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CRAWLERS ON TRACK

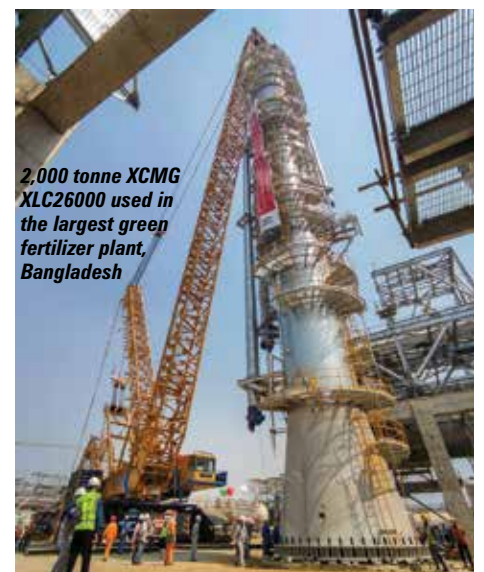
The Ukraine-Russia conflict has had an impact on business mostly for the worse, at least in the short term. However, as crisis goes, there are those who benefit, and this is certainly the case for Chinese crawler crane sales. With western crane manufacturers affected by sanctions the door has opened more widely for the Chinese companies which are not subject to the sanctions.

Chinese construction equipment manufacturers have been producing lattice crawler cranes for many years, and in significant volumes, mostly for its sizeable domestic market, which some have estimated to take as many as 3,000 units in some years, roughly the same as for the rest of the world. The leading companies such as Sany, XCMG and Zoomlion have also been exporting, and have been particularly successful in markets where the Chinese government has funded major infrastructure projects.

While they have struggled to make a major impact on Western markets, Chinese manufacturers - since the election of its leader Xi Jinping in 2013 and the slowing down of its economy a few years ago - have been looking to export more and more of its products and have been refining and improving their products. This is particularly true with cranes up to around 250 tonnes where they mostly compete with Japanese manufacturers - the toughest possible in terms of quality and reliability - and they have been learning and adapting.

CHINESE SECOND WAVE

The Chinese crawler crane manufacturers first made forays into overseas markets at the end of the 1990s and early 2000s, but the quality and design were lacking. In what you might call a second wave, the products have improved considerably. Chinese built cranes are now seen on the largest infrastructure projects around the world, for example at the NEOM project in Saudi Arabia. The project - an initiative of Saudi Arabia's ruler crown prince Mohammed bin Salman - is a mega project covering 26,500 square kilometers, with a new city, resorts and other developments including a floating industrial complex and global trade hub, all powered exclusively by renewable energy sources. The developers hope that the majority of the city will be complete by 2039. However, even though the development is still at ground level cranes are already on site ahead of time ready to work - possibly thanks to availability, not a luxury afforded by Western manufacturers whose delivery times can be from six months to two years depending on the size of the crane.



2,000 tonne XCMG XLC26000 used in the largest green fertilizer plant, Bangladesh



Sany's 4,500 tonne SCC45000A - claimed to be the largest crawler crane in the world

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MAJOR US MARKET

Outside of China, the largest crawler crane market is North America which typically takes around 400 units or about 13 percent of the market. The US market is dominated by Liebherr, Link-Belt, Kobelco and Tadano - probably in that order in terms of value - with Link-Belt currently doing particularly well with its small to mid-range cranes and Tadano possibly suffering from the Demag acquisition transition effect.

