

# INTERNATIONAL CRANES AND SPECIALIZED TRANSPORT

OCTOBER 2023

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KHL Group publication

TOPLIST

**ICT**  
TOWERS

ONSITE IN SCOTLAND

**Giant ringer**

TOWER CRANES

**100 metre flat top**

CRAWLER CRANES

**Big lattice  
booms**





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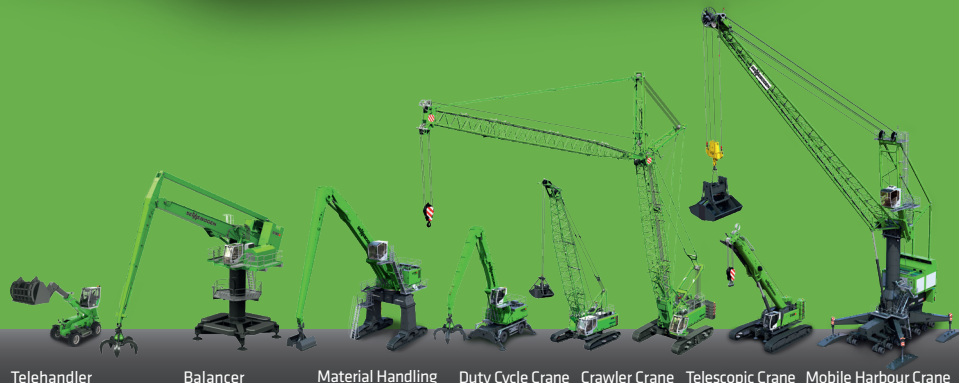
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\*with reduced load charts



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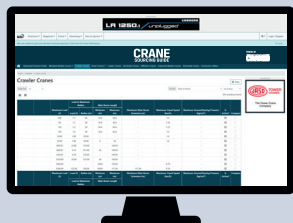
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# SENNEBOGEN



# EDITOR'S VIEW

KHL CRANES PORTFOLIO

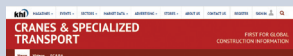


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As I write this, slightly jetlagged following our World Crane and Transport Summit (WCTS) in Singapore, I am reminded how good it is to meet people face to face as opposed to by telephone, Teams, carrier pigeon, etc.

Even though I have been meeting crane and transport industry people all over the world for more than 25 years, I often feel everyone else must surely have already met far more people than me, in what is a fairly niche sector.

It was therefore a surprise in Singapore to find two people I expected to have spent a lot of time together discussing technical details of crane engineering had never met face to face. Both live in Germany and have been working with each other for many years, using all forms of communication

except one. It was a pleasure to see them meet for the first time.

Starting, maintaining and deepening relationships is a primary benefit of attending our conferences but let's also remember that they are a thought-provoking goldmine of information. Right from the off our WCTS opening keynote speaker made everybody sit up and listen. Paul van Gelder, Mammoet CEO, gave a hard-hitting speech about the energy transition and the ambitious goals if we are to hit 2030 emissions reduction targets to reduce global warming.

Staggering statistics presented by van Gelder showed that to meet the IEA's net zero target, 25,000 offshore wind turbines would need to be installed every year until 2030. This would keep one installation vessel busy for 800 years, he continued.

Van Gelder outlined many hidden challenges facing our industry and everyone in the world who is pursuing these goals. These bottlenecks in the supply chain are affecting the installation of new wind turbines and urgently need to be addressed, van Gelder said, collectively by the industry but also by governments and all other stakeholders, private and public.

To succeed will require monumental effort and much meeting of minds (possibly face to face), plus strong co-ordination and collaboration. Oh, and time is rapidly running out – any volunteers?

## ALEX DAHM

Editor



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# INTERNATIONAL CRANES AND SPECIALIZED TRANSPORT

VOLUME 31 | NUMBER 12 | OCTOBER 2023



Chosen as the official magazine of the SC&RA (Specialized Carriers & Rigging Association)



European partner

Approved media partner for:



Lifting Equipment Engineers Association

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To subscribe to *International Cranes and Specialized Transport* or any of the magazines in the KHL portfolio go to: [www.khl.com/free-subscription](http://www.khl.com/free-subscription) or call +44 (0)1892 784088 for details. *International Cranes and Specialized Transport* is a monthly publication with a worldwide circulation. The annual airmail subscription rate is US\$301, €258, £215. This issue of *International Cranes and Specialized Transport* is mailed on 23 October 2023.

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*International Cranes and Specialized Transport* (USPS 017 158) is published monthly by KHL Group and distributed in the US by DSW, 75 Aberdeen Road, Emigsville, PA 17318-0437. Periodicals postage paid at Emigsville, PA. Postmaster: Send address changes to *International Cranes and Specialized Transport*, c/o PO Box 437, Emigsville, PA 17318-0437.

ON THE COVER



**Sarens put its new Liebherr LR 12500-1 to work for Van Oord. See p12.**

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ISSN: 1747-700X  
Printed by: Warners



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# WCTS success in Singapore

On 5 October the World Crane and Transport Summit Asia 2023 opened with a hard-hitting keynote speech from Paul van Gelder, Mammoet global CEO. His focus was on the energy transition and the ambitious goals if we are to hit the 2030 carbon dioxide emissions reduction targets to reduce global warming.

Van Gelder outlined many hidden challenges facing the crane and transport industry and all of us in the world in

pursuing these goals. These bottlenecks in the supply chain are affecting the installation of new wind turbines and urgently need to be addressed, van Gelder said. Staggering statistics presented by van Gelder showed the number of new wind turbines required far outstripped the capacity and capabilities to build them by 2030.

Another 11 speakers completed the lineup at the 2023 WCTS. Topics included

**WORLD CRANE  
& TRANSPORT  
SUMMIT 2023**  
SINGAPORE 4 & 5 OCT



safe use of cranes, market conditions and outlook, plus reports on several spectacular groundbreaking projects.

WCTS is the industry's leading international conference. This year it was at the Suntec Convention Centre in the heart of Singapore. Organised by *International Cranes and Specialized Transport* and its publisher, KHL Group, this prestigious event was in Asia for the first time in nine years.

## Kuiphuis adds more Spierings eLift cranes



Kuiphuis owner Bob Bruijsten, left, shakes on the deal with Mathieu Braamhaar from Spierings

Rental company Kuiphuis Kraanverhuur in the Netherlands has ordered a pair of electric crawler-mounted tower cranes from manufacturer Spierings Mobile Cranes.

The first of the two SK2400-R eLifts will be delivered in the first half of 2024. Kuiphuis already has five eLift cranes in its fleet. Bob Bruijsten, Kuiphuis director and owner, commented, "We may be moving faster than construction companies at the moment. We find that

construction companies are still getting used to the fact that electric cranes of this size can already run on site with a 16 amp connection."

Family-owned Kuiphuis has more than 40 cranes from Oss, Netherlands-based Spierings. Demand for these types of cranes is increasing, the company said. Loads are getting heavier and more and more elements are being supplied prefabricated, which as a crane rental company you have to respond to, Bob Bruijsten explained.

### HIGHLIGHTS

» **Crane & Transport Briefing** is a new product from ICST publisher KHL Group's crane and transport portfolio.

It is the only industry email offering a truly global perspective on the crane and transport industries,

sharing industry best practice from around the world and giving an international context to key issues, all delivered to your inbox five days a week.

Advanced software allows content provision selected according to your predilection.

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GLOBAL CRANE & TRANSPORT INSIGHT - EVERY DAY

» **DC Crane Service** used an 85 US ton (77 tonne) capacity rough terrain crane for work on the Everglades Restoration Act project in the USA.

The US\$10.5 billion project is part of an ongoing 35 year effort to maintain and protect Florida's drinking water as it connects the Florida Everglades to the Kissimmee River and greater River of Grass ecosystem in South Florida.

"We chose the 85|RT because of its mobility. We needed something big enough to do the work, but small and nimble enough to drive from station to station. We







## Short jib version of AMS AK810

Tower crane manufacturer AMS in Germany is testing a short-jib version jib of its new modular AK810 flat top. Instead of the 100 metre jib version, detailed elsewhere in this issue, a new version is being tested with a 45 metre jib for PPVC and precast concrete construction. This heavy lift version is pictured with 4 fall hook block. It allows a maximum lift of 40 tonnes up to 28.4 metres radius. Even at 45 metres, capacity is still 22.2 tonnes.

See the full story on this new flat top tower crane in our feature on page 23.

# New Wolffkran 6523 Clear flat top

Manufacturer Wolffkran has unveiled a new addition to its crane portfolio with the 224 tonne-metre Wolff 6523 Clear. The new 8.5 tonne capacity flat top is based on the 6031 Clear, which is one of the company's best-selling cranes.

At a maximum jib length of 65 metres, the new Wolff has a tip load capacity of 2.3 tonnes in normal operation. It also has a patented, newly designed jib and boasts the technical equipment for operating the Wolff High-Speed-Positioning-System (HiSPS).

HiSPS was introduced at bauma in 2022. Sensors on the trolley and hook block together with a control unit enable the load to be transported free of load sway by detecting the rope's movements and automatically adjusting the movement and speed of the crane to it. Since the trolley always adjusts its position automatically via the hook block, not only is the wind impact eliminated, but it also prevents a diagonal pull on the load, making pushing the load



**The new 6523 Clear is the first Wolff crane technically designed for the new High-Speed Positioning system**



by hand and pulling the hook manually easier and safer.

In addition to being technically prepared for installation of HiSPS, the redesign of the jib of the new crane includes several other features. The bottom chord connection of the jib sections has been redeveloped with a patented design. Instead of using bolts, the jib sections, including the rope swivel traverse, are mounted on

the front with a mandrel and wedge connection. In turn, in the top chord, the pins are now inserted into the pear-shaped holes, which enables far easier assembly without a hammer, the manufacturer said.

The Wolff 6523 Clear will mainly be sold in the DACH region. A version with a maximum payload of 10.5 tonnes in 2-fall operation as well as a US market version are also being planned.

**The 85|RT is supporting general construction for the restoration project**



can retract the boom all in and drive the five miles from station to station," said DC Crane Service co-owner Dan Connor.

The 85|RT supports construction at each station, handling materials, tall formwork and rebar cages for columns, scaffolding, and large dumpsters.

"I like the fine metering system on the 85|RT because when I'm setting the 18,000 lbs. (8.1 tonnes) pipes, I want my hoist line to go much slower than I normally use it. It's nice having fine metering, which allows me to control the speed of the hoist line," said operator Alex Goode.

**» Bigge Crane and Rigging** in the USA has purchased its first all-electric crawler crane, the Liebherr LR 1250.1 unplugged, expanding the rental giant's nationwide fleet of more than 1,800 cranes.

This new 250 tonne capacity lattice boom model is the first of its type in California and the US west coast. Bigge

acquired it to offer an option to customers for an environmentally conscious heavy-lifting solution. It can be operated indefinitely while connected to site power or for an average of eight hours on battery power alone, the manufacturer said.

The LR 1250.1 unplugged arrives in California this month.





Franna FR17C pick and carry crane

# Franna expands into new markets with pick and carry crane

Australian pick and carry crane manufacturer Franna, a Terex subsidiary, has launched its FR17 C model into Africa, UAE and Latin America.

It is a 17 tonne capacity pick and carry crane with a turning radius of 6.77 metres. It is an entry-level machine for construction, mining and logistics, as well as city, yard and industrial applications where space is limited.

