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# Telescopic crawlers the way forward?

Even during a severe recession, most equipment sectors have at least one area that manages to perform well. In the sub 250 tonne crawler crane market it is currently the telescopic models that are most in demand.

A year or two ago, we reported on how the telescopic crawler crane was on the verge of shaking off its 'niche' tag. Since then we have had the worst economic downturn in living memory, resulting in a dramatic reduction in sales of new equipment. In spite or because of this, the relative rarity of this type of crane, coupled with growing demand has resulted in hire rates remaining very strong and in some cases increasing.

Major manufacturers have tended to shy away from larger telescopic crawler cranes - the exception being Liebherr with its 100 tonne LTR 1100, although Tadano which now owns Mantis, produces a heavy duty model in this class. Liebherr is now jumping to the top end of the capacity range with its 1,200 tonne LTR 11200, while planning to unveil its smallest crawler telescopic - the 60 tonne LTR 1060 - at Bauma this Spring.

crane onto a lattice crane base. As part of Hitachi-Sumitomo, the group now offers a telescopic range from 4.9 to 70 tonnes with the distinct possibility of extending to 100 tonnes in the future.



*Link Belt launched its 70 tonne TCC 750 last May with input from UK dealer NRC Plant*

Sennebogen has a range of three telescopic models with up to 80 tonnes capacity and has enjoyed considerable sales success across Europe. However, telescopic crawler cranes of more than 40 tonnes are still rare while units in the 70-100 tonne capacity range are akin to hens teeth. With safety conscious contractors beginning to insist on some sites that a crane's boom cannot remain up when not working, the telescopic crawler is often the only answer.



*Weldex recently purchased an 80 tonne, Sennebogen 683HD but large telescopics are rare*

As with tracked spider cranes, the smaller telescopic crawlers (up to 12 tonnes) are also in big demand unlike small lattice boom cranes. One UK hire company said that its eight tonne telescopics command the same rate as its 50 tonne conventionals. Compare the returns on investment between those two machines!

This issue of Cranes & Access features the 2009 Rental Rate Survey on page 37. The potted version is that the small to mid sized lattice boomed crawlers are having a torrid time. As usual the recession has brought out the 'slash the rates brigade.' "Hire Rates have been decimated by those who do not understand the term 'return on investment' and are incapable of seeing the long term impact on the industry of the 'win the job at any price' attitude," said one crawler crane hirer. "Few such companies ever invest in new equipment buying mostly second hand, while being heavily into long term debt. They harm the market by supplying what is generally substandard equipment but at cheap rates."

"Unfortunately there are still too many contractors willing to take the risks associated with hiring from these companies for the sake of saving a few pounds. It is becoming increasingly difficult for reputable crawler crane hire companies to justify investment in modern equipment when the returns we are able to generate at times like this are almost completely destroyed."

The smart money is on the telescopic crawler along with the larger lattice boomed models, but as numbers increase it will of course lose its exclusivity and possibly become a victim of its own success.

## Vive la difference!

When Link Belt set out to design a new 70 tonne telescopic crawler crane it had the benefit of belonging to the Hitachi-Sumitomo crane group. In fact the 40 tonne Hitachi SCX400HD, launched in 2005 combined an Hitachi-Sumitomo base machine with the four section Link Belt boom from its RTC-8040 Rough Terrain crane.

However rather than follow a similar design approach for its TCC750 it listened to its dealers, in particular UK distributor NRC, and incorporated a host of different ideas into the new model. The new crane looks significantly different, with cut away /profiled superstructure bodywork and machinery covers. The point or aim of minimising the covers is not styling related, it has been done with the sole purpose of improving the operator visibility. Part of this effort includes keeping most of the sheet metal work behind the cab and below the rearview eye-line. The benefit is that the operator not only has a clear 200 plus degrees of forward visibility but he also has a better view of the hoist drums.



*Liebherr's 1,200 tonne LTR 11200 at its launch*



*Liebherr will soon have a three model, telescopic crawler range - the 60, 100 and 1,200 tonnes. This is the 100 tonne LTR 1100*

American manufacturer Link Belt launched its 70 tonne TCC 750 crawler telescopic in the UK last May (see story below) and with the help of UK dealer NRC Plant, has broken away from just putting a telescopic boom from a mobile

# Right first time

These are the first fully rigged picture of **Manitowoc's Model 31000** - at 2,300 tonnes, the company's largest capacity crawler crane ever. The base machine was unveiled last September at an open day at Manitowoc's Wisconsin manufacturing facility.

