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# Crawler cranes back in favour

It has been a while since we last covered lattice boomed crawler cranes - more than three years to be exact. This is not an oversight on our part, more that the main thrust of product development in the crawler crane market has focused on telescopic crawlers and high capacity cranes - over 600 tonnes - which are particularly suited to wind turbine erection.

However, as the interview with Mark Evans of Kobelco on page 27 highlights, the lattice boomed crawler market is probably as strong now as it has been for the past 10 years. Given that most of the major European, Japanese and North American crawler crane manufacturers - Liebherr, Terex/Demag, Kobelco, Manitowoc, Hitachi Sumitomo, and Sennebogen - already had a reasonably modern product line-up, developments over the past couple of years have concentrated more on engines and making the crane more user friendly through the implementation of new technology.

Since Bauma 2016 there has only been a handful of new product launches for lattice crawlers between 100 and 350 tonnes, these include the Liebherr LR 1100, Kobelco CKE 3000, Hitachi

*Kobelco launched its new 300/350 tonne crawler crane, the CKE3000G with a maximum capacity of 300 tonnes for the standard crane and 350 metric tonnes in SHL specification with back mast and tray*



Sumitomo SCX3000-3 and Sennebogen 150 tonne 3300E.

For many parts of Europe, the most popular crane models fall into the 80 to 130 tonne category, a capacity that is popular with both crane rental companies and contractors. The shift towards telescopic crawlers in the 70 to 100 tonne capacity range may well impact this sector of the lattice boomed market in the future, possibly pushing the bulk of the lattice boomed crawler crane market up over 100 tonne capacity. But at the moment 90 and 100 tonne cranes are still selling relatively well.

The market leader for the smaller lattice boomed crawler cranes is almost certainly, Kobelco - although this excludes the Chinese manufacturers which almost definitely build higher volumes for the domestic and local markets. When it comes to larger capacity cranes however Liebherr and Demag cranes dominate the sector, although once gain Chinese manufacturers such as Sany have built a good number of large crawler cranes for its domestic wind turbine market. While Chinese crawler cranes have been seen in Europe and North America for more than a decade, they have made relatively small inroads into the market, in spite of scoring some important strategic successes, with a number of units purchased by some of the global crane companies such as Sarens and Mammoet.

## **Kobelco 300/350 tonner**

At the end of last year Kobelco launched its new 300/350 tonne crawler crane, the CKE3000G with a



*Mammoet's Demag CC8800 with Boom Booster*

maximum capacity of 300 tonnes for the standard crane and 350 metric tonnes in SHL specification with back mast and tray. The CKE3000G is primarily a European model, while a North American version carries the CK3300G-2 designation and the CKS3000 is the standard model for the rest of the world.

The cranes can be equipped with a wide variety of attachments from the standard crane configuration including fixed jib, heavy-duty fixed jib, luffing jib and the SHL super heavy lift configuration. Capacities through the load chart are said to be between 40 to 60 percent higher with the SLH luffing jib, compared to the popular 250 tonne CKE2500G-2, taking it into the performance range of 400 to 500 tonne class cranes.

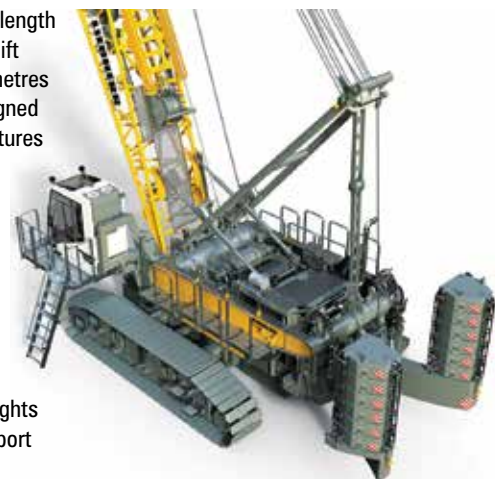
Maximum length of the standard main boom is 90 metres or 102 metres in SHL configuration. Maximum luffing jib combination in SHL mode is 84 metres main and 90 metre luffer for a total system length of 174 metres. The crane can lift just under 190 tonnes at 8.8 metres radius. The cab has been designed with new operator friendly features including extra wide windows and tilting mechanism for greater visibility. The load moment limiter touch screen monitor is said to be intuitive and simple to use.

Overall transport width for all components is three metres and main machine weights can be adjusted to meet transport restrictions. A self-assembly system is available to install tracks, lower boom, carbody weights and counterweights. The European

models are equipped with a fuel-efficient EU Stage IV diesel, while the CKE3300G-2 for North America has a Tier 4 Final diesel.