"For over 40 years, Franna has been a name to reckon in Australia for the design and manufacturing of quality pick and carry cranes," said Danny Black, general manager. "Bringing our concept to Africa,

UAE and Latin America markets with the FR17 C is an exciting time for us."

Power is from a Cummins diesel, which means widely available aftercare.

"Its versatility is also said to lend itself well to road and metro projects and for local hire," said Black.

The company says its Franna name has become synonymous with the pick and carry concept in Australia. It claims its pick and carry cranes can replace the work typically completed by smaller truck cranes, since they have no stabiliser legs or outriggers, meaning set-up time is quicker.

» Heavy lift and transport specialist Mammoet marked a milestone in construction of its 6,000 tonne capacity SK6000 ring crane with the delivery of the first fabricated components. As the offshore wind industry continues to grow, the ability to

launch foundations and build wind turbines at the quayside without having to reconfigure the crane will maximise project efficiency.

As with all SK series cranes, the SK6000 can be operated from electric power. It will lift 3,000 tonne components to a 220 metre hook height.



## Turning tides

Japanese steel manufacturer Kobe Steel continues to show progress on our share price in both the monthly changes and year on year comparisons, with a 3.68 per cent increase from last month and a huge 183.09 % increase from last year.

Chinese manufacturer Zoomlion also show steady growth with a 11.83 % increase from last month's report. A spokesperson for the company said, "In the first half of 2023, the economic growth of the developed economies slowed down, while the emerging markets and developing economies maintained stable growth. The domestic market demand in China gradually recovered and the overall economy resumed growth.

"In the first half of 2023, due to the decline in the number of infrastructure projects and real estate projects under construction and shortage of funds, the demand of the construction machinery industry in the domestic market continued to drop, but the decline gradually narrowed. On the other hand, the demand in overseas markets continued to increase and the overseas competitiveness of Chinese brands improved, and thus the export sales volume of the construction machinery industry maintained a high growth rate."

### OCTOBER /C SHARE INDEX

STOCK CURRENCY	PRICE AT START	PRICE AT END	PRICE CHANGE	% CHANGE	PRICE 12 MTHS AGO	12 MTH % CHANGE
<b>/C Share Index*</b>	<b>56.39</b>	<b>58.59</b>	<b>2.20</b>	<b>3.90</b>	<b>79.26</b>	<b>-28.85</b>
<b>Legacy /C Share Index**</b>	<b>235.13</b>	<b>230.25</b>	<b>-4.88</b>	<b>-2.08</b>	<b>253.73</b>	<b>-7.33</b>
Dow Jones Industrial Average	34346.9	33407.58	-939.32	-2.73	32,037	7.21
FTSE 100	7338.6	7494.6	156.00	2.13	7,275	0.87
Nikkei 225	31624.28	30994.67	-629.61	-1.99	27,915	13.29
Konecranes	€ 30.2	30.8	0.60	1.99	25.49	18.48
Kobe Steel	YEN 1741	1805	64.00	3.68	615	183.09
Liugong	CNY 7.26	7.08	-0.18	-2.48	6.49	11.86
Manitowoc	US\$ 15.47	14.53	-0.94	-6.08	10.83	42.84
Palfinger	€ 24.05	22	-2.05	-8.52	23.40	2.78
Sany Heavy Industry	CNY 15.17	15.88	0.71	4.68	17.91	-15.30
Tadano	YEN 1110	1206.5	96.50	8.69	983	12.92
Terex	US\$ 56.28	53.11	-3.17	-5.63	31.32	79.69
XCMG	CNY 6.12	6.4	0.28	4.58	5.68	7.75
Yongmao Holding	SGD 0.8	0.8	0.00	0.00	0.71	12.68
Zoomlion	CNY 6.17	6.9	0.73	11.83	6.21	-0.64

\* /C Share Index, 1 Jan 2011 = 100

\*\* Legacy /C Share Index, end April 2022 (week 17) = 100

### EXCHANGE RATES – VALUE OF US\$

CURRENCY	VALUE AT START	VALUE AT END	VALUE CHANGE	% CHANGE	VALUE 12 MTHS AGO	12 MTH % CHANGE
CNY	7.2882	7.19335	-0.09	-1.30	6.816	6.93
€	0.926394	0.948836	0.02	2.42	0.995	-6.90
Yen	146.144	149.243	3.10	2.12	137.042	6.64
UK£	0.795839	0.816793	0.02	2.63	0.845	-5.82

Period: Weeks 34-40



A white Liebherr rough terrain crane is shown in operation, lifting a large, dark metal bucket. The crane is positioned on a dirt construction site with a forested hill in the background. The crane's boom is extended high into the air, and the bucket is suspended by orange slings. The crane has "LIEBHERR" and "LRT1000-9A" visible on its side.

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The BUTTERFLY, Vancouver, Canada © Take Off Photography

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# Six all terrains for Baldwins

UK-based Baldwins Crane Hire has taken delivery of six new Grove all terrain cranes. There are three new GMK5120Ls, two GMK5150XL models and a GMK5250XL-1.

The 120 tonners are the first of their kind in the country,

Baldwins said it has the UK's largest fleet of five and six axle Grove cranes



Grove said. They boast a 66 metre main boom and can be run as taxi cranes.

At 16.5 tonnes per axle they can carry 30.7 tonnes of counterweight. The 150 tonner has a 7 section, 68.7 metre, boom and will typically be used for tower crane assembly and dismantling. Finally, the 250 tonner has a 78.5 metre boom, making it the longest in its class, Grove said.

"We're extremely proud to deliver these latest cranes to Baldwins as the company continues to expand its operations thanks to the reliable and productive support of Grove mobile cranes," said James Leishman, UK sales manager for mobile cranes at manufacturer Manitowoc.

## P&K adds 120 tonne Tadano all terrain

Netherlands-based crane rental company P&K Kraanbedrijf has added to its fleet with the delivery of a Tadano AC 5.120-1 all terrain crane.

The AC 5.120-1 has 10 x 8 x 10 drive, 16.00R25 tyres, a storage box and remote-control.

"What really clinched it for us was the crane's impressive lifting capacities, both when carrying its full counterweight and when operated within its 12 tonne axle load limit," said Mark Plas, P&K managing director.

Based in Enter, in the Netherlands, P&K has an extensive fleet of modern telescopic and tower cranes spanning a wide range of lifting capacities and lifting heights.



P&K takes delivery of its new Tadano AC 5.120-1 all terrain crane

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Lattice boom crawler cranes are proving their suitability for a range of jaw dropping projects.

**NIAMH MARRIOTT** reports

# Right track

**A**s the sheer size of wind turbines and components increases, crane manufacturers have had to adapt and produce ever-larger models to meet the strong demand for green energy construction projects.

Earlier in 2023, international heavy lifting and transport specialist Sarens took delivery of the first unit of Liebherr's new 2,500 tonne capacity crawler crane, the LR 12500-1.0.

Commenting on the acquisition Carl Sarens, director of technical solutions, projects and engineering, says, "The capacity of the LR 12500-1.0 is enormous. Operations in the renewable energy sector are a particular focus for the crawler crane. The handling of offshore wind turbines in ports is becoming more and more important and the individual weights of the components are constantly increasing. The initial assembly of the new crane worked very well."



### GAME CHANGER

Sarens adds, "The high lifting capacity of the LR 12500-1.0 is the outstanding feature for us and will enable us to close the gap between our crawler and ringer cranes."

Rostock was the first place the LR 12500-1.0 was put to work for Sarens' client Van Oord where it lifted 50 monopile foundations for offshore wind turbines. Each one had a diameter of up to nine metres and a length of up to 90 metres. They were lifted into the water in tandem with an 800 tonne capacity Liebherr LR 1800-1.0 lattice boom crawler crane.

Sarens named its new crawler crane Straffen Hendrik, after its employee Hendrik Sanders. *ICST* spoke exclusively to Hendrik and he gave his opinion on the current crawler market. "We see more and more here in Europe, smaller crane companies have relatively big crawler cranes in their fleet. It is all to do with the increasing heights of wind turbines, and it's rising.

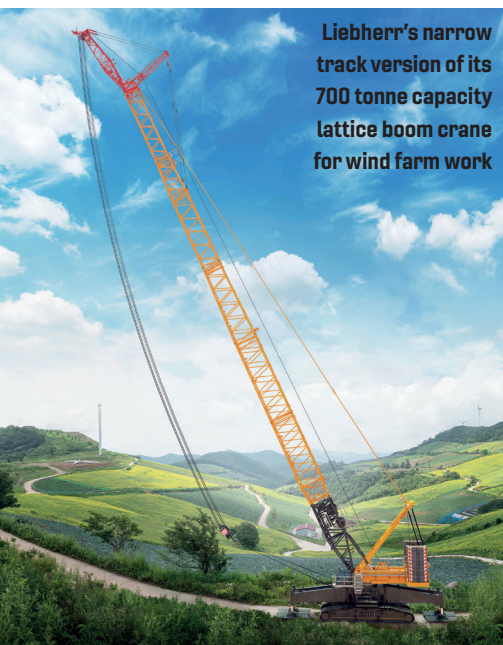
For the moment, the maximum hub height here in Europe is about 180 metres. The expectation is that this will go up.

"Designing a crane to meet future demand is difficult as it's hard to predict what heights will be reached and needed.

"The biggest challenge in terms of safety, as with many other crane types, is working at height. In the last 10 years, manufacturers have made real progress on this. With increasing wind turbine erection demand, the heights are getting bigger, and beyond the initial 200 metres that was suggested 10 years ago, but luckily the safety culture is already in place from the refinery and petrochemical jobs of the past."

He adds, "Depending on the duration of a particular job, telescopic cranes are a real advantage as you can travel easier to site than with lattice boom cranes, and it can be a very fast assembly."

To read the full interview see: [www.internationalcranes.media](http://www.internationalcranes.media)



**Liebherr's narrow track version of its 700 tonne capacity lattice boom crane for wind farm work**



Sarens' 2,500 tonne capacity  
LR 12500-1.0 crawler crane  
at work in Germany



## REACTOR MOVES

TotalEnergies Raffinerie Mitteldeutschland recently contracted Mammoet to replace two reactors at a POX methanol plant on a chemical site in Leuna, Germany.

A complete shutdown of the plant was not possible, as the required production volume had to be always guaranteed. Therefore, only one reactor at a time could be removed and replaced.

Mammoet had to devise a solution to minimise disruption of operations and concluded that the most efficient solution to replace the reactor unit would be to use a Liebherr LR 1750 crawler crane.

It can lift and move a load of 140 tonnes at the same time, as well as perform all other lifting operations. This was necessary because, due to space limitations, the pre-assembly and storage area for the components was located approximately 200 metres from the installation position.

First, the old reactors were removed and transported to the laydown area. Special demolition chains were used, and the new components were lifted into place.

## ELECTRIC DREAMS

Some crawlers are adapting to the sustainability demands impacting the industry with new electric options.

Manufacturer Liebherr has four electric options for its lattice boom crawlers as part of its Unplugged series.

It is also interesting to note that it has launched a narrow track version of its 700 tonne capacity crawler crane for erection of wind turbines with hub heights up to 170 metres. The LR 1700-1.0W is touted as being the most powerful narrow track crawler crane on the market. It replaces the LR 1600/2-W, a narrow track version of the 600 tonne LR 1600/2. Benefits include more power and greater lifting height.

Reducing the spacing between the crawler frames allows travel on the narrow roads between individual wind turbines during the wind park construction phase.

