

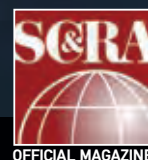
INTERNATIONAL CRANES AND SPECIALIZED TRANSPORT

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WIND POWER TRANSPORT ■ DOCKSIDE LIFTING ■ ITC REVIEW ■ THE KNOWLEDGE



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MARKETPLACE

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far at least, the world's top crane operators are still very much making a go of it regardless of the widespread economic uncertainty, war, terrorism, political upheaval and so on, that we are constantly seeing and being told about.

So it is encouraging to say the least to see growth in the *IC50* again. Long may it continue. Hopefully, in time for next year's ranking, a good proportion of these multiple crane orders we have seen in the news over the last two or three months will have percolated through as delivered cranes expanding and increasing the capability of *IC50* owners' fleets. Looking at the news starting on page 6 there is a distinct lack of those stories but, still, there's some good positive news, including Sennebogen's announcement of its third new crane in almost as many months, an interesting innovation from Modulift, and a redesign for the Demag AC 100-4L.

No sooner have we published the *IC50* we turn our attention to the next of our annual league tables: the *IC Transport 50* ranking of the largest specialized transport fleets. We are looking for entries so, if your company is eligible, please do complete and return an entry form. Either ask me for one or there is a link to download an entry form in the story on our website www.khl.com and search for "Transport 50" if the story is not immediately visible.

Now that it is official (see *ESTA* news on page 61), I would just like to mention someone I have known in the industry for nearly 20 years. Søren Jansen has announced his retirement from his position as *ESTA* director at the end of June. I met him soon after I first started writing about cranes. Even that long ago he already had many years of experience, in the USA and in Europe. Søren was running BMS in Denmark, at the time, Scandinavia's largest crane rental company.

I am grateful to him that he made the mistake of listening to my probably naive and incoherent questions, helping me over the years to understand many aspects of the industry. Thanks to him for passing on some of his vast and valuable knowledge and experience. In a similar vein, I hope that I too can pass on something useful and helpful.

ALEX DAHM

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EDITOR'S VIEW

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ON THE COVER



Fagioli, at 59 in this year's *IC50*, completed lifting, transport and installation work to build one of the world's largest offshore platforms. See pages 29 and 34 and the *IC50* on page 13.

SUBSCRIPTIONS

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HIGHLIGHTS

■ Sales at Manitowoc in the first quarter of 2017 were US\$ 305.8 million, down 28 per cent on the \$427.4 million in the same period of 2016.

An operating loss of \$23.7 million was reported against an operating income of \$0.8 million in the first quarter of 2016. Orders received in Q1 2017 were \$488 million, up 17 % on the same period of 2016. Lower sales in the USA were partly offset by increases in Europe from new products, and strength in residential and commercial construction, the company said. For the full year 2017 Manitowoc forecasts a decline in revenue of 8 to 10 %.

■ On 23 May Terex Corporation said it completed the sale of 7 million Konecranes Plc shares, constituting 8.9 percent of the Finnish crane maker's outstanding shares. The price was €37.40 per share, 0.9 % less than the closing price on 23 May. Terex retains 5.15 million Class B Konecranes shares, around 6.6 % of the total outstanding. In February Terex sold 7.45 million Class A shares in Konecranes. That was 9.5 % of the total shares outstanding and they were

Mammoet acquires George Young Company

Mammoet and George Young have finalised a deal in which Mammoet has acquired the George Young Company based in Philadelphia, USA.

Mammoet operates worldwide with 5,000 employees and in more than 90 locations. George Young Company has been in existence since 1869 and is specialized in rigging, millwrighting (machinery installation) and heavy hauling. The company has the main part of its operation in the North Eastern part of the USA.

Jan Kleijn, Mammoet CEO, said, "We welcome George Young Company to the Mammoet family. We are excited to join forces

with one of the US's oldest heavy hauling and rigging companies. This move significantly strengthens our North East American presence and aligns with our strategy to serve our customers locally through a global network of offices."

George Young, George Young Company CEO and fourth generation leader of the company added, "Both George Young Company and Mammoet are renowned for their professionalism and safety records over their extensive histories. With no natural successors at hand, my sister Meredith and I have taken a deliberate approach to ensure

the continuity and growth of the company. This extends our good working relationship with Mammoet by combining both companies' expertise to expand our market offering. Together we can offer comprehensive factory-to-foundation services – allowing us to potentially add precision millwrighting to Mammoet's services in this region and deliver and commission components from every part of the world. So, ultimately, Mammoet is the perfect 'fifth generation' for George Young Company. We are excited about this deal and the commercial opportunities it entails."

Redesign for Demag AC 100-4L

Terex Cranes has redesigned its 100 tonne capacity Demag AC 100-4L all terrain crane to improve lifting performance.

The main change is the addition of the IC-1 Plus control system as standard. The four-axle crane has also incorporated many of the features of the Demag five-axle portfolio to help simplify servicing and reduce

costs, said Terex.

According to the company, the Demag IC-1 Plus control system instantaneously provides the crane's maximum lifting capacity, based on the slewing angle, for every crane configuration as opposed to limiting the maximum lifting capacity to a pre-calculated, 360° load chart based on the most unstable position

of the crane. This, it claimed, is particularly useful when working with reduced outrigger settings and reduced counterweight.

Crane servicing has also been simplified, said Terex, thanks to the four-axle AC 100-4L now incorporating many of the same design elements as five-axle Demags. From the drivetrain and the assembly for drive components to the boom head and main boom extension designs, Terex said that more parts are interchangeable with those on other Demag all terrain cranes, reducing parts inventory.

ESTA'S ECOL PASSES MILESTONE

A major project by the European Association for Abnormal Road Transport and Mobile Cranes (ESTA) to establish a European Crane Operator Licence (ECOL) has passed an important milestone with the establishment of the ECOL Foundation, the body that will have the job of supervising and monitoring the system of education, examination and maintenance.

"This is a significant step forward and is the culmination of a huge amount of work and consultation with ESTA members, the wider industry and relevant authorities," said Ton Klijn, ESTA secretary. The documents creating the ECOL Foundation were formally signed in the Netherlands on 19 May.

The ECOL foundation will set criteria for becoming an ECOL-educator and for becoming an ECOL-examination institution in this field. Only when 'ECOL-approved' can an organisation train and test operators for the ECOL licence and have use of the ECOL logo. The ECOL foundation will also issue certificates and recognise diplomas, manage the ECOL register and organise continuing education.

Trials will start on 1 February 2018. ESTA will then be in a position to request the European Qualifications Framework to have ECOL registered and recognised at EQF Level 2 across Europe. Klijn added, "We are keen to stress that ECOL does not mean experienced and qualified operators, with the necessary documentation, will need to retrain to obtain an ECOL certificate. It is a misunderstanding that we are proposing to retrain all of Europe's crane operators – that is simply not the case."



ZOOMLION ADJUSTS ITS STRATEGY

China's Zoomlion has entered an agreement to sell 80 % of its environmental sanitation business to focus on construction and agricultural equipment. Changsha Zoomlion Environmental Industry and accompanying assets will be sold for CNY11.6 billion (US\$1.68 billion). Subject to terms and conditions, 51 % will be transferred to electronics and environmental protection equipment maker Infore Holding, 21.6 % to Hony Investment, 4 % to Guangzhou Investment, and 3.4 % to investment firm Lulian Junhe.

The sale values the entire unit at CNY14.5 billion (US\$2.11 billion) and is a major adjustment of Zoomlion's strategy.

Zoomlion's board plans to apply a significant proportion of the net proceeds to replenishing the company's working capital, repaying debt and developing the group. With the cash reserves provided by this divestment, Zoomlion believes it will be able to grow and improve its core business in line with its strategy of globalisation.

Bremerhaven Waterways & Shipping Office (WSA) in Germany chose a Liebherr LTC 1050-3.1 mobile crane for transporting its marker buoys.

The 50 tonne capacity telescopic wheeled mobile crane is on a three-axle carrier. The 6 tonne buoys are up to 11 metres long and 3 m in diameter. They are stored in the WSA yard in Bremerhaven harbour. Every five years or so they are brought back from the sea for refurbishment and exchanged. This entails transporting them between the yard and the hall. Refurbishment includes any structural steelwork repairs, painting, and fitment of new signalling systems.

Other work for the crane includes lifting and transporting equipment that working ships need at the quayside and loading and unloading vessels. Wolfgang Witzleb from Bremerhaven Waterways & Shipping Office, said, "In addition to the marker buoys, it loads containers, boats, equipment and machines. Our crane is actually in use every day."



Sennebogen launches 30 tonne telecrawler

Bavarian manufacturer Sennebogen has launched a 30 tonne capacity telescopic crawler crane with pick and carry duty.

The 633 has a full-power boom and a compact footprint. It fits between the 613 and 643 telescopic cranes. The three-section boom can be continuously extended and retracted over a length of 25.2 metres and is always friction locked, the manufacturer said. Maximum hook height with the 6.5 m and 13 m fly booms is 38 m.

Boom length is set via a joystick in the cabin. Its Sencon

Sennebogen's new 633 has a 3 metre transport width and self assembly



control and diagnostics system shows all operating parameters and, Sennebogen said, offers easy, intuitive user control, as well as the ability to process error messages quickly. There are charts for lifting out of level at up to four degrees. The machine can be driven at full load and the width of the crawler tracks can be hydraulically altered to three track widths.

Power is from either a 129 kW Cummins diesel engine with Tier 4 Final exhaust after-treatment or a 119 kW Cummins diesel with Tier 3a exhaust after-treatment.

Adjustable lifting beam system

Flexibility and speed are key features of Modulift's new MOD CLS beam system. It is a combined lifting and spreader beam with adjustable clamps for the lifting and suspension points. Availability is from stock with immediate shipping. Typical applications are in light industry.

Sarah Spivey, Modulift managing director, said, "The MOD CLS is game-changing as users no longer have to wait for beams to be built. It is yet another example of Modulift responding to industry demand and providing distributors with a revolutionary, off-the-shelf, below-the-hook solution."

An 8.5 tonne capacity system will be available initially and larger models are planned. Four clamps come as standard to

adjust the lifting points allowing a single top lifting point (lifting beam) or double top lifting points (spreader beam).

Clamps are pre-assembled on the beam and markers show alignment and the centre of lift. Top clamps are larger and higher rated than the two on the underside. More can be added to the bottom side of the beam as additional lifting points. Where more lifting points are needed it can be designed as an H-frame.



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WORLD CRANE AND TRANSPORT SUMMIT PROGRAMME FINALISED...

The programme for the World Crane and Transport Summit (WCTS) has been finalised and published online at: www.khl.com/wcts

The one-and-a-half-day conference has a strong lineup, with speakers from, among others, Sarens, TNT Crane & Rigging, Bechtel, Peinemann, Enerpac, Fagioli, JK Crane, Liebherr and Manitowoc. Recent additions include: Hendrik Sarens, director, Sarens (keynote speaker); Keith Anderson, chief rigging engineer, Bechtel Equipment Operations; Andrea Gazzola, area sales director (Americas), Fagioli; Barry Pennypacker, CEO, Manitowoc; Jennifer Gabel, owner, JK Crane; Brett Melvin, executive director, Lift & Move USA; Ton Klijn, secretary, ESTA and director, Wagenborg Nedlift.

Topics include safety (Keith Anderson), recruitment (Brett Melvin and Jennifer Gabel), and a report on a spectacular offshore platform project (Andrea Gazzola).

WCTS 2017 is on 7 and 8 November at the Grand Hotel Krasnapolsky in central Amsterdam, Netherlands.

Tadano sales down 14%

Japanese lifting equipment manufacturer Tadano reported a double digit drop in sales for the 12 months financial year ending 31 March 2017.

Total sales fell to JPY 179,676 million (US\$ 1.627 billion), down 14.2 per cent from the JPY 209,426 million (\$1.896 billion) in the previous fiscal year. Decreased sales and exchange rate effects resulted in an operating income of JPY 18,484

million (\$167 million), down 40.5 % from the previous fiscal year. Sales outside Japan accounted for 43.1 % of all sales. Net income totalled JPY 18,490 million (\$167 million), down 39.7 % from the previous year.

Mobile crane sales in Japan fell 11.9 %, to JPY 45,017 million (\$408 million), partly due to the production changeover required to make new-model cranes, said Tadano. Outside Japan, Tadano

said market demand, which peaked in 2012, continued to fall overall, with demand in Europe remaining flat and demand in North America, the Middle East, and Southeast Asia decreasing. Sales of mobile cranes outside Japan decreased by 28.6 % year-on-year, to JPY 64,609 million (\$585 million).

Total sales of mobile cranes decreased by 22.5 % from the previous year to JPY 109,627 million (\$993 million). Sales of truck loader cranes in the Japanese market fell by 2.6 %, from the previous fiscal year, to JPY 18,192 million (\$165 million), while sales in markets outside Japan totalled JPY 1,440 million (\$13 million), down 14.7 %. Total sales of truck loader cranes were JPY 19,633 million (\$178 million), down 3.6 % from the previous fiscal year.

Tadano said it expects gradual recovery in Japan to continue and falling demand elsewhere to bottom out by the end of 2017.

Yorkshire, UK-based Emsley Crane Hire has added a new 13 tonne Kato CR-130Ri city crane to its fleet. It was supplied through Kato's European distributor, Rivertek Services.

The new addition is to replace a Kato CR100 which, according to John Emsley, Emsley Crane Hire managing director, served them well over the years. Emsley purchased its first City Crane in 1998 and is celebrating 70 years in business this year. John and Peter Emsley run a fleet of 60 cranes from their Harrogate and Doncaster depots.

John Emsley commented, "Through the years we have purchased over 20 new Kato cranes and they have always been a very reliable and a fantastic crane. This new crane is the first of many Katos that we plan to bring back into our fleet. It is a quality crane that is always in demand and we are very happy with the service and attention to detail shown by Rivertek."



HIGHLIGHTS

■ Belgian crane rental, transport and industrial assembly company Michielsens is expanding its rental fleet of 180 mobile cranes with an order for a new 700 tonne capacity Demag AC 700-9 all terrain crane. The 9-axle, 60 metre boom machine is the second unit of this model the company has bought, Johan Michielsens, company owner, said.

CORRECTION

In the May issue's *Picture of the month* (page 49) we were so excited about the idea of a crane looking like something from the movie *Close Encounters of the Third Kind* that we described the Link-Belt HTC-86110 hydraulic truck crane in the photograph as a rough terrain crane. ICST apologises for the error.

ALE increases skidding capability

Heavy handling, transport and installation specialist ALE has designed and built a new self-propelled skid system, the SS800, with 800 tonne capacity skid shoes. So far 48 units of 800

tonne skid shoes, 12 x 83 tonne push-pull units, and 190 sections of 5 metre track have been built.

ALE said the 800 tonne capacity skid shoe logically follows the existing 150, 300, 500, 650 and 1,200 tonne skid shoes. "We believe skid systems have a great future," said Ronald Hoefmans, ALE technical director. "The loads nowadays are becoming so heavy, but are still compact and need compact transport systems with high capacities to move them."

The high capacity skid shoes

are suitable for site moves, load-outs and other heavy transport work worldwide. ALE said they have already been shipped off to work on their first projects.

The system also has a new generation control system with stroke and pressure control, as well as a variable skidding speed to reduce acceleration and deceleration during start up and stopping of the movement, ALE said. It was designed by ALE in Breda, Netherlands and increases overall skidding capacity by 38,400 tonnes.



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LIEBHERR

The majority of manufacturers saw decreases between weeks 17 and 22 in the *IC* Share Index, albeit small ones.

JOE MALONE reports

Small steps

Weeks 17 to 22 saw marginal changes to share prices, reflected in the *IC* Share Index, which fell 1.30 percent. It was a period which saw single-digit shifts with the stock markets and exchange rates also slowing in momentum.

The biggest increase came from Kobe Steel's share price, which rose 9.29 %. It was recently reported that Kobe Steel would spend US\$484 million to strengthen its aluminium business. Following Kobe Steel's reverse share split in October 2016, the company's share price slowly dropped but has seen a resurgence since week 17. It is close to reaching its record level, achieved in December last year.

Palfinger saw its share price rise 5.12 %. At the time of writing it was at a record high, reaching €39 (\$43.96) during week 21 for the first time since *ICST* began taking records in 2007.

Looking at the decreases, XCMG saw its price fall 9.31 % despite the company reporting that its export sales had doubled in the first four months of 2017, year-on-year, with business increasing in Asian markets, the Middle East, and Africa. The company said the increase in sales was linked to the Chinese government's One Belt, One Road initiative, which focused on infrastructure and transport projects in Asia and East Africa. The company's share price

reached a two-year high during the preceding period but has since fallen.

