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# An interesting and varied year

C&A

tower cranes

British Prime Minister Harold Wilson famously said in the 1960s "a week is a long time in politics". Over the past year since our last specific tower crane feature the same could be said about this sector, with major developments on all fronts.

The good news is that the global tower crane market has generally continued to recover, reflecting the growing economic confidence - even from countries in Southern Europe. However it is not all plain sailing with major contractors in particular, caught between rapidly increasing costs (particularly labour and materials) and fixed-price, long-term contracts.

In the UK this manifested itself in the problems at P C Harrington group - a concrete frame contractor but also the owner of HTC Plant, the UK distributor for Wolffkran tower cranes. Although the tower crane side of its business was thriving, the contracting side was suffering financially with P C Harrington Contractors eventually going into administration. After several 'is it

on' 'is it off' months Wolffkran finally acquired HTC in April. Wolffkran runs rental operations in a number of countries, so owning such a company in the UK is nothing new. The deal gives Wolffkran a fleet of more than 200 Wolff tower cranes in the UK, taking the German manufacturer's global rental fleet to more than 750 tower cranes, making it one of the largest tower crane rental companies in the world.

## HSE involvement

Again in the UK, the Health & Safety Executive has been very active on the tower crane front. At the end of last year it issued a safety alert reminding tower crane owners/operators to check and maintain slew brake release mechanisms. The warning followed investigations into several incidents involving luffing jib collapses in high winds where it believed that the slew brake release mechanisms were a contributory factor. This warning was generated - although it did not specifically mention them - following two of five Jost hydraulic luffing jib crane collapses in the UK between late 2011 and Spring 2013. Since then Jost has designed a modification kit to cope with the high winds when the jib is at a high out of service angle.

The HSE was also in the news again when it eventually decided to prosecute Falcon Crane Hire and its owner Doug Genge for the fatal Battersea tower crane collapse of 2006 - nine years earlier! There will also now be at least another year's delay because of lack of Crown Court capacity in London.

The common factor in both of these cases is the unbelievably long delay in the HSE publishing or deciding the results of its investigations. If a badly maintained slew brake release mechanism was part of the cause of the incident then it would have been known within the week of the investigation in 2011. Reporting it



sooner might have prevented the other collapses? And if there was a case to answer in the Battersea collapse then surely it should have gone to court at the earliest opportunity?



Schwing Stetter will offer two tower crane models supplied by XCMG which holds a 60 percent stake in the German parent company.

## Schwing offers tower cranes

New companies entering the tower crane market are few and far between, however in a bid to diversify its product base concrete pump manufacturer Schwing Stetter (India) has done just that. The cranes will be supplied by Chinese equipment manufacturer XCMG which holds a 60 percent stake in Schwing Stetter's German parent company. Initially two models will be offered - a 35 metre high five tonne XGT63YD (5013-5) and the 50

metre six tonne XGT100YD.

The cranes will be branded Schwing-XCMG and will initially be imported complete from China, but the intention is to manufacture an increasing proportion of them in India, to a point within a year or so where around 80 percent of the crane will be built locally. The company is currently looking whether there is a need for an additional facility to build the cranes.

## Liebherr and Comansa act

In April both Liebherr and Comansa took steps to take control of Asian



The Health & Safety Executive issued a safety alert reminding tower crane owners/operators to check and maintain slew brake release mechanisms

HTC Plant - the UK distributor for Wolffkran tower cranes - has been acquired by Wolffkran



operations. Liebherr Biberach completed the acquisition of the Shriro tower crane division. The Shriro Group has had close ties with Liebherr since 1978 when, under the name Peninsula Engineering & Equipment, it became the official Liebherr tower crane dealer in Hong Kong and Macao. Liebherr will now run this sales and rental business itself, while Shriro will focus on its core business - international trade in consumer goods. The deal includes 24 tower cranes with 20 sales and service staff, all of whom have transferred to the new Liebherr distribution operation. The business will report into Liebherr-Singapore which will now be responsible for the Liebherr tower crane business throughout Asia.

Linden Comansa has taken full ownership of its Chinese joint venture Comansa JIE, and changed its corporate name to Comansa Construction Machinery to be branded Comansa CM. The operation which is based in Hangzhou, China, was established in 2006 as a joint venture between Linden Comansa and Jie Holding - originally a producer of speed reducers based in Hangzhou.

