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Recent projects











A WIDER RANGE OF CRAWLER CRANES

Say 'crawler crane' and most crane people will automatically picture a lattice boomed crane as seen on many roadside job sites, or maybe a larger lattice crawler crane erecting wind turbines. However, in recent years the term has been applied to a wider range of cranes mounted on tracks including telescopic crawler cranes, tracked self-erecting tower cranes and various types of spider crane.

Concentrating on the traditional lattice crawler cranes first, the last few years have seen Chinese crane manufacturers making slow but steady market share gains internationally, supported by a massive domestic market which over the past decade or so has frequently been the world's largest in some years as large as the rest of the world combined.

The first Chinese built lattice crawler cranes began to pop up in international markets from the late 1990s, initially in developing markets and often where Chinese contractors were working. Since then, the products have dramatically improved in terms of design and quality and are now having a greater impact in western markets initially with cranes up to about 100 tonnes but are also making inroads in the 200 tonne plus market and are regularly employed on some of the world's largest infrastructure projects.

North America is the second largest market for lattice crawler cranes dominated by Manitowoc, Link-Belt, Kobelco, Liebherr and Tadano. Liebherr claims that its 300 tonne LR 1300 is the most popular in its class with between 80 to 90 percent of its production sold into the USA. Link-Belt also has a sizable share of the small to mid-range marker, while Tadano does well with its locally built Mantis telescopics but has yet to recover Demag sales in the big lattice market following the disruption caused with the acquisition and transfer of the product line.





Link-Belt Cranes' new lattice crawler cranes are equipped with Tier III engines for Latin American markets





CRAWLER CRANES



KOBELCO UPGRADES

After upgrading three new G-3 models at Conexpo last year, Kobelco - a key player in the North American market - launched three new G-4 models at the end of last year. These included the 100 tonne CKE900G-4, the 150 tonne CKE1350G-4 and the 250 tonne CKE2500G-4.

With all boom and jib configurations remaining the same, the main changes centre around the updated engines, which have changed from Hino to new six cylinder Isuzu Stage V power units, along with a new cab and updated controls. The upgrade is more significant for the two larger models which were still G-2 models and using Stage IV diesels. The changes effectively allow Kobelco to return to the European market.

The new cab offers improved visibility, redesigned directional air conditioning outlets, a wider seat with greater adjustment, a lighter touch sliding door, Bluetooth and a handsfree mobile phone mount. The cranes also feature Kobelco's G Mode environment/fuel efficiency with features such as the G Winch which provides a high winch speed without raising the engine speed, G Engine to improve fuel consumption by at least 10 percent and an Auto Idle Stop function.

NEW EURO TELESCOPIC CRAWLER

Kobelco is also re-entering the European telescopic crawler crane market with the 75 tonne TK750G telescopic crawler crane at Intermat. The TK750G is a foundation and duty cycle crane with an extremely rugged four section 30.1 metre boom. Rated at three metres it has a maximum counterweight of 17.2 tonnes, an overall width with the tracks fully extended of 4.83 metres, and 3.2 metres when retracted for transport.

Boom length	Capacity @ radius
10m	75t @ 3m
16.7m	36t @ 4.5m
23.4m	29t @ 6m
30.1m	18.5t @ 8m
Aux boom nose	7t - single line



Kobelco is re-entering the European telescopic crawler crane market with the 75 tonne TK750G telescopic crawler crane at Intermat

Capacity on the fully extended boom is 18.5 tonnes at an eight metre radius, while capacity at the maximum radius of 27.8 metres is 2.7 tonnes. The crane also has load charts for 8.2 tonnes or no counterweight. The boom is reinforced and features increased overlaps between boom sections in order to make it suitable for foundation and cycle work.

Power is provided by a larger capacity Stage V Mercedes-Benz E9H01 diesel than would be found in a straight lift crane in order to drive foundation equipment such as augers and higher capacity hoists and the 22mm heavy duty wire ropes. The new crane also includes features found on Kobelco's latest G series lattice boom crawler cranes.

