



# Benchmark on 7 Axles.

The new Demag AC 450-7 is in a class of its own: With a carrier length of 15.99 m and an outrigger base of 8.45 m, it is as compact as a six-axle crane, and yet is as powerful as some eight-axle cranes. In fact, the Demag AC 450-7 can reach lifting capacities of up to 25 tonnes when its 80 m main boom is fully extended, and that is without even using the SSL system. Bring in SSL, and the lifting capacity goes up to an unbeatable 37.9 tonnes.

In addition, Demag is using a new Sideways Superlift design for the first time ever in the AC 450-7 – one that makes handling and setup easier. The system can be extended with an 81 m luffing jib, and the sections of this jib can also be used to assemble fixed extensions.

DEMAG.

# On the cover:

A Hiab Loglift 118S HiVision remote controlled loader crane owned by Lars Norlings Åkeri in North central Sweden.





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Sinoboom unveils hybrid boom, new 450t Demag, all electric Sarens SGC, Aichi all electric tele booms, JCB's

all electric telehandler, Haulotte unveils Pulseo RT scissor lifts, CTE updates B-Lift 27, larger SK from Mammoet, Jekko goes direct in Germany, Snorkel adds to Chinese product line, three new booms from LGMG, Genie E-Drive slab scissors, LoadLift from Penny, Hybeko cliff face boom, Sudhir acquires Star - plus a roundup of the latest financials and news highlights.

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the sector.

In our second instalment of the 100 to 180 tonne All Terrain crane market, Will North takes a look at the latest cranes in the 130 to 180 tonne range.

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# In the next C&A

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If you have any contributions or suggestions to make, or are interested in advertising in this issue, please contact us today.

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43 Remote controls



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# Will electric power be the future?

The past month has been an eventful one for new all-electric machines with JCB, Haulotte, Sarens, Zoomlion, Aichi, Sinoboom and LGMG, all announcing new models, while Genie unveiled its E-Drive scissor lifts. And we can expect further developments in the coming weeks.

When it comes to aerial work platforms, the majority of units have been either electric or hybrid for some time - small scissor lifts have always been so - but boom lifts are following suit, while truck and van mounted lifts are increasingly hybrid powered with electric platforms and diesel

chassis. The stage is now set for telehandlers to go the same way, and with JCB banging the drum. uptake and demand is bound to gather pace.

Cranes are a bigger challenge, although most tower cranes are already electric, while Zoomlion launched a 25 tonne all electric truck crane earlier this year, the Spierings City Boy was hybrid from the start and Liebherr now offers a plug-in option for its MK self-erecting mobile tower cranes. An interesting development this month was Sarens launch of the 1,650 tonne SGC-90 heavy lift crane so obvious an application that one wonders why it took so long?

But in spite of all this activity, do we really think that electric powered cars and machinery are the ultimate solution to replace the internal combustion engine? When I posted the all-electric JCB story on social media, the cynicism displayed in most comments suggested not. And they may well have a point. The infrastructure is simply not being built fast enough in most countries for stress free recharging or even to provide sufficient mains power for the expected explosion in demand if we are to meet the latest emission targets. All those cars, vans, trucks, construction equipment and homes will take a lot of power and bringing it online takes time and much planning. Then there is the question of manufacturing and recycling all those lithium batteries - but that is another subject. So what's the alternative? Ever cleaner internal combustion engines will help a little in the short term, while hydrogen seems both expensive to produce cleanly and a challenge to handle.

It is hard to second guess what will power our equipment in 30 years' time, however electric - whether battery or mains - seems the best bet at the moment. Take a look at the article on page 24 - the installation of a fusion reactor - part of a multinational effort to commercialise the technology. But in the same feature we also highlight the ongoing growth of new coal power stations.

Who knows - Perhaps small fusion reactors will power our homes and vehicles in 2050? Either that or the climate changes to the point where we all live with intense sun and constant winds - providing us with an abundance of sustainable power, but a planet that struggles to support life as we know it.

In the meantime, I am betting on the innovative human spirit to overcome the obstacles that challenge a rapid conversion to electric powered machinery.

Leigh Sparrow

Comment and feedback is most welcome via post, email, fax or phone stating if we may publish them or not: editor@vertikal.net



n e w s Caa





# A new 450t Demag

Tadano Demag has launched a new seven axle 450 tonne class Demag AC 450-7 with the basic concept of a seven axle All Terrain that is as compact as a six axle crane, but with greater performance. All seven axles steer, while axles two, three, six and seven are driven. The AC 450-7 has an overall carrier length of just under 16 metres, and a travel length of 17.62 metres - similar to Grove and Liebherr's six axle cranes.

The new crane has a seven section 80 metre main boom, to which a luffing jib can be added with lengths of between 24 and 81 metres in three metre increments, with a maximum system length of 132 metres. The jib is similar to that on the AC 300-6, AC 350-6 and AC 1000-9, with sections that stow inside each other for transport. A range of lattice extensions are also available up to 59 metres with 40 degrees top end offset.

This is a 450 tonne 'class' crane, theoretically lifting 450 tonnes at 2.5 metres, but the actual maximum capacity is 195.5 tonnes at five metres. A new Sideways Superlift (SLL) design, which features longer Superlift arms mounted to the front of the base boom section, is capable of supporting higher capacities. With a 60 metre main boom and SSL configuration the crane can lift 73.5 tonnes at nine metres or take 12.8 tonnes to 50 metres on the full 80 metre boom.

Maximum counterweight is 150 tonnes, made up of a 20 tonne base plate and five or 10 tonne slabs with a reduced tailswing radius of 5.6 metres thanks an optimised counterweight slab design. An extended counterweight frame is also available, as are adapter plates that allow the crane to use



counterweights from other Demag models. The AC 450-7 can be configured for 12 or 16.5 tonne axle loads, with main boom in situ, while a 48 tonne GVW is possible with boom removed. Power comes from a Mercedes Stage V/Tier 4 diesel coupled to a Mercedes-Benz transmission with turbo retarder, wearless clutch and integrated high performance primary retarder.

A new patented operator assistance system - Demag Surround View - uses the crane's six cameras to display all possible outrigger configurations and performance for the footprint selected in both cabs. The IC-1 Plus control system is also available with the IC-1 Remote. The first unit ordered by German rental company Wiesbauer will ship in mid-2021.

# Sinoboom - boom

Sinoboom has unveiled its all new 60ft AB18EJ electric and AB18HJ hybrid articulated boom lifts. They are essentially the same battery powered, four wheel drive machine with oscillating axle and 40 percent gradeability, but the HJ also has an onboard diesel to drive the electrics and recharge the battery pack when required. The new machines feature short dual risers, topped by a two section telescopic boom and a relatively long articulated jib with an unrestricted platform capacity of 230kg.

The company has also updated its 52ft AB16EJ boom lift and unveiled two new telescopic booms, the 68ft TB20J Plus and 91ft TB28J Plus, both of which feature three section booms and articulating jibs with maximum platform capacities of 454kg - 300kg unrestricted - with four wheel drive, active axle oscillation and 45 percent gradeability. A new 86ft TB26C shipyard boom completed the boom lift launches.

New scissor lifts unveiled include the 40ft 1218RE electric Rough Terrain unit, with an overall width of 1.8 metres, four wheel drive, active axle oscillation, auto levelling jacks, single deck extension and 365kg platform capacity. Slab electrics include the 45ft 1412E Plus and a new 18ft 760mm wide 0607SE micro scissor lift, with an overall length of just under 1.5 metres.





# JCB's all electric telehandler

JCB has launched a six metre/2.5 tonne all electric compact telehandler. the 525-60E (505-20E in the US). The new machines have similar performance and external dimensions as the diesel powered version, however internally it has been completely redesigned. The four wheel drive system uses the same heavy duty axles, but they are driven by a large inboard mounted electric motor connected to the driveline via a drop box.

The hydraulics are powered by separate electric motor driving a new low noise gear pump. Power comes from a 96v lithium-ion battery pack with an onboard charger that can recharge the machine overnight from a standard 230 volt, 16 amp outlet, while the JCB 'Fast Charge' three phase charger good for all JCB ETech machines - can recharge the pack to 80 percent in 60 minutes or fully charge from empty to full in 2.5 hours. The machine is also equipped with regenerative braking and hydraulics to top up the battery pack while working. The battery pack is good for 5,000 full charges, which the company equates to 10 years of typical use. The first deliveries are scheduled for early next year.

JCB also unveiled its second all electric industrial telehandler - the 35-22E Teletruk - a higher capacity version of the C30-19E, launched last year. It offers the same four metre lift height but has 500kg more capacity at 3.5 tonnes and can manage 2.2 tonnes at the maximum two metre forward reach compared to 1.9 tonnes on the C30-90E. All other specifications are the same except it is 370kg heavier.

# Sarens all electric heavy lift crane

Sarens has introduced an electric version of its SGC heavy lift ring cranes in the form of the 99,000 tonne/metre SGC-90 with a maximum capacity of 1,650 tonnes. The crane sits on a 35 metre diameter ring, with a maximum counterweight of 2,700 tonnes, and can be configured with boom lengths of 100, 120, and 130 metres plus a 200 tonne capacity 27.5 metre jib. All of the hydraulic motors that power the hoists and slew bogies have been replaced with electric motors, powered from the grid. Benefits include the elimination of most oil usage, while energy consumption is reduced by 40 percent. The crane also generates power when lowering the boom or hook and can input that power into the national grid.



# RT scissors for Haulotte's Pulseo range

Haulotte has added to its new Pulseo electric/ hybrid range with the launch of the 43ft HS15E and 53ft HS18E all electric battery powered Rough Terrain scissor lifts. The new machines have working heights of 15 and 18 metres respectively, platform capacities of 750kg and the choice of standard or extra long single or dual deck extension options which can take the overall deck length from 3.8 to 7.4 metres depending on whether it is the regular, Pro or XL model. The HS15E can drive at full height while the HS18E cuts out at a platform height of 11 metres. Overall width of both models is 2.3 metres, with an overall stowed length of 4.4 metres. Total weight is 7.5 tonnes for the HS15E and just over eight tonnes for the HS18E.

The four wheel direct electric drive system uses heavy duty telehandler type axles, with one large centrally located AC electric drive motor mounted on the centrally mounted transfer box. The front axle is oscillating on the Pro models, while the rear axle has a traditional differential lock to aid performance

on slippery or sticky ground, all of which provides 40 and 45 percent gradeability. The 48 volt battery pack is made up

of eight six volt 435Amp hour Trojan L16H-AC lead acid

batteries, with Haulotte's Activ'Energy Management automatic top up system. Charging options include onboard 110/230 volt mains, or a three phase fast charger which is claims can fully recharge the battery pack from empty to 80 percent in three hours. The new models can also be ordered with an optional lift-on/lift-off 'Range Extender' Stage V diesel power pack, which can be moved between machines, allowing rental companies to offer it as an option.

Most of Haulotte's innovative features are standard, including its Activ'Screen interface, Activ'Lighting system and Activ'Shield Bar secondary guarding system.

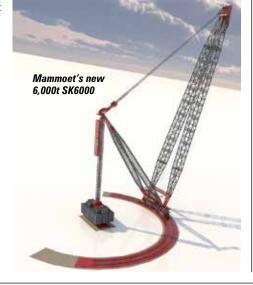




# Larger SK from Mammoet

Mammoet has unveiled preliminary details of the 6,000 tonne SK6,000 containerised heavy lift crane. Based on the same concept as the ALE SK 190 and SK 350, the SK6,000 follows Mammoet's acquisition of ALE in January. It has been developed to keep up with new methods of constructing Floating Production Storage and Offloading (FSP0) and Floating Liquefied Natural Gas (FLNG) vessels, where the hull and topsides are constructed simultaneously from ever larger modules weighing up to 3,000 tonnes. Lifting and integrating the larger components is becoming a challenge however the SK6,000 is able to handle very bulky modules weighing as much as 5,000 tonnes.

According to Mammoet the SK6,000 will enable topside modules to be lifted and installed from a single position without the need to rotate the hull, a costly and time consuming exercise. Its design is based on a centralised counterweight in a full ring design, but the SK concept avoids the need to install a full ring, freeing up considerable space on site, while applying a particularly low ground bearing pressure.





# CTE's new B-Lift 27.2

CTE has launched a new version of its 27 metre B-Lift 27 telescopic truck mounted lift with the B-Lift 27.3. The new model has a five section telescopic boom and offers up to 15.5 metres of outreach with 80kg in the platform. It's maximum platform capacity of 250kg is available at up to 11 metres, with a progressive reduction in capacity between the two points. Features include 640 degrees slew with acceleration and deceleration ramping, 180 degrees platform rotation and a new superstructure frame. A totally redesigned stronger, lighter chassis subframe provides a larger outrigger footprint.

A key innovation on the new machine is the company's new S3 EVO 'Smart Stability System' which manages the platform's key working parameters and provides a full readout of the working information at the platform control panel, displaying actual working heights, outreach and platform load along with possible load and outreach with the actual outrigger set up, including one side only and infinitely variable widths or configurations. The outriggers can be set from the chassis with simple levers, or from the platform.

An updated hydraulic system delivers faster, smoother simultaneous operation of multiple ffunctions, while its control panel has also been updated. The first unit was delivered to Dutch sales and distribution company Kraan & Truckservice.

# Aichi all electric tele booms

Japanese aerial lift manufacturer Aichi has delivered the first five units of its new all electric 46ft SP14DJE telescopic boom lift to Dutch rental company Doornbos.

The new machine is essentially an all electric version of the new diesel powered SP14DJ which was launched in April. As such, it offers the same performance with a 15.9 metre working height, just over 13 metres of outreach, and an unrestricted platform capacity of 270kg. The diesel engine and full tank have been replaced with two sealed lithium-ion battery packs and a large electric motor driving the hydraulic pump. The chassis is unchanged from the diesel model, with four wheel hydraulic drive and oscillation axle.

The electric machine is said to have enough power for five hours continual cycling, while recharging from empty takes around three hours with the 400 volt charger or a little longer with the 230 volt on board alternative. The electric running gear on the new boom has been subjected to accelerated endurance testing and the batteries are said to retain at least 80 percent of original charge capacity after 3,500 full charging cycles - almost 10 years with a recharge every single day of the year. The main electric motor is also said to be good for at least 10,000 hours of operation or more. Both battery pack and motor are warranted to this level.



Jekko goes direct in Germany

Italian spider and mini crawler crane manufacturer Jekko has opened a new German subsidiary - Jekko Deutschland. Jekko entered the German market 15 years ago as the company - known then as IMAI - launched its first model under the Jekko brand. Five years ago it appointed Nordkran as its sales distributor and Lift Service Krome for after sales support and has had significant success.

Jekko Deutschland is based at the Lift Service Krome facility in Witten, near Dortmund, Jekko holds a controlling interest in

the business with Carsten Bielefeld - who joins from Nordkran as sales manager - and Andreas Krome of Lift Service Krome also owning shares. Nordkran will now represent Jekko as dealer for Northern Germany operating from its locations in Delmenhorst, Hamburg and Papenburg.



Snorkel has started manufacturing its 46ft A46JRT articulated boom lift and 66ft 660SJ telescopic boom at its 3,000 square metre production facility in Jintan, Jiangsu Province, China. The A46JRT has a 16.3 metre working height with an outreach of 7.35 metres at an up & over height of 7.67 metres and a 1.5 metre articulated jib, while maximum platform capacity is 227kg. The 660SJ has a 22.1 metre working height, 18 metres of outreach, an unrestricted platform capacity of 272kg and a two metre articulating jib for additional versatility.





# Three new booms from LGMG

Chinese manufacturer LGMG unveiled a new 62ft articulated boom lift along with 72ft and 92ft telescopic boom lifts at bauma China this month.

The 62ft AR19J features a short dual sigma type riser, a two section over centre telescopic boom and 1.5 metre articulating jib to provide a working height of 20.8 metres and an outreach of 12.1 metres. Features include four wheel drive, front oscillating axle, a low emission diesel and intelligent on board diagnostics.

The 72ft T22J and the 92ft T28J offer three section booms and articulating jibs, with dual 300kg/450kg platform capacities. Sharing similar features as the AR19J, they weigh 12,300kg and 18,700kg respectively. The company is also working on lithium-ion battery packs for its full range of slab electric scissor lifts.

> LGMG's new booms at hauma China





# Genie E-Drive for slab scissor lifts

Genie has announced a new AC direct electric wheel-motor drive system for its full range of GS slab electric scissor lifts - the 'E-Drive' system.



The new brushless E-Drive motors, mounted on the front steering axle, are fully sealed against moisture and water and totally maintenance free. The switch to electric drive eliminates around 70 percent of a machine's hydraulic hoses and fittings, substantially reducing the potential for leaks. The company claims a 30 percent increased run time between batter recharges, along with lower maintenance and lifetime battery costs, and quieter operation.

Genie will continue to offer the hydraulic drive versions of slab scissor lifts up to



26ft, alongside the new E-Drive models.



Updates to Versalift VTX240

Van and truck mounted lift manufacturer Versalift has introduced the third generation version of its 24 metre VTX240 truck mounted platform, the VTX240 G3. It offers the same



three section telescopic riser/lower boom that elevates to the vertical, topped by a three section boom that offers a maximum outreach of 12.5 metres at an up and over height of 11.5 metres. Maximum platform capacity is 220kg.

New features on the VTX240 G3 include a digital display in the cab to assist with set-up, longer outrigger jacks allowing levelling on slopes of up to six degrees, and changes to the control valves to improve emergency descent operation.

# **Sudhir acquires Star Platforms**

India's Sudhir Power has acquired UK powered access rental company Star Platforms in an all share transaction. Owner managers Richard Miller, Steve Simmons and Bryan Freeman will remain on board to run the business, effectively forming Sudhir's UK team in preparation for further growth.

Established by Simmons, Freeman and Miller in 2014, Star Platforms has a fleet of almost 2,000 units and operates from five locations. Revenues last year were £15.15 million with a pre-tax profit of £2.1 million.

Sudhir Power started out in 1973 as a power generation specialist and has expanded into aerial work platform rentals from operations in India, the UAE and Saudi Arabia.



# **LoadLift from Penny**

UK loader crane manufacturer Penny Hydraulics has launched the 100kg capacity 'Lightweight LoadLift' platform type loading/unloading lift for vans or small trucks.

Weighing just 47kg, the Lightweight LoadLift can be installed within a delivery vehicle to lift items such as white goods, tote boxes, tool chests as an effective alternative to a full size tail lift. Features include remote controls, a 500 by 450mm lifting platform and 90 degrees of slew, while it can work on chassis floor heights of up to 800mm.

Dan Casey of Penny Hydraulics said: "One in every three accidents at work are caused by manual handling, the Lightweight LoadLift helps prevent such injuries."



# Cliff face boom lift

Norwegian access equipment distributor Hybeko has introduced a custom built CE marked cliff face stabilisation platform based on the 85ft Genie S-85 XC telescopic boom lift. The Hybeko RS-85 XC was designed in partnership with rock scaling specialist Gjerden Fjellsikring and Slovenian rock drilling manufacturer Oprema Ravne, for rock scaling and cliff face stabilisation.

Key features include a customised aluminium platform with protective roof and drill attachment, integrated power hoses enclosed within the telescopic boom, an integrated generator and air compressor tow bar. It also benefits from the S-85XC's dual 300kg/45kg platform capacities.

The first six units were purchased by Norwegian rental companies, Høyde-Teknikk and Drammen Lift, and contractor Mesta.





Manitou to ship by wind

Telehandler and aerial lift manufacturer Manitou has formed a partnership with Ro-Ro shipping line Neoline to provide more environmentally friendly forms of



transport, including the use of sail powered ships. The partnership is part of Manitou's 'Ecological Transition' plans to use wind powered cargo ships to transport Manitou products from France to North America.

Manitou exports around 1,000 machines to the USA each year but will only be able to send 40 units on the latest sailing ship, which Neoline claims offers a 90 percent reduction in Co2 emissions compared to traditional ships. The first two wind powered vessels are due to go into service this month, with the aim to provide departures every two weeks.

# Ritchie Bros. acquires **Rouse Services**

Ritchie Bros. is to acquire Los Angeles based market intelligence and data provider Rouse Services for \$275 million - \$250 million in cash and \$25 million of Ritchie Bros. stock. Ritchie chief executive Ann Fandozzi said: "Data and analytics are fundamental building blocks to deliver great customer





experiences in today's world. By working together we can help customers understand used equipment trends and how to use them to optimise fleet management decisions."

Multitel ships new flagship The Multitel

Italian manufacturer Multitel has shipped the first of its all new 77.5 metre MJ 775 truck mounted lift to Italian rental company O.Mec. Mounted on a five axle chassis the MJ 775 features a five section main boom topped by a three section top boom and five metre, two section aluminium telescopic jib. Maximum outreach is 38 metres with 120kg in the platform, 35.8 metres with 250kg or 32 metres with the maximum platform capacity of 400kg.

