranes is a construction crane. And with this it has always been customary to state the load moment in the type name. Construction cranes are designed for performance with a large radius rather than a high maximum load capacity with a minimum radius.

Let's go back a little in history: there were already smaller Liebherr MK cranes in the 80s and 90s. These were built on standard lorries. In 2001, we then unveiled the MK 80, which was built on a 4-axle chassis designed and manufactured by Liebherr itself. Its maximum load capacity was eight tonnes up to a radius of ten metres. The product of load and radius was therefore exactly 80 metre tonnes.

The type designation of the following MK models has usually been rounded off or adapted somewhat, as other factors also play a role in the performance of a crane, such as the hook height and the lifting capacity at maximum radius.

The last part of the type designation is quick to explain: the digit directly before the dot indicates the number of axles and the last digit the version of the crane type. For example, the MK 73-3.1 is the first version of a 3-axle MK 73. Operators of Liebherr LTM mobile cranes have been familiar with this for two decades. We added the number of axles and version to the type designation of MK cranes around five years ago.

Incidentally, we will be adding an "E" to the type designation in future, as our MK mobile construction cranes can also be operated electrically on the construction site, either with site power or a battery-based energy storage system such as the LPO Liduro Power Port from Liebherr.

Working cleanly with DERBLAUE®

Changing fluids is part of the regular crane service, but it is often a tight squeeze. When draining, the liquids go their own way and contamination is the result. Nic Schenzle, a service engineer in our Customer Service department, knows the problem – and fortunately also the solution.

My Tip

“DERBLAUE® – simple tool, simple cleaning.”

Nic Schenzle
Customer Service

The simple practical solutions are often the most effective. So, we have been researching what good ideas there are on the market for channelling and collecting liquids. Many industries are facing this challenge, including the heating industry, for example. Together with DERBLAUE®, a young, dynamic company from the Allgäu region, we have found the right products for our mobile and crawler cranes.

We tested the striking blue chutes and tubs intensively and were delighted – service work can actually be carried out more easily and efficiently. The working environment, engine compartments and housing remain clean. And the best thing about it: the set can be used again and again.

The blue drip tray with a capacity of ten litres is easy to shape and can therefore be used flexibly in confined spaces. Another practical feature is the chute – also in blue, of course – for directing liquids. It can be attached to metal surfaces using suspension eyelets and strong neodymium magnets. Both the tub and the chute are extremely stable and contain bending elements that can be moulded as often as required. They can be folded up small for transport.

We are now so impressed by DERBLAUE® that we have equipped each of our service vehicles and our oil mobile with several sets. Of course, we also want to make these practical tools available to our customers. We have therefore decided to offer tubs, chutes and the complete service set via our Germany-wide service for the time being. We are also planning worldwide distribution in the future.

When space is tight
The drip tray can also be used very flexibly in confined spaces.

Targeted
The chute guides the oil precisely into the tub.

Full speed ahead across the world's oceans

Heavy fuel oil is a thing of the past – today, liquefied natural gas is the fuel of choice. With eight LNG hybrid ships currently in its fleet, the Japanese shipping company Nippon Yusen Kabushiki Kaisha – better known as NYK Line – was one of the first companies in the shipping industry to adopt this approach, and continues to champion it. All of NYK Line's new ship series – 20 "Pure Car and Truck Carriers" are planned by 2028 – will be fuelled by LNG. With the goal of meeting its customers' demands for more environmentally friendly logistics, NYK, a long-standing Liebherr partner, offers its customers the greenest possible transport chain.

"We had revised the delivery schedule for our LR 1700-1.0 at short notice," recalls dispatch employee Anja Rupp. "Together with an LR 12500-1.0, bound for Denzai Engineering Ltd Co, the 700-tonne crane needed to be shipped to South Korea in July." No sooner said than done! The shipment was planned together with Matthias Auch, a project manager at NYK Line's German office in Hamburg, where long-distance freight and transport planning is all in a day's work.

NYK's RoRo fleet consists of 122 ships. It is a well-established young fleet, with eight brand new vessels all running on liquid natural gas (LNG). "Whether in the crane industry or shipping – we're also future-proofing our range of services. With our LNG hybrid ships, we now have the world's greenest freighters in our fleet, based on the latest engineering standards," reports Matthias Auch. It was on one of these vessels – the "Sumire Leader", or "Violet Leader" in English – that the two crawler cranes were transported to their destinations.

Big barges for big cranes
"LNG-powered ships have a major advantage: thanks to their higher load-bearing capacity, they are designed to transport the latest generation of vehicles – namely electric vehicles, which are significantly heavier than those with conventional combustion engines," explains Matthias Auch. The Sumire Leader was the ideal choice for transporting the LR 12500-1.0, an exceptionally large and heavy crawler crane, along with a 700-tonne crane, across the ocean. "Even when we ship Liebherr cranes to Freeport in the USA, we often use the LNG freighters in our fleet. This simplifies transport significantly, as the overall weight of the cargo is already extremely high due to the cranes alone." When the project manager started working at NYK Line around 15 years ago, the company only shipped one Liebherr lattice boom crane per year. Over time, the numbers grew: in 2024, 45 crawler cranes were shipped from Ehingen and Nenzing alone – not including mobile cranes.