There was a decrease of 5.71 % in Hitachi Construction Machinery's share price. Some five weeks ago, it was announced that Hitachi would buy compressor manufacturer Sullair from Accudyne Industries for US\$1.245 billion. The deal gives Hitachi portable compressors as well as a much stronger presence in North America.

A drop of 5.04 % was seen by Liugong's share price. Its price fell below CNY8 (\$1.18) per share for the first time this year, and reflects a negative year so far for the company's investors.

Konecranes saw its price fall 4.10 %. *ICST* reported that Terex Corporation completed the sale of 7 million Konecranes shares, constituting 8.9 % of the Finnish crane maker's outstanding shares. The price at the time of transaction was €37.40 per share, 0.9 % less than the closing price on 23 May. The Konecranes board of directors had two members from Terex, David Sachs and Oren Shaffer, who resigned from the Konecranes Board on 23 May because Terex's shareholding fell below 10 % of all outstanding Konecranes shares with the sale.

So in review, it was a relatively quiet period for most companies, despite the majority seeing minor decreases. This will, however, have been met with realism as the spring and summer months often produce a slower moving market for investors.

APRIL *IC* SHARE INDEX

STOCK	CURRENCY	PRICE AT START	PRICE AT END	PRICE CHANGE	% CHANGE	PRICE 12 MTHS AGO	12 MTH % CHANGE
<i>IC</i> Share Index*		53.06	52.37	-0.69	-1.30	46.66	12.22
Legacy <i>IC</i> Share Index**		330.36	330.24	-0.12	-0.04	253.38	30.33
Dow Jones Industrial Average		21007	21144	137	0.65	16514	28.04
FTSE 100		7302	7566	264	3.61	5993	26.24
Nikkei 225		19896	20177	282	1.42	17698	14.01
Hitachi Construction Machinery	YEN	2871	2707	-164	-5.71	1758	53.98
Konecranes	€	38.80	37.21	-1.59	-4.10	21.10	76.35
Kobe Steel	YEN	990	1082	92	9.29	123	779.67
Liugong	CNY	8.34	7.92	-0.42	-5.04	7.50	5.60
Manitowoc Cranes	US\$	6.02	5.86	-0.16	-2.66	14.20	-58.73
Palfinger	€	37.10	39.00	1.90	5.12	25.35	53.85
Sany Heavy Industry	CNY	7.03	6.93	-0.10	-1.42	6.00	15.50
Tadano	YEN	1438	1417	-21	-1.46	1281	10.62
Terex	US\$	34.92	33.85	-1.07	-3.06	17.27	96.00
XCMG	CNY	3.76	3.41	-0.35	-9.31	3.73	-8.58
Yongmao Holding	SGD	0.69	0.69	0.00	0.00	0.15	360.00
Zoomlion	CNY	4.49	4.39	-0.10	-2.23	5.04	-12.90

* *IC* Share Index, 1 Jan 2011 = 100

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



ABOUT THE AUTHOR
JOE MALONE is editor of *ICST* sister publication *International Rental News*

EXCHANGE RATES – VALUE OF US\$

CURRENCY	VALUE AT START	VALUE AT END	VALUE CHANGE	% CHANGE	VALUE 12 MTHS AGO	12 MTH % CHANGE
CNY	6.903	6.819	-0.0842	-1.22	6.06	12.51
€	0.9127	0.8922	-0.0205	-2.24	0.7376	20.96
Yen	112.64	111.49	-1.16	-1.03	102.51	8.76
UK£	0.7707	0.7780	0.0073	0.95	0.6119	27.15

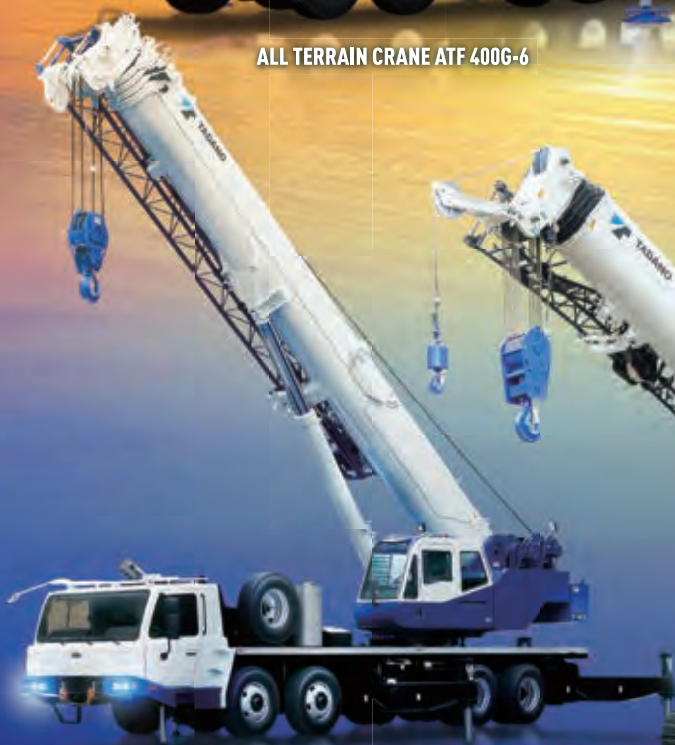
Period: Weeks 17-22



ALL TERRAIN CRANE ATF 400G-6



ROUGH TERRAIN CRANE GR-1600XL/1450EX



TRUCK CRANE GT-600EX



TELESCOPIC BOOM CRAWLER CRANE GTC-1200



LOADER CRANE TM-ZT1000H

**Tadano's family of cranes
reaches all around the world!**

Lifting your dreams

IC50 CRANES

Staying up

Now in its 22nd year, and after yet another 12 months in a world of uncertainty, the *IC50* ranking of the world's largest crane-owning companies has done well to once again maintain healthy growth. *ICST* reports

A more modest but still healthy rise that characterises the 2017 *IC50* was, perhaps, to be expected this year. It fits with the fact that most of the major crane manufacturers have had a poor couple of years in terms of new crane sales and this is now reflected in the *IC50*. The total fleet capability (*IC* Index) for this year's top 100 companies is up by 6.1 per cent. While this is just over half the 11.1 % increase seen last year, which was very close to the 11.8 % of the year before, it is still a healthy and positive growth figure.

Also up this year among the top 100 companies is the number of depots, by 4 %, to 1,516 from 1457 in 2016. All the other numbers are down, however, starting with the number of employees, down 5 % from 238,455 to 226,514 in the top 100. The number



Austrian specialist contractor Felbermayr moves up one place to 30 this year

of wheeled mobile cranes is down nearly 3 % from 25,652 to 24,910. Lattice boom cranes in the top 100 are down 1.9 % from 6,761 to 6,635.

Fewer wheeled mobile cranes in the top 100 has been a trend for the last few years but against that there has usually been an increase in the number of crawler cranes. As the overall capability of the top 100 is still up this means

that there is a trend towards fewer but larger cranes, probably both of wheeled mobile and lattice cranes, rather than just lattice cranes getting bigger as in previous years.

Who is where

So, to the results: Mammoet is at number one for the 22nd time. Some changes stand out this year. Mammoet has increased its *IC* Index but has fewer cranes: in each category, by 19 %; wheeled mobiles from 1,204 units to 975; and lattice cranes, from 341 to 275. Mammoet said it has invested steadily in a larger proportion of high capacity cranes. Spokesperson Theo Kroese commented, "This is a result of our investment and innovation policy, which takes long term trends into account – such as a continuously growing global demand for higher capacity cranes – as well as mid-term market conditions."

While Sarens, Lampson, Sanghvi and All Erection retain the same places as last year in the middle of the top ten, there has been significant change elsewhere in the top 10. Maxim moves up one place to 4th in the table »



Nettle Crane Hire from India is one of 17 new entries this year

RANK		COMPANY NAME	AREA OF				
2017	2016		BASED	DEPOTS	EMPLOYEES	OPERATION	SENIOR CONTACT
1	1	Mammoet	Netherlands	90	5,000	Worldwide	Jan Kleijn
2	2	Sarens	Belgium	90	4,195	Worldwide	Wim Sarens
3	4	Maxim Crane Works	USA	55	3,300	Worldwide	Bryan Carlisle
4	3	ALE	UK	40	1,800	Worldwide	Paul Sands
5	5	Lampson International	USA	8	300	Worldwide	William Lampson
6	6	Sanghvi Movers	India	30	1,800	National	Prajwal Kumar
7	7	All Erection & Crane Rental	USA	37	1,500	Continental	Michael Liptak
8	12	Bigge Crane and Rigging	USA	17	932	Continental	Weston Settlemier
9	8	Tat Hong	Singapore	35	1,745	Worldwide	Michael Ng
10	9	Weldex	Scotland	2	150	Worldwide	Iain McGilvray
11	25	Buckner Heavy Lift Cranes	USA	5	500	Worldwide	Doug Williams
12	13	Prangl	Austria	16	655	Continental	Christian Prangl
13	10	Deep South Crane & Rigging	USA	6	600	Worldwide	Mitch Landry
14	11	Al Jaber Heavy Lift	UAE	8	850	Worldwide	George Koshy
15	21	Al Faris	Dubai, UAE	6	2,650	Continental	HW Pinto
16	19	BMS	Denmark	22	650	Worldwide	Jens Enggaard
17	15	MIC	Japan	12	600	National	Eikichi Oyama
18	14	Tiong Woon Crane and Transport	Singapore	11	1,070	Worldwide	Michael Ang Guan Hwa
19	26	Integrated Logistics	Kuwait	3	2,500	Continental	Saleh Al Huwaidi
20	17	Hovago Cranes	Netherlands	2	20	Worldwide	Doron Livnat
21	16	Sinopec Heavy Lifting and Transportation	China	7	550	Worldwide	Sun Xiaobo
22	18	Sarilar Heavy Lift & Transport	Turkey	8	600	Worldwide	Ayla Gürbüz Aslan
23	22	TNT Crane & Rigging	USA	43	1,500	Continental	Mike Appling
24	27	SOP&G	Russia	5	700	Continental	Ildar Akhmetov
25	24	Barnhart Crane and Rigging	USA	45	1,200	National	Alan Barnhart
26	23	Schmidbauer	Germany	25	550	Worldwide	Werner Schmidbauer
27	28	ABG Infralogistics (Starlog Enterprises)	India	24	500	National	R.C. Swamy
28	29	Wasel	Germany	15	525	Continental	Matthias Wasel
29	30	NCSG Crane and Heavy Haul	Canada	26	1,002	National	Ted Redmond
30	31	Felbermayr Transport und Hebetchnik	Austria	48	1,500	Continental	Horst Felbermayr
31	32	Chu Kai Public Company	Thailand	6	580	National	Thongchai Paibrungsri
32	33	Eurogrúas	Spain	25	994	Worldwide	Antonio Carrion Fernandez
33	35	Havator Group	Finland	37	600	Continental	Jussi Yli-Niemi
34	38	PVE Cranes & Services	Netherlands	4	130	Worldwide	Joost Bömer
35	44	JF Lomma	USA	8	185	Worldwide	James Lomma
36	37	W.O. Grubb	USA	11	375	National	William Grubb
37	39	Uchimiya Transportation & Engineering	Japan	5	297	National	Seiji Tani
38	40	Consolidated Contractors Company (CCC)	Greece	4	155,000	Worldwide	Maher Kabbani
39	41	Ainscough Crane Hire	UK	32	1000	National	Derek Gow
40	42	Mediaco Lifting	France	60	1,600	National	Alexandre-Jacques Vernazza
41	36	Locar Guindaste e Transportes Intermodais	Brazil	10	1,200	National	Julio Simões
42	47	Bragg Crane Service	USA	14	640	National	Mike Roy
43	45	Asiagroup Leasing	Singapore	3	500	Continental	Jeffrey Poh
44	52	Aertssen Kranen	Belgium	5	n/s	Worldwide	Manuel Aertssen
45	179	Tokyo Juki	Japan	11	158	Worldwide	Taku Tsuruoka
46	46	Guay Inc.	Canada	20	500	National	Jean-Marc Baronet
47	55	Sims Crane and Equipment	USA	14	480	Regional	Dean Sims
48	50	Sterett Crane & Rigging	USA	8	120	National	Jonathan Spong
49	92	Chunjo Construction	Korea	17	100	Worldwide	Chang Hwan Jang
50	63	Chubu Kogyo (CKK)	Japan	14	215	Worldwide	Masayuki Shimada

JOB TITLE	WEB SITE	WHEELED MOBILE CRANES	LATTICE CRANES	LARGEST CRANE	LARGEST CRANE CAPACITY	IC INDEX 2017	RANK 2017
Chief executive officer	www.mammoet.com	975	275	PTC 200 DS	5,000	2,900,000	1
Chief executive officer	www.sarens.com	1,069	424	SGC-120	3,200	2,381,459	2
Chief executive officer	www.maximcrane.com	2,789	484	Manitowoc 31000	2,300	2,086,183	3
Director	www.ale-heavylift.com	84	30	AL.SK350	5,000	1,701,200	4
President and CEO	www.lampsoncrane.com	73	387	Lampson LTL-3000	3,000	1,248,899	5
Assistant vice president	www.sanghvicranes.com	290	300	Terex Demag CC 3800	650	1,020,560	6
President	www.allcrane.com	1,127	338	Manitowoc 21000	907	655,091	7
President and CEO	www.bigge.com	627	189	Liebherr LR 1750/2	750	488,771	8
Chief executive officer - Asean	www.tathong.com.sg	185	521	Manitowoc ML750	700	483,669	9
Managing director	www.weldex.co.uk	0	126	Liebherr LR 11350	1,350	465,500	10
Chief executive officer	www.bucknercompanies.com	12	131	Liebherr LR 11350-P	1,815	425,677	11
Managing director	www.prangl.at	193	16	Terex SL 3800	650	422,500	12
Vice president	www.deepsouthcrane.com	208	22	VersaCrane TC-36000	2,268	416,127	13
Business development director	www.ajhl.com	185	86	Terex CC 8800-1 Twin	3,200	401,000	14
Director	www.alfarisgroup.com	744	57	Liebherr LR 11000	1,000	381,968	15
Chief executive officer	www.bms.dk	383	46	Liebherr LR 11350	1,350	367,857	16
President	www.mic.jp.com	222	160	Terex CC 8800-1 Boom Booster	1,600	351,915	17
Chief operating officer	www.tiongwoon.com	218	172	Terex CC 8800-1	1,600	342,526	18
Chief executive officer	www.integrated-me.com	588	93	Terex CC 8800-1 Boom Booster	1,600	321,981	19
President and founder	www.hovago.com	160	39	Terex CC 6800	1,250	314,200	20
President	slt.segroup.cn	68	45	XCMG XGC 88000	4,000	298,575	21
Executive member	www.sarilar.com.tr	235	61	Terex CC 6800-1	1,250	281,879	22
Chief executive officer	www.tntcrane.com	570	51	Liebherr LTM 11200-9.1	1,200	267,757	23
Director	www.sopig.ru	16	32	Liebherr LR 11350 Power Boom	1,350	257,660	24
Chief executive officer	www.barnhartcrane.com	409	29	Demag CC 4000 RL	1,600	248,645	25
Chief executive officer	www.schmidbauer-gruppe.com	330	10	Liebherr LR 11350	1,350	247,900	26
Project manager	www.abgworld.com	151	72	Terex CC 6800	1,250	211,234	27
Managing director	www.wasel-krane.de	192	17	Liebherr LG 1750	750	195,000	28
President and CEO	www.ncsg.com	336	40	Liebherr LTM 11200.9-1	1,200	192,322	29
Senior partner	www.felbermayr.cc	403	33	Liebherr LR 11000	1,000	185,969	30
Chairman	www.chukai.co.th	425	87	Demag CC 6800	1,250	178,762	31
President	www.eurogruas.com	383	10	Liebherr LR 11350	1,350	177,301	32
Chief executive officer	www.havator.com	398	51	Terex CC 6800	1,250	163,500	33
CEO	www.pvecranes.com	4	97	Liebherr LR 1750	750	161,263	34
President	www.jflommainc.com	158	92	Manitowoc 18000 Max-er	750	151,333	35
President	www.wogrub.com	248	73	Liebherr LR 1750/2	750	149,896	36
General manager	www.uchimiya.co.jp	99	64	Terex CC 6800	1,250	146,073	37
Manager	www.ccc.me	479	197	Terex CC 2200	350	134,989	38
Sales and marketing director	www.ainscough.co.uk	450	4	Liebherr LTM 1800 special	1,000	132,000	39
President	www.mediaco.fr	640	10	Liebherr LG 1750	750	129,870	40
President	www.locar.com.br	211	18	Liebherr LR 1800	800	129,832	41
Executive vice president	www.braggcrane.com	226	31	Liebherr LR 1750/2	750	128,270	42
Business development manager	www.asiagroup.com.sg	192	128	Terex AC 1000	1,000	127,730	43
Director	www.aertssen.be	108	47	Terex Superlift 3800	650	123,466	44
President and director	www.tokyojuki.com	37	64	Terex CC 6800	1,250	113,376	45
President	www.gruesguay.com	426	22	Liebherr LTM 11200-9.1	1,200	112,866	46
President	www.simscrane.com	257	31	Kobelco SL6000	550	112,497	47
President	www.sterettcrane.com	148	41	Terex CC 2800-1	600	106,910	48
CEO	www.chunjo.com	249	59	Manitowoc 31000	2,300	106,845	49
President and director	www.ckk-net.com	119	70	Demag CC 8800-1	1,600	98,309	50