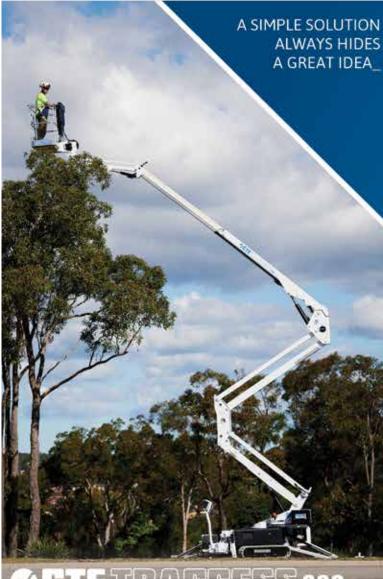
The boom/jib configuration also provides an outreach of 33 metres at a working

height of 33 metres, 30 metres at a height of 50 metres or 24 metres

outreach at 71 metres. Features include a hydraulically extendable platform, 16 metres below ground reach and automatic outrigger levelling and position monitoring.







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# Financials round-up

Snorkel has posted nine month revenues of \$86.5 million, 49 percent lower than in the same period last year with losses of \$9.8 million compared last year's profit of \$799,000. In the third quarter, sales improved 56 percent over quarter two to \$26.3 million but were 54 percent down on the same quarter in 2019, with a loss of \$2.5 million, compared to a profit of \$1.3 million last year.



**Speedy** has released its half year results for the six months to the end of September with revenues of £163.8 million, down just over 20 percent on the year, while pre-tax profits plunged 91 percent to £1.4 million. However net debt was reduced by 32 percent to £57.8 million thanks, in part, to a reduction in capital



investment. As a result the average age of the fleet increased to 3.9 years compared to 3.4 years at the end of September 2019.

Port crane and material handling manufacturer **Konecranes** has reported revenues for the nine months to the end of September of €2.24 billion, just 6.3 percent below last year's levels. Pre-tax profit jumped more than 70 percent to €94.1 million, while net debt increased from €1.9 to €2.2 billion. Third quarter sales however declined 8.7 percent to €768 million, but pre-tax profits almost quadrupled to €35.6 million, while the order book at the end of the



quarter was 9.4 percent down on last year at €1.74 billion.

US rental company **Herc** - previously **Hertz Equipment** - has reported nine month revenues of \$1.26 billion, a fall of 13.6 percent on the year. Pre-tax profits for the period were \$49.1 million compared to \$10.4 million in the same period of 2019, due lower costs, write



offs and a sharp reduction in interest costs that totalled around \$76 million. Capital expenditure was almost halved to \$273 million.

H&E Equipment Services has reported its third quarter revenues of \$853.5 million, 15 percent below the same period last year. The reductions were similar for rental and sales, although used equipment sales improved. The company posted a pre-tax loss of \$18 million, compared to a profit of \$65.3 million last year.



Third quarter revenues were 18 percent lower at \$289.3 million, while pre-tax profits dipped 56 percent to \$17.1 million.

German telehandler manufacturer **Wacker Neuson** has reported a 16.4 percent fall in nine month revenues at €1.19billion. Pre-tax profit was 53.5 percent lower at €53.8 million. In the third quarter sales were €390.8 million, 16.5 percent lower than for the same quarter last year.





**Manitowoc** reported its nine months results with revenues dipping 26 percent to \$1.01 billion and pre-tax losses of \$11.3 million compared to a profit of \$47.6 million last year. Third quarter sales were 20.6 percent below

last year's level at \$355.6 million, however order intake in the quarter was 10.5 percent higher than last year at \$389.9 million, leaving the order book at the end of September at \$464.8 million, roughly the same as a year ago. Pre-tax profits were \$6.6 million, 69 percent down on last year.



Palfinger, the loader crane and aerial lift manufacturer, posted nine month

revenues of €1.1 billion, a fall of 15 percent, while pre-tax profits dropped 45.4 percent to €58.5 million. The third quarter saw a pickup in Europe, Russia, China and South America, with revenues coming in at €370.2 million, just nine percent below last year, with a pre-tax profit of €27.95 million down 13.5 percent



on the same quarter last year. Net debt was cut from  $\leqslant$ 577 million to  $\leqslant$ 459 million.

**United Rentals** achieved nine month revenues of \$6.25 billion, 10 percent down on last year, but with pre-tax profits 30.5 percent lower at \$752 million. Third quarter revenues were \$2.19 billion, a fall of 11 percent, with pre-tax profits of \$2.75 million, 29.5 percent below the same quarter in 2019. Capital expenditure was almost halved to \$950 million compared to \$2.1 billion last year. Full year revenues

are expected to be between \$8.35 and \$8.45 billion.



French telehandler and aerial lift manufacturer **Manitou** has posted nine month revenues to the end of September of €1.15 billion, 28 percent below the same period in 2019. The Material Handling division - platforms and telehandlers - accounted for €749 million, a reduction of 33 percent, while US based Gehl came in at €183 million, a fall of 26 percent. Parts and services revenues were just three percent lower at €221 million. Order intake for the third quarter surprisingly increased by

23 percent to €301 million, while the order book at the end of September was almost four percent higher at €544 million.



Italian truck mounted lift manufacturer GSR has updated its 3.5 tonne telescopic truck mounted lift range with new 22 and 23 metre models. The 22 metre B220TJ platform has a four section telescopic boom with a 2.75 metre articulated jib and offers up to 14 metres of outreach

at a working height of 5.5 metres with 80kg in the platform, or 10.6 metres with the maximum 250kg platform capacity. Overall travel length is 7.73 metres.

The 23 metre B230T4 platform does not include a jib but has a longer four section boom, providing 14.4 metres of outreach with 80kg, or 10 metres with the maximum platform capacity of 250kg. Overall length is slightly longer at 7.79 metres.

Both machines are mounted on the latest Mercedes Sprinter chassis and feature four beam and jack outriggers with multiple configurations possible, including inboard to partial or full extension. Automatic positioning and monitoring is also included to adjust the work envelope to the actual footprint.

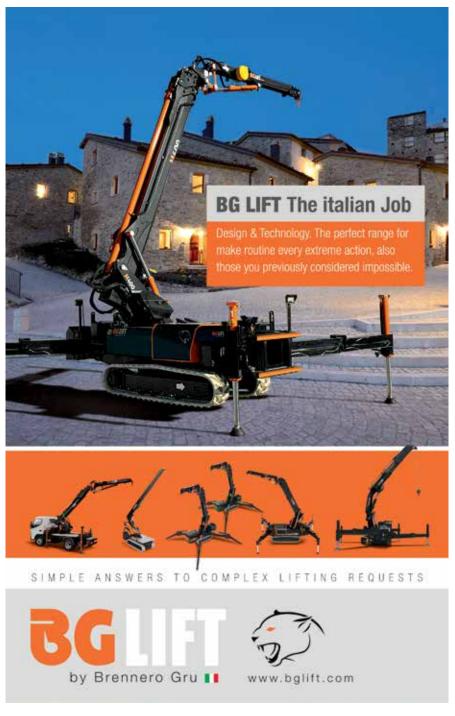


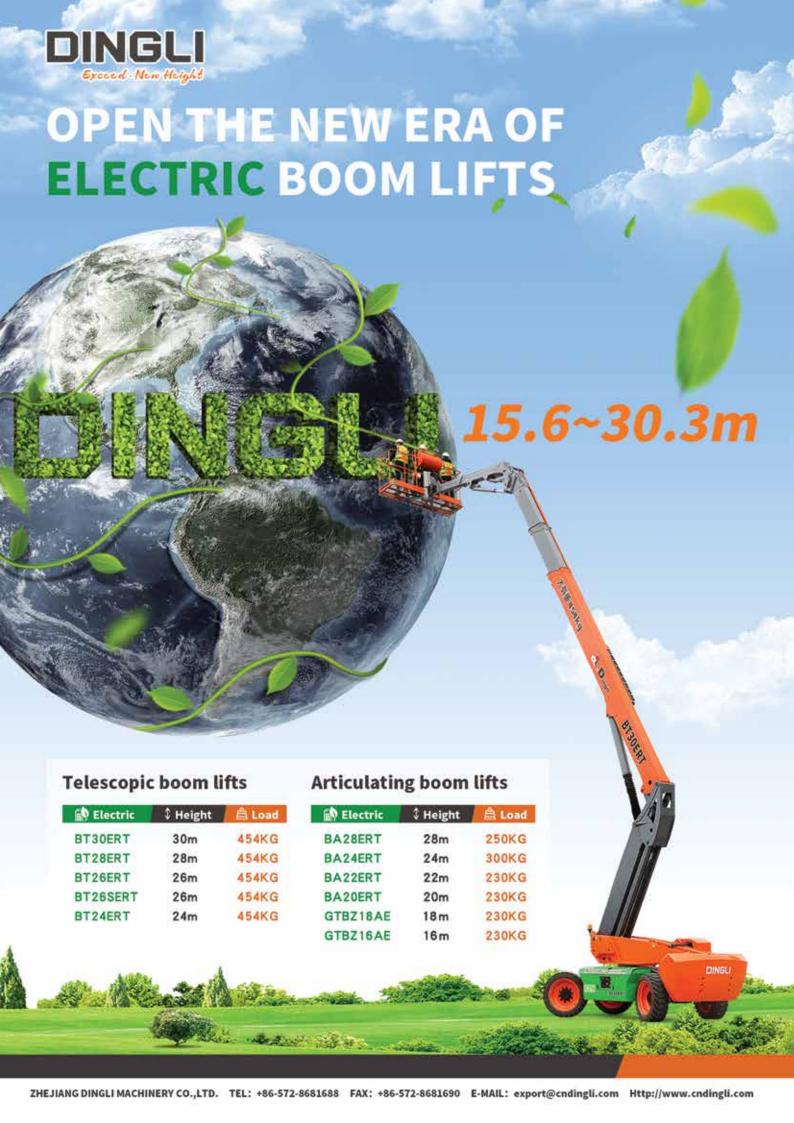
# Two million **PAL** cards

**IPAF** has issued its two millionth Powered Access Licence (PAL) card with more than 800,000 of them still valid and in use on job sites around the world. The federation first began certifying operators in 1993, while the PAL card followed towards the end of 1998. By 2014 the millionth card had been issued, with the 1.5 millionth coming in 2017.

Over the years the design and functionality has been improved with all cards issued after January 2015 featuring 'smart technology'. The Smart PAL allows the cards to interact with security, telematics and tracking systems on machines to ensure only authorised, qualified and correctly familiarised personnel are able to operate them. They can also maintain a digital log of operators' machine usage, simplify the renewal process, and demonstrate familiarisation levels on different types of equipment.







# **ews** HIGHLIGHTS

- Wacker Neuson CEO Martin Lehner will leave the company and be replaced by Kurt Helletzgruber
- US based Bigge Crane and Rigging has opened a branch in Rock Hill, S. Carolina

Kurt

- Sarens has opened a depot in Chingola, northern Zambia
- Italy's Titocci has taken a 37m Palazzani XTJ 37 + spider lift
- Oshkosh CEO Wilson Jones retires in April and will be replaced by COO John Pfeifer
- bauma Conexpo India has been postponed until April





- Germany's Wiesbauer has ordered the first 450t Demag AC 450-7 All Terrain crane
- UK based Fussey Piling has taken a 50t Sennebogen 653E telescopic crawler crane
- Maxim Crane Works is opening a facility in Richmond, Virginia
- Austria's Maltech Arbeitsbühnen has taken the first new GSR B-Model 3.5t truck mounted lift
- Germany's MaxiKraft has taken an 800t Liebherr LR 1800-1.0 lattice crawler crane
- JLG has appointed Etienne Bourcier as key account sales director, replacing **Walter van Winckel**
- Belgian contractor Mevaco has taken three Raimondi MRT159 flat top tower
- HMF has appointed Crane Sales NZ as its distributor for New Zealand
- The Texel fire brigade in the Wadden Islands has taken a 32m Bronto F32RPX truck mounted platform
- Acces Industrie has taken five 60ft Genie Z-60 FEs and the first 10 45ft Genie Z45 FE hybrid booms in France
- UK/Irish Cork Crane Hire has taken a 230t Liebherr LTM 1230-5.1 All Terrain crane
- UK's Thompson Tree Services and rental company **Cutting Edge** have taken **Platform Basket** Spider 20.95 spider lifts
- The LEEA has added Martin Halford to its board of directors
- Czech company Sico Rent has taken a Moog MB70-1/S underbridge inspection platform
- Martin Halford Germany's Lenz-Kran has taken a 110t Liebherr LTM 1110-5.1 All Terrain crane
- Porto da Praia da Vitória has taken a new Konecranes Gottwald mobile harbour crane
- PASMA has gained CSCS approval for its Partner Card Scheme
- UK's City Hire has taken 10 Snorkel S3010P push
   Platform Basket has launched the 19m 20.95, around scissor lifts
- UK based Sangwin Plant Hire has taken a 100t Tadano ATF 100-4.1 All Terrain crane
- UK rental group Speedy has merged its powered access acquisitions into a single operation
- Austria's AWV Liezen has taken two Sennebogen 355 E telehandlers
- Versalift UK has promoted Tom Johnson to operations manager
- UK based Cadman Cranes has taken a 110t Liebherr LTM 1110-5.1 All Terrain
- Skyjack has delivered its latest boom and scissor lifts to Hainan Airlines in China

Johnson

- Russia's Vertex has taken 24 Haulotte boom and scissor lifts
- Germany's Hans-Georg Krause has taken a new Tadano ATF 100G-4 All Terrain
- Manitou has appointed Alexandra Matzneff as a non-executive director, replacing Carole Lajous
- UK's TMC Lifting Supplies has launched the Mod Lite outrigger mats Alexandra

Matznefi BKL Baukran Logistik has taken the first 700t Liebherr LTM 1650-8.1 in Germany UK's Star Platforms has donated a 30ft Skyjack SJ30 ARJE boom lift to The Poppy Factory Versalift has introduced the 24m VTX240 G3 truck mounted platform

- UK distributor CPL has agreed a service partnership with Rivus Fleet **Solutions**
- IPAF has appointed Amanda Beckett as head of finance
- Haulotte has launched the new Pulseo Electric 43ft HS15E and 53ft **HS18E Rough Terrain scissor lifts**
- Saudi Arabia's ACT Crane & Heavy Equipment is taking delivery of 16 Demag All Terrain cranes Custom Equipment/Hy-Brid Lifts has appointed Skyreach Equipment as distributor for the mid-Atlantic region

Amanda Beckett

- ABA has taken the first 110t Liebherr LTM 1110-5.1 in the UK
- Germany's Würzburger Kranverleih und Bergungsdienst has taken two new Liebherr All Terrain cranes
- UK's Advanced Access Platforms has taken two 26m Hinowa Hybrid Lightlift 26.14 Performance IIIS spider lifts
- UK's Clow Group has promoted **Stuart Anderson** to technical director
- Malcop has taken the first **Sinoboom** scissor lifts in Spain
- Point of Rental's 'Point the Way' has gained charitable status
- Australia's Coates Hire has taken \$7 million worth of Haulotte boom and scissor lifts
- IPAF has issued its two millionth PAL card
- Loxam's Powered Access Division has appointed Chris Thomas as finance director
- Genie has introduced E-Drive AC direct electric drive - for its GS slab electric scissor lifts
- Italy's Technogym has taken two custom built rail mounted **Comet** platforms
- UK's Marsden Crane Services has taken a 40t Liebherr LTM 1040-2.1 All Terrain crane
- Germany's MaxiKraft has taken three 45t Demag AC 45 City All Terrain cranes UK based Wincanton has taken 14 Hiab
- 145DLL-1 HiPro loader cranes Italy's AlmaCrawler has appointed Ireland's Inspectec as a distributor
- US based Select Crane Sales has appointed Alexandra Casler as territory manager north east
- Manitou has teamed up Ro-Ro shipping line **Neoline** to ship machines under sail



telescopic truck mounted lift

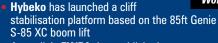
- Germany's Karl Bachl has taken a 130t Sennebogen 6133E telescopic crawler crane
- Limassol fire brigade in Cyprus has taken a 60m **Bronto Skylift** F60RLX fire platform
- The UK's CPA has appointed Peter Gibbs of Ainscough as chairman of its Crane Interest Group

Italy's Iozzino Costruzioni Generali has taken a 10t Potain MDT 219 flat top city tower crane



Sinoboom Europe has appointed Thomas Wolke as regional manager for the Nordic & Baltic region

Unic Cranes Europe has appointed **ANK Cranes** as distributor for Norway & Sweden



 Australia's EWPA has published new guidance on secondary guarding systems for aerial work platforms

UK's **Speedy** has appointed **Marc Johnson** as head of engineering and **David Burns** as regional manager South Fast





IPAF has switched next year's summit and awards to an online event

- Scotland's Johnston Rigging has taken a new 60t Liebherr LTM 1060-3.1
- UK's Access Hire Nationwide has purchased 21 Klubb K38P 13.8 metre van mounted platforms
- UK rental company Quick Reach has appointed Robert Dillon as sales and business director and Katrina McMahon as business development manager for the north



Koper Dillon



Haulotte has opened a new office in Wuhan,

- Germany's Mikschl has taken two new three axle **Demag** All Terrain cranes
- UK's Connetts Farm has taken a solar powered **Hiab** T-CLX 018-2 trailer . mounted loader crane
- Loxam's Powered Access Division CEO Don Kenny will leave the company at the end of the year
- Norway's Wergeland and PSW Group have ordered a 2,600t/m Huisman Skyhook crane
- Belgium's **Dufour** has taken three 250t Demag AC 250-5 All Terrain cranes
- Mobile Mini UK has appointed Chris Fay as head of sales and marketing
- Mammoet has taken the first production version of the 700t Liebherr LTM 1650-8.1





See www.vertikal.net news archive for full versions of all these stories

# PROVEN VERSON SCHOOL SC

Getting in and out of tight spaces is not always easy. To maneuver through confined spaces, the **Snorkel MB26J** features ultra-narrow dimensions with zero tailswing. Its superb up-and-over capabilities combine a jib boom with 360° mast rotation for precise performance. Boasting a lift capacity of 475 lbs. (215kg) and a maximum working height of 31 ft. 6 in. (9.8m), the MB26J delivers versatility where you need it most.











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# Global power



A handful of manufacturers build large components for conventional power plants. Getting them to their destination, often to power hungry and infrastructure poor countries and then installing them on site requires careful planning and clever technological solutions. Will North reports.

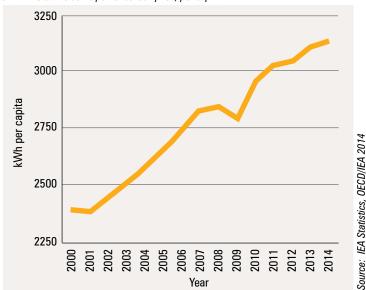
Global energy demand continues to soar. As Chart 1 shows, global electric power use per head increased from 2,386kWh to 3,131kWh in the 14 years to 2014. We all use more electricity every day, whether to charge the growing number of electric cars, phones, laptops, and other devices, or because our home has been connected to the grid for the first time, rather than relying on locally sourced fuels like firewood or diesel generators.

In high income countries, where citizens and state benefit from the luxury of readily available low interest investment capital, the desire for a greener future has seen energy derived from fossil fuels gradually fall (see chart 2). In lower income countries where immediate needs are more urgent than long term environmental concerns, electricity generated from these sources has risen from 75 percent to 89 percent.

No surprise then that low and medium income countries predominate in coal power plant construction. Chart 3, compiled by environmental campaigners Global **Energy Monitor, ranks countries** by MWh of coal derived electricity coming online between 2017 and the summer of 2020. China leads the field by a long way—although it also leads when it comes to wind and solar power construction. Among the others in the top 10, there are only two highly industrialised nations: Japan and South Korea, while nine of the 10 countries are in Asia, the exception being South Africa. Mammoet project manager Rutger

Beelen says: "Some of the fastest growing economies right now are in sub Saharan Africa, generating greater demand for power there. At the same time Europe is also busy with 'energy transition' as conventional power plants are phased out and replaced by more renewable, sustainable power plants."

Chart 1. Global electric power consumption, per capita



# Separation of production and use

The core components of power plants are not built on site and are mostly fabricated by a handful of companies in the world's most industrialised countries, manufacturers such as Siemens, Smit, Wartsila, GE and Hitachi, at plants located in Europe, the United States and Japan. Components are shipped as more or less complete units, often weighing hundreds of tonnes with widths of up to seven metres and a height of five metres.

David Allely director of UK transport specialists Allelys group says:

"The generators generally weigh around 250 to 300 tonnes, although Siemens' latest gas turbine—the 8000—weighs 500 tonnes, while Supergrid transformers - used in continental and international transmission networks - weigh up to 200 tonnes and generating transformers up to 350 tonnes."