To California on a single tank of LNG
Before the LR 1700-1.0 reached its buyer, Hanchang Heavy Equipment Co. – one of South Korea's largest crane companies – and completed its first lift at the Taebaek Changjuk wind farm east of Seoul, it spent approximately six weeks in transit aboard the Sumire Leader. During this time, the ship made stops at various ports; before arriving in Bremerhaven, it refuelled in Zeebrugge, Belgium. This single LNG refill allowed the vessel to travel as far as the west coast of the United States. "The route is largely determined by two factors: firstly, the automotive industry, which accounts for the majority of our cargo. The second is the infrastructure – there are currently only a few suitable ports where we can refuel with LNG," explains Matthias Auch. In addition to Zeebrugge and Port Hueneme in California, these are Singapore and two ports on the Japanese mainland.

After the stop in the United States, the Sumire Leader sailed directly to South Korea. In Masan, the LR 1700-1.0 and the LR 12500-1.0 were unloaded – right on schedule! The next leg of the freighter's voyage then began without delay: it was loaded with new vehicles in China and Japan before heading back to Europe.

Welcome on Board
In addition to a tour of the ship, a small Liebherr delegation had the opportunity to observe the loading of both crawler cranes in Bremerhaven in July last year.

Piece by piece
The LR 12500-1.0 and the LR 1700-1.0 were loaded onto the Sumire Leader as 211 individual packages. In the picture: a lattice boom section of the LR 12500-1.0.

“Whether in the crane industry or shipping: at NYK, we’re also future-proofing our range of services. By 2028, 20 ships in our fleet will be powered by LNG.”

Matthias Auch
Project manager at NYK Line

A logistical powerhouse
By the time the RoRo vessel finished circumnavigating the globe, Matthias Auch and his team had already drawn up the schedules for the next crane shipments. “When we’re dealing with smaller lattice boom cranes or most of the LTM fleet, the transport can be arranged on any of our 122 ships. But with true giants like the LR 12500-1.0 or an LR 13000, an entirely different level of time management is required,” he explains. In these cases, the Tokyo headquarters coordinates what’s possible, which ship is available and when it will arrive in Europe. We’re looking at a time frame of nearly twelve weeks. “These cranes aren’t just big and heavy, they’re a whole different ball game in terms of logistics. We have to carefully plan when the crane will be “lift-ready” at the customer’s site,” he explains. And Anja Rupp adds: “So the planning also requires close coordination between Liebherr and NYK. After all, we want to ensure the customer receives their crane exactly as scheduled.”

The many years of trustful co-operation between Liebherr and NYK Line speak for themselves. “Beyond this, both companies share the goal of promoting new technologies for our customers and partners to enable a greener future for generations to come,” says Matthias Auch. For the past two and a half years, all of the shipping company’s new-build series have been LNG ships. “This puts us on the right path for the next ten to twenty years. There’s also ongoing research into ammonia as a potential fuel, which could be even more environmentally friendly. We’ll see what the future holds.”

From sea level to the mountains
The LR 1700-1.0 completed its first job in the province of Gangwon-do, east of Seoul. The crawler crane was used to erect wind turbines in this mountainous region.

Sumire Leader

- Year of construction: 2023
- In service since August 2023
- Total length: 199.99 metres
- Width: 38 metres
- Height: 46 metres
- Permitted load: 7,000 units
- Flag: Liberia

LNG:
Global maritime freight traffic is steadily increasing – the global merchant fleet currently consists of around 93,000 ships, transporting over nine billion tonnes of goods every year. However, this growth also contributes to increasing greenhouse gas and pollutant emissions. The environmental advantage of LNG is clear: using gas as a maritime fuel reduces nitrogen oxides by up to 85 per cent and generates 20 per cent less CO_2 than marine diesel. Particulate matter emissions are also reduced by around 95 per cent.

The world with Liebherr

Not long to wait now!
Bauma, the world's leading trade fair for construction machinery, will take place in Munich from 7 to 13 April 2025. You can also expect an abundance of innovations from Liebherr – machines and solutions for more climate protection, higher cost-effectiveness and greater efficiency. See you at “Hands on the future” in Munich!


LIEBHERR

Liebherr and Fortescue at MINExpo 2024: together for zero emission mining

Dr Willi Liebherr of Liebherr and Dr Andrew Forrest of Fortescue officially signing the deal between the two companies.

