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Is this the dawning of a new age for crawlers?

The new LTR 1100 from Liebherr.



Crawler cranes have been around since the earliest days of the modern crane. Until recently however their use for routine lift crane work under 150 tonnes appeared to be in terminal decline. The future though for track mounted cranes is looking bright.

Who would have predicted that in the first years of the 21st century that dozens of the smallest cranes in the national fleet would be mounted on tracks? Or that crane manufacturers would be investing significant sums in developing new crawler cranes or that one of the world's top two crane makers would carry the name of a long established crawler crane company?

Why a telescopic crawler?

One thing is for sure some of the most exciting developments in the crane business are currently occurring in the crawler crane sector. At the smaller end telescopic booms are finally becoming more popular, with a number of new product launches in the past 12 months. The most notable coming from Hitachi Sumitomo with its 40 tonner and more recently, Liebherr

with its unusual 100 tonner. Both of these cranes are hybrids designed using lower components from crawler cranes and uppers from mobile cranes. The Liebherr in particular uses the highly sophisticated pinned boom from the Liebherr LTM1100, designed and refined to be as long and as light as possible for road mobility. This makes the new crane very strictly a lift crane, and yet the unit, at least in theory, offers the benefits of pick and carry throughout the load chart which can add significant dynamic loading and stresses to the boom structure. In reality it is not practical for such a crane to travel and turn with its heavier loads and certainly not with a long boom extended. So why a telescopic crawler crane? The main benefits over lattice boomed alternatives are of course

much easier transportation, the elimination of boom rigging, the ability to retract the boom when not working, for additional security, the ability to adjust the boom length to suit each load being lifted, thus always working with optimum boom configuration, the capability

to suck the boom in for passage under low overhead obstacles and an increasingly important factor, that of storage space when not in use.

Telescopic crawler cranes are by no means new, they have been built in small numbers since at least the late 1960's when Coles introduced its Hydra crawler 120C as a production unit. While a number of units were sold it was not a success. Since then a number of mainstream manufacturers have produced telescopic crawler cranes from time to time. With the exception of the smaller Mini cranes popular in Japan and increasingly Europe they have largely failed to find a market. Niche producers such as Spandek Inc with its Mantis range have managed to carve out regular business for specially designed heavy duty units and are said to have a 100 tonner on the drawing board. Companies such as Sennebogen and Favelle Favco have also had some success coming at the market with Excavator experience. With more companies offering telescopic crawlers than ever before perhaps their time has finally come?



An 80 tonne Heavy duty Sennebogen 683 HD telescopic crawler with 42m boom, owned by Van Marercke of Belgium.