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RANK		COMPANY NAME	AREA OF				
2017	2016		BASED	DEPOTS	EMPLOYEES	OPERATION	SENIOR CONTACT
51	51	PT. Superkrane Mitra Utama	Indonesia	2	508	National	Leonardy Tan
52	66	Sistem Crane Rental & Heavy Haulage	Turkey	3	145	Worldwide	Kemal Akinli
53	49	Vest Kran	Norway	12	100	Continental	Morten Martinessen
54	NEW	Nordic Crane Kynningsrud	Norway	14	310	Continental	Eirik Kynningsrud
55	53	Franz Bracht Kran-Vermietung	Germany	16	632	National	Dirk Bracht
56	54	Gruas Roxu	Spain	6	257	Worldwide	José Manuel García Suarárez
57	48	Hareket Heavy Transport and Lifting	Turkey	6	380	Worldwide	Yusuf Engin Kuzucu
58	59	Scott-Macon Equipment	USA	9	200	Worldwide	Robert Dimmitt
59	56	Fagioli	Italy	10	630	Worldwide	Fabio Belli
60	60	Johnson Crane Hire	South Africa	12	595	National	Lalith Senarathne
61	61	Musselli (CST Consorzio Sollevamenti Trasporti)	Italy	30	487	Continental	Ferruccio Musselli
62	62	Avi Cranes	Israel	3	310	National	Eyal Kornblit
63	NEW	Crane Norway Group	Norway	4	300	National	Erik Andersen
64	64	Monadelphous Group	Australia	7	4,718	National	Garry Kearney
65	76	Jousai Transport & Crane	Japan	22	365	National	Ichiro Kurikawa
66	67	Marco Crane and Rigging	USA	6	187	National	Dan Mardian
67	65	Antar Cranes Services	Singapore	5	200	Continental	Andrew Tan
68	69	Beyel Brothers	USA	8	324	Local	Joseph Beyel
69	75	H&E Equipment Services	USA	32	2,035	National	Cary Burr
70	70	Makro Engenharia	Brazil	3	1,120	National	David Rodrigues
71	71	Yonehara	Japan	30	972	National	Hiroki Yamada
72	73	Foselev	France	29	430	National	Christophe Brière
73	58	Imperial Crane Services	USA	7	250	Worldwide	B.J. Bohne
74	72	Allegiance Crane & Equipment	USA	10	375	Worldwide	James Robertson
75	68	Dozier Crane & Machinery	USA	3	33	Worldwide	Dozier Cook
76	57	Mountain Crane Service	USA	5	197	National	Paul Belcher
77	NEW	Barkat Cranes & Equipments Pvt Ltd	India	4	379	National	Gagan Preet Singh Bedi
78	80	Stevenson Crane Service	USA	3	175	Worldwide	Donna Stevenson
79	74	Entrec Corporation	Canada	19	550	Continental	John Stevens
80	77	Izmir Vinç	Turkey	1	n/a	Worldwide	Bulent Kusgoz
81	78	McNally Crane Hire / WindHoist	Ireland	6	187	Worldwide	Hugh McNally
82	90	Wagenborg Nedlift	Netherlands	11	482	Worldwide	AG Klijn
83	NEW	Utility One Source	USA	26	1,000	National	Fred Ross
84	82	Ring Power Crane	USA	10	80	Worldwide	Dave Glass
85	83	Turner Industries	USA	4	563	local	J. Michael Morain
86	84	Riga Mainz	Germany	5	158	Continental	Jos Vogelzang
87	89	Ness Campbell Crane	USA	9	250	Regional	John Anderson
88	86	Canibano	Spain	6	280	Worldwide	Angel Canibano
89	79	Irving Equipment	Canada	12	130	National	David Irving
90	87	Barcelona Equipment	USA	1	60	Regional	Bob Steiner
91	109	Northwest Crane Service	USA	8	95	National	Andy Hodges
92	NEW	Circle 8 Crane Services	USA	6	194	Regional	Bryan Ericson
93	107	Capital City Group	USA	5	135	National	Brian Gibson
94	95	Kelley Equipment	USA	3	n/s	National	Daniel Gold
95	93	Irga Lupercio Torres	Brazil	1	268	Worldwide	Lupercio Torres
96	94	Big Crane and Equipment Rentals	Thailand	2	373	National	Ananya Chatjuthamard
97	101	Gruas Aguado	Spain	10	290	Worldwide	Mario Aguado
98	NEW	Denzai Holdings Corporation	Japan	11	305	Worldwide	Kohki Uemura
99	103	Southwest Industrial Rigging	USA	4	170	National	Mike Madge
100	99	Digging and Rigging	USA	6	212	Local	James Gregory

JOB TITLE	WEB SITE	WHEELED MOBILE CRANES	LATTICE CRANES	LARGEST CRANE	LARGEST CRANE CAPACITY	IC INDEX 2017	RANK 2017
Engineering maintenance	www.superkrane.com	105	64	Liebherr LR 1750	750	95,278	51
General manager	www.sistemcrane.com	39	11	Liebherr LR 1750	750	94,853	52
Managing director	www.vestkran.no	51	15	Liebherr LG 1750	750	93587	53
General manager	www.nckynningsrud.com	210	12	Liebherr LG 1750	750	89780	54
Managing director	www.bracht-autokrane.de	242	22	Liebherr LTM 1750	750	88,930	55
Sole administrator	www.gruasroxo.com	162	5	Liebherr LTM 11200	1,200	85,255	56
General manager	www.hareket.com.tr	32	14	Liebherr LG 1750	750	79,856	57
Executive vice president	www.smequipment.com	465	56	Terex AC 140	140	76,290	58
CEO	www.fagioli.com	22	10	Liebherr LR 11350	1,350	75,800	59
Managing director	www.jch.co.za	268	3	Liebherr LR 1750	750	72,128	60
President	www.musselli.it	300	0	Demag AC 800	800	71109	61
Corporate CEO	www.avi-cranes.co.il	86	11	Terex Demag CC 2800	600	70,455	62
General manager	www.cranenorway.com	110	14	Terex CC 3800-1	650	70133	63
Heavy lift manager	www.monadelphous.com.au	109	20	Manitowoc 18000	750	69,140	64
President	www.jousai.co.jp	145	48	Demag AC 700	700	67,559	65
President	www.marcocrane.com	190	21	Manitowoc Grove GMK7550	450	65,064	66
General manager	www.jpnelson.com.sg/antar	4	182	IHI CCH2800	280	64,891	67
President	www.beyel.com	110	39	Terex Demag AC 650	650	64,635	68
Senior VP of cranes	www.he-equipment.com	387	0	Grove RT9150	136	61,250	69
Chief executive officer	www.makroengenharia.com.br	324	13	Liebherr LTM 11200-9.1	1,200	59,824	70
Manager	www.yonehara.co.jp	395	50	Liebherr LTM 1450NX	450	59,094	71
Director	www.foselev.com	275	3	Liebherr LTM 1500-8.1	500	58,846	72
President and CEO	www.imperialcrane.com	195	35	Liebherr LTM 1500-8.1	500	57,000	73
President and CEO	www.allegiancecrane.com	131	14	Terex AC 500	500	56,082	74
President and owner	www.doziercrane.com	41	66	Liebherr LR 1300SX	300	55473	75
Owner	www.mountaincrane.com	82	23	Liebherr LTM 1750-9.1	750	52,740	76
Partner and joint chairman	www.barkatworld.com	30	7	Liebherr LR 1750	750	52060	77
President	www.stevensoncrane.com	140	28	Manitowoc 18000 Max-er	750	50,658	78
President and CEO	www.entrec.com	169	20	Liebherr LR 1750	750	48,816	79
n/s	www.izmircrane.com	24	21	Demag CC 2800-1	600	46,862	80
Managing director	www.cranehire-ireland.com	32	5	Liebherr LTM 11200-9.1	1,200	45,080	81
Managing director	www.wagenborg.com	109	5	Liebherr LR 1750	750	43,032	82
President	www.utility1source.com	282	25	Terex AC 250	250	42180	83
Vice president	www.ringpowercrane.com	110	26	Manitowoc 16000	400	40,971	84
Executive vice president	www.turner-industries.com	36	12	Demag TC 4000	650	40,176	85
Senior project manager	www.riga-baumann.de	68	2	Liebherr LR 1750	750	38,800	86
President	www.nesscampbell.com	88	1	Liebherr LTM 1500-8.1	500	38,550	87
President	www.canibano.com	73	5	Terex Demag CC 4800	800	37,500	88
General manager	www.irvingequipment.com	102	20	Liebherr LR 1750	750	36,540	89
President	www.barcelonacrane.com	51	40	Tadano ATF 400G-6	400	33,711	90
President	www.northwestcraneservice.com	30	4	Liebherr LR 11000	1000	33,030	91
President	www.circle8services.com	65	0	Grove GMK7550	450	32100	92
President and CEO	www.ccgroupp-inc.com	86	17	Grove GMK7550	450	32,092	93
Chief executive officer	www.kelleyequipment.com	52	34	Terex AC 500-2	500	32,077	94
President	www.irga.com.br	14	14	Terex CC 2800	600	32,010	95
General manager	www.bigcrane.co.th	233	42	Tadano ATF400G-6	400	31,925	96
Chief executive officer	www.gruasaguado.com	220	12	Liebherr LR 11000	1000	31,750	97
Executive director	www.denzai-j.com	153	54	LR 11350 P-1800	1800	31483	98
Vice president	www.swirusa.com	80	8	Grove GMK7550	450	31,248	99
President	www.digrig.com	84	0	Liebherr LTM 1750-9.1	750	31,002	100

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LIEBHERR



Tara Chand is another new entry from India this year, in at 111

THE BASKET OF 10

Our basket of 10 companies sample that we have been running since 2009 has been seriously upset this year in that three of the companies in it, Maxim, AmQuip and Essex, have become one, reducing the sample to eight companies. Almost everything that we usually measure is down, including the number of depots, the number of employees, both crane types and the total capacity of the largest cranes. One remaining figure, however, is up: the total IC Index of those ten companies is up by just over 3 %. Next year we plan to start a new sample.

as a result of major acquisition activity (see below). It displaces ALE from third place. The UK-based super heavy lift and transport specialist has maintained the same fleet size for the last few years. Making a significant leap into the top ten at 8 is Bigge Crane & Rigging which moves up four places from 12. Anyone who has tracked the number of orders and handovers of new equipment at the last Bauma and ConExpo shows will be unsurprised by this increase.

Bigge displaces Tat Hong from Singapore down one at 9th with an IC Index 11.4 % lower than 2016. The knock-on effect of Bigge's entry into the top ten is that Weldex moves down one to tenth. Moving out of the top ten to 13th is Deep South Crane & Rigging which, despite increasing its Index, added less capacity than Buckner or Prangl above

it. Buckner has made a huge leap, up to 11 from 25, increasing its fleet capability by 73 % from 245,557 to 425,677. While it added five wheeled cranes, the real increase was lattice cranes up from 84 to 131 units. Prangl also increased its capability by a significant 13 %.

Another major mover was Al Faris in the Middle East which boosted its fleet capability by 51 % from 252,741 to 381,968. Others well on the up included BMS in Denmark, SOP&G in Russia, Integrated Logistics in Kuwait, and Aertssen Kranen in Belgium.

New look

Now some data on the table overall this year. While we focus on the top companies there were 196 entries in total. It was good to see 17 new entries, six of them in the top 100.

The highest two of the new entries were as

a result of one company, Nordic Crane Group, splitting into two in July 2016. The 50:50 owners, Kynningsrud AS and Stangeland Gruppen AS, established Nordic Crane Group in 2008 and doubled the Group's turnover but they said that despite strong growth, synergies were not the way they wanted and geographical distance contributed to the fact that Nordic Crane Group did not make the best use of resources. Now in the IC50 there is Nordic Crane Kynningsrud at 54 in the table and Crane Norway Group at 63.

»



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Other ownership changes since last year have had further impact on the table. Most notable is Maxim's acquisition of major US crane-owning companies ERC (Essex Crane and Coast Crane) from position 20 and Amquip, at 43, in last year's table. Maxim bought the Essex crawler crane fleet in September 2016, followed by Coast Crane in April 2017.

In 2016 Maxim's owner, investment group

Platinum Equity, sold it to Apollo Capital which also acquired Amquip and merged the two companies as Maxim. Back in 2009 both Amquip and Essex were up in the top 10 of the IC50 ranking.

In the 2016 IC50 Maxim's 2015 acquisition of Crane Rental Corporation boosted its IC Index but insufficiently to change its position in the table. This year, however, the latest acquisitions, including the large fleet of high capacity crawler cranes from Essex, accounts for Maxim's one place gain in the table.

UK-based Hewden, at position 110 in the 2016 table, has disappeared this year following its closure and fleet sell-off earlier in 2017. Way back in June 1995 Hewden Stuart Crane Hire, as it was called then, appeared in the very first IC50 ranking, in 10th place.

Other than Hewden and the companies mentioned above that have been acquired, another 25 companies from last year were dropped, almost all of them outside the top 100, because of insufficient data.

BKL in Germany, at 113 in the table, also has a large fleet of tower cranes



NOTES FOR IC50

Companies are ranked by their IC Index, calculated as the total maximum load moment rating, in tonne-metres, of all cranes in a fleet. All companies in the list, plus other prospective ones, have the opportunity to supply fleet information and other data for inclusion in the ranking. Where companies supply the full data the figure used is calculated by them. In some cases, where little data is submitted, or is incomplete, we have based a company's equipment fleet figure on ICST estimates. In cases of insolvency, acquisition, or a consistent 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 IC accepts no liability for inaccuracies or omissions.

The IC50 Index will next be updated in the first quarter of 2018. If you think your company should be included please contact ICST for an application form. Note that tower cranes are not in the main IC50 table here as they will appear separately in the special IC Tower Index in the September issue of IC. Similarly, specialized transport equipment is also in a separate ranking, the IC Transport50, in the August issue of the magazine.

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Gone with the wind

The size of components both for onshore and offshore wind farms is increasing, creating very different challenges for the companies tasked with transporting them.

CHRISTIAN SHELTON reports

As increasing numbers of governments around the world look to alternative forms of energy generation to help address climate change, the wind power sector is booming – both onshore and offshore. The two environments, however, are very different propositions for companies tasked with transporting the various wind turbine components as efficiently and economically as possible.

Onshore wind power transport

According to Peter Libert, area sales manager at international heavy transport and lifting specialist Sarens, “onshore wind power transport has existed for around the last 30 years and is a relatively stable industry.” This is reflected in the wide range of specialist equipment that manufacturers have developed to serve this sector. For example, German heavy-duty road haulage and oversized cargo transportation specialist Goldhofer Aktiengesellschaft (Goldhofer) makes an arsenal of specialist machinery designed specifically to transport each element of a wind turbine. This includes: its FTV 300 rotor blade transport device for the transportation of rotor blades; its Super Lift fourfold extendable flatbed semitrailer for



Goldhofer's FTV 300 mounted on a PST/SL-E 8 self-propelled module

transporting long rotor blades; its RA4 tower adapter for transporting heavy tower sections (up to 180 tonnes); a range of low loaders with various axle systems for transporting nacelles; and a range of drop-deck vehicles for transporting turbine hubs designed to comply with regulations for maximum load height (which is 4.2 metres in most countries).

