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INTERNATIONAL CRANES AND SPECIALIZED TRANSPORT

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A KHL Group publication
Volume 26 ■ Number 10
■ JULY 2018



All terrains



WORKSHOP PREVIEW ■ WIND ENERGY ■ MIDDLE EAST ■ HYDRAULIC GANTRIES



Highlight Video

NEW


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The GT-750 / 600 / 300 redefines what truck cranes should be by offering enhanced safety and performance in all crane operations. The newly designed carrier also boasts refined performance, enabling it to withstand even the harshest running test conditions. Tadano has utilized years of development experience to craft this cutting-edge, Japanese-manufactured truck crane.

	GT-750EL / ER	GT-600EL / ER	GT-300EL / ER
Max. lifting capacity:	75 metric tons	60 metric tons	30 metric tons
Boom Length:	12.0 m - 47.0 m	11.0 m - 43.0 m	10.3 m - 34.0 m
Jib Length	9.0 m / 14.3 m	9.0 m / 14.3 m	8.5 m / 14.0 m
Max. Lifting Height	Boom: 47.3 m / Boom + Jib: 61.2 m	Boom: 43.4 m / Boom + Jib: 57.3 m	Boom: 34.0 m / Boom + Jib: 48.0 m
Max. Working Radius	Boom: 40.0 m / Boom + Jib: 48.0 m	Boom: 34.0 m / Boom + Jib: 44.0 m	Boom: 32.0 m / Boom + Jib: 40.0 m

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MARKETPLACE

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Business buzz words and entire phrases are everywhere or, perhaps more accurately, they are all over the place – in both meanings of the phrase. Business bibles packed full of them are big business and can be very useful. Often all that talk about ‘taking the helicopter view’, ‘running it up the flagpole’, or ‘seeing yourself as a guided missile and setting out your aims for the day’ is used to make a mockery of something or someone, along the lines of sharpening your focus or keeping your eye on the ball – sorry, it is hard to resist.

That strength of appeal and the ease with which one gets sucked in and begins emitting these pearls can be a rather positive point because being catchy and memorable (for whatever reason) makes it much more likely it will stick in your mind ready for you to recall and therefore have the potential to make use of whatever message accompanies it or it is meant to convey itself. Its effect can be similar to a memorable advertising tag line (my children know them all and have yet to tire of repeating them endlessly whenever they hear mention of the car/supermarket/cleaning product/brand etc).

A phrase I have heard a lot recently, referring to a person or a company's performance, is about aiming to be the best rather than the largest: ‘What matters is not to be the biggest but to be the best’. Admirable overtones of modesty and, yes, it sounds well intentioned. Lastly, of course, it must be memorable because it came to my mind and made it here to the page. Where the phrase came from, however, and what it really means are less important than its impact on, for example, safety in our industry. A variation on the phrase is, ‘It's not about being the best, just being better than you were yesterday,’ which also sounds good to me. Regular incremental improvement is an admirable and hopefully achievable aim.

As part of all this, at the end of the day, it is worth remembering to try and only focus on things that you can change – anything else is a waste of everything expended – and remember: you can't control the wind but you can control the crane.

ALEX DAHM

Editor



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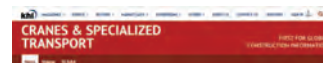


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LIEBHERR

IN THIS ISSUE

ON THE COVER



Liebherr launched its 230 tonne capacity LTM 1230-5.1 wheeled mobile telescopic crane in Germany last month. For more details of this important model see the AT feature on page 17.

SUBSCRIPTIONS

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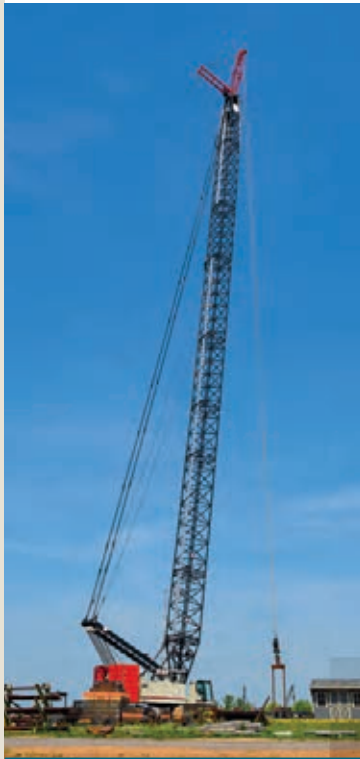


HIGHLIGHTS

■ Singapore-based tower crane specialist Crane World Asia has ordered 31 luffing jib tower cranes from Terex. All are CTL 260-18 luffers. CWA also ordered three Terex CDK 100-16 luffing jib derrick cranes. In addition, nine CTL 630B-32, and one CTL 650F-45 luffing jib towers will be delivered for work in South Korea later in 2018. The 30 CTL 260-18s will be delivered to Busan, South Korea and the remaining one will go to Hong Kong.

■ Below the hook equipment manufacturer Modulift has signed Maxirig as a distributor in Australia. Maxirig will stock the full Modulift range of standard modular spreader beams at its Victorian headquarters and throughout its distributor network. Its customer base includes mining, construction, manufacturing, oil and gas, among other sectors. The headquarters are in Breakwater, a suburb of Geelong which is enjoying a construction boom. Manufacturing to order and shipping product from the UK Modulift factory to Australia means complications and long lead times. With a good stock of standard spreader beams up to 100 tonnes in capacity, Maxirig will be able to quickly respond and deliver, Modulift said.

Link-Belt launches 348 Series 2 lattice crawler



US crane manufacturer Link-Belt Cranes is launching the 348 Series 2 lattice crawler. It lifts 300 US tons (273 tonnes) and first shipments are scheduled to start in the fourth quarter of 2018, following final testing.

Maximum heavy duty boom length is 300 feet (91.4 m) and the longest heavy duty jib combination is 240 feet (73.1 m) plus 140 feet (42.7 m). The maximum long range boom length is 355 feet (108.2 m) and the maximum long range boom and jib combination is 295 feet (89.9 m) plus 140 feet (42.7 m).

Link-Belt testing 200 feet (61 m) of main boom plus jib attachment on the new 348 Series 2 at its company headquarters in Lexington, Kentucky, USA

A maximum combination of 180 feet (54.8 m) of luffing boom and 240 feet (73.1 m) of luffing jib provides 420 feet (128 m) of attachment and a tip height of 419 feet (127.7 m).

A new luffing jib transport package with lifting lugs is designed to simplify luffer assembly. The rear post scissors into place by means of alignment links, explained Link-Belt. The transport package also comes assembled with nylon rope reeving to assist with initial luffing jib wire rope hoist reeving. Once the rear post is in working position, all luffing jib pendant connections are made and the luffer is ready to be raised for work. All assembly is done from the ground with no work at height, said the manufacturer.

Croatian challenge for Zagrebtrans

A project to assemble an offshore platform crane at the Uljanik shipyard in Croatia included a raft of challenges for lifting and transport contractor Zagrebtrans.

Lifts included components weighing up to 400 tonnes. The estimated time for the job was six months during a period that included almost all extremes of weather, from hot summer to

thunderstorms and winds.

Crane-wise the company chose to use its latest acquisition: a 650 tonne capacity Demag CC 3800-1 lattice boom crawler.

The crane was transported on around 50 trucks directly from the Terex Cranes factory in Zweibrücken, Germany, to the shipyard around 1,000 km away.

Once there the crane was



Zagrebtrans's new Demag CC 3800-1 lattice boom crawler

rigged in SSL 1 configuration with a 72 metre boom, also as LSL 11 with a boom length of 102 m and LSL 13 with a boom length of 126 m. Reeving was in 22 parts of line. Counterweight was 225 tonnes plus 325 tonnes of superlift counterweight and a 50 tonne central ballast.

The heaviest lift was 400 tonnes. Other components had to be lifted to a height of 102 m or placed at a 52 m radius.

POTAIN SPLITS TOWER CRANES

USA-headquartered crane manufacturer Manitowoc has divided its Potain tower crane organisational structure for Europe and Africa so that self erecting tower cranes (GMA cranes) and top slewing cranes (GME cranes) are being run independently in terms of production and product management. The company said it has made the changes to better serve its customers and dealers.

Orlando Mota, sales vice president for tower cranes in Europe and Africa, said, "GMA and GME are two different products that serve different

types of applications," he said. "They require different market approaches and ultimately follow two different roadmaps. In addition to giving independent visions to GME and GMA, we have recognised the need to create operations strategies that individually cater to GMA and GME. Allowing our factories to focus on a specific product will make them more effective, particularly regarding production capacity and delivery times."

For more information see the *People News* section on page 55.

HIGHLIGHT

■ Crane rental house

Sims Crane in the USA has broadened its activities to include tower cranes. It has added Potain MDT 389 L16 and MD 559 models.

Explaining the move, Dean Sims II, Sims Crane vice president of marketing, said, "In the aftermath of Hurricane Irma, many of our long-time clients that rent hoist elevators and mobile cranes were looking for another tower crane option and they trust Sims to provide that alternative," Sims said.

With high-rise construction surging in Florida, tower cranes complement Sims Crane's existing skilled personnel and material hoist elevator department. "The demand for high-rise residential buildings is being driven by Millennials' preference for urban living as well as continued relocations to Florida," Sims said.

New three axle Grove RT

The Grove GRT9165 is a new rough terrain crane on a three axle carrier from manufacturer Manitowoc in the USA.

Capacity is 149 US tons (135 tonnes) and it tops out the Grove RT range on capacity and reach. It has features that will help companies increase efficiency while maintaining a low total cost of ownership, the company said. The new crane made its debut at Manitowoc's Crane Days event in Shady Grove, PA, USA.

The 205 foot (62.5 metre), six-section, pinned boom is claimed to be 5 feet (1.5 m) longer than

the closest competing model. Tip height maxes out at 299.1 feet (91 m), and both manual and hydraulic extensions are available. It is designed for easy transport, with a compact overall height of 148.5 inches (3.77 m). It also has hydraulically removable counterweight and outrigger boxes, in addition to hydrogas suspension on the rearmost of its three axles. With all components removed, the GRT9165 weighs in at a gross vehicle weight of approximately 116,000 pounds (52.62 tonnes).

Paul Cutchall, product

manager for rough terrain cranes at Manitowoc, said, "The crane's longer reach in particular will help lifters to bid for and complete more jobs with one crane, increasing their capability."

Consideration for operator comfort and convenience included an updated cabin, 3 inches (76 mm) wider than other RT models. The cab can tilt hydraulically up to 20°, improving visibility for the operator.

"Rough terrain cranes are often the first machine to roll onto a job site, so they have to be reliable," Cutchall said. "That's why we designed the GRT9165 to be the strongest, longest-reaching, most cost-effective rough-terrain crane."

For news of other new cranes, including the Grove TMS500-2 truck crane, GMK4090 all terrain, NBT50L National boom trucks, and the MLC100-1 lattice crawler crane, see: www.khl.com and future issues of *ICST*.

Grove's new three axle rough terrain, the GRT9165



German transportation, logistics and crane services company W Mayer has purchased a Demag AC 130-5 all terrain crane from manufacturer Terex Cranes.

According to Yannick Alt, W Mayer spokesperson, who collected the crane along with his colleague Patrick Graul, "The AC 130-5 is more compact than any other crane in its class and offers good lifting capacities even with a small outrigger base. We often work on construction sites with limited space where it is important to adjust the outriggers. Here the IC-1 Plus control system is worth its weight in gold, as it allows high lifting capacities even with asymmetrically extended outriggers."

Pictured from left to right are, Stefan Schäfer, Yannick Alt and Patrick Graul from W Mayer; and then Michael Zieger, Oliver Noé and Martin Stiffel, all from Terex Cranes.

Bennetts re-brands amid rapid growth

Tower crane rental and sales business Bennetts Cranes in the UK has re-branded to update and refresh its image. The work includes a new logo, website, internal and external marketing and social media. The company said it comes on the back of rapid growth over the last three years which has seen it enter the Financial Times FT1000: Europe's Fastest Growing Businesses listing.

According to managing director Edward Seagar, it is part of an ongoing drive for innovation, growth and improvement. "Over the last three to four years we have seen rapid growth and we



Edward Seagar, managing director of Bennetts Cranes

have been focused on the delivery of our service and building

our fleet of cranes," he said. "However, this year we wanted to make sure the appearance of our brand matched the business success and status. The construction industry, and crane hire sector in particular, has been slow to keep up with trends in modern marketing and branding, but that is starting to change. We know that to stay competitive we need to look at every aspect of our business and our company re-brand is just one part of that."

HIGHLIGHTS

■ Italian tower crane manufacturer Raimondi has appointed Italian crane sales and rental company Italsme to represent it in four areas of Italy: Liguria, Lombardy, Piedmont, and the Aosta valley. Raimondi said Italsme has already sold an MRT159, the first sold in Italy, which is being used on a site in Milan.

■ Lifting, heavy-rigging, and heavy transport specialist Barnhart is to purchase US crane and rigging rental service company Strate Line. Strate Line offers operated hydraulic cranes from 30 US tons (27 tonnes) up to 175 tons (159 tonnes) capacity. It also offers heavy transport services. The company is based in Idaho but also works across Washington and Montana, while Barnhart has multiple locations across the USA and will manage operations from its Spokane, Washington, branch.

Larger Huisman printed hook

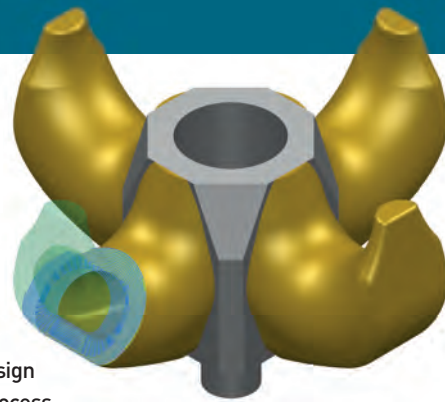
A large 3D printed crane hook claimed to be the heaviest in the world is in development by a consortium led by Huisman and Ramlab in the Netherlands.

Dimensions of the hook will be more than 1 by 1 metre and it will weigh close to 1,000 kg. Safe working load will be 325 tonnes. It will be a four-hook design for offshore crane applications made using the wire and arc additive manufacturing (WAAM) 3D printing technique (imagine it as

being built up from weld).

A major benefit of the design and of the manufacturing process is that the hook will be hollow. It will consume less material, weigh less and have a shorter production lead time. Huisman tested and 80 tonne capacity 3D printed hook early in 2018.

Classification societies DNV GL, Bureau Veritas and ABS are part of the project and will all certify the hook. It will also help in adopting rules for 3D printed



The new Huisman-Ramlab hollow hook design made using WAAM

products for maritime and offshore applications. Voestalpine Böhler Welding is also part of the consortium and will provide feed stock and lend its materials expertise. The Additive manufacturing software was provided by Autodesk.

Success for first North American tower conference

More than 275 delegates gathered in Florida, USA, on 18 and 19 June for a well-received first Tower Crane North America (TCNA) conference.

A key message from the event, voiced by two senior figures in the industry, was that although activity levels are currently very high, rental companies should be aware that market conditions can change quickly.

Keynote speaker Christian Chalupny, Morrow Equipment president, said he was reasonably confident that the market would remain strong for the next 18 to 24 months, but that the market operates in cycles and that a slowdown would come.