Allely notes that green energy is also employing increasingly large and heavy components. He cites the example of synchronous

Chart 2. Fossil fuels as a percentage of all energy consumption

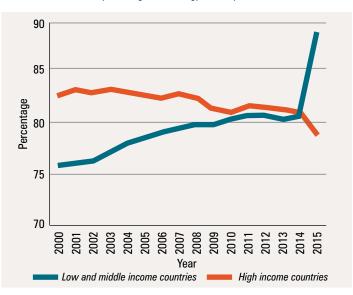
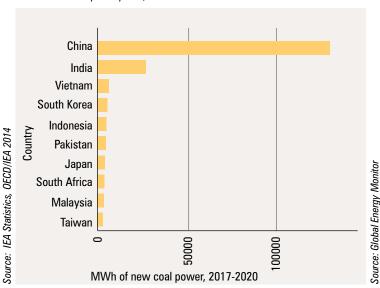


Chart 3. New coal power plants, since 2017



# heavy moving

condensers, flywheels and generators,

all of which are needed to help maintain the frequency of the AC supply with solar and wind power. The journey from factory to installation point will largely be by water, but usually involves some land transport, all requiring a combination of barges, temporary port lifting equipment, trailers and transporters. For the biggest components, where the load cannot always be adequately spread with regular trailers and transporters alone, a bridge girder trailer will be required. When the biggest components arrive on site, the structures in which they will be housed are often already built, leaving little space for a suitably large crane. This requires moving the bulky load around and under obstacles, raising them to the installation height, and sliding them into position, typically with SPMTs (Self Propelled Modular Transporters), skidding systems, gantries, and jacks. Manufacturers of the largest components tend to locate factories near watercourses and equip them for loading big components onto barges or ships. Allely says: "Conventional fossil fuel and nuclear power plants were generally built near water, with purpose built access. However transmission

#### A shared burden

regulators to ensure the journey can

substations are often located inland,

moving transformers from the coast

can be a challenge as the only way

in and out is often by road. Involving

two sets of interrelated challenges,

the engineering to move the load

safely, and the organisational

challenge of working with local

be completed without damaging

roads or street furniture."

For components that can be broken down into smaller sections, flexible, modular, transporters and trailers can be used and even combined for larger or heavier loads.

Thomas Fiedler, senior expert of innovation management at Scheuerle and Kamag parent company TII, describes the options his company offers for different components. For jobs where height restrictions are an issue, he recommends the Scheuerle EuroCompact series, for their low loading height. For long distance transport, the UltralightCombi has a low dead weight of 2.2 tonnes an axle and can be combined with other Scheuerle equipment types.



transformer 35 miles on

winding country roads and over small bridges in

Aberdeenshire, Scotland

company has the modular Scheuerle InterCombi or K25 axle lines, and girder bridges.

Spreading the weight of the largest, indivisible, components - those 350 tonne transformers or 500 tonne generators, for example - require specialised equipment. Girder bridges support the load on steel side beams with a transporter platform at each end, so that the load is divided between the two transporters a good distance apart.

Allelvs was the first customer for Goldhofer's Faktor 5 girder bridge, followed by the German manufacturer's upgrade - the Faktor 5.5. Allely says: "We need girder bridges to be lightweight, with very high capacities. The manufacturers achieve this with ultra-high tensile steel, similar to that used in the latest crane booms. In our view, Goldhofer has been the leader in this, since we started working with them in the 1990s. Scheuerle now offers a similar product, but you tend to stick with what you have, especially if you have a large fleet."

The Faktor 5 and Faktor 5.5 take their name from the ratio of its weight to maximum payload: the Faktor 5 carries up to 500 tonnes and the Faktor 5.5 up to 350 tonnes so an equipment weight of 100 and 63 tonnes respectively - depending on configuration. They feature a modular design, allowing them to be converted from use on compact, heavy, loads like those used in the power sector, to longer loads such as petrochemical vessels.

### 56km Scottish move

The Faktor 5.5 was launched last year and Allelys put the first unit to work in October. The 950MW Moray East wind farm is being installed off the Scottish coast. A substation with three transformers is being built for it inland in New Deer, Aberdeenshire. The 35 mile trip from



Peterhead hit its first challenge at the port exit. The route began with a right - left combination and a short steep climb. Thanks to meticulous planning and preparation, the 70 metre convoy overcame the obstacle without a hitch, as well as the following 90 degree bends, roundabouts and bridge barriers. "It proved a big advantage to be able to use the Goldhofer bridge in a short configuration of 10 axles at the front and 10 at the rear, making it more manoeuvrable and above all more economical," says Allely.

The load also had to cross bridges and take in steep sections along the route, with a 1.6 metre vertical lifting stroke and levelling system. the Faktor 5.5 was able to be raised to pass over bridge parapets and levelled to compensate lateral lean on the narrow winding sections of the route.



# heavy moving

# Cla





In India, fossil fuels remain an important part of the power mix. The country is exceeded only by China in terms of new conventional power plants brought online over the past three years. TII is meeting this demand with its subsidiary TII India. The division sold its first girder bridge, a 550 tonne capacity TIIGER-STB-550, to local transport and project lift specialist JH Parabia last year. The girder bridge was designed with support from TII's German engineers, and built at its factory in Bawal, near Delhi.

TII India chief executive Jochen Landes says: "It helps us a lot to have a local subsidiary and offer tailor made products for the Indian market and neighbouring regions with similar needs for heavy transport solutions. It is

actually the combination of price and proximity that makes our TIIGER brand products so attractive to Indian customers. They want excellent quality at low prices. The expectations of customer service and of a short response time are also very high. In addition to India and selected Asian countries, we see very good market potential in other markets such as the Middle East and Africa."

### A proper plan

While modular transporters and specialised equipment can solve most technical challenges, they cannot secure permits or properly plan a route. In addition to owning the right equipment, heavy transport companies need the local expertise to work with regulators.

David Allely says: "There is a lot of work involved in route planning,



with knowledge and relationships built up over many years. Capacity on the UK road network has been decreasing, while a lack of maintenance has caused bridges to deteriorate and capacities to be reduced. There has also been a lack of structure as authorities contracted out maintenance and abnormal load services, with contracts changing every few years, with records not passed on, causing a loss of information. There used to be a highway bridge team on every council that understood their assets and kept good records, there are some very good contract companies out there, but also some very bad ones. Ironically, records are for older bridges are often far better than for new ones. Some councils maintain their records very well with the original drawings still available for structures built by the pioneering engineers like Thomas Telford." Global businesses need to offer the same level of local expertise on a worldwide basis. Mammoet's Beelen says: "Most of our moves

are oversized, requiring a great deal of preparation, including corner widening, bridge crossings, power lines, railways and dealing with trees. In Poland the preparation time for a six kilometre move was 1.5 years! Each country has its own specific rules, regulations and processes we have a team in most countries that is familiar with the local requirements, but which can call on the strong global engineering core to assist them."

"Transport permits usually come with conditions, such as providing an engineering calculation for road strength or a bridge crossing. The local authorities often appoint a university or engineering firm to provide this calculation, but they require input from our engineering department. Having a worldwide network is an advantage, we can pick the item up from the customer's factory and install it, eliminating the interfaces between subcontractors."

### **Doorstep delivery**

Sarens often works with local transport providers for standard loads, while supplying its own solutions for more complex moves with SPMTs and similar equipment.

Large scale global projects can require a clever mix of high tech and local solutions. A good example of this is a recent project Sarens took on in Hong Kong, although its infrastructure is much more developed than the typical location for a new conventional power station, however it is one of the most densely populated cities in the world, and spread over hundreds of islands. Sarens was hired to transport and install components for an extension to a power station on Lamma Island, which has no port and no roads, just a small fishing port and quayside. The company began by trans shipping loads to Lamma with the derrick barges that ply their trade in busy Hong Kong Bay, and involved more than a hundred barge journeys. The







HydraSlide's low profile skidding systems were a vital tool for Swedish firm Jinet on a 25 mile transformer move. On the way, the load had to be skidded under a motorway overpass with only 100mm of clearance

components were unloaded by cranes on the quay and installed using a combination of standard gantries and strand jacks, as well as Sarens Sarskid and Sarlift systems which it developed in house.

The company also uses 'off the shelf' gantries from Enerpac for routine jobs, such as lifting loads from trailers and transporters and simple installation jobs. Stijn Sarens says: "They are very easy

and cheap to transport and can be self assembled on site. With four hydraulic cylinders each able to lift 250 tonnes, they can be used for lifts of up to 1,000 tonnes." For other, more complex jobs, Sarens prefers its own purpose built systems.

# Swedish Hydra Slide

Hydra-Slide skidding and gantry systems are commonly used on power plant and electrical transmissions jobs, with its low profile XLP150 and LP350 skidding systems aimed at jobs on very tight 'live' sites. The company has also launched an aluminium beam range which is manually portable, while offering good spanning ability and structural support, making assembly quicker and easier, and thus cheaper. A good example of how the systems work involved a job in Sweden, where local company

Jinert was contracted to move a 240 tonne transformer 25 miles, from Sundsvall to Nysäter.

Hydra-Slide's low profile system LP350 was used both along the route and at the installation site. Joakim Andersson, of Jinert's heavy project division, said: "The planning survey meant that along the route we had to unload and slide the transformer under a bridge, reload it and continue the journey. The motorway was closed overnight for the job and, due to the cold snowy conditions on the day, salt trucks were called in to prepare the road. The transformer only had 100mm of clearance under the overpass and needed to be skidded 35 metres, while a gradient under the bridge also needed to be taken into account."

The onsite installation, using skids, gantries and jacks, was easier, as the ground was flat and well prepared, so Jinert needed only to lay skidding tracks, supported by steel plates, and slide the load 12 metres into its final position. Andersson said: "We were very pleased with the system. We have a history stretching back 50 years principally in Sweden, but also internationally, and a hallmark of the company has always been innovation and development of our equipment fleet. The LP350 fits with that overarching theme."

Indeed, while fossil fuels may be a technology on their way out, the tools and skills used to move and place conventional power plant components still demonstrate a forward looking spirit of innovation.



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Unconvention power

Conventional fuels may be the energy source of yesterday, and renewables the innovation of the present, but tomorrow's fuel could well be fusion power. The name of ITER, originally the International Thermonuclear Experimental Reactor, puns on the Latin 'The Way'. The project is supported by the European Union, India, Japan, Korea, Russia and the United States. The global joint venture partners clearly believe fusion power is the way forward.

At the ITER project in Southern France, this international group is building the world's largest tokamak, a magnetic fusion device that has been designed to prove the feasibility of fusion on a large scale, bringing a carbon free source of energy based on the same principle that powers the Sun and stars.

Enerpac SyncHoist lifting systems are being used on the 100 acre site to assist with the assembly of a large vacuum vessel, which will host the fusion reaction, with plasma particles colliding to release energy at very high temperatures, held away from the vessel's walls by magnetic confinement.

The vessel is made up of nine 500 tonne stainless steel sectors, each 13 metres high, 6.5 metres wide and 6.3 metres deep. The SyncHoists are lifting each sector 10 metres into an up-ending tool for vessel assembly by the ITER Sector Sub-Assembly Tool.

Four Enerpac SyncHoist system 225 tonne capacity double acting push pull cylinders were attached to header beams on the assembly hall's overhead crane via heavy web slings, modular spreader beams, with upper adjustment cylinders. As the centre of gravity for each vacuum vessel sector can vary from the theoretical calculations, the SyncHoists units were used to assess this on taking the load, to ensure that they were lifted as close to the

plane as possible. The sectors are delivered on rigging platforms, and a SyncHoist cylinder is connected to each of the platform's four lifting points, allowing millimetre control at each corner of the load for the 10 metre lift to the up-ending tool.

"It is essential that we hold the vacuum vessel sector in the plane during lifting," says Jarl

Buskop, the ITER assembly engineer. "SyncHoist allows us to know the load at each lifting point and control the lift precisely within a millimetre of accuracy. The SyncHoist is able to cope with variations in the centre of gravity and lift the vessel clear of its transportation frame where there is only 15 to 30mm of clearance."

To meet the project requirements, the one metre stroke hydraulic cylinders were made completely leakproof. The SyncHoist lifting system will also be used to lift toroidal magnet field coils for insertion in the vacuum vessel.





# Spiders gaining traction



The results from our survey of the tree care sector in last month's issue of Cranes & Access highlighted how spider lifts are the platform of choice for arborists. In the following pages we take a look at the latest spider lift products and features on the market to see why they are proving so popular. We also speak with CMC's UK distributor Tracked Spider Sales and UK rental company Spiderlift.

### **High-risk application**

Trying to find good reliable 'arb specific' incident statistics proved difficult, however it became increasingly clear that the forestry and agriculture sectors have one of the highest - if not the highest - per capita death rates, while the incident rate is anywhere from three to 18 times higher than the 'all industry' rates.

Much is being done to address this and in general numbers are improving in most places, with the increased use of powered access playing its part. There is certainly a growing pressure to use a platform in place of climbing, and in many countries risk assessments will often require a reason why powered access has not been used. Growing regulations, such as the highly unpopular double roping systems in the UK, and an increase in the number of diseased trees that are unsafe to climb are other factors aiding its adoption.

The growing prevalence of Ash Dieback in Europe is just one of the rapidly growing diseases, that in the UK alone could kill off or substantially weaken more than 150 million mature ash trees. Many of these are also located in parks. alongside roads, railways and footpaths etc... causing concern for public safety. And given how guickly they can become unstable there are suggestions that climbing ash trees will no longer be an option.

#### Why spiders?

The spider lift market is unusual in that sales to end users exceed sales to rental companies. This is no coincidence given that spider lifts are most widely used by arborists and residential applications, such as property maintenance. Their appeal comes from the fact that they offer the best working height and outreach in relation to their weight and stowed/transport dimensions. Take a self-propelled boom lift for example - one that offers a 20 metre working height will weigh anything from six and 10 tonnes, whereas a 20 metre spider lift is often less than three tonnes. In most countries this allows them to be transported on a standard two axle



trailer behind a 4x4, pick-up truck or van etc... with a standard licence.

Their light weight combined with a rubber tracked chassis, which offers low ground bearing pressures and greater traction, is good for both challenging ground conditions and delicate flooring such as paving stones and lawns. They also benefit from having exceptionally narrow overall transport widths, allowing them to pass through doors, gates, and between trees, but perhaps the most important feature - the one that gives them their name - are the spider leg outriggers, allowing them to set up on steep slopes and spread their weight over a wider

#### What to look for

While a lot of work has been done to promote powered access and the benefits of spider lifts in the tree sector, very little guidance is available to help users determine which spider lifts or attachments are best suited for tree work.

With more than 30 manufacturers and hundreds of models to choose from, it is easy see why end users struggle to find the most suitable model. The vast majority have been designed to cover as wide a range of applications as possible, both indoor and outdoor, from tree work and construction, to cleaning and retail maintenance. Few are specifically designed for



The use of access platforms is advised in place of climbing in many countries



# spider lifts



Multitel's SMX 250 is proving popu with a 25 metre working height and a total weight of just 2,600kg

a constant stream of heavy duty work and abuse that the tree care or utility sector typically doles out, such as traversing boggy fields, dense forests and tracking through streams or being struck by falling limbs or tools etc... Historically manufacturers such as Teupen, Platform Basket, Ommelift, CMC, and Hinowa have developed models for this type of activity and done well in these sectors.

Most arborists when asked say they want a platform that offers the greatest working height and outreach while - in Europe at least - weighing less than three tonnes. If these are your priorities Multitel's SMX 250 tops the low GVW working height charts at 25 metres and offers an 11.8 metre outreach while weighing just 2,700kg. For those after up & over reach Cela's 25 metre DT25 spider lift, with its four section lower telescopic boom and a three section upper boom, offers a maximum outreach of 12 metres with an up and over height





of 14 metres. Its boom configuration also allows a tree worker to access the tree canopy from above if required. Features include automatic outrigger set up and stow functions and dual position - top or pedestal platform mounting points, which the company claims reduces the chance of it fouling in the tree canopy. Weighing 2,950kg it requires lightweight skeleton trailer.

When it comes to power options, a rugged diesel engine is preferred, although there is definitely a shift towards hybrid models which adds battery power for the boom functions alongside the grunt of the diesel. This not only reduces fuel costs and emissions, but is also almost noise free operation, allowing for better communication between those in the platform and those on the ground, while being preferred on urban or parkland settings.

# **Designed for** the environment

What arborists rarely ask for when choosing a spider lift is whether it will be suitable for the environmental is it being used in. Russell Woodward of Tracked Spider Sales (TSS), the CMC distributor in



the UK, explains: "Arborists come to me saying 'I want to go as high as I possibly can with as much outreach as possible'. What they never consider is that they need a machine that has been designed to be used in your environment. This is important because they aren't cleaning windows, or changing out light bulbs on nice flat ground, they are pushing the machines to the limits and often given them an absolute hammering."

Italian manufacturer CMC is one of a several that offers arb-specific models. It introduced its first model - a 19 metre S19HD - several years ago and has extended the range to include four models with working



CMC offers a range of spider lifts which have been designed with arborists in mind

heights of 19, 22, 25 and 28 metres. TSS only took delivery of the UK's first HD model in January but claims to have already sold 50 units to arborists and is now looking to build on this success with a £1 million stock order for more HD units along with other models in the company's range.

Woodward says: "The previous CMC distributor focused on the standard 15 and 19 metre general purpose models, but after bringing the 22 metre S22HD into the UK at the start of the year we now can't get them built quick enough. I worry about the people that are buying general purpose spider lifts which do not have features specifically suited for arb work. Don't get me wrong, they make it work, but they are buying powered access thinking it's going to be safer, but if they don't buy the correct machine all they are doing is moving that risk from one thing to another. After all the hard work the HSE and governing bodies are putting into getting arborists to use powered access, I am concerned that spider lifts are being mis-sold, and if an accident were to happen it could be disastrous for the industry which, although growing rapidly, is still very much in its infancy."

Manufacturer	Model	Working height		Maximum outreach	Up & over height	Weight	Dimensions (LxHxW) *	Max. Travel Speeds	Max. slope levelling	Gradeability
Cela	Spyder 25	25m	230kg	12m with 100kg	14m	2,950kg	4.31m x 1.98 x 800mm	1.5kmh	16.5°	23%
CMC	S22HD	21.6m	230kg	12.5m with 80kg	6m	2,917kg	5.6 x 1.98 x 900mm	2kmh	17º	31%
CTE	Traccess 200	20m	250kg	8.5m with 250kg	9m	2,782kg	4.28 x 1.99 x 780mm	1.5kmh	14º	25%
Easy Lift	R210	21.2m	200kg	12m with 80kg	6.1m	3,000kg	5.65 x 1.93 x 890mm	2kmh	20°	30%
Hinowa	Lightlift 20.10	20.1m	230kg	9.7m with 230kg	8.5m	2,940kg	4.39 x 1.99 x 795mm	2.5kmh	15°	28.7%
Imer	IM R 19 SA	19m	230kg	9.3m with 90kg	5.5m	2,435kg	4.63 x 1.99 x 794mm	2.4kmh	12º	25%
Leguan	190	19m	230kg	9.8m with 120kg	7.4m	2,660kg	4.44 x 2.01 x 1250mm	5.2kmh	12º	40%
Multitel	SMX250	25.2m	250kg	11.6m with 80kg	11.8m	2,700kg	4.87 x 1.92 x 980mm	2.4kmh	14º	25%
Ommelift	18.40 RXJ	18.3m	200kg	10.5m with 200kg	6.m	2,980kg	4.85 x 1.99 x 790mm	1.4kmh	12º	30%
Palazanni	TZX 250	25m	200kg	10.6m with 120kg	11.8m	2,660kg	5.05 x 1.92 x 980mm	2.4kmh	11º	23%
Platform Basket	20.95	19.4m	250kg	9.5m with 250kg	7m	2,800kg	4.87 x 1.99 x 780mm	2.5kmh	17°	36%
Teupen	Leo 21GT	21m	250kg	12m with 250kg	9.4m	3,000kg	5.05 x 1.99 x 980mm	2kmh	19°	30%

<sup>\*</sup> Platform removed



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As to which features he thinks are particularly suited for tree care, he says: "It important to make sure you have good ground clearance and long tracks - if they are too short they are more prone to tipping over or nose diving on undulating ground. Having wider or extendable tracks also gives you better stability when tracking. You also want a durable platform made from solid steel, a protected underside and to make sure all wires, cables and cat-track are protected within the boom, otherwise when you track over the scrub or telescope through the canopy you run the risk of damaging the machine. Finally you want to make sure the outriggers can level up on the terrain where arborist tend to use them, which are often much more extreme than with other industries."

#### New on the market

#### **Hydraulic CMCs**

CMC has taken a back to basics approach with a three model range of fully hydraulic spider lifts in the form of the S13F, S15F and S18F with working heights of 13, 15 and 18 metres respectively. Woodward says: "Not only does the new range cost less to build - but they are also so simple and easy to use, maintain and repair - especially for engineers with basic knowledge of these machines. For a hire fleet, its back to good old fashioned fully hydraulic stuff which you can almost hit it with a hammer again!"

#### CTE steps up game

Well known for its range of truck mounted platforms, CTE has recently been working on its spider lift range. Its latest 20 metre Traccess 200 joins a four model range which is set to see 16 and 27 metre models added in the new year. A dual sigma type riser, two section telescopic boom and jib offers up to 8.5 metres of outreach with an unrestricted 250kg platform capacity. Features include a fully enclosed boom, extendable tracks and double drive speeds.

CTE's Craig Rooke says: "For many years CTE has successfully sold 3.5 tonne truck mounts to arborists but it never really had a strong understanding of the spider lift market, so they were never really pushed. One of my aims was to develop the line and we now have five models that will really appeal for tree work and are all towable on a trailer under the magic 3.5 tonnes. The standout model so far has been the T200 with its unrestricted basket capacity and a powerful engine - both were requests from the arb industry along with knowledgeable support."