Goldhofer is not the only heavy transport equipment manufacturer to have such an extensive range. For example, another German company, Scheuerle Fahrzeugfabrik (Scheuerle), along with its Tii Group partner companies Nicolas, Kamag and Tiiger, offer

a portfolio that incorporates: tower adapters and supporting tips for wind tower transport; telescopic trailers for rotor blade transport; and modular self-propelled or towed platform trailers for transporting nacelles.

Most recently it was a Scheurle SPMT job that made the headlines with a high-profile move in Saudi Arabia - transporting three 58-m-long rotor blades for the Gulf Haulage Heavy Lift Company (GHHL) using 36 SPMT axle lines. According to Scheuerle, GHHL opted to use the SPMT because of their manoeuvrability, as the route to the installation site passed through an oil refinery which required careful negotiation. Scheuerle claims its comprehensive range of electronic SPMT steering programs made this possible. The company says it expects to transport more rotor blades for GHHL as, by 2023, Saudi Arabia aims to produce 9,500 megawatts of wind and solar power.

Canadian specialized semi-trailer manufacturer, Temisko, has just developed a new blade trailer that it claims “was created with growth in mind”. Temisko says it can transport the current blade sizes of



36 axle lines of Scheurle SPMT were used to move three 58 metre long rotor blades for the Gulf Haulage Heavy Lift Company (GHHL) in Saudi Arabia

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Sarens used SPMT to transport 900 tonne tripod jacket foundations for steel construction company Lemants

set of standards we should be able to improve safety significantly," Splinter urges.

Offshore transport

The offshore environment, due to its intrinsic nature, does not suffer with the same restrictions or problems imposed by the infrastructure found onshore and the trend both towards bigger turbines and bigger wind farms continues unabated. "Many wind turbine factories are located near harbours or quays so the wind turbine's dimensions are potentially unlimited," qualifies Libert. "The weight and dimensions of components have grown over the last ten years, and will continue growing over the next ten years."

As offshore wind farms can be located away from where people live, even out of sight from land, the turbines also tend to be much greater in number than their land-based brethren. This significance of this? Well, it is all about logistics, as Libert explains, "Logistics is key in order to successfully transport all the components for offshore wind farms – particularly organising everything so that it arrives at the right time. »



203 feet (62 metres); however, the trailer has been designed to be easily upgraded to accommodate longer blades with the addition of a fifth beam – which extends the trailer's length to 218 ft (66 m). Even with the fifth beam added the trailer can close up to a length of 53 ft (16 m). The blade trailer also has a steering angle up to 46 degrees.

Safety concerns

The reason why Temisko has designed such a trailer is in response to the ever-growing size of wind turbines. And, on land, this increase in size is starting to cause problems as Sander Splinter, managing director of heavy lift specialist Mammoet Europe and president of ESTA's crane section, explains: "Safety during the transportation and erection

of onshore wind turbines is a growing concern. Quite simply, there are too many accidents and near misses. There have long been problems with poor quality access roads and hardstands on site but these issues are becoming more pressing as we see the development of bigger wind turbines. What is more, the increasing hub heights require longer and longer crane booms. And longer booms have limited workability in windy conditions." As a result, the International Crane Stakeholder Alliance (ICSA) – whose members include ESTA, FEM, AEM, CICA and the SC&RA – has created a new working group which is expected to discuss the issue further at the World Crane and Transport Summit in the Netherlands in November. "By all of us agreeing and adhering to a uniform



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The Port of Longview, in Washington State on the west coast of the USA, took an innovative approach to unloading wind energy blades. Using its two Liebherr mobile harbour cranes in



tandem, wind turbine blades were discharged directly from the vessel to rail cars. This, the port said, provided both time efficiencies and cost savings to its customer. The 160 foot (49 metre) blades, manufactured by Vestas, were discharged to flat-bed rail cars adjacent the vessel, moving along the port's on-dock rail system. Each blade required two railcars which then transported them to a wind farm in Illinois.

Any inefficiencies in the logistics process (assembling, storing and loading the wind power components) becomes multiplied by the number of turbines. This can make a big difference between profit or loss on your project." This is because production is slower than installation, so the entire process needs to be carefully controlled, Libert stresses.

Another point of difference with onshore turbines is that offshore wind turbines require foundations, as Libert explains: "Offshore wind turbines come in two parts: the wind turbine elements (tower, nacelle, and the blade) and the foundations - which are bigger and heavier than the wind turbine elements." The foundations come in two

types: jackets or monopiles. For transporting the jackets there are two main options. "First, SPMT can be used to move them to and from storage onto the installation vessel," Libert says. "Alternatively, a crane could be used." In the UK Sarens is working with Belgian steel construction company Lemants, which makes offshore wind turbine jacket foundations. Here Lemants is using a SGC120 (SGC stands for Sarens Giant Crane) to help with both the construction of the jacket foundations and with the storage logistics before they are shipped offshore.

"A second type of foundation is the monopile," continues Libert, "which is the most common foundation type." It is

essentially a big tube that is hammered into the seabed. It will penetrate the seabed whereas a jacket will stand on the seabed. A jacket receives its stability from its wide stance whereas a monopile receives its stability from penetrating (up to 20 metres into) the seabed. Thus monopiles are heavier and higher than jackets.

"The heaviest monopile weighs 1,300 tonnes," Libert says, "and monopile production companies tell us that soon they will weigh in excess of 2,500 tonnes." Sarens says this is no problem, as it is experienced in lifting and moving even heavier weights in the past for the nuclear, oil, and gas industries using a combination of SPMT and cranes. It does, however, illustrate the unrestrained nature of offshore wind power.

"The evolution of offshore wind turbines is a never-ending story," concludes Libert. "First there were 5 megawatt turbines. Now there is a prototype for a 9 megawatt turbine. And Siemens has said it will develop a 13 to 15 megawatt turbine. And even bigger turbines than that will surely come."

Just how far this evolution will continue remains to be seen, yet one thing is certain: companies involved in all aspects of heavy transport will continue to innovate and adapt to meet the challenges ahead. ■

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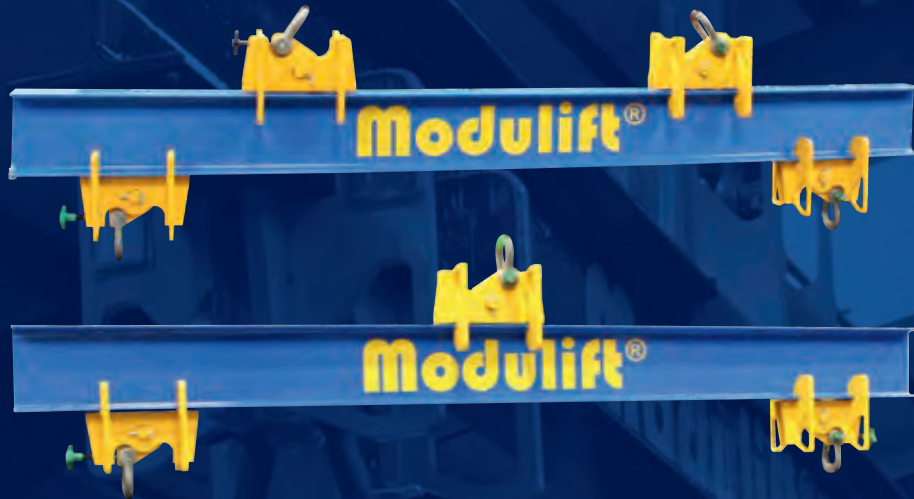
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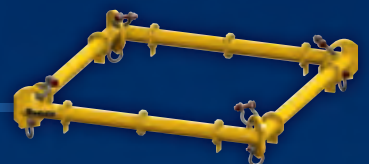
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Big winners

SC&RA Job of the year winners for 2017 are exclusively reported here by D.ANN SHIFFLER and HANNAH SUNDERMEYER, from *ICST* sister magazine *American Cranes & Transport*

RIGGING OVER US\$2 MILLION
FAGIOLI

Perfecting platforms

Fagioli completed a series of rigging, lifting and installation works to build one of the largest offshore platforms in the world

Fagioli completed marine transport and installation operations for one of the most impressive oil and gas projects ever undertaken in the offshore industry.

The installation scope covered the delivery of all modules to the assembly yard in Canada and their assembly into one topside unit on a customised pier. Fagioli also weighed the larger modules, including the Utility Process Module, the Living Quarters and the Drilling Support Module.

The project started in the fourth quarter of 2012 with the Engineering Phase running through to the end of 2013. Site operations ran from early 2014 to October 2016. Edoardo Ascione, Fagioli USA president, said, "Following the delivery of all modules to the assembly yard in Canada, Fagioli was called to prepare and perform one of the biggest load-out operations ever performed in the history of the offshore industry, executed after years of planning and engineering calculation and simulation activity."

Modules handled by Fagioli included the Utility Process Module weighing 48,501.6 US tons, the Drilling Support Module weighing 4,299 tons, and the Drilling Equipment Set weighing 4,078.5 tons. Ancillaries included the 374.7 ton Flare Boom, the Life Boat Stations weighing 231 and 253 tons, and the 126.7 ton Helideck.



To the Canadian job site the Fagioli team mobilised 240 axle lines of self propelled modular transporter (SPMT), strand jacks up to 606 tons, a tower lift system for the lifting activity, crawler cranes with a capacity of up to 1,488 tons, and a 7,736 ton capacity elevator system. In addition, there were 64 skid shoes with capacity up to 1,102 tons each for the skidding load-out and load-in activity, and climbing jacks.

The 4,299 ton Drilling Support Module arrived on a barge and Fagioli used more than 200 lines of SPMT for the load-in. The 4078.5 ton Drilling Equipment Set arrived via a transport vessel. Fagioli used more than 200 lines of SPMT for the load-in of this 229.6 foot tall unit.

Strand jacks and towers were used to raise the Drilling Support Module to 19 feet so that it could be positioned onto the elevator system, which raised the module to a height of 118 feet, ready for skidding onto the UPM. The Drilling Support Module was skidded onto the Utility Process Module in one direction

and then transversally skidded and jacked down using climbing jacks to its final position within extremely tight tolerances.

The Drilling Equipment Set comprised a 229.5 foot tall, 12,139 pound drill rig tower. It was transported to the job site by sea and then loaded in by SPMT before being lifted onto transport stools for final positioning onto the skidding system. The DES was lifted up to the planned height for the skidding operation into the UPM using strand jacks and the tower lift system.

Final installations were the 354 foot Flare Boom, moved on 32 axle lines of SPMT, and the East Boat Lift Station. Fagioli's scope of work ended in October 2016. At its busiest time, Fagioli reported that it had up to 225 workers on site.

"This project was one of the most challenging and complex operations ever performed by Fagioli," Ascione concluded. "The project represented one of the largest fleets of equipment used so far for the assembly of an offshore platform."



RIGGING US\$ 750,000 TO US\$ 2 MILLION
EMMERT INTERNATIONAL

Press room

Emmert International used innovative thinking to rig large press components

To install press components at a plant in Illinois, USA, Emmert International created a unique and creative rigging plan. The press will be the largest in the Western hemisphere. It comprises three base sections, one platen and two crowns. All three base sections were assembled into a single heavy lift of 1,627,096 pounds. The platen was the largest single piece and the upper crown was the tallest set of all four lifts.

"It was critical that the regular plant shipments were not impeded by the delivery and unloading of the press components," said Terry Emmert, Emmert International president. "It was strictly prohibited to interfere with any of the plant operations during all phases of the press installation."

The standard way to install the press is for each section to be lowered into the foundation pit using a large crane. Emmert proposed to assemble the base in front of the foundation pit before lifting it as a 1,627,096-pound component. Emmert designed custom rods and lift links to attach and lift it.

With the base section set, four 43 foot columns were placed in each corner prior



To lift and set the final press crown, only 6 inches (150 mm) of clearance was available from the top of the strand jack guide to the bottom of the roof structure

to stacking the other three components. The crown had to clear the vertical installed columns during the lift and set. This required the tower and strand jack system to lift the crown to the roof line of the building. The rigging configuration had to allow for maximum lift with minimal overhead obstruction. Emmert also designed low profile umbrella strand holders. The fully lifted crown cleared the top of the columns by 4 inches. The top of the lifting system cleared the roof by 6 inches.

On arrival at site, each piece was offloaded with a 450 ton hydraulic lifting gantry onto a

12-line Goldhofer PSTe trailer and moved 100 yards into the press assembly building. A 700 ton gantry system was used to remove and then lower them onto a turntable to be spun for assembly. Each piece was lifted again via gantry and placed for the base section mating and dress out. The fully dressed base section was set in one piece. It weighed in at 1,627,096 pounds, had an overall height of 12 feet, 7 inches and a width of 22 feet, 8 inches and a length of 33 feet, 4 inches.

The 700 ton gantry was used on the 645,000 pound platen to lower it onto trunnion stands and rotate it into the installation position. Repositioning the gantry allowed for loading, travel and installation of the platen above the previously placed base sections.

The crowns were offloaded, using the 450 ton gantry, onto the PSTe and moved into the press assembly building. For the last two crowns Emmert used 20 foot structural tower sections as a base. On top was an elevated 450 ton gantry system with track, beams and strand jacks. The lower crown was lifted first, moved 37 feet, 3 inches and lowered over the previously installed press columns. The Upper crown was then moved into place.

Innovation was key to the success of this project. Equipment used included Goldhofer PSTe and THP transport systems, 450 and 700 ton capacity J&R Lift-N-Lock gantry systems, HSL 2000 strand jack system, tower system, 8 and 12-axle depressed deck rail cars and a BBCX1000 20 axle railcar with a specialized engineered Schnabel attachment. »

The base section was set in one piece and weighed 1,627,096 pounds (738 tonnes)



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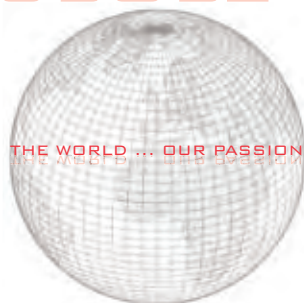
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EMMERT INTERNATIONAL

Span removal

Taking out four spans of a bridge in Oregon posed numerous challenges

As part of the Sellwood Bridge Removal Project in Oregon, USA, Emmert International was contracted to remove four spans of an old trestle bridge. The weight of the spans ranged from 372,000 to 476,000 pounds and sizes ranged from 190 to 246 feet long by 23 feet to 33 feet wide. Work hours were limited and tidal constraints and geographical challenges had to be overcome. Lead paint on the old bridge meant containment protocols had to be followed when cutting or grinding. Emmert limited these issues by developing attachments that did not require welding. To control camber and flex, the spans were removed in a set



Equipment used included the HSL 2000 heavy lifting strand jack system as well as custom designed strand jack bases, T-brackets and staging platforms

order with a cutting plan that mitigated shock loadings and strong shifts. Tension struts were chosen over a compression method to reduce the amount of grinding and welding by building movable attachment brackets.

Before installing the custom modular lift system, pre-installed bracing and pre-tension members were fitted. The beams were then pre-assembled with all lifting components.

The strand jack support beam system was installed on lift points at four locations and secured to the existing bridge girders by the engineered Dewidag hold down plate system. The strand jack anchors were connected to T-brackets pre-installed on the bridge spans. Having cut the bridge span free from the bents it was checked for obstructions and lowered to a barge.

RIGGING UNDER US\$ 150,000
BARNHART

Exchanger emergency

To remove and replace a refinery exchanger shell, Barnhart used a 'mobile, modular and manoeuvrable' solution

Last spring USA-based specialist lifting, moving and industrial installation contractor Barnhart was contacted about an emergency project that involved the removal and replacement of a ground-level exchanger shell at a refinery. There was a five-day turnaround from identification of the problem to installation of the equipment. The refinery team was familiar with Barnhart's Movable Counterweight Cantilever System

(MOCCS). The owner's idea was to use a 90 ton rough terrain crane with the MOCCS to extract the shell. Physical access limitations precluded use of traditional cantilever beam or traditional jack-and-slide solutions.

The exchanger shell was 17 feet long, 3.17 feet wide and weighed 7,000 pounds. The access route was less than 30 feet wide, and at 15 feet above grade elevation there was a 10 foot wide overhang protruding from

the structure's face. Barnhart developed a custom MOCCS arrangement and secured it to a 750 ton hydraulic turntable secured on six lines of Goldhofer PSTe trailer. Barnhart named the solution the M3A1. It could manoeuvre in all XYZ axes and rotate 360 degrees. The MOCCS system was configured to promote trailer stability and counterweight securement with the ability to stab inside the exchanger, lift out in a very tight area, and rotate the shell 90 degrees for transport out.