During an impressive event at MINExpo 2024 in Las Vegas, USA, Liebherr and Fortescue announced a significant expansion of their partnership and unveiled the jointly developed autonomous battery-electric T 264 truck. Both Dr Andrew Forrest and Dr Willi Liebherr attended the event to celebrate the historic deal. Together, the two companies will develop and validate a range of zero emission mining solutions, which will result in the supply of 475 new Liebherr machines featuring Fortescue's innovative green technology to Fortescue's operations in Western Australia. This represents about two thirds of the current mining fleet at Fortescue's operations. Fortescue's mining fleet consumed approximately 400 million litres of diesel in FY24 and accounted for 51 per cent of its Scope 1 emissions. Liebherr and Fortescue are committed to having a comprehensive and large scale zero emission mining ecosystem operational by 2030. Both companies have confirmed that, through their continued cooperation, customers will be able to access this ecosystem for their own operations in the coming years. The deal, with all of the equipment and technological innovations, amounts to the single largest deal made in the Liebherr Group's 75-year history.

This historic deal for the development and supply of zero emission equipment was announced by Dr Willi Liebherr, member of the administrative board of Liebherr-International AG, and Dr Andrew Forrest, executive chairman of Fortescue, at an impressive event on the Liebherr booth at MINExpo. The agreement between Liebherr and Fortescue will help deliver the decarbonisation targets of both companies. Once the pioneering zero emission technologies developed within the partnership enter series production, they will become available for mining companies all over the world.

"We are proud to have facilitated the single largest equipment deal in the entire 75-year history of the Liebherr Group. Especially as the expansion of our collaboration with Fortescue is an important step forward in our shared goal to decarbonise mining activities worldwide," says Dr Jörg Lukowski, executive vice president, sales and marketing, Liebherr-Mining Equipment SAS. "The technology developed as part of this record-breaking deal will not only support our customers along their decarbonisation journeys but also help us honour our commitment to offer completely fossil fuel free hauling, loading and dozing solutions by the end of the decade. In fact, in the coming years, Liebherr and Fortescue Zero will be able to offer more customers within the industry a proven, large scale zero emission mining ecosystem."

"Partnerships with companies and people like Liebherr and Willi Liebherr – where ambition is backed by action – are critical," Dr Forrest says. "This is an important next step in our 2030 Real Zero target – to eliminate emissions from our Australian iron ore operations by the end of the decade. The world needs Real Zero now – it simply cannot afford to wait. The green solutions we need are here today, and Fortescue Zero is supplying them and rolling them out across our massive mining operations. Fortescue Zero developed this battery technology and jointly developed the Automated Haulage Solution, leading the way to provide green innovative solutions to eliminate emissions from heavy industry. We invite all companies in the mining, heavy industry and haulage sectors to join us. The solutions are there and the missing ingredient is leadership. The time of others persuading you that greenwashing is a better return to shareholders and your community is over. Fortescue invites you to join us. We can together be the trailblazers who forge the world's move away from fossil fuels."

Driving forward with the autonomous battery-electric T 264

Of the 475 machines that make up this deal, about 360 will be autonomous battery-electric T 264 trucks, containing a battery electric power system developed by Fortescue Zero. This is triple the 120 trucks that were announced as part of the initial partnership between Liebherr and Fortescue in 2022. Fortescue considers this to be the optimal path for the replacement of critical diesel Heavy Mobile Equipment to meet its 2030 decarbonisation targets. All of the trucks in this fleet will ultimately be equipped with a zero emission battery power system developed by Fortescue Zero and the jointly developed Autonomous Haulage Solution (AHS) – both of which were built to be scalable so they can be retrofitted onto existing Liebherr haul trucks. This means that trucks purchased today are already futureproofed for tomorrow.

The AHS, which was co-developed using both companies' expertise, also includes an Energy Management System that coordinates the static recharge assignments for the trucks and ensures the charger is fully utilised without causing queuing on site.

"We wanted to design and build an intelligent, state-of-the-art AHS that not only includes the know-how from both an OEM and a mining operator generated over the last few years but will also be able to integrate with new zero emission solutions in the future," says Oliver Weiss, executive vice president, R&D, engineering and production, Liebherr-Mining Equipment SAS. "Therefore, control and command of zero emission mining technologies were included in the AHS from the outset. The fleet management assignment engine at the core of the AHS monitors fleet energy levels so that jobs and energy replenishment tasks can be assigned efficiently within zero emission fleets equipped with this system."

Fortescue has developed the stationary fast charging solution to support the autonomous battery-electric truck. Equipped with robotic connection options, the charger can provide up to 6 MW of power and charge the current battery-electric T 264 in 30 minutes.

"We have an enormous amount of expertise in autonomous haulage and have used that expertise to play a leading role in the development of this system," says Dino Otranto, chief executive officer, Fortescue Metals. "We have more than 200 autonomous trucks across our mine sites, travelling the equivalent of two trips to the moon and back each month. It is imperative that they operate efficiently and at maximum capacity. We have used our strong track record of being a first mover in autonomy and our technological know-how to derisk zero emission fleets to enable the industry to break free from the pilots and prototypes. The fully integrated AHS will be a game changer for us in reducing our carbon emissions."

