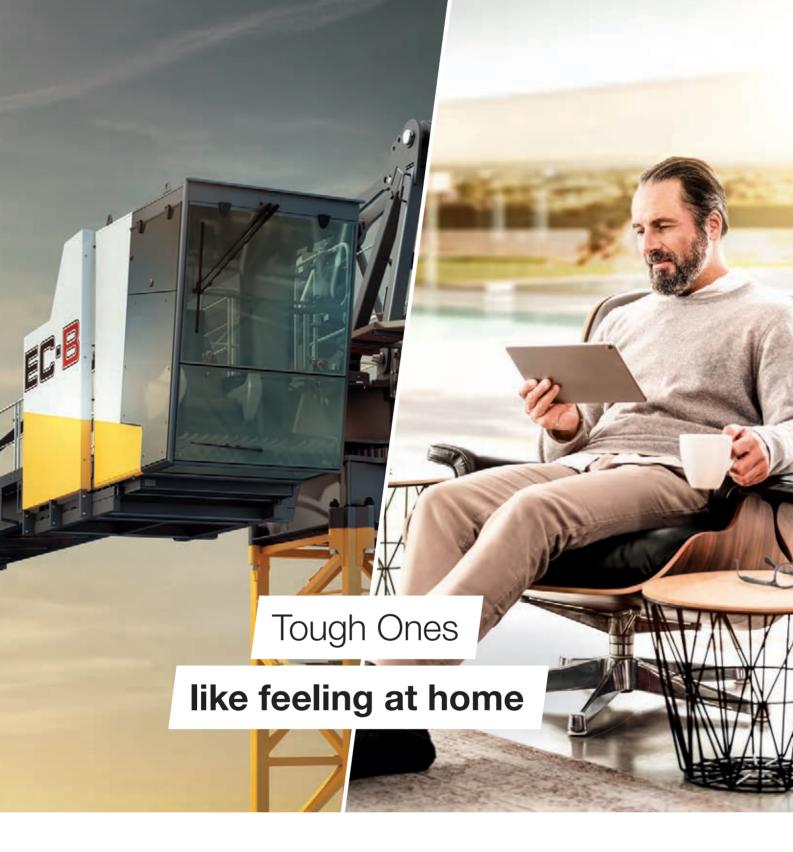
INTERNATIONAL



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MARKETPLACE

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t is not just me with the feeling that time is moving more quickly than ever. Hard to believe that we are so far through 2019 already and many of us are looking even beyond next year- and further ahead than that in some cases. Planning ahead is fine but all too often these days things are happening at shorter notice and varying more extremely. Uncertainty and massive sudden variance from forecasts is

a sign of the times in many aspects of life and business.

Is so-called unpredictability any "worse" now than it has ever been? Hasn't the world in terms of society and commerce adapted to respond more quickly and just to be more flexible generally. It has become an expectation to be able to get things at much shorter notice than ever before. And I don't just mean ordering things on the internet for same day delivery.

Presumably everything has to somehow be geared up differently from the old days. It costs money to keep things in stock - on the shelf, ready in case someone might happen to need something. While supply chain logistics is a topic for a whole other world of magazines it affects us all more than we appreciate. In the UK, with a "no deal" exit from the European Union looking more likely by the day, companies are stockpiling supplies in case there are problems with customs, crossing borders and general holdups on imports. I guess the same would apply to any exports from the UK, too.

Also showing big changes is the 2019 IC Tower Index, starting on page 15. It is up massively, reflecting the continuing buoyancy in the tower crane market worldwide. Adding three companies and losing two gave a net increase of one over last year to a total of 44 entries. Next year we hope to increase this enough to be able to expand the table from 20 to maybe 25 or more. As with all our other toplists, including the IC50 and Transport 50, we can only do so if more companies that own equipment take the time to complete an entry form. If you think your company should be in the IC Tower Index - or indeed any of our other signature toplists - please do fill in an entry form next time around.

In the meantime, we'd better start thinking about how to celebrate the New Year.

ALEX DAHM

Editor

Correspondence is welcome and should be sent to: The editor, International Cranes and Specialized Transport Southfields, Southview Road, Wadhurst, East Sussex TN5 6TP, UK

KHL CRANES













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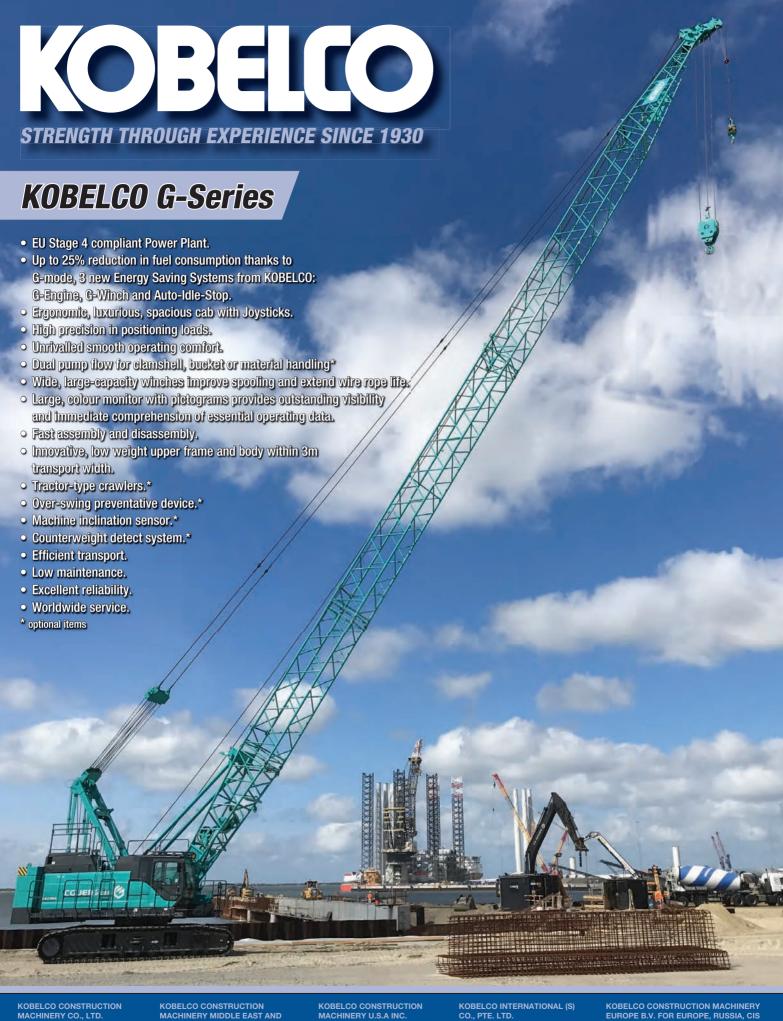












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ON THE COVER AND SPECIALIZED TRANS CTL

IMAGE: FLORIAN SANDER Wolff cranes working on the Rheintower project in Düsseldorf, Germany. See our story on p.12 and more about tower cranes on p.19 and 23.

owe

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19

FEATURES



IC TOWER INDEX

The results of the 2019 IC Tower Index are in. Find out who ranks where in the top 20 tower crane-owning companies, as

determined by their IC Tower Index figure.



TOWER CRANES AND OPERATOR HOISTS

Fuelled by continued urban development there are many new models of tower cranes and operator hoists on the market. Christian Shelton reports.

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SITE REPORT

Fagioli used a combination of strand jacking, SPMT, Fagioli Tower System and mobile cranes in the removal of the remains of the Ponte Morandi road bridge in Italy.



ROPES AND WINCHES

Increasing numbers of users are turning to synthetic fibre rope solutions although steel wire rope remains the mainstay of the market. Christian Shelton reports.

TOPLIFT PREVIEW

Many amazing lifts have taken place around the world over the last year. Select your favourite from our top ten highlights.



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PREVIEW: GIS SHOW



A look at what to expect from the forthcoming GIS show which takes place in Piacenza, Italy, from 3 to 5 October.

SC&RA

SC&RA COMMENT

Comment from Joel Dandrea, SC&RA executive vice president.

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SC&RA members air their daily operational challenges. Mike Chalmers reports.

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HIGHLIGHTS

■ Hi Lift Cranes has received the first MK series mobile folding tower crane from Liebherr to be delivered to New Zealand. A Liebherr MK 88 Plus mobile construction crane with an 8 tonne load capacity and a reach of up to 45 metres was delivered to the family-run company, which is said to be the oldest crane operator in New Zealand, Manufacturer Liebherr handed over the machine at a special celebration event held in Auckland. Organised by Hi Lift, the company presented its new machine to both staff and customers.

■ Mini spider crane provider Unic Cranes Europe has appointed Polish mini crane rental firm company Podniose as a distributor of Unic mini spider cranes in Poland. Podniose was launched in May 2018 and, according to Unic, its clients include Mazda and a number of blue chip construction and glazing companies. Podniose is based in Radom and, according to Unic, covers multiple territories, including Warmian-Masurian - Olsztyn and Masovian-Warsaw.

Manitowoc reports higher sales in 01

Second quarter net sales at crane manufacturer Manitowoc were US\$504.7 million, up 1.9 per cent from the \$495.3 million in the second guarter of 2018.

Earnings before interest and taxes (EBITDA), at \$53.3 million, was 42 % (\$15.8 million) higher than in the same quarter a year earlier, the company said. Manitowoc attributed the increase to higher crane and aftermarket shipments in the Americas region but said it was partly offset by further weakness in the Middle East wand unfavourable changes in foreign currency exchange rates.

Barry Pennypacker,

Manitowoc president and chief executive officer, commented on the company's performance. "The second quarter marked our ninth consecutive quarter of year-over-year adjusted EBITDA margin improvement, and our fifth consecutive quarter of positive adjusted diluted earnings per share. In the quarter, we repurchased approximately 473,000 shares of common stock, underscoring our commitment to effectively deploy our capital."

Pennypacker continued with the following: "Orders from European customers were in line with our expectations,

reflecting positive reception of our products showcased at the Bauma trade show where we introduced six new cranes.

"Our North American orders slowed as customers became more cautious as a result of uncertain market conditions. Overall, I am very proud of our team and the results we posted in the first half of the year and look forward to our continued transformation into a leaner. more profitable Manitowoc."

The company forecasts a full year 2019 revenue between \$1.880 billion and \$1.920 billion with an adjusted EBITDA between \$140 and \$160 million.

Record crane sales in India

Mobile cranes are the third largest selling equipment type in India after backhoe loaders and hydraulic excavators, according to a report by market research organisation Off-Highway Research (OHR).

Sales of these machines hit an all-time high of nearly 12,000 units in 2018, with some 96 per cent of demand being for locally manufactured pick and carry cranes. OHR's new Equipment Analysis report on the mobile crane industry in India stated, "The infrastructure sector started showing signs of recovery from 2015 when the overall construction equipment market grew by 2 per cent after falling successively for three years beginning in 2012. However, essentially being support equipment, mobile cranes usually respond later to the change in trends, and their demand continued the decline even in 2015. After falling consecutively for four years, 2016 to 2018 proved to be a strong recovery period for the equipment."

According to OHR, this year's general election in India has been disruptive for equipment sales in general, and the mobile crane market will not escape a brief downturn. Growth is expected to resume in 2020 and new sales records are expected to be set in subsequent years.

This applies to pick and carry cranes and to conventional all terrain, rough terrain, truck mounted and crawler cranes, sales of which could exceed 500 units in 2023, OHR said.

Off-Highway Research's September 2019 Mobile Cranes India Equipment Analysis is now available to subscribers to the Chinese Service. The report can also be bought as a stand-alone publication by non-subscribers. For more details or contact mail@offhighwayresearch.com.

TOWER CRANES NORTH AMERICA **CONFERENCE CONFIRMED FOR 2020**

The second Tower Cranes North America (TCNA) conference will be held in Miami, Florida, on 23 June 2020.

Confirmation of the second TCNA follows the successful first event in 2018 attended by more than 275 delegates.

The 2020 conference will be held in the same hotel, the Marriott Biscayne Bay, and is organised by KHL Group and its magazines ACT (American Cranes & Transport) and International Cranes and Specialized Transport. Specialized Carriers and Rigging Association (SC&RA) is the exclusive event partner.

There will be an informal reception on the evening of 22 June, with the main conference programme on 23 June.

As with the first event, TCNA will focus on new tower crane technology, safety, rental operations and market trends. Speakers in 2018 included Christian Chalupny of Morrow Equipment, Frank Bardonaro at Maxim Crane and Liebherr's Marco Guariglia.

Updates on speakers for the 2020 conference will be published on khl.com and on the conference website.



HIGHLIGHTS

■ Heavy lifting and moving specialist Roll Group, which includes Roll-Lift and RollDock, has opened offices in Singapore, Malaysia, Indonesia, Thailand and Korea. It is the latest stage in the Dutch company's expansion of land-based operations and to further make the most of combining land and sea projects, the company said. Robin Koenis is managing director at Roll Group in the Asia Pacific region. Roll Group APAC has added engineers and sales staff for the region. Self propelled modular transporter (SPMT) from Scheuerle in Germany has joined the fleet and will be put straight to work there, the company said. Cranes from elsewhere will be moved in for the lifting work.

■ Italian gearmotor, drive system and planetary gearbox manufacturer Bonfiglioli has a new Australian headquarters in Carrum Downs, Victoria, near Melbourne. According to Bonfiglioli, the new 3,500 square metre facility expands the company's quality assurance (QA), testing and production engineering capabilities and can accommodate twice the stock that the previous facility could.

Tadano sales rise strongly in 2019

Consolidated net sales at crane manufacturer Tadano were up 15.7 per cent to JPY40,376 million (US\$ 366 million) in the April to June 2019 quarter, from JPY 34,894 million (\$ 317 million) in the same period of 2018.

Operating income was JPY 1,440 million (\$ 13 million) or 3.6 %, down by JPY 836 million (\$ 7.6 million) from the JPY 2.277 million (\$ 20.7 million) or 6.5 %. in the same quarter of 2018.

By product type mobile crane sales were up 23.6 % to JPY 23,396 million (\$ 212 million), or 58 % of the total. Truck loader crane sales were up 28.7 % to JPY 5.584 million (\$ 50.7 million) and 13.8 % of the total. Aerial work platform sales were down 7.7 % to JPY 4,002 million (\$ 36.3 million) and 9.9 % of the total.



Tadano and Demag mark 1 August as the day of completion for acquisition Tadano's acquisition of Demag Mobile Cranes from Terex Corporation

In terms of geography Japan was the origin of 52.6 % of the total sales, down from the 53.6 % in the same quarter of 2018. Of the remaining 47.4 % total outside Japan the largest market, with 14 % of the total, was North America, up 1.9 %, followed by Europe at 11.1 % and up 12.6 %. Asia was up 18.6 % with 9 % of the total.

In outlook, for the first six months of 2019 from April. Tadano forecasts mobile crane sales to increase by 30.3 % to JPY 63,200 million (\$ 574 million). Note exchange rate:used: JPY 110.2 = US\$ 1.

Steel Carriers Infrastructure adds 1,000 tonne Demag AT

Indian crane rental company Steel Carriers Infrastructure has taken delivery of the first 1,000 tonne capacity class Demag AC 1000-9 wheeled mobile crane in the country.

Work will include wind, infrastructure, energy,

refineries, offshore, petrochemicals and oil and gas. The new machine will minimise downtime at refineries during turnaround and maintenance work, the company said.

Commenting on the acquisition, a company

spokesperson said, "As we continue to expand, we remain committed to procuring and maintaining the most modern and state-of-the-art equipment available to ensure maximum performance and efficiency to serve our growing customer base throughout India."