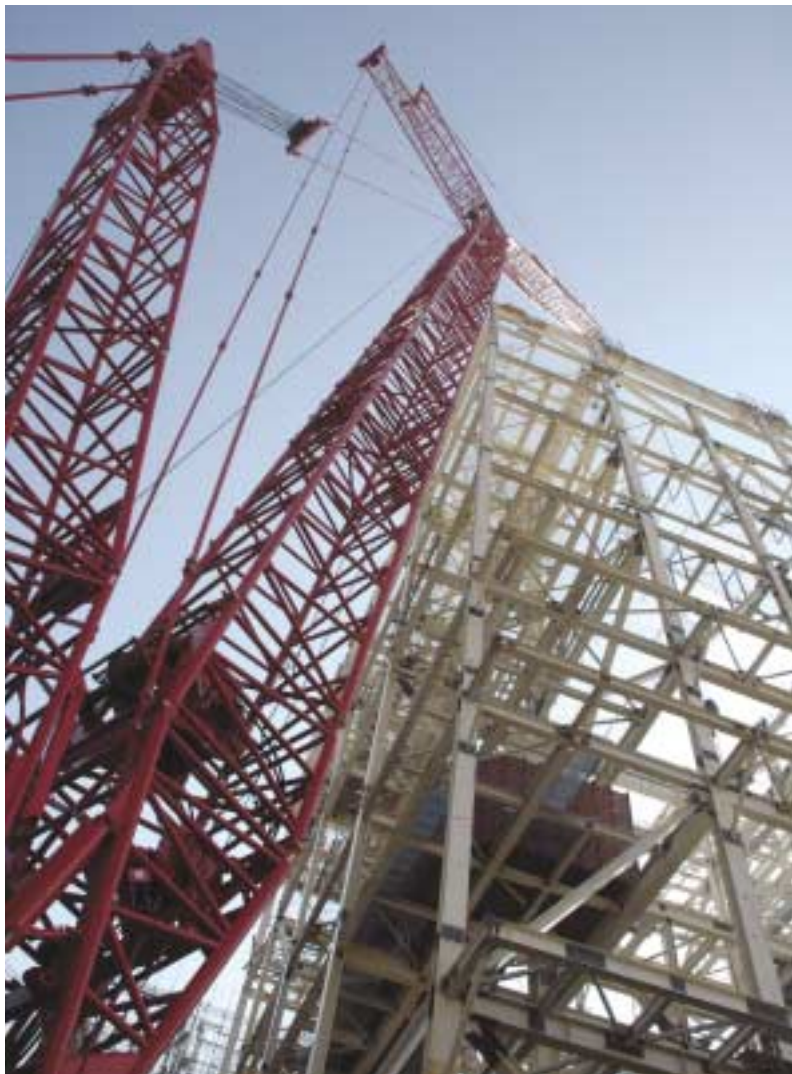
Good times for UK/Irish crawler hirers

All of the UK based crawler crane specialists we spoke to are having an excellent year. They are seeing renewed interest from contractors who seem to be rediscovering the crawler crane and finding that for many projects they can be more cost effective and versatile than a big tower crane. We highlight two such jobs in our application roundup.

At the top end of the market Crawler cranes dominate and yet it is not so long ago that crane hirers still bought big truck mounted lattice cranes. Such cranes are the rarest of the rare these days. With the use of red diesel on road cranes likely to end soon in the UK, the cost of

moving big cranes around the country will increase substantially, and might give a further boost to mid range crawler cranes. After all, once on site they do offer a number of advantages, from mobility to pick and carry capability to compact dimensions and low ground bearing pressures. With the latest models offering rapid, easy rigging and more compact dimensions, they are now an attractive alternative.

The UK/Ireland crawler crane population hit new all time lows at the turn of the century, but has since stabilised. With renewed interest and a number of large new projects coming on stream such as the Olympics, expect that to change.



A 750 tonne Manitowoc 18000 crawler crane, working with 106m of main boom plus 40m luffing jib, owned by Anhui Electric Power corp of China, is working on a new power station. The heaviest lifts on the job are 10m long four metre diameter tubes, weighing 250 tonnes. Three crane drivers, each working eight hour shifts, keep the crane running around the clock.