Projects in tunnels and other confined spaces can benefit from zero emission

## Vernazza Autogru's Tadano CC 68.1250-1 lattice boom crawler crane working on the Saipem CastorOne pipelaying ship

electric cranes, especially where neighbours and businesses could be affected by noise and diesel exhaust.

## NARROW SIZE

An advantage of crawler cranes is their pick and carry ability. Also, they have a relatively large lifting capacity in relation to their size.

At a port in Marseille, France, Forme 10, one of the biggest dry docks in Europe, Italian crane company Vernazza Autogru used its Tadano CC 68.1250 1 to lift technical equipment onto the Saipem CastorOne, one of the world's largest pipelaying ships.

"Not a single one of the employees at the site had ever seen such an enormous crane before – which maybe isn't that surprising, given that our CC 68.1250 1 is the biggest crane currently in use in France and Italy,"



► To watch a video of this lift, see:  
[youtube.com/watch?v=DZknoV6MbsA](https://youtube.com/watch?v=DZknoV6MbsA)

says Vernazza Autogru general director Paolo Delfino.

The heaviest load was a 500 tonne pipeline winch with a five kilometre steel wire rope that had to be lifted to a height of five metres at a radius of 25 metres. "These specifications really make it clear that only



an extraordinarily powerful lattice boom crawler crane was going to be able to take care of the huge loads,” says Delfino.

The fact that the Tadano crane’s track width nearly matched the rail spacing of the harbour crane at the dock turned out to be a crucial advantage, as it made it possible to position and move the CC 68.1250 1 on crane mats directly on the rails.

The crane was configured with an 84 metre main boom and SSL with the complete superstructure and superlift counterweights, enabling it to take care of all lifts safely and as scheduled with a rams horn hook for both light and heavy loads.

Elsewhere in Europe, Scandinavian crane service provider Nordic Crane recently took delivery of a Tadano CC 38.650 1, a smaller sibling to the 1,250 tonner.

“The CC 38.650 1 is an extremely well-engineered and reliable crane that’s perfect for a huge range of jobs, including erecting large wind turbines,” says managing director Morton Heli-Hansen.

The crane’s first job was on a roadbuilding project in Lysaker, near Oslo in Norway where it was tasked with lifting two 54 metre long, 135 tonne road bridges.



Nordic Crane’s new Tadano CC 38.650-1 lattice boom crawler crane at work in Norway

“We configured the CC 38.650-1 with a 60 metre SSL2 and 39.5-metre Superlift mast configuration for this assignment,” he explains. “The counterweight was 165 plus 50 tonnes, and there were 250 tonnes on the Superlift tray. This enabled the CC 38.650-1 to lift the loads with a gross weight of 147 tonnes at a radius of 42 metres and then slew them into place and accurately set them down at their intended position.”

## SEEING DOUBLE

Wind turbine assembly is a key operation for lattice boom crawlers. Recently, one of Chinese manufacturer XCMG’s huge 1,000 tonne capacity XGC11000A lattice boom crawler cranes was used to erect the two rotor turbine Huaneng Sairui at the Huaneng Jilin Tongyu wind farm in Jilin, China, as part of a national wind energy research and development project.

It was configured with a 96 metre main boom plus 12 metre jib. The turbine’s heaviest component was the nacelle at 170 tonnes. The dual rotor turbine’s blades are nearly half the length of an equivalent single rotor turbine which makes transport easier and less space is required on sites.

## CONSISTENT CRAWLER

As previously reported in ICST, USA-based crane manufacturer Link-Belt has updated its 100 tonne capacity 218JV crawler. Explaining it to ICST Brian Elkins, Link-Belt lattice crawler crane product manager,

**Link-Belt’s latest generation of its 218JV crawler has an updated cabin and operating system. It is powered by a Cummins Stage 5 engine**



## ANNIVERSARY ADDITION

USA-based Wilkerson Crane Rental celebrated its 10th anniversary by taking delivery of another Manitowoc MLC300 lattice boom crawler crane equipped with VPC-Max.

The company’s crawlers have been used on a range of local jobs, including wind farms and infrastructure projects.

“Four years ago, we bought our first MLC300 with a wide boom and extended upper boom point. This purchase was exclusively for wind farm work and apart from coming back for one three-month job, it’s been conducting maintenance on one wind turbine after another,” says Jeff Holt, Wilkerson’s director of operations.

The company’s second MLC300 is currently on a long-term jobsite replacing a bridge over Table Rock Lake in Ridgedale, Missouri. Their third crawler has been used to complete rotor drops on 100 metre wind turbines and is now scheduled to work on a large tyre plant in Topeka, Kansas.

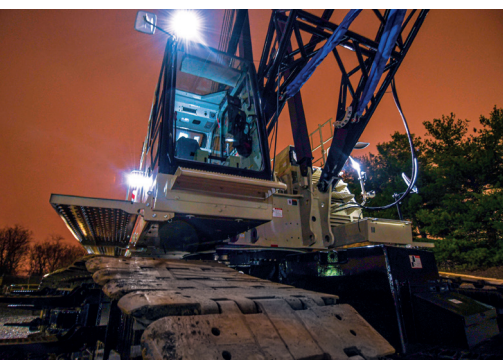
says, “Larger cranes often get more publicity for making eye-catching big lifts, but the daily, versatile workhorse in the industry is this size of machine.”

“Our 100 ton crane has been the largest market share-wise for over 30 years.” Though many of the features of the 218 are already bulletproof in design and don’t need to be changed, there are always things that can be tweaked, adds Elkins.

Link-Belt says the newly updated crane’s Stage 5 engine can be run on hydrogenated vegetable oil (HVO) fuel, which is fully mixable with conventional diesel.



Double rotor wind turbine assembled by XCMG crawler in China







# A CONVINCING PERFORMANCE

## THE NEW AC 5.250-2

The new AC 5.250-2 combines an enormous reach with large lifting capacities that are up to 30 percent higher than previous best values in this class. That makes it the perfect choice for erecting tower cranes and for construction projects of all types.

Its transportation configuration options and sophisticated counterweight design are also exceptional and ensure that the crane can be ready for work in no time. On top of this, many of the latest Tadano features are available – examples include the IC-1 Plus and Surround View systems, as well as the start-stop function, which turns off the crane engine during work breaks at the press of a button without deactivating the control software.



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How communication is crucial for successful heavy lifting operations.

**MUSTAFA AL**

**ABDULMOHSIN** reports

The importance of effective communication should not be underestimated

# Make it or break it

**H**heavy lifting is a crucial activity for many industries all over the world.

In the oil and gas sector, it is one of the most important milestones for new construction projects or plant equipment maintenance. In addition, most critical lifts are complicated and risky, involving many parameters to be considered. These include load weight, size, shape, rigging selection, crane capacity, weather conditions, and the site layout.

## BEST WORKING PRACTICES

Effective communication is another parameter significantly contributing to successful lifting operations and is sometimes underestimated. Primarily it concerns communication between crane operator and rigger (the lift director). Operators and riggers work together to attach, lift, and move loads. They need to communicate effectively with each other to co-ordinate the crane operations and movements, and to avoid

misunderstandings that may directly lead to an accident.

Some best practice for communication between a lifting team include the following:

- Use clear and standard signals (verbal, hand, or radio) to indicate the actions and movements required
- Assign only one person to signal the crane operator
- Confirm the understanding of the signals and instructions before executing them
- Maintain eye contact or line of sight whenever possible
- Immediately report any problems or changes in the lifting operation
- Identify critical risk and agree on the way to handle it
- Determine any potential sources of danger, for example, chemical, electrical, traffic, or communications, and establish procedures to deal with it
- Stop the lift if there is any doubt or confusion.

International standards and industry

best practice give considerable focus to such communications. Many standards suggest using Simi-universal sign language to ensure directions are clearly communicated. As an example, ASME B30.5 in the USA allocates section 5-3.3 for signals where specific communication methods are recommended for unique lifting operations.

## COMMUNICATIONS GUIDELINES

ASME also specifies guidelines for visual and audio signals and describes certain conditions to ensure safe lifting operations. ASME states, "Communication between the crane operator and the signalperson shall be maintained continuously during all crane movement." The standard also requires stopping the crane whenever there is confusion or it is desired to give different directions other than what was communicated by the signalperson. This signifies the critical role that communication plays in safe and

»

## ABOUT THE AUTHOR



**MUSTAFA AL ABDULMOHSIN** is a heavy lift engineer who has been working at Saudi Aramco for more than 10 years. His experience focuses on managing different

equipment services, primarily mobile cranes, which provide lifts for Saudi Aramco oil and gas plants in Saudi Arabia.



Many critical lifts are conducted in hydrocarbon plants all over the world



successful crane lifts.

The importance of effective communication becomes greater in critical and very specialized lifts. During such activities, a higher level of planning, supervision, and communication is required than during 'normal' lifts. Critical lifts should be identified and well-planned with step-by-step procedures that take into consideration all lifting parameters.

A detailed and comprehensive lift plan should also be developed, reviewed and approved, by all involved parties, including the client, contractor, heavy lift engineer, supervisor, rigger, crane operator, and safety advisor. Such activity requires a high level of communication with all involved personnel who have a role in the critical lift.

When executing a critical lift, the communication methodology should be agreed upon with clear guidelines between the lifting team. All signals, instructions, and audio commands should be clear, consistent, confirmed and tested prior to the lift. Any deviations from the approved lift plan should be reported and resolved immediately among lifting team.

**COMMUNICATION NETWORK**

In addition to riggers and crane operators, the other professionals involved in planning, supervising, and executing lifts must be considered. These include project engineers, facility proponents, maintenance staff and safety advisors. Effective communication among all stakeholders is essential to ensure the lifting operation is well-planned, appropriately supervised, and carried out safely.

The role of each person dictates establishing accurate communication towards successful completion of the lift. For example, project and maintenance engineers who requested the lift need to clarify various key data to the lifting

team, which may include total weight, centre of gravity, sharing certain drawings or confirming load stability, special lift consideration and structural integrity.

In addition, facility proponents need to ensure the lifting area is safe and ready to accommodate the lifting equipment. This may involve shutting down certain plant process equipment or checking for any underground utilities that might affect the position of the cranes.

The simplified diagram illustrates the communication mapping for lifting operations. It shows a heavy flow of information between the lifting team with its peak between the crane operator and rigger(s). This makes sense as the actual lifting activities will be handled mainly by these two people. Similarly, the lifting

supervisor and heavy lift engineer are responsible for communicating various lifting information both to the crane operators and to the riggers, helping ensure safe and successful lifting activities.

Other involved organisations are also shown which visualise the lifting communication complexity. Some of these communications should be established during the lift planning stage, others may be needed just before or during the actual lift. It is important that the lifting team communicate any missing information or doubtful items ahead of time as this might affect the lift.

