

Spiders still clim

Over the past 10 years the attitude towards the spider crane has changed enormously - particularly from crane companies operating the large mobile cranes. Gone is the 'it's only a toy' mentality as an increasing number of users throughout the western world, now realise that the spider crane can go head to head with much larger cranes and are equally well designed and built - just much more compact. This shift in perception has helped boost spider crane popularity with sales growing year on year as companies find an increasing range of uses for them. We take a look at the latest developments in the sector.

In the Cranes & Access Top 30 UK rental companies of 10 years ago there were only three companies with a sizeable spider crane fleet. Two of the three were the distributors of the main manufacturers - Unic GGR and Hire Maeda - with all three having a combined total of around 100 cranes. In the early days it was a hard slog to convince crane rental companies of the benefits of this type of crane, and without ready availability there was no

chance of any significant uptake among contactors. As more end-users realised how their compact dimensions, low weight and rubber tracks allowed them to set up much closer to the lift and therefore compete with much larger and more expensive cranes, it created more demand and the popularity tide started to

In the C&A UK/Ireland rental fleet survey last year just the top 10 crane rental companies ran 250

> machines with many more companies having the odd one or two in their fleet. This year that figure is set to increase again. One of the faster growing participants in the UK is Lift Mini Cranes which looks set to increase its fleet by more than 60 percent to more than 40 units. The sector is very busy but according to Lift's crane manager Kevin Conception, the industry is



the preassembled structure which weighed 1,000kg upright and manoeuvred it onto the pre-installed fixing points.

"getting very competitive and more safety orientated with detailed planning even more critical."

Another trend is that lifting capacities are increasing allowing more varied applications to be tackled with the spider cranes. In last year's spider crane feature (September 2016 issue 18.6) we asked the question 'Can the Japanese manufacturers - Unic and Maeda - remain dominant? This is even more interesting this year as there have been several developments both from the two main Japanese manufacturers and their main European rivals Jekko and more recently Brennero with its BG

Lift brand. The two cultures clash head on with the Italians expanding their ranges with rapid new product and concept development and a strong appetite to experiment.

spider cranes

Japanese philosophy

As with all things made in Japan, the philosophy is 'get it right, no matter how long it takes'. This explains why Japanese products have a reliability second to none but it also means new product development can be very slow and unable to keep pace with rapidly changing trends and demands unlike the majority of Italian manufacturers.





However, over the past 15 years Maeda and Unic have dominated the market, in spite of the massive increase in the total number of cranes sold. But most of the growth has come from outside their home market of Japan, primarily in Europe but also in North America - both of which look set to continue to grow - and also helped by a predicted expansion in the Middle East and Australasia. Yet despite the growing global awareness and increasing sales, the number of manufacturers of spider cranes remains small with only Brennero Gru, based near Verona in Northern Italy entering the fray in recent years.

Italian design

Rather than just copying the already successful Japanese spider crane design, the Italian duo have gone about it in a different way. If we use a sports car layout, with the crane's slew ring representing the engine, the Japanese cranes would be a Porsche 911 with its engine at one end hanging out over the rear axles with the whole chassis being structural and the outriggers from each corner. The Europeans would however be like a mid-engine sports car - such as a Ferrari - with the slew ring mounted in a central structural tub with cruciform X shape outriggers resulting in the rest of the chassis being non-load bearing and therefore able to be lighter.

In the car world, both of these designs and cars work brilliantly

and so it seems with spider cranes. However the larger the crane the greater the benefit of the centrally mounted slew ring in terms of lower weight and versatility. Last year in C&A we compared Jekko's new the 7.5 tonne SPX1275 with the traditional Japanese style eight tonne Maeda MC-815 and the six tonne Unic URW-706. The Jekko had a more compact outrigger spread both in its minimum and maximum positions. And it is able to pick & carry two tonnes - a feature only just gaining traction among the larger Japanese spider cranes.

A changing market?

In spite of the increasing popularity of these small cranes, are we likely to see the concept superseded by an alternative design - one that provides a lot more lift capacity from a similar footprint? Go anywhere tracked chassis have been a popular base for many products attracting various superstructures such as mini excavators, dumper bodies, scissor lifts and articulated loader cranes.

All these have found some level of sales success, driven by specific applications. However both Jekko and Brennero Gru have launched new products which are essentially standard articulated loader cranes mounted on a tracked chassis. Those producing this type of crane believe the concept is the future of the small tracked crane and will take over from the current traditional design.







"The mini crane culture is taking an important step towards articulated cranes to present an innovative product that is simple to use, within reach of a wider market that is continuously searching for new solutions, in particular in the area of maintenance and service, in increasingly complex logistical and environmental contexts," says Jekko chief executive Diego Tomasella.