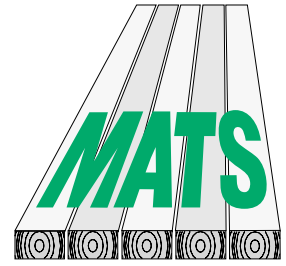
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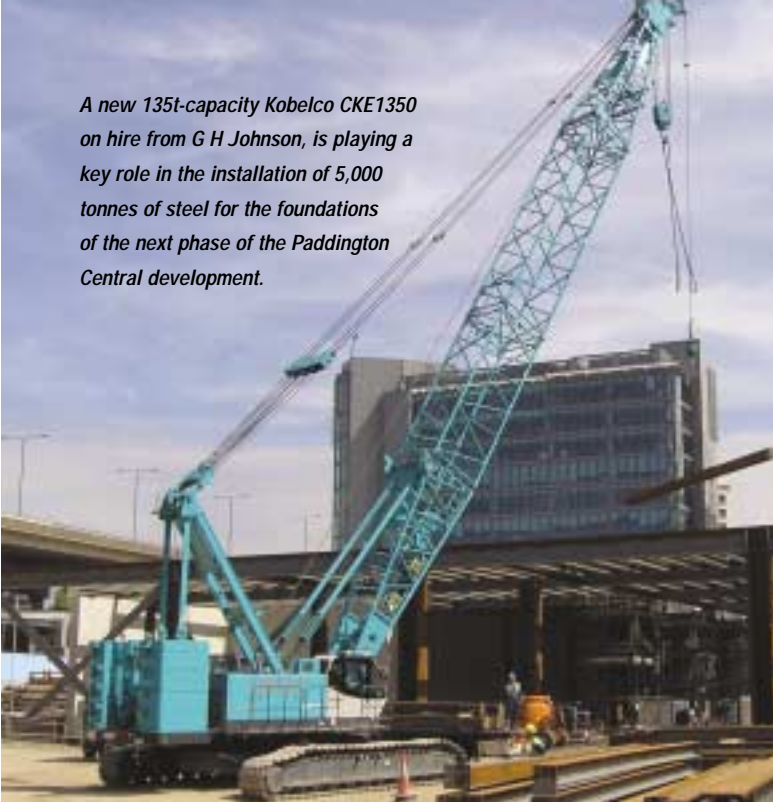
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A new 135t-capacity Kobelco CKE1350 on hire from G H Johnson, is playing a key role in the installation of 5,000 tonnes of steel for the foundations of the next phase of the Paddington Central development.



The 135 tonne Kobelco CKE1350 crawler crane is playing a key role in the erection of the structural steel for the next phase of London's Paddington Central development being constructed by main contractor Bovis Lend Lease for Development Securities PLC. The crawler was selected in preference to three luffing tower cranes, which would have been needed to cover the site, each of which would have required a costly foundation base and its own operator.

The crane is on hire from crawler specialist G H Johnson of Alfreton, to structural engineers William Hare.

The seven-month, £7 million contract for the design and installation of over 5,000 tonnes of steel for a ground level transfer building is well ahead of schedule. The building sits over the future route of an underground tunnel for Cross Rail. A further transfer structure has been constructed at the podium level, above temporary railway sidings, and will form the base for future commercial development.

The site is hemmed in on all sides – between the main railway line into Paddington station, Phase one of Paddington Central, the Grand Union Canal, and the elevated section of the A40 trunk road from which there is just one entrance to the site.

Structural engineer William Hare has selected a 135 tonne crawler crane for a congested steel erection project in Paddington and is well ahead of schedule.

A slick operation is therefore required to manage the logistical complexities of the contract. With room for just one crane it has to handle both off-loading and stacking of steel sections as they arrive on site, and the whole installation and erection process.

The all-hydraulic Kobelco is equipped with 30.5 metres of main boom and 60 tonnes of counterweight. It has sufficient reach and capacity to unload, stack, lift and install all of the structural steel sections, the heaviest of which, weigh 60 tonnes each.

This crane was selected for the congested site due to its compact (less than 8m square) 'footprint' for

its capacity and its manoeuvrability. The fact that it can be rigged or stripped down by two men in about three hours, without the need for an auxiliary crane was also a factor.

Glyn Johnson of G H Johnson says that he has been so impressed by the crane on this job that he has ordered a second unit for the company's fleet.

This latest phase of the £30m Paddington Central Cross Rail project is due for completion in March 2006. So far, 450,000 sq.ft of commercial offices, 210 private apartments and 95,000 sq.ft of retail/leisure space have already been built. A further 1,150,000 sq.ft of offices and a 200-bed hotel are planned.

Crawlers chosen for sensitive excavation work

A pre-build study determined that crawler cranes with slurry wall grabs was the least disruptive excavation method for working close to historic buildings.

One of the Netherlands' largest building projects is the construction of the North-South underground line in the centre of Amsterdam. Slurry walls, 120 m long and 48 m deep are being installed at three locations in the Old Town. The job presents a great challenge as the walls have to be erected close to historical buildings. In order to allay concerns over damage from vibration or subsidence, a study was carried out, in order to find the best technology to ensure that no harm would be caused to the surrounding buildings during the construction work. The buildings are being monitored by lasers during the foundation works to detect 'micromotions'.