Frank Bardono, Maxim COO, agreed that the pipeline of work was good but sounded a cautionary note by citing the confidence and investment in cranes that was continuing in the

run up to the 2008 crash. He said rental companies had to be aware of the value of their services and the expertise of their staff, and charge rates that reflect this.

Another area of keen debate was the use of hook block cameras. During a round-table debate Billy Smith of NBIS challenged Peter Hird of BlokCam and Chris Machut of HoistCam on the use of cameras, claiming that they could leave crane operators and crane companies legally exposed in the event of accidents. Hird said cameras were a safety aid and were being adopted by more and more companies in Europe, especially the UK, and further afield, sometimes at the behest of the contractor on site. Machut emphasised that the normal requirements for operating cranes safely were not bypassed through the use of cameras, with cameras acting as an additional aid for operators rather than a replacement for traditional procedures.

All the presentations are available for download from the conference web site: www.khl-tcna.com



Welsh crane rental firm B&A Cranes has added a Kato CR-350Ri to its fleet. The 35 tonne capacity city class wheeled telescopic crane was supplied by Kato European distributor, Rivertek Services, based in Ireland.

The CR-350Ri has a 32.5 metre six-section boom and a telescopic jib that extends from 6.5 to 14 metres and can be offset by up to 60 degrees.

Family-owned B&A has been operating in Swansea and its environs for more than 20 years. Its fleet ranges from 13 to 80 tonnes, including 13 and 20 tonne capacity Kato models. Bob Dunne, B&A Cranes director, commented, "We are always looking to offer the very best service for our customers and are delighted to add this new Kato CR-350Ri to our fleet. We have been impressed with Rivertek and this new range of cranes which made the decision to invest further in Kato very easy."



Delegates at the first Tower Cranes North America conference



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We are pleased to announce that the second Cranes & Transport Middle East (CATME) conference in Dubai is moving to a new venue, the Waldorf Astoria Dubai Palm Jumeirah.

The Waldorf will be an upgraded venue for the one-day event, with improved conference facilities, easier parking for delegates, and a relaxed environment for networking. The first conference in 2016 was held at the Conrad Dubai.

Speakers include the following: **Martin Ashfield**, capital asset general manager, Al Naboodah Group; **Aaron Chehab**, chief commercial officer, KBW Investments; **Marco van Daal**, owner and founder, The Works International; **Ronnie Drugan**, global account manager, Fire Suppression Products, Johnson Controls; **Thorsten Hesselbein**, sales director, Liebherr-Export AG, Switzerland; **Dr Shan Senthil**, marketing manager, Integrated Logistics Company, Kuwait; **John Woodward**, owner, C&D Consultancy.

The first CATME in 2016 attracted more than 220 delegates, including high level representatives from many of the region's largest crane companies, contractors and oil businesses.

CATME is a gathering place for the Middle East's crane and specialized transport sector, giving delegates the opportunity to network, learn and discuss key issues such as safety and market trends.

For more information see: www.khl-catme.com



Bridge building in Australia with ALE's Mega Jack

Global heavy lift and transportation specialist ALE, which is headquartered in the UK, used its Mega Jack system to lift both halves of the main arch of Matagarup Bridge in Perth, Australia.

The bridge comprises two 400 tonne, 120 metre steel wishbones that come together to form the central arch. ALE utilised barges on the Swan River to float the wishbones to designated piers where the Mega Jack was used to

form two temporary 50 m towers that helped pull the wishbones up into position. With them in place, ALE used strand jacks to secure them until they had been welded into place.

The new Matagarup Bridge, built across the *Swan River*, will connect the eastern side of Perth city with the Burswood Peninsula, where a new 60,000-seat sports stadium has opened. The bridge is built for pedestrians and cyclists only.

Frank Janssen, ALE project manager, explained, "We are delighted to be involved in this landmark project for the city. This was a technically challenging operation involving the majority of our transport systems and technical knowledge such as SPMTs, strand jacks, barges, hydraulic jacks and the Mega Jack System. We provided a time and cost-effective solution using our specialist equipment and expert operators."

Mammoet uses PTC 35 on Russian battleship replica

A replica of an 18th Century Russian battleship was launched by international heavy lift and transport company Mammoet in St. Petersburg, Russia. The wooden ship weighed 600 tonnes.

SPMT was used to transport it out of the shipyard's hangar, fastening it for stability. For the lift and launch procedure, Mammoet said its engineers created a rigging scheme to

optimise load distribution.

For the launch operation Mammoet used its PTC 35 ring crane. The company said the crane's reach, small footprint and high capacity allowed it to lift the strapped ship within the limited space of the shipyard and slew it 180 degrees, before launching it into the Gulf of Finland. Mammoet said it carried out the job to a tight schedule.

The replica was commissioned by Russian natural gas company Gazprom and will be a floating museum in St. Petersburg. The battleship was called the *Poltava* and part of Russia's Baltic Fleet. It was named in honour of the country's victory in the Battle of Poltava, which took place on 27 June 1709 under the leadership of Peter I.



Mammoet lifting the replica of the Russian ship *Poltava*

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While there was an equal split between the number of companies in the IC Share Index showing rises and falls, there was a drop in value. THOMAS ALLEN reports

Down evenly

An overall decrease of 5.07 per cent was seen in the IC Share Index between weeks 22 and 26, though there was an even split between the companies that saw a rise and those that saw a drop.

Tower crane manufacturer Yongmao from China enjoyed the largest percentage increase in its share price, rising by 28.57 % over the four-week period, but this is distorted by the fact that the price per share is small.

Manitowoc also saw an increase, growing by 7.19 %. The company recently opened a new Potain tower crane factory in Chakan, India, which replaces the company's previous plant in nearby Pune. The company

said the new facility uses lean manufacturing processes to produce higher-quality Potain MCT 85 and MC 125 crane models more efficiently. David Semple, Manitowoc senior vice president for the Middle East and India, said, "We are focused on developing and executing lean strategies to improve efficiency, profitability, and value."

It was also announced recently that Manitowoc and Kobelco Construction Machinery will cease their OEM supply agreement in November 2018. The agreement, under which Kobelco supplies Manitowoc with lattice boom crawler cranes in capacities up to 150 US tons in North America and Manitowoc

supplies Kobelco with Grove all terrain cranes for sale in Japan, has been running since 2003. A company statement said, "Looking ahead at future market conditions, the companies have mutually decided to operate their businesses on their own."

A 11.25 % drop in share price was suffered by Hitachi Construction between weeks 22 and 26. Hitachi Construction Machinery Loaders recently celebrated the opening of its new US corporate headquarters in the state of Georgia, USA, in anticipation of future growth in the North American market.

Another of the listed companies to experience a fall in share price over the four-week period was Kobe Steel. The drop, of 8.27 %, might have been linked to the news that the company's Tokyo headquarters were raided by the Japanese authorities in connection with allegations that the company violated a law prohibiting unfair competition by misrepresenting its products.

A similarly significant drop of 8.17 % was seen in Tadano's share price between weeks 22 and 26. The Japanese company recently acquired 3 million shares of US manufacturer Manitex International for US\$ 32.7 million, giving it 14.9 % of the company.

Tadano has exercised its right to appoint a member to the Manitex board by designating Ingo Schiller, Tadano America Corporation president and chief executive officer.

JULY IC SHARE INDEX

STOCK	CURRENCY	PRICE AT START	PRICE AT END	PRICE CHANGE	% CHANGE	PRICE 12 MTHS AGO	12 MTH % CHANGE
IC Share Index*		60.05	57.00	-3.04	-5.07	55.71	2.33
Legacy IC Share Index**		367.64	343.79	-23.85	-6.49	317.11	8.41
Dow Jones Industrial Average		24,416	24,118	-298	-1.22	21,399	12.70
FTSE 100		7,730	7,620	-110	-1.42	7,354	3.61
Nikkei 225		22,171	22,270	99	0.45	20,220	10.14
Hitachi Construction Machinery	YEN	3,910	3,470	-440	-11.25	2,817	23.18
Konecranes	€	36.54	35.31	-1.23	-3.37	37.45	-5.71
Kobe Steel	YEN	1100	1009	-91	-8.27	1,138	-11.34
Liugong	CNY	9.89	9.99	0.10	1.01	8.61	16.03
Manitowoc	US\$	24.49	26.25	1.76	7.19	40.18	-34.67
Palfinger	€	31.60	31.70	0.10	0.32	40.80	-22.30
Sany Heavy Industry	CNY	8.11	8.56	0.45	5.55	8.18	4.65
Tadano	YEN	1,481	1,360	-121	-8.17	1,337	1.72
Terex	US\$	39.58	41.08	1.50	3.79	36.68	12.00
XCMG	CNY	4.19	4.08	-0.11	-2.63	3.75	8.80
Yongmao Holding	SGD	0.35	0.45	0.10	28.57	0.69	-34.78
Zoomlion	CNY	4.21	4.04	-0.17	-4.04	4.53	-10.82

*IC Share Index, 1 Jan 2011 = 100

**Legacy IC Share Index, end April 2002 (week 17) = 100



ABOUT THE AUTHOR

THOMAS ALLEN is assistant editor on ICST sister publication *International Construction*

EXCHANGE RATES - VALUE OF US\$

CURRENCY	VALUE AT START	VALUE AT END	VALUE CHANGE	% CHANGE	VALUE 12 MTHS AGO	12 MTH % CHANGE
CNY	6.497	6.629	0.1324	2.04	6.88	-3.63
€	0.8540	0.8664	0.0124	1.45	0.9355	-7.39
Yen	109.22	110.39	1.16	1.06	115.11	-4.10
UKE	0.7505	0.7649	0.0144	1.92	0.7974	-4.08

Period: Week 22 - 26

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Refineries and power plant construction are typical industrial applications for the new 800 tonne capacity Liebherr LR 1800-1.0 crawler

Manufacturer Liebherr
showed how quickly it can
assemble its new 800 tonne
capacity crawler crane in
a slick demonstration at
its factory in Germany last
month. ALEX DAHM was there

Putting it together

Launching a large crawler crane is quite an event. Manufacturer Liebherr's presentation of its new 800 tonner last month was no exception. It was a key part of the attraction at the Customer Days event held every three years, in June, at the Ehingen factory in Germany. Thousands of people got to see the latest products, on wheels and crawler tracks.

ICST announced this new crawler and also the new 230 tonne capacity LTM 1230-5.1 all terrain in the June issue. Here is more detail on the crawler.

The LR 1800-1.0 is a culmination of the latest thinking in crawler crane design, Liebherr said, offering "outstanding lifting capacities and low cost transport around the world." The manufacturer claims it as the most powerful crawler crane on the market with a basic machine just 3 metres

wide. Applications requiring a luffing jib and derrick system are a particular focus. These include construction of power plants and jobs in the petrochemicals industry.

Nomenclature

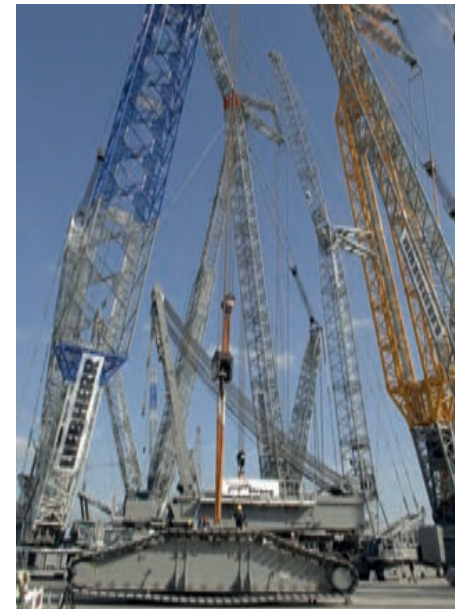
Sharp-eyed readers will have noticed the new suffix on the model name for crawler cranes introduced with the LR 1800-1.0. The "1" after the hyphen denotes it as the first model of the 800 tonne crawler crane. The "0" after the dot means the first version. Subsequent versions get the next number.

For easier transport there are three sizes of lattice section that fit inside each other to reduce volume. These help form the standard configuration with an 84 metre main boom and 84 m luffing jib. The maximum main boom and luffing jib combination length is 102 plus 102 m.

Further reduction in transport cost is achieved as the basic machine is designed with a 3 m transport width and a maximum transport weight of 45 tonnes. Each crawler weighs 60 tonnes but removing the tracks reduces this to less than 45 tonnes. The standard 2 m wide track plates help minimise ground pressure.

To help reduce the amount of stacking and unstacking of ballast slabs during operation, the new crane has the VarioTray feature. When the boom has been raised using the large derrick ballast, part of that ballast can be unbolted.

Many cranes made light work of assembling the new crawler, and all in less than 45 minutes



It is not every day that you have such a wide range and large number of cranes to help you

Similar attention has been paid to the design of the suspended ballast system. Hydraulic adjustment of the folding frame allows the ballast radius to be adjusted, out to 23 m. A fixed guide frame is no longer required for large radii.

Standard Liebherr 10 tonne slabs are used which also fit other Liebherr crawlers. In total there is a maximum of 230 tonnes of ballast on the slewing platform, 70 tonnes of central ballast and up to 400 tonnes of derrick ballast.

Power is from a 455 kW Liebherr V8 diesel engine built to comply with Stage V exhaust emission regulations.

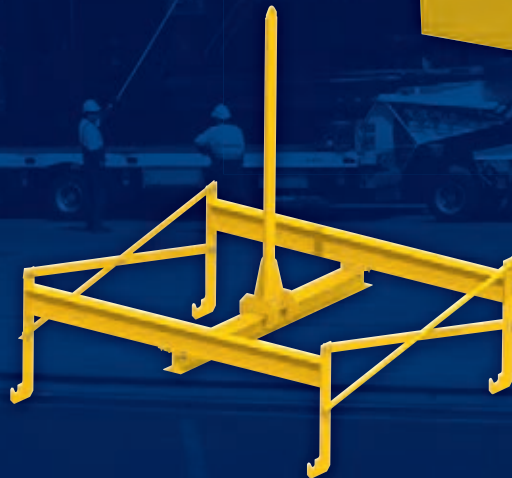
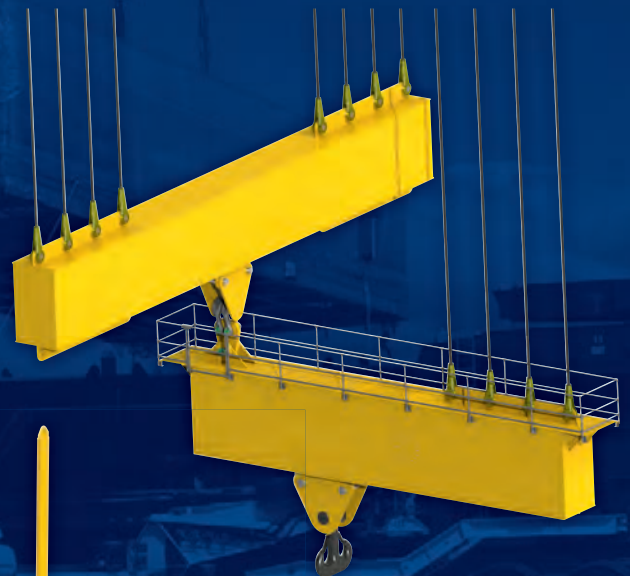


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New versatility

The latest developments in the all terrain crane sector.

CHRISTIAN SHELTON reports

The versatile nature of the 'taxi' all terrain crane means that the market is looking healthy – for both manufacturers and rental firms.