Known locally by the name of its parent company Fakirchand Ramsaran, the business has a history of five generations.



Lincoln, UK-based construction company Abba Plant Hire has purchased a Liebherr LTC 1050-3.1 compact mobile crane.

The LTC 1050-3.1 has a double fly, with integrated assembly jib, sheaves and searcher hook, that can be offset by 0, 20, 40 and 60 degrees. The crane also has a height adjustable operator's cab and Liebherr's VarioBase outrigger system.

Tracy Bourne, ABBA director, commented, "We have a long-standing relationship with Liebherr which made the decision to purchase this additional crane an easy one. The versatility of the three-axle LTC 1050-3.1 really sets it apart and will ensure we continue to supply our everincreasing customer base with the latest technology and innovations within this sector of our business. The crane was a big hit on our stand at the Lincolnshire Show and I am sure the LTC 1050-3.1 will be a hit with our customers too."



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Chinese crane manufacturer XCMG has delivered its first XCG55TE telescopic crawler crane in Europe. The 55 tonne capacity crane is being used on the TurkStream project jobsite, a natural gas pipeline construction scheme running from the Russian Federation to Turkey. It was delivered to a contractor in Bulgaria by Ingconsult, the XCMG dealer for Bulgaria.

According to the Chinese manufacturer, the crane complies with the 2006/42/EC **European Machinery Directive.** It has a five-section, 41 metre boom and can be equipped with a jib between 9.5 and 16 metres long.

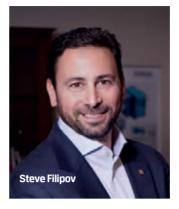
Filipov joins Manitex

Steve Filipov has been appointed chief executive officer and director at US crane maker Manitex International.

Manitex is headquartered in Bridgeview, Illinois, and has operations worldwide, in truck mounted and knuckle boom cranes and aerial platforms. Its brands include Manitex. PM. Badger, Little Giant, Oil & Steel, Manitex Valla and Manitex Sabre.

Filipov stated that his primary objective at Manitex was to "accelerate the transformation of the PM knuckle boom [articulating loader business into an efficient and world-class operation."

Filipov joined Manitex on 1 September after a long career at Terex Corporation, He started in 1993 as its youngest international manager, moving on to senior management and executive roles. Most recently he was Terex Cranes president,



from 2016 until the sale of Demag Mobile Cranes to Tadano at the end of July 2019.

"I am excited about the opportunity to work with the team here at Manitex International," said Filipov. "It is our number one objective to accelerate the transformation of the PM knuckle boom business into an efficient and worldclass operation, with industryleading global production and distribution capabilities.

"I believe that my substantial international experience in the crane industry will be a valuable asset in the development of the PM business. I have known the team at Manitex International for many years, and I'm confident that we will be able to build on their substantial progress, working together towards the successful execution of our business objectives," Steve Filipov continued.

Langevin, who has been Manitex CEO and chairman since 2006, will remain with the company as executive chairman. He will continue to be involved full-time, focusing on strategic planning, corporate finance and relationships with strategic and investment partners.

Filipov said he would make a personal investment in Manitex shares "to better align my economic interests with those of other Manitex shareholders."

Ulferts fits-out ship

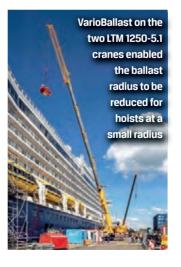
German crane and heavy haulage contractor Ulferts used two Liebherr LTM 1250-5.1s and a Liebherr LTM 1100-5.2 wheeled mobile hydraulic cranes at the Meyer-Werft shipyard in Papenburg, Germany, to install the last pieces of equipment onboard the Spirit of Discovery passenger ship.

The ship is 236 metres long, 31.2 metres wide, and designed for 999 passengers. Due to its size, Ulferts set up both the 250 tonners with their full ballast of 88 tonnes. The one at the stern of the vessel was used with a lifting radius of 44 metres and loads up to 10 tonnes.

The LTM 1250-5.1, which was responsible for covering the centre of the vessel, was set up with an hydraulically adjustable lattice fly jib so it could complete lifts over the edge of the ship at a height of around 50 metres, reaching over the centre axis of the vessel. Loads of 7 tonnes on a radius of 40 metres were hoisted to install the main funnel.



Two LTM 1250-5.1s and a Liebherr LTM 1100-5.2 were used by Ulferts



In addition, the space available on the pier for the three 5-axle wheeled mobile cranes to operate in was constricted as the area was still being used to fit-out the ship. According to Liebherr, the VarioBallast feature on the two LTM 1250-5.1s was useful as it enabled the ballast radius to be reduced for lifts with a small radius.

The Spirit of Discovery has now been handed over to British cruise shipping line company Saga Cruises.

ECOL gains ISO 9001 certification

ESTA's European Crane Operators' Licence has been awarded ISO 9001-2015 certification after completing the required audit.

It means ECOL can now apply to have the licence registered and recognised by the Dutch NLQF qualifications framework. Through the NLQF it will be aligned with the European Qualifications Framework (EQF) across Europe.

The ISO 9000 family of quality management standards is designed to help organisations ensure they meet the needs of customers and other stakeholders while meeting statutory and regulatory

requirements. ISO 9001 stipulates requirements for organisations wishing to meet the standard must fulfil.

ISO certification represents another major step forward for ECOL, the biggest and most ambitious project ever undertaken by ESTA.

Ton Klijn, ESTA director, will give a presentation on the ECOL licensing scheme at the World Crane and Transport Summit, in Amsterdam, Netherlands, on 13 and 14 November 2019.

ECOL's awareness is growing. It has received 18 new requests from organisations wanting to find put more about becoming

ECOL trainers or examiners. In August the major German organisation GENOSK - the Cooperative for Heavy Transport and Crane Work - agreed to align its training with the ECOL scheme. In addition, four leading crane manufacturers - Manitowoc. Tadano, Terex and Liebherr are aligning their training operations with ECOL and its standards.

Sarens is qualifying its Belgian training facility under ECOL, as is fellow Belgian organisation Comokra. Already qualified are the Mammoet

Academy in the Netherlands and Denmark's EUC-Lillebælt.

Ton Klijn commented, "This is an important and proud moment for the ECOL project and for all of us who have been working so hard to make it a reality. Certification under ISO was a requirement by NLQF for classification of our training system under EQF.

"If everything goes according to plan, we anticipate an answer from NLQF on the classification of ECOL by the end of December 2019. We will start the work on the classification process immediately."

Bravo decom underway

The topside of the Brent Bravo offshore oil platform has been lifted and loaded in by ALE. It is a major part of the decommissioning of the Brent oilfield in the North Sea between Scotland and Norway.

The topside weighed 25,000 tonnes and was lifted for removal in June 2019 by Switzerland-based offshore heavy lift contractor Allseas using its vessel Pioneering Spirit. The lift took four hours.

The topside was then transported by Allseas to the coast off the north east of England where it was transferred to a purpose-built 57 x 200 metre barge and towed to the marine decommissioning specialist Able UK facility at Able Seaton Port near Hartlepool.

There UK-headquartered heavy lift and transportation specialist ALE carried out the load-in of the topside. The barge was manoeuvred in front of the quayside and ALE installed skidding equipment on the demolition pad, plus several hinged link beams, extending the skid tracks from the barge to the quay for safe and stable load-in.

The topside was then taken over onto the skidding system using the internal hydraulic cylinders of the skid shoes. This system comprised 12 x 500 tonne skid shoes, 48 x 650 tonne skid shoes, 12 x 800 tonne skid shoes, 32 push-pull units and three hydraulic power units. It was



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At the World Crane and Transport Summit (WCTS) in November Blanca Claeyssens, a former airline captain and pilot instructor, will highlight



safety strategies from the aviation industry that can be applied in heavy lifting and specialized transport.

Claeyssens, managing director at ASA France, a risk mitigation and insurance claims business, has more than 20 years' experience in aviation, flying Boeing 737 and 767 aircraft and training cockpit and cabin crews on safety techniques.

She will focus on aviation best practices and outline the importance of communication. Her presentation will show the implications when situational awareness is lost during a heavy lift and transport project.

"Aviation has made significant progress over the last 60 years, with zero accidents in 2017, the safest year on record for commercial air travel," says Claeyssens.

"Our project cargo industry has a long way to go to match that, but the established techniques from aviation can be transferred to our industry and help us close the gap."

WCTS, which is organised by KHL Group and International Cranes and Specialized Transport, takes place in Amsterdam on 13 and 14 November. To see more details on the programme and to book your place, see: www.khl-wcts.com

Other conference participants include the following:

- Fabio Belli (Fagioli) KEYNOTE SPEAKER
- Erich Sennebogen (Sennebogen) KEYNOTE SPEAKER
- Diederick Nelissen (McKinsey & Co)
- Gert Hendrickx (Sarens)
- Chris Sleight (Off-Highway Research)
- Iffet Türken (Kässbohrer)
- Oliver Fries (WireCo)
- Nick Lamb (Cleveland Bridge)
- Peter Gibbs (Ainscough Crane Hire)
- Klaus Meissner (Tadano Demag Mobile Cranes).

The event is supported by ESTA and SC&RA.

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Wolff towers save time



German construction company GWI Bauunternehmung used two flat top cranes from Switzerland-headquartered crane manufacturer Wolffkran, to build a 21 storey apartment and medical services building on the former site of the Dominikus Hospital in Düsseldorf, Germany.

The two cranes erected on the site were a Wolff 7534.16 and a Wolff 6015.8, with respective jib lengths of 50 metres and 37.5 metres. The cranes were erected freestanding for final under hook heights of 93.3 metres and 82.5 metres. respectively. To provide the required stability for lifting both cranes were mounted on a foundation anchor embedded in concrete. The higher 7534.16 also had a BT 29 tower section with external dimensions measuring 3 x 3 metres at the base of the tower.

A 250 tonne capacity wheeled mobile crane was used to assemble the 7534.16 to a height under hook of 48.30 metres. Next, the already operational tower crane assembled the smaller 6015.8 unit to a basic height under hook of 37.5 metres. When structural work on the high-rise reached a height



The 7534.16 was used to assemble the 6015.8 to a basic hook height

of around 40 metres, the 7534.16 was climbed to a final height under hook of 93.3 metres and in turn used to bring the 6015.8 up to its final height. This was done by disassembling the entire slewing unit, adding more tower sections to the existing tower and finally reinstalling the slewing unit.

According to Wolffkran, this method saved time and money and was necessary due to the tight working conditions. The higher standing Wolff 7534.16 is also equipped with an elevator for the operator.

Once the building was structurally complete, the 6015.8 was dismantled while the 7534.16 remained on the project to help finish the building work.

The Rheintower medical and residential building is a mix of medical practices and apartments. Work started in March 2017 and the finished building stands 72 metres tall. Five medical practices are located on the ground floor and another 20 over floors one to four. Above this are 65 apartments. Total floor area is 8.500 square metres.

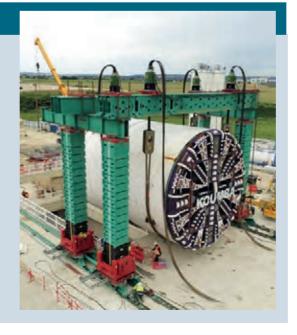
TBM LIFTED AND LOWERED

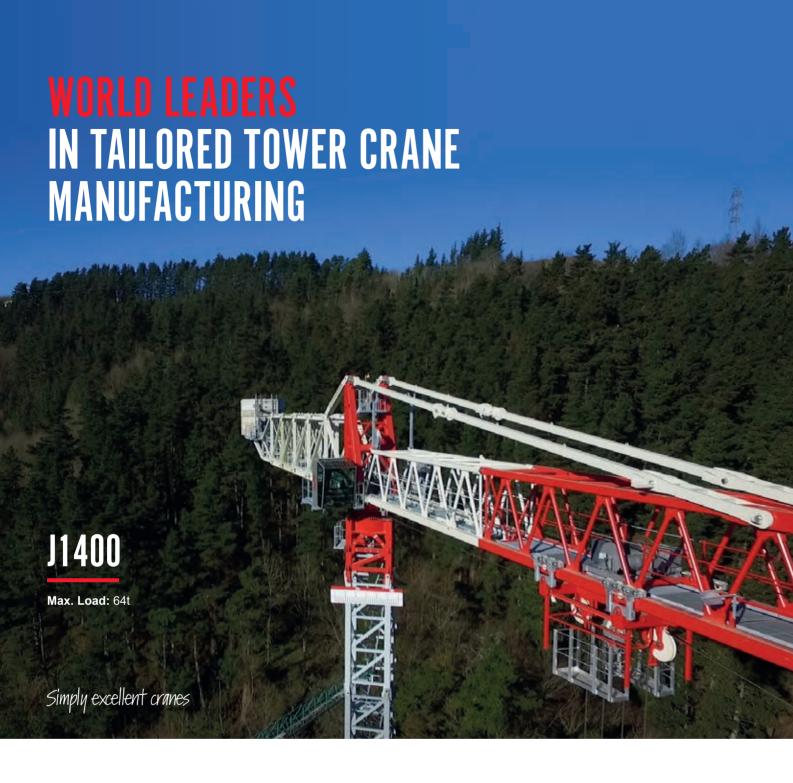
French heavy lift and transportation company Scales SAS used an Enerpac JS-250 jack-up gantry system to lift and lower a tunnel-boring machine (TBM) weighing 880 tonnes.

The TBM, named Koumba, is 8.9 metres in diameter and 11.4 metres long. It is being used in the latest phase of the Paris Metro extension project.

Enerpac's JS-250 jack-up gantry has a capacity of 250 tonnes per tower and the hydraulics are self-contained. Four towers were used for the gantry setup. Loads are lifted in increments as steel barrels are stacked together to form lifting towers.

The tunnel boring machine weighs 880 tonnes and was lifted using Enerpac's JS-250 jack-up gantry







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There's been a decline across the board, compared to last month's figures, for all but one of the companies in our index. CHRISTIAN SHELTON reports

A sinking feeling

ongmao Holding is the stand-out company this month as it is the only one to demonstrate a positive percentage change compared to last month's share index analysis.

In its annual report for FY2019 the tower crane manufacturer announced year-on-year increases in revenue and absolute gross profit of 35.5 and 26 percent, respectively. This has been fuelled by demand for tower cranes across the Asia Pacific region, with Yongmao reporting several key deals being signed. This includes a memorandum of understanding with Tiong Woon Corporation Holding of Singapore, securing an order for a total of 17 type STT1330 and

STT1830 flat top tower cranes. In addition, Yongmao has launched one of the world's largest tower cranes, the STT3930, designed to work on mega-scale construction projects, which may well have boosted investor confidence.

This is strengthened further by the Chinese government announcing it would ramp up infrastructure spending by RMB 1.35 trillion (US\$ 188 billion) in a bid to mitigate the effects of the US-China trade war.

Another possible contributing factor to Yongmao's good fortunes is that the prefabricated construction method in China is also continuing to take root, and the Chinese government is targeting for 30 per cent of

newly added buildings to be prefabricated by 2026.

In Singapore, local regulators have also prepared initiatives that are likely to give Prefabricated **Prefinished Volumetric** Construction (PPVC) a further boost. An upcoming Off-site Construction Special Scheme will reduce labour costs at prefabrication facilities, while the SGD295 million (US\$212 million) **Productivity Innovation Project** scheme will help lower the adoption costs of technologies that improve productivity and re-engineer work processes, including PPVC.