## **Liebherr LR 1100**

The latest lattice boom crawler from Liebherr is the 110 tonne LR 1100, a radically different design concept to the traditional crawler crane of this size, which Liebherr says has been designed with transport, set-up, lifting capacities and user-friendliness in mind. The new superstructure design employs large tubular steel cross beams to create the front and rear elements of the main frame, with lighter weight side panels reinforced with a wrap around steel band. This coupled with a larger rear counterweight results in improved lift capacities of up to 20 percent, while the optional variable counterweight, allows the two counterweight cheeks to swing out to the rear for increased counter



*The 110 tonne LR 1100 has a radically different design using large tubular steel cross beams to create the main frame and the optional variable counterweight.*



The new Liebherr LR 1100

with the latest generation CANBus based Litronic control system, the crane automatically calculates the optimum lifting capacity for the configuration.

Two new systems intended to help the operator are the 'Vertical Line Finder' which helps ensure that the load is hoisted vertically, preventing side pulls, and the 'Horizontal Load Path' which allows loads to be moved to the intended location more precisely and efficiently following a horizontal line - particularly useful with blind spots.

**Hitachi Sumitomo 350 tonner**

Bauma saw the launch of Hitachi Sumitomo's latest lattice crawler - the 350 tonne SCX3500-3. As well as the stage IV engine with eco mode and idle stop functions, the crane has a compact working envelope. In the short tail-swing radius spec, the crane systems ensure that the live back mast never protrudes beyond the crane's 6.8 metre tail swing, particularly useful when working in tight working areas.

The boom also features a wider base section/boom foot and larger diameter tubular chords to

balance effect for heavier loads, while almost stowing within the track length for lighter duty work and travel. Power comes from a fuel efficient stage IV/Tier 4f diesel. The boom butt section and tracks normally remain on the crane during transportation along with the cab and walkways, which fold down instead of being removed.

The operator's cab is attached to the superstructure with a series of tubular bars and located at a height of 2.3 metres giving the operator a better view of the work. Fitted



Bauma saw the launch of Hitachi Sumitomo's 350 tonne SCX3500-3

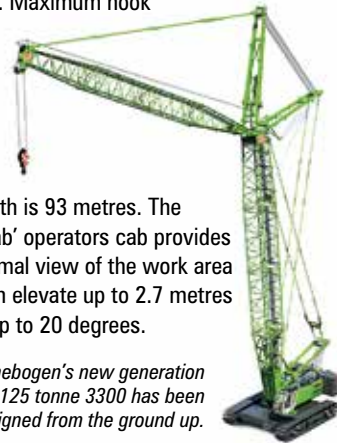
significantly improve boom rigidity and reduce side flexing. The SCX3500-3 is less than three metres wide for transport, while front/rear-split superstructure features hydraulic assist pins and crawler, rear-post and jib backstops use hook-on and pin connections. A QuickDraw system is also available for the self-installation/removal of the heavy crawler side frame, boom base and carbody weights.

**125 tonne Sennebogen**

Sennebogen's new generation 125 tonne 3300 has been designed from the ground up and features the latest Tier 4f diesel and Star Lifter undercarriage. A new multi-circuit hydraulic system provides rope speeds of up to 105 metres a minute, and enables the fitting of a

variety of attachments. The tracks are easily removed for transport, leaving a 3.2 metre wide body and the crane can then self-assemble when on site. With tracks extended the overall working width is 5.8 metres. Maximum hook height with main boom and luffing jib length is 93 metres. The 'Maxcab' operators cab provides an optimal view of the work area and can elevate up to 2.7 metres or tilt up to 20 degrees.

Sennebogen's new generation 125 tonne 3300 has been designed from the ground up.



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# Building up nicely

Mark Evans has been in the crane industry for more than 30 years working for Terex Cranes from 1995, then a three year stint with Wolffkran Arabia before rejoining Terex in 2010. Three years later he took up a new challenge with Kobelco Cranes Europe as UK sales manager. Mark Darwin caught up with him to discuss his latest venture and the crawler crane market in general.

Evans has been with Kobelco in the UK for more than five years and in that time has seen "good progress" in the UK and Irish market. In a typically understated way that means that things have gone really well - around 100 Kobelco crawler cranes delivered over the past four years.

"This year has got off to a great start with 10 to 12 sales already," he says. "There will be more orders coming through and I expect this year will be stronger than 2017."

In the UK and Ireland Kobelco now typically sells around 20 or more cranes a year. Last year's total was boosted with nine machines delivered in Ireland - including an order for six cranes to Ward and Burke four 90 tonne CKE900G-2s and two 150 tonne CKE1350G-2s. However more recently there has been increased interest in Kobelco's 250 tonne CKE2500G.

"2018 is already a good year with several 250 tonners sold to Hawkspare in January, and a CKE 900 to Bennetts Tower Cranes to carry out the loading and unloading

duties. There are also four cranes on the water for Delden Cranes - two CKE900Gs and two CKE2500Gs - as well as five machines to be delivered for Q Plant. Delden continues to grow and now has eight Kobelcos - five CKE900s three CKE2500s."