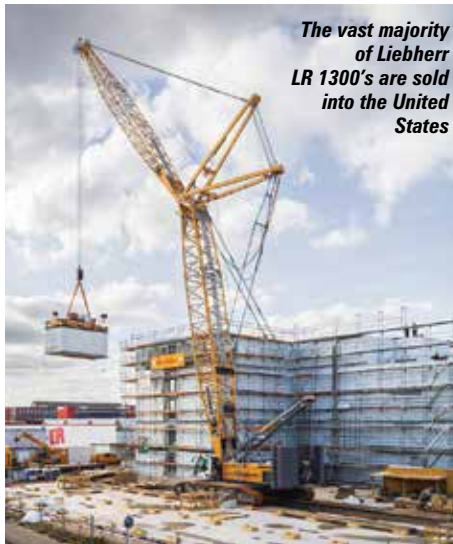
Liebherr claims that its 300 tonne LR 1300 is the most popular lattice crawler crane in its class, selling between 40 and 60 units per year, with between 80 and 90 percent sold into the States. Liebherr crawlers are built at two facilities - Nenzing in Austria which produces lattice crawlers up to 400 tonnes and Ehingen in Germany for the larger capacity models - 500 tonnes and upwards topped by the 3,000 tonne LR 13000 and the soon to be launched 2,500 tonne LR 12500-1.0.

Liebherr's recently introduced 400 tonne LR 1400 SX is the largest crane produced in Nenzing and is sold as a typical lift crane for tilt up construction in the US. In Europe All Terrains rule the roost, although the Netherlands, with soft ground requiring major foundation works for most projects, is also a major market for small to mid-range crawler cranes.

While the 600 tonne plus cranes used on the wind and major infrastructure projects are the headline grabbers, the bread and butter sector is around the 100 tonne capacity range. In China a good proportion of its crawler cranes are even smaller at up to 50 tonnes as was the case in Europe in the 1960s and 1970s.

HIGH CAPACITY CRAWLERS

In recent years crawler cranes have peaked at around 4,500 tonnes, at least for series production models. This is due to the big heavy lift contractors when working on large projects

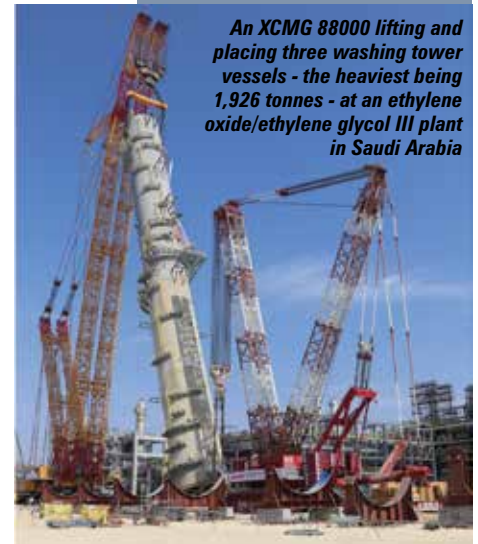


The vast majority of Liebherr LR 1300's are sold into the United States

preferring to build their own modular lifting machines or jacking systems and gantries to lift very large modules or bridge sections. Easy mobilisation is not a problem as they would remain on site for several years.

The world's largest 'production' crawler cranes are now manufactured by Chinese companies XCMG and Sany. XCMG has its 4,000 tonne XCMG 88000. A few years ago, a unit owned by Sinopec Engineering carried out several big lifts - the first outside of China - lifting and placing three washing tower vessels - the heaviest being 1,926 tonnes - at an ethylene oxide/ethylene glycol III plant in Saudi Arabia. The XCMG 88000 was rigged with 102 metres of dual boom, topped by a dual 27 metre jib with a 1,750 Terex Demag CC-8800 crawler crane used to tail in the vessel.

The crane - a joint development between Sinopec and XCMG - first went into service in 2013 completing about 150 heavy lifts on projects all over China. The crane's heaviest lift was a test load of 4,500 tonnes. Although telescopic crawlers are not covered in this feature, early last year XCMG announced the 2,000 tonne XCC2000 'Windflex 4' telescopic crawler crane designed for wind turbine installation. On its first job the XCC2000 lifted a 132 tonne nacelle to a hub height of 145 metres. The crane used the fully extended main boom plus around 60 metres of cable supported lattice extension for a maximum tip height of around 165 metres. According to the company the lift took just 20 minutes and that once the blade assembly was installed the crane



An XCMG 88000 lifting and placing three washing tower vessels - the heaviest being 1,926 tonnes - at an ethylene oxide/ethylene glycol III plant in Saudi Arabia



XCMG's XLC26000 in Bangladesh

was ready to travel to the next turbine foundation within three hours.