### **Double articulated Imer**

Last month Imer added the 15.1 metre IM R15 DA articulated spider lift to its line-up. The model is the first in its range with a dual sigma type riser, in this case, topped by a two section telescopic boom and articulated jib. Maximum outreach



is seven metres at an up & over height of seven metres with an unrestricted platform capacity of 230kg. Power comes from a choice of petrol/gas or diesel engines plus a 230 volt AC drive motor for indoor work. It offers an overall width of 799mm with hydraulically extending tracks and a working footprint of 3.1 by 2.9 metres. The outriggers can auto level on slopes of up to 12 degrees while total weight comes in at just over two tonnes.

#### 20.95 starts strong

Launched at bauma last year, Platform Basket began shipping its new 19.4 metre Spider 20.95 spider lift earlier this year and is already proving popular with arborists. The 20.95 offers an outreach of 9.5 metres at an up & over height of seven metres with a 250kg platform capacity. Features include width and height adjustable tracks, a 1.8 metre jib, 180 degrees of platform rotation and the ability to self-level on slopes of up to 17 degrees. All hoses and cables are contained within the heavy duty steel boom to protect them from any falling debris. It also comes with radio remote controls as well as automatic outrigger set-up and boom stow functions.

One of the first customers in the

UK was Lawrence Thompson of Thompson Tree Services, who said: "We originally looked at several spider lifts on the market, some of which offered slightly more outreach but with a reduced platform capacity. The problem is that by the time one of our guys is loaded with his kit and chainsaw he is already well over 100kg. On top of this, the 20.95's boom movements felt a lot more steady and controlled than the other models."

#### **Fully electric Hinowa**

Hinowa has a strong reputation within the tree sector, particularly over 20 metres, however its latest model takes on the other end of the range. The all new 13 metre TC13S has become the world's first all electric telescopic spider lift on the market. Powered by Hinowa's well proven lithium-ion battery pack, it features a three section boom, topped by an articulated jib, while offering up to 6.4 metres of outreach with 230kg unrestricted platform capacity. Total weight is 2,050kg while its outrigger footprint is 3.1 by 2.8 metres. A narrow outrigger version - TC13N - with a 2.9 by 2.4 metre footprint is also available but with a reduced one person, 136kg platform capacity. It also comes in slightly lighter at 1,900kg.



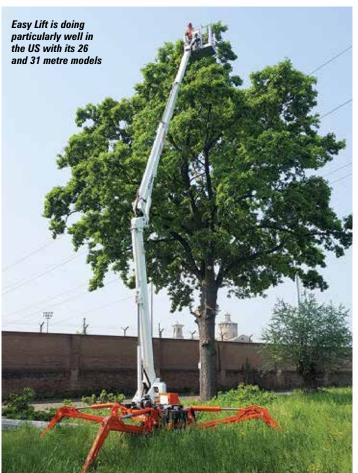




Mounted on a direct electric drive tracked chassis with permanent magnet motors capable of coping with wet, muddy and dusty ground conditions, the company claims it is four times more efficient than its traditional hydraulic drive systems. The TC13S can last up to five hours on a single change, features either 110V or 230V onboard chargers and can be charged whilst working. First deliveries are about to begin, so it is perhaps a little early to know how it might cope with the demanding requirements of the arb sector, not to mention distance from a power outlet, but it certainly has a number of features which make it ideal for residential/urban applications.

#### **US** market strong

In the US, sales of spider lifts have been very strong for a number of years and is frequently the largest market for a number of manufacturers such as Platform Basket and CMC. It is also far less restrictive in term of towing limits, resulting in a tendency towards spider lifts with working heights from 22 to 31 metres. Other manufacturers, such as Ommelift have also done well, while many have appointed distributors this year as they look to capitalise on the maturing market. Palazzani is moving in with the appointment of Spimerica, while Ruthmann acquired Bluelift and Falcon dealer





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# spider lifts

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ReachMaster and Leguan began working with Avant Tecno USA.

Leguan in particular is looking to replicate its success in the Nordic market, with the updated 19 metre Leguan 190 spider lift – which will also be available in Europe next year. Leguan Lifts export manager Jori Mylläri, said: "Before expanding the sales in the USA we made an extensive market study on the requirements of arborist users in USA and worldwide, leading to the facelifted Leguan 190."

The 190 features a dual sigma type riser, a three section telescopic boom and articulating jib. Maximum outreach is 9.8 metres with 120kg capacity, nine metres with 160kg and 8.3 metres with the maximum platform capacity of 230kg – all with an up & over height of 7.4 metres. It has an overall stowed length of 4.44 metres, a width of 1.25 metres and a total weight of 2,660kg.

A noticeable difference of Leguan models is its high centre track design, Mylläri explains: "The higher track design not only helps to provide the best ground clearance on the market but also allows the operator to go over objects smoother than with a low track design. This is due to the track wheel size, which are almost double those on conventional tracks. Another reason is that it allows faster drive speeds, and safe and steady travel with the operator in the platform. For this reason, there is no need to jump in and out of the basket when moving the lift to a new location."

New features specifically suited to the arb sector include increased protection for control levers, hoses and booms and a chassis mounted service display providing operator guidance, troubleshooting and after sales support. Steel plates have also been added under and at each end of the chassis for ground protection.



The higher track design on Leguan spiders provides faster and smoother drive capabilities.

#### Insulated models

One of the leading causes of injuries and fatalities in the USA comes from contact with overhead power lines, which are often hidden among the foliage. While US truck mounted lift manufacturers such as Altec, Elliot **Equipment and Terex Utilities have** provided a full suite of insulated platforms for the utility market, it has only been in recent years that larger tree contractors have begun to look at this. The result is that insulated spider lifts are very rare even though Platform Basket and its US dealer Tracked Lifts developed the 18 metre insulated PB18.90.46. as long ago as 2012. However, three new products have joined the fray this year from Ommelift, Teupen and Chinese manufacturer Goman, while CMC will also launch a model in the coming months.

Building on the success of its 25 and 27 metre models in the US, Ommelift has introduced the 46kV insulated 2650 iRX-46kV spider lift. Designed for working close to power lines it features Waco fibre glass boom sections and a single person bucket rated to Category C level insulation. It offers a working height of 26.5 metres, an unrestricted outreach of 12.2 metres with 136kg platform capacity and an up and over height of 13 metres. Thanks to its dual sigma style dual riser and two section boom it is also able to provide vertical wall tracking which is ideal for pruning. Features also include extendable tracks, a diesel/ battery hybrid power pack with engine generated re-charge, and the ability to set up on side slopes as steep as 21.8 degrees/40 percent. Ommelift managing director Axel

Ommelift managing director Axel Thøgersen said: "Our new 2650 iRX-46kV is extending the use of spider lifts within the tree care business. Adding the option to work closer to power lines — with the advantages that gives in terms of affecting the power supply while performing tree care along power lines where traditional truck mounted isolated platforms are unable to reach."

Teupen launched its 28 metre 46kV Leo 86SiC early this year alongside its 34 metre 34GTplus and 39 metre 39GTplus. The Leo 86SiC offers 23 metres of outreach with an 80kg platform and 14.7 metre with its maximum 200kg capacity.

Goman has unveiled its 18 metre

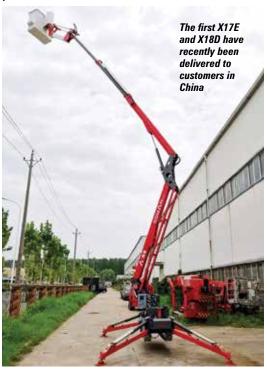




10kV X18D and its 17 metre
46kV X17E spider lifts. The X18D
features a long riser/lower boom,
a three section telescopic boom
made of hot dip galvanised steel
sections, topped by a fibreglass
articulating jib and a fibreglass
two man platform. The machine
offers a 200kg platform capacity
and up to 7.2 metres of outreach.
The hydraulically adjustable tracks

extend from 766mm to 1.15 metres while also increasing the ground clearance and overall height by 134mm. Overall weight is 2,380kg. Geared more towards utility companies with 46kV insulation, the 17 metre X17E offers a maximum 9.8 metres outreach with a 230kg platform capacity, transport length is 7.2 metres, with an overall width of 890mm and 3,800kg GVW.







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# spider lifts



### Spiderlift on the up

When it comes to spider lift pioneers, Peter and Lucy Ashburner of Higher Access have to be strong contenders. Established in 2006, the two of them spent the next 10 years expanding their fleet until it was the largest in Europe, helping promote the concept and put the product on the map along the way. The company was eventually purchased by UK rental group Vp in 2016 and unfortunately both Peter, and more recently Lucy, have now left the industry. One company that is hoping to carve out its own path is UK's Spiderlift - formerly MBS Access. We sat down with coowner Ben Dobson to find out how the company has evolved from a grounds maintenance company into the largest independent spider lift rental company in the UK.

"When we started out the only other independent spider lift company was Higher Access," said Dobson. "Baker Access had just sold up and I remember thinking whether the market was big enough for two specialist companies to compete. We didn't have the reputation, budget or infrastructure that Higher



Access had, but we had the belief we could make it work."

The business was established in 2006 when Martyn Bass purchased five Teupen spider lifts originally for his grounds and tree care business - MBS Grounds Maintenance - but later also on a rehire basis. Over time, as demand for spider lifts began to increase, it reached a point where the constant rehire of spider lifts was detracting from Bass' core business, so in 2014 Bass and Dobson formally set up MBS Access as a stand alone company.





Dobson explains: "The timing of MBS Access proved to be very fortuitous. I had been responsible for the spider lift division at Facelift and was put in touch with Martin early on to rehire his spider lifts. In 2014 Facelift made the decision not to focus on spider lifts anymore however and almost to the day I had a call from Martyn saying he would be unable to rehire his spider lifts as he needed to concentrate on his maintenance company. Spotting an opportunity which could work for both of us, we got together, and MBS Access was born."

Since then the company has expanded the fleet to 45 spider lifts with working heights from 11 to 42 metres. In 2018 the company acquired the Spiderlift trade name from Steve Hadfield, who had used it for his rental company before selling out to Lifterz in 2014 when he became the UK distributor of CMC

Dobson added: "As MBS Access we were lost in a sea of general access rental companies. The Spiderlift brand was always a good name in the industry and it perfectly summed up our business - like Ronseal, we do 'exactly what it says on the tin'. Now if someone finds us they are finding us for the right reasons."

The company is currently enjoying a sustained period of growth, having moved into larger premises close to its original base in Essex earlier this year as well as opening a second depot in Barnsley in order to better service the north of the UK. It is also in the process of adding a further 20 lifts by mid-2021, which will take the fleet up to 65 units.

#### **Bolt-on product?**

When asked about full-line access rental companies adding spider lifts to their fleet Dobson said: "A lot of companies are starting to bolt-on spider lift rental to their access businesses - mostly because they are spending a lot of money on rehire. However they often don't realise just how much time and effort that goes into offering spider lifts. It's not a 'drop and run' product like other platforms, the delivery and hand over is completely different, not to mention having to take machines through doorways, drive them up staircases, or dismantle them in order for them to be lifted through a skylight etc..."

#### Spiders for arborist

Ever since MBS Grounds Maintenance acquired its first Teupens the company has worked closely with tree surgeons with both learning a great deal from each other.

"When it comes to delivering a machine to the arb sector it is often on the boundary of a property. The first thing we ask is where is it being used and walk the route with the customer. As well as helping them identify various hazards and considerations, we are also able to offer our advice in terms of location and set up to get the most from the machine. We then provide a hand over to the person who will operate the machine before speaking to the rest of the team to ensure they are familiar with emergency lowering procedures - which have to be straight forward. If we struggle to understand how it functions how can we expect others who are less familiar with powered access and who have a hundred other things to concentrate on?"

# spider lifts

Dobson still thinks there is a way to go however: "Tree surgeons as an industry are still learning what spiders can do and the correct way of using them. Most will have a tree that's 30ft high so will get 30ft spider lift. What they need to take into consideration however is the drop zone. They will require a much larger machine to prevent logs being dropped onto a platform that is keeping them safe in the air. They also have this idea in their head that they can just climb out of the basket if it goes wrong and it takes a lot of work to inform them that this isn't an option!"

"We often get sent a picture of the tree, but the reality is the tree is just one aspect of the job. The other aspects that arborists need to consider is getting the spider lift to and from the tree. Walking the route, the ground, the set up area, looking for any restrictions or concerns, anything that might be concealed or underground."

#### Urban vs rural

"Generally, I class tree surgeons in two categories: urban, which do a lot of residential and parks

etc... and the more commercial tree surgeons which carry out forestry work. Each one will require

a different machine. The urban arborist will need a smaller, slim, compact machine to navigate gates, pathways etc... whereas the rural tree surgeon will need one that can safely traverse rough terrain. It might not have restrictions on width as they work in a more open

# Spiders for arb work

environment.

"When we buy spider lifts, we always look for a simple to use machine that has a clear process to go from transport mode to setting up and being operational. We also look for features that benefit the customer. Height and width adjustable tracks to offer greater ground clearance and stability over rough terrain. Whether the basket is mounted underneath or flush with the bottom will also ensure it doesn't catch on branches. Same applies for hoses, hydraulics and cat-tracks making sure they are all enclosed. If any of these are exposed these can get caught up in the tree, break the cat-track or

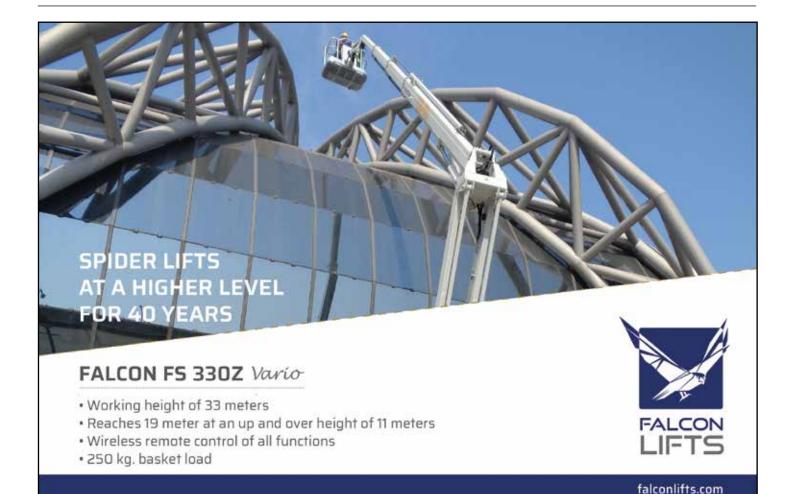


split a hose. Belly pans are also important as sometimes it's not getting on to site that causes problems but when leaving. We have had a few examples when a tree has been cut down and the spider lift has been tracked over the stump, catching the underside and causing all sorts of problems."

#### Recommendations

"If I was getting a spider purely for arb work the number of suitable

manufacturers diminishes considerably. Teupen's Leo 23 and Leo 30T are very popular in the tree industry, great ground clearance, very sturdy but the larger models are not always the shortest on the market. CMC has its HD range for tree surgeons as well as its new range of hydraulic models. Platform Basket also has its 18.90 while Hinowa's 20.10 and 26.14 models are solid performers."



The higher hundreds

In the second of a two-part report, Will North looks at All Terrain cranes between 130 and 180 tonnes. While some models in this class target taxi crane work, it also marks the point where five axle carriers become standard with most models designed for project work.

In part one we covered cranes between 100 and 120 tonnes, where manufacturers offer almost as many cranes as in the entire 130 to 180 tonne category, although there is no shortage of choice. While most 100 and 120 tonne cranes feature 60 metre booms, these larger machines include a mix of shorter boomed models, such as the 150 tonne 'big taxi' Grove GMK5150 with a 50.8 metre boom, while others have longer booms - including 66 metres on the new Liebherr 150 tonner - launched last month - or 68 metres on the Demag AC 160-5. In addition to the European built

cranes, buyers in the Americas also have access to the new 150 tonne (175 ton) US built Link-Belt 175 | AT.

#### **Lower Third**

At the lower end of the range are three cranes with 60 metre booms: the 130 tonne Liebherr LTM 1130-5.1, and Demag AC 130-5 along with the 140 tonne Tadano ATF 140-5.1. In many ways, they are similar to the 100 to 120 tonne models, and as such are taxi cranes, with the ability to carry a decent amount of counterweight, a key customer requirement. Michael Klein, product manager for Tadano





says: "The smaller five axle cranes, up to the AC 130-5, can travel with 10 tonne axle loads. This is a big plus in some countries, especially Germany, where it makes it easier and quicker to get transport permits." The AC 130-5 and AC 160-5, launched at bauma 2016, are the latest Demag cranes in this class but have recently been upgraded to Stage V diesels, and the latest ZF TraXon transmissions. Liebherr's LTM 1130-5.1 is even more of a veteran dating back to 2007, since when around 1,500 units have been delivered. Liebherr is now replacing it with the new 150 tonne LTM 1150-5.3. However, the LTM 1130-5.1 will continue to be

and Demag cranes,

of next year. It can travel with nine tonnes of ballast within 12 tonne axle loads or 22.6 tonnes where 16.5 tonne axle loads are permitted. The crane is also unusual in that it can be specified with Liebherr's LiftCab that elevates the superstructure cab by 8.1 metres to provide a clearer view of the load over obstacles. Liebherr marketing manager Wolfgang Beringer says: "It is not economical to offer LiftCab on all cranes, so we identified three models - the LTC 1050-3.1, LTM 1250-5.1 and LTM 1130-5.1 where there was enough customer demand to justify offering it as an option." So far, Liebherr has not decided whether to offer it on the

available until at least the middle

# The sweet spot

new 150 tonner.

As you might expect there is a cluster of cranes with a 150 tonne rating, including the all new Liebherr LTM 1150-5.3, along with Link-Belt's 175 | AT and two Groves - the GMK5150 and GMK5150L.

# The all new Liebherr

The LTM 1150-5.3 is, as mentioned, the very latest All Terrain crane, and offers the longest boom on a 150 tonner at 66 metres, in fact

# all terrain cranes

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the only crane under 200 tonnes with a longer boom is the 160 tonne Demag AC 160-5's with a 68 metre boom. The new crane offers a broad range of counterweight configurations, with front outriggers removed and no counterweight it can meet 10 tonne axle loads. More usefully perhaps, it can carry 6.2 tonnes of counterweight plus the swingaway extension without exceeding 12 tonnes an axle or nine tonnes if the extension is left in the yard. And for markets where higher axle weights are allowed, it can manage its full 29 tonnes of counterweight as well as the extension.

Liebherr's Christoph Kleiner says: "The LTM 1150-5.3 is a flexible all rounder and will enhance any crane fleet. With the longest boom in its class it delivers outstanding capacities on long booms and radii and can compete with cranes in the 200 tonne class. But also complete plenty of jobs without requiring additional ballast transport, making the crane even more valuable to crane companies." The LTM 1150 has the same GVW as the LTM 1130 but offers higher capacities. For example, it can handle 12 tonnes on a 60 metre boom - 1.5 tonnes more than its predecessor - or nine tonnes on the fully extended 66 metre boom, making it ideal for erecting tower cranes and radio masts.

The combination of the hydraulic luffing 10.8 to 19-metre bi-fold swingaway extension and a seven metre lattice insert takes the maximum tip height to almost 95 metres, or a maximum radius of 72 metres. The extension luffs from zero to 40 degrees from a pivot height of over 72 metres with the insert in place. A 2.9 metre erection jib and a runner rounds off the equipment list.

The crane uses Liebherr's single engine concept with a mechanical transmission powering the crane upper from the six cylinder Stage V Liebherr carrier engine. It can also be configured for US Tier 4 and Tier IIIA markets. The crane is offered with most of Liebherr's latest tech' including EcoDrive and EcoMode for



fuel efficiency, VarioBase variable outrigger set up, multiple load charts for different wind speeds, and Hill Start Aid, which helps drivers pull away easily on steep gradients.

#### Convertible hook block

A new development is a range of adjustable hook blocks that are both light or heavy as needed. Weight plates are attached to both sides of the block so that it can be adjusted to match the application or travel limits. For example, in a three sheave configuration, the new block weighs 500kg but can be quickly

and easily be upgraded to the usual 700kg if necessary.

The new system is available for one to seven sheave blocks and can be used with both 19 and 21mm rope.

#### Grove 150t duo

The Grove GMK5150 and GMK5150L replace 110 and 130 tonne models. All Terrain product manager Florian Peters says: "The GMK5110-1 and GMK5130-2 were the predecessors to our 150 tonne ATs with short and long booms. When we started to develop the GMK5150 and GMK5150L, we had

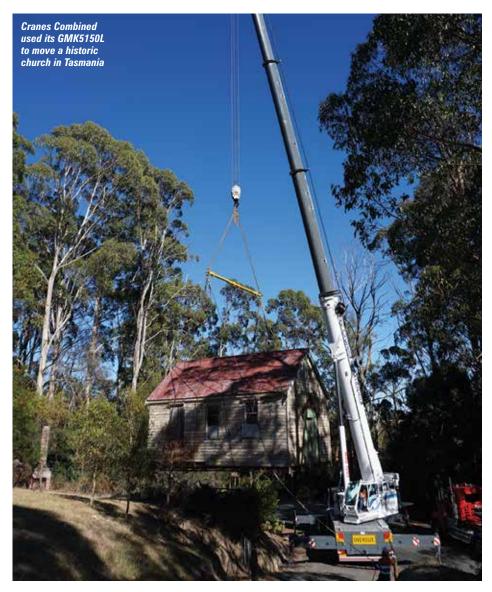




the same focus, two boom versions and a very compact machine with outstanding taxi crane charts - on 12 as well as 16.5 tonnes per axle. The result was the creation of a new 150 tonne capacity class back in 2016."