Overall weight is around 70 tonnes but this can be reduced to 52.4 tonnes with the counterweight removed and 37.4 tonnes with tracks removed which also reduces the overall width to 2.99 metres. Each track weighs 7.5 tonnes so it is feasible to transport the tracks and counterweight on a single load in some markets. Kobelco's KCROSS (Kobelco Crane Remote Observation Satellite System) telematics system is available on the TKE750G allowing the crane to transmit working conditions, locations and maintenance history globally.

Competition includes Sennebogen with its 70 tonne 673 which has almost six metres more boom and a choice of jibs and extensions. The crane can be used for foundation work but is not a real match for the 'heavy duty' Kobelco which is based on the reliable and well proven TK750 and TK750G models which have chalked up millions of hours of real work experience. Liebherr has 40, 60 and 100 tonne telescopic



crawlers but all are lift cranes, while Tadano does not yet market this size of crane from its Mantis range in Europe.

LIEBHERR ADDS TELECRAWLERS

Liebherr also recently introduced a 150 tonne telescopic crawler - the LTR 1150 - which is positioned midway between its 100 tonne LTR 1100 and 220 tonne LTR 1220. The company claims that while the new crane offers capacity improvements over the LTR 1100 of around 50 tonnes, it is just as easy and economical to transport as the smaller model.



The boom and extension configuration is the same as the LTR 1100, with a six section 52 metre main boom, topped by a 10.8 to 19 metre bi-fold lattice swingaway extension. This can be further extended with two seven metre lattice extensions for a maximum tip height of 88 metres.

The overall weight of the LTR 1100 with counterweight removed but tracks left in place is 60 tonnes with an overall transport width of 3.5 metres. If the tracks are removed the overall weight is reduced to 38 tonnes with a three metre overall width.

This is also the first Liebherr telescopic crawler crane in which the variable track widths and slew position are automatically monitored in



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Mobile and crawler cranes



CRAWLER CRANES

Franz Bracht's 200 tonne Tadano GTC-2000 telescopic crawler crane



real time along with the data fed into the crane's control system to calculate the optimum load chart for the actual set-up, ie 'Variobase' for crawler cranes. The overall width with the tracks fully extended is 5.8 metres, with alternative widths of 3.5 and 5.0 metres.

The tracks weigh 11 tonnes each and can be transported side by side on a standard semitrailer with an overall width of 2.55 metres. The counterweight can be installed in four lifts with two 11 tonne central weights and two 9.5 tonne side cheek weights for the maximum superstructure counterweight of 41 tonnes. The counterweight installation system is new and includes 'Liebherr-AutoBallast'.

The LTR 1150 is also equipped with load charts for slopes of 0.3, 0.7, 1.5, 2.5 and 4.0 degrees. This is also the first Liebherr telescopic crawler crane with 'Wind Speed Load Charts' allowing work to continue at higher wind speeds - up to 15.6 metres a second - while retaining the crane's full capacity in many boom positions.

Liebherr says that the crane is suitable as an assist crane for lattice crawlers up to 1,000 tonnes and can pick & carry loads of more than 60 tonnes. The LTR 1150 is aimed at jobs beyond the capability of the LTR 1100, but for which the LTR 1220 is an overkill.

TADANO HARMONISATION

In mid 2022, Tadano harmonised its telescopic crawler crane range and upgraded its Germanbuilt 180 tonne GTC-1800EX to the 200 tonne 'class' GTC-2000. New operating software with new load charts for a fixed position with no slew, and one for up to 180 degrees slew was all that was needed.

The rest of the telescopic crawler crane line which are all built in the USA - adopt the North American nomenclature which uses US tons rather than tonnes and the EX suffix will be dropped.

The GTC-2000 has achieved some sales success with US crane sales and rental company Bigge placing a substantial order at Bauma 2022 which included the GTC-2000. German companies Schmidtbauer and Franz Bracht have also taken delivery of the 200 tonne telescopic crawler.