With regards to new models, big news in the sector is that manufacturer Liebherr has launched the LTM 1230-5.1, which succeeds the LTM 1200-5.1. Its telescopic boom is 75 metres long – three metres longer than that on the LTM 1200-5.1 – while its lifting capacity has increased by an average of 20 percent, taking it to 230 tonnes. With lattice extensions, the maximum hook height has been increased to 111 m – ten metres more than on the LTM 1200-5.1.

Jib options

A range of lattice jibs are available for the new LTM 1230-5.1. An 11.5 to 22 m long folding jib can be mounted at an angle of 0°, 20° or 40°. The folding jib can be supplied with an optional hydraulic adjustment system, which allows it to luff with a full load between 0° and 40°. The pivot point for the folding jib can be raised using up to three straight 7 m lattice sections which, Liebherr says, act as telescopic boom extensions.

The long, fixed lattice jib that has been available on the LTM 1250-5.1 for the last three years is also available for the LTM 1230-5.1. Liebherr says it enables the

crane to achieve a large radius, thus making it suitable for applications such as hoisting over buildings. A fixed jib, up to 43 m in length, is possible using an additional TF adapter (a connection between the telescopic boom and the fixed jib), a reducer section, and a head piece, says Liebherr. Existing lattice extensions are used for this purpose. This jib can be hydraulically adjusted between 0° and 45° and can therefore be used like a luffing jib, said Liebherr. The existing parts can also be used to assemble a jib up to 39 m in length for steep working positions.

The maximum ballast for the new LTM 1230-5.1 remains at 72 tonnes – the same as for the LTM 1200-5.1. Liebherr



Liebherr's new LTM 1230-5.1



explains, however, due to the adjustable VarioBallast system (which can be adjusted from 4.8 m to 5.7 m) the lifting capacity at greater radii has been significantly increased compared to the LTM 1200-5.1 and also the LTM 1220-5.2. Liebherr says the new crane is its first to have an asymmetrical support base, which is 7.4 m wide at the front and 8.1 m at the rear. This, combined with the VarioBase and support base, means it is now possible to generate high lifting capacities, Liebherr said, particularly at the rear working area. The lifting capacity is calculated in real-time by the LICCON controller.

A six-cylinder Liebherr diesel engine in the undercarriage develops 400 kW (544 bhp) and 2,516 Nm of torque. The engine is Stage V emissions compliant. Power is transferred to the crane axles via a 12-speed ZF TraXon gearbox, which also has an eco mode function that is designed to make the vehicle quieter due to a lower engine speed.

Liebherr says off-road use has been optimised through the faster gearshifts that are now possible

»

MORE FOR MAMMOET

The Mammoet Americas division of global heavy lift and transport specialist Mammoet has expanded its fleet with the purchase of 11 all terrain cranes as part of efforts to expand its presence in the crane rental market in Texas, USA. The cranes range in capacity between 120 US tons (109 tonnes) to 550 US tons (499 tonnes) and will arrive in Texas before the end of summer 2018. The first AT, a Liebherr LTM-1130-5.1, has already been delivered.

"The new all terrain cranes will enable us to deepen our presence in Gulf Coast plants and fulfil our clients' requests to provide day cranes on top of the project work which Mammoet is so well-known for," stated Pierre Mille, branch manager of Mammoet Americas Texas East.

Mammoet's new Liebherr LTM 1130-5.1



Tadano's ATF 60G-3 is now available to buy



on the new model, while a hill hold feature assists with hill starts.

The LTM 1230-5.1 has one engine to power both the crane and the carrier. This involves a mechanical shaft powering the superstructure. A drive shaft runs from the engine in the carrier, via bevel gears, up through the centre of the slewing ring to the pump distributor gear in the superstructure. An add-on programme in the drive concept aids with fuel-efficiency, says Liebherr. This means that the complete pump drive can be disconnected automatically when the engine is idling and then quickly reconnected by the intelligent controller when required.

Now available

Two years after its launch at Bauma 2016, the ATF 60G-3 from manufacturer Tadano is now available for sale. According to Tadano, the 60 tonne capacity ATF 60G-3 has a drive concept designed to optimise weight distribution, resulting in a 10 tonne axle load configuration. To achieve this required a redesign of the axle layout and placement of the engine, says Tadano. This means the ATF 60G-3 has

two front axles and one rear axle, while the undercarriage and superstructure are driven by an engine installed on the superstructure. This setup, Tadano says, distributes the main boom's weight more efficiently on the axles and shifts weight to the rear.

The ATF 60G-3 has a 20 tonne hook block in its 10 tonne axle load configuration, which enables it to lift up to 17.1 tonnes. In addition, the three-axle crane has been optimised for axle loads of 12 tonnes, 13 tonnes and 16.5 tonnes, says Tadano.

The engine is at the rear which means the cab is quiet, Tadano explains. Also, because the engine and exhaust system are mounted behind the superstructure cab, and always pivot along with it, the operator is not exposed to exhaust fumes, it adds.

The crane's boom extends from 9.5 to 48 m, with a boom extension of between 1.7 m and 7.4 m. The maximum sheave height is 58.4 m and the ATF 60G-3 has a maximum radius of 44 m. The 260 kW (354 hp) engine on the superstructure is from Mercedes Benz and is Euromot IV – EPA Tier 4f compliant.

The crane's dimensions (11.18 m long, 2.66 m wide and 3.68 m high) mean it is suitable for jobs with limited ceiling height, such as in halls or refineries says Tadano.

New Grove AT

Wisconsin, USA-headquartered crane manufacturer Manitowoc has unveiled its



The GMK4090 from Manitowoc

new all terrain crane, the Grove GMK4090, at its Crane Days event at its Shady Grove headquarters, Pennsylvania, USA, in June.

The crane, which will be available globally, has a 51 m, six-section Megaform boom that utilises Grove's Twin-Lock pinning system. A 15 m bi-fold swing-away jib can be extended with a 6 metre boom extension for a total jib length of 21 m.

The GMK4090 can travel with up to 18.3 tonnes (20.2 US tons) of counterweight and transport up to 9.1 metric tons (10 tons) whilst remaining within the limit of 12 tonnes (13 tons) per axle without requiring an additional transport truck. The distance between the front and rear axle groups was extended beyond the 2.4 m minimum requirement for bridge laws in the USA.

The crane has a width of 2.55 m and a minimum tail swing of only 3.5 m, so it stays within its maximum outrigger width. Manitowoc's Maxbase variable outrigger setting is available as an option.

The GMK4090 has Manitowoc's Crane Control System (CCS), that has been standardised across the company's crane offerings and is featured on every new model.

The crane was introduced to customers and dealers at the company's Crane Days event at its Shady Grove headquarters, Pennsylvania, USA in June.

City style

Towards the end of 2017 crane manufacturer Terex Cranes launched the three-axle Demag AC 45 City to succeed the AC 40 City in the 45 tonne lifting capacity class.

The crane is compact and has a short base boom of 7.8 m. This, combined with options like the boom head traverse for increased lifting heights, means the AC 45 City can work in buildings with a relatively low clearance while still keeping its boom at a steep angle, enabling it to lift heavy loads indoors, Terex says.

"The Demag AC 45 City is easy to operate," elaborates Michael Klein, manager product marketing for all terrain cranes.

"An integrated lifting capacity radar calculates the working range within an

angle of +/-30° and shows it on the IC-1 Plus control system's monitor. It also has an automatic counterweight detection function that the crane operator needs to confirm.

"The IC-1 Plus control system also means the new Demag crane is able to work

SARENS GOES SHOPPING

Heavy lift and transport specialist Sarens has bought 44 new Demag all terrain cranes from Terex Cranes which will be used to boost the company's presence in London and Paris and to help the company renew its European fleet. The cranes will be built and delivered throughout 2018 and 2019. The order includes: 12 Demag AC 100-4Ls; ten Demag AC 130-5s; seven Demag AC 60-3s; seven Demag AC 220-5s; six Demag AC 55-3s; and two Demag AC 160-5s. This order follows one for 15 Demag AC 130-5s, placed earlier in the year.

From left to right: Jan Sarens, Thomas Schramm, Marc Sarens, Ludo Sarens, and Steve Filipov



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with infinite outrigger positions and, for the first time ever, the IC-1 Plus control system can be used both when using the runner and when telescoping under load."

According to Terex, reception to the new model has been good and the company has received orders from around the world include three models for global lifting equipment supplier CraneWorks, for use at its Denver, Colorado, location, and one

order from Swiss crane and transportation company Matthey-Petit, among others.

Terex's other ATs remain popular, too, the company says, and recent orders include: one AC 250-5 for German crane rental agency Einhüpl Autokran-Service; two AC 60-3s for UK crane company John Sutch; three AC 220-5s and an AC 160-5 for US sales and rental company Scott-Macon Equipment; one AC 100-4L, two AC 160-5s and three

AC 220-5s for Southeastern USA and Caribbean island Terex Cranes distributor, Renegar-Driggers; and, finally, one AC 220-5 for UK crane rental firm City Lifting.

ALL TERRAINS IN THE AMERICAS

US Crane manufacturer Link-Belt Cranes reports high demand for its ATC 3210 and ATC 3275 models from rental companies, particularly in North, Central and South America.

According to Rick Curnutte, Link-Belt's product manager of telescopic truck and all terrain cranes, "Our all terrain cranes are designed to be simple to operate and maintain, which makes them popular in all markets, especially in developing markets where seasoned operators can be hard to find." Link-Belt also says it has focused on minimising the number of overflow loads required. "We save one to two overflow trucks every time one of our ATs goes out because we design the overflow loads to be under 20,411 kg," says Curnutte. "If the ATC-3210 and ATC-3275 is better by just one less overflow load every time it goes out, think of the money saved."



Link-Belt's ATC 3210 (pictured) and ATC 3275 are designed to be simple to operate



Terex's Demag AC 45 City

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MAX600 TRAILER NEW FROM FAYMONVILLE

Europe-based trailer manufacturer Faymonville has added a new trailer to its Max Trailer range: the Max600 turntable trailer.

According to the manufacturer, the trailer offers a choice of 3 or 4 axles and its flat loading platform makes it particularly suitable for transporting construction equipment. Single or double ramps are available. The trailer comes with air suspension as standard and there are numerous lashing points, Faymonville explained. The trailer's modular structure means it shares common parts with other Max Trailer models, Faymonville added.



Max 600 turntable trailer
from Faymonville's
Max Trailer

Sarens in 12,200 tonne mega module move

While module moves these days are increasingly heavy, a 12,000 tonne project is still a spectacular achievement. The latest by Sarens was the load-out, weighing, and jacking of a 12,200 tonne oil platform module in Stord, Norway.

A total of 432 axle lines of Kamag K24 self propelled modular transporter (SPMT) was used, driven by 22 power pack units, for the load out. The module is 110 x 61 x 26 metres and was moved about 200 metres from the fabrication hall to the barge.

To find its exact weight the module was weighed using thirty-two load cells, each with a capacity of 500 tonnes. The module was then jacked up about 13 metres above the barge deck to install the grillage. Four towers of the CS 5000 jacking system were used. It was a complex job and took 20 days to complete the rigging.



Sarens used 432 lines of Kamag K24 SPMT

Commenting on the project Tor Arne Naess, project manager, said, "Despite heavy rain and high winds, the operation was perfectly executed according to the project plan."

BROSHUIS LAUNCHES LOW LOADER

New from Dutch trailer manufacturer Broshuis is the 2-axle PL2 low loader which is designed to provide users with a load capacity of around 36 tonnes.

The PL2 low loader uses a new pendular axle system. Each axle line has a 12 tonne load capacity and a 600 mm stroke. According to the manufacturer, this means the low loader can be jacked up so that it can be used off-road. The minimum ride height is 810 mm.

Broshuis said the new low loader has an extremely low, short axle bogie. This means that the difference in height between the low bed and the axle bogie is much smaller, which makes overhanging cargo above the axle bogie possible, said the manufacturer, thus enabling a shorter vehicle length.



Broshuis PL2 low
loader with two pendular axles

Mercedes-Benz and Fassi combo for Jarvis

Construction contractor Jarvis Group in the UK has added an 8x4 Mercedes-Benz truck with a Fassi loader crane to its fleet.

The Arocs 3235 has a ClassicSpace M-Cab and the crane is a 36 tonne-metre rated F365A e-dynamic. The beavertail body is by Sterling Bodies, of Stokesley, North Yorkshire.

Jarvis Contracting had its previous Mercedes-Benz crane truck for 14 years. Dealer S & B Commercials supplied the long-established, Hertfordshire-based construction group.

Aimed at construction industry applications the Arocs is designed to offer strength, good payload capacity and high performance. Power

is from a 7.7 litre, 260 kW (354 hp), straight-six driving via a 12-speed Mercedes PowerShift 3 automated gearbox.

Air suspension is fitted as the truck will mainly live on the road rather than on site. Extras include Alcoa alloy wheels, a sun visor and roof-mounted beacons. Also fitted is a full range of cameras and a side-scan system to meet the Fleet Operator Recognition Scheme (FORS) Gold standard.

Commenting on his purchase, David Meadows, Jarvis Group plant and transport manager, said, "S & B were able to provide us with a 32 tonne chassis that ticked all our boxes."

Capital delivery for Collett

Structural steel specialist Allerton Steel called on transport specialist Collett when it needed a series of 20 metre-long, 63 tonne cargoes delivered to the heart of central London, UK.

Extensive planning, liaising and negotiating was required to facilitate the project, Collett said. The 13 loads comprised fabricated steel props and trusses, all destined for the Leicester Square Hotel construction site in the heart of the city.

There were seven 11 tonne steel props measuring 19 x 0.5 x 0.5 metres (LWH), and six 63 tonne trusses measuring 20.5 x 0.5m x 3 m (LWH). Collett's consulting team

conducted initial route studies and swept path analysis reports. Several routes within the M25 (ring road) London area were analysed to identify the most suitable path for the loaded vehicles. Accessing Leicester Square was via an extremely narrow access via Orange Street off Haymarket, Collett said.

The deliveries took place over consecutive days earlier in the year.



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Generating interest

With the rise and rise of wind power, heavy lift and transportation companies servicing the sector are in demand. CHRISTIAN SHELTON reports



According to wind power industry promotional body WindEurope, last year was a record year for wind installations with a total of 539 GW of wind energy being produced globally. WindEurope CEO Giles Dickson said, "Onshore wind

is now the cheapest form of new power generation in most of Europe, and offshore wind is not far behind with costs having fallen over 60 percent in three years." As a result, companies working in the sector are busy, as illustrated by the following examples.

Onshore

Belgium-headquartered international heavy lift and transportation specialist Sarens was commissioned by Russian wind farm company Vetrotechnika to install three new Enercon E-70 turbines 20 km south of Kaliningrad, Russia. The Sarens team used a Liebherr LTM 1750-9.1, which can work with two hooks for installing hubs with blades. The crane was transported by 12 trucks from Gdansk, Poland – a journey that took three days. It took around 17 hours to assemble the crane, Sarens said.

Installation of the turbines took place in difficult conditions. The temperature was below -18°C with wind speeds above 10 m/s. "Despite severe weather conditions the Sarens team successfully completed the WTG building project in accordance with

the client's cost and timelines," says Sarens project manager, Suprunets Dmitry.

UK-headquartered heavy lift and transportation specialist ALE is using two tower cranes to handle and install more than 700 wind components for Thai renewables developer Wind Energy Holding on its Thepharak wind farm project in Thailand.