Evans territory is currently one of Kobelco's best European regions. The total UK market for full size crawler cranes is typical between 40 and 50 units a year - a bit of an estimate as all the manufacturers do not divulge sales figures - this would give Kobelco a market share of around 50 percent. The UK market is slightly smaller than Germany, but Kobelco sells more cranes into the UK.

"Kobelco is very strong in the 100 to 250 tonne class, so while the German market is slightly larger and the biggest in Europe, Demag and Liebherr do well with the larger capacity cranes. In the UK we are probably market leader with a significant portion of the total crawler crane sales."

For most of Europe, and the UK in particular, the choice of the



BPH's CKE1350 working on a flat top barge



A Kobelco CKE1100G in London

smaller 100 to 250 tonne lattice boomed crawler cranes is limited to Kobelco, Hitachi Sumitomo, Liebherr and Sennebogen. Terex produces smaller crawlers but they are not CE marked. It should also be remembered that the smaller capacity Manitowoc's - the 8000, 8500 and 10000 and 12000 with capacities from 73 to 110 tonnes - are all made by Kobelco and badged by Manitowoc for sale in North America. There are a few Chinese crawlers in the UK although they have a greater penetration in other parts of Europe having made some inroads into the fleets of companies

such as Sarens and Mammoet.

"We supply a lot of crawlers to UK contractors such as Balfour Beatty, BAM Nuttall, Murphy, Keltbray and Skanska. Many contractors have two or three crawlers in their fleet. We do as much business with contractors as we do crane rental companies, helped by the fact that unlike competitors, we don't run a rental fleet, so we are not in competition with our customers. The overall split is about 50:50 rental companies and contractors and we offer the same level of support whether it is a rental company or a contractor."



A CKE1350G-2 and a CKE900G-2 for contractor Murphy



Ward and Burke's CKE1350G-2s



A GH Johnson & Sons crane



Crane & Plant Hire CKE1350G

### But why are Kobelco cranes so popular?

"Kobelco has features such as colour touch screens and the KCross remote operation management system which helps maximise machine efficiency and uptime, but these are not unique, with other manufacturers offering similar features. The biggest advantage we have is reliability and ease of use. Simple hydraulics with no CANBus technology on the smaller cranes so there is less to go wrong. Customers can replace components such as a single joystick without having to call a Kobelco engineer with computer to fit and reprogramme the part."

"The Kobelco crawler crane has tremendous reliability and performance and the service backup and reliability is second to none - and that is my customers talking. The UK operation is based in East Grinstead, East Sussex and we have two fitters - one in the north and one in the south - to cover a total of about 500 crawlers throughout the country. This shows how reliable the machines are, but if we do need

additional support there are another three engineers we can call in from elsewhere in Europe. The crane is virtually indestructible."

"When I first joined Kobelco and went to the first customer meeting I asked them about their cranes - fine they replied. And then the second meeting - all good. Earlier in my career I had all too often spent the first 45 minutes of any meeting discussing problems and issues with the cranes. It took me about 25 meetings before I realised that the lack of issues with the Kobelco crane was the norm. It is the most reliable product that I have ever worked with."

"Because of this we almost always get an opportunity to quote for a new machine. We are not guaranteed the order of course, but we always an opportunity to quote, and that is the difference, at least we always have a chance. Of course, there are customers who are loyal to Liebherr or Hitachi Sumitomo and won't buy a Kobelco - but in the main we get an opportunity."

### Corporate changes

At the end of last year as part of its global reorganisation, Kobelco merged its crane and excavator companies around the world. At the start of this year the restructuring reached Europe with Kobelco Construction Machinery Europe now



About half of UK sales are supplied to contractors

responsible for the sales and service of both excavators and cranes throughout Europe, Russia/the CIS states, French speaking North Africa and Israel. The company will continue to be based in Almere, the Netherlands, and will retain the UK office in East Grinstead, with the day to day operations of UK crane business will be unaffected by the changes.

"Kobelco Cranes Europe closed down on 31st December and we are now the cranes division of Kobelco Construction Machinery Europe (UK)," says Evans. "Head office is in Almere, with the previous two offices now been merged into a larger facility to house both construction and cranes with more offices and bigger warehouse facilities. The change and move has made no difference to me at all. It was more a back room rationalisation, removing duplicated functions in the two divisions. There is some commonality of parts between the excavators and cranes so there are financial sourcing advantages."

### Sales territories

"There are various European regions that need sorting. The French and North African market needs a specific sales manager living in France who knows the local market. Over the past 18 months we have re-organised the German operation which has moved offices from Frankfurt to Bremen and now has its own specific sales manager

covering the German speaking countries."