More recently Sany has announced what it claims is the largest crawler crane in the world - the 4,500 tonne SCC45000A. In twin boom configuration the crane has a maximum load moment of 98,000 tonne/metres and features a 126.5 metre main boom plus a 15.5 to 48.5 metre fixed jib, while a 30.5 to 108.5 luffing jib can be added for a maximum system length of 216.5 metres. It has a 62 metre twin Superlift back mast/derrick boom which provides a ballast radius of 28 to 37 metres for its tracked counterweight system.

FIRST LR 1400 SX IN OPERATION

One of the main reasons Atlanta-based Full Tilt Crane Services added a 400 tonne Liebherr LR 1400 SX to its fleet was to lift larger and heavier panels. "The crane is used to lift concrete tilt-up panels on a site in Atlanta, which are being manufactured on site by our parent company Martin Concrete Construction," said managing director Jason Richardson.

The largest tilt-up panel has a height of about 34 metres - much larger than would be available in the precast market. Producing on-site is more flexible than precast and the LR 1400 SX plays a significant role thanks to its easy set-up and transportation despite its size. With the base transport weight of 46 tonnes, it can be easily moved between the jobsites a positive advantage as the company frequently moves from job to job, often completing projects within one to two weeks. The company says that it can fully self-assemble the LR 1400 SX in less than 12 hours with platform and guard rails simply folding down for transport rather than being removed.



Full Tilt Crane Services added a 400 tonne Liebherr LR 1400 SX to its fleet to lift larger and heavier panels

CRAWLER CRANES

The crane can also be set up with a single boom with a maximum capacity of 2,000 tonnes. In this configuration it offers a main boom length of 108.5 metres or 102 metres with an 18.5 fixed jib. A 108.5 metre luffing jib can also be installed on a 96 metre main boom, with a 53 metre derrick boom and suspended counterweight radius of 27.5 to 33.5 metres.

The SCC45000A follows on from the 3,600 tonne SCC86000TM launched in 2011 and the 4,000 tonne SCC40000A introduced last year. The first unit has been taken by Shandong based heavy lifting and haulage specialist WH Lifting.

2,500 TONNE LIEBHERR

Last year Liebherr unveiled an all-new 2,500 tonne crawler crane - the LR 12500-1.0 - which it said introduces new design concepts that will eventually migrate through the rest of its range. The crane's all-new superstructure frame and main boom design provide a wide main boom cross section, which the company has dubbed the "HighPerformanceBoom," offering similar stability to its PowerBoom while keeping individual elements compact enough for economical transport and shipping.

The "HighPerformanceBoom" features a front section with a transport width of four metres while the rear section is 3.5 metres wide. The new boom sections are 10 metres in length and incorporate a new mechanism to reduce their overall dimensions for transport. A separate device stabilises the lattice section during the assembly on site. It has a maximum length of 110 metres and can be extended to 155 metres using sections from the luffing jib. Maximum hook height is around 200 metres with 100 metres of main boom and a 108 metre luffing jib.

The crane's derrick boom suspended ballast pallet comes from the 3,000 tonne LR 13000 as do most of the counterweight slabs. It also adopts the LR 13000's B0 version allowing it to operate without derrick ballast. When used the suspended ballast is infinitely adjusted by the crane management system. The LR 12500 will feature twin Liebherr six cylinder diesels with a redundant design in order to ensure availability in the case of a breakdown or servicing.

The new model fills the gap between the 1,350 tonne LR 11350 and 3,000 tonne LR 13000 and is aimed at meeting the growing demand for large crawler cranes from the renewables, petrochemical and port handling sectors to lift increasingly heavy offshore wind components. The lead customer for the new crane is Sarens.