Using a 90 ton capacity rough terrain crane, the M3A1 was assembled, in a laydown yard, in about five hours. It travelled into the unit, stabbed the exchanger shell, removed it from its unit, and placed it on a trailer. This process was meticulous – a delicate sequence of raising, lowering, backing and rotating – avoiding live pipes and structural steel.

The replacement process was followed in reverse. Barnhart's work was completed in 12 hours, including mobilisation, execution and demobilisation. The removal and replacement took two hours.

Barnhart said it named its solution M3A1 because it was 'mobile, modular and manoeuvrable' and provided an 'A1' solution



MOVING with specialized equipment
FAGIOLI

Offshore module

Working around the clock, Fagioli orchestrated the transport and installation of a living quarter module on an offshore platform

Fagioli transported and installed a 4,500 ton living quarter module onto an offshore platform in Canada that measured 190 x 65 x 100 feet.

The entire process was broken up into the following phases: transportation of the living quarter module from construction hall to completion area; completion of the construction of the living quarters by assembling the Helideck, safety boat stations, and other equipment; jacking up the already assembled living quarters and inserting SPMT with towers and grillage; loading out the living quarter module to the barge; transporting the barge around the Finger Pier; and, finally, hanging the living quarter to the topside.

Operations were executed on a 24-7 basis with a double shift team from June to October 2016. This included 1,600 engineering hours and 2,800 operational man hours. Much of the work was made more difficult because it had to be done in the open sea.

Fagioli deployed 230 axle lines and 10

power packs, plus transport beams, support towers, grillage beams, roll-on roll-off ramps, and a mooring system. For the marine transport Fagioli used a 460 x 140 x 28 foot deck barge with integrated ballast system and two 55 ton bollard pull tugs.

After completion, the LQ was jacked up using Fagioli strand jack towers and the SPMT inserted with 60 foot tall grillage beams and towers. The centre of gravity of the load at that point was more than 100 feet above ground level.

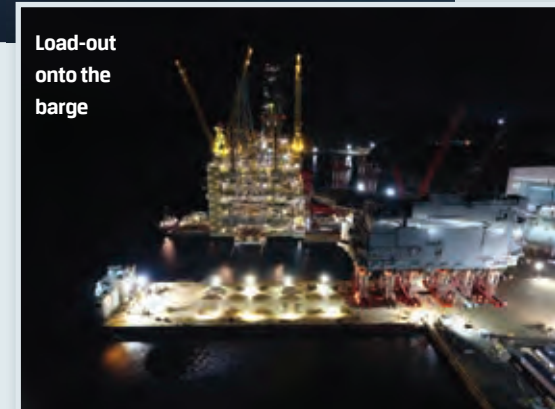
A multipoint 100 percent redundant mooring system consisting of eight 30 ton winches fitted with load cells was used during the load-out on the barge, which was planned to be independent from the tidal cycle.

A large part of the engineering work was the assessment of the barge stability and of weather-induced motions during the marine transportation around the topside (that was sitting on a finger pier).

The barge carrying the LQ module was kept in position by a spacer barge interposed

The barge approaching the installation area

Load-out onto the barge



between the finger pier. On removal of one side of the grillage, the LQ was moved against the topside by the SPMT, with the barge ballast system used to keep her keel even.

The SPMT aligned and centred the two large pad-eyes on the LQ with the pins on the topside, while the LQ lower side was aligned on the support base built on the topside. The survey instrumentation was important in controlling and guiding the operation.

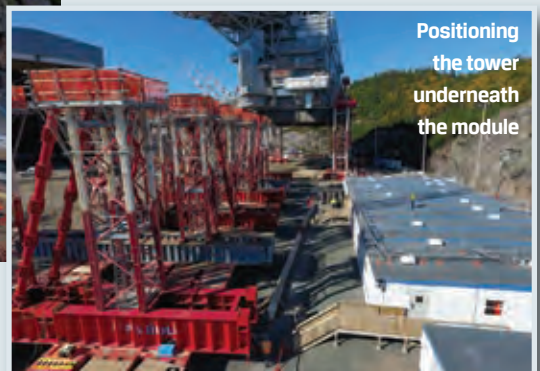
The ballast system was finally used to lower the LQ in its final position and disengage the transport equipment.

The Living Quarter Installation onto the topside was on the critical path of the overall project. The very detailed planning and design enabled the execution of SIMOPS (simultaneous operations) by other parties working to complete other parts of the topside. The living quarter module will provide accommodation for up to 220 people offshore.

The loading of the living quarter onto the SPMT after being built on site



Positioning the tower underneath the module



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For the heaviest item, Fagioli designed and built side beams to interpose between the load and the platform trailer to equally spread the load among the 30 hydraulic axle lines

TBM in record move

Fagioli directed the transport of the largest tunnel boring machine built in Europe

When Europe's largest tunnel boring machine had to be moved from Germany to Italy, specialist contractor Fagioli won the job.

Assembled in Germany, the new tunnel boring machine (TBM), named Santa Lucia has a diameter of 52 feet and will be used in the next three years to build the 4.6-mile Variante di Valico tunnel in the Apennines between Bologna and Florence in Italy.

Biggest of the sections was the cutting wheel, with a weight of 904,000 pounds. The components were loaded onto a barge on the river Rhine with the destination set for the Port of Rotterdam. There they were transferred onto a dedicated heavy-lift vessel. On arrival in Italy, at the Port of Ravenna, the sections were directly unloaded onto Fagioli hydraulic trailers, ready for the 105-mile journey to their final destination.

The three largest items were moved by road in a convoy, with transport configurations ranging between 230 feet and 90 feet in length, 32 to 26 feet in width, and between 1,200,000 pounds and 400,000 pounds gross weights. The route consisted of two provincial roads and, for the most part, the main Italian Highway A1 that connects northern and southern Italy.

During the two months of preparation Fagioli surveyed and checked the route and organised the transportation with national and local road authorities. Structural analysis was conducted for 96 bridges and two were load tested. Traffic control plans included: road blocks; the removal of more than 100 signs and lights; and the development of

contingency plans. For the heaviest item, Fagioli designed and built side beams to interpose between the load and the platform trailer to equally spread the load among the 30 hydraulic axle lines.

The convoy included Fagioli technical support vehicles and numerous police cars. Assistance vehicle from the Association of National Roads (ANAS) and Autostrade per l'Italia (Highways For Italy) escorted the convoy with more than 100 people present during each of the two consecutive weekend nights of transport on public roads. The maximum speed allowed for the convoy was 12 miles per hour, reduced to 3 miles per hour when moving on bridges and viaducts, with the transit of only one convoy at a time.

The biggest section of the TBM is the 320 ton drive with centre plate, which has a diameter of 29.53 feet. To transport it Fagioli used a 30 axle line modular trailer pushed and pulled by two trucks in a 223 foot convoy. It took two nights to travel between Ravenna and Barberino di Mugello.

Fagioli was in charge of the turnkey operation. This including organising: road transport in Germany (executed by a local supplier); river barge transport on the Rhine; chartering a dedicated H/L vessel to execute the sea transport from the North Sea into the Mediterranean and Adriatic sea; and in-house engineering documentation and detailed plans in accordance with local authorities for the passage of the convoy between trailers and semi-trailers.

This impressive project was executed on schedule and without any accidents.

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Long haul

Hauling a heat recovery steam generator from Oklahoma to California presented a range of challenges and required special Barnhart solutions

It was a 2,343-mile trek for Barnhart Crane & Rigging to haul a new heat recovery steam generator (HRSR) from Tulsa, Oklahoma to Los Angeles, California. The HRSR had been purchased by the Los Angeles Department of Water and Power for the Hyperion Waste Water Treatment Plant. It was part of a digester upgrade project and measured approximately 43 feet long, 16 feet wide, 16 feet tall, and weighed 225,000 pounds.

Barnhart designed a trailer configuration with two Goldhofer six-line California-style dual-lane trailers, with 7 foot dollies and 9 foot, 1 inch axle spacings at 20 feet wide. It kept axle loadings under 38,000 pounds per line. The permitted dimensions of the trailer



The permitted dimensions were 260 feet long, 21 feet wide, and 17 feet, 11 inches tall with axle loadings of 38,000 pounds per line

obtain 21 local and county permits and get approval from 18 local, county, and district DOT supervisors. Planning and permitting took more than 240 hours and involved 1,100 hours of police and utility support.

Another challenge Barnhart encountered was coordinating driver's hours, permit curfews, and parking spots for the 260 foot trailer.

From start to finish the project took approximately 11 weeks, including seven weeks for obtaining permits, trailer mobilisation, and loading, and three weeks for the crew to travel the 2,343 miles from Tulsa to Los Angeles. During this time the team worked for more than 2,000 hours without a safety incident or DoT citation.

configuration were 260 feet long, 21 feet wide, and 17 feet, 11 inches tall with axle loadings of 38,000 pounds per line.

Since the HRSR was already over 16 feet tall Barnhart used its girder system to suspend the load to minimise travel height.

The load had to be permitted with six states: Oklahoma; Kansas; Texas; New Mexico; Arizona; and California. There were also requirements to weigh the load to verify axle weights. Barnhart was also required to

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Transporting the only remaining external fuel tank from NASA's Space Shuttle programme was a job entrusted to Emmert International in the USA.

It was the final journey of a 66,000 pound, 155 foot long, 30 foot wide, and 35 foot tall external fuel tank known as ET-94. A stipulation was that throughout all phases of the project the fragile foam insulation surrounding the tank would not be damaged by any lifting operations, lashings, transport operations, or contact with any obstacles.

Emmert spent 3,400 hours designing the best way to rig, transport and route the historic tank. An hydraulically adjustable four-dolly transporter that interlocks with the existing ET-94 staging and transport system



Emmert International hauled the Space Shuttle external fuel tank through the streets of Los Angeles to the California Science Centre

was chosen. The first part of its journey was by barge. ET-94 navigated the Gulf of Mexico, the Panama Canal and cleared customs in San Diego. A second tug was called to manoeuvre ET-94 against strong winds in Louisiana's canals. The challenge then was to find the best location to transfer the barge back to land before its journey through the streets of Southern California to the California Science Centre in downtown LA.

Marina Del Rey was selected and the remaining journey was just over 16.5 miles. Hauling a huge tank through one of the most highly populated and congested areas in

the United States required extensive traffic studies and planning. Emmert's engineers had to overlay the transporter using two- and three- dimensional modelling with satellite images. The load consisted of the lead (pull) tractor and the four-dolly transporter carrying the cargo. California Highway Patrol (CHP) worked in conjunction with local law enforcement to control traffic and safety

Utility contractors removed street lighting and traffic signals as the tank crawled its way through the crowded urban streets. All utilities were back in operation 15 to 20 minutes after the load had passed. ■



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ALE adds Goldhofers for Caspian

International heavy transport and lifting specialist ALE has purchased two 6-axle units of Addrive self-propelled trailer, complete with power packs, from manufacturer Goldhofer in Germany. They will mainly be used in Kazakhstan and the Caspian region.

The new Addrive SPT combines three elements: towed trailers with self-propelled units in a single vehicle and the Addrive for more traction at high speed. Addrive can be installed in trailer or semi-trailer combinations and it replaces the need for an additional truck. Having fewer tractor units reduces the gross weight of the convoy which helps when crossing bridges or to meet specific weight restrictions on certain roads.

Commenting on the new additions, Ali Yoldashov, ALE regional manager – Caspian,



ALE has added self-propelled trailers with Addrive from Goldhofer

said: "Our work in the Caspian region involves transporting heavy loads through mountainous areas, where additional traction is required. The best solution we found was to

invest in these SPTs as they provided the additional drive capacity we couldn't get from previous hydrostatic systems on the market."

Heavy hauler for waste management

In the UK, North London waste management company J. O'Doherty has bought a new Volvo STGO Cat 2 plated FH 6x4 tractor unit for heavy haulage duties and a 540 hp FMX 6x4 tractor unit for moving household waste within London and the surrounding counties. The company made the purchases as part of its 30th anniversary celebrations and said that the majority of its truck fleet comprises Volvo vehicles. "We pretty much started out with Volvo and today the reliability and appearance of the trucks means there's really no need to look elsewhere," commented J. O'Doherty's transport manager, Matt Tyler.

The FH is predominantly being used to move the company's excavators and wheeled loaders between sites, although it will occasionally be used to move contractors' machines weighing up to 70 tonnes. The truck is powered by a six-cylinder 12.8 litre D13K engine producing 540 hp and up to 2,600 Nm of torque and it has a heavy duty

front bumper. The cab is a standard Volvo Globetrotter, with a single bunk and leather upholstery. Behind the FH cab is a four-axle, rear-steer extending-bed low loader trailer from Faymonville. J. O'Doherty specified the FH with larger fuel and hydraulic tanks. According to Tyler, "the hydraulic tanks give us the flexibility to use the FH in conjunction with a range of trailers, so when it is not on low-loader duties it can be put to service with a walking floor or tipper."

The other vehicle, the new Volvo FMX 6x4 tractor unit, is coupled to a Titan trailer with a walking floor from US conveyor specialist Keith Manufacturing. It will be used for the movement of general household waste within London and surrounding counties.

"We really like the Volvo product, the safety features, the build quality and the styling. The current generation trucks simply stand out. They look like they mean business and they live up to their looks," added Tyler. ■



J. O'Doherty Waste Management has taken delivery of an STGO Cat 2 plated (to 80 tonnes) Volvo FH 6x4 and a 540 hp Volvo FMX 6x4 tractor unit

MAXIM EXPANDS HEAVY HAULING, SPECIALIZED LIFTING

Maxim Crane Works has expanded its heavy transportation and rigging division with the addition of a new heavy haul division in Bithlo, Florida, USA. On a 15-acre site, the facility is strategically located to provide the Florida and Eastern USA with complete heavy haul, rigging and lifting services, according to the company.

"We recognised the need to expand our heavy haul and rigging division for the purposes of customer reach, increase in inventory space, and to dedicate a location that solely concentrates on these services," said John Boone, Maxim's Gulf Coast manager. "It will allow our team to strategically place equipment throughout our regions and to offer turn-key lifting [and rigging] services including PST Goldhofer trailers, hydraulic gantries, strand jacks, cantilever beams, jack and slide systems and the Alternative Lift Tower (ALT)."

The team managing the facility has an average of 20 years of lifting and rigging experience per person, he said. The state-of-the-art facility provides both inside and outside storage.

"The expansion into our new heavy haul headquarters and strategic placement of equipment throughout the country with over 50 branch locations will allow us to be more competitive, while giving our current customers access to all the services offered by Maxim Crane Works, L.P.," stated Frank Bardono, chief operating officer. "We have listened to our customers and their need to have a 'one-stop-shop' when it comes to the heavy lift cranes and the equipment packages."

Bardono said this could mean anything from large HVAC replacement and removal projects to hauling turbines.

"John Boone and the team have the engineering and operational expertise to ensure the project is completed safely, on time, and on budget," Bardono added.

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Liebherr says it developed the LHM 800 at the request of port operator Montecon because there were no mobile harbour cranes big enough to meet the needs of the largest ships

This time last year we reported that 'the race is on to increase the size and the lifting capacity of dockside equipment'. Well, the race has become a marathon, and there's no end in sight. CHRISTIAN SHELTON reports



Size matters

"The trend to bigger vessels and investments into new ports has driven the demand for bigger dockside equipment," says Wolfgang Pfister, head of strategic marketing and communication at port crane manufacturer Liebherr-Werk Nenzing in Austria. "Ports around the world have to handle bigger vessels and so need to amend their infrastructure to maintain competitiveness."

One such port is the Port of Montevideo in Uruguay, South America, operated by Montecon. Four years ago, Montecon tasked Liebherr Maritime Cranes with the challenge of creating a mobile harbour crane big enough to meet the needs of its largest ships. In May 2017 Liebherr delivered, with the LHM 800. In fact, it delivered two...

Liebherr says that the LHM 800 is the biggest mobile harbour crane in the world. It is capable of lifting 308 tonnes, has a bulk handling capacity of up to 2,300 tonnes per hour, and has a 64-metre outreach, meaning it can serve container vessels with a width of up to 22 rows of containers.

In addition to single lifts, the LHM 800 is designed for tandem lifts – hence Montecon's double order. This means, with Liebherr's Sycratronic tandem operation tool activated, one crane driver can simultaneously operate two cranes for improved speed, capacity and safety. In tandem operation with a second LHM 800 capacity is 616 tonnes. "In container handling configuration the fulcrum point is above 36 metres, which eases the handling of bigger vessels," explains Pfister.