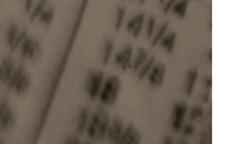
Elsewhere in the listing companies are faring less well, notably Terex and Manitowoc. The Terex decline could perhaps be attributed to the acquisition of the company's Demag brand by Tadano and the sale of its boom truck business in the USA. The departure of Steve Filipov, Terex Cranes president, perhaps further dampened investor confidence.

Manitowoc's negative percentage change compared to last month is also notable. Commenting on secondquarter financial results Manitowoc president and CEO Barry Pennypacker reported weakness in the Middle East and unfavourable changes in foreign currency exchange rates, as well as a slowing of North American orders as customers became more cautious as a result of uncertain market conditions. These could all possibly contribute to the lower index figure.

SEPTEMBER IC SHARE INDEX

STOCK	CURRENCY	PRICE AT START	PRICE AT END	PRICE CHANGE	% CHANGE	PRICE 12 MTHS AGO	12 MTH % CHANGE
IC Share Index*		71.13	61.05	-10.08	-14.17	55.11	10.79
Legacy IC Share Index**		253.18	218.89	-34.29	-13.54	326.96	-33.05
Dow Jones Industrial Average		27,192	26,362	-830	-3.05	26,125	0.91
FTSE 100		7,549	7,219	-330	-4.37	7,512	-3.91
Nikkei 225		21,658	20,704	-954	-4.40	22,870	-9.47
Hitachi Construction Machinery	YEN	2,569	2,270	-299	-11.64	3,340	-32.04
Konecranes	€	27.74	26.83	-0.91	-3.28	34.50	-22.23
Kobe Steel	YEN	701	554	-147	-20.97	944	-41.31
Liugong	CNY	6.89	6.17	-0.72	-10.45	11.14	-44.61
Manitowoc	US\$	17.78	12.28	-5.50	-30.91	23.66	-48.10
Palfinger	€	24.55	22.75	-1.80	-7.33	31.00	-26.61
Sany Heavy Industry	CNY	14.65	13.47	-1.18	-8.05	8.93	50.84
Tadano	YEN	1,016	939	-77	-7.58	1,225	-23.35
Terex	US\$	32.88	24.62	-8.26	-25.11	39.71	-38.00
XCMG	CNY	5.01	4.29	-0.72	-14.37	4.09	4.89
Yongmao Holding	SGD	0.70	0.79	0.09	12.86	0.50	58.00
Zoomlion	CNY	6.36	5.30	-1.06	-16.67	3.91	35.55

C Share Index, 1 Jan 2011 = 100 **Legacy IC Share Index, end April 2002 (week 17) = 100



EXCHANGE RATES - VALUE OF US\$										
CURR	RENCY	VALUE AT START	VALUE AT END	VALUE CHANGE	% CHANGE	VALUE 12 MTHS AGO	12 MTH % CHANGE			
CNY		6.874	7.148	0.2743	3.99	6.84	4.58			
€		0.8972	0.9057	0.0085	0.95	0.8575	5.61			
Yen		108.67	106.42	-2.25	-2.07	111.37	-4.44			
UK£		0.8030	0.8216	0.0186	2.31	0.7690	6.84			

Period: Weeks 30 to 35

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More records

Continuing along the same path as in the last few years, the 2019 IC Tower Index once again shows strong growth. ICST reports

eports of a buoyant tower crane market have been running for several years and this year's IC Tower Index ranking of the world's largest tower craneowning companies is no exception.

Following last year's "mere" 10 per cent growth, in 2019 we are back up, to a 26.66 % increase in the Top 20 Index. It is much more like the 29 % and 23 % rises of the two years prior to that. If you total just the top five companies then the rise, in percentage terms of 40 %, looks even more impressive. It follows 12, 21 and 25 % rises in the preceding three years' top fives.

A major milestone reached this year for the first time is to break the one million tonne-metres total IC Index figure for the not one but two top companies in the list. As part of that is a change at the top with the return of Shanghai Pangyuan Machinery Rental to the number one position, ending Abu Dhabiheadquartered international giant NFT's three-year reign at the top since the two were the other way around for two years in 2014 and 2015.

Chinese giant Shanghai Pangyuan's rise from third place puts Liebherr down one place to third. Next is Uperio, a combination of Belgium-based previous IC Tower Index leader Arcomet and French tower crane rental major Matebat, which were 9th and 7th, respectively, in last year's table. The two companies share the same owner, LFPI



2019 RANK	2018 Rank	COMPANY	COUNTRY		NUMBER OF EMPLOYEES		NO. OF	LARGEST TOWER (MAKE AND MODEL)	LARGEST TOWER (TONNES)	<i>IC</i> TOWER
1	3	Shanghai Pangyuan Machinery Rental	China	2,059	9,480	Worldwide	5,377	Zoomlion D2500- 120	120	1,161,158
2	1	NFT	Abu Dhabi, UAE	20	1,695	Worldwide	2,586	Potain MD 2200	80	1,075,895
3	2	Liebherr Tower Crane Division	Germany	22	2,200	Worldwide	1,747	Liebherr 4000 HC 100	100	492,784
4	n/s	Uperio (formerly Arcomet and Matebat)	France	23	550	Worldwide	2,200	Potain MD 689 M25	25	324,487
5	5	Tat Hong Equipment Service	China	10	3,278	Continental	1,063	Yongmao STT3330	160	242,954
6	6	Wolffkran	Switzerland	19	850	Worldwide	729	Wolff 1250 B	60	202,769
7	4	Morrow Equipment	USA	20	317	Continental	558	Liebherr 710 HC-L 32/64	64	201,581
8	8	Maxim Crane Works	USA	56	3,615	National	373	Wolff 1250 B	60	163,909
9	10	Neremat	Belgium	17	220	Continental	506	Potain MD689	40	132,189
10	11	Bigge Crane and Rigging	USA	18	1,050	National	242	Comedil CTT 721-40B	40	122,510

2019 RANK	2018 Rank	COMPANY	COUNTRY		NUMBER OF EMPLOYEES		NO. OF	LARGEST TOWER (MAKE AND MODEL)	LARGEST TOWER (TONNES)	<i>IC</i> TOWER
11	12	Van der Spek	Netherlands	7	200	Worldwide	460	Liebherr 1000 EC-H.20/40 Litronic	40	122,000
12	13	Select Tower Cranes	UK	6	1,200	Worldwide	450	Comedil CTL 630	32	105,950
13	15	Marr Contracting	Australia	6	80	Worldwide	65	Favelle Favco M2480D	330	96,446
14	14	Wilbert TowerCranes	Germany	5	204	Worldwide	320	Wilbert WT 3000 e.tronic	200	86,500
15	18	SanteCrane & Equipment	Singapore	6	100	Continental	195	Yongmao STT1830	n/s	81,306
16	16	Wasel	Germany	15	480	Continental	435	Liebherr 630 EC-H 40	40	76,400
17	19	BKL Baukran Logistik	Germany	6	300	Continental	504	Linden Comansa 21 LC 750	50	75,100
18	17	Falcon Tower Crane Services	United Kingdom	3	415	Worldwide	403	Jaso J780PA.64	64	72,979
19	20	Tiong Woon	Singapore	2	59	National	138	n/s	64	67,925
20	n/s	Favelle Favco	Malaysia	10	540	Worldwide	144	Krøll K10000	150	61,400

Group, and were amalgamated in April 2019, producing a company basically double the size of the two separate ones, hence the move up, to 4th place.

Next in the table are Tat Hong and Wolffkran in 5th and 6th places, respectively, for the last three years now. Morrow is after that, down three places to 7th following the sale of its operations in Australia and New

Shanghai Pangyuan Machinery Rental regains the top slot after three years in second and third place

Zealand to Liebherr on 1 January 2019. Morrow this year has 108 fewer tower cranes, 20 depots instead of 23, and 317 instead of 329 employees. Its Tower Index, at 201,581, is 12 % down on the 230,110 of 2018.

Turning again to Liebherr, its 2019 Tower Index is up a tidy 3.74 % and another 100 employees have been added to make the total 2.200. It is interesting to note that the number of cranes is down, from 1,793 to 1,747. It indicates that larger cranes with higher tonnemetre ratings have replaced smaller units in the fleet mix.

Looking further down the table, Maxim Crane Works from the USA retains 8th place and adds about 10,000 tonne-metres to its Index. Next is Neremat, up one place to ninth with a strong 12 % increase in its Index. Rounding out the top ten is Bigge, having moved up from 11th last year and 13th the year before that. In the second half of the top 20, six companies are up, two are the same, one is down and the other is a new entry, Favelle Favco in Malaysia, at 20.

Totals for the 20

The total Index for all the top 20 companies is now very close to the 5 million mark at 4,966,242, up from a total of 3,920,859 in 2018. It is just over double the 2,248,237 total of five years ago in 2014. Applying the same to the top five companies, the total has doubled in the last three years. At 3,297,278 points, the 2019 top 5 total is approaching the 2017 total for all 20 companies.

It is great to see that there are more than 4,000 more cranes in the fleets of the top 20 companies than last year. The 2019 total

is 18,495 units, up 32 % on the 2018 total of 14,028. The 2018 increase over 2017 was just 372 units or 2.72 %.

Good news, too, for employment in that there is an increase in the total of the top 20 companies of more than 6,000 people, or a massive 32 %, to 26,833 people, up from 20,318 in 2018. The vast majority of extra people are at Shanghai Pangyuan. In 2018 the total increase was just 6.7 %.

After all these increases it was perhaps surprising that the number of depots was lower by 352, or 13 %, to 2,330.

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. 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 information, companies are withdrawn from the table.

While we make great effort to ensure the accuracy of information provided, it cannot be guaranteed and International Cranes and Specialized Transport 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 2020. If you think your company should be included please contact ICST for an application form.





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ith the growth in global population cities around the world are also growing – both horizontally and vertically. With city centre space at a premium, tower cranes continue to prove key construction tools. As such, the tower crane market is continually evolving with manufacturers adding to their product lines. Here we take a look at some of the most recent market developments.

Spanish tower crane manufacturer
Comansa has launched the 21LC1400. It is
available in either 50 or 66 tonne maximum
load versions. Maximum working radius is
84.4 metres and the maximum tip load is
7.6 tonnes. Its maximum free-standing height
is more than 91 metres. Comansa expects it to
be primarily used in for PPVC (prefabricated
prefinished volumetric construction) and
infrastructure applications. The crane's
counterjib has a modular design that allows
the counter radius to be reduced for cramped
jobsites. It also has a new single and compact
trolley as opposed to Comansa's standard
double trolley system.

Italy-headquartered tower crane manufacturer Raimondi has announced a 370 tonne-metre-rated luffing jib model. The LR372 will lift 20 tonnes on two falls of rope and has maximum 60 metre jib. Capacity at maximum radius is given as 3.63 tonnes. It has a 110 kW hoisting winch and maximum

lifting speed is 250 metres/minute. Rope capacity on the main drum is 880 metres and there is an auxiliary hydraulic emergency brake as standard.

The luffing winch is 75 kW and has a secondary emergency brake as standard. Raising the jib from 15 degrees to 85 degrees takes just over 2 minutes under full load, the manufacturer says.

Installation can be on one of two masts



without an adapter section. For internal climbing it can be on the 2 metre GR5H. The 2.3 metre GR6 series can be used for other applications. GR6L tower sections can be installed on embedded legs or on an 8 x 8 metre cross base. Tower height is up to 84.4 metres.

The first two LR372s were delivered to Raimondi's official South Korean agent, Hansung Prime Co., for a large-scale development in Busan. The new cranes will be installed to reach heights of 222 metres and 228 metres, respectively, with Raimondi's EC6L external climbing system.

To facilitate fast and safe access to its tower cranes Raimondi offers the SL20-TC tower crane lift. It can be fitted to a range of existing tower crane brands and systems and it has a load capacity of 200 kg. It has a speed of 24 metres per minute and a maximum height of 150 metres. The lift has a tie distance of between 4.5 and 6 metres for ease of assembly. It can be moved between different tower sections without the mast structure requiring any modification and can be erected from the cabin roof. In addition, the SL20-TC elevator is fitted with front and side windows meant to facilitate easy crane inspection.

Minimum radius

New from Switzerland-headquartered tower crane manufacturer Wolffkran is the Wolff



133 B. It's a small hydraulic luffing jib crane which succeeds the Wolff 100 B. The hydraulic luffing system allows for an even smaller outof-service position than is possible with the conventional rope-based luffing system, says Wolffkran. It also means faster installation, as no luffing rope reeving is required.

It is available in two versions: one with a capacity of 6.2 tonnes and a tip load capacity of 2.6 tonnes, with a maximum jib radius of 45 metres: the other has a capacity of 8 tonnes and a tip load capacity of 2.3 tonnes.

The crane can be used in single or two-fall modes, with both modes being able to use a single-fall hook block, enabling peak load capacity to be increased by a further 250 kg. The crane has a 25 metre basic jib, that can be extended in increments of five metres up to a maximum of 45 metres. Its maximum freestanding height is 95 metres. The crane is supplied with 2 x 2 metre UV 20 tower sections. A connection to a 1.5 x 1.5 metre tower section is in development.

The six tonne version has a 28 kW hoist winch (type Hw 628.1 FU) which has a partial load speed of up to 108 m/min, while the eight tonne version's hoist winch has a 45 kW electric motor (type Hw 845 FU) which has a maximum partial load speed of 158 m/min. The hydraulic cylinder and the hydraulic unit are installed in the connecting block meaning that the hydraulic lines do not need to be disconnected for transport and assembly.

As well as a new flat top Wolffkran also has a new chief technology officer (CTO). Dr. Peter Barton is responsible for technology and research and development. Barton's CV includes head of development at drive technology company SEW-Eurodrive and general manager engineering drive

technology at Liebherr Components, Barton highlights two areas he plans to focus on as being safety and technology. "In terms of safety and technology... we want to continue setting high standards as highly innovative leaders," he said.

New from Potain

Milwaukee, USA-headquartered crane manufacturer Manitowoc has launched the Potain MCT 325 to be sold across Asia-Pacific. the Middle East, Africa, Latin America, Russia and CIS countries. It is designed to replace the MC 310 model and deliveries start in September 2019.

It is available in 12 tonne and 16 tonne capacity versions. Jib length configurations are from 40 to 75 metres, in increments of 5 metres. At its 75 metre jib end, the MCT 325 can handle 2.5 tonnes for the 12 tonne version. and 2.3 tonnes for the 16 tonne version. The MCT 325 can be setup within 1.5 days, with the complete jib and counter jib erected in four lifts. The MCT 325 is designed to work with the 2 x 2 metre L68 and L69 mast systems.

Manitowoc has also launched the Potain MDT 809 - the largest flat top crane it has built to date. Capacity is 40 tonnes and the jib can be up to 80 metres.

The MDT 809 transports in either 10 or 11 containers, depending on the winch option. The crane also has a new 7.9 metre cross base that offers the performance characteristics of a 10 metre chassis but requires only one container for transport.

Manitowoc claims the Potain MDT 809 typically assembles twice as fast as other 40 tonne cranes. With its full jib, the crane can be assembled at a 50 metre working height in

HUBA SEEKING AGENTS

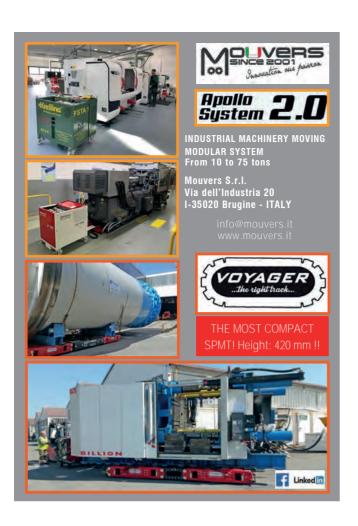
Chinese tower crane manufacturer Huba Group is looking for agents around the world for its product range. The Huba Group comprises multiple affiliated companies, namely: Zhejiang Huba Construction Machinery Co.; Haining Huba Heavy Industry Co.; Zhejiang Austin Investment Co.; Jiaxing Huawei Automatics Co.; and Construction Machinery R&D Centre of Zhejiang Province. It has more than 1,000 employees, occupies a site of 320,000 square metres, and has a turnover of CNY 120 million (US\$16.7 million), For more information, see: www.zjhuba.com. If you are interested in becoming an agent for the company, please contact foreign trade manager Hermes Sun at: hermes.sun@zjhuba.com

less than three days, the company said.