The GMK5150 and GMK5150L are more compact than their predecessors with 20 percent more capacity across the chart than the GMK5130-2. The two cranes share the same Megaform boom

structure, a five section 50.8 metre version on the GMK5150 and six section, 60 metre on the GMK5150L. Describing them as "must have cranes for any fleet", Peters says: "If you are lifting loads onto high rise buildings, setting up tower cranes or installing antennas, it's not only the capacity you need but the length and the reach, thus you would rather pick the GMK5150L for these jobs."



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#### Top of the class

The three largest cranes in the class - the Demag AC 160-5, Liebherr LTM 1160-5.2 and Grove GMK5180-1 - have longer booms, 62 metres on the Liebherr, 64 metres on the Grove and 68 metres for the Demag.

Demag describes its AC 160-5 as one of the most compact cranes in its class'. It is indeed shorter than the others with a 14.5 metre overall travel length, more than a metre less than the Liebherr or Grove.

Josef Waser, of Swiss crane rental company Fanger, recently took delivery of a new Demag and cites its compact dimensions and variable/asymmetric outrigger set up combined with the IC-1 Plus control system as key reasons for selecting the crane. "We expect a lot of work for this crane. Part of that will be down to its compact dimensions, which make it ideal for projects outside the 160 tonne class. For instance, it can go out as a 100 tonne crane when used with a 6.3 tonne counterweight, which also keeps the axle weights under 12 tonnes and eliminates the need for a counterweight truck."

The next crane up, in terms of capacity, is the Liebherr LTM 1160-5.2. While its name suggests a 160 tonne rating it has been upgraded to a 180 tonner. Liebherr put the rerate down to the additional capacity gained with the VarioBallast system, which allows the counterweight



cheeks to be extended rearwards, boosting the crane's capacity, or folded into the crane for reduced tailswing.

#### Keep it simple

There is a perception that Liebherr, and other German manufacturers, always take the most high tech approach to solve a problem, what might be called a 'vorsprung durch technik' strategy. But that is not always the case, the VarioBallast system on the LTM 1160-5.2 is a case in point. In place of any complicated control systems, sensors or hydraulics, the Ehingen

engineers adopted a far simpler solution. The two attachment points for the counterweight are mounted on a swivel. When configuring the crane, the rigger or operator simply stands below and using a long metal pole, pushes the counterweight cheeks into their extended position or back into the stowed position. While it doesn't allow the ballast to be adjusted during a lift, as is possible on larger cranes, it offers enough flexibility to take on a wider range of jobs than would otherwise be possible.

The LTM 1160-5.2's standard

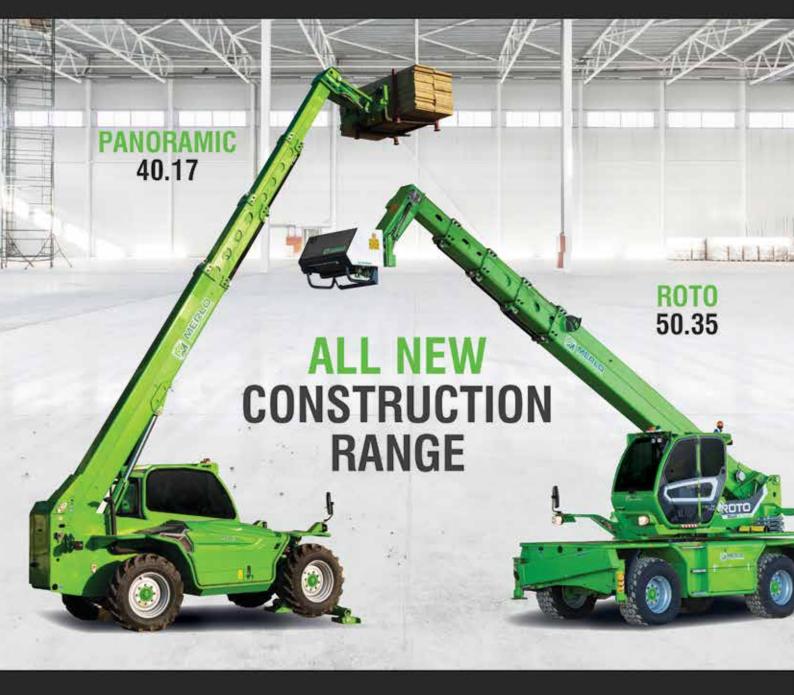
counterweight configuration is very simple and includes a 10 tonne base plate. This, Beringer says, makes for simple set up in most markets, but does limit how the ballast can be configured, with its weight spread across the crane's five axles. The 'UK counterweight' system adds just a little more complexity, by having more ballast sections, and a 3.5 tonne base plate, but it enables customers to transport the crane with 3.5 tonnes of ballast within 12 tonne

loads, compared to zero on the standard package, or carry 22.5 tonnes within 16.5 tonne axle loadings.

The Grove GMK5180-1 is not designed to carry any counterweight within 12 tonne axle loadings, but 21 tonnes is possible for 16.5 tonne jurisdictions. It is slightly older than its competitors. having launched in 2015 - alongside the GMK5250L and GMK5200-1. The three cranes feature a modular design, with the same carrier used for all three models, explaining the GMK5180-1's portlier three metre overall width.

For those owning more than one of these Grove cranes, the counterweight sections can be shared between them, and the more recent GMK5250XL-1 as well as the GMK6300L-1. For national companies, it might be possible to drive the crane unladen from one depot to another to be equipped with locally stored counterweights. Similar compatibility applies to the auxiliary hoist.





# REACH NEW HEIGHTS WITH THE ALL NEW ROTO AND PANORAMIC RANGE

The PANORAMIC and ROTO Range design has inspired the construction market over the years, and is now introducing a new generation of wider cabs, improved cab comfort levels and a multitude of new features. The ROTO range has changed the movement method for telehandlers by introducing the rotating turret system that can rotate 360 degrees without having to reposition the machine. Merlo have skilfully evolved during time with exclusive technological innovations and an unparalleled level of performance, safety and efficiency.



#### all terrain cranes



How the models stack up		Dimensions							Axle loads/ counterweight	
Make	Model	Max capacity	Boom length	Axles	Carrier length	Overall length	Width	Height	12t	16.5t
Demag	AC 130-5	130t	59.8m	5	12.17m	14.45m	2.75m	4.0m	10.7t	26.2t
Liebherr	LTM 1130-5.1	130t	60m	5	12.35m	14.81m	2.75m	4.0m	9t	22.6t
Tadano	ATF-140-5.1	140t	60m	5	12.68m	14.90m	2.75m	3.97m	8.3t	21.8t
Grove	GMK5150	150t	50.8m	5	12.58m	14.58m	2.75m	4.0m	10.2t	24t
Grove	GMK5150L	150t	60m	5	12.58m	14.58m	2.75m	4.0m	10.2t	24t
Link-Belt	175 AT	150t	60.1m	5	12.64m	15.60m	2.90m	3.93m	5t	N/A
Liebherr	LTM 1150-5.3	150t	66m	5	12.45m	14.48m	2.75m	4.0m	9t	29t
Demag	AC 160-5	160t	68m	5	12.61m	14.51m	2.75m	4.0m	6.3t	25.4t
Liebherr	LTM 1160-5.2	180t	62m	5	13.69m	15.86m	2.75m	4.0m	0/3.5t**	22.5t
Grove	GMK5180-1	180t	64m	5	13.66m	15.68m	3.00m	4.0m	0	21t

Note: All dimensions on 16.00 tyres \*\*With UK counterweight package.





American exceptionali

In our last issue, we looked in detail at what it takes for cranes to travel easily on European roads. Manufacturers strive to include as much counterweight as possible within 12 tonne axle loads - 16.5 tonnes in some markets - while working within national permit restrictions, taking note of tighter restrictions in some major cities. While this may be a point of irritation for crane owners and designers, it is nothing compared to the challenges facing their North America counterparts. Will North reports.

Travelling across the vastness of North America has always been a challenge. While driving a crane on the highway is no Oregon Trail, it remains a consistently tough journey for a mobile crane. Over half of the cranes in this class will need to be equipped with trailing booms. The US road network has multiple layers of federal, state and local

municipality regulations, so crane owners try to configure the crane for the most stringent restrictions along the route. When operating in their regional market, they may still face two to three different sets of state/local regulations.

May roading considerations encourage North American crane buyers to consider a Link-Belt? The 150 tonne/175 ton 175 | AT

offers a wide range of roading configurations for North America, which are not always available on European built cranes. Product manager Brian Smoot says US/ Canada roading configurations play an important role in the Link-Belt design process. "The key is a flexible design that meets the needs of the broadest number of crane buyers. While many will require a boom dolly, others will travel with the boom over the front, so the boom base section is equipped with standard dolly lugs that trailer

> manufacturers design to."

Product marketing specialist Andrew Soper adds: "Every day we work with dealers and customers on how to move cranes. Years of experience with moving lattice boom truck cranes and **Rough Terrains** are invaluable. There is no single axle limit to hit, instead, we have 50 different state and nine different provincial standards. And that is just the start. The state of Illinois has one regulation. But within the state, the Greater Chicago area has other rules. Our cranes need to work for Illinois, but also do what Chicago requires."

Unlike earlier models, such as the ATC-3210 and ATC-3275, which had single person carrier cabs, the 175 | AT features a full width All Terrain type cab as well as a new superstructure cab. It also features a single engine design and moves away from a two - three-axle split, to a more traditional one-two-two axle grouping.

all terrain cranes

While the company wouldn't be drawn on which models will come next, it did confirm that at some point the older ATC models will be phased out and those new models will use the same nomenclature and key design elements as the 175 | AT.

#### Shrink to fit

It can be costly to move cranes in North America, so versatility in terms of travel configurations can be critical. When Smith Erectors of Markle, Indiana, looked at a new 150 tonne crane, it wanted something big enough for heavy rigging work, but adaptable for easy transport. President Garland Smith said: "We talked for the last year or so about getting this 175 ton (150 tonne) Link-Belt crane to fill a gap we had between the 90 ton HTC-8690 truck crane and 275 ton ATC-3275 All Terrain - both from Link-Belt. We looked at a 110 ton HTC-86110, but realised that, with the transport options on the Link-Belt 175 | AT, we could run it down the road like a 110 ton crane, and as we do a lot of heavy rigging we knew we probably needed the bigger machine."

The company used the new 175 | AT on a bridge replacement project in Berne, Indiana, the crane can run on Indiana roads without a dolly if the counterweight is carried separately. Once on site with counterweight installed the crane lifted the 17 metre/24 tonne concrete beams into place and return to the yard, all in a single day.





# INTHE NEXT ISSUE OF C&a

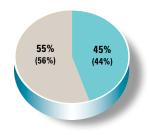


Place your products in front of 17,000 cranes, telehandler and access buyers & users who will be reading the December/January issue of C&a...

The issue will include features on:

#### Annual Rental Rate survey for 2020 and prognosis for 2021.

Forms for this year's survey have been sent out, the survey in its 18th year not only provides an indication of rental rates for the UK and Ireland, but also an update on fleet investment and rental company and contractor's prognosis for the year ahead.





#### Scissor lifts

Scissor lifts dominate the self-propelled aerial lift market in terms of units, and amazingly more than 91 percent are now all electric, with developments likely to extend that still further as more manufacturers introduce electric Rough Terrain models and Chinese manufacturers become an increasingly important factor.

#### Crawler cranes

The crawler crane market has been growing steadily in recent years, as telescopic models eat into the smaller end of the lattice crane market and custom heavy lift machines move into the top end of the market. Wind turbine developments are having an interesting effect on larger crawler crane designs and usage though.





#### A look back at 2020

We take our annual look back at the year in terms of both the industry and the world at large. 2020 has been an unusual and interesting year so should make for a good read.

Send any information, news, photographs or ideas on these subjects to editor@vertikal.net

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### Increasingly remote

The operation of machinery via remote controls has typically intended to allow operators to place themselves in the most beneficial position, in terms of safety and view of the work. With the advent of radio remote controls, operators are no longer confined to a stationary control point whether that be at the end of a trailing lead, in a cab, a platform, or at the side of a machine. More recently however it has also begun to take on a slightly wider meaning and purpose.

#### From the ground up

A new Israeli remote control technology company UltraWis has recently completed its site trials of a remote operating systems for tower cranes called WideSite. We spoke with co-founder Lior Avitan to find out how the company has adopted similar technology used in military combat systems on fighter jets and by helicopter pilots to develop what UtraWis claims is the first remotely operated tower crane system on the market.

Prior to founding UltraWis in 2019 Avitan and Erez Gernitzky spent more than 30 years between them with Israel's largest defence company Elbit Systems, working on the technology behind its helmet mounted display systems used by military pilots. Most recently, Avitan was responsible for developing night vision sensor system BrightNite, while Gernitzky spent around 20 years working on imagery processing and algorithms. Given how the move into cranes might not seem like a logical transition, Avitan explains how the idea for WideSite came to him after spotting a tower crane at work while studying for a master's degree in 2016.

"Each day between my classes I couldn't help noticing the tower crane, how it was being operated and the deficiencies resulting from its restricted field of view. Right away I knew we could utilise the technology used to help pilots in their cockpits to assist tower crane operators - and that's when the idea for UltraWis was born."

Part of Incubit - Elbit Systems' deep-tech incubator - UltraWis began adapting military grade technologies in image processing, stability, 3D modelling, and augmented reality, to allow tower crane operators to remotely control the crane from a cabin or office located on site. Less than a year in the company was granted \$900,000 from Israel National Insurance Institute's Manof Fund. Designed to support a wide range of projects that promote safety in the workplace, it recognised the potential the system could have on preventing accidents within the construction industry.

Avitan said: "The Manof Fund understood that we were interested in improving the ergonomic environment of the crane operator as well as his safety and that of the team on site. The extra funds

enabled us to add to our team and push forward to develop a working model for a construction site."

Designed to be installed on the jib of any make or model tower crane, WideSite combines a multi sensor camera unit with a replicated tower crane control station, two high definition screens and speakers. It has also developed a ground cabin but acknowledging that many sites will have their own space, can easily set up the control station in any building located within 300 metres of the crane. Making use of artificial intelligence and machine learning, the system constantly monitors the site and displays



The WideSite multi sensor camera unit. load and the projected location of

augmented reality graphics over the live feed to provide the operator with a wide variety of information, such as hook heights, weight of the

> load within a variance of just 100mm. It can also detect and notify the operator of other cranes or construction equipment that might impact the operation of the crane.

"We have designed WideSite to be as similar to operating a tower crane from the elevated cab as we possibly can. The addition of real time overlay graphics has been designed to be very intuitive and just as pilots no longer have to look down at the cockpit in order to fly, crane operators will have all the information they need on the screen directly in front of them."

#### **Outside in**

Given the overwhelming adoption of remote control technology in recent years the development of a system like this seems an obvious step. What is more surprising perhaps is that it has taken a company from outside the industry to develop a working solution. Explaining why this might be the case Avitan said: "Before we started developing this solution, we asked the question as to why none of the tower crane manufacturers had developed such a system yet. I think part of the reason is down to manufacturers preferring to concentrate on the tower cranes themselves and improving their capabilities but mostly I believe it is because the system requires highly advanced imagery processing and sensing software to make it a practical reality. Very few people will have the knowledge and experience that we have in this area, or the ability to implement a proper working solution."





#### Successful trial

As part of site trails UltraWis worked with Liebherr's Israeli distributor Top Engineering to install its system on a five tonne Liebherr 71 EC-B tower crane on a construction site near Hadera, north of Tel Aviv. The training of the tower crane operator took place within the ground cab and involved a series of theory and video based learning before hands on training on the remote system. "The system is very intuitive and after only 10 hours of using WideSite the operator informed us that he no longer wanted to return to the tower crane cab to work anymore!"

During the trial the company encountered a small number of challenges - chiefly around the level of vibration that occurs when lifting a load at the end of the jib which distorted the view. The addition of inertial measuring units (IMU) combined with a new algorithm however proved more than capable of stabilising the images. Avitan goes on to explain how the trials also provided a number of unexpected benefits.

"Our sensing unit has two cameras on either ends of the jib which provide 360 degrees of sight essentially providing visibility of the entire site. As such we are able to monitor the whole area and have started pushing it out to cloud and mobile applications to give

customers visibility of the site as it progresses."

More than just providing a live feed of the site however the high tech motion detection system is able to track employee and equipment movements and, if required, notify management on a range of things like whether or not a person is wearing his safety helmet or hi-vis vest. It is also able to provide a heat map of where personnel have been located each day.

#### **Product rollout**

Following its successful trial in Israel, the company is looking to carry out further trials in Europe and the USA and is holding advanced discussions with a leading - but unnamed - manufacturer, while also looking to target end users and rental companies by the beginning of next

Although the system is now available on tower cranes the company says that WideSite can be installed on a range of cranes, such as overhead gantry, marine and ship to shore cranes. As well as providing benefits in safety and productivity for a number of industries the company is also hoping that it might play a role in reducing the risks of lone workers. By having crane operators working from the ground and closer to others on site, it effectively eliminates the need to have complicated rescue and additional safe systems of work in

The system can be used to provide visibility and monitoring functions of the site in both 2D and 3D



#### When millimetres count

For a while now mobile crane manufacturers have offered remote control systems for setting up the crane and some boom movements - and in some cases boom movements of multiple cranes - however, in general they have not been capable of operating the crane chassis. That changed last year with the introduction of Liebherr's new RemoteDrive system - available on its 50 tonne LTC 1050-3.1 - which was developed in partnership with German crane rental company Salgert.

By allowing the crane chassis to be driven from outside the cab, the new system offers the operator greater flexibility and improved visibility on job sites with limited space, such as the inside of an industrial facility. It also means the operator has a full view of the situation eliminating the need for a banksman.

Salgert managing director, Wolfgang Salgert, originally approached Liebherr to design such a system after constantly encountering restricted jobsites that relied solely on the operators view from the cab and camera systems. He says: "I had been looking for a way of controlling our LTC compact cranes by remote for many years. They perform 70 percent of their work inside or around industrial buildings where there is limited space. This means that we face situations every day where the crane operator cannot see the whole

picture."

After receiving similar feedback at Liebherr's Customer Days and following subsequent interest in the concept of the RemoteDrive system, Liebherr felt there was enough potential demand to turn the concept into reality.

#### Persistence pays off

Although the RemoteDrive only required additional software on the crane and two master switches on the company's LICCON2 remote control system, its development was far from straight forward. Philipp Mang of Liebherr recalls the challenges: "Transferring all the required displays and controls for the operator from the cab to the remote controller posed challenges for us. We wanted to make sure that the machine could be operated as intuitively as possible, and above all safely. That meant that we had to get really creative."

Particular attention was required on the drive function as well as the ability to brake the vehicle safely which resulted in the addition of an electric braking valve. Armin Geiss from Liebherr's technical testing department, adds: "There were lots of different versions before we finally came up with a solution for improving the intuitive control and displays. Initially we expected that manoeuvring in first gear would deliver the greatest sensitivity. But in fact we found that using a higher



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#### remote controls

Cla

gear is better because the forward motion is reduced as the number of gears falls. Another particularly important point was how to actuate the brake and when the engine speed had to be increased. Every test we carried out enabled us to learn a little more and the result was the first mobile crane in the world that can be manoeuvred by remote control from outside the cab."

#### Successful application

After taking delivery of the new LTC 1050-3.1 last Autumn, Salgert was naturally quick to test the new technology out on a job which involved replacing industrial machinery at an aluminium diecasting plant in Bad Münstereifel.

"It was the perfect job for our new LTC 1050-3.1 with its RemoteDrive," says Salgert operator Tony Gölitzer, who became the first crane operator to use the production version of the system on a real job. "The difficulty was that the machines had to be moved in a low building with truly little space and which already contained other machines, while production could not be stopped. RemoteDrive enabled me to stand right next to the area with the greatest 'pinch points' allowing me to manoeuvre the crane safely through the space. The door was narrow and low, and we had installed the short erection iib. That meant I had to watch it pretty closely."



As well as using the RemoteDrive system, Liebherr's VarioBase system was also employed to set the crane's outriggers at irregular positions between the facilities existing machinery and achieve the best capacities for the space available. After returning to the cab, the crane was also used to pick & carry machinery and components weighing

up to 18 tonnes from the building

#### **Future use**

Since its introduction last year Liebherr claims that more than 50 percent of all new LTC 1050-3.1s are being ordered with the RemoteDrive option. It has also begun talking to customers in order to gauge what demand there might be to introduce it on other models in its range.

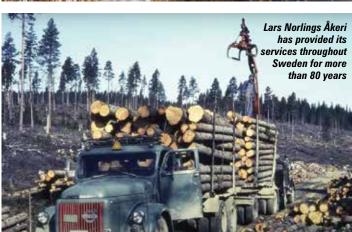
# Remote logging

Working in the timber handling and transportation industry is often physically demanding, hazardous and in many countries requires operators to work all day in harsh weather conditions. It is also a highly competitive market with increasingly stringent legislation leading to shrinking margins. Unsurprisingly, finding skilled drivers/operators that want to work in the sector can be a real challenge.