As well as being big, the LHM 800 is fast. "It can hoist and lower containers with a speed of up to 120 metres per minute," says Pfister. "This allows for 38 boxes per hour in standard configuration and up to 45 boxes per hour if the crane is equipped with Liebherr's hybrid power booster Pactronic."

Need for speed

Speed is important as it translates into a greater productivity rate; as we all know, time is money. As such it was also a determining factor for Rotterdam Short Sea Terminal B.V (RST), one of Europe's largest short sea terminals, when it placed an order with cargo handling solutions and services provider Kalmar for two of its ship-to-shore (STS) cranes.

"We have had Kalmar STS cranes in our terminal for many years and they are some of the quickest in the world, allowing us to optimise our overall operational efficiency and keep service times for vessels and trucks the shortest possible," says Cees van Pelt, technical department and projects manager at RST. "Based on the solid performance of the current Kalmar cranes, and the expertise of the local Kalmar team, we are confident that these new cranes will meet our STS productivity targets and help us continue to provide reliable service to our customers."

In today's fast-paced cargo handling environment, speeding up ship turnaround times can give your port a significant competitive advantage, says Kalmar

Refurbishment

Purchasing new machinery is not the only option for ports looking to accommodate the new generation of super container vessels. Upgrading existing crane facilities can provide an attractive solution and is a service offered by a number of crane manufacturers. Liebherr Maritime Service reports that since 2013 the number of orders for overhauls on its maritime products has more than doubled and in 2015 it set up a specialist department, the Liebherr Maritime Service Factory, to deal exclusively with refurbishment projects.

The department is based at Liebherr's factory in Rostock, Germany, where its service activities range from the repair and exchange of single parts and components up to the complete overhaul of machines. Its latest overhaul project was on a LHM 180 built in 2008. It was in constant use in the port of Figueira da Foz, Portugal. Once back at the Liebherr Maritime Service Factory the steel structures of the undercarriage, the slewing platform, and the tower were all extensively overhauled and electrical parts were refurbished. The whole process took 12 months and involved a team of 30 Liebherr

»



employees. The crane was bought by petrochemical company Petrokemija d.o.o. in Croatia where it was assembled and returned to service in the middle of March 2017. The LHM 180 has a maximum outreach of 35 metres and a capacity of 35 tonnes in grab operation. It is now being used for bulk and general cargo handling in the port of Sibenik, Croatia. According to Liebherr, overhauling existing equipment provides an economic option without any compromise in terms of quality, plus crane operators can continue using machinery they are familiar with.

Raising the bar

So we've seen how ports are either buying new or refurbishing old machinery but how about modifying new machinery? Mitsui Engineering and Shipbuilding (MES) – a leading manufacturer of STS and port transfer cranes – was faced with an conundrum recently when it had to raise the height of two already manufactured portainer dockside gantry cranes by 6 metres to cope with the increasing size of container ships prior to delivery to a Malaysian customer. The cranes weighed 1,650 tonnes and, usually, MES would use a lifting tower to raise a crane's upper section and slide the legs

underneath. Unfortunately, the lifting towers were too short so the company had to look at alternative options. Working with its transport and engineering services supplier, Binan Development, the two companies engaged the services of high-pressure hydraulics specialist Enerpac, and its 2,000 tonne capacity JS500 jack-up system, to resolve the situation. Four jack-up units were positioned at each corner of the [braced] gantry crane, lifting it by

increments as steel boxes were slid into each jack-up unit and stacked to form lifting towers. Using this method, the entire lifting and lowering process, including the addition of the leg extensions, took just three days. Enerpac claims this is much faster than other methods.

So as the race to accommodate the ever-increasing size of bigger vessels advances we can see how the manufacturers of dockside lifting machinery are innovating to win. ■

THE SKY'S THE LIMIT FOR NEW MOBILE HARBOUR CRANE

German crane manufacturer Sennebogen has now released more details about its new 9300 E mobile harbour crane. The 9300 E has a load capacity of just under 31 tonnes and a 40 metre reach – making it suitable for bulk and container handling. It has a diesel-hydraulic drive with Sennebogen's fuel-saving Green Efficiency technology. There is also an electro-hydraulic drive version, which Sennebogen says can provide emissions-free operation and potentially reduce operating costs by up to 50 percent. In both drive variations the winches have a lifting speed of 100 m/min.

The 9300 E also incorporates Sennebogen's Skylift 1100 system (see image), which means that the height of the crane operator's cab can be adjusted from 9 to 21 metres to provide the operator with the optimum view, no matter what he is lifting. The 9300 E has a compact mobile undercarriage with outriggers that fold out to cover an area of 11.5 m x 11.5 m. All-wheel steering with 14 load wheel sets ensures manoeuvrability and a low ground pressure, says Sennebogen.

Other possible undercarriage designs include rail and mobile or stationary pontoon-based configurations.



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Talking towers



The 5th International Tower Cranes conference was a great success, covering everything from training to technology. ICST reports

In his keynote address at the 2017 International Tower Cranes conference, Simon Marr, from Marr Contracting in Australia, said, "The industry needs to think differently about how we use tower cranes, not just on high-rise projects but any large scale construction project." He then offered some examples of how his company is challenging the status quo.

It was a strong start to the event where new technology was also a key theme, for example, integrating tower cranes into BIM (Building Information Modelling). Aviv Carmel at Skyline Cranes and Technology in Israel has been using BIM for many years. He said it allows site managers to plan and make decisions with confidence while also helping cut unforeseen expenses.

Mark Herlihy at Select Plant Hire and Cristian Badin at Terex Cranes, also discussed BIM, explaining how the two companies were co-operating to integrate cranes into BIM plans. Herlihy said "a revolution is taking place" with BIM and offsite manufacturing as



Networking opportunities were plentiful



The new technology round table discussion



More than 250 delegates from 16 countries attended the fifth ITC conference



Simon Marr, keynote speaker

part of a wider "digital engineering strategy" which he claimed can bring about real change.

Also looking at future technology was Mor Ram-On from Israeli start-up company IntSite. The company is developing a fully automated tower crane using technology adapted from the aerospace industry.

Former tower crane operator Nigel Howard, from employment and training agency MPS Crane Operators, provided an insight into the challenges facing the industry regarding operator training and working conditions. The issue of access to the cab using hoists was covered by Pierrick Lourdain, commercial director at French tower crane company Matebat, part of the Arcomet Group.

Heinz-Gert Kessel, from German crane rental company Franz Bracht and ICST contributor, considered the all-important topic of how to bring down a tower crane after topping out a building. "Every dismantling step must be considered in advance," he explained.



Kessel's detailed technical knowledge was much appreciated by the audience.

Up to 70

Full automation of tower cranes is in development



Part of the strong US contingent

delegates had seen direct evidence of this activity the previous day, with CASAR sponsoring a boat trip on the Thames during which representatives from Select Plant Hire and HTC Wolffkran described the main tower crane projects along the river. These included the Battersea Power Station – with many Select cranes – and the Greenwich Peninsula development further down river, which featured HTC cranes. Keep an eye on www.khl.com for announcements regarding the date and location of ITC 2019.



Key contacts were made...



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Then there was pressure

Pascal's law in relation to hydraulic pressure in the heavy lift and transport industry was briefly mentioned in an earlier *Knowledge* article. This month MARCO VAN DAAL follows it up with a more detailed explanation

Some months ago, in one of the articles of *The Knowledge* about hydraulic pressure in hydraulic platform transporters, reference was made to Blaise Pascal – the French mathematician, inventor, writer, physicist and philosopher who lived from 1623 until 1662.

Pascal did much research as a physicist and formulated Pascal's law. The effect and impact of this law in our daily life cannot be overstated. Any machine or tool that works hydraulically (and pneumatically as well for that matter) was designed according to the Pascal's law. In this article the law of Pascal is explained in simple terms so that the application of it in our heavy lift and transport industry (as well as applications in every day tools) can be understood.

If you take a cylinder and fill it with water (or any other fluid) and then place a tight

fitting piston on top of the water surface, a pressure develops in the water as you apply a force to that piston. See Figure 1.

Pascal discovered that there is a relation between the applied force (F), the area (A) of the piston and the pressure (P) in the water: $P=F/A$. He also realised that when the force (F) increased, the pressure (P) increased. This may now sound like common sense it followed on from the formula and was a breakthrough in the 1600s. Likewise when the area (A) increases, the pressure (P) decreases, also, this follows from the formula. Pascal also discovered that the pressure is the same everywhere in the liquid. This was an even bigger breakthrough because of the way of thinking up until that time. If you take a log of wood and apply a force to the top of it, the force applied to the log is transferred to the ground on which the log is supported. In popular terms, the log does not experience any pressure on its sides. See Figure 2.

However, when you apply a force to the piston on top of the water surface, the pressure (as follows from the formula $P=F/A$) is applied against all interior surfaces. Even the surfaces that are not in the direct line of the force that is applied experience this. See Figure 3. The same

applies if we fill a balloon with water: the pressure is the same everywhere in the balloon. Again, this may sound like common sense but until Pascal did his research and his tests in the 1600s there wasn't a reason to assume this, and there was no way to prove it if anybody did make this assumption.

Moving ahead

Pascal took this a step further and created an awkward-shaped container that he also filled with water to test his theory. According to his logic, when applying a force to the piston the pressure everywhere in the water would have to be the same regardless of

the location in the container or the size of the various connecting pipes and chambers. The pressure would have to be as per the formula $P=F/A$.

It turned out that the theory that he developed was correct: throughout the fluid, and in all directions, the pressure was the same. See Figure 4.

In his next experiment Pascal installed a second but much larger tight fitting piston, as shown in Figure 5, and he expanded his theory. He called the first one Piston 1 and the second one Piston 2. He reasoned that if $P=F_1/A_1$, and if the pressure (P) is equal in the entire fluid, then F_2/A_2 would also equal P. And if that was the case, then F_1/A_1 would equal F_2/A_2 . And from this he could determine that if $F_1/A_1 = F_2/A_2$ then $F_2 = F_1 \cdot A_2/A_1$.

In other words, if the area of Piston 2 is 10 times bigger than the area of Piston 1 then force F_2 would be 10 times bigger than force F_1 . And this can be scaled almost infinitely. If the area of Piston 2 is 1,000 times bigger than the area of Piston 1, then F_2 is also 1,000 times bigger than F_1 . With that realisation Pascal had brilliantly created the simplest of jacking systems.

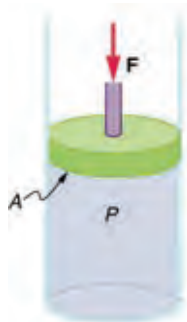


FIGURE 1



FIGURE 2

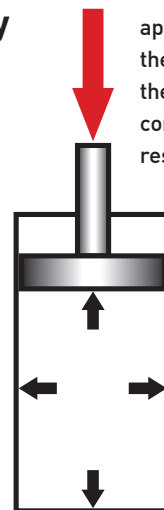


FIGURE 3

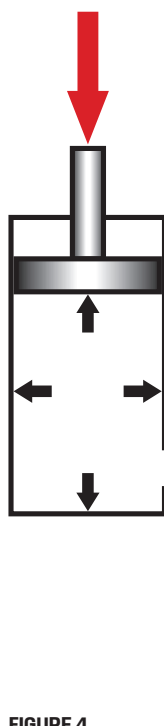


FIGURE 4

ABOUT THE AUTHOR



MARCO VAN DAAL has been in the heavy lift and transport industry since 1993. He started at Mammoet and later with Fagioli from Italy, both leading companies in

the industry. His 20-year-plus experience extends to five continents and more than 55 countries. His book *The Art of Heavy Transport*, is available at: www.khl-infostore.com/books. Van Daal has a passion for sharing knowledge and holds training seminars around the world.

In a previous article we talked about mechanical advantage (MA). We defined that as the force amplification achieved by a tool. Here we have another example of MA that can also be defined as a force amplification. Force F_1 is multiplied by a factor (A_2/A_1) and results in Force F_2 . The factor (A_2/A_1) is the mechanical advantage or $(A_2/A_1) = MA$.

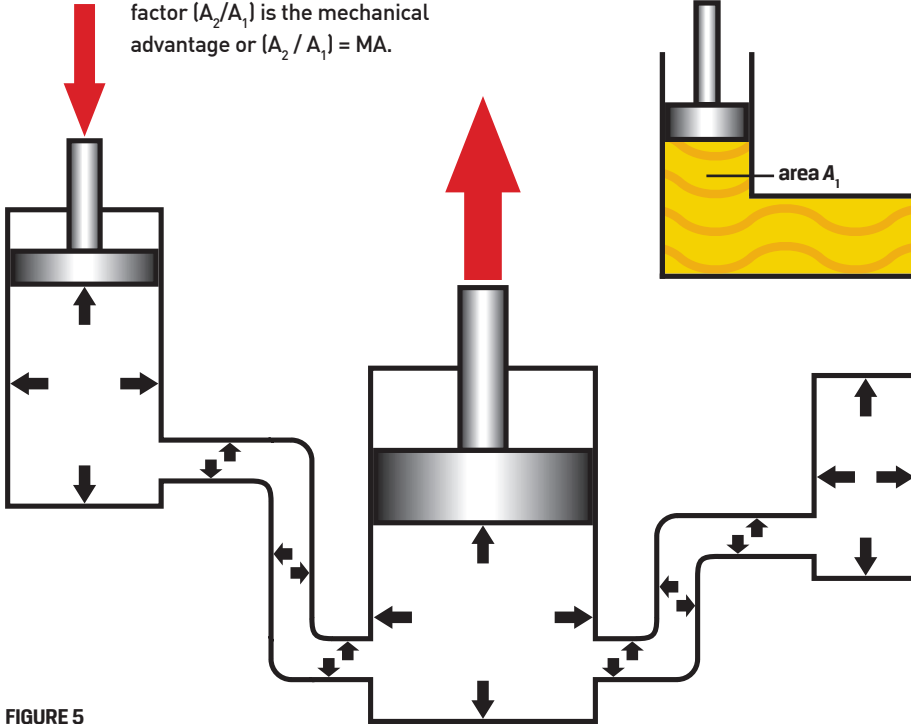
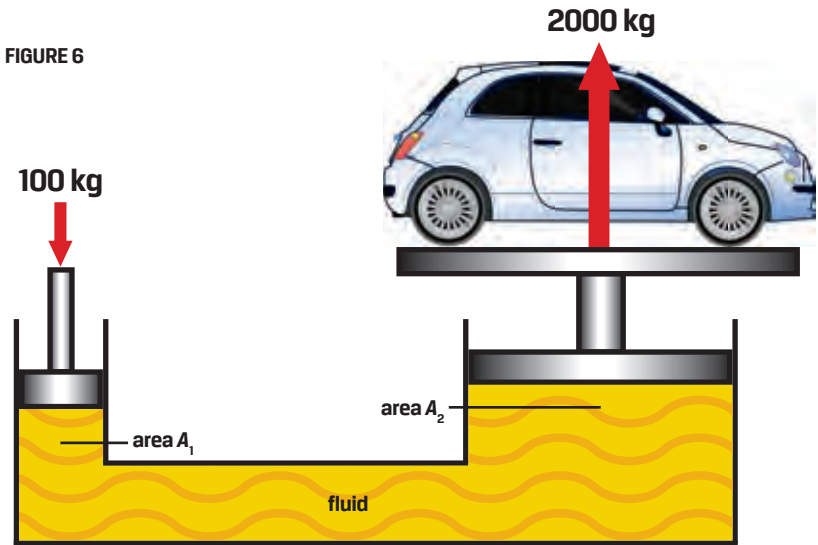


FIGURE 5

FIGURE 6



For a practical example, see Figure 6. Let's assume that area A_2 is 200 cm² and area A_1 is 10 cm². Therefore, the mechanical advantage is as follows:

$$(A_2/A_1) = M.A. = (200/10) = 20$$

This means that we can generate a force F_2 that is 20 times bigger than the applied force F_1 . So, with a force F_1 of 1,000 Newtons or the equivalent 100 kg (use $F=m \cdot g$) we can lift a car or other larger vehicle with a mass of 2,000 kg.

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$$F_2 = F_1 \cdot A_2/A_1 = F_1 \cdot \text{M.A.} = 100 \cdot 20 = 2000 \text{ kg}$$

That is a pretty good mechanical advantage. There is a down side to this, however, as energy cannot be created out of nothing; the MA has to be at the cost of something else. For the system to be in equilibrium there has to be a 'disadvantage' somewhere else.