ALE said it was contracted to provide both the craneage and installation of 60 wind turbine generators (WTGs), with their components weighing up to 120 tonnes each and with hub heights of 157 m. According to ALE, it decided to use two of its three new Krøll K1650L tower cranes, which it bought earlier this year, due to their low counterweight, increased visibility, quick assembly functionality, and their ability to work in high winds and with uneven or small hardstands. In addition, ALE is using crawler and mobile cranes to help lift and install the WTG components.

"For this project we are using the most time- and cost-effective method to install WTGs at this hub height," says ALE project manager Tommy Quik. "By using these compact pedestal cranes, the civil works and costs have been significantly reduced for our

One of ALE's new Krøll K1650L tower cranes



client. The crane has lifting capabilities like no other tower crane on the market and we are pleased with the good results in lifting and installation activities on the project so far.”

Australian market

Sarens has also been busy with wind farm work in Australia. So much so, that at the end of 2017 it purchased two new Liebherr cranes specifically for wind farm work in the country: the LG 1750 SX and LTM 1450-8.1. The 750 tonne lattice boom LG 1750 SX is mounted on an eight-axle truck chassis and is working on the Sapphire wind turbine installation project for wind turbine manufacturer Vestas, while the 450 tonne capacity class LTM 1450-8.1 all terrain is being used on a project for Adelaide-based construction and civil engineering company Catcon.

Heavy lift and transport specialist Mammoet also reports that demand for its services for the Australian wind market is growing. This, it says, is partly as a result of renewable power targets set by the Australian government. According to Mammoet, the size of hub heights, rotor blades, nacelles and tower sections are all growing, which requires larger cranes to carry out installation. As such, Mammoet has added another LG 1750 to its Australian fleet to help meet demand.

Mammoet operations manager Riki McMahon comments, “We are equipped for the future developments and demands of the market with our highly specialised team of professionals, our extensive fleet of main cranes ranging from 300 to 750 tonnes and our experience gained over decades installing

Mammoet used a barge with a ballasting system to install wind turbines in shallow water



Mammoet's new LG 1750

wind farms around the world. We are in the best possible position to optimise wind farm construction processes for our Australian customers.”

Offshore

With regards to offshore work, Mammoet has also been contracted by fabrication, engineering and contracting services provider Lamprell Energy to carry out work for the East Anglia One offshore wind farm project in the North Sea off the east coast of the UK. The

contract is for the heavy lifting and transport of 60 jacket foundations at Lamprell's Jebel Ali, Hamriyah and Sharjah yards in the United Arab Emirates. The jackets will be loaded onto a specialist ship bound for Europe.

Earlier in 2018 Mammoet completed the installation of four 7 MW wind turbines at the Nisum Bredning near-shore wind farm in Denmark. Mammoet said Nisum Bredning was located in shallow water that could not be accessed by traditional methods. Specialist installation vessels usually used for this type of work operate in water up to 30 metres deep; however, in the Bay of Thyborøn, where Nisum Bredning is located, the water is it just three metres deep in some places, said Mammoet.

The company said following a conventional approach would have involved dredging – which would have taken time and money. Instead, Mammoet used a barge with an integrated ballasting system which allowed it to be lowered and grounded onto the seabed. This, it claimed, provided the necessary stability for the operation while eliminating the need for dredging. Mammoet said the solution effectively resembled an onshore installation and meant the lift could now be performed with an LR 11350 crane – a land-based crane which, among others, is used for onshore wind power projects.

In March 2018, heavy lift and transportation specialist Sarens was commissioned by Dragados Offshore, an engineering, procurement, and construction (EPC) contractor for the oil, gas, and other energy-related industries, to load-out four substation jackets for Hornsea Project One in the North Sea. When finished Hornsea Project One will be the largest wind farm in the world.

The jackets were located on a quay in Cádiz, Spain. Each jacket had an average weight of about 1,900 tonnes and a height of 60 m. Six Sarens crew members carried out the weighing, transport to the quay-side, and the final load out using 72 SPMT axles lines,

BARGE-MOUNTED MOTION-COMPENSATED FEEDER

Offshore equipment manufacturer GustoMSC has joined forces with motion compensation systems specialist Barge Master to develop a motion-compensated feeder solution for wind turbine components to service the emerging US offshore wind market.

The collaboration involves integrating a Barge Master BM-T700 platform onto a DP2 feeder barge. Barge Master introduced the BM-T700 platform in 2013 and says that it has proven itself in a number of projects. By compensating the vessel's motions, the platform creates a stable lift-off base for weights up to 700 tonnes in sea states up to Hs 2.5 metres. According to the two companies, this means operations can continue in more adverse weather, aiding project completion within the allocated time frame.

The BM-T700 platform is Lloyds certified under the lifting appliances rules and GustoMSC and Barge Master say the system feeds wind turbine components to the offshore installation site quickly and safely where they can then be installed by a wind turbine installation jack-up.

The feeder solution from GustoMSC and Barge Master



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16 200 tonne load cells, and 28 600 tonne pumps. To complicate matters, they had to co-ordinate the load out with the rising tide. Sarens reports the project was completed safely and on time.

Eastern promise

Chinese multinational engineering company Shanghai Zhenhua Heavy Industries (ZPMC), based in Shanghai, says that over the last few years it has been focusing on developing its services for the offshore wind power industry.

It has been involved with the manufacture and transportation of two foundation piles for Formosa Phase I – Taiwan's first offshore wind power project – and it has now won a contract to work on the 300 MW Datang Binhai offshore wind farm, which is being built by the Datang Guoxin Binhai Offshore Wind power Company. ZPMC said it is responsible for the transportation of 95 wind turbine components and the manufacturing, installation and transportation of a booster station.

ZPMC also reports it has won the engineering, procurement and construction (EPC) contract for the Guangdong Yuedian Zhanjiang Wailuo Offshore Wind Power Project. The company will use its Longyuan Zhenhua installation vessel to install 36 5.5 MW wind turbines and one 220 KV

TWD DELIVERS JACKET LIFTING TOOL TO VAN OORD

Dutch engineering company Temporary Works Design (TWD), which specialises in creating custom-designed tools and structures designed to enable its clients to perform transport and installation projects safely and on time, says it has successfully completed the turnkey delivery of a jacket lifting tool to international dredging and offshore contractor Van Oord.

According to TWD the jacket lifting tool has a capacity of more than 1,000 tonnes yet weighs just over 25 tonnes itself. The tool was officially handed over early February, fully load tested and certified, and has already been used to lift two 60 m high jackets at the East Anglia One offshore wind farm, in the North Sea.

According to TWD, the tool can be adapted to work with different flange diameters and can be fully controlled by remote control.



The jacket lifting tool from Temporary Works Design

offshore booster station.

ZPMC said it has also completed a lifting test on its wind power installation platform: Longyuan Zhenhua No. 3. According to ZPMC, its installation platform vessel will have a lifting capacity of 2000 tonnes, while a crane on the platform will have a lifting height of up to 120 m. The platform vessel will be able to

work in waters up to 50 m deep.

ZPMC hopes this will help China's marine wind power develop further out to sea rather than being restricted to shallower waters. ZPMC adds that it is also working on a bottom-supported offshore wind power installation platform that will have a lifting capacity of 2,500 tonnes.

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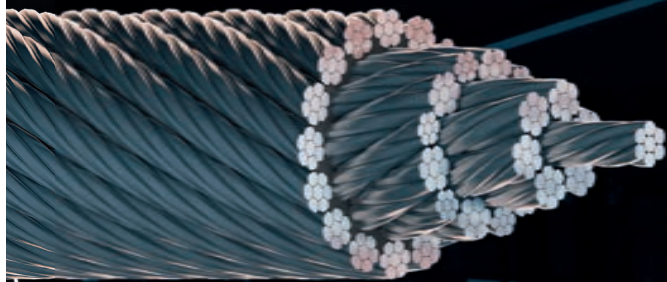
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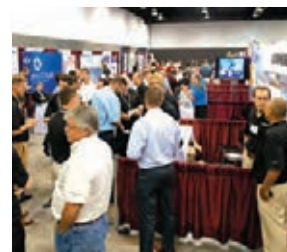
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Wind turbulence and cranes

EDUARDO ESTELLES from Glasgow, Scotland-based energy and weather monitoring specialist Logic Energy, explains wind turbulence and why it should be monitored

A crane is essentially a metallic structure and, like all structures, it has elements and joints that can only tolerate a certain amount of force before they fail. Of course, the forces required to cause failure are extremely high for a metallic crane which is built to hoist equipment weighing many tonnes. However, there is another form of structural failure, called fatigue failure, that can occur at much lower effort levels.

Fatigue failure can occur when machinery is subject to strong cyclical forces. These forces are very dangerous, since they can damage mechanical devices at a much lower load than is normally tolerated. Tower cranes experience these forces when exposed to turbulent wind and they are added to any load present if the crane is operating.

All structures, including tower cranes, have a natural frequency at which they tend to vibrate in response to external forces. If turbulent wind produces a variable force close to the natural frequency of a crane, vibration increases dramatically. This behaviour is called resonance, and it can occur even with relatively light loads.

Since turbulent wind can cause resonance and fatigue failure in tower cranes, it must be kept under watch in construction projects where these cranes are used. Wind

monitoring solutions tend to focus only on wind speed and direction, overlooking turbulence in many cases.

What is wind turbulence?

In simple terms, we can define wind turbulence as the degree of randomness in wind movement. We tend to associate turbulence with a high wind speed, but this is not always the case. Low-force winds that change a lot can be considered turbulent even if they aren't strong. The opposite also applies: wind can be strong and not necessarily turbulent, if its speed is steady.

Turbulence in the wind is invisible but it would appear as random vortexes in all directions if it could be seen. Any wind that displays this movement pattern is considered turbulent, regardless of its strength.

When wind speed is measured it is possible to calculate an average speed value. Then, if wind turbulence is present, it appears as ongoing variation above and below the average speed. A turbulent 30 mph wind feels very different from a stable 30 mph wind, even if the average speed is the same in both cases. This is why a fast and accurate measurement system is required to detect turbulence.

Quantifying wind turbulence

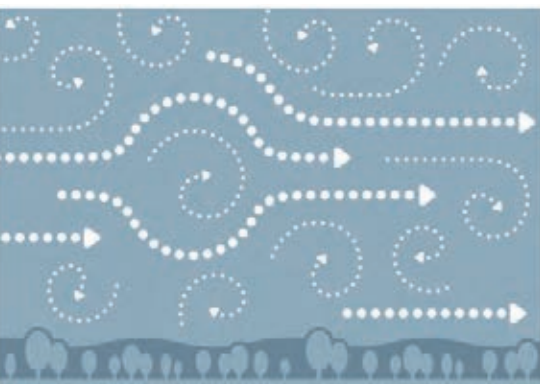
As discussed above, the average wind speed value does not tell us anything about turbulence. Instead, we must analyse how much the wind speed changes above and below the average value.

As an example, let's assume the average wind speed is 30 mph. If the actual wind speed ranges from 27 to 33 mph, it will be perceived as steady – there is little variation. On the other hand, if wind speed ranges from 15 to 45 mph it will be perceived as very turbulent as there is drastic variation. However, the average wind speed is 30 mph in both cases so the average value does not tell us anything about turbulence.



Since turbulent wind can cause resonance and fatigue failure in tower cranes, it must be kept under watch. Here ALE is using a tower crane to erect a wind turbine in Thailand (see the *wind turbine erection* feature on p25 for more info)

Turbulence intensity (TI) is the percentage variation of wind speed above and below the average value. Continuing with the example above, in the first case the wind speed varies by 3 mph above and below the average value of 30 mph, so we have a TI of only 10 percent. In the second case it changes by 15 mph above and below the average, so we have a TI of 50 %. »



Turbulence in the wind would appear as random vortexes in all directions

Also note that turbulence intensity is relative. The variation of 3 mph is only 10 % at 30 mph. However, if we have another site where the average wind speed is 12 mph, the 3 mph variation represents 25 %.

The importance of monitoring

Construction companies must manage multiple projects with different site conditions, and this includes the wind. Although weather monitoring is always important, it is critical when tower cranes are in operation, since they are susceptible to harsh weather.

If a monitoring system only tracks average wind speed, and the same value is displayed for two construction sites, it can give the wrong impression that wind conditions are the same. On the other hand, if the first site has 5 % TI and the second has 50 % TI, the difference is evident. In this case, project managers can suspend crane operation in the second site until the wind calms down.

When it comes to safe crane operation, average wind speed only tells part of the story. Keep in mind that cranes are vulnerable to strong winds, but they can also be affected by turbulence even at moderate wind speeds.

Safe operation is extremely important when dealing with tower cranes, since accidents are almost always severe. Consider



Prevention is the best solution, says Eduardo Estelles, who recommends construction managers use a reliable wind monitoring system such as Windcrane

all the damage caused if an operational tower crane collapses due to turbulent wind. First, human consequences are very likely; construction workers and bystanders can suffer injuries or may even lose their lives. Second, the tower crane could be damaged beyond repair, along with any equipment it was lifting when the accident occurred. Third, If the crane falls towards the structure being built, damage is certain; portions of the building may collapse, along with the crane. Adjacent buildings can also suffer damage, in

which case severe lawsuits can be expected.

It is not an exaggeration to say that a crane accident can mean bankruptcy for a construction company. This article does not intend to scare readers but being aware of the potential consequences of crane accidents is important. Prevention is the best solution so with a reliable wind monitoring system, such as the Windcrane system that measures turbulence intensity, construction managers can suspend crane activities because of potentially dangerous weather. ■



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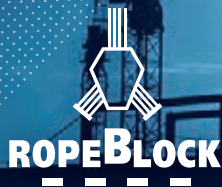
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Standard bearer

Enerpac's Mart Hinnen explains how the company is utilising principles of standardisation to deliver a range of benefits. CHRISTIAN SHELTON reports

According to Netherlands-headquartered heavy lift specialist Enerpac Heavy Lifting Technology (Enerpac), hydraulic gantries are the mainstay of many heavy lifting projects where their compact dimensions and ability to handle loads up to 1,100 tonnes are needed.

The company supplies a range of telescopic hydraulic gantries, including: the SL-Series Super Lift for entry level control and capacity; the heavy-duty SBL-Series Super Boom Lift; and the MBL-Series Mega Boom Lift, which has lift capacities (with four towers) from 600 to 10,484 kN, and lift heights between 3.4 m to 14.5 m. It also claims a number of 'industry firsts'; for example, it says the SBL-Series 900 was first foldable gantry in the 8,900 kN range and, more recently, it introduced a narrower track for the SL series for ease of access during internal factory moves.

Enerpac's gantries are used for a wide range of applications and the company says that the notion of a 'standard' hydraulic gantry has proved elusive, until now. At its 'Demo Day' in Hengelo in May 2018,

general manager, Mart Hinnen, described how Enerpac is using standardisation to deliver gantries that raise the bar for performance and ease of use, while at the same time streamline manufacture to reduce delivery times.

Evolution not revolution

For Hinnen, standardisation covers two areas: what the customer should expect and how the gantries are designed and manufactured. "Our approach to gantry standardisation recognises the inherent strengths of the basic gantry design and then seeks to apply the concept of 'marginal gains' to make small changes that are relatively easy to achieve yet add up to significant improvements in the overall safety and operation of the gantry," he explains.