A few years ago loader crane manufacturer Hiab set out to help improve the driver's lot with its HiVision remote control system. By combining four cameras with a virtual reality headset, HiVision allows operators to load/ unload timber from the comfort and safety of the truck cab. The headsets provide a field of vision of up to 270 degrees - 30 degrees more than Hiab claims is usually required from a rear mounted crane cab - and features two joysticks mounted on the seat armrests within the cab. The company also claims the system reduces the physical demands and exposure to bad weather than traditional forestry cranes, making the industry more accessible.





#### World's coolest Grandma?

This certainly proved the case when new grandmother Åsa Norling of family run timber transport company Lars Norlings Åkeri came out of retirement in order carry on the family business while her son and daughter in law cared for their new baby girl. But it only became a practical reality thanks to the HiVision remote control system. Established in 1937 by brothers Otto and Holger Norling, the

company has provided timber and



gravel transportation throughout Sweden for more than 80 years. The company purchased its first hydraulic timber crane - a Hiab Elephant 176 - in 1963 and more recently purchased a Hiab Loglift 118S HiVision. Third generation manager Emil Norling said: "When we first thought about buying a HiVision crane, we weren't really planning to invest right away. But from a safety and work environment perspective, it felt like the right thing to do."

Fortunately for Emil, the system also meant that his mother was able to come back to work operating the timber trucks while he took some paternity leave. For Asa it was a case of déjà vu having begun operating the trucks and their cranes in 1995 after her husband

Lars Norling was seriously injured in a car accident. She took over the running of the business while he recuperated. Although Asa is officially retired and a grandmother she is enjoying driving the trucks and operating cranes again, especially as she can do it from the comfort of modern truck cab.

#### **Next generation**

Emil Norlings Åkeri believes the introduction of HiVision has the ability to attract the younger generation to the timber transport industry going forward and maybe, who knows, even his new daughter? Recently Hiab supplied the Savo Vocational College in Finland with a Hiab Loglift timber crane with HiVision control system. According to college tutor Ville Remes, the system is already helping

#### remote controls

transform what is traditionally a male dominated sector. He says: "Some of the students have chosen to study at the college due to the selection of state of the art technological tools we have here, which can make operating a crane resemble a computer game. This has proved to be a huge draw with the younger generation as they are able to relate to the industry more easily."

In another example, Sofie Tjus Ekström, a timber truck operator from Kjell & Aste Åkeri in Sweden who trained with a number of other female operators - said: "It has nothing to do with how strong you

are, technology makes it accessible for everyone. Now it is no longer necessary to climb over slippery, icy logs in the winter or take the risk of being near heavy traffic when operating next to a major road. Everything can be operated from inside the truck cab."

As well as looking to introduce this technology to other products in its range Hiab hopes to develop a solution that enables operators to operate equipment remotely from greater distances, without ever needing to get in the truck at all. With self-drive trucks on the horizon this may be more likely than it might



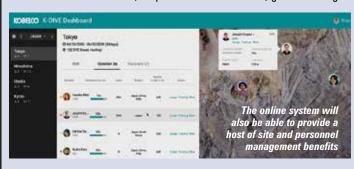
#### One for the future

With each new development in remote control technology we are seeing how operators are able to better and safely position themselves in the very best location, in terms of view and safety, however the next steps may well remove the operator from the site altogether.

Working towards this goal Kobelco has teamed up with Microsoft and Leica Geosystems to develop its K-Dive Concept which it hopes will create "human-centric work reform" using information and communications technology to provide "attractive environments where anyone can work".

In short, rather than pushing for an automated future it hopes its K-Dive system will allow operators to remotely control equipment from say an office building. The first step will likely see the office located on site, however the eventual goal is for long distance remote control to be practical. Other features of taking the system online will be the ability to provide visibility on ordering, operator contracting, progress data management and project progress evaluations etc...

"Because construction sites are labour intensive, productivity is low and there are also accident risks," explains Yoichiro Yamazaki, general manager





of Kobelco's business development department. "Construction sites are generally not attractive workplaces for younger people, so the number of skilled workers is decreasing as the population ages."

"There was talk of automation at the beginning, but many construction workers take pride in performing work that remains on the map for many years. If automation reduces the number of people who work at a site, that pride will be lost. We want to create workplaces that are attractive to young people, where improved productivity earns higher salaries and with work styles that people who take pride in their work can accept. This was the philosophy that created K-Dive."

Although K-Dive is currently being developed for Kobelco excavators it not inconceivable that the technology could be used on lifting equipment next. Certainly one to keep an eye on.

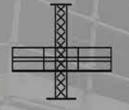


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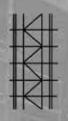
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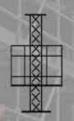
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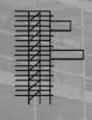
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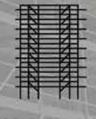
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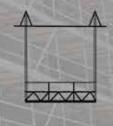
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### Hoists on the up

We covered mastclimbers and hoists in our March issue but given the level of material we had on mastclimbers we barely touched on hoists. This feature plans to readdress the balance a little. We look at what is or might drive uptake of both products, before focusing on a number of new hoists and product developments in what is a relatively mature and well developed sector. We will also take a look at some interesting projects and applications, including an update on the massive Battersea Power Station redevelopment site.

#### **Growing demand**

Every time we take a look at the mast climber market, we cannot but help comment on how slow the uptake has been across most western countries, there are a few exceptions, such as the Netherlands, Sweden and possibly Canada. This always causes us to scratch our heads, as the product has huge advantages over more traditional forms of access such as façade scaffold and tower stairs, and yet market penetration is still relatively low. However most of those who specialise in the sector that we spoke with confirm that demand has been very strong over the past few years and more importantly profitable.

UK based international mast climber and hoist specialist Brogan even went so far as to say that it has seen a "huge uplift in demand for mast climbers, hoists and common towers over the past two years" and as a result has repeatedly stepped up its investment programme adding both new equipment and expanding its product range. The company

must be doing something right as it is repeatedly listed among the 100 fastest growing independent UK exporters. In this year's chart, published in February, Brogan was 65th - and although that was down from 31st in 2019, its export sales increased 60 percent to £12.6 million, while total revenues for the year to the end of 2018 were £34 million - in 2019 that jumped a further 40 percent to £48 million.

#### The Grenfell factor

It has been three and a half years since the Grenfell tower block fire in London left 72 people dead and a similar number seriously injured. The fire was caused by a flammable aluminium-polyethylene cladding system, which prompted the call for all such cladding to be removed from high rise buildings across the UK and replaced with a more appropriate fireproof cladding material. The ongoing investigations have already identified 470 high rise tower blocks that are clad with a similar type of material, while at least a further 170 - mostly privately owned - towers are expected to join the list to have their cladding removed and replaced. Most







publicly owned towers with the exact same material were quickly stripped of their cladding either using mast climbers or in some cases truck mounted lifts and on lower levels scissor lifts. Many tower blocks however have not yet had the replacement cladding installed. The lack of cladding is not only causing heat loss and a blot on the landscape, but also causing water ingress issues and dampness which if left will decay the structural fabric of the buildings. Once the burning issue of who pays is settled, the massive replacement task should pick up speed with the

potential to absorb a substantial percentage of the UK's mast climber population. This is one application ideally suited to the mast climber, with alternative access methods really not coming close in terms of efficiency and overall project cost. The key to unlocking this demand is almost certainly political with members of parliament under growing pressure mounting from tenants in the affected buildings to provide a solution. Phase two of the Grenfell enquiry opened in January and continues to drag on, after being held up by the UK's March Lockdown.

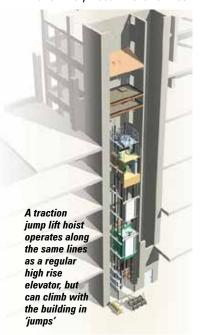


**New hoist** developments

#### Moving inside

In recent years contractors and developers on some high rise projects have looked to reduce the number of traditional rack and pinion hoists on the outside of the building during construction. This might be due to the actual space available, cladding installation considerations or other reasons. One solution has been to install a hoist within the building's lift shaft moving up as each floor is completed. However the traditional solution - a 'traction jump lift' hoist - employs a similar mechanism to the elevators used in the completed building, in that they employ cables and a headstock beam, along with a travelling counterbalance counterweight.

Temporary goods/personnel hoists can also be combined in the same shaft with the building's actual elevator car running on the semi completed floors below. The system was used very effectively in the building of the Shard in London. The problem is that the temporary hoist requires its own mobile machinery room, cathead headstock beam and running gear, which makes raising or 'jumping it' upwards as new floors are added, time consuming and relatively labour intensive. Most





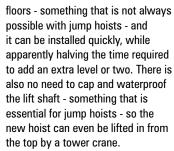
of them also require two floors of headroom, preventing them from going right to the top unless the shaft is extended beyond the top floor. Rack & pinion lift shaft hoists have been around for many years, and most often used on building restoration work.

At the recent bauma China exhibition in Shanghai, market leading hoist manufacturer Alimak unveiled an all new, innovative product to compete in this sector, which it hopes might prove transformational.

#### Alimak elevator shaft hoist

Alimak has been a leading player in the construction hoist market for years, often leaving more specialist niche market hoist products to others. As demand has increased to bring hoists inside and away from increasingly complex external façades, it spotted the potential for a new solution. Its all new and innovative LSH construction hoist has been designed specifically for use inside internal elevator shafts during the construction phase of a new building.

The company says that the new hoist offers several features which will enhance efficiency and improve productivity compared to the traditional traction jump-lifts. For one it is able to reach the highest



Even where outside space is available for traditional construction hoists, the lift shaft can be exploited to add additional hoist capacity, help improve productivity and reduce wait times for skilled workers. This is particularly beneficial where outside space is limited of course. The LSH hoist has an internal size of 1.8 by 1.5 metres with a height of 2.8 metres. The hoist car can transport goods or people weighing up to 2,000kg.

Before the Alimak LSH is dismantled and removed it can be used for the installation of the building's elevator guide rails inside the shaft and once again, it can be quickly removed by tower crane on completion, as long as the lift shaft remains open of course. If not, the bolted mast design allows for easy dismantling and removal in the traditional manner. The lift car also employs a clever modular construction with bolted panels and frames, allowing

it to be dismantled into smaller sections for removal through small access points if this is an issue.

removal if required

The hoist car is made up of bolted sections and can be

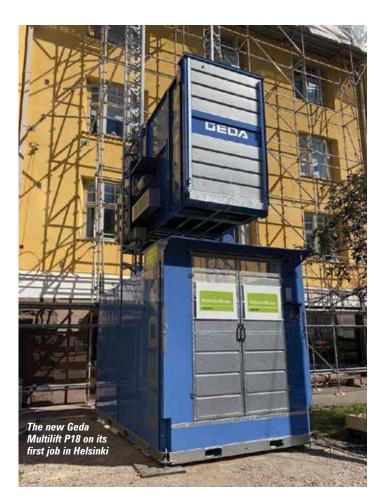
broken down into smaller components for assembly or

Manufactured at the company's plant in China, the product has been designed to the same structural design parameters as the regular Alimak hoists and as such has been designed to withstand conditions faced by external hoists. Features include safety rails and fall protection on the car roof and a stainless steel control panel which includes a large user friendly seven inch touchscreen display, with protective glass and moisture protection to IP54 levels. The company's intelligent hoist monitoring system also delivers real time hoist status information.

#### **New generation** from Geda

German hoist and mastclimber manufacturer Geda has started delivering the new Multilift P18, its first in a new generation of personnel and material hoists. Unveiled at bauma last year, one of the first units has gone to work on a refurbishment contract in Helsinki, Finland. The residential building in the heart of the city is being extended and renovated, with the loft space converted into apartments, while the metal roof will also be fully refurbished.

#### mastclimbers & hoists



The contractor, Skanska Rakennuskone, selected the new Multilift P18 to lift construction waste, various construction materials as well as construction workers to a height of 21 metres. The new hoist has been completely revised and updated with a cleaner design and is available with two platform/car lengths - 3.2 and 3.7 metres - ideal for bulky materials with a capacity up to 2,000kg on the longer platform. The lift speed is 40 metres a minute, while the hoist uses the Geda Uni-X-Mast, in place of the Uni-Mast system.

As part of the redesign of the car interior, the control unit for the switch box and the assembly guard have been recessed and integrated in order to avoid protrusions that would interfere with the internal space. The unit has been designed for easy maintenance, with all wear parts quickly and easily accessible, it is also equipped with an automatic lubrication system for the rack and pinion gear as standard. A remote service and diagnostics option is also available.





#### mastclimbers & hoists



The unit can run on 32 or 63 amp power supplies by adjusting the load capacity and/or lift speed. Previous hoist models featured two car switch boxes, while the new hoist has a single larger box, and a completely revised innovative control system, which is said to be considerably easier to operate.

Geda regional sales manager for Scandinavia Florian Draxler said: "The positive feedback from Skanska Rakennuskone indicates that the second generation of the Geda Multilift P18 meets the latest demands of the market, allowing us to create customised solutions for our partners."

#### **SAE Climber PH20** Twin transport platform

Spanish hoist manufacturer SAE Climber has added the all new PH20 Twin transport platform/material hoist to its range. The new hoist has a rugged build quality and is aimed at high usage heavy duty applications, while also having the ability to be built to greater heights up 250 metres when anchored with a maximum lift capacity of 4,000kg. The new platform is equipped with



square mast sections in a twin mast configuration for greater capacity and stability, utilising four large gear high performance synchronised motors with VFC Frequency converter drive to support both a larger load car and provide the increased payload.



The mast sections are the same as ones used on the company's E20 P&M hoist and P45 mast climbing work platform, while the galvanised modular platform/load car allows users to achieve a three metre width if and when required by simply adding another platform module. A heavy duty full width opening, and reinforced heavy duty collapsible entrance/disembarking ramp are standard. Elevation speeds range from 12 to 24 metres a minute, with a Dual Speed format. The car length can be adjusted from 3.5 to 4.5 metres with a two or three metre width. Automatic

digital control of landing along with an overload device with load cell detection and digital controls are all standard equipment.





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## Bringing Battersea back to life

London's iconic art deco style coal fired Battersea **Power Station was constructed in various stages** between 1929 and the mid-1950s. By 1983 however the entire site was decommissioned to be left empty and decaying on the south bank of the River Thames until 2013 when work was approved to begin a long term restoration and transformation project set to cost £9 billion.

Scheduled for completion in 2025, the newly restored Power Station and the 42 acre site will house 3,444 new homes, a new underground tube station, 233,000 square metres of office and retail space, a new medical centre along with a six acre public park, and a town square. Currently in the third phase of construction, mast climbers and hoists have played a significant role in the work from the very start, with the **UK based Brogan group supplying** more than 75 hoists, as well as scaffolding, mast climbers and common towers for the project.

For the first phase the company provided a combination of mast climbing platforms together with 17 construction hoists with payloads of up to 2.7 tonnes. It also worked with the main contractor to provide design and fabricated solutions to overcome any obstacles that came up during the build. During Phase Two of the project, which focused on preserving the Power Station's historic features and character, Brogan supplied 40 hoists to the main contractor Mace, although

structure, which is made up of more than six million aging bricks, proved a real challenge. The hoists vary in size and configuration and include both goods and passenger hoists with single and twin cars. They are currently in operation internally and externally to accommodate the varying challenges of servicing a building that is both complex in size and layout while respecting its Grade II listed status.

The company is also using Maber MBC50 goods hoists with platform cars ranging from 3.2 metres square to five by 3.2 metres, with maximum capacities of 5,500 and 5,000kg respectively. Alimak Scando 650 FC/39 goods and passenger hoists in both single and twin car configuration with a maximum capacity of 3,000kg are also employed, as are a few Stoss hoists. The vast majority of the hoists were purchased new specifically for the project and are the therefore the latest generation machines.

**Battersea Power Station Development Company appointed** the contractor Sir Robert McAlpine to carry out the third and latest







phase of the project, which will see the 'Electric Boulevard' gateway connecting the new underground station with the power station added to the development. The phase is presenting different challenges for Brogan design team with the provision of four CAS common towers reaching 16 storeys/52 metres in height, they

are fed by a total of 15 hoists with varying cage sizes in twin and single car configurations and lifting capacities of up to 5,000kg.

A further complication is the curved façade of the Foster + Partners building which has been overcome by ensuring that the common tower decks were built to suit the profile of the building, varying in length and









make up to cope with the shifting profile of the building on each floor. The design engineers determined a solution using varying lengths of structural support beams with differences in angle and depth to accommodate the waved shaped slab allowing the lifting of the five tonne bathroom pod units for internal fit-out.

#### Top of the Dom in Linz

Two Geda material hoists, a 500 Z/ZP and a 1500 Z/ZP transport platform, are currently supporting the refurbishment work on the Neuer Dom - the New Cathedral - in Linz, Austria, which is also known as the Cathedral of the Immaculate Conception. Built between 1862 and 1924, the Cathedral is the country's largest - although not the tallest - as its tower design had to be reduced to 134.8 metres due to the Austro-Hungarian ruling at the time that forbade any building in Austria to be higher than the St. Stephen's Cathedral in Vienna, which stands at 137 metres.

Although relatively new, the building is crumbling and is currently undergoing comprehensive

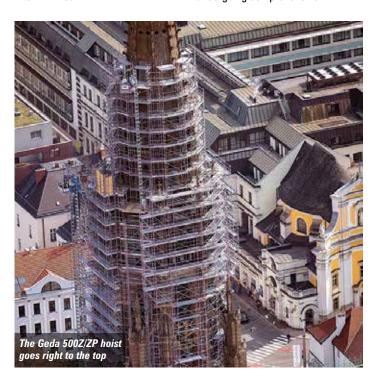
refurbishment work behind a wall of scaffolding. The façade in particular is suffering from dissolving sandstone and a network of more than 3,500 metres weathered joints between the sandstone blocks, along with other stone and statue elements, are urgently in need of repair.

Over 150 tonnes of scaffold alone were required around the tower with many of the stonemasons working on the upper areas of the tower. The project also requires large volumes of heavy materials to be transported to heights of up to 130 metres - complicated by the extreme winds acting on the scaffolding and façade.

The Geda 1500 Z/ZP was installed for the first phase of the project with a steel tube support scaffolding to a height of 75 metres, roughly the height of the tower clock. The base scaffold is built on all eight sides of the tower and supports the upper tower and spire scaffolding, alongside which the 500 Z/ZP is installed, running all the way up to the top. It was lifted 75 metres into place by a large All Terrain crane and built up from there. It is not only those working on the tower that must ride both hoists to reach the spire, but also all materials need to be 'transhipped' between the two hoists in a two stage lift. Equipped with two separate control units the Geda 500 Z/ZP can handle materials up to 1,000 kg, while in passenger mode it can take up to five persons with a maximum load capacity of 500kg.

The Geda 1500 Z/ZP runs from the ground and has been erected

as a twin mast unit, allowing it to transport seven passengers at a speed of 12 metres a minute. When used in material mode it can lift 2,000kg and travel at 24 metres a minute. Both platforms are fully equipped with the usual safety devices such as limit switches, speed dependent safety gear, safety stop and overload protection. A wide range of hot-dip galvanized landing level safety gates have also been provided for safe transfer between the platform and the respective landing level. A standard automatic lubrication device helps keep wear and maintenance on the rack & pinion gear drives to a minimum.







### **WE RISE** BY LIFTING OTHERS

Skyjack aims to support the rental industry during the good times and the bad. Through Skyjack's WE RISE campaign, we want to encourage rental companies around the world to share their stories:

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# Christmas And

### Happy New Year

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We would like to thank all of our readers, sponsors and contributors, for the fantastic support that you have given us throughout this very challenging year, all of which helps to make this and our other publications and activities a success.

Wishing you all a very safe and happy Holiday season and a happier, healthier and more prosperous year in 2021.



### **Accident analysis** prompts revamp of load & unload training

Information gathered in a worldwide project to report accidents and near misses has informed a major update to the training course on how to load and unload work platforms and other equipment safely from trucks or trailers.

The latest analysis of global data gathered by IPAF via www.ipaf.org/accident shows most accidents resulting in lost time injuries and fatalities occur while loading or unloading. As a result, IPAF has overhauled its Load/Unload course, with new training materials unveiled to instructors.

Training manager Paul Roddis said: "The IPAF Load/Unload course has been reviewed off the back of the accident statistics showing that the people most likely to be harmed in aerial work platform related incidents are delivery drivers. I'd like to thank Martin Wraith and all who sat on the working group, along with the IPAF UK Country Council, Training Committee and our brilliant network of Training Centre staff and instructors, who I know will roll the new version of this valuable course out with enthusiasm and vigour, to assist candidates taking the course to understand and identify the risks involved."

#### IPAF's new head of finance

Amanda Beckett has been appointed IPAF head of finance. She joins from Nationwide Platforms, part of the Loxam group, where she spent more than 14 years in a variety of roles.

Chief executive Peter Douglas said: "Amanda has experience of managing the financial strategy for a complex multi-million pound powered access business. IPAF has so far weathered the storm of Covid-19 well and we are committed to helping our members and the industry at large come out



of this pandemic in as healthy a shape as possible. We are also excited to progress the priorities that lie ahead, Amanda will be a tremendous asset for us in achieving these aims."