And indeed this is the case. If the force F_1 pushes down Piston 1 by $D_1 = 20 \text{ cm}$, common sense tells us that Piston 2 needs to rise because a fluid is not compressible. The amount by which Piston 2 rises is the Piston 1 distance (D_1) / mechanical advantage (MA) is $20 \text{ cm} / 20 = 1 \text{ cm}$.

$$D_2 = D_1 / \text{M.A.} = 20 \text{ cm} / 20 = 1 \text{ cm}$$

The mechanical advantage as a force amplification turns into a 'mechanical disadvantage' when it comes to displacement. To raise Piston 2 by 5 cm we would have to push down Piston 1 by 100 cm or 1 metre.

$$D_2 = D_1 / \text{M.A.} \quad \text{or} \\ D_1 = D_2 \cdot \text{M.A.} = 5 \text{ cm} \cdot 20 = 100 \text{ cm}$$



This is, of course, not very practical and that is why on jacks you have to stroke the small piston (Piston 1) multiple times up and down.

Via a series of valves the down stroke pushes oil into system herewith raising Piston 2.

The same series of valves prevents the oil from flowing back on the up stroke. In

FIGURE 7



FIGURE 8

Figure 7 you see a bottle jack with the small piston (Piston 1) on the right side, the big piston (Piston 2) cylinder is the jack itself.

On modern jacking systems the up and down stroke of the small piston has been taken over by a diesel power pack (Figure 8) that is connected by hoses to a number of hydraulic jacks. Pascal's law still applies and the pressure inside the system is equal in all places so the pressure generated at the power pack finds its way via the hydraulic hoses to each of the jacks.



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Raising the next generation...

Last year it was revealed in an article on the Chartered Institute of Building (CIOB) website that more than 400,000 UK construction workers will retire between 2018 and 2023, which highlights the urgency there is to attract the next generation to the industry. In the article Saul Townsend reported on a construction game aimed at 12 to 14-year-olds called *Craft Your Future* developed by CIOB in the mould of the popular game *Minecraft*. The thinking is that young people will gravitate toward the game because of its resemblance to *Minecraft* and explore the various methods and skills needed to pursue a career in construction. 'Minecraft education' is already used in schools to teach a variety of subjects, including computer science programming, chemistry, physics and architecture and hopefully the impact of this style of learning will become an extension of the industry's efforts to attract young people and grow future leaders.

Around the world, in addition to economic collapses and a generation nearing retirement, worker shortages are also tied to a longer educational trend of encouraging students towards college-track programmes rather than vocational training. Ken Simonson,



chief economist at the Associated General Contractors of America (AGC), recently pointed out, "Considering how much the nation's educational focus has moved away from teaching students career and technical skills during the past few decades, it's easy to understand why the construction industry is facing such severe labour shortages. Too few students are being exposed

to construction careers or receiving the basic skills needed to be prepared for such a career."

As revealed by Insulation Outlook last year, the Oregon, USA, chapter of AGC has a workforce committee that brings together representatives from high schools, community colleges, and construction trades to work towards developing programmes in local high schools to help high school and college students learn more about the construction industry. They enjoyed a recent victory when the leadership in a local Portland high school made a presentation to the school board that showed how having technical education in high school can increase graduation rates by 15 to 20 percent. There are also anecdotal reports that suggest dismantling vocational education opportunities may increase drop-out rates.

Reports aside, many of us realise that adequate training for workers is also an issue. But what if that training starts as soon as some of these people are about to enter the workforce? YouthBuild USA says the key is in providing meaningful careers and offering continued training to young workers. Started in 1978, the YouthBuild programme offers low-income young people, many of whom have dropped out of high school, a chance to earn their high school diploma while working to build affordable housing or other community assets.

In addition, Fuller Working Lives, a UK-based initiative, explains how, as the population ages, employers need to draw on the skills and experience of older workers to avoid loss of labour. It also points out how working longer can improve the health and wellbeing of individuals, and bring the benefits of a multi-generational workforce to businesses.

And SC&RA continues to educate the next generation of workers about our industry and the countless opportunities that exist as they transition out of high school, too, through our Lift & Move USA programme. The next event is on 14 September, in Indianapolis, Indiana, hosted by Buchanan Hauling. For more information about this, see: www.liftandmoveusa.com

It's been said that it takes a village to raise a child. With that in mind, it stands to reason that it will take a global industry to raise the next generation of skilled workers. We must all do our part. ■

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Advocacy

Working together with other stakeholders is key to resolving industry issues and developing best practice recommendations. MIKE CHALMERS reports

At the midway point of 2017, SC&RA's Crane and Rigging advocacy efforts saw traction through a range of international channels. From boom dollies to regulations to white papers, the Association spent the first half of the year working productively with various members and organisations in an effort to advocate on the industry's behalf.

In April Tim Sittler (Mammoet and the Crane Rental Association of Canada – CRAC) gave a presentation to SC&RA's Crane & Rigging Governing Committee on CRAC's Boom Dolly Initiative – emphasising the importance of its impact on not only SC&RA members, but the industry overall.

Sittler's presentation highlighted the unfortunate death of a Mammoet driver who was killed when his crane lost control and rolled over (despite multiple investigation teams, no root cause was determined). Further investigations with industry operators revealed "vehicle control" concerns with boom dollies. As a result, CRAC established the Boom Dolly Research Committee.

"Cranes have become more sophisticated, and the dollies have progressed as well, although to a lesser extent," he explained. "We're looking to develop a fully integrated system. We started this initiative about two years ago at CRAC, and it really became a true priority about a year ago. Not often in our industry has a company presented any accidents they've had. We want to see what type of impact an initiative like this will have on the industry – for example, it could result in increased crane axle weights and better crane and dolly configurations."

SC&RA will continue to survey its members to determine if a similar situation exists in the USA, while also continuing to follow CRAC's progress throughout Canada.

Stephanie Woods (Terex and the International Crane and Stakeholders Assembly – ICSA) spoke about the strength of ICSA in providing a place for members from around the world to gather and examine pertinent industry issues. "It provides a place for worldwide industry members to come together and meet – both manufacturers and

users – to understand what's going on," she said. "And not just with EN13000, but various standards around the world – including ISO or the B30.5 standards in the USA."

Woods highlighted that the USA has some hot-topic issues going on that certainly interest the rest of the world. "The New York City regulations, of course, and those of us that are a part of AEM's [Association of Equipment Manufacturers] Crane Technical Committee are involved with a lot of that – so we can bring that to the ICSA table for discussion, which keeps everyone around the world aware of what's going on. Similarly, the FEM (European Materials Handling Federation) group can bring us information on the EN13000 standard."

In addition, ICSA has agreed to write two white papers. Rob Weiss (Cranes, Inc.) was one of SC&RA's representatives at the ICSA meeting at ConExpo in March, and recognises the value of working with representatives from AEM, CICA (Crane Industry Council of Australia), ESTA (European Association of Abnormal Road Transport and Mobile Cranes) and FEM on issues that benefit the industry worldwide. "The collaborative spirit is alive and well at ICSA," he said. "The goal of this organisation from the start has been to put aside parochial differences in order to promote a safer worldwide industry."

Guidance papers

To further that goal, ICSA will author two new guidance papers incorporating best practice recommendations from around the globe: the first to cover access roads and hardstands, and the second to cover the use of mobile cranes on barges. "At the meeting, we were shown numerous slides of cranes that had overturned while travelling or working on wind farm sites due to improper ground conditions," said Weiss. "The group felt it was time to address this issue by providing a series of recommendations that could help prevent future accidents, and we hope the end result will be something that crane owners and erection contractors can use to ensure that ground conditions on all sites, not just wind farms, are properly addressed."

Permits, pilots and harmonisation

Steven Todd, SC&RA vice president, returned home from the 2015 World Crane and Transport Summit with a range of key 'takeaways' – three of which focused on permitting, pilot cars and harmonisation. One country, in particular, came to mind – Canada – where all three issues seem to make their way into transportation conversations with regularity.

Ed Bernard (Precision Specialized Division Inc., Woodbridge, Ontario, Canada) pointed out that permitting in Canada can certainly be slow and painful at times. "Most of the time, the largest issue is just the simple fact that, in this case Ontario, has so many counties that are not under the jurisdiction of the province," he said, "so any time you have a load that is beyond the infrastructure that our highways can handle you run into a lot of issues with just



international

the sheer amount of permits that you have to order. But, ultimately, running through states, counties or provinces with a lot of infrastructure creates its own challenges, no matter what country you're in."

Louis Juneau (NOVA Permits and Pilot Cars, Quebec City, PQ, Canada), is quick to advise transport companies to be prepared for anything. "Where we have provinces that invested in automation and online systems, the process is pretty easy and fairly efficient but, in the provinces that didn't, it's the same hassles that we have in the US with any states that don't have automation," he explained. "As far as advice I would give, it's likely similar for any country: just make sure that where you're going, you're properly equipped to go there. Make sure you have the proper equipment, the proper configuration, and allow yourself enough time."

Kevin Kwateng (Transport Bellemare International, Trois-Rivieres, PQ, Canada) added, "You deal with the cards you've been dealt and, if nothing else, this is an opportunity



to show true skill in the art of heavy haul, demonstrating resilience and creativity towards finding solutions."

With regard to escorts, Bernard prefers a police escort. "At the end of the day there's just a better level of comfort with a police escort versus a private one. People recognise the police escort more, so they pay more attention. It's probably just human nature this happens. But we find the police provide far more of an official presence."

Conversely, Juneau is okay with private escorts, but he too thinks about the challenges therein. "When you pay for a service and you get a decent service, you don't mind paying for it," he reasoned. "But when you see a trooper, or provincial police, tagging behind an oversize load and basically doing nothing – that's a lot of money to pay for that."

“ You deal with the cards you've been dealt and, if nothing else, this is an opportunity to show true skill in the art of heavy haul

I know that people are keeping an eye on the private escort talks that are taking place in Pennsylvania in the US at the moment. And there's always the question: what happens when you need to control traffic?"

Harmonisation has been, and will continue to be, a popular talking point across Canada. "There's no harmonisation whatsoever at the moment," noted Bernard. "Would I love to have it? Absolutely. You learn to work with the system however and, quite honestly, if it was easy, everyone would do it. So, maybe that's good for us in the end."

Kwateng accepts that harmonisation is a long way off. "There are so many provinces and structural elements, you just can't expect everyone to somehow get on the same page," he commented. "That said, I do think that certain efforts could be made with certain types of equipment and such to streamline processes more. Ultimately, it's important to continue this conversation. The only way this will evolve is by working together and listening to one another."

Juneau concluded, "We certainly wish to move to a certain form of uniformity but I don't know that it's even possible. There's always talk about working together with nearer provinces or states in the US, and perhaps we should start with neighbours and try to find common ground. Just little steps to start but then, perhaps, we can produce a type of domino effect."







A round-up of news from the European Association of Abnormal Road Transport and Mobile Cranes

JANSEN TO STEP DOWN



SØREN JANSEN, is stepping down from his position as ESTA director. He leaves the post at the end of June 2017. The position

will be filled temporarily by ESTA secretary Ton Klijn until a new director can be appointed at ESTA's autumn meeting in Krakow, Poland.

One of the best-liked and respected figures in the industry, Jansen has long played a major role in trying to improve safety standards and raise awareness of safety issues, working closely with all the major crane manufacturers in the process.

Commenting on his decision, Jansen said, "I love my work with ESTA and it is an organisation that is growing in strength, improving and increasing its influence, year on year. But there comes a point when you have to stop. I am over 70, I still have my own company and I want to reduce my travelling and spend more time with my family."

Further up wind

The International Crane Stakeholder Assembly (ICSA) will produce a special guidance paper on standards for access roads and hard stands used during the erection of onshore wind turbines.

The news follows discussions at the annual meeting of the ICSA in Las Vegas, USA, last March, hosted by the Association of Equipment Manufacturers and the Specialized Carriers & Rigging Association.

In addition to AEM and SC&RA, other ICSA members include: the European Association for Specialized Transport and Mobile Cranes (ESTA); the European Materials Handling Federation (FEM); and the Crane Industry Council of Australia (CICA).

The guidance paper will be developed by a new working group chaired by Brandon Hitch, CICA chief executive. It will draw on the well-received work in this area completed by BSK, the German heavy transport and crane association which is also one of ESTA's leading members.

The need to raise safety standards during the transportation and erection of onshore wind turbines is becoming a major issue with some experts saying there are as



A guidance paper on standards for access roads and hard stands used for erecting onshore wind turbines will be published by the ICSA

many as two accidents a month, often caused by inadequate preparation and equipment or poor ground conditions.

The issue was raised by ESTA and FEM in the wake of the organisations' successful specialist conference on the subject in Hamburg, Germany, in February.

Following that conference, ESTA and FEM met VDMA Power Systems, part of the German Engineering Federation and whose members include the major turbine manufacturers. VDMA Power Systems is also discussing developing new best practice guidelines.

Søren Jansen, ESTA director, attended both the ICSA meeting

in Las Vegas and the conference in Hamburg. He commented: "It seems as if in each country there is a different way of constructing access roads and hard stands. Everyone is complaining about them, that they are too narrow, not strong enough, and so on.

"We want to create an internationally accepted set of guidelines that we as transport and crane companies will need to make sure that we can drive, deliver, and erect wind turbines safely."

The ICSA work has already started with the next face-to-face meeting planned to take place during the World Crane and Transport Summit in Amsterdam in November. ■

Mobile cranes on barges

The ICSA is working on new guidance on the use of mobile cranes on floating barges following the Alphen aan den Rijn crane collapses in the Netherlands, in which two cranes and part of a prefabricated bridge fell on several buildings in August 2015.

Chaired by the SC&RA, Mammoet and Sarens have agreed to share their internal guidelines and the work will also draw on

guidelines operated by the US Corps of Engineers, which has responsibility for many of the waterways in the USA, and the Occupational Safety and Health Administration, an agency of the

United States Department of Labor.

Søren Jansen, ESTA director, said, "There is a lot of experience in various companies and organisations but, to date, this

has not been brought together for the benefit of the industry as a whole. The idea is to pull all this expertise together to produce a document that can have a major impact on improving safety standards." ■



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NEW HYDRO COATING FOR HOISTS

German hoist manufacturer J.D. Neuhaus (JDN) has announced that it is implementing a new paint finish on its hoist range. The company claims this will enhance the quality, appearance and environmentally-friendly nature of its hoist range.

JDN said that the silicone-free Hydro Coating optimises adhesion, provides high resistance to corrosion and oil, and can be diluted with water for application. It said it offers excellent surface quality, even when refitting, and complies fully with the VOC (Volatile Organic Compounds) Directive. This is necessary because JDN's hoists are rated for use in explosive dust-laden areas up to ATEX Zone 2, with higher classifications available. This means that JDN equipment will not generate any sparks or electrostatic discharge.

JDN claimed its hoists provide full functionality at all times, regardless of the presence of contaminants. It said this is possible because each component is manufactured to a level beyond its standard specification and rigorously tested to ensure that both performance and quality are maximised, making the hoists suitable for a wide range of industries.

JDN has also launched a remote control system, the JDN-RC, which it says features a solid, compact receiver and is also suitable for use in harsh operating environments, including ATEX (explosive atmosphere) zone 2/22 conditions.

■ For more information see: www.jdngroup.com

Lankhorst tests synthetic hoist rope

Rope specialist Lankhorst Ropes, part of the WireCo group of companies, is conducting testing on Lanko Lift S synthetic hoist rope, with the aim of supplying it to the crane market.

Lankhorst said the bright yellow rope consists of 12 braided outer strands made of Dyneema fibre. It claimed the properties of these special fibres result in a breaking strength equal to a steel rope of the same thickness. The construction of the rope core is specially designed to achieve the required resistance to transverse pressures.

The rope is light, offers good flexibility, and does not require much maintenance

since synthetic ropes of this type are corrosion-proof and require no further lubrication, said Lankhorst. It also claimed the light weight makes the rope suitable for higher payloads, especially with higher lifting heights and longer jib lengths.

Lankhorst revealed that laboratory tests have produced excellent results for both the breaking strength and for projected service life based on the reversed bending cycles completed during testing. In addition, a special coating has been applied to the fibres to reduce interior friction and increase UV resistance.

Lankhorst said Lanko Lift S

would have a slightly higher price in comparison to conventional steel ropes, however, this is offset by the cost savings and benefits the rope would bring.

Lankhorst claimed that the entire crane industry is following these developments with interest and an industry-wide initiative is now under way to develop new industry norms for the calculation and establishment of appropriate discard criteria for synthetic ropes.

Lankhorst now plans to conduct further laboratory tests and initial trials on the rope using crane equipment.