Another new Potain tower crane is the MRH 125, the first hydraulic luffing jib model from the company's European range. Manitowoc says it combines luffing jib and flat top capabilities. Capacity is eight tonnes while the maximum jib is 50 metres, with a capacity of two tonnes at the jib end. Users can configure the crane in freestanding heights to 57.9 metres, while line speeds of up to 118 m/min are available from the 50LVF20 hoist winch.

The upper portion of the crane transports in four containers with the counter jib and jib foot travelling as a single package. The crane's WH hydraulic luffing mechanism and cylinders are pre-connected at the factory, meaning no assembly is required on site.











Liebherr has launched the first eight cranes of its fully redesigned EC-B series of flat tops

The hydraulic power of the VVH mechanism means there is no need to install luffing rope during installation. The hoisting winch, maintenance derrick, and jib wind side plate are also pre-installed.

Manitowoc says the jib can be raised from the horizontal to near vertical (88°) in two minutes, while the counterjib measures just 7 metres and is simple to connect during assembly. The out-of-service weathervaning radius is 10 metres, whatever the jib length. Manitowoc says this is particularly suitable for working on tight job sites.

Manitowoc has sold five MRH 125s to UK rental company Skyline Arcomet (part of Uperio). Darren Whitford, managing director at Skyline Arcomet, commented, "We chose the new MRH 125 because it provides a strong return on investment for owners," he said. "The crane's adaptable design makes it suitable for all kinds of congested urban job sites, while transport and assembly times have also been optimised. These traits will be greatly appreciated by our customers."

CALLING IN THE MEN FROM MARR'S

Australian-headquartered heavy lift luffing tower crane designer and complex craneage services supplier Marr Contracting (The Men From Marr's) has successfully completed the dismantling of its Favelle Favco M860DX at the Multiplex ICD Dubai Project.

The M860DX is available with 32 tonnes capacity on one fall, 64 tonnes on two falls and 96 tonnes on three falls. Lifting capacity is 9.5 tonnes at 70 metres maximum radius. Maximum lifting speed is 196.6 m/min. A 12 tonne capacity fly jib is an option on the M860DX. Its maximum freestanding height on the standard tower system is 64 metres. Tail radius is 9 m with steel ballast blocks for easy handling.

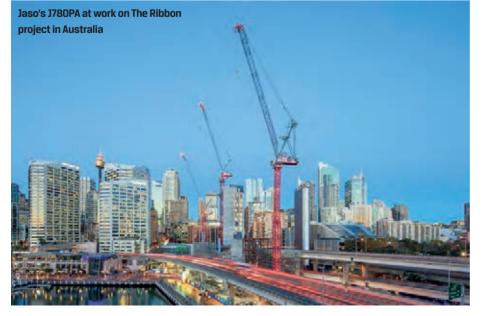
The M860DX was internally climbed 300 metres to the top of the tower and was used in conjunction with Marr Contracting's Favelle Favco M2480D heavy lift luffer (330 tonne capacity) to install heavy structural steel elements weighing up to 100 tonnes. Over the life of the project Marr Contracting says its cranes managed a 99.99% availability rating.



To aid operator access Manitowoc, in conjunction with industrial elevator manufacturer Geda, has developed a new operator lift for its Potain top-slewing cranes. The new Potain Cab-In is an internal mast operator lift that can accommodate up to two people, to a maximum weight limit of 200 kg. It is compatible with all K-mast bases and

chassis and fits existing and new models.

Switzerland-headquartered multinational equipment manufacturer Liebherr has launched the redesigned EC-B series of flat top tower modelss. The first eight cranes in the new EC-B series are the 125 EC-B 6, the 220 EC-B 10, the 220 EC-B 12, the 240 EC-B 10 Fibre, the 240 EC-B 12 Fibre, the 340 EC-B 12. the 340 EC-B 16 and the 370 EC-B 12 Fibre. Maximum load capacity ranges from 6 to 16 tonnes and the maximum jib head load capacity ranges from 1.6 tonnes to 2.8 tonnes-working at a maximum radius. The 125 EC-B 6 reaches 58 metres while the two largest cranes of this series, the 340 EC-B 12 and the 370 EC-B 12 Fibre, both have a reach of up to 78 metres.



More performance

The three 'Fibre' designated cranes are equipped with SoLite high-tensile fibre rope, which has been developed over a period of ten years by Liebherr and Austrian rope manufacturer Teufelberger. According to Liebherr, the fibre rope cranes offer up to 20 percent more jib head load capacity compared to cranes using steel rope. It says fibre rope also has a four times longer service »



- NFT is the exclusive dealer for the CE certified PEGA hoist; the same brand used for the Burj Khalifa project in Dubai.
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life than steel rope. As the fibre rope only weighs around a fifth of steel rope, reeving the hoist rope is also easier in terms of handling, says Liebherr. In addition, maintenance is less complicated as the fibre rope doesn't need any lubrication.

Liebherr says it has also been enjoying strong demand for its LiUp crane operator elevator, particularly from France and Scandinavia. The lift is capable of transporting up to two people or a payload of 200 kg. The preinstalled guide rails are connected to each other by quick release fastenings as the tower is being erected. The elevator uses a lithium-ion battery which means no additional supply cables, cable drums, or drag cables are required.

A remote control can be used to send the elevator to its parking position at the foot of the tower to charge its battery in the docking station. Charging takes less than an hour, savs Liebherr.

The elevator's stopping positions are monitored by three limit switches, while a clasp brake reacts if the elevator starts to travel too fast. When the lift is lowered, the drive concept recovers up to 40 % of the energy used.

Spanish tower crane manufacturer Jaso has launched the J780PA luffing jib tower

crane, which is part of its PA series. There are two versions of the crane: the first one has a maximum capacity of 75 tonnes, a range of 70 metres and a 220 kW main hoist motor: the second model, the J780PA.64, can lift up to 64 tonnes. The J780PA can be assembled in less than three days in a small space, says Jaso. The first unit is working on The Ribbon project in Sydney, Australia.

Biagest luffer

Jaso has also launched the J1400 top slewing tower which is part of its Top Line - H series. It can lift up to 64 tonnes and has a maximum reach of 80 metres. The crane has a short tower top and a modular, collapsible counter jib. It has a tip load of 10.5 tonnes at an 80 metre radius.

The shortest boom is 25 metres, Capacity is still 36 tonnes at a 40 metre radius. Increasing the hook height to 150 metres only reduces capacity by 1.4 tonnes, to 34.6 tonnes. even though there is all that extra weight of the steel hoist rope.

"This crane is specifically designed to easily lift PPVC loads of 35 to 40 tonnes to a height of 150 metres without a loss of load chart due to the weight of the 28 mm diameter

Terex's T-Lift operator elevator

wire hoist rope," explains Dick Huitema, Jaso area manager

Jaso has also launched the JL25 tower crane operator service lift. It can lift two people or 250 kg to a height of 100 metres. Lifting speed is 22 metres per minute and it uses two geared motors with an electromechanical brake.

Elevation at Terex

Tower crane manufacturer Terex Cranes has also developed a new operator elevator called >>>





LTC TO OFFER SAEZ IN THE UK

London Tower Cranes has taken on the United Kingdom distributorship for Spanish tower crane maker Sáez. With it came an order for 50 new tower cranes to be delivered over the next two years. It will be a mix of saddle jib, hydraulic luffing jib and conventional luffing

SAEZA CARACTERISTA CONTRACTOR CON

cranes. LTC will handle all sales and service enquiries and will offer Sáez cranes in its rental fleet.

Commenting on the deal, Juan Ballester from the Sáez sales department, said, "for us it is a pleasure to work with LTC because they know our cranes really well, which is key to achieving complete safety and customer satisfaction. In addition, they are extremely professional and we make a great team together. After so many years working together, we have complete faith and trust in each other."

London Tower Cranes is UK distributor for Sáez

T-Lift. It has a payload of 200 kg and is capable of transporting two people. Its maximum lifting height is 160 metres and it can be fitted or retro fitted to all Terex tower cranes. It is a rack and pinion system and there are two models with different maximum lifting speeds: the electromechanical system has a maximum speed of 24 metres per minute,

while the electronic version using inverter technology has a maximum speed of 40 metres per minute. The lift has an overspeed safety brake and an overload safety system. According to Terex, the lift is quick and easy to install.

Terex Cranes has also announced the formation of a new commercial team to

manage the sales, support and training efforts for its tower and rough terrain cranes in the Americas. Chris Johnson will direct efforts for North America, while Manuel Vicuña Galarreta has been tapped to drive growth in Central and South America. Both will report directly to global director of sales for tower cranes and rough terrain cranes, Lee Maynard. "These are important appointments that re-establish the global commercial organisation for tower cranes and RTs," says Maynard. "We are excited by the opportunities ahead for both crane lines in the Americas, and we are heavily investing in a team that will help us capitalise on these opportunities and help support our customers' success."

Double deck design

Crane manufacturer ENG in Italy has added a new hydraulic luffing jib tower crane, the EDL 120, to its expanding range.

Capacity is 10 tonnes and it is designed is to occupy as little space as possible. It has a patented system with a double counter jib. This feature makes it the luffer with the shortest slewing radius (4.5 metres) on the market, said Giulia Natella, ENG representative. The double counter jib allows the crane to be installed where others with

>>





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TOWER CRANES AND OPERATOR HOISTS



the same capacity cannot because they are too big, Natella continued. Tip load is given as 2.18 tonnes.

More new cranes on their way from ENG include additional new models in the EDL series, a 25 tonne derrick and also the new 20 tonne capacity ETL 253-20 luffer. In the luffing jib range the company said it is working on further expansion to take it up to the 42 tonne capacity ETL 639.

Made in Poland

Poland's newest tower crane manufacturer, Krupiński Cranes, has designed, built, tested and now delivered its first units

The Krupiński KR 90-5 is a 5 tonner with a capacity of 1.4 tonnes at the end of its maximum 50 m jib. It is the smallest model in the new range. Two more new models are nearly finished, the KR 160-5 and KR 160-8. The former is a low cost 5 tonne capacity model which lifts 2.2 tonnes at the end of its 60 m jib. The latter is an 8 tonner, lifts 2.05 tonnes at the end of its 60 m jib and has a high speed hoist.

The emphasis is on quality at Krupiński Cranes, said Daniel Gwóźdź, chief executive officer. "We make high quality equipment,

with the best possible quality components and drives we can get on the market."

Every crane is delivered with a two year quarantee with an option on a third year, Gwóźdź continued. This compares favourably with the standard 12 month guarantee given by other manufacturers, he said. Watch a video about the new cranes here: https://bit. ly/2lWoqiG

Tight spaces

Chinese tower crane manufacturer Jarlway Xinxin Machinery has developed the JTD series of roof cranes and luffing jib cranes specifically to work in confined spaces, for example, as found in Hong Kong, which is one of its key markets. Jib lengths range between 20 to 40 metres and maximum lifting capacities range between six and 24 tonnes.

The company says one of its best-selling models, particularly in Hong Kong, is the JTD4020D16 which can be used as a luffing crane in the early construction stages and then as a roof crane to remove the tower body in the later construction stages.

Another key market for Jarlway is Australia. It entered the Australian market in early 2018 when it sold two 14 tonne capacity JTL180G14 luffing jib cranes to crane rental company Hardiquip via its Hong Kong agent, Hontrade.



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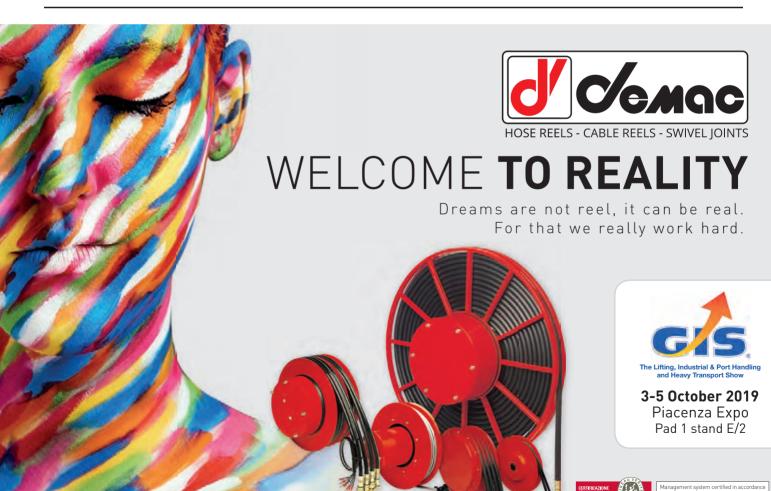
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ALE performed the submarine launch operation in Indonesia. The KRI Alugoro is 61 metres long and weighs 1,331 tonnes

LE transports submarine

Heavy lift and transportation specialist ALE has completed the launch of the KRI Alugoro (405) submarine in Indonesia.

Weighing 1,331 tonnes, ALE transported the submarine from the fabrication shop to the quayside using 60 axle lines of self propelled modular transport (SPMT).

ALE then provided the winches and ballasting required to load-out the 61 metre long submarine onto a barge and seafastened it to the deck.

ALE towed the barge to a dry dock and then transferred it to a floating dock.

The floating dock enabled the submarine to be repositioned before it was set down on a pontoon and then floated. It was then officially launched at a designated pier.

The manoeuvres were performed using sixteen 150 tonne capacity climbing jacks, twelve 400 tonne per hour capacity ballast pumps and four 8 tonne capacity precision winches.

ALE said one of the project's challenges was working within the tidal windows. The company operated both day and night shifts to facilitate efficient time management and, as a

result, completed the project more than four days ahead of schedule.

SPECIALIZED TRANSPORT NEWS

KRI Alugoro was the final vessel to be commissioned as part of a US€1.2 billion contract for three diesel-electric submarines, between Daewoo Shipbuilding and Marine Engineering (DSME) and the Indonesian Ministry of Defence.



The SYT 6/4 shipyard transporter has a payload capacity of 414.5 tonnes

Polish shipyard Stocznia Szczecińska has purchased a SYT 6/4 shipyard transporter, made by Italian heavy transport vehicle manufacturer Cometto, for transporting heavy ship blocks.

The SYT 6/4 transporter has a payload capacity of around 414.5 tonnes and is 16 metres in length.

The 12-axle transporter has electronic steering and hydraulic suspension with a capacity of 40 tonnes and a large suspension stroke that provides constant load distribution to all axles. Four of the axles are driven and eight are braked.

The dimensions of the loading platform are 16,000 x 6,000 mm and the transporter has two operator cabins with a centre of gravity display and air conditioning. The SYT 6/4 also has a radio remote control, an oil and diesel pre-heater, and a grouped greasing system.

Collett makes 400 crane component deliveries

In the UK specialist transport contractor Collett has completed a four-month operation to deliver components to build Belgium-based heavy lift and transport specialist Sarens's 5,000 tonne capacity SGC-250 lattice boom super heavy lift ring crane (aka Big Carl).