One of the crane's major features is the Variable Position Counterweight that can continuously adjust the counterweight radius from 8.4 metres to almost 29 metres to maintain the load centre over the unit's four trunnion mounted tracks. Equally important is the fact the counterweight always remains suspended saving customers time and money preparing the ground for traditional counterweight trays.

main boom is 110 metres with a maximum 43 metre fixed jib. Maximum boom and luffing jib combination is 220 metres - comprising 110 metres of main boom and 110 metres of luffing jib. Manitowoc also claims a lift capacity of 1,400 tonnes on the fixed jib and 1,000 tonnes on the luffing jib.

Mike Wood, global product manager for crawler cranes, said: "We've been impressed with how the well the crane has fitted together, our connection technology - FACT which allows technicians to rig Manitowoc crawler cranes faster and smoother than competitors - has worked perfectly. The technology covers the whole crane design which means that technicians and riggers don't need to get into awkward or difficult spots to check alignment. This patented technology is a real differentiator for Manitowoc Cranes."

"The systems installation has all gone exactly to plan," he adds. "Things like attaching the crawlers worked seamlessly the first time. When you consider the size and the detail on a crane this big then it's a real testament to the great work our engineering team has done to get that right first time."



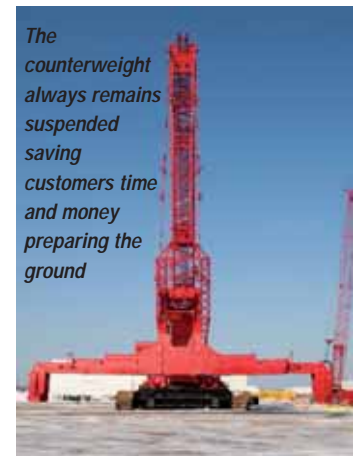
Built in a new section of the factory specifically for the huge crane, the rigging of the crane starts an extensive, almost year-long testing programme prior to being delivered to the first customer, Newberry, South Carolina-based Bulldog Erectors at the end of this year. The machine photographed is in fact destined for the second customer, Crane Rental Corporation, based in Orlando, Florida.

The Model 31000's unusual track system results in a ground bearing pressure of 120 psi (8.5 kg/sq cm) when lifting its maximum load, about the same as 181 tonne capacity Manitowoc Model 777.

The crane's footprint is slightly smaller than previously reported at 20.2 metres by 15.5 metres. The boom and jib combinations have now been confirmed - maximum



One of the crane's major features is the Variable Position Counterweight



The counterweight always remains suspended saving customers time and money preparing the ground



A quick glance at the Hitachi Sumitomo SXC400HD and the TCC750 says it all...vive la difference

Other features include a three-width hydraulically extendable undercarriage with load charts for each position providing more versatility and compact transport width. The counterweight is hydraulically removable with load charts with or without it, allowing users to send out a lighter machine for certain applications. The first TCC was launched in the UK last May and then in North America in October with ALL Erection Crane Rental buying the first 10 units.

Link Belt has gone on to develop a range of attachments for the crane which include an aerial work platform, a two Pengo hydraulic powered earth augers.

The TCC750 has three operational widths all of which have their own load charts.



# The first of many?

We spoke to PJ Plant's Rob Smith<sup>1</sup> about his experiences in buying and operating a Chinese crane and find out if he would purchase another....

Chinese crawler crane manufacturers have made huge strides over the past few years particularly in terms of product development and exports. Companies such as Sany, Zoomlion and XCMG have substantial model ranges with capacities of up to 1,000 tonnes.

While there have been a reasonable number of Chinese crawler crane sales in developing countries, sales in Europe, particularly the UK and Ireland have been relatively few. One such sale is the 70 tonne Zoomlion QUY70 to PJ Plant - the first Zoomlion crawler crane in the UK - delivered by distributor Crowland Cranes in May 2008.



Peter Issitt (L) seals the deal with Rob Smith.

"Because we had secured a new long-term contract, we started looking for a 70 tonne crawler in early 2008," says Smith. "At that time, demand for cranes was still high and we struggled to find a suitable used machine in Europe, similarly delivery dates for new Japanese crawlers, were too long, not to mention the high pre-recessionary prices. I knew of a recently imported 50 tonne Sany crawler and spoke to the new owner, who was very pleased with the product. I also knew that Crowland Cranes were marketing Chinese truck cranes and having known and worked with them over the years, rang Pete Issitt for a chat. Timing wise, this proved ideal, as

Crowland was looking to bring the first Zoomlion crawler into the UK.

## Off to China

After several discussions and some internet research our initial impressions were good. But what was it like under the skin? The only answer was to go to China and look for myself."

With the factory's assistance, Crowland arranged a visit to view similar machines in a working environment coupled with a visit to the impressive engine manufacturing plant, thrown in. A visit to the Zoomlion plant was supposed to round off the trip, but due to the worst weather in 50 years, meant the visit was cut short but enough was seen to remain interested.