A symbolic launch ceremony for Comansa CM took place at the Hangzhou factory at the end of last month. Linden Comansa said that the change in the shareholding will have little effect on the day to day running of the company with a continuation of the sales and product strategy as well as the staff and management team. Comansa CM currently offers a range of 11 flat top tower crane models - with maximum capacities from six to 24 tonnes - which are mainly sold in China, India and South East Asia.



*The Liebherr LiUP is completely self-contained and autonomous, using a lithium ion battery drive unit mounted in the base to drive it*

## Tower crane elevators

Another interesting development is the growth in the availability of tower crane elevators, in time for the change in legislation. Currently France is one of a handful of countries where an elevator is required on cranes more than 50 metres. However from 2017 this will be reduced to cranes over 30 metres and will be widened to include more countries.

Earlier this year Liebherr used Intermat to launch its new self-contained tower crane elevator - the LiUP. The two man elevator rides either inside or outside of the tower - depending on the size - and uses a double rack and pinion drive with dual rails, which can be left permanently installed within the tower sections. The LiUP is completely self-contained and autonomous, using a lithium ion battery drive unit mounted in the base to drive it. When the elevator descends it regenerates - charging the battery as it comes down. As it does not require any supply cables, ropes or drag cables it can be installed and removed quickly and easily.

The elevator can be fitted to new towers or installed on old ones and possibly on other brands of tower crane. New Liebherr tower sections can be ordered with the rails already installed if preferred. The capacity is 200kg and can be operated with a remote control from the drivers cab if necessary. Windows in both sides of the elevator allow the operator to observe and check the tower for any problems as it rises or descends.

Swedish company Tumatic showed its latest lift at Intermat, using very different technology. The Tumatic COH 2001 crane lift is an external 200kg capacity elevator cabin that runs in aluminium rails connected to the outside of the tower, and moves up and down using a tried and tested 2.2kW winch mounted at the base of the tower and cables running up to a beam at the top of the tower. Platform size is 750mm by one metre and lift speed is 17 metres/minute.

## Lots of new cranes

Most of the major crane manufacturers have been busy over the past year launching new or upgraded models particularly flat-tops.

Filling the gap in Liebherr's larger luffer jib tower crane range is the



*Linden Comansa has taken full ownership of its Chinese joint venture Comansa JIE, and changed its corporate name to Comansa Construction Machinery to be branded Comansa CM*

new 700 metre tonne 710 HC-L. Available in two capacity versions - 50 and 64 tonnes with 50 metre jibs - the redesigned crane now has a stacked (rather than hanging) counterweight and a slim tower system - the 2.4 metre section 24 HC - has a free-standing hook height of up to 74.8 metres and can be climbed internally or externally. Hook speeds are up to 218 metres per minute.

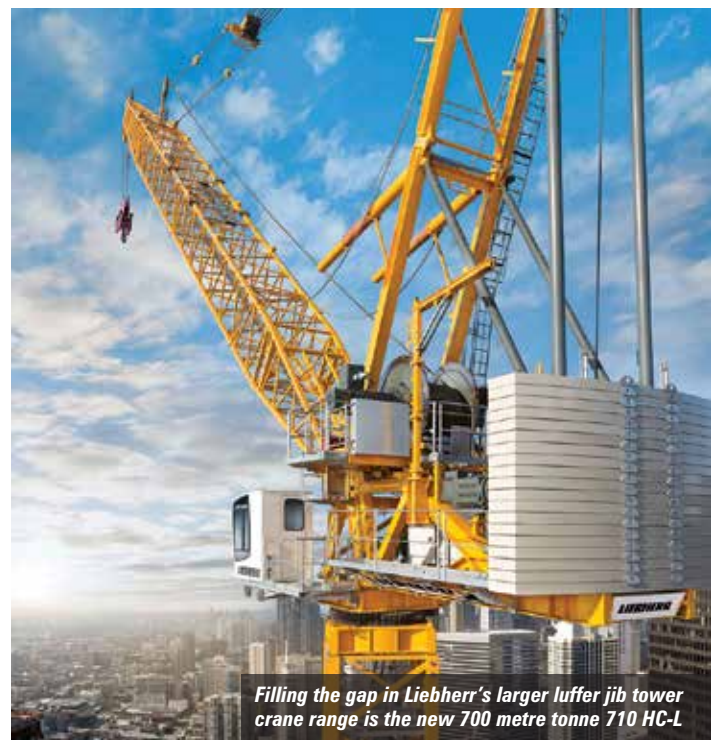
The 710 HC-L has two levels - one for the cab and luffing mechanism and the one above for the hoist drives and winches - said to be a first in this size of luffer - resulting in a more compact footprint. Depending on the requirements for site planning, the cab can be installed on the left or right of the slewing platform if the crane climbs externally.