The crane features a six section 60 metre boom plus a five to 23 metre hydraulic luffing extension for an 85 metre maximum tip height. Its tracks can be extended asymmetrically to any position, with the crane's intelligent control system, automatically calculating the load chart to suit the actual track configuration, slope and slew angle. It can also pick & carry its full load chart and has load charts for working on slopes of up to four degrees. For example, it can manage 34 tonnes at 12 metres radius on a 30 metre boom while working four degrees off level.

SANY CRAWLERS

One of the Chinese manufacturers having export success is Sany with products such as its 80 tonne all-electric telescopic crawler and its 135 tonne lattice crawler.

Earlier this year Dutch foundation specialist Kandt took delivery of its first all-electric crawler crane, an 80 tonne Sany SCE800TB-EV. The new crane features a five section 47 metre main boom topped by 10.2/17.5 metre bi-fold swingaway extension with up to 30 degrees of offset and a maximum tip height of just over 66 metres with a capacity of 2.7 tonnes. The unit has up to 26 tonnes of superstructure counterweight plus six tonnes of carbody counterweight - three tonnes at the rear and three at the front. The all-up weight is 91.9 tonnes, while the overall retracted width is 3.49 metres with 850mm track pads, extending to 5.1 metres with an intermediate setting.

The crane is rated at three metres and can manage just over 11 tonnes on full boom at a radius of up to 12 metres. Capacity at the 36 metre maximum radius is 1.1 tonnes.

Kandt was established as an earthworks business in the Netherlands in 1978. It designed a homemade vibrating plate/hammer to replace the excavator bucket for the installation of wooden sheet pile walls, moving on to specialist machines for foundation work, including several crawler cranes. The company claims to be one of the first companies to install a sheet piling hammer on a telescopic crane.

FINNISH FIRST

Last summer Finnish crane and access rental company J. Helaakoski took delivery of the first 135 tonne Sany SCE 1350 A lattice crawler crane to arrive in Finland. The SCE 1350 is rated at four metres and features a maximum boom of 76 metres at which it has a capacity of 22.6 tonnes at a 12 metre radius. A fixed jib can be set with an offset of 10 to 30 degrees with a maximum system length 92 metres - 61 metres of main



boom plus the maximum 31 metre jib - with a capacity of six tonnes at 24 metres radius.

The crane has 54 tonnes of superstructure counterweight, but 20 tonnes of carbody counterweight. It has an extended working width of 6.6 metres with the standard 950mm track pads. The crane can be shipped using six trucks, the heaviest load being 37.5 tonnes - the base crane without tracks. Once on site it can fully self-assemble.

80T SENNEBOGEN

Early last year Sennebogen launched its own branded version of the 80 tonne crawler crane, which, unusually it initially built for Manitowoc as the Grove GHC85. The Sennebogen 683 E has virtually the same specification, with a five section 42 metre full power main boom topped by an eight to 15 metre solid construction bi-fold swingaway which takes the maximum tip height







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CRAWLER CRANES





to 59 metres and with up to 40 degrees of offset. The new crane fits into the product line between the 673 E and the 6103 E.

The undercarriage has a maximum overall track width of five metres, retracting to 3.48 metres with standard 800mm track pads. The overall transport width can be reduced to three metres if the tracks are removed. The tracks can be extended asymmetrically with the load charts being calculated automatically to reflect the track width and slope angles of up to four degrees. The crane can also self-load/unload with the aid of the radio remote control for the jacks, and the counterweight installation/removal. Power is supplied by a Stage V Cummins. Total operating weight is 90,500kg which includes 34.3 tonnes of counterweight - six tonnes of carbody/chassis counterweight and up to 28.3 tonnes on the superstructure.