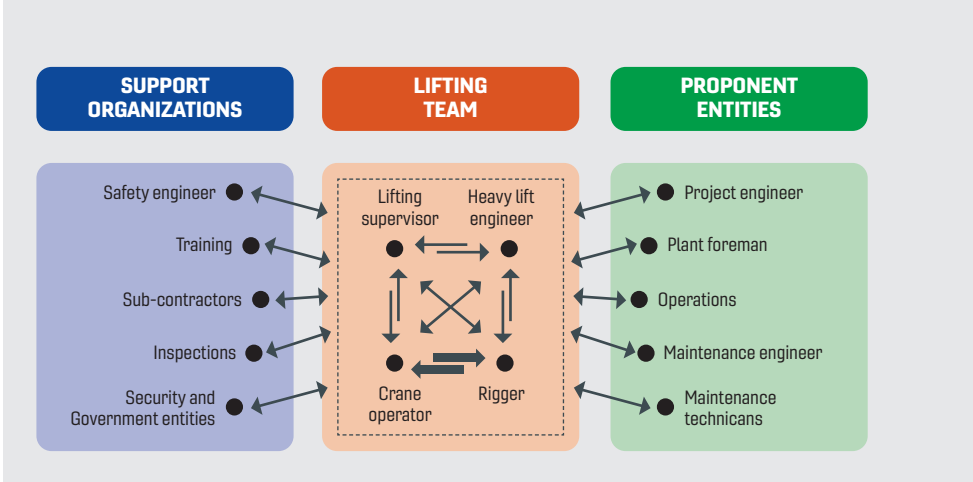
**CENTRALISED COMMUNICATION**

Such communication is known as centralised communication or networking where a person or group is at the centre of the whole communication (Danny Samson & Timothy Donnet, Management, 2020, 7th edition). This communication type is known to be practical to control and manage many involved parties who contribute to complex tasks.

Effective communication is vital to ensure the safety

and efficiency of heavy-lifting operations. It enables co-ordination, co-operation, and control among the various parties in planning, supervising, and carrying out lifts. It helps prevent accidents, errors and delays that can compromise quality and productivity in lifting operations.

It is imperative all personnel involved develop and maintain their communication skills to the highest standards to ensure the success of such operations.



**Diagram illustrating the communication mapping for lifting operations**



**Effective communication is essential among all stakeholders**

**Follow best practice for lifting team communication**





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Construction company **PORR** is using a Wolffkran 8060.25 tower crane to renovate the European Patent Office building, including installing a photovoltaic system on the roof, in Vienna, Austria.

The only possible location for the crane in Vienna's densely populated Landstraße district was right in the botanical garden at the University of Natural Resources and Life Sciences, placed between old and listed trees. The architects and construction site team worked closely with Vienna's Wolffkran team and managed to find an environmentally friendly assembly concept and a suitable location for the crane. The crane was installed in January and will be on site until 2024.

# New heights

A round up of notable tower cranes projects from around the world. **NIAMH MARRIOTT** reports

**BENNETTS CRANES**, Raimondi's exclusive dealer for the UK, has installed three MRT159s and one MRT152 flat-top tower crane at the Green Quarter site in West London in the UK.

The project is a regeneration development that will provide new homes, commercial, community and retail spaces.

Erected between 2022 and 2023, the four flat tops present similar configurations in terms of tower height and jib length.

Two of the three MRT159s are at work with a jib length of 44 metres and tower heights of 47.2 metres and 67.8 metres.

"The use of flat-top saddle jib cranes in this particular case, where each crane oversails or is oversailed by at least two other machines, has helped to minimise the height difference needed between them," said Edward Seager, managing director at Bennetts Cranes.

The cranes will be onsite for approximately another 12 months.



Italian construction company **POLLINI ANDREA** used a helicopter to erect a new Terex flat top crane in the Dolomite Mountains of Italy, installing the crane at

a height of 2,601 metres above sea level. The company commissioned the Terex FC 6.24H crane as part of a project to renovate and expand a remote mountain refuge lodge. Works



Crane rental company **COLONIA** used a Liebherr LTM 1750-9.1 wheeled mobile telescopic crane with a 52 metre telescopic boom, 15 metre mast extension and a 91 metre luffing jib, and a smaller LTM 1150-5.3, to install two Liebherr tower cranes.

To install the new, more weather-resistant balconies, the two tower cranes were mounted on the building's roof at the end of June to replace the concrete balconies on one of Europe's tallest buildings, the 147 metre Axa high rise on the banks of the River Rhine in Cologne, Germany.



to the site will see the addition of new catering and accommodation facilities and are expected to be completed by late 2024.

**NFT GROUP** has purchased two landmark Potain tower cranes and immediately shipped both to a high-profile tourist destination under construction in Saudi Arabia as part of the vast NEOM development. One of the cranes is an MCT 1105, the largest flat top model in the Potain range, and the other is one of the previous largest models, an MCT 1005.

The cranes are scheduled to work onsite for nine months. Using large capacity tower cranes was the only option for the jobsite, owing to limited space and the fact there are no accessible routes for most cranes. ■





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A new tower crane with 100 metre jib was the unusual sight greeting visitors to AMS Kranbau in Germany recently. **HEINZ-GERT KESSEL** reports

# 100 metre jib flat top giant

**T**ower crane manufacturer AMS Kranbau in Germany has unveiled a new flat top with a 100 metre jib.

A tower crane with a 100 metre jib is a rare thing. Even conventional saddle jib construction tower cranes have jibs with a maximum length of 80 or 90 metres. These cranes follow standard hammerhead design with a high tower head and a number of stays supporting the long jib.

A rare exception is the custom-designed Wolff 8540 with 100 metre jib instead of the standard 85 metre version. As a member of the XXL series introduced

in 2000, the 8540 offered a capacity of 2.7 tonnes at 100 metres radius. Generally, you would expect a better tip load from a hammerhead crane design with high cat point and pendant lines supporting the jib, over a flat top design.

## RESTRICTED CONDITIONS

Several factors affect this, however, including the restricted space conditions of today's construction sites. In Germany, the exponentially rising government permit costs for mobilisation of large wheeled mobile cranes to install large tower cranes is another major issue. A new tower crane design philosophy is needed.

In addition, there is a growing market for long jib versions with reasonable tip capacity. Increasingly,

the only space to install a crane is a long way from where it has to reach. Examples include big bridge projects and industrial constructions like data centres.

Such applications call for a smart flat top crane design which overcomes the design-integrated transport disadvantage of the necessarily high-profile jib sections on large flat top towers. An even better tip load capacity than long jib versions of »

“Several factors meant a new tower crane design philosophy was needed.”



Enlarged cabin unit with enclosed electric cabinet in the colours of the first customer. Access to the spacious cabin is provided by a platform which can be used for emergency treatment of the driver



The AMS giant AK810 with 100 metre jib on the test pad at the factory in Germany



Extra large touchscreen for all crane operating data and settings



# TOWER CRANES

existing conventional hammerhead cranes is also needed.

## DRAWING ON EXPERIENCE

In designing the new crane AMS engineers drew on experience gained from the company's fabrication of the well-known BKT line of large flat top cranes. An example is the BKT 412 from 1998 with 75 metre jib and 3 tonne tip capacity. AMS found a transport- and rigging-friendly solution for its all-new AK810 with 100 metre jib and tip load of 3.5 tonnes.

Two versions are offered. The heavy lift, 40 tonner on four falls of rope lifts its maximum load out to 28.4 metres radius and still lifts 31.5 tonnes at the end of the short (35 metre) jib. It is aimed at the rising market of PPVC module construction and conventional pre-cast construction work.

The prototype of the AK810 presented at a recent open day was designed to lift 20 tonnes on two falls of rope.

AMS managed to design the jib and counter jib sections in a way that allows transport on semi-trailers instead of expensive low beds. The counter jib sections can be laid over on their sides to keep the transport height within the essential 4 metre limit in central Europe.

To give the long boom sufficient rigidity its first three boom sections are square while the rest are triangular.

## MOVING AND MAKING

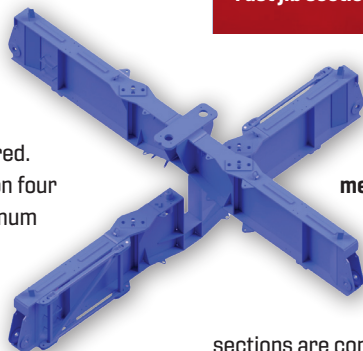
The slewing unit with a short A-frame make one transport and rigging unit weighing just 19.1 tonnes. This is the heaviest upper crane part for installation so a complete 100 metre jib crane on a 45 metre tower can be rigged using a 300 tonne capacity telescopic crane. The 100 metre boom is lifted in three sections, reducing load.

Its modular counter jib allows a choice of three lengths according to the requested jib length. For 35 to 45 metre jibs the short, 21.4 metre, counter jib is used. Up to a 65 metre jib the counter jib is extended to 25.4 metres. Longer jib combinations use a 29.4 metre counter jib.

Boom length can be altered in 5 metre increments. All boom and counter jib



Fast jib section connection carried out by just one rigger



The crane base only made up of two beams for alternative 8 x 8 or 10 x 10 metre installation of the AK810

sections have slinging points. The upper part of the jib and counter jib

sections are connected by sliding bolts, without needing a hammer. The lower chords automatically locate together just by lowering the jib section. Final fixing is one longitudinal bolt on each side of the jib or counter jib section.

For easy reeving the rope is directed over standing pulley supports inside the jib. On a 2.6 x 2.6 metre tower system a 105 metre free standing height can be achieved. Tower sections are available in 3, 6 and 12 metre lengths. Instead of slug pin tower section connection AMS prefers nuts and bolts. Fast and easy installation is facilitated by making the cruciform base from two bolted beams. The outriggers have large screws to level the crane. The design allows the 105 metre free standing height and 100

metre jib configuration crane to be mounted in either an 8 x 8 metre or 10 x 10 metre space on the same base.

## OPERATOR SPACE

The new crane's cabin is designed to be spacious and has a large anti-glare front window to help with visibility.

Operating parameters and other data can be viewed by the operator or sent to a remote office or smart phone. AMS developed this system with the SKA Group. It controls the four 7.5 kW slewing motors with frequency converters, plus the 90 kW hoist motor and 15 kW trolley motor.

For testing on the first crane built SKA also provided a battery system to store energy gathered from lowering loads. It is stored on the crane and can be used directly to reduce power consumption when lifting. It is expected to reduce the overall energy consumption of the crane by about 30 per cent.