Liebherr says that "great attention was paid to the details in the design of the crane such as the quick-release fastenings for the slewing platform, cab and jib and the electrical connectors for the drive



*Swedish company Tumatic was showing off its tower crane elevator at Intermat*

units and switchboard plant make it easier to erect. The bolts for the quick-release fastenings are easy to insert, can be secured quickly and make erection considerably easier. And depending on the requirements for site planning, the cab can be installed on the left or right of the



*Filling the gap in Liebherr's larger luffer jib tower crane range is the new 700 metre tonne 710 HC-L*

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*Liebherr has also redesigned and improved its 160 EC-B flat-top crane, renaming it the 172 EC-B 8 Litronic*

slewing platform if the crane climbs externally”.

The crane can be disassembled using Liebherr's 200DR derrick crane and all parts are less than 10 tonnes. The first two cranes have been delivered to New York and should now be assembled by Morrow and starting work in downtown Manhattan.

#### **New flat tops**

Liebherr has also redesigned and improved its 160 EC-B flat-top crane, renaming it the 172 EC-B 8 Litronic. Capacities on new tower crane have been increased around 15 percent over its full working radius with a maximum capacity of eight tonnes. It can now handle 2,100kg at its maximum 60 metre jib tip - 250kg more than its predecessor. The crane can be matched with the Liebherr 120 HC, 170 HC or 256 HC tower systems giving a possible maximum free-standing hook height of up to 71.4 metres.

A new feature of the 172 EC-B is the erection of the jib where the load hook and trolley remain on the jib pivot section during transport, eliminating erection work on the trolley. The hoist and trolley travelling ropes can also be easily reeved providing benefits particularly for jib erection in the air. Improved quick-release fastenings

on the cab and switchboard platform allow the compact head to be split quickly to reduce the erection weights. The Liebherr 37kW frequency converter hoist gear is included in the basic version and allows empty hook speeds of 135 metres a minute. A 45kW frequency converter hoist gear is also available as an option with empty hook speeds of up to 177 metres a minute.

#### **New Terex CTT 182-8**

With its maximum capacity of eight tonnes, the new Terex CTT 182-8 flat top has five percent more capacity at its maximum jib length of 65 metres, compared to the previous model. Improvements to the winch provides a 30 percent increase in speeds for faster lift cycles, while an AC motor with inverter provides improved lifting precision. A new electrical box and better grouping of internal components simplifies maintenance and improves reliability without the need for low-temperature equipment.

Designed for use in a variety of applications from residential buildings to major infrastructure projects, the CTT 182-8 has a load moment of 180 metre/tonnes. Its main jib can be configured with lengths from 35 to 65 metres in five metre increments, and offers a two



*With its maximum capacity of eight tonnes, the new Terex CTT 182-8 flat top has five percent more capacity at its maximum jib length of 65 metres, compared to the previous model – the CTT 181*

tonnes capacity at its maximum jib length. It has a maximum free-standing height of 67.2 metres. Terex says that other advantages include ‘a modular jib design, common counter-jib ballast and faster set-up’.

#### **New topless Potain**

Potain has launched a new 10 tonne Topless - flat top - tower crane, the MCT 205, which will be manufactured at the company's Zhangjiagang facility in China. It features a maximum jib length of 65 metre at which it can lift 1.75 tonnes. With a focus on fast

Potain has also launched a new five tonne MCT 85 tower crane - the successor to the MCi 85. The MCT 85 has a maximum jib length of 52 metres and a maximum under hook height of 44.6 metres. It can lift 1.4 tonnes to a radius of 50 metres, with 1.1 tonnes at its maximum jib tip. Features include a mono-block counter jib with wind sail plates and the option to reeve at ground level. The tower can also be used with the company's standard MC range of bases. The main features include low-noise levels, simplified assembly and low power consumption.