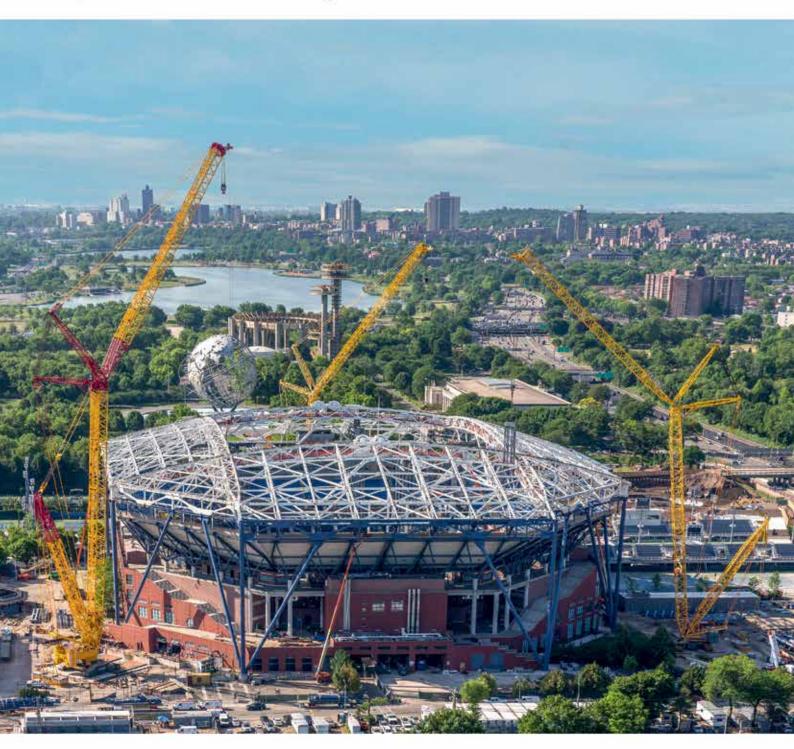
Specialist tracked loader cranes have been around for many years, especially at the smaller end from companies such as Kegiom or Hoeflon, but one of the first larger models using an articulated loader crane was launched in 2010 by German rental and engineering company Wemotec which teamed up with Palfinger to produce a new 'long boom specialist spider crane'. However Jekko and BG Lift are now offering off the shelf/ series produced models.

The Wemotec SMK320.67 (SMK stands for Spezial Montage Kran or special installation crane) had compact stowed dimensions with an overall length of 4.87 metres, an overall width of 1.75 metres and an overall height of 1.98 metres. Yet with outriggers deployed it boasted a 32 metre hook height and 6.7 tonne maximum lift capacity. Its articulated boom had two main booms, with over-centre articulation plus a telescopic jib making it amazingly versatile for reaching difficult areas. It also gave a remarkable outreach of 29 metres. A four axis manipulator arm was also integrated into the boom design for use with an RSJ steel beam grab or vacuum glass handler, allowing a 1,000kg glass panel or beam to be installed overhead or into difficult positions.

New range from BG Lift

Six years later Brennero Gru unveiled its new mini crane range

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which included two traditional spider cranes - the 2.5 tonne M250 and three tonne M300 - and the CWE 465 and CWE 525 articulated loader cranes mounted on a crawler chassis.

The company has been producing the CWE 525 - which uses an Effer articulated loader crane - for several years. Recently it added the CWE 525 RT to its line-up which has a wider and heavier chassis for more stability. Although not a spider Brennero Gru also has the interesting T250 truck mounted crane which uses a four section main boom with three section hydraulic jib giving a maximum capacity of 2.5 tonnes. Maximum hook height on the main boom is 12.85 metres where it can manage 1,250kg, with the jib it is 16.3

metres at which point it can lift 650kg. Maximum radius is 8.43 metres or 12.85 metres with jib. The truck chassis and crane have a total weight of 3,150kg and the jib adds a further 210kg so just coming under the 3.5 tonne GVW limit.

At the moment BG Lift's key products are probably the M300 and M250 spider cranes, as they are similar to the more popular cranes offered by Maeda and Unic. However as already discussed, they have a centrally positioned slew ring with outrigger legs attached to the central 'tub'. The three tonne M300 articulated crane features a two section, four metre long main boom with a 5.7 metre tip height which can lift 2.5 tonnes. With the boom horizontal maximum radius is 3.2 metres at which it can lift 1,400kg.





Adding the three section 195 degree jib enables it to lift 670kg to nine metres height or up to seven metres radius. The longer four section boomed, 2.5 tonne capacity M250, can lift 1,250kg to almost 11 metres and will be available with or without the jib. All machines can be fitted with optional winches.

Jekko launches new models

Over the past five years Jekko has expanded annual production from 80 cranes to a projected 250 this year with aims to reach 400 by 2019. A new facility in Colle Unberto to the north of Treviso has helped, but also the introduction of new machines. Future expansion will owe a lot to its new tracked articulated loader crane helped by loader crane manufacturer Fassi taking a third stake in the



spider cranes



company last year. Jekko believes that in five to 10 years' time this type of crane will be the most popular.

