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Slowly but surely..

In last year's features on spider cranes we identified the fact that the general lack of awareness was restricting growth of the sector. A year later and little has changed. The spider crane is a well developed, high performance product not so much let down by marketing but perhaps the generally slow adoption of new ideas by the construction industry. Little by little this is changing as the number of units in rental fleets increases, but it is a long, slow process. The very fact that everyone who uses these amazing machines becomes a spider crane convert is a sure sign that they will eventually succeed big time - but when that may be is anyone's guess.

One sure sign that the concept has not fully broken into the mainstream market is the relative lack of available rental suppliers of the product. As with most cranes the majority of these mini lifters are purchased by rental companies and while the

number of outlets where you can rent one is increasing, they can still take some tracking down, even in the UK which is possibly the most developed western market.

Originating in Japan, the spider crane market is still dominated by two Japanese manufacturers -



Steel erection at a London house



C&a

spider cranes



Hoeflon C605

Unic and Maeda - which battle it out for market dominance. Both manufacturers have an extensive range, with lift capacities from one to 10 tonnes for Unic and one to four tonnes for Maeda (for larger lifts up to six tonnes Maeda offers its LC range of mini crawler cranes.)

The new kid on the block

A third Japanese manufacturer - R&B Engineering with its Mighty Crane brand - is also trying to expand its exports which are still at relatively low levels. Two years ago it CE marked two of its four machine range, the 2.8 tonne lift CR285D - which weighs 1,750kg and has an 8.9 metre main boom - and the significantly larger CR335D which is rated at 2.98 tonnes but weighs

3,760kg and features a 12.5 metre main boom. Around a year ago it appointed the German operation of France Elevateur as its sole distributor in Europe followed a month later by appointing access sales and rental company LTECH as its exclusive distributor in Russia. Now 14 months on and little progress appears to have been made.

European manufacturers

Outside of Japan there are a few spider crane manufacturers. In Europe, Holland has two specialist manufacturers - Reedyk and Hoeflon - and until recently Italy had two - Jekko and Kegiom Lifting - but they have been joined by Cormidi, with a multi-purpose spider crane/access platform (more of this later).



Hegiom's smallest - the HS850



A Bluelift spider lift with winch attachment



Jekko SPD 360

The Europeans have their own take on the solution to lifting in confined spaces. Reedyk, which is based in Klaaswaal just south of Rotterdam, has two mini cranes in its range - the C3410 and C3412 - but these feature pull-out stabiliser legs rather than hydraulically folding 'spider' legs.

While set up may take longer, performance is impressive - particularly the larger C3412 - which features an additional third jib section for increased flexibility. Despite having the same dimensions as the smaller C3410, the C3412 has about 30 percent more lifting capacity and almost six metres of additional reach. It gives the crane an impressive system height of 21.5 metres, a maximum radius of 19.5 metres and lift capacity of 4,250kg.

Reedyk's other crane is the tiny pick and carry PC4202. It has no outriggers, but offers unrivalled

performance when working in a confined space. At the last Verticaaldagen in Holland we reported on how the small Reedyk PC4202 crane was used to load and unload the large 200kg outrigger mats on a 90 metre Bronto truck mounted platform. Weighing just 750kg it has a lift capacity of 450kg and maximum lift height of 4.1 metres. Its low weight and compact dimensions - 1,550 x 2,120 x 980mm - allow it to be stowed on one side of the chassis for road travel. This is a well-engineered solution - carried out jointly between Reedyk, Peinemann and Bronto - something the more mainstream Japanese spider crane manufacturers would probably be reluctant to get involved with?

The Hegiom Lifting range has expanded in recent years its largest model is now the Minicrane 5000 Cobra which has a five tonne maximum capacity and 14 metre maximum lift height from a machine weighing just three tonnes. Options include a jib with manual extension and a working platform giving users increased flexibility. Hegiom's smallest - the 200 E3 spider - is also a good performer lifting 1,600kg with a maximum tip height of eight metres and weighing just one tonne.