First picture of Liebherr's all-new 2,500 tonne crawler crane - the LR 12500-1.0



Manitowoc has upgraded and updated its 250 tonne 999 into the MLC250

MANITOWOC UPDATES

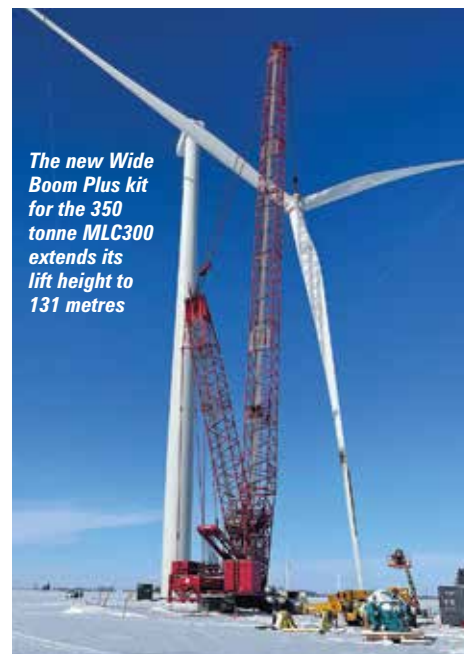
Manitowoc has upgraded and updated its 250 tonne 999 into the MLC250 lattice crawler crane, using common componentry and designs to other models in its range. It has also launched a new Wide Boom Plus kit for its 350 tonne MLC300. While the MLC250 includes significant updates and changes it retains many of the characteristics of the Maniowoc 999 while providing more operator comfort and being easier and more efficient to repair and maintain.

The key specifications and load charts remain largely unchanged, with the same boom sections and 88.4 metre maximum boom length, while jib choices include a 24.4 metre fixed jib or 73.2 metre luffing jib. One significant difference is a switch to open-loop hydraulics rather than the 999's closed-loop system. Now, every main function aside from slew is powered by the same two main pumps, improving performance. Power comes from a more efficient Tier 4F/EU Stage V Cummins.

Taking inspiration from the MLC100 and MLC150, the new model features fabricated steel component enclosures with swing open doors, rather than the fiberglass gullwing doors of its predecessor and the track drive motor is relocated from the carbody to a direct drive on the track frame for improved performance. The new operator's cab is wider, tilts up to 20 degrees and features the easier to use and more modern Maniowoc Crane Control System (CCS) with a full colour graphic display and dual axis electronic joysticks. An optional 'Vision Cab', is also available, similar to that offered on MLC300 and MLC650 models.



The new cab on the MLC250 tilts by up to 20 degrees



The new Wide Boom Plus kit for the 350 tonne MLC300 extends its lift height to 131 metres

WIDE BOOM PLUS KIT

The new Wide Boom Plus kit for the 350 tonne MLC300 extends its lift height to 131 metres when used with the VPC-MAX superlift system and extended upper boom points. The kit is made up of several 3.5 metre wide boom inserts that are installed to the base section, topped by a transition section to which the regular boom is connected. Aimed at wind turbine installation it adds almost 30 metres to the standard main boom.

Manitowoc product manager Brennan Seelinger said: "Wind turbine work above 90 metres currently requires a 400 tonne or larger crane which can result in higher costs for operation and transportation. Our new boom inserts will open up more jobs for crawler crane owners and increase utilisation of our MLC300 with added flexibility."

BIGGER TADANO?

Tadano's integration of the Demag products continues although most of the new product launches so far have been All Terrains. This may be changing with rumours that the company may introduce a new crane, possibly larger than the 1,600 tonne CC 88.1600-1 later this year or early 2024. Watch this space!



Tadano may be planning a big crawler crane launch later this year?