Collett said it was contracted to undertake all vessel discharge procedures, heavy lift services and heavy transport operations.

The Yorkshire-based company moved the crane's fabricated steel pieces with a total combined weight of more than 3,000 tonnes. They were carried from Avonmouth docks in

Bristol, a journey of 45 miles (73 km) to the Hinkley Point C (HPC) nuclear power station construction site, in Somerset, south west England. It took the Collett team working two 12-hour day shifts to unload all the components from the delivery ship. A short time frame meant Collett engaged all available crane services, including port cranes, mobile cranes and seven specialized transport vehicles.

The pieces were arranged in a laydown area in the port to an agreed plan for sequential onward delivery to site in the order they'd be needed for the crane's assembly.

The HPC Delivery Management System gave specific routes for the deliveries to prearranged dates and timeslots. In April Collett started transporting the crane pieces to site. Over the next four months Collett made more than 400 deliveries.

It took more than 400 loads for Collett to deliver Saren's SGC-250 to Hinkley Point C





MK Plant's Kryptonite green Volvo FH16-650

Manchester, UK-based low-loader rental specialist MK Plant Transport has put a new Volvo FH16-650 tractor unit into service. The high specification 8x4 chassis, supplied by Pete Schofield, customer solutions manager at Thomas Hardie Commercials, will be used for haulage assignments up to 170 tonnes.

The FH16 has a Globetrotter Cab above Volvo's D16K engine producing 650 hp, which is Volvo's second top power offering in its 16 litre, straight-six engine range. It has a maximum torque figure of 3,150 Nm, which is available between 950 and 1,450 min-1. The rear air suspension, 8x4 pusher tag tridem tractor unit has the I-Shift Crawler gearbox that includes low ratio forward and reverse gears. The unit is finished in Kryptonite green and is the largest capacity Volvo truck operated by MK Plant Transport.



Panama-based transport and logistics specialist Quality Freight International took delivery of two transformers weighing 84 tonnes each, plus accessories weighing 289 tonnes, from a boat in the port of Cristobal, Panama, and transported them to two designated jobsites. The loads were transported using a six-axle truck and ten flatbeds. The company has also transported a 72 tonne boom assembly for a Komatsu excavator from a site in Gamboa, Pamana, to a port in Manzanillo, Mexico, for shipment to Germany.



Kazakhstan's longest ever heavy overland transport

ALE has performed what it claims as the furthest and longest overland transport ever completed in Kazakhstan.

The heavy haulage company transported five out of gauge items across the country. Measuring up to 42 metres long, the size of the cargo necessitated a complex and challenging 3,400 kilometre route.

Bound for a steel plant in Temirtau in the country's north-west Karaganda region. the out of gauge items arrived on several vessels at a port in Bautino on the west coast of Kazakhstan.

The company used three cranes, including a new 750 tonne capacity crawler, to unload the out of gauge items from the vessels and onto waiting trailers, so that the overland journey could begin.

Up to 26 axle lines of self propelled transport were used to transport each of the five out of gauge items. The operation comprised a single convoy and required the support of several local authorities.

ALE carried out numerous engineering calculations to allow the convoy to negotiate overhead obstacles and large structures, including roundabouts and bridges. More than 100 bridges were inspected to ensure they could hold the weight of the super

heavy transport load, which included items weighing up to 150 tonnes.

Bridges that were deemed unsuitable were either reinforced or avoided by building temporary side roads to bypass them.

The abnormal load's journey saw the transport team overcome gradients of

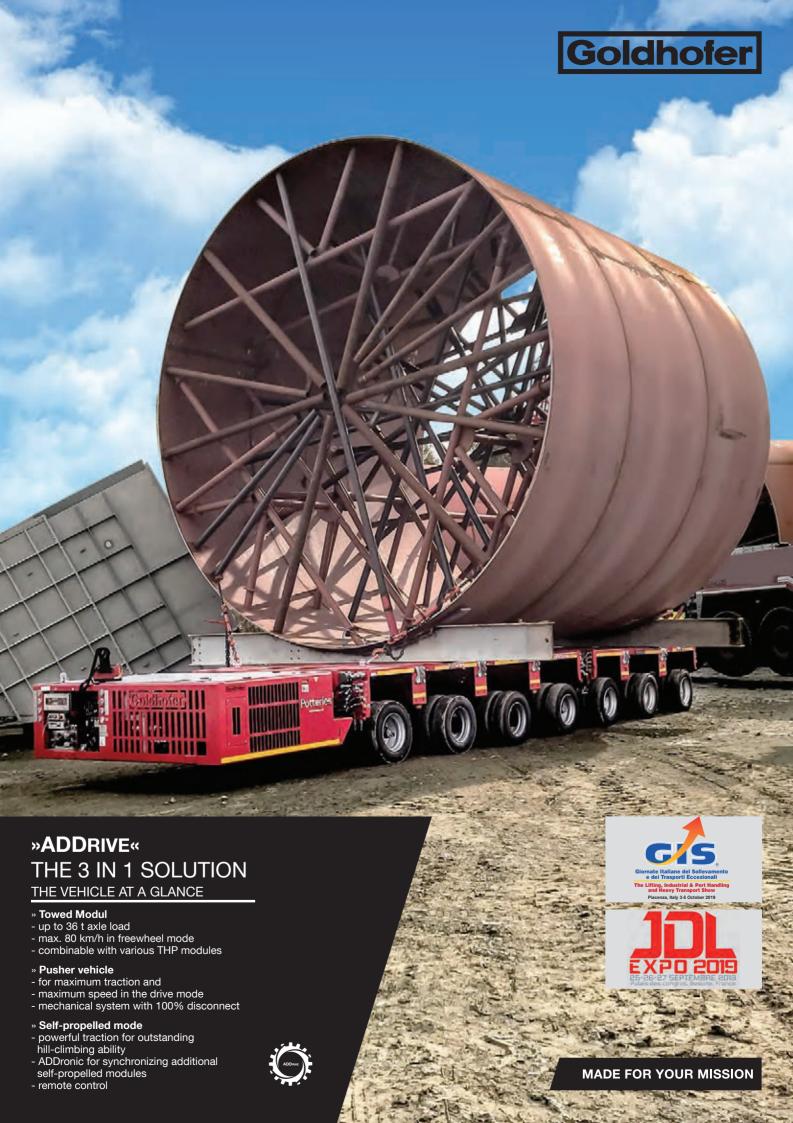
14 %, heavy snowfall, ice and temperatures of minus 30 degrees

ALE said that safety always remained at the core of the project and that conditions were continuously monitored, so the convoy slowed down if required. ALE also brought in specialist vehicles to clear heavy snow and apply substances to deice the roads.

The transport took six months to plan and 75 days to reach its destination.









Maxikraft used its Liebherr LTM 1500-8.1 and LTM 1750-9.1 mobile cranes to hoist the tank

Herzberg, Germany-based logistics contractor Maxikraft hoisted a 108 tonne cylindrical storage tank, measuring 33 metres long, over two obstacles during its transport to Schkopau Power Station in Saxony-Anhalt, Germany.

The storage tank, which began its journey at a factory assembly area, had to be hoisted over a pipe bridge measuring 12 metres high that was blocking its route out of the factory.

Maxikraft used its 500 tonne capacity Liebherr LTM 1500-8.1 and 750 tonne capacity LTM 1750-9.1 mobile cranes, positioned on opposite sides of the pipe bridge, to lift the storage tank.

Daseke CEO retires

Specialized transport and logistics company Daseke has announced that Don Daseke has retired from his role as CFO with immediate effect

The company's board of directors has appointed Chris Easter, Daseke's chief operating officer, to act as interim CEO until a new CEO can be found.

According to the USA-based company Daseke will work with Easter, who joined the company in January, in an advisory capacity to ensure a smooth transition. The retiring CEO has also stepped down as chairman of the board of directors and will now hold the position of chairman emeritus on the company's board.

Don Daseke said, "I am incredibly proud of what we have built over the last decade. Daseke remains a truly unique company, with a platform designed to support future growth on both the top- and bottom-lines. I am leaving the company in the hands of a very strong and deep leadership team across

> the organisation. Investing in people has always been my guiding principle and we have invested in this team, which makes me very confident that they will help Daseke achieve its full potential."

Chris Easter, Daseke chief operating officer, is the company's interim CEO



Floro Transport hauls aircraft

Slovenian transportation company Floro Transport hauled a passenger jet from Jože Pučnik International Airport in Ljubljana, Slovenia, to Dolenjske Toplice, Slovenia, a journey of more than 100 km.

The passenger jet, a Bombardier CRJ 200, weighed 20 tonnes and was 26.77 metres in length. To transport the plane Floro Transport used its two-axle MegaMax lowbed trailer made by trailer manufacturer Faymonville.

The passenger jet on the Faymonville MegaMax







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Fagioli prepares to lower the first piece in the demolition of the Ponte Morandi in Genoa, Italy









Diagram showing the operation to lower the 900 tonne bridge deck section

Multiple methods

of part of the Ponte Morandi road bridge in Italy, expert contractors were called in to remove the remains of the structure. ALEX DAHM reports on Fagioli's first part in the job n 14 August 2018 disaster struck the 1,182 metre Ponte Morandi bridge in Genoa, Italy, when part of it collapsed during a torrential rain storm. A total of 43 people lost their lives when the a 200-metre section of the 50 year old steel and concrete cable stayed bridge fell nearly 50 metres to the ground.

A group of five companies, headed by Italian industrial demolition specialist Omini, was put together to remove the remains of the bridge to make way for a replacement. As one of the group, Italy-based international heavy lift and transport specialist Fagioli was awarded the job of removing decking prior to explosive demolition of the remaining columns and other parts.

Ways and means

Fagioli's method used a combination of strand jacking, self propelled modular transporter (SPMT), Fagioli Tower System and mobile cranes. After that, two remaining 90 metre tall pillars, numbers 10 and 11, weighing about 4,500 tonnes, were demolished explosively by contractor Siag

SITE REPORT



Close proximity to surrounding buildings was one of many challenges

using 500 structural charges and 72 hollow charges. This was carried out in June 2019, close to a year after the collapse.

The first part of Fagioli's work was completed on 9 February 2019. This followed a meeting on 8 February with Italian prime Minister Giuseppe Conte and the national authorities. Strong wind delayed the operation initially before the central bridge deck section, 36 x 18 metres and weighing 900 tonnes, was slowly lowered 45 metres to the ground.

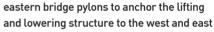
Fagioli used two pairs of 600 tonne



In addition to moving the bridge deck itself after lowering, SPMT was useful for shifting Fagioli equipment before and after the job

capacity strand jacks (a pair on the Western side bridge pylon and a pair on the Eastern side bridge pylon). The jacks were positioned on cantilever beams with four additional strand jacks, each able to lift 180 tonnes. The task for these smaller strand jacks was to balance the entire structure, Fagioli explained.

Two support beams were positioned transversally underneath the western and



bridge sections. On the eastern bridge pylon another structure was positioned at the top end of the bridge with two additional strand jacks and counterweights. These were to provide a counterbalancing action during the lowering procedure.



In its place

After all this work is complete a replacement for the Ponte Morandi, designed by

internationally famous local architect Renzo Piano and under construction since June 2019, is due to open in 2020. Its design will include 43 lamp columns in memory of the 43 victims killed when part of the old bridge collapsed. The overall construction will be intentionally different from the old cablestayed one.

Fagioli's deck removal was the first part of what will be a long operation to dismantle and remove the rest of the bridge. Look out for updates in future issues of ICST and at the www.khl.com website.

(Left and inset) The first section makes its descent of nearly 50 metres to the ground suspended from four 600 tonne strand jacks





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Lines of inquiry

With the increasing use of synthetic fibre rope, heavy lift applications are no longer bound to only using wire rope. CHRISTIAN SHELTON ties up the sector's latest developments

he popularity of synthetic fibre rope as an alternative to steel wire rope is growing with a number of companies actively pushing its benefits. Netherlandsheadquartered marine and offshore rope supplier Lankhorst Ropes says it has partnered with heavy lift solutions specialist Versabar and high-performance rope and rigging supplier Precision Tension, to further develop and increase the use of synthetic fibre heavy lifting solutions – particularly in the USA where both partner companies have bases.

"Many offshore projects have successfully used fibre rope slings however synthetic lifting solutions are not as widely used as would be expected from the benefits they bring," explains Wilco Stroet, managing director of Lankhorst Ropes. "By partnering with Versabar and Precision Tension, Lankhorst is continuing to develop its high-performance lifting solutions as well as spreading the use of synthetic ropes in heavy lifting applications. Together we will further enhance heavy lift project performance, safety and sustainability."

As well as developing and promoting the use of fibre rope, Lankhorst also offers steel wire ropes and has added to its range with additional sizes of Lanko four Compacted. In addition to the existing 30 to 36 mm diameter ropes offered, Lankhorst can now supply it with diameters ranging from 14 to 38 mm. According to Lankhorst the rope is typically used on ship cranes where it is suitable for the harsh conditions encountered when loading and unloading.

Working together

DSM, the inventor and manufacturer of Dyneema fibre, says it is well positioned to address the growing demands of the heavy lifting market with synthetic solutions



The Dutch NATO defence force has started using synthetic link chain for heavy haulage applications

developed in collaboration with rope, sling and chain manufacturing partners around the world. It reports increasing numbers of users turning to synthetic solutions.

An example cited is the use of DoNova synthetic fibre link chain by the Dutch NATO defence force for heavy haulage applications. According to DSM, the use of synthetic link chain has resulted in less damage to their transportation equipment and significantly reduced noise levels. Another example of a new synthetic fibre rope user it gives is WSA Heidelberg – a German water and shipping authority – which used DoNova synthetic link chains, made with Dyneema DM20 fibre and supplied by Geman textile chain specialist Dolezych, below the hook of its floating river cranes for the maintenance of 25 ship locks along 200 km of the river Neckar.

"We invested in four-leg DoNova synthetic lifting chain bridles to ease the daily work of our sailors above the water and our divers below the water," says WSA Heidelberg site manager Rüdiger Böhme. "That significantly improved their safety, ergonomics and efficiency during hoist operations for repair of heavy flood gates." A video about this can be

seen here: https://bit.ly/2lx9c3y.

The use of fibre rope as an alternative to steel wire rope has been further boosted by Switzerland-headquartered crane manufacturer Liebherr which has designed three of its latest EC-B series flat top tower cranes to have synthetic fibre ropes. The models are the 240 EC-B 10 Fibre, the 240 EC-B 12 Fibre, and the 370 EC-B 12 Fibre.

All have SoLite high-tensile fibre rope which has been developed over a period of ten years by Liebherr and Austrian rope manufacturer Teufelberger. According to Liebherr, there are a number of benefits in using fibre rope. It claims the fibre rope cranes offer up to 20 percent more jib head load capacity compared to cranes using steel rope by reducing the weight of the rope and hook block.

It also says that the service life of the fibre rope is four times longer than that of steel rope. As the fibre rope weighs around a fifth of steel rope, reeving is easier in terms of handling, Liebherr claims, adding that maintenance is less complicated as the fibre rope doesn't need lubrication.

Operational safety is increased as when



CEO APPOINTED AT SAMSON

Washington state, USA-headquartered synthetic fibre rope manufacturer Samson has appointed a new president and CEO. Christian Rheault comes from Greene, Tweed, a US-based global supplier of custom sealing engineered solutions. Prior to that, he was CEO at C&D Technologies, a company that manufactures systems for energy storage in standby backup power systems. Rheault has held roles in engineering, manufacturing, and marketing management, at equipment manufacturer Kulicke & Soffa and also where he started his career, at IBM Canada.