Enerpac says safety is paramount in the design and operation of its heavy lift systems and that there are three safety elements that feature in all its heavy lift systems: adherence to international codes and standards for



Mart Hinnen (pictured) says marginal gains can add up to provide significant improvements

construction and safe operation; the controlled synchronous operation of the lift using wireless technology; and the construction of lifting systems that are self-contained for safer on-site deployment.

Enerpac states that its gantries comply with, and in many cases go beyond, the ASME B30.1 design code, and EC Machine Directive. "After systematically reviewing the engineering and manufacture of our entire gantry range, we have streamlined gantry manufacture by using common modules across our three ranges of gantries," Hinnen explains. "This allows quicker production, and where customisation is needed this can be done more quickly. In addition, we have developed a new common SL gantry base design that spreads the load better allowing smarter internals layout which is easier to assemble and lighter to transport.

"We've also used design improvements to achieve greater standardisation of components across the SL-Series range. This, together with investments in components stock and new machining centres, has allowed us to introduce 'just-in-time manufacture' where we're able to manufacture gantries in just a couple of weeks."

As standard, Enerpac gantries include electronic controls and the company's own

»

FAGIOLI GANTRY JOBS AROUND THE WORLD

Italian heavy lift and transportation specialist Fagioli has been busy using its fleet of gantries around the globe. In Italy Fagioli was contracted to lift and move a turbine and a generator, weighing 190 and 230 tonnes, respectively. Also in Italy, Fagioli relocated a tunnel boring machine weighing 480 tonnes in Turin. For this it used a gantry crane with a capacity of 1,100 tonnes, in conjunction with four L180 strand jacks and 320 SPMT axle lines.

In India, Fagioli used a combination of strand jacks and tower lifting and gantry lifting systems to move a 320 tonne generator stator in Odisha. Fagioli says the heavy item was skidded for about 22 m by the gantry lifting system and then lowered onto foundations.

It also skidded a 230 tonne generator stator 20 m in Nasik, India, using a gantry system. For the job Fagioli first installed a tower lift system. Then skidding tracks and a gantry lifting system were positioned on top of this. The stator was lifted for about 15 m in 1 hour, 45 minutes. After the lifting operation, the stator was skidded 20 m in 45 min. Remaining in India, Fagioli completed the onsite installation of a number of items of hospital equipment at the Apollo Hospital, Chennai. Each item weighed 110 tonnes.

Finally, in Poland, Fagioli was contracted to transport and install a Yankee dryer which weighed 150 tonnes and had dimensions of 9 m x 5.6 m x 6 m. The final part of the installation was conducted using a Fagioli gantry system.

Fagioli installing a 150 tonne Yankee dryer in Poland



Intellilift wireless control system. The control systems allow users to operate the lift locally at each leg or use the Intellilift remote control for unobstructed views of the load. "The wireless system ensures automatic synchronisation of lifting within millimetres accuracy and automatic synchronisation of travel with accuracy of 15 mm," says Hinnen. "It is a significant safety feature allowing the operator to control the gantry from a safe distance and with the ability to choose the best position to view the lift."

According to Hinnen, self-contained hydraulics are an Enerpac trademark. "The fact that all components are contained inside our gantries means there is less risk of failures, greater safety, and easier set-up," he asserts. "There are no hoses running from separate powerpacks. So, there's less risk of accidental cutting by machines on-site or by the gantry itself."

The gantries also contain their own propulsion systems. Enerpac is keen to point out this is not an add-on but included as standard. "Internal propulsion means less chance of external damage to the gantry and so it's safer in operation," Hinnen explains. "The gantry is tested like this, with all components contained within the machine, making the test a true reflection of the

gantry's performance."

Time for testing has also been reduced, Enerpac says. The company is the first gantry manufacturer to offer Lloyds Register's (LR) remote witness testing. Overload testing is a mandatory requirement for all new equipment and is part of Enerpac's Factory Acceptance Testing procedure prior to gantry delivery. Typically, the overload-test is witnessed on-site by an independent third-party surveyor. Using a new initiative for remote inspection from LR, Enerpac is able to undertake remote witnessing via wireless real-time camera streaming by smartphone. "Remote witnessing eliminates the time and cost of surveyors visiting Hengelo and makes it easier to schedule testing more quickly," Hinnen explains. "We can also provide customers with a live video stream of the surveyor's remote witnessing."

Raising the bar

A hydraulic gantry should have sufficient capacity to handle the job, be safe and easy to operate, as well as easy to transport and maintain. Enerpac believes it has demonstrated that these qualities are compatible with a standardised manufacturing approach, which translates into gantries that raise the bar for performance and ease of

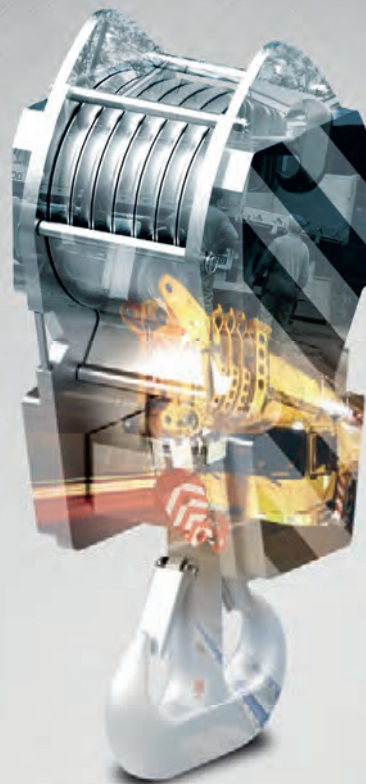


use. Enerpac says it is already off to a good start compared with other manufacturers by including Intellilift wireless control and self-contained hydraulics as standard. In addition to reducing delivery times, and systematically engineering out service and maintenance requirements where possible, Enerpac reveals it is expanding its portfolio with new SL-Series gantries planned for later this year.

"With the SL-Series, we have an entry-level gantry that enjoys the same level of quality and standard features as our top of the range gantries. They are extremely popular with first-time gantry users and those looking to replace an older gantry. By standardising components we're now able to build some gantries for stock so that when a contractor has an opportunity we're able to support them with rapid delivery," concludes Hinnen. ■

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Louisville line-up

MIKE CHALMERS previews the 2018 Crane & Rigging Workshop

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WHEN:

26 to 28 September 2018

WHERE:

Marriott Downtown, Louisville, Kentucky, USA

REGISTRATION INFORMATION

www.scranet.org

The 2018 SC&RA Crane & Rigging Workshop will take place on 26-28 September at the Louisville Marriott Downtown hotel in Louisville, Kentucky.

The Workshop brings together owners, operators, safety directors and operations managers from the industry's foremost manufacturers and companies. Workshop sessions will have an emphasis on safety, regulatory and consensus standards, training, equipment maintenance, as well as current issues affecting the industry. There will also be an Exhibit Centre, with more than 90 booths, where attendees can make new contacts quickly and easily.

Recognising pitfalls

A concern many in attendance have is the persistent nature of litigation throughout the marketplace. Bill Smith, executive vice president of claims and risk management for NBIS, will address this issue with his presentation *Practical ways to protect your company from lawsuits*. Smith will examine the lottery-like nature of today's lawsuits and offer attendees practical ways to defend themselves in the event of a suit filed against their company or employees.

Similarly underscoring the importance of knowing the rules of the game, Steven Todd, SC&RA vice president of transportation, will articulate how one permitting mistake could cost a company millions of dollars in his session *Mobile cranes on the move: using new OS/OW rules to your advantage*. A former state department of transportation official, Todd

ABOUT THE AUTHOR



MIKE CHALMERS is partner and chief copywriter at Thrive Content Solutions LLC, a creative copywriting agency based in Chicago.

will explain how to take advantage of a recent federal government ruling on mobile cranes to maximise time and budget. All aspects of securing permits and working with law enforcement and government officials will be covered.

Jim Wiethorn, PhD., P.E., Haag Engineering, and Fernanda Leite, PhD, P.E., associate professor of the University of Texas, will examine what contributes to accidents in their presentation *The hazards*

THE SPEAKERS AND THEIR PRESENTATIONS

- NBIS' **BILL SMITH** will address *Practical ways to protect your company from lawsuits*.
- SC&RA's **STEVEN TODD** will present *Mobile cranes on the move: using new OS/OW rules to your advantage*.
- Haag Engineering's **JIM WIETHORN** and University of Texas Associate Professor **FERNANDA LEITE** will examine what contributes to accidents, discussing

- The hazards of service providers.*
- Goldberg Segalla Partner Attorney **MICHAEL RUBIN** will speak on the subject *An attorney's point of view: playing offense with OSHA*.
- Lifting Gear Hire's **PATRICK CLARK** and **TOM BEASLEY** will present a session titled *Tackle any job with better tool management*
- Cortland Company's **BROOKS NUNLEY** and

Sampson Rope's **DENNIS SHERMAN** will discuss *How to successfully use synthetics*.

- Ashley Sling's **SAM SOCOLOW** will present *Calculating sling angles and hardware selection*.
- International Industrial Contracting's **JAMISON FOX** will address *Engineered lift plans from A to Z*.



B. Smith



S. Todd



J. Wiethorn



F. Leite



M. Rubin



P. Clark



T. Beasley



B. Nunley



D. Sherman



S. Socolow



J. Fox



The 2018 Workshop is at the Marriott Downtown in Louisville, KY, USA

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PLANT TOUR

LINK-BELT CRANES is hosting a factory tour for Workshop attendees. At its 770,000-square-foot plant in Lexington, Kentucky, participants can see firsthand everything it takes to manufacture and assemble a Link-Belt crane. Machining centres, assembly, lattice and formed boom bays, final paint and much more – are all customary stops along the way. The tour will culminate with lunch and a Link-Belt signature CraneFest presentation that will show off the company's latest product offerings.

The **SC&RA LEADERSHIP FORUM** is another key component of the SC&RA Crane & Rigging Workshop. The inclusive program is designed to help fast-track the best and brightest young minds to the next levels of professional and Association leadership. Accepted applicants will be matched with a mentor and learn from various industry veterans about workplace trends and industry issues (all interested can apply at www.scranet.org/leadership).

With more than 90 booths, the **CRANE & RIGGING WORKSHOP EXHIBIT CENTER** gives attendees the opportunity to hear about new products and services, make new contacts and get to know industry leaders.



Link-Belt's Lexington factory

of service providers. Wiethorn and Leite will point to recent research that suggests a that lack of safety talks, pre-lift meetings and miscommunication between service providers (crane rental firms) and their clients are largely responsible and outline what attendees can do to reduce the risk of accidents.

There will also be legal advice in the form of Michael Rubin, partner attorney, Goldberg Segalla, who will talk attendees through how to take control of their company's compliance by knowing their rights and responsibilities during his session *An attorney's point of view: playing offense with OSHA*.

Staying compliant

Using SC&RA's new *Severe Weather Guidelines* publication as an example, Troy Pierce, vice president, health safety and environmental, of TNT Crane & Rigging, will explain best practices for managers who want to introduce new practices and rules to employees in his presentation *Bridging the gap between compliance and choice*.

Complementing Pierce, Patrick Clark, national rental support manager at Lifting Gear Hire, and Tom Beasley, business support manager at Lifting Gear Hire, will be looking



at the issues of organisation and compliance when it comes to tooling operations. During their presentation *Tackle any job with better tool management*, Clark and Beasley will show attendees the options available in inventory management, inspection recording, and other tools, so that their teams can be both efficient and compliant (ASME B30 standards and OSHA 1910).

Crucial calculations

Application will be the name of the game when Brooks Nunley, technical sales and key account manager for Cortland Company, and Dennis Sherman, technical sales manager of cranes for Sampson Rope, take the stage to present *How to successfully use synthetics*. They will look at the effects of bending on synthetic fibre ropes and slings and how they differ from steel wire and round slings.

Staying on theme, Sam Socolow, product



application and training manager for manufacturer and distributor of below the hook lifting devices and rigging supplies Ashley Sling will look at how to calculate reduction and tension factors and the effects of angular loading on hardware in 'calculating sling angles and hardware selection'.

Jamison Fox from International Industrial Contracting Corporation will guide attendees through the elements of preparing an engineered lift plan in his presentation *Engineered lift plans from A to Z*.

In addition to two evening receptions and a First Timers' Briefing, the Workshop will also shine a light on the 2018 Rigging Job of the Year winners, representing the four best projects in their categories for exemplifying safety practices, ingenuity and specialized engineering.



Networking opportunities will abound at the forthcoming Workshop



Educational session topics will include safety, regulatory and consensus standards, training and equipment maintenance



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Al Faris has purchased 25 new Liebherr cranes



Vibrant market

The Middle East is one of the world's most active construction and infrastructure markets. CHRISTIAN SHELTON reports

BUILDING CRANES

Bothani ENG is a joint venture between Dubai-based construction equipment company Bothani and Italian crane manufacturer ENG Cranes. Headquartered in the UAE, the company has announced that it intends to start producing tower cranes in the Middle East as of July 2018. It says it will be the first tower crane manufacturer in the region.

The company exhibited a prototype of one of its tower cranes at the Big 5 Heavy construction sector exhibition in Dubai in March (pictured below). It described the crane as a concept two-in-one model that combines a luffing jib with a derrick crane.

The company also said it is developing a flat-top tower crane with a 90 metre jib length and a maximum capacity of 4.7 tonnes at the jib-end.



Bothani ENG says it will be the first tower crane manufacturer in the Middle East

Governments continue to invest heavily in transport, utilities and ports across the Middle East and are making efforts to diversify their economies beyond their reliance on hydrocarbons. As a result, there is enormous demand for lifting and specialized transport services.

Dubai, UAE-headquartered heavy lifting and transport specialist Al Faris started the year by placing an order for 25 new Liebherr cranes, with a total value around €18 million (US\$ 22 million), to celebrate its 25th anniversary. The order comprised: five LTM 1070-4.2s; two LTM 1130-5.1s; six LTM 1160-5.2s; four LRT 1090-2.1s; and eight LRT 1100-2.1 rough terrain cranes.

New facility

The new cranes, along with the rest of Al Faris' fleet, are based at the company's new head office in Dubai, which opened in the second half of 2017. It comprises an expanded 177,000 square metre facility built on the site of Al Faris' previous headquarters and houses office buildings and a yard with a 28-bay workshop and paint and fabrication buildings.

Remaining in UAE, contractor Six Construct is using two Manitowoc Potain tower cranes to help construct a 102,000 square metre residential complex in Abu Dhabi. The complex is called the Masdar Institute Neighbourhood Project and it is being developed by Abu Dhabi Future Energy Co. (Masdar) and Mubadala Development Co.



Six Construct is using two Potain MDT 259 J12 CCSs to help build a residential complex in Abu Dhabi

The cranes are Potain MDT 259 J12 CCSs and they were installed in January 2018. They will remain on site until June 2019. They were supplied by tower crane and hoist distributor NFT Specialized in Tower Cranes (NFT), which is also Potain's distribution partner in Abu Dhabi.

NFT has also won a contract to supply 14 Potain tower cranes for a high-profile mall project, the Reem Mall, in Najmat, Abu Dhabi. To date, NFT has installed 13 of the 14 tower cranes, in under five weeks. The cranes include Manitowoc MDT 368 L12, MC 475, MD 560, MD 310, MC 310 K 12 and MD 1100. According to NFT, two to three erecting teams were working on site simultaneously. "While one team was doing the assembling of masts, the other was doing the installation," explains NFT's operations manager Bassem Kini.