The pathway to an autonomous battery-electric solution
The T 264 battery-electric truck will commence onsite validation at the end of 2025. The approximately 360-strong T 264 truck fleet has already begun arriving to Fortescue's Western Australian operations, with the first trucks delivered to Fortescue's Eliwana mine in October 2023. The initial 240-tonne capacity trucks will be converted to zero emission powertrains before 2030. However, most of the fleet will be supplied in battery-electric configuration from first arrival.

Four autonomous trucks are currently in validation at Fortescue's testing site, with the first deployment of operational autonomous trucks expected in Q1 2025. All T 264 trucks are arriving autonomy-ready and will be progressively deployed to autonomous operations across Fortescue's sites.

Validation of the full autonomous battery-electric solution is expected to be complete in early 2026.

Pushing towards the future with battery dozers
Liebherr and Fortescue will combine their considerable expertise to jointly develop a zero emission dozer. Fortescue's battery power system will be integrated into an electric version of the Liebherr's flagship mining dozer, the PR 776, which is currently in development. Once developed, Liebherr will supply Fortescue with 60 units of this zero emission dozing solution to meet Fortescue's Real Zero targets.

Proven technology for a new era of mining
This historic deal also includes the supply of 55 R 9400 E electric excavators. This fleet will be a mix of backhoe and face shovel configurations. Fortescue first adopted Liebherr's electric excavator technology in 2023, with the commissioning of Australia's first operational electric excavator in December of that year. Three R 9400 E excavators are already operational across Fortescue's sites.

Increasing organisational capacity
Ensuring the successful delivery of all of these machines requires significant investment from both Liebherr and Fortescue.

"We are on track with our investment plans to develop our global infrastructure to ensure that we can accommodate the expansion of our business and provide our customers with larger quantities and a wider range of zero emission technology," says Michael Arndt, executive vice president, service and quality, Liebherr-Mining Equipment SAS. "We will see the outcomes of these investments soon, with many more milestones to be implemented over the next five years."

"As the mining solutions we offer continue to expand, so must our capability and capacity to deliver and service these ever-advancing technologies. In addition to infrastructure, we are also investing heavily in our people and remote support services to be able to support these new products and technologies," continues Arndt.

The historic deal between Liebherr and Fortescue features a total of 475 zero emission Liebherr machines, including 360 autonomous battery-electric T 264 trucks.

Fortescue is also boosting its capacity to supply the hundreds of batteries required for these machines – both trucks and dozers.

“The T 264 battery-electric truck, powered by a Fortescue Zero battery power system, will be one of the first zero emissions solutions for mine haulage in operation globally,” Mr Otranto says. “It combines Fortescue Zero’s heritage of innovation, delivering a battery power system designed for best-in-class range and durability in all mining environments, with Liebherr’s proven haul truck excellence. The zero emission battery power system developed by Fortescue Zero also reflects Fortescue’s continued evolution into a leading technology company that is selling its innovative solutions to the world.”

Ensuring local capacity

The development and manufacture of this enormous fleet is not the end of the story. All 475 machines of this deal will become part of Fortescue’s iron ore hub in the Pilbara region of Western Australia. As such, Liebherr-Australia – Liebherr’s sales and service company in the country – has already begun its preparations for supporting this enormous fleet.

“This large volume of machinery presents a unique growth opportunity for Liebherr-Australia. We are significantly ramping up investments in our branches, reman facilities and our people to ensure we have the capacity to safely and efficiently maintain not only this equipment but that of our other customers,” says Trent Wehr, managing director, Liebherr-Australia Pty. Ltd.

Note

“Zero emissions”, when used in relation to vehicles or power systems means, that (a) a vehicle’s exhaust, or the power system, only emits water vapour when in operation or (b) if the vehicle is 100% battery powered and the vehicle, or power system, does not emit any exhaust emissions.

The cooperation in the technology and digitalisation work ensures that innovation will continue to be at the heart of Liebherr's activities. Marcel Flir and Stephan Schrade, head of digital products and services at Liebherr-Werk Ehingen GmbH, during a joint conference.

Game changer digitalisation: from ego to ecosystem

The worlds in which we live and work are continually transforming. Within this, digitalisation is a megatrend that Liebherr is using to create innovations – across multiple product segments. There is a particular focus on tailor-made, sustainable solutions with measurable added value for customers, for example with greater process efficiency or the conservation of precious resources.

Aristotle once said that the whole is greater than the sum of its parts. In the age of digital transformation, this insight takes on a whole new dimension. "The focus is no longer just on the technological excellence of devices and machines. Today, we focus much more on the entire value chain for customers and users of Liebherr solutions. It's all about concrete, measurable added value that comes from digitalisation," explains Stephen Albrecht, managing director at Liebherr-International AG. Ever better opportunities for data capture and analysis would pave the way to this. "Augmented products with application scenarios that can be experienced and optimised digitally enable this added value to be seen in a different, much brighter light. And, not least, they can also contribute to decarbonisation."