Even though the crane was designed for a limited application it may also find a ready market worldwide. ■



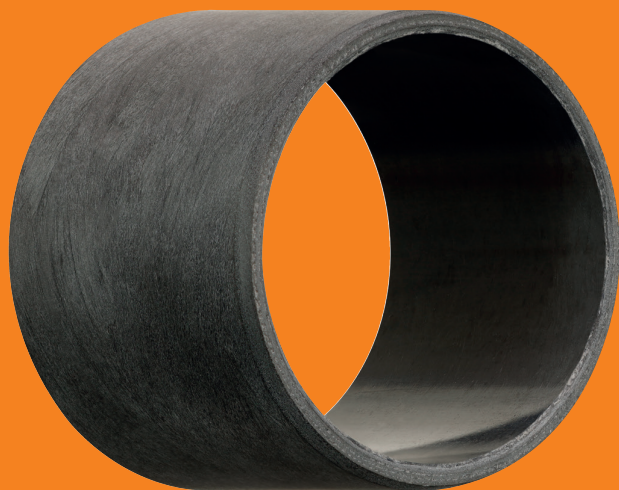
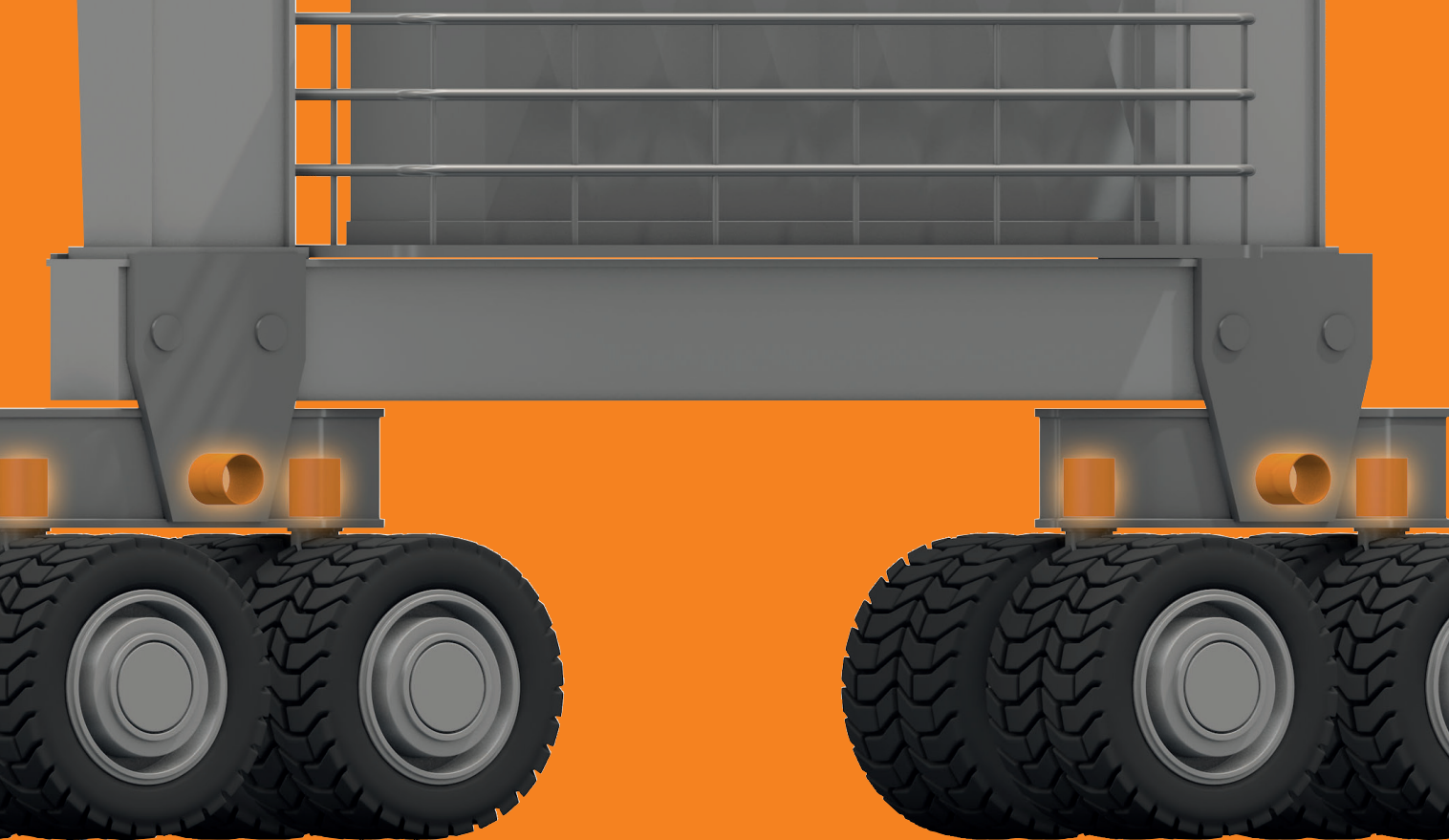
Look through the boom on the standing pulley supports for the saddle rope

Safe walk through the counter jib. Note the handrail integrated platforms to reach the sliding bolts and the integrated lifting points for every counter jib section





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# Combilift launches turbine component carrier

**S**pecialist materials handling equipment manufacturer Combilift has entered the offshore wind energy sector with a new product to move wind turbine components.

The Combilift Combi-LC (load carrier) is a pair of independent wheeled drive units with load platforms and adaptors. Combi-LC is designed at Combilift headquarters and factory in Monaghan, Ireland, in collaboration with wind turbine manufacturer Siemens Gamesa.

It can carry wind turbine blades and tower sections, moving them around the factory or port storage area. Blades now reach 115 metres long and weigh around 70 tonnes. The staging or storage area in port can be up to 5 km from the load out point on the quay.

The two remote-controlled units are designed to offer a low loading or deck height. They can be operated in tandem master and slave operation. Custom options include dimensions and wheel configurations according to the load type and weight.

Siemens Gamesa is the first customer, "signing a multi-million order for a number of the bespoke Load Carriers," manufacturer Combilift said.

The manufacturer said it expects to achieve more than €50 million annual revenue in this segment by 2026.

Josh Moffett, Combilift heavy equipment manager, said, "We are thrilled to have launched this new product – The Combi-LC,

The new Combilift Combi-LC load carrier for wind turbine components



The other end of the new load carrier with an adaptor to carry a turbine blade

and we hope it will act as a gateway for us to further progress within our venture into the wind energy sector. The scale of offshore wind projects around the world leads to a unique set of challenges, one of which being the ability to transport the very large components that make up a wind turbine. We recognised this and used our expertise in load handling to develop a solution to support those in the industry."

## MEGALIFT DELIVERS TANKS TO MALAYSIA

Specialist transport company Megalift from Malaysia, transported two over-height tanks from its fabrication yard to a Petronas refinery in Kerteh.

Each tank weighed 56 tonnes and was 7.52 metres long, 2.6 metres wide and

5.77 metres tall. The company said the main challenge was the route through suburban areas with narrow roads.

Due to the height of the cargo, Megalift had to obtain approvals from various authorities to execute the job. Many of the hanging cables had to be removed or temporarily elevated, as well as removing three traffic light posts.



## ESTA BACKS SPMT OPERATOR LICENCE

A new crane and transport operator training organisation is being set up by European industry association ESTA.

Its first work will be on a licence for operators of self propelled modular transporter (SPMT). The European Association for Abnormal Road Transport and Mobile Cranes (ESTA) has the backing of its Board members to establish the European Crane and Transport Operators Licence (ECTOL) organisation.

It will be formally given the go-ahead, assuming it receives the final approval of the supervisory board of the existing European Crane Operators Licence.

ECTOL will be an umbrella body to oversee both the existing European Crane Operators Licence (ECOL) and the new European Transport Operators Licence (ETOL) which will initially focus on training for SPMT operators.

Development of ECTOL and the ETOL licence gathered pace in 2022 and came out of work done by ESTA's expert SPMT working group.

Concern has been growing in the industry at the lack of recognised training qualifications and the need to improve safety standards as the SPMT market grows.



# Collett delivers with 160 tonne hydropower valves

UK-based heavy transport specialist Collett & Sons delivered two 160 tonne inlet valves to Dinorwig hydropower station in Wales as part of an essential upgrade scheme.

Working on behalf of Rhenus Project Logistics, Collett completed the first two deliveries of the project aimed at extending the power station's operational life for several decades.

Six valves will be delivered to complete the project, with each one weighing 160 tonnes and 5.3 metres long, 4.7 metres wide and 3.7 metres tall.

Prior to deliveries, preliminary works were completed by Collett's project management and consulting departments. This included swept path analysis reports, lashing calculations and plans, stability calculations, as well as test runs.

The first two inlet valves arrived at the Port of Penrhyn, East of Bangor, North

Wales. Working under CPA contract lift conditions, Collett discharged both valves from the vessel using an 800 tonne mobile crane. Ensuring secure transport, each valve was carefully lashed onto two 10 axle modular trailers.

The 12 mile (20 km) journey from the port to Dinorwig station took three hours.

Throughout the transport, a comprehensive support system was in place, including full police escorts.

On arrival at the power station, the two main inlet valves were transported to a designated storage area. Then the valves were transported into the mountain and offloaded by overhead gantry cranes.



Collett completed swept path analysis reports, lashing calculations and plans and stability calculations prior to the transport. The loaded trailers were accompanied by three 8 x 4 ballasted tractor units

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# Smaller steps

Following the table's second highest increase ever last year, of 27 per cent, this year it is a much more modest single digit rise. As a more 'normal' rate of increase, it suggests a return to stability. Having said that, it might well still be considered a strong increase, especially in that it was still a rise over an unusually large one the previous year. I wonder if it could possibly be the last one this strong for a while.

The total IC Tower index for the top 20 companies is 8,597,720 tonne-metres, up 7% from the 8,029,698 last year, itself almost a third higher than the 6,313,014 of 2021. This year's total is close to three times that of the 2,757,133 total seven years ago in 2016.

Looking at the top five, the percentage increase is even higher, up 8.3%, from 6,231,069 to 6,749,115. This year's total for the top five is almost three times that of the 2,348,914 total of 2018, just five years ago. At 78 % the total for the top five is also more than three quarters of the entire top 20 company totals.

Looking at the other categories, the combined total number of cranes was really the same as last year, actually down by just three units, to 24,105. Perhaps owners had a post-covid clearout of old and-or knackered cranes. It was a far cry from last year's 1,205-unit increase.



The only category clearly lower than last year is the number of employees. There are 683 fewer people employed at the top 20 companies than last year. It was a 3.8 % drop from 18,073 people to 17,390 this year. Notably, there was also a similarly sized drop, of 500 people last year, from the 2021 total of 18,581 people.

The number of depots among the top 20 companies is up by 43 % from 323 to 463, largely due to an increase at one company, maybe due to a different way of defining a depot, so don't read too much into it.

## IN POSITION

Less change is also evident this year in the company positions. At the very top NFT has retained its number one position with its huge fleet total capability of 3,325,000 tonne-metres. Its 12 % increase in capability this year extends its lead over

Nothing like last year's dramatic double-digit rise in the IC Tower Index of the world's largest tower crane-owning companies but a healthy one nonetheless. **ALEX DAHM** reports



second place Shanghai Panyuan, up a more modest 6.75 %, to a total of 2,233,481. Last year NFT's capability was 42 % more than Shanghai Panyuan while this year it has increased that gap to 49 %.

The top seven companies are all the same as last year. Eight is Van Der Spek from the Netherlands and Belgium, up one place and swapping with Maxim from the USA, this year in ninth. Van der Spek

RANK 2023 2022	COMPANY	Country	No. of towers	Largest tower (make and model)	Largest tower (tonnes)	IC Tower Index 2023
1 ▶ 1	NFT	Abu Dhabi, UAE	3,258	Yongmao STL 4200	100	3325000
2 ▶ 2	Shanghai Panyuan Machinery Rental	China	10,823	Zoomlion D2500-120	120	2,233,481
3 ▶ 3	Liebherr Tower Crane Division	Germany	1,623	Liebherr 4000 HC 100	100	456,700
4 ▶ 4	Uperio	France	2,072	Potain MDT 809 M25	25	375,000
5 ▶ 5	Tat Hong Equipment Service	China	1,166	Yongmao STT3330	160	358,934
6 ▶ 6	Wolffkran	Switzerland	857	Wolff 1250 B	60	249,136
7 ▶ 7	Morrow Equipment	USA	591	Liebherr 710 HC-L 32/64	64	217,620
8 ▲ 9	Van der Spek	Netherlands	528	Liebherr 1000 EC-H 25/50 Litronic	50	150,700
9 ▼ 8	Maxim Crane Works	USA	314	Wolff 1250 B	60	150,214
10 ▶ 10	Neremat	Belgium	250	Potain MD689	40	143,000
11 ▶ 11	Sante Crane & Equipment	Singapore	268	Yongmao STT1830	64	135,304
12 ▲ 13	Marr Contracting	Australia	77	Favelle Favco M2480D	330	111,951
13 ▼ 12	Shinwoo Development	Korea	205	Comansa 21LC1400	50	103,531





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## IC TOWER INDEX

Companies are ranked by their *IC* Tower Index, calculated as the total maximum load moment rating, in tonne-metres, of all tower cranes in a fleet. Like last year we have included 25 companies in the *IC* Tower Index table but the calculations are all still done on the top 20, for consistency with previous years.