### **Platform rental** markets' pre-pandemic health will shape recovery

The healthy state of the aerial lift rental and positive economic trends to year end 2019 in Italy, the Netherlands, Germany and China should shape strong recoveries after the pandemic, according to the latest analysis, conducted for IPAF by DuckerFrontier.

The newly published Global Powered Access Rental Market Report 2020 shows that those countries least hard hit in the first wave of the pandemic are likely to recover well in 2021, the report also indicates Sweden and the USA will be among markets to recover strongly, after construction sites largely stayed open during the peak of the pandemic.

France, the UK, Spain and Finland were among those worst hit by the pandemic, owing to the impact of the disease and sustained national lockdowns, coupled with other underlying factors contributing to uncertainty, including Brexit. Outlooks are not favourable for a rapid recovery in these countries.

The Dutch and German platform rental markets reported strong growth up until the pandemic, increasing by seven percent in terms of annual revenue. while France saw sustained growth over three years, to overtake the UK market in terms of size and revenue at the end of 2019.

In the UK, the impact of Covid-19 and lockdowns are forecast to impact on construction, unemployment and overall GDP, coupled with the end of the transition period from the EU have done little to underpin confidence in a rapid recovery.

In the US, the market continues to grow and mature, boosted by strong construction output, but market evolution has been beset by a piecemeal approach to the pandemic in 2020, followed by uncertainty caused by the elections, and potential fallout.

The report also contains a special market focus on China, a rental market growing at unprecedented speed and set to keep surging in terms of fleet size and market penetration. In 2019 the work platform rental market grew by 38 percent and is set to rise by 10 percent in 2020.

The 2020 IPAF Global Powered Access Rental Market reports are available to order now at www.ipaf.org/reports, with a discount for IPAF members

while 2019 & 2018 reports are available at half price and older reports are free to download.





#### 2 million PAL Cards worldwide

The number of Powered Access Licence (PAL) Cards issued by IPAF worldwide has surpassed 2 million, with 800,000 valid cards currently in use on worksites around the globe.

IPAF began certifying training in 1993, with the yellow credit card sized PAL Card introduced at the end of 1998. At that time just over 11,000 operators had been certified, with the introduction of the PAL Card that figure doubled the following year. In 2014 IPAF marked 1 million PAL Cards issued, and in November 2017 1.5 million. Just three years on, IPAF has now certified more than 2 million operators.



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**Caa** training

### **Potain Crane Care India**

Manitowoc has opened its latest Crane Care training centre at the Potain manufacturing facility in Pune, India.

The new centre will offer crane technicians hands-on and classroom based training on Potain tower cranes, while also making use of simulators to help delegates understand electrical and mechanical principles, practice troubleshooting procedures and learn basic lessons on software programming. There are around 2,000 Potain tower cranes currently operating in India.

The new centre joins other Manitowoc training centres in Italy, France, China, Singapore and the UAE.

#### Suspended platform training

Industrial Training International (ITI) has launched the suspended personnel platform trained user course. Developed in partnership with US based man basket manufacturer Lifting Technologies, the four hour online course allows delegates to plan and execute all stages of the lift. This includes providing training on pre-operational inspection, proof test, trial lift, rigging and crane check, pre/post lift meetings

and post-operational inspection. Following a final written exam, delegates will be issued a trained user certification, while an authorised user card may also be issued following the completion of a field evaluation form.



#### **LEEA** engineering apprenticeship

The Lifting Equipment Engineers Association (LEEA) is requesting UK training providers to submit a funding proposal for the new level 3 standard lifting equipment technician apprenticeship.

The course will teach apprentices how to repair, maintain, modify, inspect, test, install and assemble lifting equipment to ensure its suitability and safety for a continued period of service.

LEEA vice chairman Kat Moss said: "We are inviting training providers to come forward and help us to gain a funding band allocation to deliver this new engineering apprenticeship. We completely understand that this is a

difficult time for further education, but we have a 'good to go' offer here in the engineering sector, where demand for this apprenticeship is high."

LEEA are looking for training providers for its new equipment technician apprenticeship.



#### Telehandler incident costs \$31,500

Australian livestock producer Hewitt Cattle Australia has been fined \$30,000 with costs of \$1,515 after an aerial work basket broke free from a telehandler seriously injuring the two occupants. One of them injured men - a it broke free subcontractor named Ryan Watts - was

also fined \$4,000 for failing to produce documents or information and ultimately hindering the subsequent WorkSafe investigation.

The cattle station had provided the telehandler to the two subcontractors to install downpipes on a large open shed in Ambalindum in February 2018 when basket fork attachment separated from the boom causing it to drop 2.5 metres. The injured men were airlifted to the local hospital where they were treated for serious and life changing injuries.

An investigation found that although the two contract workers had been given a health & safety handbook outlining safe working methods and requirements for carrying out high risk applications, the company failed to carry out a risk assessment or check the competencies and training of the those involved. It stated that the company relied on its written processes without having regard to its duty in its practical implementation.

Bill Esteves, senior director of NT WorkSafe, said: "Providing an operational procedure manual is only part of the duty, as duty holders must also ensure workers are trained and competent in the safe use of equipment. Most importantly, equipment should never be operated without a risk assessment to determine whether further controls are necessary to eliminate hazards from the workplace."

#### \$91,000 for crane fatality

Canadian contractor Manitoba Ltd, which trades as Matt Reimer Construction, has been fined \$65,000 with a surcharge of \$26,000 after a 'lifting device' malfunctioned, causing a steel tube to strike a man working on the site near Plenty, Saskatchewan in May 2019, inflicting serious injuries that led to his death.

The company was charged with failing to ensure that every hoist, crane and lifting device on site was designed, constructed, installed, maintained and operated to perform safely for any task for which it is used.

### Who trained then?

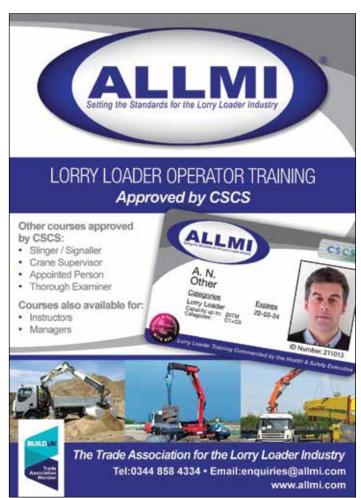
**Spotted** somewhere in the USA, a utility linesman who has combined a bucket truck with a long ladder in order to reach his work and avoid overhead cables.













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### PASMA joins CSCS Partner Card Scheme

PASMA has teamed up with CSCS, the leading card scheme for the UK construction industry, to help managers check that anyone working with complex access towers is suitably qualified.

Starting in 2021, any Access Tower Specialist cards issued will carry the Construction Skills Certification Scheme (CSCS) logo, providing a familiar and reliable way for clients, employers and contractors to verify qualifications and training.

The holographic logo will only appear on cards held by those who achieve the highest qualification available for access towers, having completed the demanding training programme. These individuals are competent to erect, dismantle and inspect all types of towers, including bespoke structures designed to suit the needs of a site.

The partnership between CSCS and PASMA signifies industry wide agreement that the PASMA Access Tower Specialist course is the required standard of qualification and skill for anyone erecting, dismantling or inspecting complex access towers.

#### The Skills

Most access tower specialists work for 'Hire & Assembly' companies, using their skills to build structures where others can work safely at height. Their service covers equipment rental, consultation, specification, design, assembly and dismantling. Working closely with tower manufacturers, they are qualified to:

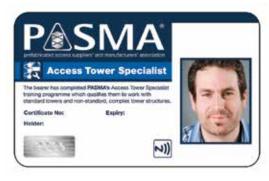
- · Plan the build
- · Select safe equipment
- Follow design drawings
- · Assemble and dismantle
- · Make engineer-approved alterations
- · Tie structures into buildings
- · Inspect towers
- Collate all paperwork
- · Conduct safe handovers

PASMA will continue to issue cards without the CSCS logo to anyone qualified to work with one or more standard configuration towers, such as mobile access towers or cantilever towers. The addition of a CSCS logo means the individual can work with any type of tower and they are the only people qualified to work with custom designed towers.

PASMA managing director Peter Bennett said: "The partnership between PASMA and CSCS is a huge step forward for access tower safety on UK construction sites. If someone arrives to assemble a tower, the site manager can easily check that they are qualified just by viewing the details on their PASMA card.

Anyone holding this card has considerable experience and knowledge of

scaffold towers. Gaining industry wide recognition of their specialist skills and level of qualification was a logical move with a big impact on height safety."



### USING A MOBILE ACCESS TOWER TODAY? Remember to inspect

#### Caa PASMA focus

### Access Tower Specialists

In the last issue of Cranes & Access in the item entitled 'A new name for Tower Riggers' we referred to the fact that PASMA is relaunching its training scheme for complex aluminium access towers, and that with it comes a new name for those who complete the challenging programme - they will be referred to as Access Tower Specialists and they will have the skills required to build all types of towers, including bespoke structures designed to meet the needs of a site, however tall, wide or awkward it may be.

It is the highest qualification available for access towers, aimed at those with considerable experience under their belts. They will already be trained on all standard configuration towers – i.e. those that come in a kit with an instruction manual – but the Access Tower Specialist course takes them to the next level, quite literally.

Those who pass all the theory and practical assessments are qualified to use prefabricated aluminium components in surprisingly complex configurations that can go to much greater heights than standard towers.

The structures they build allow others to work safely at height in all sorts of sectors. Their service is known as 'Hire & Assembly' and it covers equipment rental, consultation, specification, design, assembly and dismantling.

**Although Access Tower Specialists** are competent on all standard configuration towers - mobile access towers, cantilever towers, towers on bridges, tower on stairways, large deck towers and linked towers - it is the bespoke structures that truly showcase their abilities.

These towers can go tall and wide, around, over and under obstacles, give access to multiple levels or stairwells, provide large - and mobile - deck areas, squeeze into tight spaces and be adapted as requirements evolve. Doing all of this with lightweight, prefabricated aluminium components is a specialist skill that is not taught anywhere else.

For more information and to enquire about taking this course, visit pasma.co.uk/ats



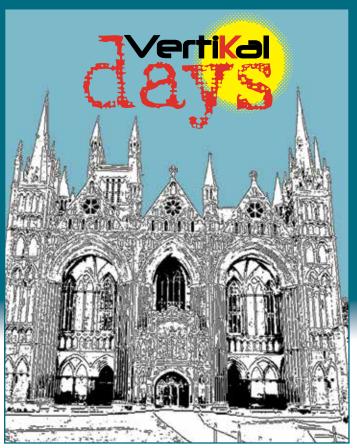


#### **Key PASMA events for 2021**

Health & Safety Event (Birmingham) September 7, 2021 - September 9, 2021 PASMA Conference (Nottingham) September 15, 2021 - September 16, 2021 No Falls Foundation Charity Ball (Coombe Abbey Hotel) October 30, 2021



For more information about the Access Industry Forum (AIF) and the No Falls Foundation charity for working at height, please visit www.accessindustryforum.org.uk and www.nofallsfoundation.org



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**Tel:** 08444 996688 **Neale Martin:** 07836 238281 **Web:** www.atlas-cranes.co.uk

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tel: 0344 858 4334 email: enquiries@allmi.com web: www.allmi.com





#### **BS EN 12999:** 2020 - Published

BSI has published the latest version of the European Standard for Loader Cranes, 'EN 12999:2020 Cranes - Loader Cranes'. Being the first full revision of the standard since 2011 (although amendments were made in 2012 and 2018), the new version comes with a wide range of changes.

ALLMI technical manager, Keith Silvester said: "The new standard is a vast improvement in terms of layout and graphics and is a far more navigable document than its predecessors. Its scope has been amended, as have various definitions, and whilst there are no new safety system requirements, wording regarding the inadvertent use of remote controls has been bolstered. In addition, one of the most noticeable changes is a new, alternative procedure for conducting stability tests, which is based on working pressure."

"We have had significant input into the standard's development through our representation on CEN Technical Committee 147 WG18, and this has also put us in an excellent position to advise on the changes being introduced. As such, we have recently sent a full breakdown of the amendments to ALLMI members and accredited Thorough Examiners but would of course be happy to share this information with any interested parties."

For further details of this issue, or to purchase a discounted copy of BS EN 12999:2020, contact ALLMI.

#### **ALLMI Membership online** seminars - Review

ALLMI held its 2020 membership meetings for manufacturers, service companies, ancillary equipment suppliers and fleet owners in November. Taking place online, the association's first virtual meetings were a great success, with all corners of the lorry loader industry being strongly represented.

ALLMI chief executive Tom Wakefield said: "The online format worked really well. It allowed us to update members on a raft of important issues and projects, as well as to provide feedback on our recent Covid-19 Impact Survey. We were also able to facilitate an engaging Q & A session. We would like to thank all those who attended. Whilst we of course enjoy having the face to face contact of a physical meeting, given the current circumstances this was an excellent way to keep the industry informed

and interact with members on topics pertinent to their respective businesses."

For details on membership of the association, please contact the ALLMI office or visit www.allmi.com



#### Caa ALLMI focus

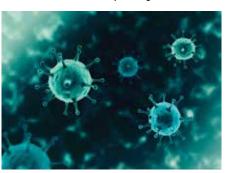
#### **Covid-19 Impact Survey**

Following the unprecedented events of this year, ALLMI has carried out a membership survey to assess the impact of Covid-19 on the lorry loader industry. The survey covered a range of areas, looking at issues such as crane sales, service/repair activity levels, revenues, use of the furlough scheme, changes to company headcount, and views on recovery for 2021. Members were also asked to assess ALLMI's level of support during the pandemic.

ALLMI chairman, Alan Johnson said: "As well as allowing us to develop an in depth understanding of the scale and type of challenges being faced by the industry, the main purpose of the survey was to provide members with a sense of perspective in terms of how their experiences compared to those of peer organisations. We were also keen to receive suggestions for further ways in which ALLMI could provide assistance."

"Engagement levels were excellent, with respondents representing a good mix of members involved with crane sales, service and repair, as well as fleet operators from various industry sectors. Whilst the results reflected the challenging environment in which members are operating, there were

some interesting outliers in certain areas, and signs of a strong performance in relation to service and repair activity. All in all, it was a very worthwhile exercise for both ALLMI and our members, and it was nice to receive positive feedback regarding the association's performance in 2020."



#### **2021 Course Dates**

ALLMI has released its course dates schedule for 2021. Being the UK's only accrediting body to provide specialist training for each member of the lorry loader lifting team, as well as engineers, instructors and managers, ALLMI courses are approved by CSCS and delivered to the highest standard.

Courses available from ALLMI, as well as the process for booking, are as follows:

Booked through an ALLMI Training Provider:

- · Lorry Loader Operator
- Slinger / Signaller

Booked through ALLMI directly:

- · Crane Supervisor
- · Appointed Person
- · Thorough Examiner
- Manager PUWER 9.2
- Instructor

Course information and dates, as well as Training Provider details, can be found by visiting www.allmi.com/training, or by contacting ALLMI.





For details of ALLMI standards, guidance documents and training, visit: www.allmi.com



#### lt's a cracker!

The Lighthouse Construction Industry Charity is delighted to announce our exciting Lighthouse Christmas Cracker promotion!

With Christmas events cancelled across the country we have just the thing to lift everyone's spirits. Many companies already opt for an e-card or 'charity Christmas cards' but ours comes with a real bang! How about a personalised 'Christmas Cracker' e-Card that contains a prize pot of £25,000 that you can send to your employees, suppliers and sub-contractors!?

#### Spread some Christmas cheer whilst raising much needed funds for our Charity.

How it works:



Christmas e-cards cost just £1 and we've got five great designs to choose from. Or opt for a plain 'cracker' and use your own design.



We will send you your e-card with your personalised greeting and company logo



You can then email this to your employees, supply chain contacts and subcontractors to give them an opportunity to win one of the great cash prizes



All they need to do is register their unique reference for a chance to win a share of the Prize Pot

#### **PRIZES**



#### Find out more at lighthouseclub.org

#### Join the live draw and Christmas celebrations on 18 December 2020 at 20:20

We desperately need to replace all the funds lost as a result of cancelling our hugely popular fundraising Christmas events across the UK and Ireland. Please help us sustain the much needed charitable services we deliver to support our construction workforce and their families, particularly during these difficult times.

Only purchases on behalf of your company are permitted. Minimum order quantity 100.









### Luke Reddish - CPA Lifting Technician

of the Year

This year's CPA Stars of the **Future 'Lifting Technician of the** Year' award was won by Luke Reddish, 28, of Wolffkran - one of the first crane companies to adopt the new Lifting Technician Trailblazer Apprenticeship. Wolffkran's Samuel Slocombe was also highly commended.

Reddish recently began his apprenticeship with a 12 week programme at the National Construction College in Bircham Newton, which involved tower crane and slinger signaller training. Back at work he has been operating different cranes on sites across the country, while his two year apprenticeship is due to finish in September next year. He started out playing football for Sheffield United, but his professional football career came to a premature end due to a recurring knee injury. He went on to study Physical Education at university, becoming a School PE teacher. However he soon realised that teaching wasn't for him and left to look for an alternative career. He initially worked as a delivery driver and continued to help out with after school football training.

A family friend then tipped him off that Wolffkran was recruiting



apprentices, in his own words: "I heard that Wolffkran was taking on apprentices through a friend of my Dads. I have always driven past cranes and wondered if I could ever climb a tower that high and sit in a cab. I was scared of heights at first but once I had spent time in a 30 metre crane at Bircham Newton, I wanted to go higher and higher. Joining Wolffkran and becoming a Lifting Technician Apprentice and has been the best decision I have ever made."

Once his initial training with the



CITB was completed, he moved to the next stage of his apprenticeship, working alongside experienced tower crane operators, in order to gain on the job experience, knowledge and confidence. He is now moving on to working on more challenging lifts, such steel erection, formwork installation, concrete pouring and working in restricted

"I am so glad I chose to enter into the construction industry. It was totally new to me and I'm not the handiest guy to be honest! But I have found a career which I am excited about and which I am enjoying every aspect of. It's a dream job - I love the views and it's also a solo job which I like. I am currently

operating a 40 metre crane but am ready for a 100 metre. I've learnt it's important to be flexible. One day I could be working locally and the next day I could be working on a

site on the other side of the country. Even though I'm still an apprentice, I'm earning more money now than when I was a teacher. It's put me in good stead. My partner and myself have a five year old daughter, with another baby on the way so are delighted to have been able to buy our own house."

Reddish also has ambitions to eventually move into other areas of the business, with an eye towards training or operations manager roles. Liebherr sponsored the 'Lifting Technician of the Year' award and Arran Willis of Liebherr GB was a judge. Speaking of the experience he said: "Being asked to judge Stars of the Future was an incredible honour and it's humbling to help shape the future of our industry and be involved with such passionate young people. The standard of entries was exceptionally high, and it gives us great hope that the future will be very bright for the lifting sector."

#### **CPA Conference rescheduled -**Online events programme adopted

The 2021 CPA Conference has been moved from April to Thursday 14th October at the Heart of England Conference Centre in Fillongley near Coventry. In the interim the organisation will host a series of online events. The first will be held on Thursday 21st January with the theme of 'Reducing Emissions and Working Towards a Zero Carbon Future'. Other themes will include skills, remote learning and a focus on independent hirers.

The 2021 CPA Conference will be hosted by Merryn Myatt who hosted the event in 2019 and introduced a new format with a series of panel speakers, with the those attending encouraged to participate with debate and audience interaction through a series of panel discussions with key people from across the industry.







### GOING UP IN THE WORLD



A history of Simon Engineering, the development of the powered access industry and a lifetime as an engineer, by Denis Ashworth

Ashworth was a keen engineer and from an early age found himself in at the very start of the modern powered access industry.

His book is an unusual combination of autobiography and history of Simon Engineering Dudley, a pioneer of the powered access industry and at one time, the world's largest manufacturer of aerial lifts.

The coffee table sized book, is highly readable and includes around 150 photographs and drawings from the very beginning of the industry. It is a 'must read' for anyone who is interested in powered access, the hydraulic equipment industry or in comparing modern day engineering challenges with those of an entirely different era.

The book is available direct from the publishers at £19.50, plus £4.50 postage and packing.

- Continental Europe €23 plus €6.50 postage & packing
- · Rest of world \$31 plus \$10 shipping

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#### books & models

### **XCMG** XGC220T

The XCMG XGC220T is a telescopic crawler crane with a capacity of 220 tonnes. This model by Yagao comes in an XCMG branded box and includes an instruction sheet printed in Chinese and English.

The metal tracks are a good representation of the real machine, but the track frames are less accurately modelled, and this is mainly a result of the extension mechanism chosen. The width is not reduced when the tracks are retracted as the support beams remain extended. Lightweight ballast blocks are mounted between the track frames, and there are self-assembly outriggers.

The crane cab has a plastic protection grille and a decent interior. It can be tilted to a very good angle. It is also mounted on a swinging arm presumably to be able to move it to the back and reduce width in transport mode.

The crane superstructure has detailed graphics, while panel door handles are highlighted. The counterweight blocks and tray have useable lifting lugs and the weight of each is marked with graphics. The selfassembly lift cylinders and chains are modelled but they have not been provided with enough downward movement to allow the tray to be fully lowered to the ground like the real crane.