Stephen Albrecht is managing director at Liebherr-International AG.

Marcel Flir is head of digital business and strategy at the Liebherr Group.

Thinking about technology and measurable added value for customers from such a holistic perspective is second nature to Marcel Flir. The skilled environmental and process engineer with a qualification in industrial engineering spent several years building the digital business at the Liebherr site in Nenzing (Austria) and was also responsible for leading the product management for digital solutions there. He is now head of digital business and strategy for the Liebherr Group. The focus here is on identifying and exploiting synergies in Liebherr's digital solutions, which extend across all 13 product segments and all parts of the customer journey. This includes, for example, operational planning, maintenance management, digital inventory management, smart home integration and organisational matters.

Always ahead of the times

For Liebherr, digitalisation is not a new trend that is only just being discovered and inspiring innovation. Development engineers at Liebherr have been working on how to capture, record and transfer machine and process data since the mid-1990s in order to use this data for greater product optimisation and emissions reductions. "Back then, the time of user-friendly data management hadn't arrived yet – with 56k modems, the stream of data first had to be painstakingly threaded through a digital eye of a needle," says Marcel Flir. At the same time, remote maintenance and remote access to controls and components were quickly gaining importance for Liebherr devices, which are exported all over the world, and there was demand for relevant solutions.

Today, specialists at Liebherr work on digital innovations across all product segments – and on connecting the constantly evolving options, machines, refrigerators or components to the associated systems. "We have several hundred digital solutions in the field, from APIs to IoT solutions and training simulators – and more are on the way of course," says Stephen Albrecht. The development departments in the Liebherr product segments shouldn't need to completely rework the relevant digital basis every time. "We seek out and utilise synergies wherever they make sense. To do this, we call on proven standards and system interfaces – with data security, data governance and cybersecurity in general playing a central role, along with the use of established modules. Overall, we drastically reduce the time to market, while also offering our customers ISO 27001-certified digital solutions and services," explains Marcel Flir.

Finding the best solution together

Digitalisation is not an end in itself for Liebherr – it needs to be internalised, accepted and practised in day-to-day work. "We don't need to be the first with a solution in the field – instead, we discuss the opportunities and risks associated with digitalisation in-depth with our employees, stakeholders, customers and partners and talk about how we can reach the best and most sustainable solutions together. This is an interdisciplinary approach that listens to every voice that is actively involved in the solution process," says Marcel Flir, describing the Liebherr route to digitalisation.

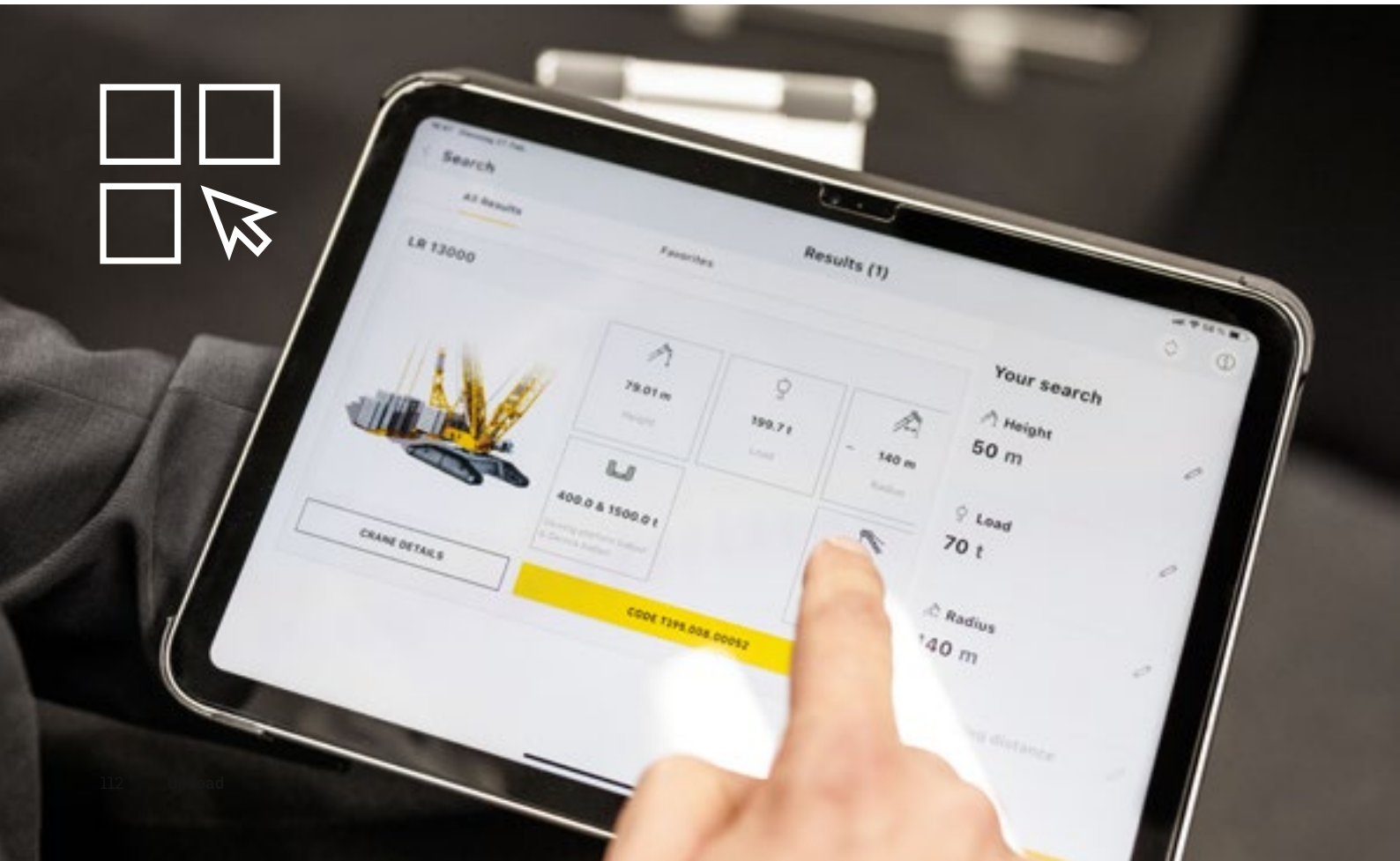
“It depends greatly on how we handle data ourselves,” says Stephen Albrecht. He describes how the focus is always on “improving the customers” processes and the efficiency of how they use their products.” This includes, for example, preparing ways to integrate partner data into the digital ecosystem or to deal with different legal frameworks around the world in the context of digitalisation. “It would be wonderful for data to already be interoperable and useable across manufacturers,” says Flir. This demands a certain mindset.