All companies in the list, plus other prospective ones, have the opportunity to supply fleet information and other data. Where companies supply the full data the figure used is calculated by them. In cases of insolvency, acquisition or lack of sufficiently up to date information, companies are withdrawn from the table.

While we make great effort to ensure the accuracy of information provided, it cannot be guaranteed and *ICST* and its publisher, KHL Group, accept no liability for inaccuracies or omissions.

The *IC* Tower Crane Index will next be updated in the first half of 2024. If you'd like your company considered for inclusion please contact *ICST* for an application form. With more input and the inclusion of more companies we can help build a bigger picture of the global tower crane rental market.

lifting capability by 10,165 tonne-metres, up 10 %, to give a 2023 total *IC* Tower Index total of 111,951 tonne-metres.

increased its capability by 3,300 tonne-metres (equivalent to 10 smaller cranes or a couple of really big ones). Maxim reduced its total by 1,640 tonne-metres.

### FLEET CHANGES

All the other top ten companies either increased or maintained the same Tower Index total. In the top 20 just three companies reduced their fleet totals over

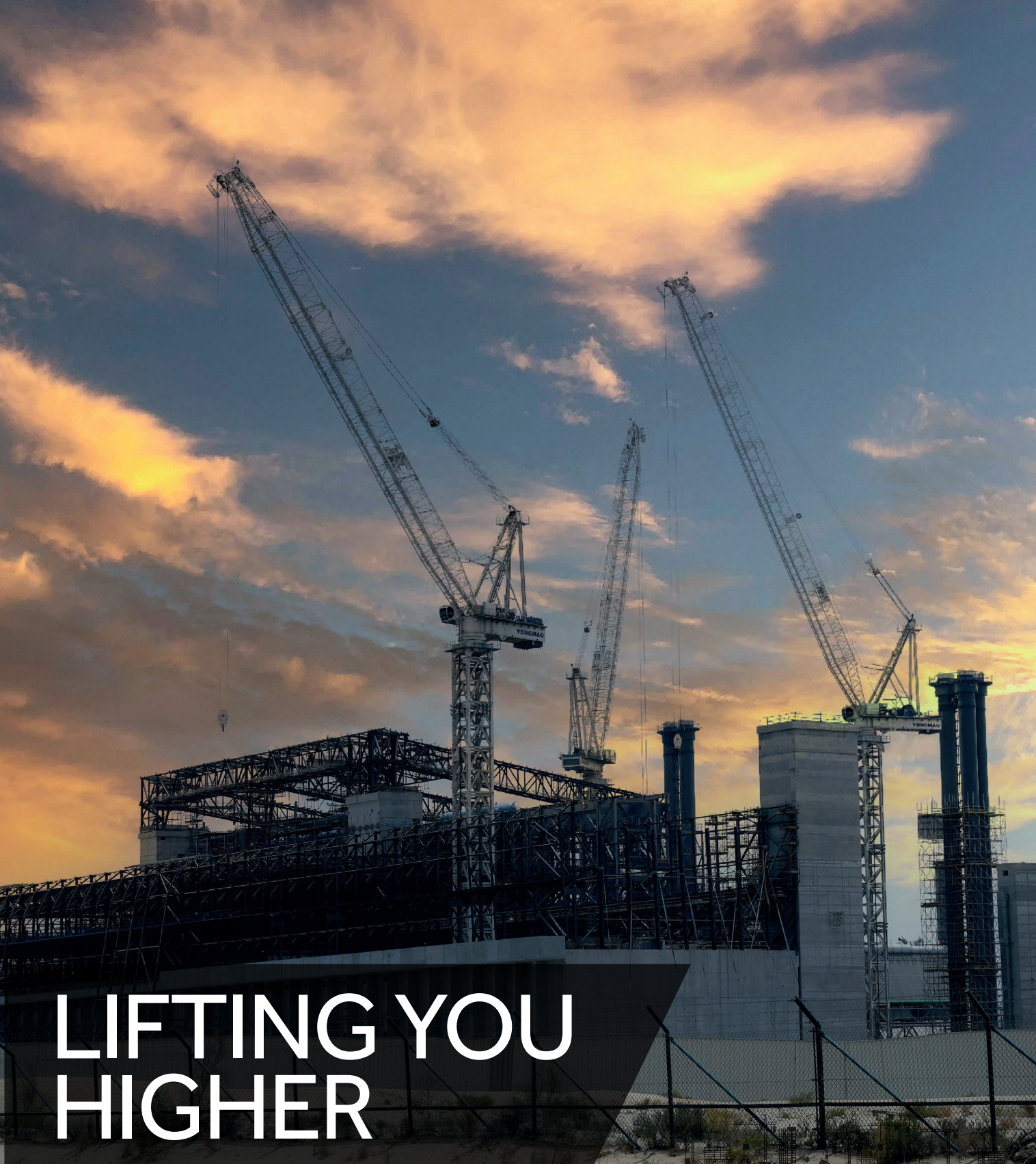
the last year. Of the 43 total number of companies entered in this year's table just another four showed a decrease.

Rounding out the top ten once again is Neremat from Belgium, holding the same spot since 2016. Sante from Singapore is next, in 11th place again as it has been for the two previous years too.

Next is Marr Contracting from Australia, up one place in 12th. It expanded its fleet's

RANK 2023 2022	COMPANY	Country	No. of towers	Largest tower (make and model)	Largest tower (tonnes)	IC Tower Index 2023
14 ▶ 14	<b>Falcon Tower Crane Services</b>	United Kingdom	431	Jaso J780PA.64	64	<b>94,963</b>
15 ▲ 18	<b>Favelle Favco</b>	Malaysia	182	Favelle Favco M1280D	150	<b>88,281</b>
16 ▲ 17	<b>Tiong Woon</b>	Singapore	150	Yongmao STT1830	64	<b>86,932.00</b>
17 ▼ 16	<b>BKL Baukran Logistik</b>	Germany	526	Linden Comansa 21LC1050	50	<b>85,405</b>
18 ▼ 15	<b>Select Plant Hire</b>	UK	189	Comedil CTL 1600-66	66	<b>78,568</b>
19 ▲ 20	<b>Wilbert TowerCranes</b>	Germany	295	Wilbert WT 3000 e.tronic	200	<b>78,000</b>
20 ▲ 21	<b>Jaso Tower Cranes</b>	Spain	300	Jaso J560	24	<b>75,000</b>
21 ▼ 19	<b>Wasel</b>	Germany	425	Liebherr 630 EC-H 40	40	<b>73,500</b>
22 ▶ 22	<b>Lambertsson (Virtanen)</b>	Finland	141	Yongmao STT 1330-64	64	<b>57,949</b>
23 ▶ 23	<b>Bigge Crane and Rigging</b>	USA	99	Comedil CTT 721-40B	40	<b>47,435</b>
24 ▶ 24	<b>Stafford Crane Group</b>	USA	96	Potain MD 1400	50	<b>46,500</b>
25 ▶ 25	<b>Locabens Equipamentos</b>	Brazil	309	Potain MD560 M40	40	<b>45,400</b>





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# Give them a ring

One of the biggest offshore challenges is that nothing can stop a tide – which can bring a halt to work on wind farm construction projects – unless you use a super heavy lift ring crane.

**ALEX DAHM** reports

The giant three-legged foundation jackets for the offshore turbines weigh 2,200 tonnes and stand 95 metres tall

**O**ffshore wind energy construction projects are ramping up all over the world, increasingly putting a focus on operational efficiency.

A key consideration for the lifting work at the quayside is that there can be tidal water level changes of as much as four metres, every six hours. This is the case around the UK where the extreme tidal range is difficult to contend with when loading and unloading vessels. It is too much to compensate for using ballasting. Load-ins and load-outs of, for example, large jackets can't be done at the extremes of the tidal range. This means project delays and idle transport vessels.

## AGAINST THE TIDE

Global Energy Group at the Port of Nigg in Scotland had this issue to contend with for the Seagreen Offshore Wind Farm. Contractor Mammoet suggested deployment of one of its super heavy lift ring cranes. Erected at the quayside this

would allow lifts to be made irrespective of the tide and to keep the installation vessel as busy as possible.

Seagreen is the deepest fixed bottom offshore wind farm in the world which means its foundations are 95 metres tall. Its 114 wind turbine foundations carry very large, 10 MW, Vestas wind turbines.

The ring crane is used instead of the conventional approach of carrying the foundations and other components on multiple axle lines of self propelled modular transporter on and off a vessel that is ballasted for a smooth transition between dock and vessel.

Issues other than the ballasting range are also inherent with this approach. Where self propelled modular transporter (SPMT) has to be driven on and off the barge, deck space needs to be kept permanently clear and available. Space for component storage is then restricted.

Larger and stronger barges can be the »



"We knew this method was safe, flexible and more cost-effective than using SPMT."

OLIVER SMITH, UK technical sales manager at Mammoet



solution but there is a narrower choice of suitable vessels. It can lead to unwanted project delays.

Having been involved with the project since 2018 and sharing a close working relationship with its customer Global Energy Group, Mammoet engineers could look further than the heavy transport scope.

### DOUBLE TIME

The solution was to combine the use of SPMT with the PTC 210 DS ring crane. It meant no more delays caused by waiting for tides. An SPMT load out like this would need five hours so only one operation could be done per shift. With the crane this no longer applies as the barge deck no longer needs to remain level with the quay. The crane can still make its lift regardless, to the tune of two per shift.

Using SPMT and the giant crane allowed two operations to run at the same time. As the crane loaded jackets onto a vessel the SPMT could be unloading others.

Earlier than required the jackets could be brought to the quayside ready for the crane to pick them, helping to reduce waiting time when the vessel is in port.

Commenting on the project Oliver Smith, Mammoet UK technical sales manager, said, "As ever, when an organisation is deciding on a project of this scale, cost-efficiency is always an important factor. We were involved with this project years in advance and well before the full details came to light.



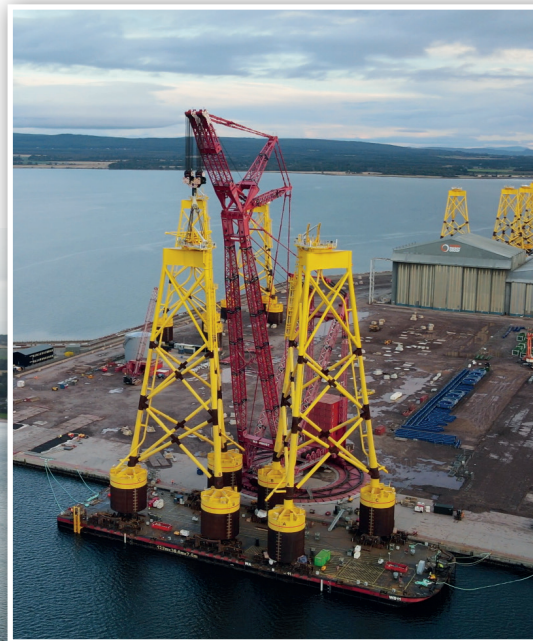
Mammoet worked at Nigg Energy Park near Inverness, Scotland, in separate phases to load-in, store, and load-out the turbine jackets, two at a time. Key to the project was the 3,200 tonne capacity class PTC 210 DS super heavy lift ring crane

It was only further down the line that we needed to reassess the situation and move away from SPMT-only operations."