The study concluded that crawler cranes, fitted with special slurry wall grabs would be the safest excavation method. The contractors, Franki

Geotechnics from Belgium and Cementation Foundations Skanska of Great Britain, brought in four 90 tonne class, Liebherr HS 853 HD and HS 855 HD duty-cycle crawler cranes from their fleets. The cranes are equipped with mechanical as well as hydraulic slurry wall grabs. The heavy duty construction of these cranes including the 25 tonne single line pull of both main winches is ideal for working with the heavy grabs.

The Liebherr HS series of cranes are designed for duty-cycle work the HS855 includes a new superstructure design with a robust extra rigid box design, a larger 400 kW engine and 25 tonne free fall winches. The crawler undercarriage is telescopic, which is a bonus when moving in the congested work area.

The Liebherr HS855HD duty-cycle crane working with a slurry wall grab in Amsterdam.



Tunnel under the Thames

Amec Piling is working on the next phase of the Docklands Light Railway extension which includes boring a new tunnel under the Thames alongside the London City Airport in Silvertown. It is using a crawler crane and grab for part of the excavation work.



The IHI DCH900, equipped with a heavy grab, is excavating the diaphragm walls to 30 metres.

The tunnel portals are being constructed with diaphragm walls; Amec Piling has selected a 90 tonne capacity Heavy Duty IHI DCH900 crawler crane equipped with grab to excavate the walls which are up to 30 metres deep in places. The crane has been hired from IHI importer and UK distributor AGD.

The IHI DCH900 is a heavy duty cycle crane specifically designed for this type of work, it is equipped with two x 25 tonne line pull winches with heavy duty clutches and brakes. The grab weighs 12 tons and in addition to removing regular sub soil has to chisel through areas of hard rock in some

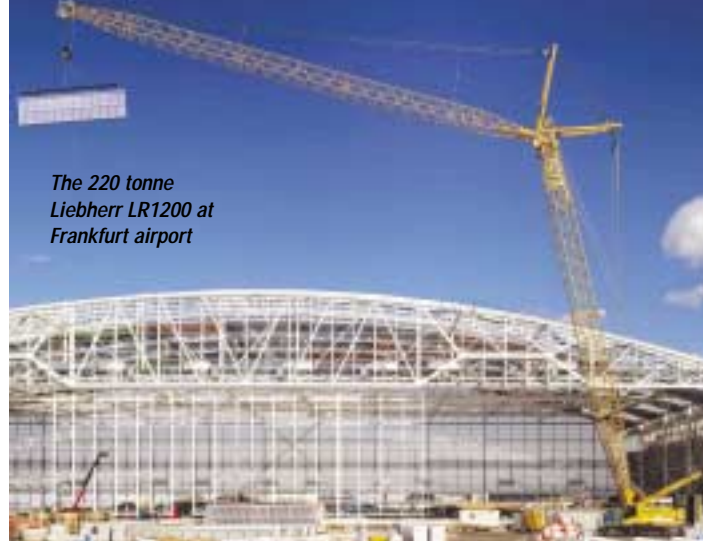
places in order to achieve the required depth. The crane is proving to be equal to the task and has been on site for two months so far, with a further three months of excavation to go.

AGD has also provided an 80 tonne capacity Heavy-Duty IHI DCH800 crane which is fitted with a Soilmec RT3/ST rotary drilling rig belonging to AMEC. The rig is drilling 750 mm diameter piles up to 40 metres deep. In this application the heavy duty 21 tonne capacity winches of the IHI crane are essential for pulling the Kelly bar out of the hole at such a depth.

In addition to the two 'earthworks', cranes, AGD have a further three crawler cranes on site a second IHI DCH800, an IHI DCH700 and an IHI CCH400, all working as service cranes on the contract which is due to run for a further three to four months.