Originally from Quebec, Canada, Rheault has degrees and CEO, Samson in electrical engineering and business administration. The company says it is expecting to quickly benefit from his strong global leadership, technology and engineering background, and strength in strategic planning and execution.

"We are looking forward to Christian joining the Samson team; we believe that his experience in leading technology companies will be instrumental to continuing Samson's leadership in performance cordage, and expanding their market position," says Robert Strouse, president at Samson parent company Wind River Holdings.

the rope wears a red layer under the sheath becomes visible – letting the user know it is time to replace it.

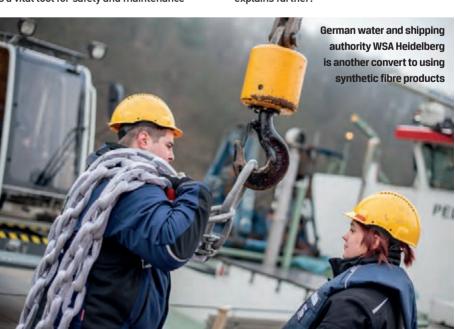
Rope inspection

In the wire rope sector, the issue of inspection is being highlighted by UK-headquartered global lifting industry body LEEA (Lifting Equipment Engineers Association) which is looking to increase the awareness of magnetic rope testing (MRT). According to LEEA, magnetic rope testing (MRT) can play a vital role in improving lifting sector safety by providing visibility right through to a wire rope's core.

According to Denis Hogan, performance and special projects manager at LEEA, "MRT is a vital tool for safety and maintenance systems. I have seen a rope that outwardly looked perfectly okay but it dropped a load because its core was completely degraded through fatigue failure. Fortunately nobody was hurt on this occasion but it could easily have resulted in a fatality. The failure would have been detected quickly had it been through MRT, preventing the risk of accident."

Christian Rheault, president

To examine the core of a wire rope without MRT, requires a special tool to open the rope's strands. But LEEA says this still only gives visibility of a small proportion of the rope's length. "On multi-strand crane ropes, you can never see the core because the multiple layers can't be opened up due to the underlying layers being laid in the opposite direction to the outer strands," Hogan explains further.



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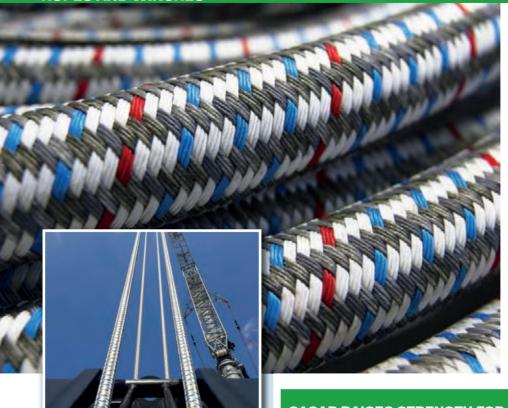






faymonville.group





Teufelberger's SoLite synthetic fibre rope installed in a lifting application

The MRT method involves passing the rope through a permanent magnet. This sets up an electromotive force, which is picked up with electronic sensors that can detect any breaks in the rope or any corrosion that occurs throughout the section of the rope, which is known as Loss of Metallic Area (LMA). There are different MRT equipment manufacturers but the method is exactly the same with each one, says LEEA.

For high integrity cranes, particularly those used offshore, some wire rope manufactures use MRT to produce a baseline as a type of birth certificate for a length of wire rope. This is so when it enters service the engineer knows precisely what that rope is like at the outset and can then accurately monitor any deterioration throughout its service life.

MRT has been added to the ISO 4309 Cranes - Wire ropes - Care and maintenance, inspection and discard standard, which establishes general principles for the care and maintenance, and inspection and discard, of steel wire ropes used on cranes and hoists, as a method of examination of in-service crane ropes, but only as a supplement to a visual examination.

Down to the wire

Remaining with steel wire ropes, UK manufacturer Latch & Batchelor, part of wire manufacturer Webster and Horsfall and the UK and Ireland agent for crane wire ropes from Switzerland-headquartered

manufacturer Verope, says it can now fit Verope end stops for mobile cranes either at its service centre in Birmingham or at its customers' own site. This is possible because it has three technicians fully trained and certified by Verope.

Verope itself has supplied 3,578 metres of Veropro 10 Construction to what it says is the world's most powerful cutter suction dredger vessel, Spartacus. The vessel was built by IHC and is owned by DEME - an international group of specialized companies in the fields of capital and maintenance dredging, land reclamation, port infrastructure development, offshore related services for the oil and gas industry, offshore wind farm installation, and environmental remediation. Veropro 10 Construction is a dedicated rope for dredging applications. In total, 125 tonnes of Verope special wire rope will be mounted on this massive vessel.

CASAR RAISES STRENGTH FOR JASO

Spanish manufacturer Jaso has equipped its new J780PA luffing jib tower crane with wire rope from German crane and mining rope manufacturer Casar. The crane uses two types of Casar rope: Doublefit is being used as the hoist cable and Parafit as the boom adjustment cable.

According to Casar, for the hoist rope Jaso required one that met the specified nominal diameter but that also had a 10 to 15 % higher breaking force compared to common compacted hoist ropes in the 2,160 N/mm² strength class.

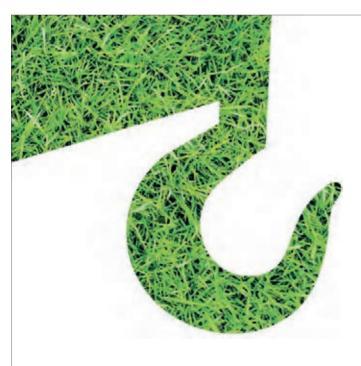
In addition, the rope needed to be as crush resistant as possible and demonstrate excellent spooling with multi-layered spooling.

Bosko Muiika, R&D manager at Jaso Tower Cranes, said, "We are more than satisfied with the performance and the benefits that Casar's ropes provide. We would like to clarify that we will continue to use Casar Doublefit and Casar Parafit on our tower cranes, that are designed for these ropes.

"The special technical features we would like to mention are the swaged surface that ensures optimal spooling, the high rotation resistance, and the long and safe lifespan. We would particularly like to highlight the impressive breaking strength."







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ENTRY

Salvaged frigate

Equipment user: Scaldis

Equipment used: Rambiz and Gulliver offshore heavy lift vessels

Location: Norwegian coast

Marine contractor Scaldis used two heavy lift vessels, Rambiz and Gulliver, to lift a submerged Norwegian Navy frigate. Rambiz has two cranes and a total lifting capacity of 3,300 tonnes, while the Gulliver also has two cranes and a total lifting capacity of 4,000 tonnes. This enabled the 500 tonne, 133 metre-long frigate to be lifted and moved to the nearest port in one piece over six days.





Best of

The 2019 TopLift competition features impressive lifts from around the world completed in the last 12 months. To determine the winner, simply pick your favourite lift from

ENTRY 3

Reactor upended

Equipment user: Sarens

Lifting equipment used: Demag CC 8800-1

Location: Ramagundam, India

Following assembly over seven days, Saren's Demag CC 8800-1 was used for a series of lifts at a fertiliser plant. One of the biggest lifts was a 425 tonne urea reactor which was upended with the CC 8800-1 in an SSL 84/72 configuration at a lift radius of 24 metres. After lifting the reactor, the CC 8800-1 crane operator slowly slewed and walked the heavy load into position.



ENTRY 2

Power to lift

Equipment user: Hareket Heavy Lifting and **Project Transportation Company**

Equipment used: Enerpac SBL1100 telescopic

hydraulic gantry

Location: Uzbekistan

Two sets of gas turbines and generators weighing 357 tonnes and 292 tonnes respectively were lifted and placed into position at the Takhiatash thermal power plant by Turkish company Hareket using its Enerpac SBL1100 telescopic hydraulic gantry. The turbines were lifted from SPMT and skidded 27 metres into the plant along a 40 metres gantry track and lowered on to a concrete foundation, followed by lifting and skidding the generators 16.5 m for positioning in front of the turbines.



ENTRY 4

Super heavy lift



Equipment user: ALE Lifting equipment used: AL.SK350 Location: Ingleside, Texas, USA

ALE's 5,000 tonne capacity AL.SK350 lifted an MRU module for an oil and gas project. ALE says it was one of North America's heaviest lifts with a land-based crane. The crane was fitted with its heavy winch system and 4.000 tonnes of ballast. The lifting radius ranged from 29.9 to 31.4 metres.

ENTRY 5

Battleship launch

Equipment user: Mammoet

Equipment used: PTC 35 super heavy lift

Location: St Petersburg, Russia

Mammoet Europe used its PTC 35 super heavy lift ring crane to launch a 600 tonne replica of an 18th Century Russian battleship. SPMT transported the vessel out of the shipyard's hangar. Mammoet used a customised rigging scheme to optimise load distribution. The crane's reach, small footprint, and high capacity allowed it to lift the ship within limited space.



the year

our selection of 10 outstanding projects by completing and returning the form over the page. Alternatively, you can vote online via the TopLift 2019 story on: www.khl.com/ic

ENTRY 6

Piecing it together

Equipment user: Barnhart Crane & Rigging Equipment used: Barnhart Modular Lift Tower (MLT), strand iacks

Location: California. USA

Barnhart received more than 40 press components of the largest hydraulic forging press in North America. It transported and assembled them, and then lifted the items into position. The largest lift, the foundation crosshead, was assembled of seven components adding up to a final lift weight of 2041 tonnes.





Topside lift

Equipment user: Allseas

Lifting equipment used: Pioneering Spirit Location: North Sea between Scotland and Norway

A single lift by Allseas's heavy lift vessel Pioneering Spirit saw the 25,000 tonne, 125 metre tall, 70 metre wide Brent Bravo topside removed from its foundations. It took four hours from positioning the vessel to the start of the lift. While the vessel was equipped with a motion compensation system the actual lift needed to be done quickly. In this case the "fast lift" was done in just nine seconds.



ENTRY 7

At the double

Equipment user: Aertssen

Equipment used: Two Demag CC 3800 crawler cranes

Location: Belgium

Belgian crane service provider Aertssen removed the rotor blades from a large Enercon onshore wind turbine for maintenance before reinstalling them. Aertssen used two Terex CC 3800 lattice boom crawlers, as they were powerful enough when used together yet worked out to be more cost-effective. A vital part of the process was for the blades to remain balanced during the lowering operation.

ENTRY 10



Interchange girder lift

Equipment user: Guay Cranes

Equipment used: Liebherr LTM 11200-9.1,

Modulift spreader beams

Location: Quebec, Canada

Guay Cranes used its 1,20 tonne capacity Liebherr LTM 11200-9.1 to help in the Turcot Interchange project - Quebec's largest interchange. A key part of the job was the installation of two girders weighing 90 tonnes each. For this Guay Cranes used a Modulift MOD 110H beam at its maximum length. The 1,200 tonner was rigged with 59 metres of main boom to lift the first girder into position.

ENTRY 8

Under pressure

Equipment user: Arab Towers Contracting Company (ATCCO) Equipment used: Liebherr LR1280

Location: Amman, Jordan

Following an accident whilst taking down a Potain MC235 tower crane the pressure was on to ensure the dismantling of a second Potain MC235 went to plan. ATCCO used its 280-tonne capacity Liebherr LR1280. To ensure everything went smoothly, ATCCO utilised the inspection services of crane rental firm Yousef Mousa Crane Company.



2019 voting form





Simply pick your favourite lift from the entries, mark it clearly and e-mail, post or fax us your TopLift choice.

Alternatively you can also vote online via the relevant news story on: www.khl/ic



















YOUR DETAILS e-mail: toplift@khl.com Post: TOPLIFT 2019

Your name: **Company name:** Country in which you are based: Tel: Fax: e-mail:

International Cranes and Specialized Transport Southfields, Southview Road, Wadhurst,

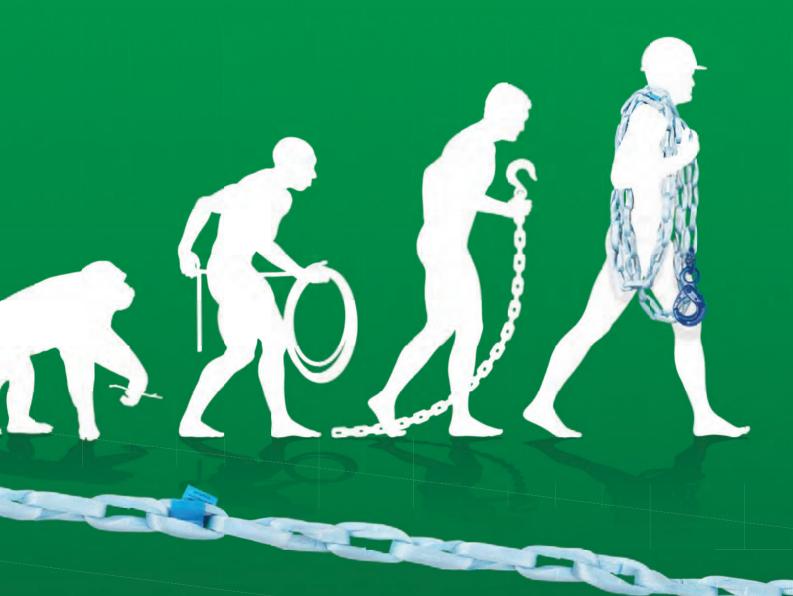
East Sussex TN5 6TP, UK

Fax: +44 1892 786257

NOTE: To ensure a fair competition all entry forms must be completed in full. Employees of the companies entered in TopLift 2018 are NOT eligible to vote.

CLOSING DATE FOR ENTRIES: MONDAY 5 NOVEMBER 2019

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iacenza Exhibition Centre will play host to the biennial GIS show, which is expected to attract 11,000 visitors and has almost sold out of exhibition space. At the last iteration of GIS, in 2017, there were more than 9,000 qualified visitors and 308 exhibitors over 33,000 square metres of showground. This year, there are already 310 exhibitors booked, representing more than 370 brands. The show area is also bigger this year and stand bookings are expected to grow before the gates open in October.

Fabio Potestà, director of show organiser Mediapoint & Communications, said GIS had an increasing international influence: "GIS owes its success to its highly specialised visitors. He added that had now become one of the biggest European events dedicated to these product sectors."

Visitors will benefit from a greater range of products this year. Along with the usual array of mobile cranes, trailers, vehicles for industrial and port handling, specialized and heavy transport vehicles, aerial platforms, and telescopic handlers, other segments, such as tower crane manufacturers. remote control manufacturers and component companies, have increased their presence, too.

The crane sector will be represented by many of the global manufacturers this year and, for the first time, a large number of Chinese companies will be exhibiting their products at the show: these include

both Zoomlion and XCMG.

Another addition for 2019 is the AGV (Automatic Guided Vehicles) Expo area in Pavilion 3, dedicated to automated vehicles, reflecting major investment in this area across the industry. Environmental sustainability is another important topic. which is an underlying theme this year. Green power and environmentally friendly technologies will be on show, aimed at zero emissions through battery power and a range of bi-energy and hybrid options.

Conference and awards

The exhibition will be integrated with a programme of conferences and workshops. Meetings are also scheduled with key associations to discuss topical issues including machine safety, operator training, road options for exceptional transport, infrastructure, and the development of ports and logistic centres. In all, almost 50 organisations have confirmed their support for the Piacenza exhibition, including Italy's Defence Ministry.

> ESTA, the leading European association for specialised road transport and mobile crane

> > rental, has planned its annual autumn meeting in Piacenza, in conjunction with GIS.

As usual, there will be the traditional gala dinners in a new location this year, the Gothic Palace, in the central Piazza Cavalli of Piacenza.