Both winches are driven by high-pressure piston motors which offer single line speeds of up to 120 metres a minute. The manufacturer's extra wide Maxcab is standard together with up to 20 degrees of cab tilt. It can also be equipped with a hydraulically elevating cab with up to 30 degrees of tilt and an eye level height of 5.55 metres. Cameras and a large monitor extend the operator's field of vision to the rear and right side and also monitor the winches. Alternatively, a radio remote controller can be used for all crane functions.

MARCHETTI HYBRIDS AND N. AMERICAN MOVE

Italian truck and crawler mounted telescopic crane manufacturer Marchetti Autogru introduced a new hybrid version of its popular 25 tonne CW25.35 - the CW25.35HY - last October. It has built and shipped its first American unit, rated as a 35 tonner under Ansi and Canadian standards.

The CW25.35HY is essentially a battery electric model with a diesel powered 'range extender'. Power comes from a 210Ah lithium battery pack with 400 volts DC 340 Amp output driving a 110 kW motor which powers the hydraulics. The range extender/generator is powered by a three cylinder Kubota diesel which tops up the battery pack. The crane can also be plugged in to recharge or keep the batteries topped up.

Marchetti has also launched its first North American crane - a standard version of the CW25.35. The first unit was purchased by Powell



Foundations of Stouffville, Ontario, Canada and features a five section 25.5 metre boom, topped by a 3.6 to 8.1 metre telescopic jib which offsets by up to 40 degrees - maximum tip height is just under 36 metres. The crane is rated at two metres and can handle 18 tonnes at three metres or 5.8 tonnes on the full boom. Overall width ranges from 2.5 metres retracted for transport to 3.9 metres fully extended with 600mm track pads.

HIGH CAPACITY CRAWLERS

With the increasing size and weight of components, many of the big global heavy lift contractors prefer building their own modular lifting machines or jacking systems and gantries. This has tended to restrict the maximum capacity of 'normal' lattice crawler cranes to around 4,500 tonnes, with the largest production cranes being manufactured by XCMG and Sany in China and used primarily for large domestic infrastructure projects. XCMG is also responsible for the largest telescopic crawler crane - the 2,000 tonne XCC2000 'Windflex 4' - designed for wind turbine installation. Rapid set up and breakdown are the main features of this crane with the manufacturer claiming three hours being a reasonable time from completing a lift to moving off site.

In last year's feature we covered the launch of Liebherr's all-new 2,500 tonne crawler - the LR 12500-1.0. Since then, the first has been sold to Belgian international crane and heavy lifting company Sarens. The new crane was handed over formally last April at the Port of Rostock. Sarens plans to use the new crane mainly in the renewable energy sector, including offshore wind turbines.

Technical solutions, projects & engineering director Carl Sarens said: "The capacity of the LR 12500-1.0 is enormous. Operations in the renewable energy sector, such as here in Rostock, are a particular focus for the crawler crane. The handling of offshore wind turbines in ports is becoming more and more important and the individual weights of the components are constantly increasing. The initial assembly of the new crane worked very well."

PVE CRANES

Dutch company PVE Cranes - known for sales and rental of mobile and crawler cranes developed the 70 tonne DCT70 diesel powered telescopic crawler crane mid last year. The venture was with its sister company PV-E Crane, which has been developing electric crawler cranes since 2021. Power for the DCT70 is supplied by a Stage V Cummins diesel engine with 168kW at 2200 rpm. The five section 38 metre boom has optional six and eight metre jibs giving a total boom length of 52 metres. Standard equipment includes the self-erecting counterweight system, two winches, and a camera system to monitor the load. Additional LED working lights, custom paint, and a tilting or pressurised cabin can also be specified.





WHATEVER THE CHALLENGE.

THE CC 38.650-1

You may think wind turbines when you hear about the Tadano CC 38,650-1. And you're right - it is one of the most used cranes for wind turbine erection. But did you know it can do so much more? With different boom lengths, Boom Booster, Superlift system, Flex Frame, Split Tray or as a pedestal crane, it is ready for any challenge in bridge construction, large infrastructure projects and much more.