For Smith, the plus side of the Zoomlion was that it was well built, had impressive lifting duties and used simple, reliable technology, similar to the truck cranes that Crowland were already familiar with. He did observe a few weak points though, mainly in the undercarriage design, which Issitt also noted and agreed.

"The concerns over the undercarriage design were raised with the manufacturer and the design was actually modified," says Smith. "It seems that this manufacturer isn't afraid to listen to customer feed-back and make changes. I have since discovered that this is a continual process with user information supplied to dealer, then onto the manufacturer."

## Replacement parts concerns

The next stumbling block was spares and parts. "Our existing Japanese crawler dealers only keep the bare basics, and we have had some delay problems. Crowland, however, promised to provide a



Several of Saren's Zoomlions completing a lift

comprehensive parts back up, and this together with its skilled labour force, calmed most of our concerns."

Equally important was the financial aspect of the deal. "We were able to negotiate the purchase of the new Zoomlion for a similar outlay as a five to six year old Japanese equivalent and with excellent delivery times," says Smith. "So we placed the order for the first Zoomlion QUY70 in the UK."

When the crane arrived at Crowland's premises near Peterborough there were several favourable changes to the model Smith had seen working, and importantly, the undercarriage design was much improved.

## Poor paint

"One downside was the poor paintwork finish which was common to these early machines. Subsequently we arranged for a complete repaint, which was carried out by Crowland Cranes. This was an extra expense, but was allowed for in the cost calculations."

Crowland carried out a thorough inspection of the machine and completed many small but important modifications, tweaks and improvements, bringing it up to full UK specifications, including a new rated load indicator system. The crane was then exhibited at SED before finally being delivered in July 2008.

"The Zoomlion has been very busy over the past 18 months, proving very reliable with no real downtime," says Smith. "Our back-up service from Crowland Cranes has been excellent - mainly routine servicing and minor teething issues. Good to its word, Crowland now keeps a comprehensive parts stock, which thankfully we haven't needed, but it is reassuring to know its there."

"Would we buy another Zoomlion in the future? In these hard times, any new machine purchase is doubtful but if we had the right contract and if costs were comparable with the used European market, yes we probably would."



PJ Plant's QUY70 is still the only Zoomlion crawler in the UK



After the night-time heavy lift, the crane continued installing the lighter steel cross members - up to seven tonnes each - on the new prefabricated steel bridge

## On the night train

A 550 tonne capacity Kobelco SL6000 crawler crane belonging to Weldex has been in action installing the main structural elements of a new railway bridge on the Docklands Light Railway (DLR) at Canning Town in East London. This is part of a £350 million programme upgrading of the DLR, due for completion later this year.

Contractor PJ Carey - working for Taylor-Woodrow Construction (TWC) - had to carry out the main lifts at night because of the need to close and isolate the line. Work involved placing the main pre-cast concrete abutments and lifting two, 55 metre long, 110 tonne pre-fabricated steel beams onto the abutments.

Apart from the restricted time-frame, the job was complicated by the limited space and confined accessibility of the site for a heavy-duty crane with the adequate reach and capacity.

"It was a tight squeeze, but with careful planning between TWC, Carey and the Weldex team, the Kobelco SL6000 fitted the job perfectly," said Andy Housden, Taylor Woodrow Construction's deputy project manager.

With only five metres of clear tail-swing space in a confined corner, it was possible to rig the extra 200 tonnes of suspended counter-weight of the super heavy-lift configuration, together with 72 metres of main boom. This was helped by the crane's compact dimensions and its ability to rig itself.

The crane was able to complete the remainder of the bridge assembly in daylight, installing the lighter supplementary steel cross-members weighing between four and seven tonnes each, using a faster single line and fitted with the lighter, standard counterweight.

The Weldex 550 tonne capacity Kobelco SL6000 with 72 metre main boom in Super Heavy Lift configuration, installing the pre-cast abutments and the two main prefabricated steel span beams weighing up to 110 tonnes each.



# 'Custom build' crane

One of the largest international oil and gas service contractors - Saipem - has installed a new 'custom build' 135 tonne capacity Kobelco CKE1350 crawler crane with 48.8 metre main boom, on the world's second largest heavy-lift crane vessel, the Saipem 7000. The crawler crane will work alongside the twin fixed main cranes on the upper-deck - each with 7,000 tonne lift capacity - the CKE 1350 will handling smaller components and has the capability to move around the deck.

The Saipem 7000 semi-submersible vessel can handle offshore construction projects worldwide including pipe-laying in water depths of more than 2,000 metres and heavy lift operations of up to 14,000 tonnes.

The vessel is currently working in the North Sea decommissioning an old oil-rig platform in the Frigg Field.