### COST EFFECTIVE

Smith said everything proceeded as planned and that the feedback from Global Energy Group and other stakeholders was positive. "We knew this method was safe, flexible and more cost-effective than using SPMT. Now we can share it with the wider

industry so it can serve as a template for how to get offshore wind infrastructure in the water faster and more cost-efficiently; especially where tidal variances are high." ■



The ring crane is used instead of the conventional approach of carrying the foundations and other components on multiple axle lines of SPMT on and off a vessel



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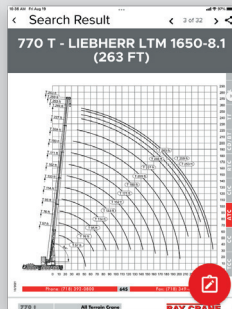
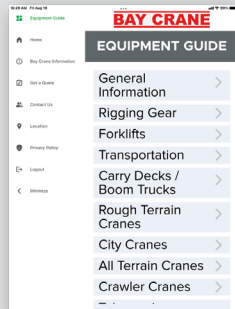
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# Look over the fence

**W**hile specific industry dynamics will help you to shape and build various aspects of your brand, there's an additional opportunity to cast a wider net as you think through your business and marketing planning. It involves expanding your thinking beyond familiar industry borders and adapting new concepts to your B2B business model.

"Cross-industry" refers to interactions, collaboration or applications that occur between different industries or sectors of the economy. It involves the exchange of ideas, technologies, processes or practices from one industry to another, often in an effort to create new business openings, solve problems or innovate in a way that benefits multiple sectors. It can lead to the development of new products, services and business models that may not have been possible in the confines of a single industry.

An example is where the healthcare industry might collaborate with a tech-industry company to develop wearable health-monitoring devices for the construction and transportation



industries. This collaboration combines medical expertise with technology advancements to create a new product that can allow individuals in specific vocations to track their health.

Cross-industry interactions are becoming increasingly important in a globalised and interconnected world, as they can lead to

breakthroughs, efficiencies and solutions that have a broader impact on society and the economy.

That said, cross-industry intelligence in the B2B space can also feel counter-intuitive. It involves uncovering innovative strategies in marketing by reaching outside your business or industry box. But remember: there's a whole world out there.

Learning from other business models exposes business leaders to new concepts – where you can apply and adapt innovations from dissimilar industries to your business model. Having a look over the fence can be enlightening, even if you're more comfortable sticking with the devil you know. But truthfully, it's sometimes the devil you don't know that might just have a better way of doing things.

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### EXPAND WHAT'S POSSIBLE

Drilling down, in practice, cross-industry intelligence can be valuable for several reasons:

**Innovation:** Insight from other industries can spark innovation in your own industry.

**Risk mitigation:** Understanding trends and challenges in other industries can help businesses anticipate potential risks and disruption.

**Market expansion:** Learning from the experiences of other industries can provide valuable insight into new markets or customer segments that may not have been considered previously.

**Efficiency improvement:** Best practice and technology from other industries can be adopted to improve efficiency.

**Competitive advantage:** Leveraging cross-industry intelligence can provide a competitive advantage by adopting strategies that competitors may not have considered.

**Problem solving:** Sometimes, complex problems in one industry can find solutions by drawing from the knowledge and experiences of others.

Essentially, cross-industry intelligence is about leveraging the collective wisdom and experience of various sectors to make more informed decisions, drive innovation and achieve competitive advantages in one's own industry. ■



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# Getting down

2023 is a productive year of rollouts for SC&RF. **MIKE CHALMERS** reports

**T**he Specialized Carriers & Rigging Foundation (SC&RF) was formed in 1986 and comprises a 501 (c)(3) non-profit organisation. Its mission is to support SC&RA member companies with provision of scholarships and grants, research and education and other workforce development initiatives.

SC&RF is sustained by financial contributions from member companies and individuals, as well as fundraising efforts at SC&RA meetings. Association members are encouraged to join the Foundation's volunteer committees in helping to shape the future of SC&RF as well as the overall industry.

As for what the Foundation

**Jackie Roskos, SC&RF director**



has been up to, if 2022 was considered mostly developmental in practice, then 2023 has been the rollout year. High on the list of priorities among an assortment of rollouts is the Lift & Move Workforce Ambassador Program. It brings together companies of all sizes to participate in activities focused on building industry awareness and fostering community relationships to bridge the skilled-labour gap and ensure a future workforce.

Ambassadors in the programme receive a host of benefits, including marketing tools and resources created to promote the industry,

a company listing on the Lift & Move website, photo gallery access, a Workforce Ambassador certificate and an opportunity for quarterly (virtual) meet-ups to discuss best practices and share success stories.

Lift & Move will also recognise ambassadors in various ways: by checking in on a quarterly basis to review activities and points (the company with the most points for each category will be recognised and awarded); by featuring all winners in *ICST* sister magazine *American Cranes & Transport*, as well as recognition at the SC&RA Annual Conference Closing Night Awards Ceremony; by making each winner eligible for the "2023 Workforce Ambassador" award; and by highlighting winners on the Lift & Move website and social media.

"This programme has really gained momentum in 2023," indicated SC&RF Director, Jackie Roskos. "The reality is the industry needs as many representatives as we can get out there telling people about

career opportunities, especially since we are such a niche sector of the industry. The future workforce has to at least be exposed to the opportunity, to know what it is, before they can pursue a career in this trade."

Roskos added that most people aren't even aware of the heavy haul side or crane and rigging, and the additional steps it takes to find employment therein. "Companies really need to have access to this information at the forefront of their recruiting, and that's what this programme is designed to do."

Jonelle Anderson, director of business development and marketing at BOSS Crane & Rigging, as well as chair of the Lift & Move Committee, echoed Roskos. "We're steadily developing the communication lines with this programme to let people know what it's about," she noted.

"We can't just sit back and watch the workforce disintegrate – we have to develop some type of recruitment process."

Anderson acknowledged that the intention of the programme is not to get in the way of a company's recruitment methods, but assist as needed, and share what works. "It allows us to take success stories from some of the more established programmes and potentially educate smaller companies that don't have one."

Kelan Bragg, general manager at Bragg Companies, and vice chair of the Lift & Move Committee, sees the Workforce Ambassador Program as a "lift all ships" scenario. "We're all drawing from the same pool," he emphasised. "The more people in the pool, the better for the industry."

So, if you're safeguarding secrets and you're keeping people from having access to a great career, I think that's

**Jonelle Anderson, director of business development and marketing at BOSS Crane & Rigging in Texas**



Employees from member company Steffan Industries participate in a hand-signals exercise during a career day at Central Elementary School in Elizabeth, PA, USA. Steffan is in the school's district and tries to build on lessons learned with each new visit

One such way to support SC&RA is through the Endowment Fund, which allows contributors to take part in a structured giving campaign that allows them to earmark funds for their programme(s) of choice or to allocate funds to the General Endowment Fund to benefit all programmes.





# to business



**SC&RA member company Boulter Industrial Contractors has committed to the Association's Workforce Ambassador Program and is seen here maximising the benefit of community engagement**

detrimental to not only yourself, but the industry as a whole."

Brittany Bachman, marketing manager at Boulter Industrial Contractors, also a programme participant, agreed. "It's more critical than ever that we come together to learn how to address the labour shortage and help the industry thrive," she said. "I've seen the power of community engagement through the Lift & Move programme – and these efforts only strengthen the industry and raise awareness of the trades for the next generation."

The Foundation is planning an even bigger push on the Workforce Ambassador Program in 2024. The Lift & Move programme is supported by SC&RA, the NCCCO Foundation and media partner, KHL Group, publisher of ICST.

## EXPAND THE MARKET

SC&RF's 2023 educational assistance efforts continue to create opportunity for countless SC&RA members as well. Vo-tech and partner-in-education scholarships benefit individuals pursuing training, certification or continuing education through vocational or tech schools, community college, etc., and range from

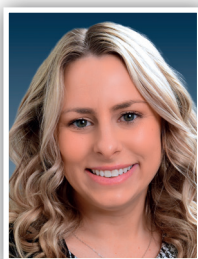
\$500 – \$5,000. Of note: seats with Morrow Equipment Company, ITI and CICB are available for 100 per cent tuition for those who apply through the vo-tech application. Scholarship deadlines (awarded to an individual) are 31 October and 31 December.

An exciting new addition to these opportunities is the Company Training Grant, which SC&RF rolled out this year and designed to help companies cover the cost of sending employees out to training, or bringing in a trainer.

Mike Mitchell, crane superintendent at L.R. Willson & Sons, was able to reward three of his employees with US\$1,000 each towards CDL Class A training courses. "I saw the opportunity online and applied for it right away," he explained. "It's huge for us – we run a crane crew with 22 crawler cranes that we move just about every day, and

these three young guys are part of that crew. It's huge for them too; it helps these guys excel not only through their training, but their pay jumps

**Brittany Bachman, marketing manager at Boulter Industrial Contractors in the USA**



**Steven Bruce, one of three employees at member company L.R. Willson & Sons, who were all able to pursue a CDL Class A training course in 2023 thanks to an SC&RF Company Training Grant**



**Jacquelyn Valek, COO at Tesar Industrial Contractors**

up as well. Overall, this grant has put three guys into the workforce who otherwise wouldn't have been."

Similar to L.R. Willson & Sons, member company Tesar

Industrial Contractors was also able to pay for CDL Class A training – for two of its employees – thanks to the Company Training Grant. "We were really looking for an opportunity to invest back into our employees, and we realised this would be a game changer for us," said COO Jacquelyn Valek. "It enables us to get out there and expand the market. To be able to use the grants for something that is specific to our industry and our needs is enormous."

■ For more information see: [www.scr-foundation.org](http://www.scr-foundation.org)

## ALL HANDS ON DECK

SC&RF also released its State of the Workforce in the Crane, Rigging and Specialized Transport Industry white paper this year. After two years of comprehensive research and analysis, the first-of-its-kind paper was designed to examine and identify a range of workforce issues in the construction and specialized transportation sectors.

Ultimately, 64 companies completed the survey in full, which resulted in 83 sector-based responses – comprising a productive range of assessment areas, including: In-Field or Operations Occupations, Maintenance, Apprentice and Trainees, Operations Management and Corporate Positions. Within these categories, the survey focused on education, wage range, length of employment and additional issues to address.

But the Foundation needs member participation for the second study in the form of the 2024 Survey. All member companies are encouraged to complete this seven-minute, anonymous survey to further strengthen SC&RF's ability to understand, address and positively impact the skilled-worker shortage.





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SAVE THE DATE IN 2024!

## JBCM

### January Board & Committee Meetings

January 7 - 10  
Hacienda Del Mar Cabos  
Cabo, Mexico



## STS

### Specialized Transportation Symposium

February 20 - 22  
Westin Galleria Houston  
Houston, TX



## AC

### Annual Conference

April 15 - 19  
Omni Barton Creek  
Austin, TX

## CRW

### Crane & Rigging Workshop

September 24 - 26  
Renaissance Phoenix  
Glendale Hotel  
Glendale, AZ



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# Braden unveils synthetic rope

**T**he new TRS synthetic rope from Braden is engineered and tested to complement TR series recovery winches with planetary drives. Rated line pulls in the TR series are from 12,000 to 30,000 pounds (5.4 to 13.6 tonnes).