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ANOTHER LARGE LIEBHERR

However, for most contracts a 1,000 tonne crawler is normally more than enough to carry out most lifting duties, coupled with the resurgence of onshore wind turbine erection. Dutch crane rental company Verschoor has recently taken delivery of a 1,000 tonner - a Liebherr LR 11000 - which is now the largest in its fleet usurping a recently acquired 750 tonne LG 1750 lattice truck crane.

The crane - used primarily for wind turbine installation - can be rigged with up to 168 metres of main boom and fixed offset jib of up to 24 metres for a hook height of 192 metres with a capacity of 110 tonnes. It also features the company's VarioTray and V-Frame ballast systems. The transport width is 3.5 metres with a transport height of 3.2 metres.

SMALLER TRACKED CRANES

At the opposite end of the capacity spectrum there are an increasing number of small, tracked cranes. Italian manufacturer Almac is finding a substantial niche for its dynamic self-levelling platforms and has now employed the technology on what it calls its T-Crane.



The first model, the T-1060, is a self-levelling pick & carry crane with a maximum capacity of 990kg at a 3.5 metre radius, and a maximum tip height of 7.7 metres at which it can still handle 990kg. The maximum radius is 6.1 metres with a capacity of 450kg. The winch comes with 30 metres of wire rope and charts are provided for all slopes, track widths and slew angles - with or without counterweight.

The crane is mounted on rubber non-marking tracks with a retracted width of 1.35 metres extending to 2.45 metres for maximum stability. If one track is fully retracted while the other is fully extended the overall width is 1.9 metres. The overall length is 4.32 metres - slightly shorter if the 1,000kg counterweight is removed - and overall height is 1.91 metres. Power comes from either a Yanmar diesel or a 300Ah lithium ion battery pack. Total weight is 3,850kg or 2,850kg without counterweight - the battery machine is around 60kg heavier.

A key feature of the crane is its self-levelling ability with automatic dynamic levelling of plus or minus 15 degrees in both axes. The crane is operated via a compact remote controller, complete with information screen.



CRAWLER CRANES



A SMALLER JEKKO JF

Falling between crawler and spider cranes are the big articulated loader cranes mounted on tracks, such as those built by BG Grue, Palfinger and Jekko. Jekko has started building its new 6.15 tonne capacity JF235 articulated spider crane, the smallest model of this type in its range. The new model is a development of the existing 15.5 tonne JF545 and is rated at 2.6 metres. As with all Jekko JF models it uses a standard Fassi crane, this one features a five section boom with a maximum tip height of just over 15 metres, at which point it can handle 5.4 tonnes. The maximum radius with the boom horizontal is 12.7 metres with a capacity of 1,280kg. Capacities are slightly lower when the winch and hook block are used, rather than the boom nose hook.

A five section hydraulic luffing jib can be installed to take the maximum tip height to 25 metres with a capacity of 485kg, or a maximum radius of 22.7 metres with a capacity of 235kg. The jib can also be raised 10 degrees above the horizontal. A work platform attachment offers a maximum working height of 27.3 metres, or a working outreach of 22.4 metres with 120kg, or 20 metres with the maximum platform capacity of 200kg.

The unit is relatively compact, with an overall length of 4.74 metres, overall width of 1.6 metres with 406mm track pads and a stowed height of 2.6 metres. The overall weight of the crane is 9,470kg with the jib adding 770kg. The two stage beam and jack outriggers have a maximum footprint of 5.63 metres by 5.65 metres, with the outriggers at 45 degrees. They can be set fully in, half way or parallel with the chassis for a longer but narrower footprint.

Power comes from a Stage V diesel with intelligent electronic system that adapts engine speed to the demands of the hydraulic system, helping reduce fuel consumption. An AC plug-in motor provides quiet clean operation where needed. Accessories include a 1.5 tonne winch, mechanical extensions, lattice jibs, a range of man baskets and manipulators.