An IHI DCH800 working with a Soilmec RT3/ST rotary drilling rig



The 220 tonne Liebherr LR1200 at Frankfurt airport

Crawler chosen for New A380 Hanger

Frankfurt airport is one of the largest in Europe with 50 million passengers a year 460,000 flight movements and 1.6 billion tonnes of air freight. The airport is currently undergoing a major extension which includes a new runway, an additional passenger terminal and a new Lufthansa maintenance hangar for the new A380 long-haul wide bodied aircraft. The first A380 aircraft are due to start arriving in the autumn of 2007, although the hanger is due to go into operations next month. By 2015 Frankfurt will be home to the world's second largest A380 fleet.

With a very strict 53 metre height restriction and a wide variation in the weight and size of building components and the heights and radii at which they were to be placed, the contractor decided on a crawler crane for the lifting work on the new Hanger.

German specialist crane hirer Eisele was called on to provide the appropriate crane for the job. Eisele decided on a new 220 tonne Liebherr LR1200 lift crane for the work. The most challenging part of the job was the hangar roof where the steel elements were 12 metres long, three metres wide and weighed one and a half tonnes. The furthest units had to be placed at a radius of 77 metres. The airports radar system restricted maximum heights to 53 metres so the cranes boom had to be kept at low angles for these long reach lifts,

The LR 1200 operated from a large support area and used its main boom and luffing fly jib during the project. Another feature that appealed for this job was the "Midfall" equipment that allows the crane to carry out two line lifting operations, with additional sheaves mounted within the fly jib.

The compact dimensions and fast self contained rigging and assembly capability of the LR200 proved useful to cope with the wide variety of lifting duties in this project.

CC8800 at work in Europe

Sarens second Terex Demag CC8800 returned to Europe following its first job in Equatorial Guinea. After completing a petrochemical job in Norway, the 1,250 tonne crawler crane has been working on Wind power projects in the north of Germany. The crane is proving ideal for lifting fully pre-assembled nacelles on to the towers of five MW turbines.

One such project, for Enercon in Emden involved the installation of two x E-112 turbines. One near-shore with the crane positioned on a barge and one on shore. The fully assembled

Nacelles weighed over 200 tonnes and had to be placed on top of 100 metre high towers.

The Terex-Demag CC8800 prepares to lift a 200 tonne fully assembled Nacelle for placement on its 100 metre tower.



Terex-Demag's new 1,000 tonne crawler

Terex-Demag is currently building its new 1,000 tonne capacity CC 5800, the new crane fits into the range between the CC 2800-1 and the flagship CC 8800. The unit offers a maximum load moment of 12,860 metre/tonnes a quick look at the cranes preliminary load charts shows strong lifting capacities in most configurations.

For example in the SSL, Suspended Superlift counterweight, configuration and fitted with 96 metre main boom, the crane can take 300 tonnes out to a radius of 30 metres. The company also claim that the crane will manage its maximum capacity on the 96 metre boom at minimum radius.