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CRAWLER CRANES



Link-Belt launched a new, fifth generation 110 ton/100 tonne 218|V lattice crawler crane at Conexpo

NEW LINK-BELT 218|V

Link-Belt launched a new, fifth generation 110 ton/100 tonne 218|V lattice crawler crane at Conexpo. The crane has been the workhorse of general contractors and engineering firms in the USA for more than 35 years since the original HYLAB introduction.

New features include a 12 inch touchscreen LMI operating system which offers better visibility, ergonomic foot pedals are closer to the cab floor offering better unobstructed views of ground level. The new display features an operator interface with new counterweight sensing for live readout of stacked counterweights, live ground bearing, swing angle indicator, list and trim indicator, engine RPM monitoring and improved diagnostics. The crane operator is assisted by on-board high-resolution winch view, back-up and non-cab side swing view cameras with night vision. Power is supplied by a Cummins Stage V engine which can run on hydrotreated vegetable oil (HVO) diesel.

The 218|V self-assembles with 30,844kg of upper counterweight and 13,698kg of lower car body counterweight. The counterweight removal system is common to Link-Belt's telescopic crawler line-up and comes with a remote control for single person operation. An additional 5,443kg of counterweight provides a five percent average capacity gain over previous 218 HSL. There is also a new quick reeve boom head with button style termination for easy setup. The boom section on the 218|V is common to 218 HSL. Maximum main boom length is 70 metres and maximum fixed-jib length is 22.8 metres.

NEW G-3 KOBELCO

All of Kobelco's G-3 series crawler cranes have been re-engineered and include a new cab, 362hp Isuzu Tier 4 compliant engines and a new paint scheme. The cab design offers improved visibility and has blue tooth and USB capabilities. All the previous hydraulics, crane travel system and other remain the same together with its standard features including large touch screen LMI, swing limiter, self-erection capabilities, fuel saving G-Modes, KCROSS Telematics, and boom and jib commonality with the previous models.



The new Kobelco CK2000G-3 at Conexpo



The Link-Belt 218|V set up

At Conexpo the company displayed three new G-3 models - the 280ft boom/160 ton CK1600G-3, the 280ft boom/200 ton CK2000G-3 and the 300ft boom/275 tonne CK2750G-3. All three can take a wide variety of attachments including fixed and luffing jib and optional free-fall winch, and feature a high performance tracked undercarriage and hydraulic system and the new operator friendly



The inside of the new Kobelco G-3 cab

ELECTRIC OPTIONS

The developed world's obsession with emission and noise-reducing electric powered equipment continues with more crane manufacturers adding battery electric cranes such as Tadano's 90 tonne GR-1000XL EVolt Rough Terrain unveiled at Conexpo, Spierings and its eLift mobile self-erecting mobile tower cranes along with PV-E and Liebherr Unplugged electric crawler cranes and Sarens 1,650 tonne capacity SGC-90 electric ring crane.

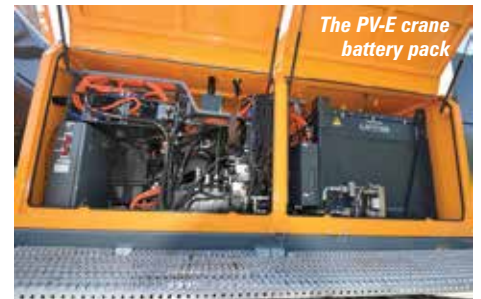
Dutch manufacturer PV-E Crane launched its 160 tonne EC160 crane early last year and followed it up with the 80 tonne EC80 with 37 metre main boom at Bauma. The EC80 is a smaller version of the larger crane with a similar driveline and a 250kW electric motor - with 360kW peak power - and powered by a battery pack of one or two 130 kWh LFP batteries. It is also possible to opt for a larger 195 kWh output XXL battery pack which further extends the running time. "On a full standard battery pack, it is possible to run for eight to ten hours," said managing director Rob van den Boogaard. "It can however be swapped out rather than recharged if the crane needs to work longer."