This comes on the back of a contract for NFT to supply 26 Potain tower cranes for the construction of a new passenger terminal at Kuwait international Airport.

»



Mammoet is using nine crawler cranes for the construction of Kuwait International Airport

Taking flight

Also working on the new terminal at Kuwait International Airport is Turkish construction company Limak Insaat, which has commissioned heavy lifting and transport specialist Mammoet to carry out the transportation and installation work. According to Mammoet, the terminal will have a trefoil plan comprising three symmetrical wings of departure gates. Each facade spans 1.2 kilometres and all extend from a 25-metre-high central space.

Mammoet will install all precast sections of the terminal's main structure, which consists of 804 concrete elements each weighing between 200 and 360 tonnes. To complete the project, Mammoet will deploy nine crawler cranes ranging in capacity from 600 to 1,600 tonnes and 72 axle lines of self-propelled modular transporter (SPMT).

Mammoet has expanded its presence in Saudi Arabia with the opening of a new operational hub in the city of Al Jubail. The company said the new facility will help strengthen its presence in the country and better serve its clients.

The new facility comprises an office building and a 20,000 square metre yard which, Mammoet said, will enable in-house maintenance and repair of fleet equipment.

Commenting on the new facility, Darren Bland, general manager of Mammoet's operations in Saudi Arabia, said, "We are concentrating on our expansion in the region and the office is strategically placed closer to our customers to further develop relations, reinforcing our emphasis on service, accessibility and providing quality solutions at all times. The new office is an important milestone for our regional investment and supports our long-term strategy."

Along with an expanded presence, Mammoet has been strengthening its Middle Eastern fleet by adding 35 telescopic and



Linden Comansa's 16LC220 tower crane will now be available in Israel through the Gabay Group

crawler cranes. Mammoet said it has done this to meet strong market demand and to help grow the company's crane rental services. The cranes, ranging from 30 to 1,250 tonne capacity, will be available through Mammoet's branches in the United Arab Emirates, Saudi Arabia and Oman. In addition, Mammoet said it will add conventional trailer axles and SPMT to its existing Saudi fleet.

Dealer appointment

Spanish tower crane manufacturer Linden Comansa is also furthering its presence in the Middle East by appointing Israel-based construction company Gabay Group as its exclusive dealer in Israel. According to Linden Comansa, both parties signed a three-year contract in March 2018, after Linden Comansa's tower crane model 16LC220 successfully received approval from the Standards Institute of Israel. An official from the Israeli public authority visited the manufacturer's facilities in Spain, together with staff from Gabay Group, to test the tower crane in detail. This official approval is compulsory in order to import tower cranes into Israel, Linden Comansa says.

The deal between Gabay Group and Linden Comansa includes the immediate purchase of three 12 tonne 16LC220 tower cranes, plus a required number of other units throughout 2018. The first three 16LC220 tower cranes will become part of Gabay Group's fleet, and their first job will be the construction of a residential complex in Tel Aviv.

Looking to the future of trade in the Middle East Andrea Bristot, Linden Comansa's area sales manager for the Middle East, is positive. Following the Big 5 Heavy construction show in Dubai, United Arab Emirates, in March 2018, he said, "we have been very busy with customers not only from Emirates but also from Egypt, Oman, Saudi Arabia or Kuwait, which shows that the entire region is under an evident recovery. Another good indicator is that the world's main tower crane manufacturers were there."

CRANES AND TRANSPORT MIDDLE EAST CONFERENCE

The second Cranes and Transport Middle East (CATME) event will take place on 10 October at the Waldorf Astoria hotel, on Palm Jumeirah island, Dubai, UAE.

Topics under discussion will include: improving health and safety in lifting and transport operations; increasing the efficiency of fleet management; and enhancing equipment productivity. A wide range of equipment and markets will also be under the spotlight. These will include: mobile and crawler cranes; tower cranes; specialized transport equipment, including SPMT; and construction, energy, oil and gas and industry business sectors.

Speakers confirmed for the event include: Martin Ashfield (capital asset general manager, Al Naboodah Group); Aaron Chehab (chief commercial officer, KBW Investments); Ronnie Drugan (global account manager, Fire Suppression Products, Johnson Controls); Thorsten Hesselbein (sales director, Liebherr-Export AG); Dr Shan Senthil (marketing manager, Integrated Logistics Company); and John Woodward (owner, C&D Consultancy).

For more information and to book, see: www.khl-catme.com



The 2018 CATME event will take place on 10 October, 2018, at the Waldorf Astoria hotel, Palm Jumeirah island, Dubai



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Rubber of choice

A guide to navigating the complicated world of getting the correct pneumatic tyres for your vehicle. MARCO VAN DAAL reports

Have you ever bought a tyre for your car, truck, trailer or SPMT and got lost in the numbers, letters, abbreviations, indices, ratios, construction types, ratings, etc on the tyre sidewall? You are not the only one. But first let's look at some history.

In 1888 the son of a veterinarian in Belfast, Ireland, was prescribed cycling as an exercise by his doctor. The rough pavements gave the boy continuous headaches and his father created the first practical pneumatic tyre to help prevent this. His name was John Dunlop. Solid rubber tyres were around before that, manufactured by, among others, Charles Goodyear in the USA and Thomas Hancock in Britain. Dunlop was taken over by Goodyear in 1999.

More than 2.5 billion tyres are manufactured annually worldwide. Some forecast that before the end of this decade that number will rise to 3 billion. The largest manufacturers in 2011 were Bridgestone with 190 million tyres, Michelin with 184 million, and Goodyear with 181 million. They were followed by Continental and Pirelli. You might be surprised to hear, however, that the largest manufacturer of tyres in 2011 according to Guinness World Records was the Lego Group which produced more than 318 million tyres for its plastic construction toys.

Standardisation of tyre sizing and application has not been an easy feat and it is still not well defined. A large number of tyres are manufactured in the USA to an imperial

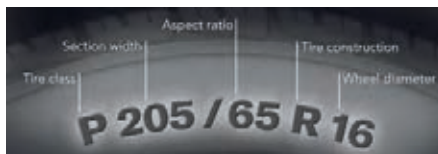


FIGURE 1

sizing system. It was the same in, for example, the UK until 1965 when the switch was made from an imperial system to the metric one. The result is that there are multiple systems, either imperial or partly metric. Customisation of tyres for new industries doesn't make things any easier.

Metric sizing (Figure 1)

Implies that the code on the tyre sidewall is metric but it is not, it is only partly metric.

This type of tyre starts its code with a letter or letters or not (confusing, huh) to represent the **tyre class**.

- "P" designates a tyre as being constructed for passenger vehicles to US standards
- Absence of a letter (or letters) indicates a tyre constructed to European standards
- "LT" designates a Light Truck tyre
- "ST" designates a Special Trailer tyre and is indeed only for use on a trailer
- "T" designates a Temporary spare tyre, often a non-matching (smaller section width and smaller diameter) tyre to get you to the nearest garage at limited speed. These are not to be used above 80 km/h (50 mph) due to the difference in size.

The next three digits on the tyre represent **section width** – the distance in millimetres (mm) from sidewall to sidewall when the tyre is inflated to the correct pressure. Note that the section width is not the same as the contact width with the road surface. In Figure 1 the section width is 205 mm.

The next character is the **separator**. To the layman's eye the separator tells us whether you have a metric or imperial tyre at hand. Metric or part metric tyres use "/" as the separator. Imperial tyres use an "x" as the separator.

Following the separator is the **aspect ratio**. The aspect ratio refers to the height of the sidewall, measured from ground level to the edge of the rim. Basically it is the height of the "cheek" of the tire. In Figure 1 this



FIGURE 2

number is 65. This number is however not a measurement, it is a ratio. The number 65 means that the height of the sidewall equals 65 per cent of the section width.

Therefore, the height of the sidewall is 65 % of 205 mm which equals 133 mm.

Note: if this aspect ratio number is larger than 200, then it represents the tyre diameter in millimetres.

Next is a letter, either "R", "D" or "B". This letter represents the **tyre construction**, where "R" designates radial construction (it does not refer to the radius of the tyre as is often assumed); and "D" or "B" designates diagonal bias (crossply) construction.

Note that 99 % or even more of all tyres produced are of radial ply construction.

The last two-digit number represents the **wheel or rim diameter** in – guess what – inches. The tyre in Figure 1 fits on a 16 inch (406 mm) rim.

Imperial sizing (Figure 2)

Implies that the tyre code on the side wall is in imperial units, which is indeed the case. The first two-digit code represents the **tyre diameter** in inches. In Figure 2 this is 35 inches.

The next character is the **separator**. To the layman the separator indicates whether you have a metric or imperial tyre at hand. Metric, or part metric, tyres use a "/" as the separator. Imperial tyres use an "x" as the separator.

The next three or four-digit code represents the **tyre width** in inches. The last two digits are always the decimals. In Figure 2 the tyre width is 12.50 inches, the last two digits "50" are the decimals. A narrower tyre could have a tyre width of 7.00 inch (three digits), again, the last two digits – "00" – are the decimals. Note that **tyre width** and **section width** are the same measurement. On metric tyres it is called the section width, on imperial tyres it is called the tyre width.

ABOUT THE AUTHOR



MARCO VAN DAAL has been in the heavy lift and transport industry since 1993. He started at Mammoet and later with Fagioli from Italy, both leading companies in the industry. His 20-year-plus experience extends to five continents and more than 55 countries. His book *The Art of Heavy Transport*, is available at: www.khl-infostore.com/books. Van Daal has a passion for sharing knowledge and holds training seminars around the world.

Next is a letter, either “R”, “D” or “B”. This letter represents the **tyre’s construction**, where; “R” designates radial construction and “D” or “B” designate diagonal bias (crossply) construction.

The last two-digit number is the **wheel or rim diameter** in inches. The tyre in Figure 2 fits on a 17 inch rim.

These are the basics. All tyres have the above information on the sidewall as a minimum. They often carry much more information than that.

In Figure 2 there is another separator (“/”) and the letter “E”. This designates a **load range** for the tyre. The **load range** is another one of those abbreviations that can cause confusion as the load range depends on the application of the tyre. A passenger vehicle, designated by the letter “P” or nothing, has a different load range from a truck (designated by the letters “LT”) and different letters indicate this. See Figures 3 and 4.

In Figure 4 you can see that the **load range** correlates to an ever-increasing **ply rating**. Letters farther along the alphabet correspond to a higher ply rating. Note that the load range for trucks continues beyond the letter “F” all the way to letter “N” which correlates to a ply rating of 24.

NOTE 1: To avoid confusion (but in reality it could very well introduce confusion) the letters “I” and “K” are not used in the load range. The reason behind this is that the letter “I” could look like a “1” and the letter “K” is commonly used for “kilo” meaning “thousand”.

NOTE 2: Although the reasoning behind not using the letter “K” may have been well intended, the justification for it is just wrong. “K” is not used, for example, for “kilogramme” as the correct abbreviation is “kg” in lower case letters, not in capitals. In addition, the capital “K” does not mean “thousand”, the small letter “k” means thousand.

What does the **ply rating** really mean? Let’s start with the statement that it is not the tyre that carries the load, it is the air inside that carries the load. The tyre is just the container for the air. So, if you need to carry more load, you need more air inside that container. More air inside the tyre means a higher pressure and this means that the tyre walls need to be strong enough to contain this higher pressure. In the early days of bias (crossply) tyre construction the strength of a tyre was built up by adding layer upon layer of cotton fabric. These layers were placed in sets of two with the weave in each layer at an angle to each other. It added strength because the tension would be distributed throughout the layers

Passenger Vehicle Tyres		
Load Ranges	Abbreviated	Maximum Load Pressure
Light Load	LL	35 psi (240 kPa)
Standard Load	Nothing or SL	35 psi (240 kPa)
Extra Load	XL	41 psi (280 kPa)

FIGURE 3

Light Truck Tyres			
Load Range	Ply Rating	Abbreviated	Maximum Load Pressure
B	4	B	35 psi (240 kPa)
C	6	C	50 psi (350 kPa)
D	8	D	65 psi (450 kPa)
E	10	E	80 psi (550 kPa)
F	12	F	95 psi (650 kPa)

FIGURE 4

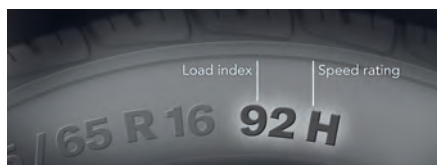


FIGURE 5

of fabric. Because the layers were added in pairs we still see to this day only even number ply ratings. The ply rating used to refer to the numbers of layers of fabric.

Before long, the cotton was replaced by stronger nylon and once again, the confusion started. Older tyres sometimes had codes stamped on the side wall, for example, “2 ply/4 ply rating”, meaning that the construction of the tyre was with only two nylon plies but as strong as four cotton plies.

Ply materials continued to improve, especially with the introduction of steel wire and the radial tyre construction (as opposed to bias construction), making the ply number less and less meaningful. This precipitated the introduction of **load range**. Even the **load range**, however, does not tell the carrying capacity of a tyre, it merely gives the maximum air pressure the tyre can handle.

Meet the **load index**. See Figure 5. The load index is a one, two or three-digit code that indicates the carrying capacity of a tyre expressed in pounds or kilogrammes when the tyre is inflated to its correct pressure.

Load Index	Pounds	Kilograms
89	1279	580
90	1323	600
91	1356	615
92	1389	630
93	1433	650
94	1477	670
95	1521	690
96	1565	710
97	1609	730
98	1653	750
99	1709	775
100	1764	800
101	1819	825
102	1874	850
103	1929	875
104	1984	900
105	2039	925
106	2094	950
107	2149	975

FIGURE 6

The load index starts at “0” (which corresponds to a carrying capacity of 99 pounds or 45 kg) and generally runs to “150” (which indicated a carrying capacity of 7,385 pounds or 3,350 kg). However, industry- or application-specific tyres may show higher numbers. See Figure 6 for a partial load index table. Figure 5 shows a load index of 92 which corresponds to a tyre carrying capacity of 1,389 pounds or 630 kg.

The last index is the **speed rating**. See Figure 5. The speed rating mostly but not always consists of a single letter. Speed rating became more and more important in recent years (the last two or three decades) as road legal car manufacturers kept increasing the vehicle’s maximum speed in combination with certain countries, for example, Germany and Italy not having speed limits and high speed driving is permitted.

You would expect that since the speed rating was developed only recently that it would not have anomalies like other tyre ratings and indices show. Not quite so. The original speed rating ran from “A” to “Z” but excluded the letters “I”, “O”, “W”, “X” and “Y” for reasons that are not quite clear. As higher performance tyres kept coming to the market, additional letters were needed and the “W” and “Y” were added but they appear after the letter “Z”. In addition, the letter “A” by itself does not exist, instead the ratings “A1” to “A8” are available for speeds from 5 to 40 km/h (3 to 25 mph).

Before the speed rating there were basically two types of tyre: regular tyres and high performance tyres. These were suitable for speeds up to 210 km/h (130 mph) and carried the letter “H”.

When the speed rating was introduced it was decided to keep the letter “H” for this speed (up to 210 km/h) and design the rest of the ratings around it. The result is that in the speed rating table the letter “H” now appears between “U” and “V”. See Figure 7.

This article is only an introduction into the world of tyre sizing, application and rating. There are many more codes on the side wall of a tyre although we have covered most basic ones.