Four times lighter than comparable sizes of steel cable, the twelve TRS synthetic rope options help save weight on the vehicle. As electric vehicles become more popular, it becomes increasingly important to minimise the weight of accessories to balance the overall gross vehicle weight rating, the company said.

The TRS rope is a UHMPE (polyethylene) 32-carrier urethane coated braided sleeve over a Vectran LCP (liquid crystal polymer)



polyester 12-strand inner load bearing core. Two eye splices are fitted on each rope, one for anchor wedge attachment to the winch drum and one on the outer end with a thimble spliced into the eye with a UHMPE (polyethylene) protective chafe layer at the throat of the splice. A Braden synthetic rope anchor is required for proper installation on the winch drum.

TRS synthetic rope is resistant to crushing and abrasion. It is also easy to

**TRS synthetic rope helps minimise the overall weight of essential utility and service truck equipment**

inspect and is torque neutral, which means it will not twist and is much easier to handle than steel wire. It is available in rope diameters from 7/16 inches (11 mm) to 5/8 inches (16 mm) and lengths from 80 to 210 feet (24 to 64 metres).

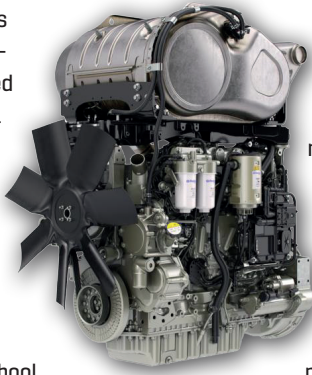
■ **For more information see: [bradenwinches.com](http://bradenwinches.com)**

## Perkins partnership to develop 'drop-in' engine

Engine manufacturer Perkins is developing a new type of multi-fuel engine that can be 'dropped in' to directly replace its diesel equivalent in terms of power density and response.

Perkins is collaborating with UK-based engineering specialist Equipmake and Loughborough University's Mechanical, Electrical and Manufacturing Engineering School. It has also received £11.14M funding from the UK government.

It said the new hybrid power unit is aimed at smaller OEMs with more limited



**Six cylinder version of the Perkins 1200 Series diesel engine**

resources who need support to decarbonise.

The unit would accelerate the transition to lower-carbon intensity or zero-carbon fuels such as hydrogen, methanol, bio-ethanol

and other e-fuels. The design supports several fuel types, with the initial demonstration using hydrogen.

■ **For more information see: [perkins.com](http://perkins.com)**

## WOLFFKRAN TO OFFER ASCOREL EQUIPMENT IN SWITZERLAND

Long established and internationally recognised tower crane manufacturer Wolffkran and collision avoidance technology specialist Ascorel have agreed a distribution deal.

Ascorel will supply its tower crane collision avoidance technology systems to Wolffkran Schweiz AG for use in the Swiss market. It will be able to use the systems on any of its own cranes or supply them as aftermarket kits for others.

■ **For more information see: [ascorel.com](http://ascorel.com)**



**The new cameras offer better visibility and improved safety for fleet operations**

## J.J. KELLER EXPANDS AUXILIARY MOBILE CAMERA LINE

Four new auxiliary cameras have been added to the VideoProtects video event management system and to the Encompass video event management system from JJ Keller and Associates in the USA.

Fleets now have more ways to support their legal defence, exonerate drivers and protect their bottom line in rear-end collisions and sideswipe crashes, both significant causes of FMCSA-defined non-preventable accidents, the company said.

The new lineup of auxiliary cameras includes two styles of cargo utility cameras, side view cameras, and a rugged exterior camera. The 6-pin Cargo/Utility camera is designed as a compact and lightweight interior camera to be mounted in vehicle cabs.

The 4-pin Cargo/Utility camera offers night vision and anti-tampering features and is IP67-rated for heavy-duty uses.

■ **For more information see: [jjkeller.com](http://jjkeller.com)**



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# PICTURE OF THE MONTH

**MAMMOET CHAINS:** This month's artistic shot depicts an operator from Mammoet surrounded by heavy ship chain in the port of Wergeland on the west coast of Norway. The operator is using a belly box to control self propelled modular transporter (SPMT) transporting wind turbine tower sections between the storage area and the quay. The 11 units of 8 MW Siemens Gamesa turbines are for the Hywind Tampen offshore floating wind energy project in the North Sea between Norway and the UK.

## EVENTS DIARY

### 2023

#### INTERNATIONAL RENTAL CONFERENCE (IRC)

23 October 2023

Shanghai, China

[www.khl-irc.com](http://www.khl-irc.com)

#### OFF HIGHWAY CONFERENCE

25 October 2023

Brussels, Belgium

[www.offhighwayconference.com](http://www.offhighwayconference.com)

#### SMOPYC 2023

22 to 25 November 2023

Zaragoza, Spain

[www.feriazaragoza.es](http://www.feriazaragoza.es)

#### TDK BRANCHENTREFF

27 and 28 November 2023

Oss, the Netherlands

[www.vdbum.de](http://www.vdbum.de)

### 2024

#### SC&RA JANUARY BOARD & COMMITTEE MEETING

7 to 10 January 2024

Cabo, Mexico

[www.scranet.org](http://www.scranet.org)

#### SC&RA SPECIALIZED TRANSPORTATION SYMPOSIUM

20 to 22 February 2024

Texas, USA

[www.scranet.org](http://www.scranet.org)

#### CONSTRUCTION TECHNOLOGY SUMMIT 2024

18 and 19 March 2024

Texas, USA

[www.ct-summit.com](http://www.ct-summit.com)

## OBITUARY:

### KEITH ANDERSON 1953 – 2023



With regret we report the death of Keith Anderson, former chief rigging engineer at Bechtel in the USA.

Anderson was well known as a world authority on safe rigging practices. His books

*Rigging Engineering Basics* and *Rigging Engineering Calculations* are practical guides widely considered "industry bibles".

As a special contributor to *ICST* magazine, his technical articles are consistently among the most-read, even years after they were published.

Born in Newcastle, UK, Keith graduated in 1975 with a BSc in mechanical engineering from Lanchester Polytechnic, now Coventry University, in the English Midlands. He spent time designing hydraulic braking systems before joining the world of lifting in 1979 with Kramo Montage, a specialist in hydraulic jack climbing systems for heavy lifting.

Over the next 12 years he worked his way up to chief engineer, a title he also held in his next job, at Van Seumeren, now Mammoet, where he stayed until 1996. His next move was to Sarens, working with heavy haulage for two years, before returning to Van Seumeren, this time in the Netherlands.

The year 2000 saw a move to Bechtel and a year later to the USA where he stayed until retirement in 2020 whereupon he returned to the UK. At Bechtel he was chief rigging engineer. He was also a Fellow of the Institution of Mechanical Engineers in the UK.

In Keith's own words he was, "On a mission to put rigging engineering on a more professional footing, to pass on the knowledge and skills I have, to improve standards of lift planning and execution and thereby safety in this discipline."

*ICST* sends its sincere condolences to Keith's wife and family.

## SAVE THE DATES: KHL CRANE AND TRANSPORT EVENTS IN 2024

Following the successful World Crane and Transport Summit 2023 in Singapore, on 4 and 5 October, *ICST*, sister magazine *ACT* and their publisher *KHL* is pleased to announce Tower Cranes North America and Cranes and Transport Middle East as our two world-class industry events for 2024.

First, we have Tower Cranes North America to be held in Nashville, Tennessee, USA, on 11 and 12 June. TCNA addresses key issues such as emerging trends and safety factors facing tower crane end users and buyers in North America.

Then we have Cranes and Transport Middle East to be held on 1 and 2 October 2024 in Dubai, UAE. CATME will host an evening welcome reception and a full day conference the following day.

Look out for further announcements soon.

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



# MARKETPLACE

International Cranes and Specialized Transport's Marketplace is designed to help readers find the products and services they need. The Marketplace is divided into colour coded sections to help you quickly find what you need.



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## CRANES AND EQUIPMENT FOR SALE OR RENT

45

Crane, rigging and lifting equipment for sale or rent, new or used.

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 Counterweight 60 t (CB) + 180 t



Wide Crawler · 2 m



### Demag CC 2400-1

Year 2011  
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 Main boom SH 84 m  
 Luffer SW 84 m  
 Upper hours 9,670 h  
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Long LF · 36 m



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LTM 1030-2.1 (2020)



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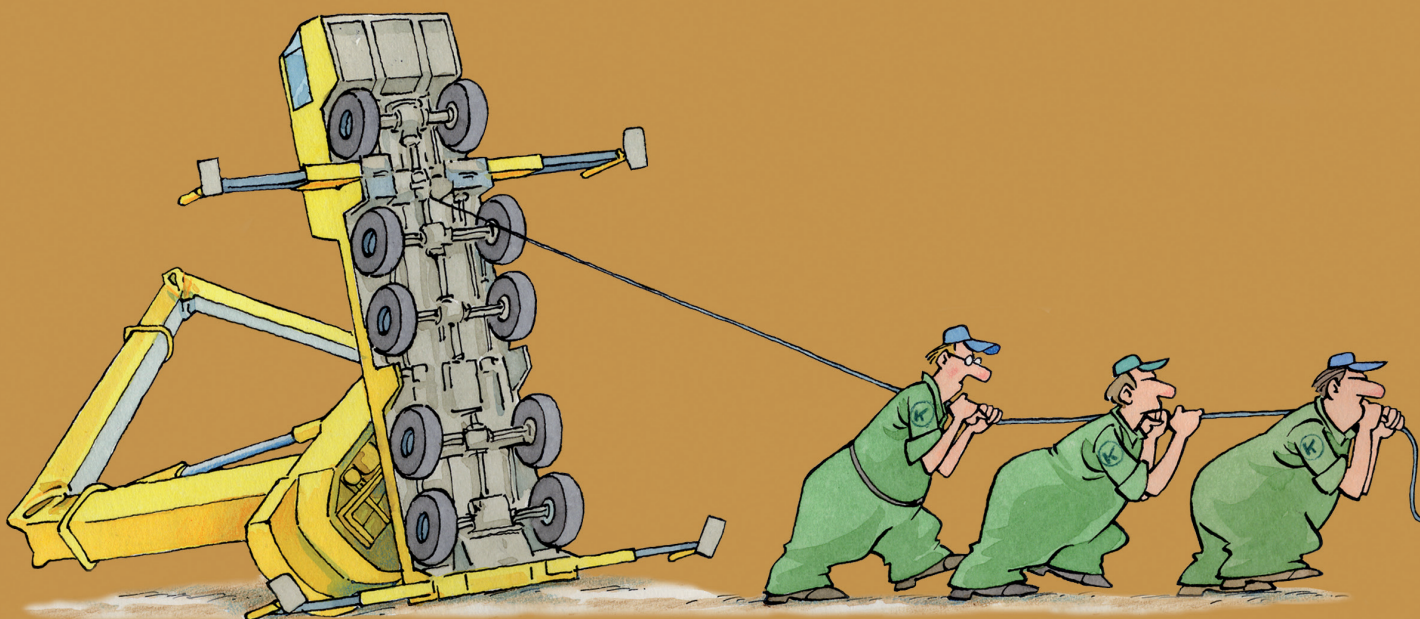
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