EVENT DETAILS

3-5 October 2019

WHERE-

Piacenza Expo, Via Tirotti 11, Fraz, Le Mose, 29100 Piacenza, Italy OPENING TIMES.

Thursday and Friday: 09.00 - 18.00 Saturday: 09.00 - 17.00

www.gisexpo.it

On the evening of 2 October, there will be a dedicated event for MEWPs, telescopic handlers, hoists, mast climbers and special equipment. To follow, the evening of 3 October will be dedicated to port terminals, intermodal and logistics operators with the ITALA Italian Terminal and Logistic Awards. To conclude, the ILTA Italian Lifting & Transportation Awards will take place on 4 October and will be dedicated to lifting and heavy transport.

BOOK YOUR PLACE

13AND14 NOVEMBER

CONFIRMED SPEAKERS AND TOPICS

KEYNOTE: TOPIC TO BE CONFIRMED Fabio Belli, CEO, Fagioli SpA

KEYNOTE: DRAWING PARALLELS BETWEEN CRANES AND REACTION FERRIES

Erich Sennebogen, managing director, Sennebogen Maschinenfabrik Gmbh

AN INSIDE VIEW ON EUROPE'S BIGGEST PROJECT: HINKLEY **POINT C NUCLEAR POWER STATION**

Ashley Daniels, head of lifting & temporary works, Hinkley Point C, EDF Energy, and Garrick Nisbet, head of lifting assurance, Notus Heavy Lift Solutions and lifting manager, Hinkley Point C

TRENDS IN THE GLOBAL ENERGY SECTOR

Diederick Nelissen, partner, McKinsey & Company

NEW CHALLENGES FOR HEAVY LIFT AND TRANSPORT IN THE GLOBAL ENERGY MARKET

Gert Hendrickx, sales director Projects, Sarens NV

CASE STUDY IN MAKING SAFETY A TOP PRIORITY

Peter Gibbs, Chief Operating Officer, Ainscough Crane Hire

GLOBAL CRANE MARKETS: AN OVERVIEW

Chris Sleight, managing director, Off Highway Research

SPECIALIZED TRANSPORT IN EUROPE: PRIORITIES FOR ACTION

Iffet Türken, chief networking officer & board director, Kässbohrer Group, and vice president - Transport Section, ESTA

CHALLENGES WITH EXISTING STEEL WIRE ROPES ON LARGE CRANES AND FEASIBLE SOLUTIONS

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SCHAFTENLEASING











Your new tech is likely already working for you

ecent statistics reveal that for every ten technicians retiring, only two are coming into the industry. Unfortunately, what often gets lost in the vocation equation with both young and semi-young people is that the vehicular tech industry is no longer a "grunt and turn the wrench" option. Vehicles, including trucks of all sizes and duties, as well as mobile cranes, are often as much computer as machine, and technicians must know how to service all aspects of the vehicle.

New technology, for example, onboard computers, requires technicians with higher skill levels. And with the ongoing development of hybrid, electric and now autonomous vehicles, a strong mechanical and computer skill set is required to succeed and thrive as a technician in this fast-paced industry. All the more reason to grow your own.

Enrolment at tech schools is down almost everywhere and most



industry experts will agree the need for technicians is only going to grow. Helping people with basic skills acquire more in-depth knowledge and a broader skill set, along with keeping them once they've been hired, is vital.

Take a hard look

Contrary to what many fleets might believe, the target market (by age) for technician jobs is around 25 years old. At this point in life most people are beginning to see the advantage of steady work, good pay and benefits. The only problem is they're still a little young to afford their own training. Truthfully, however, to "grow your own," you'll likely have to be willing to financially commit to their progress although it's both realistic and acceptable to ask them to stay and work for a minimum period following any paid training.

That said, it's also to your benefit to understand what types of skills you need them to have. Indeed, you may need your techs to work mostly on engines and transmissions but you might also need them to work primarily on PMIs, diagnostics or electrical systems and brakes. Though it might sound like a given, "soft skills" are also a must: showing up to work on time, working well with others and exhibiting a positive overall attitude.

In addition, fleets need to make an effort to understand why people leave the skilled trades. Top reasons include: a poor relationship with a boss: stagnation - i.e., no promotional track; working for a company that puts profits above people; meaningless work; a lack of recognition; and a toxic work culture. As a leader, it's your duty to take a hard look at that list and ask yourself if any of those reasons might apply to you or your people.

Once trained up, it's also wise to partner your homegrown techs with a mentor. Industry statistics reveal that the retention rate among workers with first-time employees who provide guidance is nearly 90 percent, while it's barely more than 30 percent for those who receive little to no help after initial training.

An additional approach: maybe you need a new 'B' level tech. Look at your roster; how long have they been with you? Are they up for a challenge? Perhaps your 'C' tech can bump up. Behind him or her, perhaps your 'D' tech is ready to make the leap to 'C'. Maybe your technically inclined and dependable porter is ready to become your new 'D'. Now you just need a new porter.

Ultimately, home-growing your technicians isn't just good for morale - it might just do wonders for your business. Once word gets out, your labour shortage issue, at least in the garage, could be a thing of the past.

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Finding common ground on some not-so-common challenges.

MIKE CHALMERS reports

What are members saying?

C&RA members around the world work through any number of challenges on a daily basis but they don't always get to talk about them. Even though plenty of operational complexities are a given, some day-to-day trials are unique to particular companies or sectors and, therefore, are worth examining.

What business challenges are you facing?

We're the largest provider of escort vehicles and pilot cars in North America. The challenges we're seeing and have been seeing more of recently is the insurance aspect of our business – understanding what is required and what industry requires of us – to actually find an insurance company that is willing to step up to the plate and insure our industry.

"SC&RA is doing a great job here in partnering with insurance companies and I've been involved for a long time. As a broker, we do our due diligence in making sure that our subcontractors have buffer insurance and a minimum amount of general liability, but their challenge and mine is to find carriers that are willing to insure us. For the escorts especially, the same company that will insure a trucking company doesn't want to insure the pilot

car. I sit on the board of the Pilot Car Task

Force at SC&RA and I'm also involved as a consultant for the North American Pilot Car Association: we're trying to develop a common language and establish a clear understanding of where the responsibilities lie. We've seen increases of two to three hundred percent on insurance premiums in some cases. That can bury a business. So we're trying to hopefully get a group package together with these two different parties - trucking and pilot car - and work with SC&RA and the North American Pilot Car Association to develop a workable plan."

> NICK RUSCITO-CAISSY, vice president and CEO, ODS North America, Quebec, Canada

I think the glaring issue we're dealing with right now is the permit department and the DOT. A lot of other SC&RA members are also dealing with this. Permits for over-dimensional, heavy loads that used to be accepted within 24 hours simply aren't being accepted anymore – so it's becoming extremely difficult for us, as well as our customers, to even understand what it is we're supposed to do. Once they change a law it's not as if they give you a written document that explains what the regulations are now. That's honestly been our biggest challenge in the last year or so.

"I've been at Bellemare for six-and-a-half years. When I first started the number of over-dimensional pieces that were being built compared to now – it's dramatic. What a lot of companies have done is open up shop elsewhere in Canada, maybe to Ontario, which isn't that far, or areas where

they have access to rail or a port nearby. But nonetheless, they've gone there because they can't get permits here, or they keep HQ here and just do all the procurement overseas.

They have a facility here, engineering team here, PMs, but instead of building the pieces here, they'll have pieces built in China and then do the logistics and co-ordination from here. In this way, as a province, we're losing a lot of our capabilities. It starts off with fewer pieces, then less demand, then fewer jobs, and that leads to less expertise because those people are going to go elsewhere."

KEVIN KWATENG, director of operations, Transport Bellemare International, Inc., Quebec



Something that often gets brought up at SC&RA events is harmonisation - we talk it about it every year. I know that SC&RA is working hard on solutions because many of the states don't want to give up their jurisdiction and power - and that makes it difficult for us. Specifically, if we have an oversized load leaving our plant in Pennsylvania, we may need one escort for that, and then when we get to the New York line, we may need three escorts for it. We may get to the next state and it's two escorts.

"Another big problem in our industry is infrastructure. We need the Fed to pass this bill so we can get some more work. We also need to repair these bridges and structures

that are in such bad shape, which affects the permitting world, too. Engineers and architects are designing these bridges that are bigger, heavier, longer, and yet the infrastructure is getting to a condition where we can't get permits for them because it's deteriorating - and that's a problem across the country."

ART WEAVER, permit and escort co-ordinator, High Transit, Pennsylvania, USA

One of the biggest challenges as a director of compliance with operations across North America is having people understand that we're building a programme that has to meet the needs of multiple regional requirements. So, you want to build a high standard in any one region, but it doesn't always make sense to a person that only knows their legislation or their requirements for a certain area. I think that's one of the benefits of the SC&RA - when we develop a training programme or a standard with people's input from across North America. It helps a new person or a trainee develop skills and understanding that fits anywhere. Whether it's in Canada or the US, any company that works in multiple states or provinces - or cross-border - needs to know the specific regulations, or even terminology, and that's a challenge for some folks.

"That said, some challenges in Alberta that you don't see in other places in Canada: time restrictions and frost restrictions, and weight allowances on roads depending on weather. So, some folks may not be aware of that, and then your assumption is that they are aware of it. It's important for fleets to be aware of the law of the land and not just base it on their own personal experience. It requires the employer to be that much more diligent and understand which sets of rules to play by."

PETER SCHAEFER, director, HSE and compliance, NCSG, Alberta, Canada

What are you hearing from members?



"Members worldwide are scaling the equivalent of Mount Everest in their quest to find the next generation of

employable skilled labour and are learning from each other on how to reach the summit. Meanwhile, they're balancing increased customer needs and dealing with inadequacies at permitting offices, all the while working with insufficient infrastructure and a global trade war, which impacts their ability to do business. SC&RA's mission is to solve these problems and not simply equate them to 'the costs' of doing business'. I want to hear what obstacles our members are encountering so that we can continue to tackle them on a global scale. I can be reached at jbell@scranet.org"

JASON BELL, membership director, SC&RA



Having 50 states with 50 different sets of rules stretches the capacity of most of us. That said, SC&RA's UPT2021 initiative is beneficial to everyone - especially those that are hauling less than superloads. In New York City, ELDs are a huge challenge for us. We haul subway cars into Manhattan and can only travel at our sizes at night. Yet there's not reasonable parking to get the loads there during the day (before) in order for the driver to have hours to drive that night. We've had to become more skilled on the operational side looking for parking and working with locations that will allow us to park there.

"But overall folks have to set aside some time every day to read some articles, or SC&RA emails and newsletters – you've got to make that time. We're as up to speed on industry news as possible, but I go to Association events and I hear people that are surprised by whatever ruling, etc. They have to avail themselves to the educational materials that are available through the Association at the least. It's one way to both examine, address and work around issues, if nothing else."

TODD HARATY, chief operating officer at Silk Road Transport in the USA

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Heat exchanger change-out by HCS

California, USA-based crane, rigging and trucking service provider Hill Crane Service used a 500 tonne capacity heavy-track HT500 hydraulic skidding system. made by Canadian skidding systems manufacturer Hydra-



Slide, to change out a stacked heat exchanger at an oil refinery in Carson, Los Angeles, USA.

The scope of the work comprised the emergency removal of a 260,000 pound (118 tonne) stacked heat exchanger and its replacement with a new 279,000 pound (127 tonne) unit. In addition to the HT500, Hill Crane Service also used 100 tonne capacity modular support stands and a synchronous hydraulic power unit, both from Hydra-Pac.

The exchanger that was being replaced sat on four-feet-high (1.2 metre) concrete pedestals. Hill Crane Service used crib stacks and pipe stands to support the slide track at an elevation of four feet. The exchangers were skidded a total distance of 29 feet 10 inches (9 metres).

Challenges during the job included the tight deadline, onsite obstructions, and project delays inherited from other contractors.

The HT500 has a total installed height of 8" (200 mm) which, according to Hydra-Slide, helps save jacking time and means it is well-suited for application in confined spaces. It is engineered for pushing 500 tonnes and pulling 250 tonnes with a standard double track layout.

Commenting on the job, Darren Scruggs, senior account manager at Hill Crane Service, said, "The slide system was one of the major components of the heavily engineered concept we pitched to the refinery. Without removing overhead structure beams, a jack-and-slide solution was the only viable option. We worked closely with Hydra-Slide to put together a robust proposal and upon winning the contract, we placed orders for the necessary equipment, which remains in our fleet."

For more information see: www.hillcrane.com



The Verton R-series crane safety device in operation

Australian lifting and rotation management specialist Verton is enjoying international interest in its R-series crane safety device. It is a remote load management system that eliminates the need for human held taglines to control suspended loads. This, Verton said, improves safety and productivity in lifting operations.

Australian crane rental company Universal Cranes was the first company to start using the R-series, earlier on in 2019.

Verton also received funding from the Queensland government's Business Development Fund (BDF) in Australia, and the R-series also won a 'best in class' award in the engineering design category of Australia's Good Design Awards.

The R-series has now been launched in the UK. Verton said that, as well as construction companies, the R-series has received interest from mining, port and shipping operators. It has also established a partnership with international heavy lifting and transport specialist Mammoet and wind turbine supplier Vestas to further develop a new, safer lifting method for installing wind turbine blades. For more information see:

Eco wash system for Mammoet

Heavy lift and transportation specialist Mammoet has implemented a new wash facility at its Rosharon, Texas, USA, location that it says cleans heavy equipment with minimal impact on the environment.

The wash system uses a bio digester system which utilises a specialised strain of aerobic bacteria to remove fats, oils and greases from the water. This means the water can be reused in the wash facility's two high pressure washers.

The pressure washers provide 3,000 pounds per square inch (PSI) of continuously heated water with the ability to inject detergent during washing. The pressure washers use water efficiently, Mammoet said, producing four gallons per minute each compared to

an average garden hose which runs 15 gallons per minute. It said this is possible thanks to the combined velocity, heat and detergent. Any excess water produced is cleaned of fat, oil and grease and reused for dust control on the roads at the back of the facility.

The wash bay housing was specifically designed to accommodate the various dimensions of Mammoet's specialized machinery. The housing design captures the soiled wash water for reuse and keeps it separate from ordinary rain water. The roof and sides also exclude the rain water from entering the water recycling system. The rack is

Mammoet's new eco wash facility at its Rosharon, Texas, USA, site designed to capture the dirty water and channel it into a series of separators to capture the soils or grit and precondition the water for the bio digester.

The wash facility's structure and system were constructed, designed and equipped by Alklean Industries of Pasadena, Texas, and comply with standards set by the Texas Commission of **Environment Quality.**

For more information see: www.mammoet.com



www.verton.com.au

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ROUND-TABLE PANEL PARTICIPANTS



Simon Nielsen
Danfoss Power
Solutions



Alex Woodrow Knibb, Gormezano and Partners (KGP)



Bernd Krüper Motorenfabrik Hatz



Julie Furber Cummins Inc.



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23 June 2020

Miami, Florida, USA www.khl-tcna.com



The editor spotted this steam traction engine at an event over the summer in the South East of England. The working crane's winch has a mechanical drive from straight cut bevel gears via a long open shaft and into a worm drive under the tin cover on the end of the drum. There is a grooved rope drum and three-fall reeving. Drive is engaged by a simple dog clutch-type arrangement to move the gears in and out of mesh. It is similar to what you find on many types of machinery from that era (around 1900).

PEOPLE NEWS



DUNCAN SALT has been promoted to chief executive officer at tower

crane manufacturer and rental house Wolffkran Holding AG. He was previously head of sales and service at the Switzerlandheadquartered company. Before that he was a director at HTC Plant Limited, the UK Wolff dealer and rental company.