*Potain will also be showcasing its recently launched five tonne MCT 85 tower crane at Bauma China*

erection, the complete upper-structure can be assembled in four lifts. The heaviest group of components weighs just 7.9 tonnes and the full 65 metre jib can be placed in a single lift. It is also possible to fit three jib sections into a standard container.

Potain's facility in Zhangjiagang has also reached a major production milestone shipping its 5,000th tower crane. The 5,001st unit - an MCR 225 luffing jib model - was delivered to Malaysian construction company YTL, which bought its first Potain tower crane in 1984 and now operates a fleet of 10 MCR 225s, with more units planned. The new crane was purchased through Inflextec Engineering - which has been Potain's dealer for Malaysia since 2008.

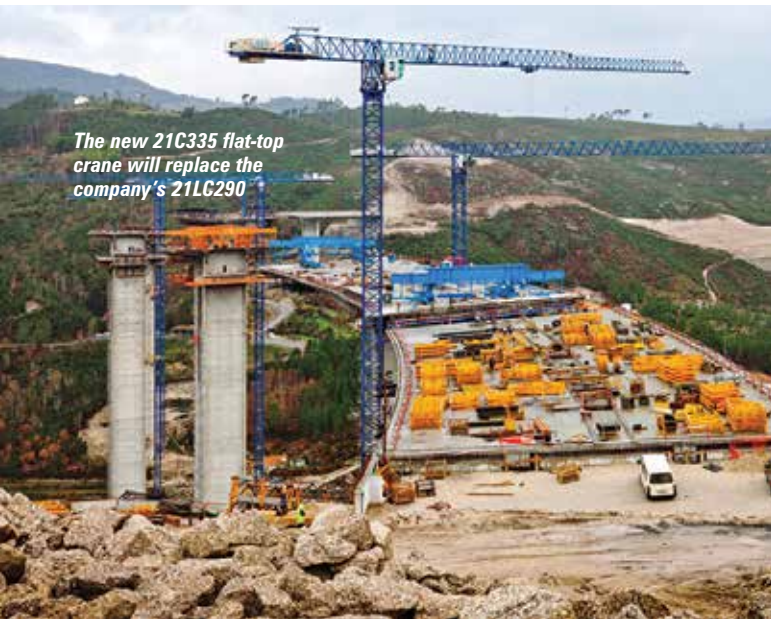
#### **Two new Comansa flat-tops**

Spanish tower crane manufacturer Linden Comansa has launched a new flat-top, the 12 or 18 tonne 21C335 joins the company's LC 2100 series and replace its 21LC290, which has been in production since 2002.

Sharing similar characteristics to the 21LC290, the 21C335 has a maximum jib length of 74 metres and a maximum free standing height of 64.5 metres. Capacity has also increased by 25 percent. The 18 tonne version can now lift its maximum capacity at a radius of 19.6 metres and take 6.6 tonnes to 50 metres.

Sharing the same S25 tower sections, jib and counterweight as the 21LC290, changes include modifications to the cat-head and

The new 21C335 flat-top crane will replace the company's 21LC290



the upper turntable, which allows customers to convert their 21LC290 into a 21C335 by replacing these two elements and modifying the configuration of the counterweights. Features include the company's Effi-Plus high speed hoist mechanism and its PowerLift system which provides a 10 percent load chart improvement at reduced speeds.

Comansa Jie - now Comansa CM - also launched a new flat top crane. The six tonne 11CJ132, the first - and smallest - model in the company's new CJ1100 series. Jib

The six tonne 11CJ132 flat top tower crane



lengths range from 30 to 60 metres with a maximum free standing height of 57.4 metres, which can increase to more than 108 metres with the combination of different types of tower sections. The crane is also the first from Comansa CM to feature the PowerLift system as standard.