“Going it alone is a thing of the past. Customers, manufacturers, associations and providers of solutions are all in the same boat when it comes to adding value and achieving the decarbonisation targets that are now needed. We are bringing a real paradigm shift to the table: out with the egosystem, in with the ecosystem,” sums up Marcel Flir. “So things that belong together grow together.”

MyLiebherr – one customer portal for all
One example of this holistic perspective is the MyLiebherr customer portal. “It is the main gateway to Liebherr’s digital world’, says Marcel Flir. “MyLiebherr started out as a spare parts portal. We then gradually expanded the application fields in an iterative process and so created a hub that now has over 125,000 active users and over 60,000 customers.” Users can now book online training for professionals or buy licences or spare parts. It also offers applications for planning crane lifts, site monitoring and integrated functionalities for machine and maintenance information. In other words, MyLiebherr enables users to access the entire digital world of Liebherr with just a few clicks.

The customer portal not only offers comprehensive services, but is also a building block for enhancing Liebherr products and services with further functionalities as part of end-to-end digitalisation. Stephen Albrecht explains: “Because in technology development we have everything on our plan – from the idea, production and service through to discontinuation and recycling – and this creates many opportunities for us. For example, the data that a technician records at one site when reconditioning used components can be made available to development engineers at another site. Digitalisation can therefore help us to make our products even more robust and efficient right from the development stage.”

The MyLiebherr customer portal has long since become much more than a spare parts portal. It is the central gateway to Liebherr’s digital world.



The Liebherr Digital Development Center in profile

The Liebherr Digital Development Center was founded in 2020 to provide all product segments within the Liebherr Group with digital products based on cloud and IoT connectivity, as well as data and AI integration. This creates digital solutions for the future, which in turn improve efficiency, value and customer service for Liebherr products.

The Digital Development Center focuses on three core objectives in particular:

1. Improving the speed and efficiency of digital development within the Group
2. Supporting the standardisation of digital technologies within Liebherr
3. Attracting and retaining talent for digital development

The team
At the Science Park in Ulm (Germany), a diverse team of software engineers, data science specialists, cybersecurity experts and AI enthusiasts works on digital development for the whole group of companies. There are around 85 employees (correct as of March 2024) from a range of sectors, some with up to 25 years of experience.

The methods
Agile work, fail-fast approach, rapid prototyping, data-driven decisions to improve production processes.