Three models have been launched, the largest, the 15.5 tonne JF545 will be followed by the JF30 and JF40. The JF545 features a six section main boom and six section jib maximum radius of 28.1 metres with 600kg capacity. Maximum lift height is 30 metres with 500kg. Stowed dimensions are 5.45 metres long by 1.84 metres wide and 2.75 metres high - slightly longer

and higher than the BG Lift CWE 525 (5.05 x 1.85 x 2.6metres) but it does have a one tone capacity advantage. .

It should be remembered that the largest capacity spider crane is the 10 tonne Unic URW 1006, which although it has a similar 30.7 metre lift height and 1.5 tonne pick & carry capability, is 6.06 metres long and two metres wide with an overall height of 2.46 metres, but is the lightest of the three weighing 14 tonnes against the 15,200kg CWE 525 and the JF545 which is



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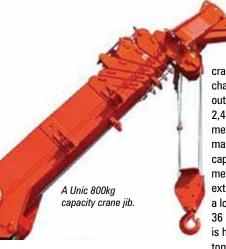
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heaviest at 15,500kg. They may be relatively compact in transport mode but they are sizeable machines. Both Italian cranes have an optional electric motor and access platform attachments, giving working heights of more than 30 metres.

Attachments add to versatility

There are numerous attachments that can be used with spider cranes such as searcher hooks and articulating jibs for increased lift height and radius allowing the cranes to take on more challenging jobs.

A searcher hook can be used where headroom is limited or when a load needs to be placed as close to a ceiling as possible by eliminating the metre or so taken up by the suspended hook and anti two-block mechanism. The attachment has a hook end fixed onto a crane's boom which is ideal for suspending a vacuum lifter or other below the hook equipment. Searcher hooks such as those from Unic have capacities up to 800kg and can be offset to ensure more precise placement of a load.

An increasingly wide range of jibs and extensions are now available, which not only offer greater height and radius but have substantial offsets or luffing capability for reaching over obstacles. The Unic URW-1006 for example has a 1,000kg capacity jib option, which increases the lift height to 30.7 metres.

New introductions

German aluminium crane manufacturer Böcker has delivered several of its new RK36/2400 spider cranes, the unit is essentially the top from its 36/2400 trailer

crane mounted on a crawler chassis, complete with spider type outriggers. Hence it has the same 2,400kg maximum capacity at 4.5 metres and 22 metre four section main boom with fully extended capacity of 1,000kg at up to 10 metres radius. A three section jib extends from 4.1 to 11 metres with a longer option of 13 metres for the 36 metre maximum tip height. It is however a tonne heavier at 4.5 tonnes, but being on tracks with 25 percent gradeability it can travel over rough terrain and up and down steps etc. The RK36/2400 can lift 250kg to a radius of 23 metres, or a very useful 500kg on the jib at a radius of almost 17 metres.

An electric power option is available giving the same performance without the noise and emissions. The Böcker crane can also be specified with an aerial work platform and various attachments. This is a sizeable piece of kit however, with an overall length of 8.44 metres, width is 2.11 metres and height 2.82 metres. Its maximum outrigger footprint of 5.4 x 5.4 metres is however relatively compact and it is relatively light. One of the first to be delivered was to UK based Lift mini cranes which says that it has been a hit for on/ off-road jobs and thanks to its 36 metre reach.



A new five tonne mini crawler

The new Maeda five tonne CC985S-1 mini crawler crane is

now available after being unveiled at Vertikal Days this year. The crane which can pick & carry two tonnes has a 16.5 metre boom,









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rear view camera and seven inch multi-monitor as standard. With no outriggers it has a small working footprint and is powered by an EU Stage 3B/4B compliant engine the optional jib increases the lift height to 20.2 metres. Features include fully enclosed air conditioned cab with link slide door, minimal tail swing, a two speed winch, hydrostatic transmission, hydraulic disc brakes and automatic five

Maeda MC815C deliveries

The first Maeda MC815C to reach Europe, has been delivered to Lift Mini Cranes in the UK, The eight tonne spider crane was supplied with a 1,000kg searcher hook and the 1,500kg capacity hydraulic two section jib taking the maximum tip height to 27 metres. The MC815C has a 19.6 metre pentagonal boom, new 10.4 inch multi-function





this model is the Technos 2 radio telemetry system, joystick controls, auto levelling, auto crane stow and an EU stage 3B compliant engine. The first MC815C in Sweden has been delivered to Krankungen in Stockholm, its 10th Maeda crane.

Second generation Unic

The first new second generation six tonne, Unic URW-706-2 spider crane to arrive in the UK has been purchased by Coppard Plant. Based on the standard URW-706 it features a new hydraulic searcher hook, a two section telescopic luffing jib that can offset up to 60 degrees providing a maximum hook height of 26 metres, and three metres more working radius. The cranes can be operated from either the operator's seat or via a remote controller.





The original Falcon Spider 29-52 m