Crane manufacturer Spierings has welcomed **DAVID COLOMBAT** to the

sales team. The Frenchman will focus on raising the Dutch company's profile in France. Before working with mobile folding construction cranes Colombat was sales manager at French collision avoidance and crane electronics system specialist SMIE.

OBITUARY: FRANCO FASSI

With regret, ICST reports the death of FRANCO FASSI, president and founder of Italybased articulating loader crane manufacturer Fassi Group, aged 89. He founded the business in 1965 and left on 1 August 2019, Franco's father



■ MANITOWOC has launched an apprenticeship for welders in Pennsylvania, USA. A study by Deloitte and The Manufacturing Institute forecasts manufacturing in the USA will have 2.4 million jobs unfilled between 2018 and 2028. Barry Pennypacker, Manitowoc Company president and CEO, said, "We're creating a career path for potential employees into our company, because having trained welders helps us produce durable and reliable cranes." The welder apprenticeship will be in conjunction with Lincoln Electric Company and Hagerstown Community College.

■ 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. 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.



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3 ORGANISATION TYPE	PRINT DIGITAL PRINT & DIGITAL
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Used Cranes

DEMAG CC 2500-1

 Capacity
 500 t

 Main boom
 36 - 84 m

 Luffer
 24 - 84 m

 Upper hours
 10,843 h

 Counterweight
 40 t (CB) + 160 t

 Year
 2011



Terex Challenger 3160

 Capacity
 55 t

 Main boom
 10.3 m - 50 m

 Carrier hours
 4,478 h

 Counterweight
 6.8 t

 Mileage
 42,796 km

 Year
 2016



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Sascha.Reischmann@tadano.com



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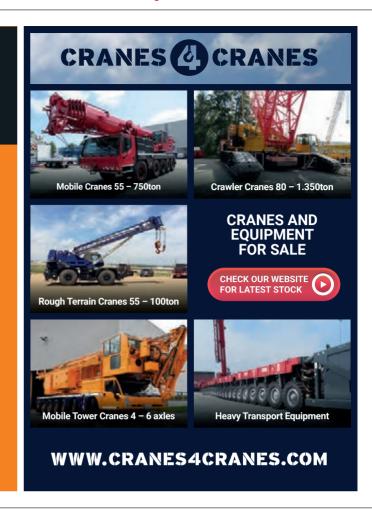


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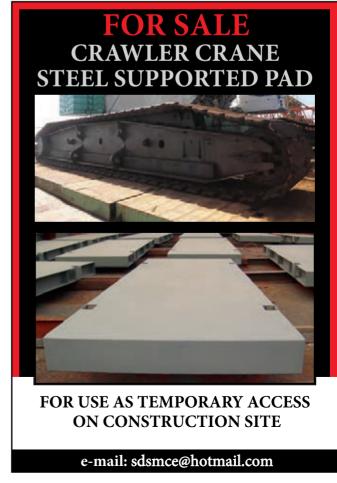
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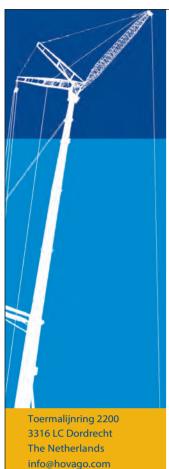
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ALL TERRAIN CRANES

2x	80 t	Grove GMK 4080-1	2013
1x	160 t	Liebherr LTM 1160-5.2	NEW!
1x	200 t	Liebherr LTM 1200-5.1	2016
1x	200 t	Liebherr LTM 1200-5.1	NEW!
1x	220 t	Grove GMK 5220	2014
1x	220 t	Demag AC 220-5	NEW!
1x 220 t 1x 250 t		Tadano ATF 220G-5	2012
		t Demag AC 250-5	NEW!
1x	300 t	Grove GMK 6300L	2015
1x	450 t	Liebherr LTM 1450-8.1	NEW!

LATTICE	BOOM MOI	BILE CRANES
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CRAWLER CRANES

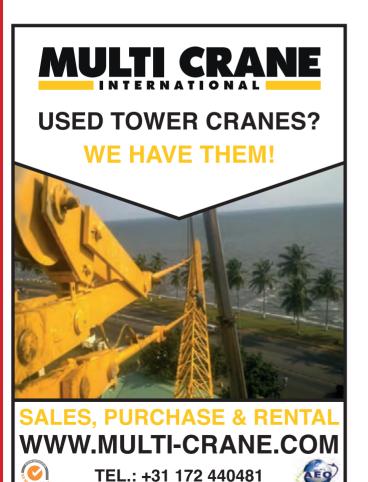
1x	250 t	2008	
1x	400 t	2009	
1x	650 t	Demag CC 3800 SL + boom booster	NEW!
1x	650 t	Demag CC 3800 SL	2015
1x	750 t	Liebherr LR 1750	2010

ROUGH TERRAIN CRANES

1x	40 t	Grove RT 540E CE	2011
1x	55 t	Tadano GR 550XL-2	2013
1x	75 t	Tadano GR 750XL-3	2015
1x	80 t	Terex RT780	2016
1x	80 t	Grove RT 880E	2008
2x	100 t	Tadano GR 1000XL-3	2015/2017
1x	120 t	Tadano GR 1200XL-3	2018
1x	160 t	Tadano GR 1600XL-3	2017











ALL TERRAIN-CRANES

Make / Type	y. o. m.	Drive	Boom / Fly Jib	
30 t Faun ATF 30-2L	2004	4x4x4	28,50m + 8,00m	
35 t Grove GMK 2035	1999	4x4x4	29,00m	
40 t Terex-Demag AC 40 City	2008	6x6x6	31,20m + 1,20m	
40 t Terex-Demag AC 40 City	2008	6x4x6	31,20m + 13,00m + 1,20m	
40 t Terex-Demag AC 40 City	2010	6x6x6	31,20m + 13,00m + 1,20m	
45 t Faun ATF 45-3	2006	6x6x6	34,00m + 15,00m	
50 t Grove GMK 3050	2003	6x6x6	38,10m + 15,00m	
50 t Terex-Demag AC 50-1	2004	6x6x6	40,00m + 17,60m	١.
50 t Terex-Demag AC 50-1	2003	6x6x6	40,00m + 17,60m	ı
55 t Terex-Demag AC 55 City	2006	6x6x6	40,00m + 13,80m	-
55 t Liebherr LTM 1055/1	2004	6x6x6	40,00m + 16,00m	1
55 t Liebherr LTM 1055/1	2004	6x6x6	40,00m + 16,00m	
55 t Liebherr LTM 1055-3.1	2005	6x6x6	40,00m + 2,00m	Ŀ
55 t Grove GMK 3055	2004	6x4x6	43,00m	١.
60 t Faun RTF 60-4	1991	8x6x8	39,00m + 9,80m	
60 t Liebherr LTM 1060/2	2004	8x6x8	42,00m + 17,00m	i
60 t Liebherr LTM 1060/2	2005	8x6x8	42,00m + 17,00m	1
70 t Tadano Faun ATF 70G-4	2016	8x6x8	52,10m + 16,00m	
80 t Terex-Demag AC 80-2	2006	8x8x8	50,00m + 17,60m	F
80 t Terex-Demag AC 80-2	2007	8x8x8	50,00m + 17,60m	
100 t Liebherr LTM 1100-4.1	2004	8x8x8	52,00m + 19,00m	
100 t Terex-Demag AC 100	2005	10x8x8	50,00m + 17,00m	
130 t Grove GMK 5130-1	2007	10x8x10	60,00m + 18,00m	
160 t Liebherr LTM 1160-5.1	2008	10x8x10	62,00m + 7,00m + 36,00m	
160 t Tadano Faun ATF 160G-5	2006	10x8x8	60,00m + 13,20m	
200 t Liebherr LTM 1200-5.1	2013	10x6x10	72,00m + 22,00m	

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TELESCOPIC AT-CRANES							
450 t	Manufacturer Liebherr	Type LTM 1450 N	Year 1992	Drive/Steering 16 x 8 x 14	Boom/jib (m) 50 / 61 / 84	Delivery direct	
400 t 200 t	Liebherr Liebherr	LTM 1400 LTM 1200-5.1	1988 2013	16 x 8 x 12 10 x 6 x 10	50 / 61 / 84 72 / 22	direct direct	
200 t	Terex-Demag	AC 200-1	2009	10 x 8 x 10	67,8 / 1,5	September	
200 t 160 t	Liebherr Liebherr	LTM 1200 LTM 1160-5.1	1990 2008	12 x 8 x 8 10 x 8 x 10	54,5 / 22 62+7 / 36	direct direct	
160 t	Faun	ATF 160 G-5	2006	10 x 8 x 8	60 / 13.2 + runi		
160 t	Liebherr	LTM 1160/2	1996	10 x 8 x 10	60 / 22	direct	
160 t 140 t	Liebherr Terex-Demag	LTM 1160 AC 140-1	1986 2010	12 x 8 x 8 10 x 8 x 10	45 / 20 / 52 60 / 1,5	September direct	
130 t	Grove	GMK 5130-1	2007	10 x 8 x 10	60 / 18	direct	
100 t 100 t	Liebherr	LTM 1100-5.2	2007 2006	10 x 8 x 10	52 / 33	direct	
100 t	Terex-Demag Terex-Demag		2005	10 x 8 x 8 10 x 6 x 8	50 / 50 / 17	direct direct	
100 t	Liebherr	LTM 1100-4.1	2005	8 x 8 x 8	52 / 19	direct	
100 t 100 t	Liebherr	LTM 1100-4.1	2004 2000	8 x 8 x 8	52 / 19	direct	
100 t	Demag Demag	AC 100 AC 265	1989	10 x 6 x 8 8 x 8 x 8	50,2 / 17 37 / 17	direct direct	
90 t	Liebherr	LTM 1090-4.1	2006	8 x 8 x 8	50 / 19	direct	
80 t 80 t	Terex-Demag Terex-Demag	AC 80-2	2007 2006	8 x 8 x 8 8 x 8 x 8	50 / 17,6 50 / 17,6+runn.	direct	
80 t	Grove	GMK 4080	2000	8 x 6 x 8	43 / 13	direct	
80 t	Demag	AC 80-1	1998	8 x 6 x 6	50 / 17,6	direct	
80 t 80 t	Demag	AC 205 AC 205	1996 1996	8 x 8 x 8 8 x 6 x 6	50 / 17,6 50 / 17,6	direct direct	
70 t	Demag Faun	ATF 70 G-4	2016	8 x 6 x 8	52,1/16	direct	
70 t	Liebherr	LTM 1070-4.2	2011	8 x 6 x 8	50 / 16	direct	
70 t 70 t	Liebherr Faun	LTM 1070-4.1 ATF 70-4	2007 2001	8 x 6 x 8 8 x 8 x 8	50 / 16 40,5 / 16	direct direct	
60 t	Faun	ATF 60-4	2005	8 x 6 x 8	40,3710	direct	
60 t	Liebherr	LTM 1060/2	2005	8 x 6 x 8	42 / 17	direct	
60 t 60 t	Liebherr Faun	LTM 1060/2 ATF 60-3	2004 2004	8 x 6 x 8 6 x 6 x 6	42 / 17 40,2	direct direct	
60 t	Liebherr	LTM 1060/2	2003	8 x 6 x 8	42 / 17	direct	
60 t	Liebherr	LTM 1060/2	2001	8 x 6 x 8	42 / 17	direct	
60 t 60 t	Faun Faun	ATF 60-4 RTF 60-4	1999 1991	8 x 6 x 8 8 x 6 x 8	40,2 / 16 39 / 17	direct direct	
55 t	Terex-Demag	AC 55 City	2006	6 x 6 x 6	40 / 13,8	direct	
55 t	Liebherr	LTM 1055-3.1	2005	6 x 6 x 6	40 / 2,5+runn.	direct	
55 t 55 t	Liebherr Liebherr	LTM 1055/1 LTM 1055/1	2004 2004	6 x 6 x 6 6 x 6 x 6	40 / 16 + runn. 40 / 16 + runn.	direct direct	
55 t	Grove	GMK 3055	2004	6 x 4 x 6	43	direct	
50 t	Terex-Demag	AC 50-1	2004	6 x 6 x 6	40 / 17,6	direct	
50 t	Grove	GMK 3050	2003	6 x 6 x 6	38,1 / 15	direct	
50 t 45 t	Terex-Demag Faun	AC 50-1 ATF 45-3	2002 2006	6 x 6 x 6 6 x 6 x 6	40 / 17,6 34 / 15,2	direct direct	
45 t	Liebherr	LTM 1045-3.1	2006	6 x 6 x 6	34 / 16	direct	
45 t	Liebherr	LTM 1045/1	2004	6 x 6 x 6	34 / 16	direct	





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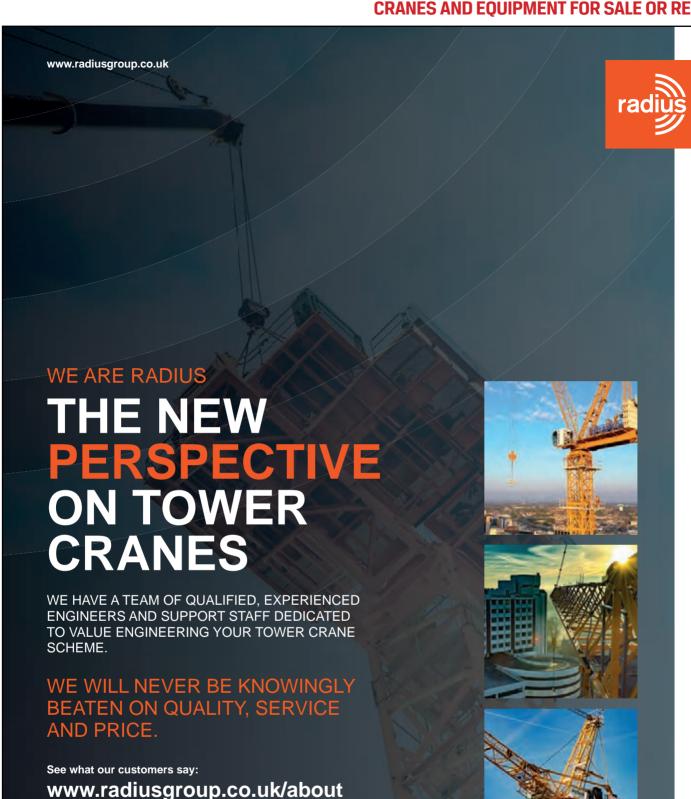
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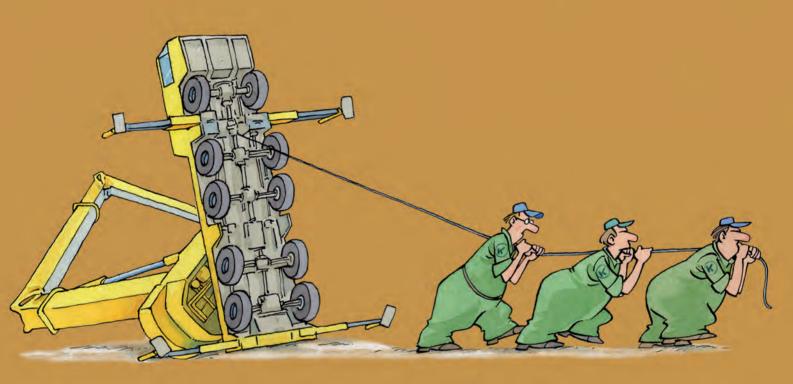








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