■ For more information see: www.lankhorstropes.com

Rayco expands load cell line



Canadian crane system specialist Rayco Wylie Systems (Rayco) has introduced wired and wireless aluminium load cells and wireless load pin shackles.

The aluminium load cells range between 6.5 and 500 tonnes capacity and the wireless shackles range between 6.5 and 2,000 tonnes capacity. According to Rayco, both the aluminium load cell and load pin shackle

product lines have a 1,500 foot (457 m) range, an IP67 rating, and come with a two-year warranty. 433 MHz or 903 MHz radio modules are also available. Rayco said users can set overload limits in the handheld displays and have the option of transmitting back to a PC to log and store the results.

■ For more information see: www.raycowylie.com

BRAKES FOR DEMANDING MACHINE APPLICATIONS

Electromagnetic clutch and brake solutions developer, Warner Electric, has launched the Gen4 range of spring-operated, electromagnetically released brakes. It claimed they provide a rugged and reliable solution for the control of rotating machinery in a diverse range of applications.

The company said the range has been designed to suit demanding, high speed applications, offering high torque density, low response time and a 100 % duty cycle at rated torque. The brake is available in single or dual disc variants in five standard disc diameters with nominal torques ranging from 200 Nm to 3,200 Nm. All but the largest sizes are suitable for speeds up to 4,700 min⁻¹. The Gen4 brakes incorporate wear compensation features for a long operating life, and a built-in wear sensor means users can monitor brake condition during operation for assured reliability. Integration with sophisticated machine control systems is assisted by a release detection microswitch.

■ For more information see: www.warnerelectric-eu.com



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Fort Wayne, Indiana, USA
www.liftandmoveusa.com

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www.europlatform.info
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www.scranet.org

BICES 2017 (The 14th Beijing International Construction Machinery Exhibition & Seminar)

20 - 23 September 2017

Beijing, China
www.e-bices.org

ICUEE 2017

3 - 5 October 2017

Kentucky, USA
www.icuee.com

GIS 2017 (The lifting, industrial and port handling and heavy transport show)

5 - 7 October 2017

Piacenza, Italy
www.gisexpo.it

AWRF FALL CONFERENCE (Associated Wire Rope Fabricators)

22 - 25 October 2017

Minnesota, USA
www.awrf.org

APEX ASIA 2017 / CEMAT ASIA 2017

31 October - 3 November 2017

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www.apexasiashow.com
www.cemat-asia.com

AEM ANNUAL CONFERENCE

2 & 3 November 2017

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www.aem.org

WORLD DEMOLITION SUMMIT

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London, UK
www.khl.com/wds
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WORLD CRANE AND TRANSPORT SUMMIT

7 & 8 November 2017

Amsterdam, Netherlands
www.khl-group.com/events/wcts

LIFT & MOVE USA

15 November 2017

Baton Rouge, Louisiana, USA
www.liftandmoveUSA.com



PICTURE OF THE MONTH

This month we have something for fans of transport old and new. Taken in the UK, this photo shows steam locomotive number 78018 - a BR Standard Class 2MT 2-6-0 - being transported on a five-axle Goldhofer trailer belonging to UK heavy haulage company Allelys. The steam engine was being returned to the Great Central Railway in Loughborough, Leicestershire, after featuring in the West Somerset Railway's Spring Steam Gala.

Loco 78018 was built in 1953 at Darlington North Road Works at a cost of UKE14,809 (US\$18,500). It was retired from service on 12 November 1966, after which it spent 11 years in a scrapyards before being rescued and restored. Photograph courtesy of Middlebrook Media.

PEOPLE NEWS

■ The North America-based international trade group representing off-road equipment manufacturers and suppliers, the Association of Equipment Manufacturers (AEM), has elected **GRANT GODBERSEN**, vice president



of manufacturing at Gomaco Corp., to its Board of Directors. It has also elected **SUSANNE COBEY**, president



and CEO at Eagle Crusher Company, and **MARY ERHOLTZ**, vice president marketing at Superior Industries, to its CE Sector Board.



Dennis Slater, AEM president, commented,

"Member participation is vital to AEM's success in representing its membership and the industry; we greatly appreciate the dedication of our volunteer leaders such as Grant, Susanne and Mary, and the support of their companies that allows them to serve AEM for the benefit of all."



■ US wire rope specialist Alps Wire Rope Corporation has announced management changes. **MIKE BRIAND** has been promoted to national sales manager. He has been with Alps for five years and in the wire rope industry for more than 30 years.

ROSS BENNER has been appointed regional manager for the North Central area.



Ross has been with Alps for more than 21 years and previously held the positions of purchasing manager and customer service representative.

BILL LEE has been appointed regional manager for South Central area. Lee has been with the company for more than 11 years as a sales representative.



■ Wire and synthetic rope manufacturer WireCo WorldGroup has announced that interim chairman and interim chief executive officer **JAMES O'LEARY** has assumed the role of executive chairman and chief executive officer. He will continue as chairman of the WireCo board of directors.



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

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MARKETPLACE

The Marketplace is divided into easy to read colour coded sections to help you quickly find what you need.



PRODUCTS, PARTS & ACCESSORIES

67

Operational aids, communication systems, components, controls, software, crane mats and outrigger pads, crane repair, hydraulics, jacks, attachments, personnel baskets, rigging hardware, rollers, slings and chains, tires, winches, wire rope, batteries, braking systems, and new, used and refurbished parts.

SAFETY, TRAINING & INDUSTRY SERVICES

Training, insurance, inspections, financing, consulting and safety equipment.

SPECIALIZED TRANSPORT

69

Transportation permits, freight forwarding, heavy haul, pilot car services, trailers, wheels and tyres.

CRANES AND EQUIPMENT FOR SALE OR RENT

70

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

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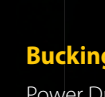
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1x	300 t	Liebherr LTM 1300-6.2	2014

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LTM1130-5.1 2013
LTM1200-5.1 2007
LTM1200-5.1 2011
LTM1250-6.1 2006 coming
LTM1350-6.1 2010
LTM1500-8.1 2014
LTM1750-9.1 2013
LTM11200-9.1 2010

Grove
GMK3055 2011
GMK4080 2009
GMK4080-1 2011
GMK4100L 2013
GMK5130-1 2006 2 winches
GMK5130 2014
GMK5170 2015
GMK5220 2013
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GMK6400 2013

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AC80 2007
AC160 2007
AC500-2 2006

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2007

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Terex Demag AC 100,
2007

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Tadano Faun ATF 70-4,
1998

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Terex Demag AC 40-1,
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30 t



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500 t, Liebherr LTM 1500-8.1, 2009
100 t, Liebherr LTM 1100-5.2, 2007
70 t, Liebherr LTM 1070-4.1, 2008
60 t, Faun HK 60, 2007

55 t, Grove GMK 3055, 2007
55 t, Liebherr LTM 1055-3.1, 2007
50 t, Grove GMK 3050, 2004
50 t, Terex Demag AC 50-1, 2002

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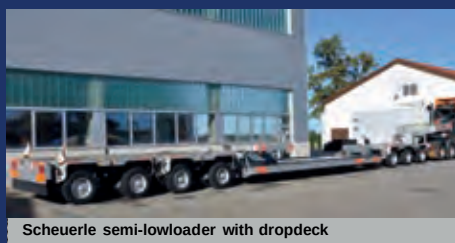
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400 t	Liebherr	LTM 1400-7.1	2007	14 x 8 x 14	60/56/84	direct
400 t	Liebherr	LTM 1400	1988	16 x 8 x 12	50 / 61 / 84	direct ex Dubai
300 t	Liebherr	LTM 1300/1	2000	12 x 8 x 10	60 / 21/42/70	direct
250 t	Liebherr	LTM 1250/1	2004	12 x 8 x 10	72 / 42 / 63	direct
200 t	Liebherr	LTM 1200-5.1	2009	10 x 8 x 10	72 / 22	direct
200 t	Grove	GMK 5200	2006	10 x 8 x 10	60 / 22	June
160 t	Faun	ATF 160 G-5	2009	10 x 8 x 8	60 / 37	direct
160 t	Faun	ATF 160 G-5	2005	10 x 8 x 8	60 / 13,2	direct
120 t	Demag	AC 120-1	2009	10 x 8 x 6	60 / 17	direct
120 t	Grove	AT 9120 E	1995	10 x 8 x 8	48 / 17	direct
100 t	Grove	GMK 5100	2005	10 x 6 x 10	51 / 18	direct
100 t	Demag	AC 100	2004	10 x 8 x 8	50 / 17	direct
100 t	Liebherr	LTM 1100/2	2001	10 x 8 x 8	52 / 19	direct
100 t	Grove	GMK 5100	2001	10 x 8 x 10	51 / 26	direct
90 t	Liebherr	LTM 1090/2	2002	8 x 8 x 8	52 / 19+runner	direct
80 t	Terex-Demag	AC 80-2	2004	8 x 8 x 8	50 / 17	direct
80 t	Terex-Demag	AC 80-2	2003	8 x 6 x 6	50 / 17+1,5	direct
80 t	Liebherr	LTM 1080/1	1999	8 x 8 x 8	48 / 19	direct
75 t	Grove	GMK 4075/1	2005	8 x 6 x 8	43,2/17+run	direct
60 t	Faun	ATF 60-3	2004	6 x 6 x 6	40,2 / 16	direct
60 t	Liebherr	LTM 1060/2 (2x)	2000	8 x 4 x 8	42 / 17	direct
60 t	Faun	ATF 60-4	2002	8 x 6 x 8	40,2 / 16	direct
60 t	Faun	ATF 60-4	2001	8 x 6 x 8	40,2 / 10	July
60 t	Faun	ATF 60-4	2000	8 x 6 x 8	40,2 / 16	direct
55 t	Liebherr	LTM 1055-3.1	2006	6 x 6 x 6		direct
55 t	Grove	GMK 3055	2006	6 x 6 x 6	43	direct
55 t	Grove	GMK 3055	2005	6 x 6 x 6	43 / 15+runner	direct
55 t	Liebherr	LTC 1055-3.1	2005	6 x 6 x 6	36 / 15	direct
55 t	Grove	GMK 3055	2004	6 x 6 x 6	43 / 15	direct
50 t	Grove	GMK 3050	1999	6 x 6 x 6	38,1 / 15	direct
45 t	Faun	ATF 45-3	2006	6 x 6 x 6	34 / 15,2	direct
40 t	Demag	AC 40-1 City	1999	6 x 6 x 6	31,2	direct
35 t	Liebherr	LTM 1030-2.1	2006	4 x 4 x 4	30 / 15	direct
35 t	Liebherr	LTM 1030-2.1	2005	4 x 4 x 4	30 / 15	direct
35 t	Grove	GMK 2035	2004	4 x 4 x 4	29	direct
35 t	Liebherr	LTM 1030/2	2003	4 x 4 x 4	30 / 15	direct
30 t	Faun	ATF 30-2 L	2001	4 x 4 x 4	28,5 / 12,2	direct
30 t	Luna	AT 30/27	1989	4 x 4 x 4	27 / 7	direct
30 t	Luna	AT 30/27	1989	4 x 4 x 4	27 / -	direct

ROUGH TERRAIN CRANES

80 t	Grove	RT 890 E	2008	4 x 4 x 4	43,2 / -	direct
35 t	Grove	RT 540 E	2012	4 x 4 x 4	31 / 13,7	direct
25 t	Kato	KR 250	1998	4 x 4 x 4		direct

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LTM11200-9.1, 2010



WANTED:

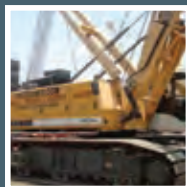
Liebherr LTM1750-9.1 (2013 or newer)

Please contact: Mr John Ledwith • Tel: +353 87 244 2085 • e-mail: johnledwith@irlequip.com

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ALL TERRAIN-CRANES

Make / Type	y. o. m.	Drive	Boom / Fly Jib
20 t Gottwald AMK 31-21	1984	4x4x4	20,50m
30 t Faun ATF 30-2 L	2001	4x4x4	28,50m + 12,20
35 t Liebherr LTM 1030-2.1	2005	4x4x4	30,00m + 15,00m
35 t Liebherr LTM 1030-2.1	2006	4x4x4	30,00m + 15,00m
35 t Grove GMK 2035	2004	4x4x4	29,00m
45 t Faun ATF 45-3	2006	6x6x6	34,00m + 15,20m
50 t Grove GMK 3050	1999	6x6x6	38,10m + 15,00m
55 t Grove GMK 3055	2004	6x6x6	43,00m + 15,00m
55 t Grove GMK 3055	2006	6x6x6	43,00m
55 t Liebherr LTM 1055-3.1	2006	6x6x6	40,00m + 16,00m + Runner
60 t Faun ATF 60-3	2004	6x6x6	40,20m + 16,00m
60 t Faun ATF 60-4	2000	8x8x8	40,00m + 16,00m
75 t Grove GMK 4075-1	2005	8x6x8	43,20m + 17,00m + Runner
80 t Terex-Demag AC 80-2	2004	8x8x8	50,00m + 17,60m
80 t Terex-Demag AC 80-2	2003	8x6x8	50,00m + 17,60m + Runner
80 t Liebherr LTM 1080/1	1999	8x8x8	48,00m + 19,00m
90 t Liebherr LTM 1090/2	2002	8x8x8	52,00m + 19,00m
100 t Grove GMK 5100	2001	10x8x10	51,00m + 26,00m
100 t Grove GMK 5100	2002	10x8x10	51,00m + 18,00m
100 t Liebherr LTM 1100/2	2001	10x8x8	52,00m + 19,00m
120 t Grove AT 9120 E	1995	10x8x8	48,00m + 17,70m
160 t Tadano Faun ATF 160G-5	2009	10x8x8	60,00m + 37,00m
160 t Tadano Faun ATF 160G-5	2005	10x8x8	60,00m + 13,20m
200 t Grove GMK 5200	2006	10x8x10	60,00m + 22,00m
200 t Liebherr LTM 1200-5.1	2009	10x8x10	72,00m + 22,00m
250 t Liebherr LTM 1250/1	2004	12x8x10	72,00m + 42,00m + 63,00m
400 t Liebherr LTM 1400-7.1	2007	14x8x12	60,00m + 56,00m + 84,00m

RT-TELESCOPIC-MOBILE CRANES

25 t Kato KR 250	1998	4x4x4	26,70m + 7,00m
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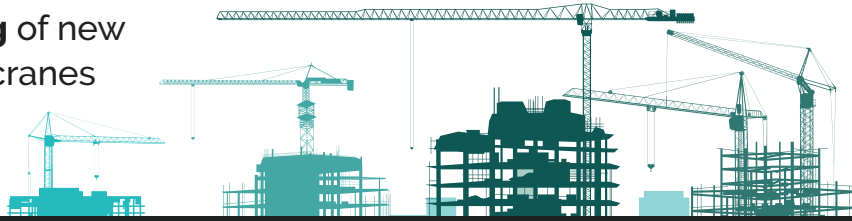
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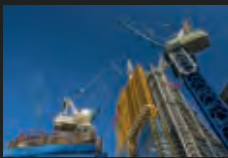
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2004 Liebherr LTM1400-7.1



2005 LIEBHERR LTM1095-5.1
\$420,000



2004 GROVE GMK6250L
\$500,000



2004 KOBELCO CK2500 \$450,000



MANITOWOC 4100 RINGER

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2002 Liebherr LTM-1250/1, 300 US TON, with Luffing Jib
2005 Liebherr LTM-1095-5.1, 115 US TON, 190'+ HYD JIB \$420,000
2004 Grove GMK-6250L, 250 US TON, \$500,000
2014 Grove GMK-7550, 550 US TON, \$2,700,000
2000 Demag AC-80, 100 US TON, \$200,000

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2006 MANITOWOC 2250, 300/500 TON WITH LUFFER & MAX-ER
1997 LINK BELT LS-138H, 80 Ton, \$175,000

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2014 Link Belt HTC-3140-LB, \$950,000
2009 Link Belt HTC-8690, 90 Ton, \$425,000
2006 Link Belt HTT-8690, 90 Ton, \$375,000
2007 Terex T-775, 75 Ton, \$225,000
1999 Terex T-340, 40 Ton, \$80,000
2008 Grove TMS-800E, 80 Ton \$340,000
2001 Grove TMS-500E, 40 Ton, \$70,000
2001 National 13105, 30 Ton, \$90,000
2001 American 5530, 75 Ton, Factory Refurbished
2009 Terex RT-780, 80 Ton, Rough Terrain, \$180,000

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