The Kobelco CKE1350 was equipped with a number of special options to make it more suitable for specialised offshore operations. The main boom is fitted with a special short jib allowing three hooks - main hook, auxiliary hook and a hook for man-riding only - to be rigged at the same time.

A third, high-speed drum has been fitted for the man-riding operations where the man-basket has to be rapidly lifted clear from the deck of another vessel before the boat is lifted by the next wave. There is also an emergency electric back-up system in case of any failure of the diesel power unit.



On board the Saipem 7000 off the Norwegian en route to the Frigg Oil Field in the North Sea.

The crane is painted with special corrosion resistant epoxy paint for extra protection; a wind speed meter; aircraft warning lights and four lifting points for lifting the complete, 140 tonne crane fully rigged with its main boom.

Rene Kraakman, service manager for Kobelco Cranes Europe, who supervised the installation and provided on-board training for the new crane, said: "You have to experience the weather conditions which include six metre high waves and strong winds to appreciate the importance of having appropriate, reliable machinery which can function efficiently. The weather conditions, particularly at this time of year are extreme, but the crane has been modified to cope with this tough application."

The Kobelco CKE1350 being prepared and tested at the Saipem dock-side yard in Schiedam, Netherlands, before being transferred by barge to the Saipem 7000.



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# At the end of the line

The new Saale-Elster valley viaduct bridge currently under construction is part of the new high-speed rail link between Berlin and Munich. When the line is completed in 2017, the journey time between the two cities will be cut to less than four hours. With a total length of 8.89 km - the main bridge is 6.5km - the viaduct will be the longest railway bridge in Europe. Structural work is scheduled for completion in 2012.

The main contractor for the bridge construction is Himmel and Papesch together with its subsidiary company Gerdum and Breuer. Himmel and Papesch was founded in 1924 and has specialised in large bridge construction ever since.

The new track runs through several conservation areas as well as a water pollution control area, making the construction work particularly challenging.

"Both the technology required and the implementation of this construction project go above and beyond everyday activity and pose major challenges on site for all involved," said Michael Felgner, project manager with DB ProjektBau.

The bridge construction is being started at all three ends - the viaduct runs roughly east to west with a spur joining from the north

around a third of the way along its length - and is largely carried out using a technique that uses cantilevered falsework to create the bridge deck, allowing the ground and surrounding area to remain untouched throughout the construction process.

Three Sennebogen crawler cranes are being used during the initial bridge construction. Two 60 tonne capacity Sennebogen 660 HDs, each with 32 metres of main boom, are positioned on the north and east abutments, working on a specially prepared track on the cantilevered falsework at a height of almost 20 metres above the ground. The cranes are used for a wide range of tasks including inserting 10 and 25 metre long sheet piles for the foundation of the abutments using a combination of vibrating and impact hammers.



The Sennebogen 660 works on cantilevered falsework to carry out a wide variety of tasks



Byzak

The sheet pile boxes are then excavated and the reinforcement for the foundations and pylons lifted into place. The 660s are also used to place the concrete for the foundations as well as lifting and lower the supports as the falsework is moved forwards.

"A large part of the work at the front of the cantilevered falsework is carried out by the Sennebogen 660s," says Ulf Oelze, site manager for Himmel and Papesch.

"We are extremely happy with the machines - they are reliable, powerful, highly versatile and their tremendous stability is a major advantage when working at this height."

The third crane - a Sennebogen 640 HD - is responsible for the guide-free insertion of sheet piles weighing up to four tonnes outside the cantilevered falsework. In one section, the sheet pile foundations had to be built in a lake which required the crane to be positioned on a hydraulically-supported pontoon.

"The size of this construction site means that the cranes have to be moved frequently. Thanks to the short set-up times and the fact that it can be assembled and dismantled without additional lifting equipment, the 640 has reduced our costs and is extremely efficient," explains Oelze. "The elevating cab offers improved views and coupled with the outstanding handling of the machine means the cranes are particularly popular among our operators."

In the UK, Trentham, Stoke-on-Trent-based EH Hassell has been the distributor for Sennebogen cranes since 1998 and has chalked up more than 100 sales. Customers have included companies such as Morgan Est which runs an 18 strong Sennebogen crane fleet which includes Heavy Duty, lattice and telescopic boomed units. Other multiple Sennebogen crane owners include Carrillion, Byzak, Barhale Construction, Fussey Piling, CBI John Brown and Weldex. The latest deliveries include an 80 tonne capacity 680 HD to Byzak, an 80 tonne 683HD to Weldex and a 140 tonne 4400 to Carrillion.



Short set-up times make the Sennebogen 640 a highly efficient solution for inserting sheet piles

## Manitowoc: Improve your productivity



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