Bi-fold extension luffs

The boom is detailed with spooling drums and sharp graphics. The telescopic sections pull out and three locking positions are provided at 50, 90 and 100 percent extension. The hydraulic luffing lattice bi-fold swingaway extension is provided as two sections and joined by tiny brass nuts and bolts, but surprisingly its cannot be attached to the side of the boom when not in use.

The winch drums are detailed, but they are operated by laborious finger work rather than with a key. Two metal hook blocks are supplied. One is a single line 'headache ball' while the other has three sheaves and they are both very good quality. A shiny metal XCMG load block is also included.

This is an interesting crane, and the model looks very good when fully assembled. However, the modelling of some of the functionality is odd and deviates from the real machine. It sells for \$235 on the Yagao AliExpress store.

To read the full review of this model visit www.cranesetc.co.uk

#### **Cranes Etc Model Rating**

Packaging (max 10)	7
Detail (max 30)	22
Features (max 20)	12
Quality (max 25)	21
Price (max 15)	11
Overall (max 100)	73%









# IPAF 2020 Rental Market Reports

IPAF RENTAL MARKET REPORTS
2020 NOW AVAILABLE

Get the most up to date powered access revital market data available

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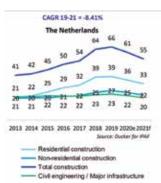
IPAF has published its annual rental market reports covering the main global powered access markets through the end of 2019 - The Global Powered Access Rental Market Report 2020. The reports follow and improve on the well developed format that has been refined over the past 10 years or so by the International Powered Access Federation and its partner DuckerFrontier.

The reports cover the period before this year's pandemic took root, and as such is a clean view of how it was going, and depending on how each country has dealt with the Covid-19 pandemic how it might return to in 2021?

The European guide includes individual country reports for Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden and the UK which together represent around 85 percent of the total European market. It can be ordered by country or as a single All European report.

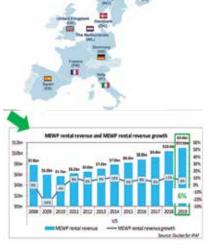
Other reports include one for North America – the USA and Canada, and a third special report covering the emerging Chinese market. The reports include a great deal of specific detail, including estimates of total market size in terms of value and number of units in national fleets, along with a host of other information, including time and physical utilisation, rental rate growth or declines and how these compare with construction market output, plus market penetration, application splits, power source mix by machine type, along with investment levels and average age of the fleet, to mention just a few. All of these factors are charted over the past 10 years or so to show longer term trends in each market.

The market estimates put the worth of the European market at almost €3 billion, following five years of steady growth, while the fleet now totals around 308,000 units. The



North American machine population is thought to be closer to 660,000 units, with a value more than three times that of Europe. China is interesting in that rental is a relatively new concept, but one that is growing rapidly. The report's authors estimate that its is now worth around €800 million and already has a national fleet of more than 155,000 units.

In addition to masses of well presented data and trend charts, there are several summaries and comparisons such as between the European and North American markets. And if numbers are not your thing some excellent executive summaries. If you are looking at the powered access in one of the



markets covered, you will not do better than to buy this report.

The reports are available to order online at: https://www.ipaf.org/en-gb/resource-library/ipaf-rental-market-reports in a range of different packages with the two extremes are as follows.

The full Global report (all countries): IPAF Members: €798, £665, \$832 Non-Members: €2,082, £1,735, \$2,169

Individual country report: IPAF Members: €174, £145, \$182 Non-Members: €456, £380, \$475





### Readers La

#### Outrigger mats and cribbing in the old days

Dear Mr. Sparrow,

The picture on page 46 of the latest magazine shows what appears to be car garage pit boards complete with rope lifting handlings. Board lengths appear to be short for cribbing. The rope would also become trapped between wood and roll causing boards to slip under pressure.

In the bad old days, eight-foot-long railway sleepers were used, four to each outrigger, and how I cried when the fifth jack arrived! Who wanted to lift over the carrier cab anyway with another four sleepers to handle! When outriggers had manual bar screw threads - non-hydraulic - the dead weight of the crane was just touching the ground with added ground contact. Since the All-Terrain crane became site friendly, out went the old rule of 'lf you cannot walk on the site, you cannot drive on it.' Mr. Dick Gale and Mr. Bill Green (The Crane Man) had many good alternatives to railway sleepers against lightweight plastic plates. An

example of soft ground was the Darlington A1M by-pass, built in 1964, where the hard shoulder was non-load bearing just like most greenfield sites.

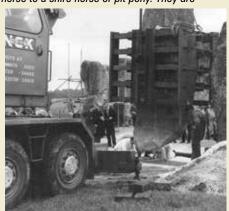
Thank you,

Fred Pole

**Grove Worldwide Product** Demonstrator 1987- 1998

Sadly, Mr. Pole did not send any photos from the A1M by-pass job, but he is right to refer to a time 'when men were men' and operating a crane was a highly physical job. It should also be said that not everyone back then was as diligent when it came to cribbing although if you were setting up on uneven ground that was the only way, given the manually operated outrigger jacks. Cranes back then were more forgiving in some respects; the outriggers were short and, as he points out, they acted more like stabilisers compared to the modern hydraulic outriggers that can level a crane up. Manual handling rules forbid lugging sleeper timbers around these days. Comparing modern cranes with those older cranes is like comparing a thoroughbred racing horse to a shire horse or pit pony. They are

all horses but that's about all they have in common. Outrigger mat designs have and are developing beyond all recognition of what was available even a decade ago in terms of strength to weight ratio and versatility etc.



#### Singapore tower crane accident

Dear Sir,

A year ago, we experienced a fatal accident here in Singapore in which a luffing jib on a tower crane came crashing down on the job site, killing one man and injuring another. All very sad and traumatic. An investigation is still theoretically ongoing, although all the information has been gleaned already. The point of my writing is to draw your attention to a report that MOM has put out, that covers the events that led to the jib failure in great detail. Given your interest in crane safety and the potential benefits to your readers, I attach a copy.

#### Regards,

H Chung

The report is first class and, given that the incident occurred barely a year ago, impressive as health & safety authorities go. We did indeed publish the news of the report online and the following is a summary.

#### MOM tower crane incident 'Learning Report'

Singapore's Ministry Of Manpower (MOM) has published a comprehensive 'Learning Report' covering a fatal tower crane jib collapse in November 2019 in which the jib buckled and failed while lifting a bundle of scaffold components. The failure was caused, it seems, by the erection ropes catching up on the crane's gantry, causing a sudden jib drop, with the dynamic and adverse load direction leading to the jib buckling and coming down onto the site. The report can be downloaded from the http://www.vertikal.net/library

#### Tumble dryer tech

Dear Leigh,

I agreed with your editorial regarding modern technology. My 1998 tumble dryer still stands outside the garage rear door and works a treat despite its rusty exterior. It cost £10 in West Bromwich when the kids were babies. One of the babies turned 20 in October and Max is 22 today!

With tumble dryer as consistently reliable as the day I carried it home in my car by taking out the back seat.

Keep up the good work!

Mike Ponsonby

Thanks, Mike. Our new old-school tumble dryer is working a treat... and all is well in the household once again.



#### Sherman Ward (Bud) Bushnell 1921 - 2020

This month brings the sad news of the death of Genie founder Bud Bushnell, who passed away on Saturday the 14th of November at the grand old age of 99.

Bushnell was born and raised in Seattle, Washington. During World War II he served in the United States Navy as a radar technician aboard the USS Siboney, operating in the Pacific Theatre. After the war, Bushnell joined and settled into his father's refrigeration business. However he had



always been a bit of an inventor and was forever looking for a better way to do things and so began experimenting with a design for pneumatic powered doors. After 15 years working for his father, Bushnell began his own business building an innovative sliding door that was quickly taken up by local supermarkets. After building the operation into a profitable business, he sold it in 1964.



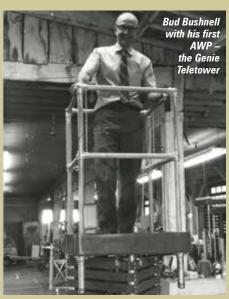
Meanwhile, in 1960, an electrical business in Seattle, seeking a solution for lifting and installing fluorescent lights developed a crude hoist type product that used bottled carbon dioxide as a power source. They called it 'Genie' after customers referred to 'the magic in the bottle'. Genie Manufacturing built about 200 hoists over the next four years, however they were poorly made and notoriously unreliable. The company ran into difficulties and went into receivership. It was bought by Seattle Bronze whose owner, Dale Fox, asked Bushnell if he would consider applying his skills to perfect the product and commercialise it.

Bushnell took up the challenge and joined Seattle Bronze in June 1966. However, before he had completed the job, the company faced its own bankruptcy and Bushnell got the opportunity to take over the entire Genie inventory and business.

The next few years involved a lot of hard work and perseverance perfecting the product and selling hoists. Bushnell would travel around the country with a Genie Hoist in the trunk/boot of his car, visiting potential customers and demonstrating the unit, selling them one by one.



In 1968 he got his first big break when Dick Kirk from the Washington State Department of **Economic Development** asked Bushnell if he could bring a contingent of Japanese businesspeople to see Genie and look at the Hoist. The visitors were infatuated with the device and soon an order for 1,500 units was received. Bushnell faced the challenge of ramping up production



to cope, but from then on things became a little easier.

In 1974, while attending an exhibition, a fellow exhibitor is said to have remarked: "If you put three of those cylinders together, and put a platform on them, you could lift a man." Bushnell immediately set to work and created his first Aerial Work Platform which became the 42ft Genie Teletower.

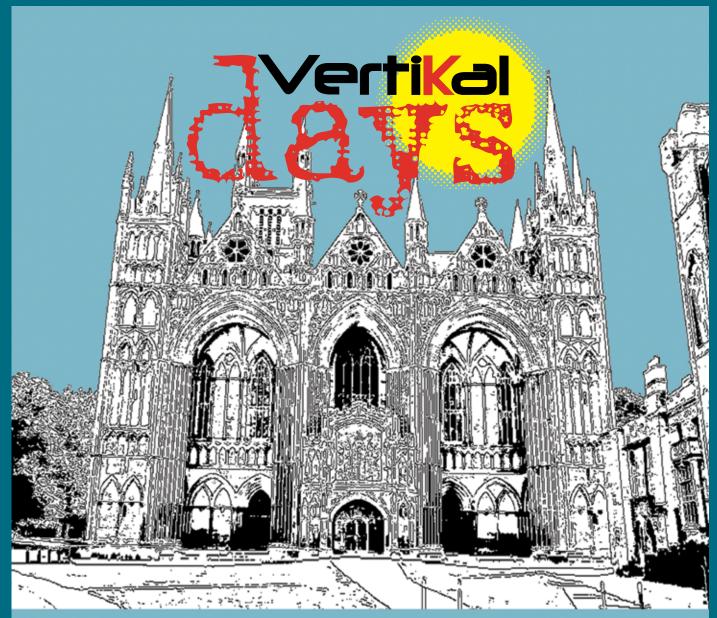
In the 1970s, Bushnell brought his son-in-law, Bob Wilkerson, into the company, appointing him as president in 1978. His son Ward Bushnell also joined the business to manage manufacturing, while Roger Brown led the company's sales efforts. With a strong team on board, Bud Bushnell was able to step back from the business and let the young management team build the company into a world leader, moving to its current headquarters in Redmond in 1982.

Bushnell's wife Mary Jean Moore passed away in 2013, shortly after they celebrated their 70th wedding anniversary. Bushnell was described as a 'tinkerer and craftsman' throughout his life and his projects included building boats, tree houses, and other objects, mostly from wood. An example of his pioneering spirit is demonstrated in his 1974 adventure, in which he took his family on a voyage from Florida to Puget Sound, via the Panama Canal, in a 40ft ketch called The Sunpiper. Choosing to navigate by the stars alone, he was not only an accomplished sailor, but a keen rower something he continued until well into his 90s.

In the words of his family: "More than what he achieved was who he was as a man. Bud was someone who led our family with grace, compassion, and love and he extended that to everyone he met. His humility and generosity enabled him to treat all people with respect and honour. He was a thoughtful listener, able to remember details and reflect on what was shared using follow-up questions in response. A thinker who pondered, Bud always wondered and encouraged others about what could be. He was consistently optimistic, a continual learner who embraced technological changes moving from a Samsung to an iPhone at 95 years old so he could better communicate with his children and grandchildren on FaceTime."

"Bud was truly a legend, living an epic life that most could only dream about. He seized the life he aspired for while showing us the right way to live — investing in his family, following his and their dreams, bettering the world, and doing it all with love."

Bushnell is survived by his six children: Robbin, Ward, Peggy, Jann, Terry, and Bill, along with his sister Jerry, 18 grandchildren, and 30 great-grandchildren. A celebration of his life is planned for next summer. Donations in his name may be made to the Ben Towne Center for Childhood Cancer Research.



# 

TO THE SPECIALIST EVENT FOR LIFTING EQUIPMENT PROFESSIONALS SAVE THE DATE 12th-13th May 2021



East of England Showground, Peterborough



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#### Innovationstage der Höhenzugangstechnik 2021

February 04-05, 2021 Informal event for access equipment, mini cranes and telehandlers

Hohenroda, Germany Fax: +49 931 270563939 www.borntolift.de/innovationstag/

#### Samoter

March 3-7, 2021 International earthmoving and building equipment show Verona, Italy

Tel: +39 045 8298111 www.samoter.it/it

#### **IPAF Summit and awards**

March 18, 2021 Annual Summit and IAPAs awards of the International **Powered Access Federation** Virtual online

Tel: +44 (0)15395 66700 www.ipaf.org

#### **AED Summit 2021**

March 29-31, 2021 AED's annual convention for North America's equipment distributors Las Vegas, USA Tel: +1 630-574-0650 www.//aednet.org/events/summit

#### **SC&RA Annual Conference**

April 12-16, 2021 Annual Conference of the US crane and heavy transport association including the Jobs of the Year awards. La Cantera Resort, San Antonio, Texas, USA

Tel: +1(703) 698-0291 www.scranet.org

#### **Bauma Conexpo India**

April 20-23, 2021 The bauma/Conexpo exhibition in India Delhi, India

Tel: +49 89 949-20255 www.bcindia.com



April 19-24 2021 The big French international construction equipment show Paris. France +33 (0)1 76 77 15 21 www.paris.intermatconstruction.com

#### **Executive Hire Show**

April 28-29, 2021 UK tool and small rental equipment show Ricoh Arena Coventry, UK Tel: 0207 973 4630 www.executivehireshow.co.uk

#### Vertikal Days 2021

12-13 May UK/Ireland Crane, access and telehandler event. East of England showground, Peterborough Tel: +44 (0) 8448 155900 www.vertikaldays.net

#### Bauma CTT 2021

May 25-28, 2021 Russian construction equipment exhibition. Moscow, Russia Tel: +4989 94922-339 www.bauma-ctt.ru

#### Smopyc 2021

May 26-29, 2021 Spanish construction equipment exhibition Zaragoza, Spain Tel: +34 976 764 700 www.feriazaragoza.es/smopyc-2020

#### Interschutz 2021

14 -19 June 2021 International fire and rescue show Hannover, Germany Tel: +49 511 89-0 www.interschutz.de

#### Apex 2021

June 15-17, 2021 International powered access trade show Maastricht, The Netherlands Tel: +31 (0)547 271 566 www.apexshow.com

#### **HIANZ - Conference 2021**

Postponed from 2020 date and venue to be confirmed Annual conference and exhibition of the Hire Association of New Zealand Queenstown, New Zealand

Tel: +64 7 575 2563 Website: www.hianz.net.nz

#### **HCEA International Convention** and Old Equipment Exposition

August 27-29, 2021 The Historical Construction Equipment Association's annual convention and expo Concordia, Kansas, USA Tel: +1 785 243 0083 www.hcea.net

#### Platformers' Days 2021

10 to 11. September German access and lifting show Karlsruhe, Germany Tel: +49 721 3720 5096 www.platformers-days.de

#### **PASMA Conference 2021**

15-16 September Free conference from the scaffold tower association Nottingham, United Kingdom +44 (0) 345 230 4041 www.pasma.co.uk/conference

#### JDL Expo

September 15-17, 2021 French cranes and access exhibition/event Beaune, France Tel: +33 (0)1 45 63 68 22 www.jdlexpo.com

#### **ICUEE /Demo Expo**

September 28-30, 2021 The US utility industry's largest show Louisville, Kentucky, USA Tel: +1 414-274-0644 www.icuee.com/

#### The ARA Show 2021

October 18-20 2021 ARA convention and rental show Las Vegas, Nevada, USA Tel: +1 800 334 2177 www.arashow.org



LiftEx 2020

#### Liftex/LEEA conference

October - dates to be confirmed Annual conference of LEEA Lifting **Equipment Engineers Association** Liverpool, UK 

Tel: +44 (0) 203 488 2865 www.liftex.org

#### **CICA Conference 2021**

October 2021- to be confirmed The annual conference of the Australian crane association - possibly the best crane conference in the world. Perth, Australia

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#### **Bauma 2022**

April 4 -10th World's largest construction equipment exhibition, Munich, Germany Tel: +49 (0) 89 51070 Couma www.bauma.de

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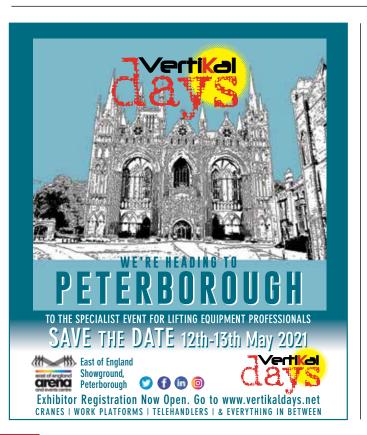
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BAUMAG January 26-29, 2023 Swiss construction equipment show Lucerne, Switzerland Tel: +41 56 204 20 20 www.baumaschinen-messe.ch/htm/

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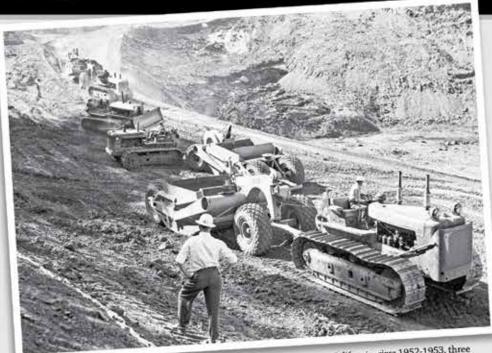
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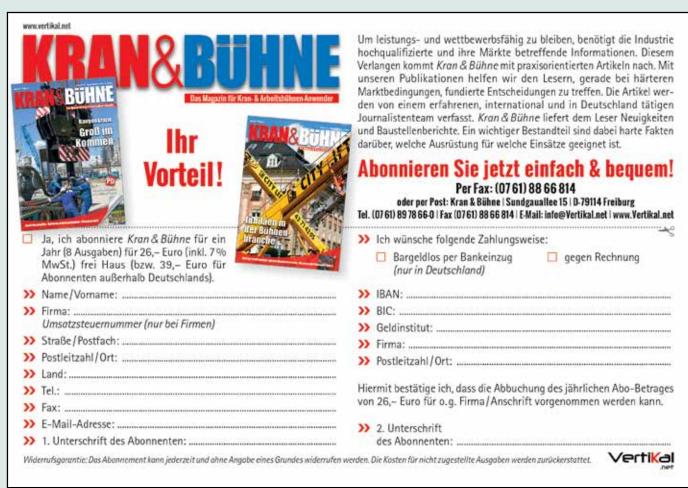
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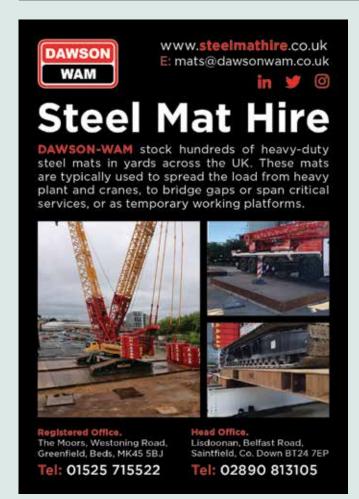
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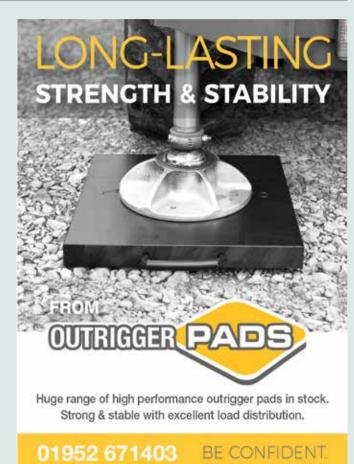
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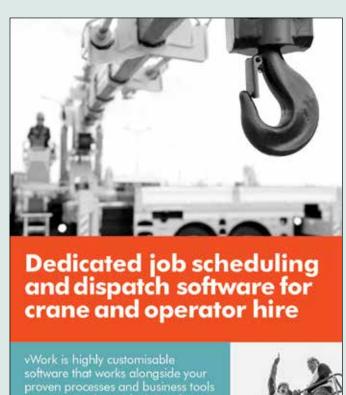
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