Sarens' 1,650 tonne SGC-90 electric ring crane



The 80 tonne battery powered PV-E EC80



The PV-E crane battery pack

The new EC series is a range of 100 per cent battery-powered lattice boom and telescopic boom crawler cranes. Lattice boom models will include the EC80, EC90, EC100, EC135 and EC160 with capacities as per the model numbers. In terms of initial purchase price, the company says that the 160 tonne battery electric model will carry a premium of 10 to 15 percent over a diesel equivalent.

PVE gives a 3,000 load cycle, or five year, warranty on the batteries. "The batteries are very efficient charging at 45 kWh per hour from a typical 63 Amp site supply, which means less than six hours to fully recharge the 260 kWh battery from empty to full. The charger is built into the crane, only a charging cable is needed to connect to the supply."

The first EC80 for Dutch contractor Heijmans was equipped with a tilt cab, overpressure system, third winch in the bottom boom section for a vibratory hammer, platforms on both sides of the superstructure, folding railings, 360 degree camera system, central counterweight, toolbox on undercarriage and extra working lights.

"For such a small company, we are well able to offer custom made solutions," said Van den Boogaard. "For example, the EC80 at Bauma had an AC connection in the undercarriage, so it can also be connected directly to a power grid for lifting or slewing. The specs and looks of this crane appeal to customers, and thanks to its good value for money, we expect to sell a lot of them. Both models are available from stock and there has already been interest from the Benelux, England, Scandinavia and Singapore."

Strong like a bull!

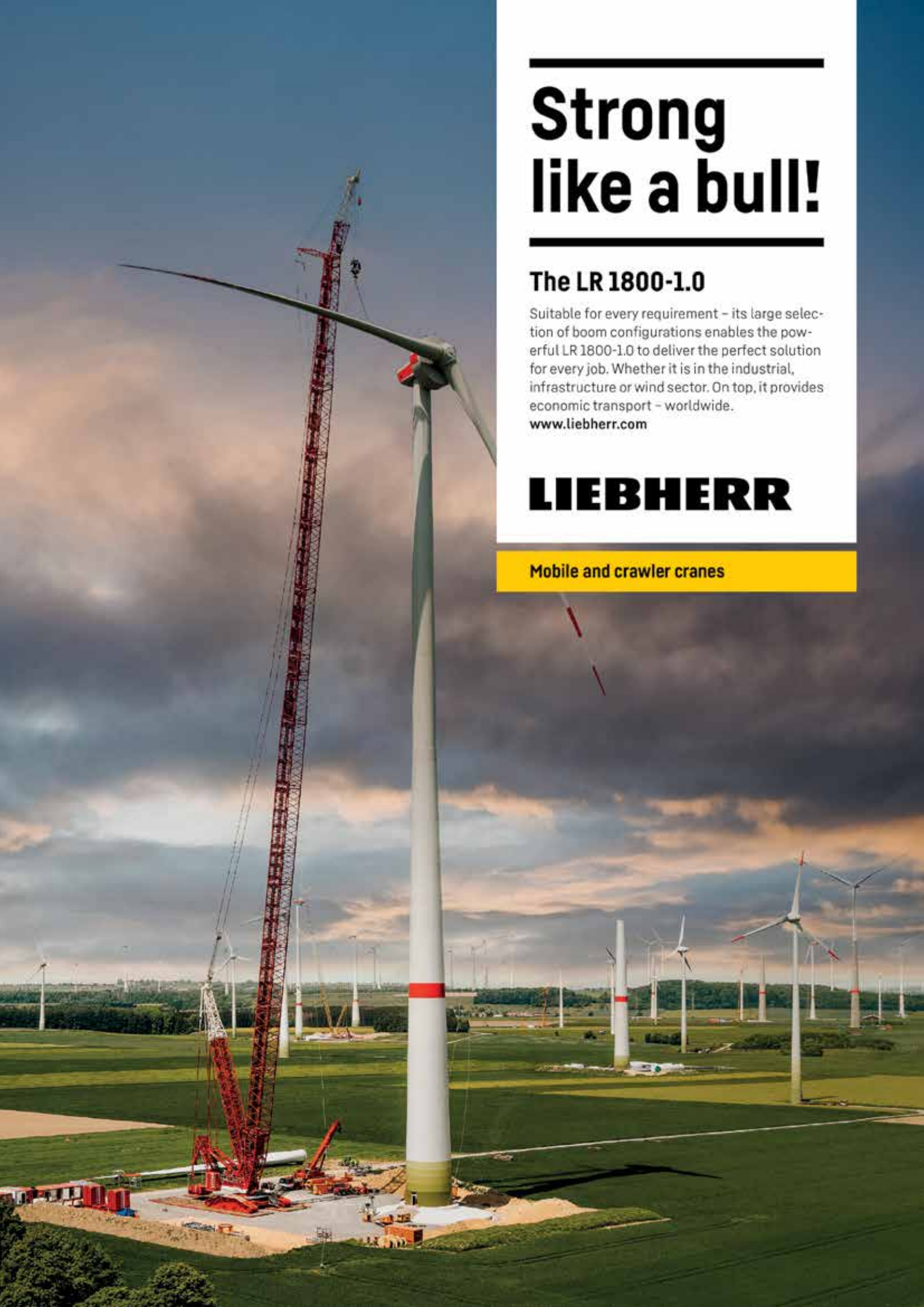
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CRAWLER CRANES