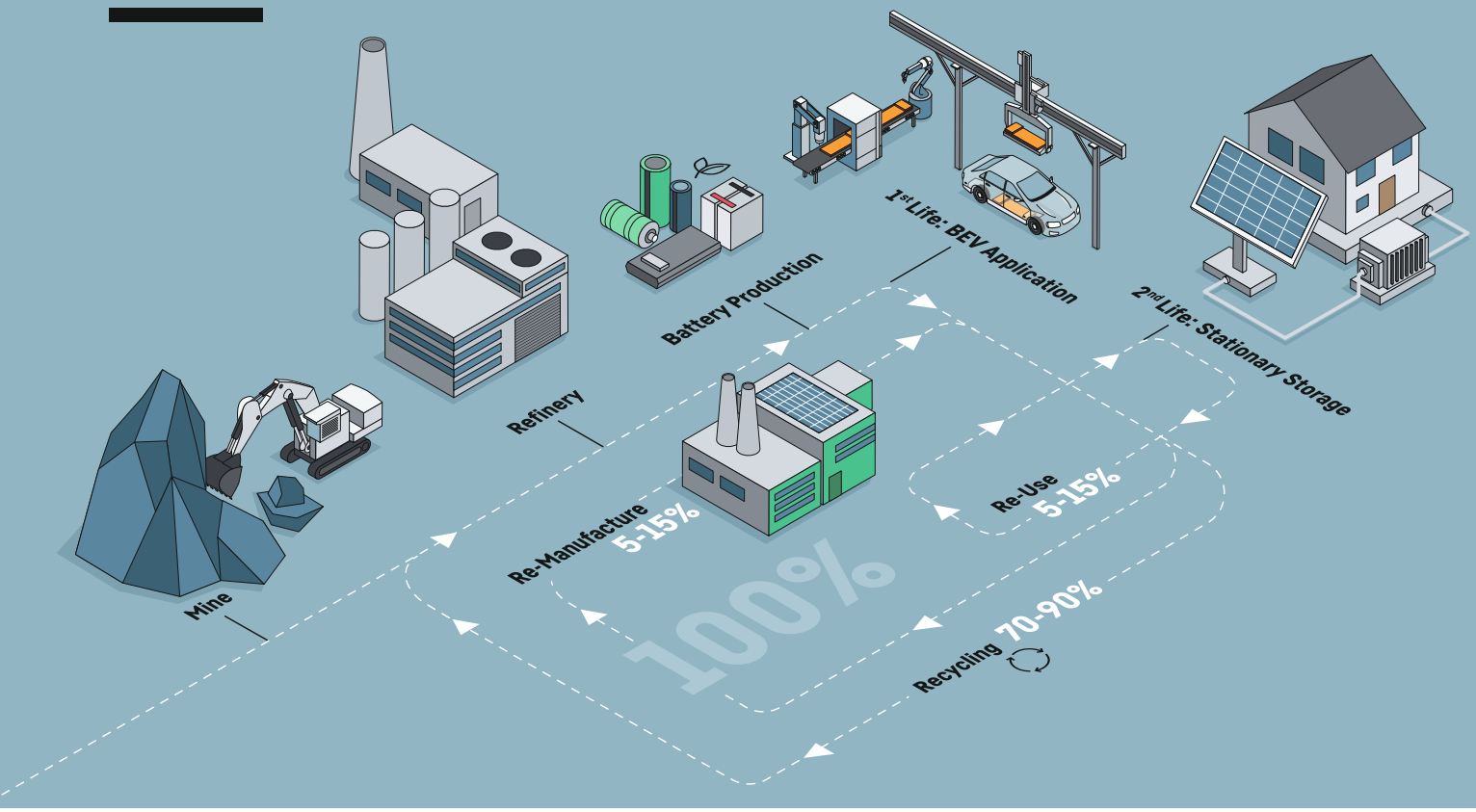
User-specific data is important for decarbonisation. Marcel Flir tells a customer how real operating data can be used.

Pooled digital expertise
In all of this, the Liebherr Digital Development Center, based in Ulm (Germany), takes on the role of an enabler. It has been working continually on technology and digitalisation since 2020, based on the needs of the customers. “With the Digital Development Center, we have created the basis for digital solutions that we roll out to the market in our product segments. As an internal service partner, it covers the entire digital chain – contributing extensive knowledge in the areas of IoT, cloud solutions, data science and mobile applications and sharing this with the product segments. This speeds up our development and helps us to standardise digital technologies Liebherr-wide,” explains Stephen Albrecht.

Customer-specific solutions in focus
Supporting customers as a partner in digital transformation and therefore also creating prospects with a view to sustainable development, is also useful in the development of drivetrains, for example. “Electrification is not about transferring the performance capability of a diesel unit to an electric drive one-to-one,” says Stephen Albrecht. He believes it is much more important to find out what the customer is actually using their machine for in day-to-day operations. “As we are able to capture real operating data and transmit it from our telematics units, we can now optimise the design of the battery and electric powertrain to meet customer requirements. And we don’t always need to stick 100 % to the performance parameters that were originally applied to a conventional drive.” Another advantage: by incorporating such user-specific data, the Liebherr digital experts and the development engineers are also helping to accelerate the introduction of CO_2-optimised machines.

“Liebherr has the skills, the determination and the vision to achieve great things, because we cover the entire digital chain and aim to create complete ecosystems of our applications with our digital solutions,” adds Stephen Albrecht. “We haven’t reached the finish line yet in these transformative times, but we are on a very, very good path.”