#### Something different ...

And finally something a bit different. Swedish-based Artic Crane is

adding another articulated tower crane to its range. The existing Raptor 84 is already proving very popular in cities because of its very compact out-of-service radius, faster operation than luffers - due to the quick folding jib movement - level hook path and because they are light enough to be internally climbed through the floors of a building. The company announced details of the new, larger capacity Raptor 184 at Vertikal Days. With a maximum capacity of eight tonnes at 22.5 metres, it can lift four tonnes

at its full 36 metre radius (the Raptor 84 has a capacity of four tonnes at 21 metres and can lift two tonnes to 32 metres). The jib tip can fold to within 2.3 metres of the centreline of the tower, while the rear counterweight is just 4.5 metres from the tower centre. Using six metre tower sections the maximum free standing height is 42 metres. The first unit should be available for delivery later this year.

## Tower crane completes rotor installation

Liebherr's largest tower crane - the 125 tonne capacity 1000 EC-B 125 Litronic with a hook height of 155.5 metres - has completed the installation of a pre-assembled 113 metre diameter rotor weighing almost 70 tonnes, lifting it to a height of 142.5 metres at a wind farm in Deining, Bavaria - one of the leading producers of wind energy in the state.

The 1000 EC-B 125 Litronic has been specially designed for the erection of wind turbines with its variable crane drive and Micromove function, allowing precise positioning of a heavy load. The crane's foundation was integrated into the wind turbine foundation using just half the space of conventional cranes and requiring less forest area to be cleared

To achieve the required maximum lifting height of 155.5 metres,



Liebherr 1000 EC-B 125 Litronic lifting the pre-assembled rotor assembly

simple bracing of the crane to the tower of the wind turbine was all that was required. The installed foundation can also be used for future service and maintenance work by smaller cranes.

## Tallest bridge in Israel

The €35 million project employs six Potain tower cranes that are able to climb to final working heights of up to 115 metres



Connecting two tunnels on opposing sides of the Arazim Valley near Jerusalem requires a record-breaking bridge that is as impressive in its height as in its length. As part of the Israel Rail Road Project, the bridge will be part of a 70km rail connection between Tel Aviv and Jerusalem. Once completed it will be the tallest and longest bridge in Israel.

The €35 million project employs six Potain tower cranes that are able to climb to final working heights of up to 115 metres. The rugged and uneven terrain added another challenge for Kokhav Ya'ir-based owners Comasco, which installed the tower crane foundations.

Working about 12 hours a day,

six days a week, the cranes are performing general lifting duties and pouring concrete to build the girder bridge. The cranes include a 16 tonne MD 365 B, two eight tonne MDT 178s and three 12 tonne MD 285s with maximum jib lengths from 60 to 75 metres and jib tip capacities of between 1.5 and 3.2 tonnes. All six cranes are climbing units, anchored to the pylons they are building.

All six cranes are climbing units, anchored to the pylons they are building



# Maxim in Miami

Miami, Florida's coastline and financial district are being transformed with the \$1.05 billion mixed-use development Brickell City Centre. The 3.7-hectare city-within-a-city project includes 501,676 square metres of office, residential, hotel, retail and entertainment space creating 3,700 direct and 2,500 indirect jobs once complete.

The lifting equipment involved required careful planning by rental company Maxim Crane Works, which supplied 11 tower cranes - all Terex - of several different types including hammerhead, flat top and luffing jib. Everything from tools, concrete formwork and rebar to structural steel, equipment and concrete are lifted by the cranes.

With the project requiring so many crane configurations it's inevitable

*Maxim Crane Works supplied 11 Terex tower cranes including hammerhead, flat top and luffing jib*



that interference would be a concern. Five of the cranes are in close proximity to each other so the Terex CTT561/A-20 flat top was chosen with jib lengths of 84 metres. Where space was less of an issue and the need for lifting speed and power was more

critical a hammerhead crane design was chosen.

With the project being close to the Atlantic Ocean and construction taking over three and a half years, consideration was required for hurricanes making landfall. Terex transfer tower sections helped

Maxim meet the stringent wind-load ratings with the initial freestanding configurations. Heavy duty lower segments give a maximum freestanding crane height of 42.7 metres while still meeting Florida's 146mph wind-loading standard.



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