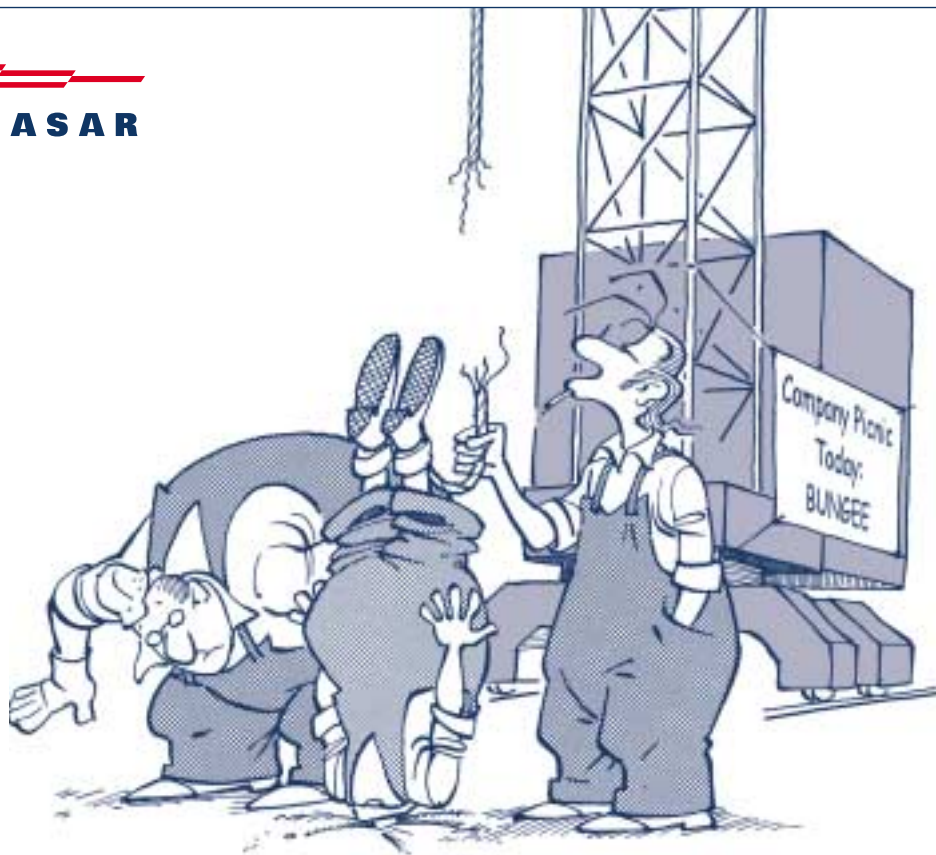
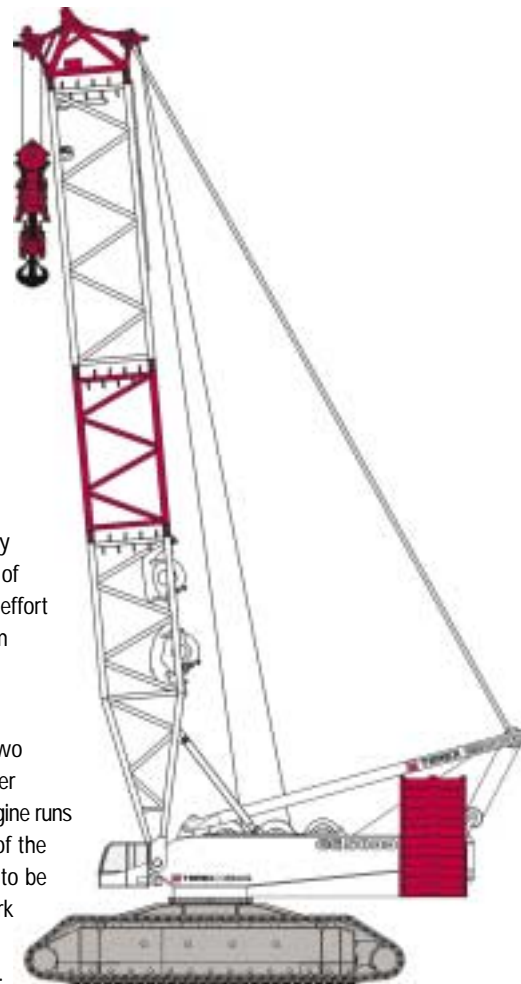
Maximum hook height is more than 200 metres and with a practical working radius of over 150 metres the crane is close to setting new records.

Other technical introductions on this unit include the ability to vary the Superlift counterweight radius, from 12 and 21 metres to gain maximum long reach capacities. The range of luffing jib offsets in SW or SWSL configuration are also significantly greater than existing cranes in the range.

The key feature though that is likely to make this crane stand out from other 1,000 tonne crawler cranes is its overall transport width of only three metres and fast rigging and assembly times.

Terex has also concentrated its effort on simple and easy rigging, with the minimum of assistance. As part of this effort hydraulically assisted boom section pinning will be a standard feature.

The crane is powered by two Daimler-Chrysler six-cylinder engines of 260 KW. Each engine runs completely independently of the other, allowing one engine to be switched off for lighter work duties, reducing fuel consumption and emissions.



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