"Scandinavia is also a region we are looking at making changes, but France will be sorted first. Currently North America is very strong as of course is the Japanese domestic market where we have 45 percent market share, roughly equal to Hitachi Sumitomo, with all the other companies making up the remaining 10 percent. We are market leaders in the Far East, but demand has dropped away after being strong 18 months ago. Australia is also going well, and we have a distributor for Turkey and the Russian Federation. We have just sold three machines into Israel which is a new territory for us and we are now looking for a distributor in that area."

### A bit of history

Kobelco is part of the Kobe Steel group which was established in 1905. Its head office is in Tokyo, Japan with two main crane facilities - Okubo Plant in Akashi City, north west of Kobe which first opened in 1942 and makes the smaller crawlers. Cranes with capacities of 300 tonnes and above are manufactured at a facility in Takasago.



A 250 tonne CKE2500G in Sarens livery



A CKE2500G



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# LIEBHERR



*CKE1100Gs working near the River Thames near St Pauls, London*

The company built the first Japanese electric shovel in 1930, built its first truck crane in 1953 and in 1955 signed a licensing agreement with American crane and mining equipment manufacturer P&H for crane technology. In 1964 it launched the 300 Series lattice boom crawler crane and in 1969 launched the first Kobe P&H Rough Terrain and telescopic truck crane, which were a big success and helped it maintain a market leading position for many years. Cranes have been key products among the Kobe steel construction machinery business. The Kobelco brand was introduced in 1979, with Kobelco America established the following year. In 1989 the company launched its first City type Rough Terrain crane, the seven tonne RK70 and a year later opened Kobelco Construction Europe. In 2000 Kobelco and Tadano agreed to share Rough Terrain crane production, with Kobelco Cranes established as an independent Kobe company in 2004, following its Kobelco excavator alliance with CNH. Around the same time it signed an agreement to supply Manitowoc with three models of crawler cranes, while agreeing to sell Kobelco badged Grove All Terrain cranes in Japan. In 2011 the company opened factories in India and then China. Current production is in the region of 500 to 600 crawler cranes a year with a global population of around 10,000 lattice boom crawler cranes. The company's most popular crane is the 250 tonner where it sells more units than all other manufacturers put together.

### **New 300/350 tonner**

The latest Kobelco crane is the 300/350 tonne capacity (350 tonnes with back mast and tray) CKE3000. The first two units have been delivered to Indonesian contractor Guna Teguh Abadi (GTA) Construction, a couple of units are also due to ship to the USA.

"I have shown the 300 tonner to UK customers during visits to the factory in Japan," says Evans. "There is a demand for the 300/350 in the UK. The duties look good as does the size of the machine. It also features a few changes such as pendent bars rather than ropes and moves the design forward with other improvements."

For the Japanese domestic market Kobelco has introduced a Tier 4 Final version of its telescopic crawler crane. These have never been available in Europe because of non-compliant engine emissions.



*A Kobelco CKE1350G*



*Large capacity Kobelco cranes working on the Olympic Stadium in Tokyo*

However this could change with the new engine now available?

In Japan Kobelco has a two, heavy duty telescopic crawlers with a reinforced boom and greater overlaps between section. It is planned that two new redesigned models - based on the 75 tonne TK750 and the 55 tonne TK550 - will be launched in Europe, possibly towards the end of this year. The strengthened boom means the cranes are ideal for heavy duty groundworks using augers, vibrohammers and for extraction work as well as coping with being off level.

"Our competitors machines are not doing this type of work," says Evans. "We see a gap in the market for this type of machine. There is not a demand for the larger telescopic crawlers - over 100 tonnes - in Japan or the Far East. So these machines will be designed as a new product line for the European market."

Kobelco builds larger cranes topped by the 1,250 tonne SL16000 which was revealed at Bauma 2016. It also has the 400 and 550 tonne SL4500 and SL6000 but there are not many in Europe.

"The 1,250 tonne Kobelco SL16000J-H is very successful since details were unveiled at

Bauma 2016. There are 10 to 12 of the 600 to 1,250 tonners in equal numbers working on the construction of the Olympic stadium in Tokyo."

### **And the next two years?**

"I think that over the coming years any crawler crane under 100 tonnes will be telescopic - certainly in the European market - because of the advantages of transportation and rapid set-up etc. Most cranes above this will be a lattice boom because of the strength, performance and reliability. All our cranes have side catwalks and proper walkways to get around and on top of the crane. All current machines also have the option of KCross which most people specify. We are seeing increased demand for items such as anemometers and inclinometers, travel alarms and slew restrictors. Many sites now want 360 degree vision cameras for the operators and aircraft warning lights on the boom."

### **Job satisfaction**

"The job has turned out to be everything I hoped for and there has been a progression for Kobelco in the European market and particularly in the UK over the past five years. The company probably has a better profile than when I started, we are selling more units and have grown our customer base."



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