FIGURE 7

Speed rating			
L	75 mph	120 km/h	Off-Road & Light Truck Tyres
M	81 mph	130 km/h	Temporary Spare Tyres
N	87 mph	140 km/h	
P	93 mph	150 km/h	
Q	99 mph	160 km/h	Studdless & Studdable Winter Tyres
R	106 mph	170 km/h	H.D. Light Truck Tyres
S	112 mph	180 km/h	Family Sedans & Vans
T	118 mph	190 km/h	Family Sedans & Vans
U	124 mph	200 km/h	
H	130 mph	210 km/h	Sport Sedans & Coupes
V	149 mph	240 km/h	Sport Sedans, Coupes & Sports Cars



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Study up on blockchain

Construction and transport hasn't exactly been lauded in recent decades for its embrace of cutting-edge technology or the ability to proactively get out in front of the newest technological innovations and processes. Until recently, technology has been used on more of an as-needed basis within industry rather than as a pre-emptive game changer.

But "blockchain" is likely going to change all that.

A blockchain is a secure, decentralised register of transactions that allows multiple parties to conduct monetary transfers and other business without the need for a bank or other financial third party.

By allowing digital information to be distributed but not copied, blockchain technology has created the backbone of a new type of internet. Originally devised for the digital currency Bitcoin, the tech community is now finding other potential uses for the technology.

Information held on a blockchain exists as a shared – and continually reconciled – database. A blockchain database isn't stored in any single location, meaning the records it keeps are truly public and easily verifiable. No centralised version of this information exists for a hacker to corrupt.

A kind of self-auditing ecosystem of a digital value, the blockchain network reconciles every transaction that happens in ten-minute intervals. Each group of these transactions is referred to as a "block".



So, what's that got to do with industry?

Blockchain is said to streamline payment transactions – and possibly eliminate the middleman – in trucking. Of specific interest to companies looking at blockchain is digitalised bill of lading (BOL).

Currently, many processes in trucking are bound to a particular piece of paper (or an image of it) moving through the delivery process. But having a digital BOL, securely placed on the blockchain, will streamline every single process for any carrier.

In addition, blockchain is expected to provide an instant audit for ELDs and truck drivers' hours of service. Fuel purchase time stamps can be written to the same chain, as well as parking stops. ELDs posting location times to the blockchain could help carriers instantly confirm arrivals and departures with their customers.

Smoother operation

In construction, by providing real-time transactional information and materials tracking throughout the supply chain, blockchain advocates say construction companies can improve transparency and streamline operations as well.

Construction is rife with data and intermediaries and, most importantly, players that don't necessarily trust each other. Blockchain creates powerful peer-to-peer standards, in a simple-to-adopt way that doesn't interfere with the current process. Trust is managed systematically.

Just collecting the data from all the subcontractors on a project and inputting it can be a nightmare. With blockchain, handover can be done actively and in real time. This makes the blockchain the place where you can create truly living O&M manuals. The idea that 95 percent of all data can be lost on handover can be almost completely eliminated. That's not just a great use case, it's also a huge source of ROI for all key players.

Blockchain isn't one central authority – it's shared and open to the secure members who then drive trust, transparency and integrity. That means there is one shared version of the truth for every project, which is what the industry wants.

Looking ahead

In the near future, integration with the IoT (internet of things) and artificial intelligence will unlock tremendous amounts of value in reduction of construction and facilities management costs. Another benefit is the risk reduction across the industry on a wider level through lower litigation costs, which are some of the highest of any industry.

Although we're literally just seeing the tip of the iceberg with blockchain, rest assured: it's coming. And you might want to study up. ■

SC&RA LEADERSHIP

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In the wake of the 2017 hurricane season
SC&RA has published a set of severe weather
guidelines for Association members

Working with weather

On the heels of one of the top ten all-time most active Atlantic hurricane seasons on record in 2017, the Specialized Carriers & Rigging Association (SC&RA) Crane & Rigging Safety Education & Training Committee formed the Inclement Weather Preparedness Task Force earlier in 2018.

For months, the Task Force worked to create recommendations and emergency planning guidelines, not just for hurricanes, but for other severe weather conditions in general, including tornadoes, high winds and severe thunderstorms. The goal was to create Severe Weather Guidelines for the crane and rigging industry that members use to assist all employees in performing their tasks effectively and efficiently when operating in severe weather.

Most importantly, the guidelines outline jobsite preparation before and after severe weather and include timelines for preparation work. The intention is to minimise risks, reinforce safe work practices and positively communicate preparedness.

Zooming out, according to the USA-based National Oceanic and Atmospheric Research Administration, the top ten countries with the most hurricane strikes since 1970 are: China, Philippines, Japan, Mexico, United States, Australia, Taiwan, Vietnam, Madagascar and Cuba.

Ultimately, the SC&RA Severe Weather Guidelines recognises the uncertainty of weather forecasting. In 2017, three hurricanes devastated US coastlines and caused massive flooding in major cities. These events demonstrated the imprecise science of where and when weather will hit.

A clear message

Task Force chair, Troy Pierce, of TNT Crane & Rigging, jumped at the opportunity to join the group.



Troy Pierce

"Overall, my motivation was to have at least a small part in the value that SC&RA delivers to its members," he said. "I brought no agenda; rather, I was interested to learn what our peers did to prepare for and manage severe weather and how that could improve or enhance the TNT approach."

Pierce's primary career objective is the total elimination of worker injury, and he believes it's imperative that industry leaders do everything possible to eliminate disruptions caused by lack of preparation. "The SC&RA operates with the intention of working with its members to overcome obstacles, break down barriers and reach new peaks," he noted. "The focus on cultivating value-added, difference-making tools, by harvesting best practices across the industry and making them available to its members in a useful format, is a worthy endeavour. After reviewing the final document, which was composed by the task force and honed by various SC&RA committees, I am proud of the tool that is being offered to member companies."

Fellow Task Force member, Tom Gordon, of Local 14-14B – International Union of Operating Engineers, similarly joined the group out of respect for SC&RA and an urgency to advance safety within the industry. "We're always looking to be involved in

whatever protocol there is to improve crane safety," he assured. "The task force has been a great experience thus far, and by getting out in front of this issue, SC&RA created an opportunity to bring together people from all different areas – crane rental people, people from law firms, people



Tom Gordon



In response to an active hurricane season in 2017, SC&RA Crane & Rigging Safety Education & Training Committee formed the Inclement Weather Preparedness Task Force early in 2018

from safety and people like myself, who represent the operator's perspective."

Gordon emphasised the importance of creating a base of information for companies of all sizes. "Just getting the proper information out to everyone – in a way they can understand and implement – was the biggest thing," he said. "A lot of people who don't have that information are looking to get it to the right people at the right time, and that's what this did. Again, it showed that SC&RA is always at the forefront when it comes to safety."

Taking the lead

Acknowledging the unpredictability of severe weather events, the guidelines take into consideration weather forecasts to preclude unnecessary curtailment of operations or work interruptions that may themselves represent some risk to personnel and equipment.



Decisions surrounding the appropriate preparedness level must be made early enough to provide sufficient lead time to accomplish necessary outside work before the weather reaches the level at which



Peter Juhren

outside activities become difficult and risk of personnel injury becomes higher than normal. A key component of the guidelines is timely and accurate communication to all employees.

"The key to any plan for weather-related safeguards is to implement early," commented Peter Juhren, vice president of operations at Morrow Equipment Company and SC&RA's Crane & Rigging Tower Crane Committee chairman. "Having an action plan in place before any event is prudent and will ensure when there is an event, the people responsible for implementing it are ready. These guidelines will be a starting point and a focus on the key elements for preparing for severe weather."

While not on the Task Force, Juhren presented the work of the Task Force, as well as industry recommendations for operating tower cranes during inclement weather, at the Tower Cranes North America Conference in Miami, Florida, on 18 and 19 June.

"Being a part of this endeavour and having the input from the entire Tower Crane Committee was crucial to ensure we covered all the bases we felt were of importance," he said. "Members who have experience with both diesel tower cranes and electric tower cranes put different proposals on the table, which when combined, will assist the owners with different types of issues regarding severe weather."

"It's been a long time coming, and the need has been there for years. With the best experts in the industry contributing,

The guidelines are designed to prepare for weather that is both anticipated and unexpected



these guidelines will serve the industry and members well."

Of note: the procedures outlined in the guidelines are not designed to replace the need for individual planning, but rather to provide overall planning guidelines. Sample checklists for branch managers, safety managers, superintendents, general foremen and foremen will be included in the plan.

Great value

Obviously, the insight and information developed for the guidelines represent extreme value for SC&RA members around the world. In response to SC&RA's proactive approach, other organisations around the world have taken notice. "CICA will raise this at our July National Reference Group as an item of discussion for members to consider the need," said Brandon Hitch, Crane Industry Council of Australia chief executive.

Australia has a lower population density than the USA and severe weather doesn't have the same magnitude of destruction but Hitch affirmed that Australia still experiences its



Brandon Hitch

fair share of severe weather in the form of flooding and wind damage from tropical cyclones, as well as brush fires in the summer. Hitch added, "I commend SC&RA for taking a lead to promote safety and productivity for the crane industry. This is CICA's vision as well."

Task Force member Jeremy Landry, of Deep South Crane & Rigging, echoed Hitch.

"Tools such as these guidelines are key reasons for companies to join SC&RA," he pointed out. "Companies sharing their experiences and knowledge allows everyone to grow without having to learn those lessons the hard way."

Landry joined the Task Force to help provide perspective as a member company operating in the US Gulf South – undoubtedly in the crosshairs when hurricane season comes rolling in. He sees this move by SC&RA as essential in advancing safety in the industry and providing members with the tools to succeed. "Severe weather threatens life in a multitude of ways," he said. "Eliminating even one of those ways from the equation, i.e. a crane collapse or accident, simply saves lives."

As hurricane season looms, SC&RA members are encouraged to log in and view the guideline materials. These can be found at: www.scranet.org/membersonly



Jeremy Landry



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LEEA GUIDE FOR
RUNWAY DESIGNERS

Lifting Equipment Engineers Association (LEEA), a representative body for the global lifting industry, is issuing a guide to the verification of runway beams.

It will offer guidance regarding current complex technical requirements for the design, manufacture and verification of runway beams.

LEEA said the guide was necessary following the introduction of Eurocode verification in place of the previous standard. There are 10 Eurocodes, LEEA explained, which has resulted in too much information for runway designers to sift through.

As a result, it has produced this guide as a means of directing runway designers and testers to those parts of the Eurocodes most relevant to them.

■ For more information see: <https://leeaint.com/uk>

Modulift beams help lift Siemens HTT modules

UK below-the-hook equipment manufacturer Modulift worked with Siemens Heat Transfer Technology (Siemens HTT) to supply two lifting rigs for two power station modules weighing nearly 200 tonnes each.

Siemens HTT manufactured two vertical Benson-type Heat Recovery Steam Generators (HRSG) which it needed to transport between Korea and Thailand. According to Dennis de Jong, supply manager for Siemens HTT, they are the largest HRSG-modules the company has constructed to date. They will be used as part of Thailand's Power Development Plan – which aims to improve the reliability of the country's power

system and introduce clean power generation facilities.

Due to the modules' size, specialist rigging was required to lift them on and off the vessel transporting them. For this, Modulift supplied 16 34 tonne capacity MOD 34 spreader beams, as well as slings, shackles, tie-plates, and other rigging gear.

Eight spreader beams were rigged at a 90-degree angle under an existing larger beam, essentially widening the below-the-hook system. Chris Schwab, account executive at Modulift, explained, "Siemens wanted to utilise the same pick points so we were steered towards the eight-beam solution; we added another layer to the rig. Above each beam,



a sling was rigged at either end at a 55-degree angle to a [18 tonne SWL] tie-plate; between the plates, a 17 tonne [SWL] tie grommet sling provided stability and attached our rig to their beam." The distance from the top of the MOD beam to the load was approximately 1.6 metres.

■ For more information see: www.modulift.com

Portable gantry to save a seal

UK animal welfare charity, the Royal Society for the Prevention of Cruelty to Animals (RSPCA), used a portable gantry made by UK gantry and davit crane manufacturer Reid Lifting to help rescue a seal pup

that was trapped by boulders on a beach in South Wales.

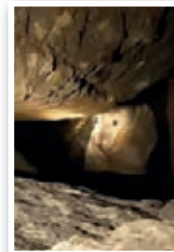
The 5 tonne working load limit (WLL) Porta-Gantry system was erected above the seal and used to remove boulders weighing approximately 3 tonnes. The gantry was erected on uneven ground and so it was mounted on timber chocks to level it out. The surrounding boulders were drilled and fixed into position to prevent cave-in.

According to Nic de Celis, an inspector for the RSPCA, "The modular-type, specialist-lifting gantry was integral to completing this rescue. I was amazed how straightforward it was for one operator to lift such a heavy boulder."

The gantry was hired from UK company Lifting Gear & Safety, which specialises in the hire, sale and servicing of lifting, marine and safety equipment provided a portable gantry. Gary Moorhouse,

director at Lifting Gear & Safety, said, "The rescue team quickly identified a need for an overhead lifting solution to remove a large boulder and a crane wasn't an option due to the nature of the location and environment. We frequently supply Reid's gantries for diverse applications, but this was the first time that one has been used for a wildlife rescue such as this."

■ For more information see: www.reidlifting.com

REMOTE CONTROL
RANGE FROM JDN

German hoist and crane manufacturer JD Neuhaus (JDN) has developed a new range of radio remote controls for its products.

Three remote control models are now available: RC-X, RC-S, and RC-SP. Each comprises a transmitter and receiver and can either be retrofitted with existing JDN solutions or combined with new JDN hoists and cranes.

JDN said a key feature of the new receivers is their rigid, compact design. All components are housed in a space-saving, shock-resistant glass-reinforced plastic casing with dust and water protection class IP65. The design also offers seawater-resistance for offshore applications, while the RC-X model is rated up to ATEX zone 2/22 for explosive environments.

■ For more information see: www.jdngroup.com



The JD Neuhaus receiver and RC-X RC transmitters and receiver



The RC-S and RC-SP RRC transmitters and receiver

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www.bauma.de

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9 May 2019

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www.liftandmoveUSA.com

Loyal reader Klaus Scholpp, managing director at PowerAttack – a German manufacturer of tools designed to move heavy loads – read our request for interesting crane- and transport-related images and sent us this nice shot of an old Jones lattice truck crane that was spotted in Pakistan, on the outskirts of Karachi. Jones Cranes in the UK began making cranes in the 1930s and by the time it had reached a peak in the 1970s the company was producing mobile truck and crawler cranes with lifting capacities of up to 40 tonnes. The company fell on hard times in the 1980s, attributed mainly to foreign competition.

PICTURE
OF THE
MONTH

PEOPLE NEWS

■ GERALD

KARCH has been appointed chief executive officer at Transporter Industry International (Tii) in Germany. Tii comprises specialized transport equipment brands Scheuerle, Kamag, Nicolas and Tiiger. Karch has also taken on the role of chairman of the management board. His job will be to continue driving forward the strategic reorientation of the Tii Group, the company said.