LIEBHERR UNPLUGGED

Liebherr launched the first models in its range of Unplugged battery electric crawler cranes - the 200 tonne LR 1200.1 and the 250 tonne LR 1250.1 - at the end of 2021 and since then has added the 130 tonne LR 1130.1 and the 160 tonne LR 1160.1.

The company says that interest in the Unplugged cranes has been high with around 30 cranes sold so far, roughly one Unplugged for every six or seven diesel machines. With the early innovators having already taken delivery, Liebherr expects this ratio to increase but not significantly over the next few years although the growing noise and emissions pressures on

contractors working on inner city jobsites may change that.

So far most Unplugged cranes have been delivered in Europe and Scandinavia in particular. Four units have been shipped into North America, a few to Australia and recently one into Hong Kong. The high battery cost is said to add an additional 25 percent to the price of the crane - although that is set to come down, but when calculated over the life of the machine that investment is likely to be fully recouped. ■



Liebherr has sold about 30 Unplugged crawler cranes to date

NEW 700T LIEBHERR NARROW TRACK CRAWLER

Liebherr has just announced a new 700 tonne narrow-track lattice boom crawler crane - the LR 1700-1.0W - replacing the 600 tonne LR 1600/2-W aimed at the wind turbine installation market. The move follows the introduction of the regular LR 1700-1.0 which replaced the standard LR 1600/2 almost two years ago.

The new crane has new narrow track travel gear with four drive motors and two metre wide track pads as standard. The crane also features a new carbody and cruciform support base, with an overall width of 5.9 metres - only 100mm wider than its predecessor. The supports/outriggers fold to the front and rear when travelling. The superstructure frame and boom systems are basically the same as on the standard 700 tonne crane.

Comparing the capacities with the LR 1600's longest wind turbine boom - 156 metres of main boom plus a 12 metre lattice fixed jib - the LR 1700-1 can handle up to 120 tonnes compared to 73 tonnes on the 600 - a 64 percent improvement. In addition, the new crane can be rigged with between six and 15 metres more reach, depending whether the derrick system is employed. The LR 1700-1.0W can also be equipped with a luffing jib for a lift height of 198 metre allowing it to handle turbines with hub heights of 170 metres. The V-frame and VarioTray systems used on the manufacturer's larger cranes are also available.



Liebherr's new 700 tonne LR 1700-1.0 W replaces the 600 tonne LR 1600/2-W

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