Recycling battery components from electric vehicles

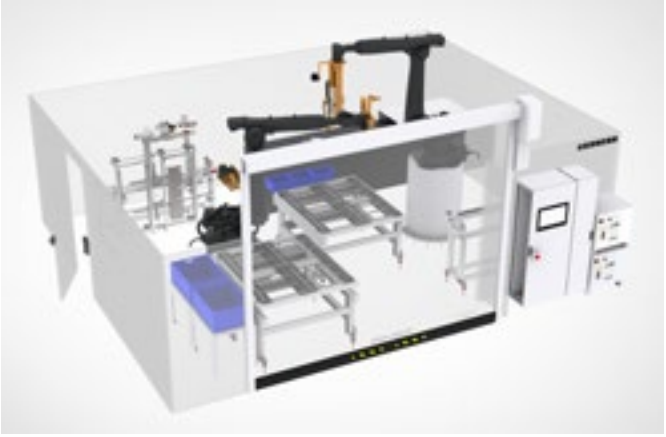


Life cycle, second life applications, remanufacturing, and recycling of high-voltage battery systems

Liebherr automates disassembly of battery packs

In 2030, the batteries of an estimated four million electric vehicles will reach the end of their useful life. The lithium-ion batteries contain valuable raw materials, and recycling them makes both ecological and economic sense. Up to now, however, the disassembly of the battery system has still been complex and expensive as the separation of the components is usually done manually. This is where Liebherr-Verzahntechnik GmbH comes in. The company is developing strategies and processes for the automated disassembly of battery packs and is a partner in the federal government-funded research project "ZIRKEL", which investigates the entire circular economy of traction batteries.

Lithium-ion vehicle batteries are taken out of circulation once their total capacitance has reached about 70–80% of their original capacitance (state-of-health). The majority of these batteries are recycled and the raw materials are returned to the material cycle for the production of new batteries. Depending on their condition, a small proportion of the old batteries are reused in battery-electric vehicles (remanufacturing) or in second-life applications such as stationary battery storage systems. When they have finally reached the end of their useful life, the new EU Battery Regulation stipulates recycling quotas and minimum quantities of reused raw materials in new production.



3D layout of the partially automated prototypes process station

Liebherr pilot plant for the automated disassembly of battery packs

The industry must find the most efficient solutions possible for returning them to the material cycle, especially since the volumes of batteries returned will increase significantly in the future. The aim is to achieve a sustainable, CO_2-neutral battery production along the entire process chain with unlimited reuse of materials in a closed product life cycle. This is intended to minimize waste products and dependence on important primary materials.

High recycling rates through automation

Due to the relatively low quantities and large number of variants of diverse manufacturers and product generations, many disassembly and remanufacturing processes still take place manually today. “We are almost talking about a batch size of 1 in the return flow of battery packs,” explains Jan Pollmann, Development Engineer for Automation Systems at Liebherr-Verzahntechnik GmbH. In order to achieve a high recycling rate and to be able to process the increasing return volumes economically, it is necessary to automate the processes. Another aspect is occupational health and safety: automated disassembly ensures the health and safety of employees and excludes their exposure to high voltage, hazardous substances or fire risks.

Liebherr develops automated disassembly processes for battery packs

The “ZIRKEL” research project, funded by the German Federal Ministry of Education and Research (BMBF), involves an interdisciplinary consortium from research and industry to investigate the entire recycling management of batteries. As part of this project, Liebherr is developing strategies and processes for the automated disassembly of battery packs. The aim is to recover and recycle the highest possible proportion of raw materials by mechanically disassembling and sorting the components. By removing valuable components or those containing pollutants at an early stage, the cost- and energy-intensive pyro- and hydrometallurgical processing of the so-called black mass, i.e. the raw material mixture that remains after the batteries have been shredded, is reduced.

Automation challenges

In addition to the variety of batteries, a number of other challenges exist for an automated disassembly process: used batteries can be corroded, deformed or damaged. Contaminated components are sometimes difficult for vision systems to detect. Sealants, adhesives or heat-conducting pastes change their consistency and properties over time and may be difficult to remove. Risks such as high voltage or hazardous substances must be taken into account. And finally, the disassembly of flexible parts such as cables or cooling hoses is difficult to automate. “In principle, the established assembly process runs backwards here, but it is many times more complex,” explains Viktor Bayrhof, Product Manager for Automation Systems at Liebherr-Verzahntechnik GmbH.

Pilot plant for the “ZIRKEL” joint project

Liebherr’s first pilot plant has been installed at the Open Hybrid LabFactory research campus in Wolfsburg in November 2023. Liebherr will continue to support the project there and carry out further test series. The results will be incorporated into a planned industry guideline for recyclable battery product design. “We are pleased to be able to contribute our process expertise in the field of automation to this future-oriented project,” explains Jan Pollmann.

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