■ Crane manufacturer Manitowoc has divided its Potain tower crane organisational structure for Europe and Africa so that self erecting tower cranes (GMA cranes) and top slewing cranes (GME cranes) are being run independently



in terms of production and product management. The GME division is being led by **CHRISTOPHE SIMONCELLI**, VP GME tower cranes. The GMA division is managed by **GIORGIO ANGELINO**, VP



GMA tower cranes. The sales and aftermarket section is being run by **ORLANDO MOTA**, VP sales and aftermarket. Engineering for all tower cranes ranges is headed-up by Bruno Roni-Damond, VP engineering. The finance and administration departments are being managed by Jean-Noel Gros, VP finance. They all report to Aaron Ravenscroft, tower senior vice president for Europe and Africa, within his role as Manitowoc executive vice president.



■ North American flatbed and specialized transportation company Daseke has announced the appointment of **BHARAT MAHAJAN** as its new chief financial officer.



Mahajan will assume the role of CFO from Scott Wheeler, who was named Daseke's president earlier this year. "He's a perfect fit to help us achieve our vision of continued growth," said Wheeler.

■ North American trailer manufacturer Trail King Industries has appointed

OBITUARY

■ With regret ICST announces the death of **VICTOR WENZEL**, founder of North American company Vic's Crane & Heavy Haul. Vic was born in Eagan, Minnesota, USA, on 20 July 1928. In the 1950s he started Vic's Arc & Gas Welding with his wife Bernice Johnson, and grew the business over the following years. In the early 1970s Vic bought a fleet of cranes and moving equipment to better serve clients. Vic was known for his ability to engineer most things that would be used to move or lift items and he took on many jobs others refused, which helped cement his success with Vic's Crane & Heavy Haul.



JON DUESTERHOEFT as its director of sales operations. Within this role, Duesterhoeft will support the inside sales team at the company's headquarters in Mitchell, South Dakota. Prior to the appointment Duesterhoeft was a sales manager at Sioux Steel – a manufacturer of grain bins.

■ Please send picture of the month entries and all other back page-related information to *International Cranes and Specialized Transport*, KHL Group, Southfields, Southview Road, Wadhurst, East Sussex TN5 6TP, United Kingdom, or by e-mail to alex.dahm@khl.com. Picture caption entries should include: the month and year taken, the place, type of crane, owner and project, plus any other relevant information.

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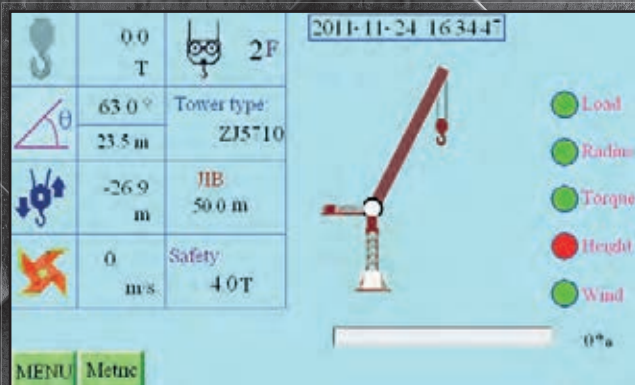
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Capacity	Manufacturer	Type	Year	Drive/Steering	Boom/jib (m)	Delivery
450 t	Liebherr	LTM 1450 N	1992	16 x 8 x 14	50 / 61 / 84	direct
400 t	Liebherr	LTM 1400	1988	16 x 8 x 12	50 / 61 / 84	direct
300 t	Liebherr	LTM 1300/1	2000	12 x 8 x 10	60/21/42/70	direct
200 t	Terex-Demag	AC 200	2007	10 x 8 x 10	68 / 33	direct
200 t	Terex-Demag	AC 200	2006	10 x 8 x 10	68/33-1.7-run	direct
200 t	Grove	GMK 5200	2006	10 x 8 x 10	60 / 22+runn	direct
160 t	Liebherr	LTM 1160-5.1	2008	10 x 8 x 10	62+7 / 36	direct
160 t	Liebherr	LTM 1160/1	1995	12 x 6 x 10	52+3 / 32	direct
120 t	Terex-Demag	AC 120-1	2009	10 x 6 x 8	60 / 17	direct
120 t	Faun	ATF 120	1998	10 x 8 x 10	49 / 16.2 / 30	direct
120 t	Liebherr	LTM 1120	1990	10 x 8 x 8	42 / 17	direct
110 t	Grove	GMK 5110-1	2010	10 x 6 x 10	50.77 / 18	direct
100 t	Terex-Demag	AC 100-4	2010	8 x 8 x 8	50 / 19	direct
100 t	Liebherr	LTM 1100-5.1	2005	10 x 8 x 10	52 / 19	direct
100 t	Grove	GMK 5100	2005	10 x 6 x 10	51 / 18	direct
100 t	Terex-Demag	AC 100	2005	10 x 6 x 8	50 / 17	direct
100 t	Liebherr	LTM 1100/2	2001	10 x 6 x 8	52 / 19	direct
100 t	Demag	AC 100	2000	10 x 6 x 8	50 / 17	direct
100 t	Demag	AC 265	1989	8 x 8 x 8	37 / 17	direct
80 t	Grove	GMK 4075	2004	8 x 6 x 8	43 / 17	direct
70 t	Liebherr	LTM 1070-4.1	2007	8 x 6 x 8	50 / 16	direct
70 t	Liebherr	LTM 1070-4.1	2005	8 x 6 x 8	50	direct
60 t	Terex-Demag	AC 55 L	2008	6 x 6 x 6	44 / 15	direct
60 t	Faun	ATF 60-4	2005	8 x 6 x 8	40 / 16	direct
60 t	Faun	ATF 60-4	2004	8 x 6 x 8	40 / 16	direct
60 t	Faun	ATF 60-4	2002	8 x 6 x 8	40 / 16 + runn.	direct
55 t	Grove	GMK 3055	2006	6 x 6 x 6	43 / 15	direct
55 t	Liebherr	LTM 1055-3.1	2005	6 x 6 x 6	40 / 16	direct
55 t	Liebherr	LTM 1055/1	2004	6 x 6 x 6	40 / 16	direct
50 t	Grove	GMK 3055	2004	6 x 6 x 6	43 / 15 + runn.	direct
50 t	Grove	GMK 3050-1	2006	6 x 6 x 6	38 / 15	direct
40 t	Liebherr	LTM 1040-2.1	2010	4 x 4 x 4	31.9 / 2.5	direct
40 t	Terex-Demag	AC 40-1 City	2009	6 x 6 x 6	31.2 / 13 / runn.	direct
40 t	Liebherr	LTM 1040-2.1	2006	4 x 4 x 4	35	direct
40 t	Demag	AC 40-1 City	2001	6 x 6 x 6	31.2 / 13 + 1.2	direct
40 t	Demag	AC 40-1 City	2001	6 x 6 x 6	31.2 / 13 + 1.2	direct
35 t	Liebherr	LTM 1030-2.1	2007	4 x 4 x 4	30 / 15	direct
35 t	Liebherr	LTM 1030-2.1	2006	4 x 4 x 4	30 / 15	direct
35 t	Terex-Demag	AC 35 L	2005	4 x 4 x 4	37.4 / 8	direct
35 t	Terex-Demag	AC 35 L	2004	4 x 4 x 4	37.4 / 8	direct
30 t	Faun	ATF 30-2 L	2004	4 x 4 x 4	28.5 / 8	direct
20 t	Gottwald	AMK 31-21	1984	4 x 4 x 4	20.5	direct

80 t	Grove	RT 890 E	2008	4 x 4 x 4	43,2	direct
45 t	Tadano	TR 400 E	1984	4 x 4 x 4	32,5 / 9,8	direct
35 t	Grove	RT 540 E	2012	4 x 4 x 4	31 / 13,7	direct
25 t	Kato	KR 250	1998	4 x 4 x 4	26,7 / runner	direct

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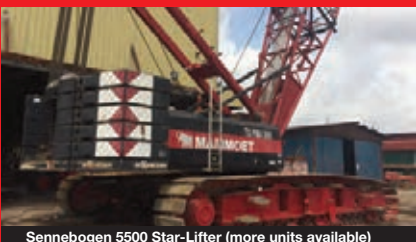
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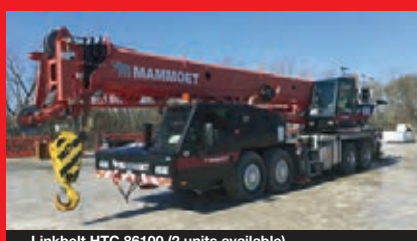
Terex-Demag CC2800-1 (more units available)



Liebherr LR1300 SX (more units available)



Liebherr LR1200 SX (more units available)



Linkbelt HTC 86100 (2 units available)



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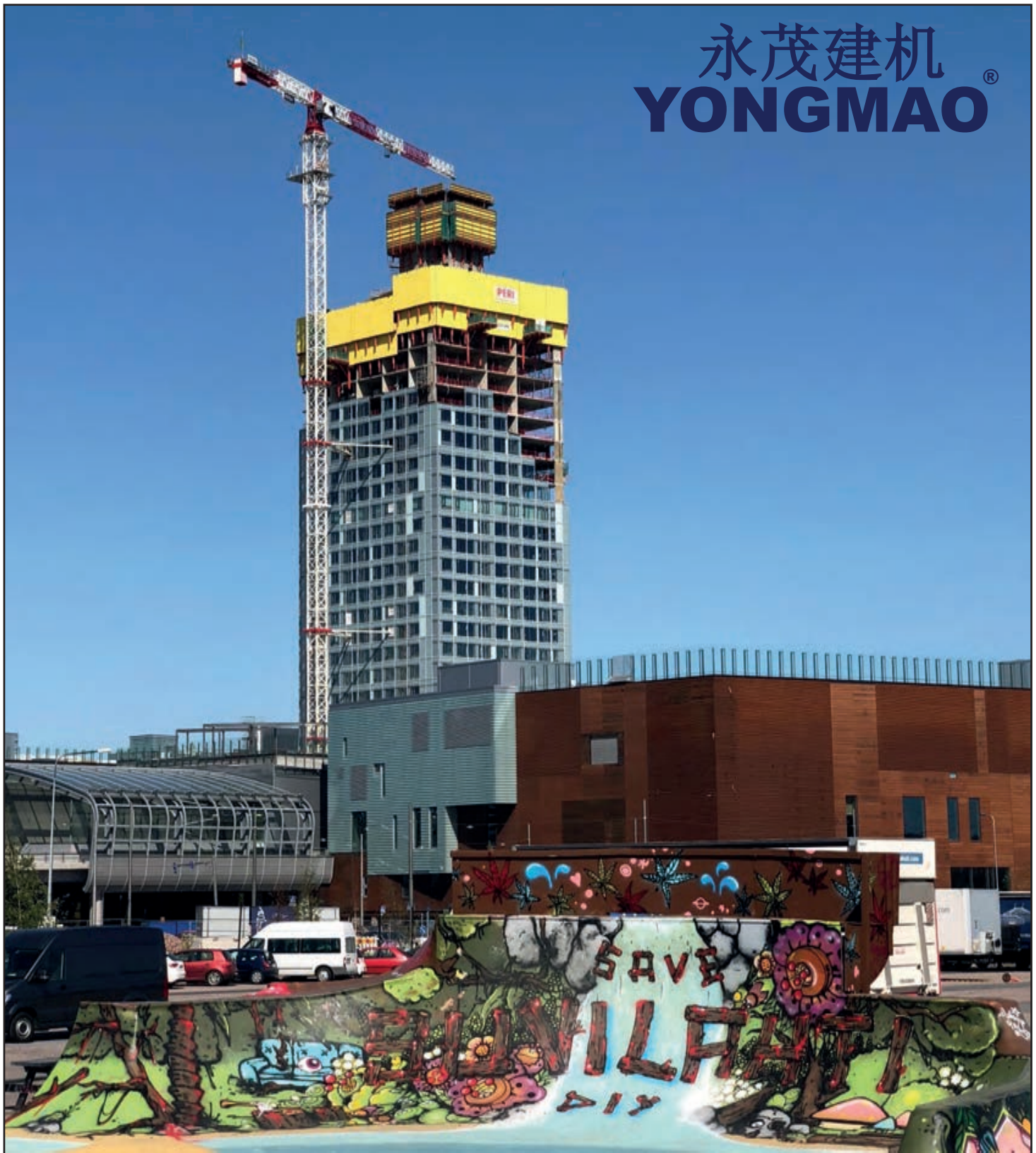
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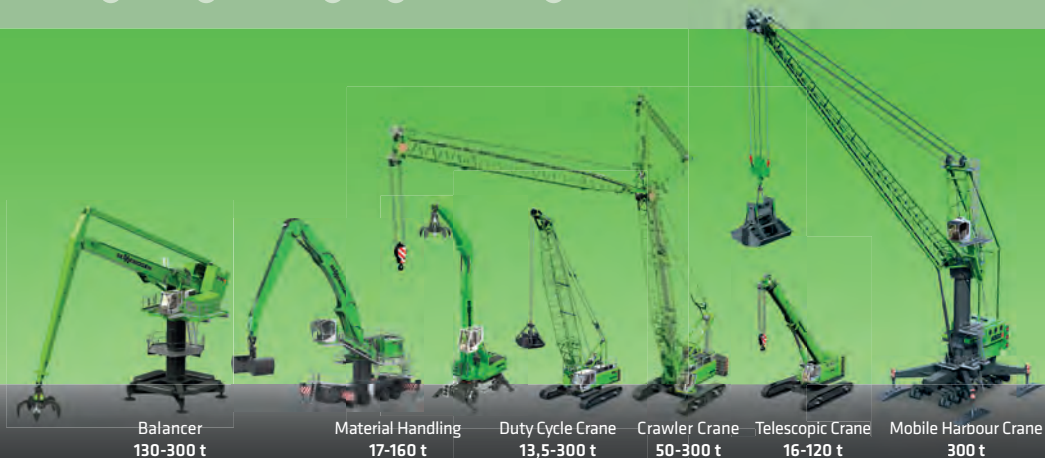
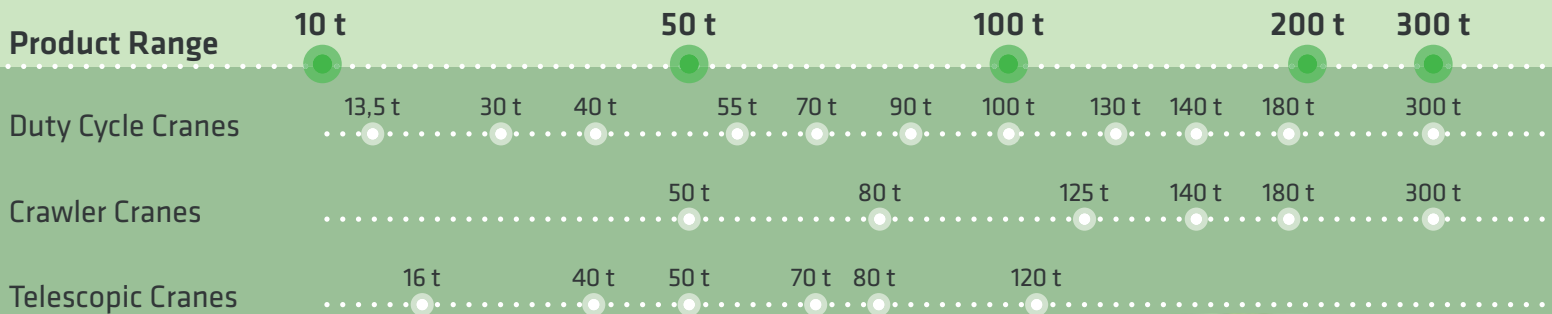


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