Hoeflon, situated in Barneveld to the east of Utrecht in central Holland has a three model range - from the



A pair of Maeda 305's erecting a large panel

620kg maximum lift C05 to the four tonne capacity C10. It is also working on a new spider crane - the C5. Preliminary drawings indicate a maximum capacity of 1,800kg with a lift height of around 11 metres and a 10 metre working radius. A hydraulically operated three section jib - also capable of a negative angle - provides users with additional flexibility and increases lift height to about 16 metres with 500kg capacity.

Expanding the product range

European and Japanese manufacturers differ in the way they expand their product ranges. The

Japanese producers tend to work with a 'single' basic design that is made larger or smaller depending on the capacity and reach required although the larger two or three models use a much heavier construction with straight legs and a wider overall width. The common approach however is ideal for rental operations as each crane operates much the same as every other. However the more specialist European cranes appear to be built for a specific use and therefore the designs are a less consistent with each model in the range bearing

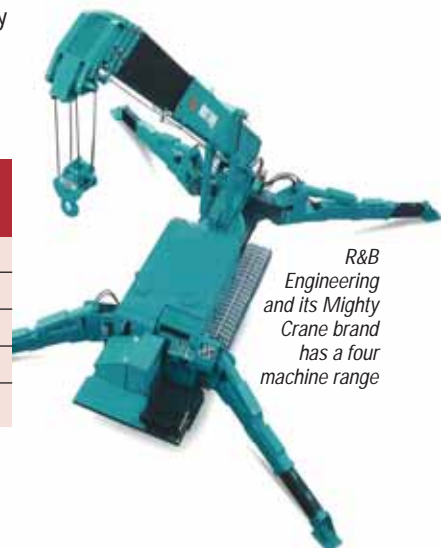
The 10 tonne lift capacity Unic URW-1006



How spider cranes weighing around one tonne compare?

Make	Model	Weight	Max capacity	Max radius	Max lift height	Size l x w x h
Hoeflon	C05	980kg*	620kg	3.9m	4.5m	1500 x 700 x 1250mm
Hegiom	200 E3	1,000kg	1,600kg	6.2m	8.0m	2200 x 750 x 1690mm
Maeda	MC 104	1050kg	995kg	5.1m	5.5m	1980 x 600 x 1305mm
R&B Mighty Crane	CR174G	1170kg	1,700kg	5.06m	5.3m	2150 x 580 x 1330mm
Unic	URW-094	1,000kg	995kg	5.17m	5.6m	1870 x 595 x 1305mm

can be reduced to 680kg (removable ballast)



R&B Engineering and its Mighty Crane brand has a four machine range

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little resemblance to the others, and differing significantly between each manufacturer.

Until last year, the largest spider crane on the market was the Unic the six tonne Unic URW 706. However the company surprised many with the introduction of the world's largest spider crane - the 10 tonne URW-1006 - at Intermat last year. Measuring two metres wide and just over five metres long, it can take a one tonne load up to 30.7 metres and has a maximum radius of 24.3 metres, offering extended reach for hard to access areas on site. Spider cranes are not normally associated with pick & carry duties however the Maeda MC405 is one of the few able to travel with smaller loads. It is a useful feature but duties are generally limited. The URW-1006 is also the first Unic crane to offer a pick & carry capability with up to 1.5 tonnes and it has diesel and AC electric power sources on-board offering both indoor and outdoor operation. The Unic URW-1006 is also one of the first cranes to be fitted with the state-of-the-art Wylie i4500 safe

load indicator which gives operator feedback on a high-resolution colour LCD screen.

The URW-1006 will undoubtedly give contractors a useful alternative for lifting in confined spaces as well as offering an economic alternative renting in a much larger mobile crane. It also takes the spider crane into a whole new range of applications (and audience) so it will be interesting to see how the 10 tonner is accepted on site.

Multi-purpose spider

With lifting capacities knocking on the door of small mobile cranes coupled with their almost go anywhere capability (including up and down stairs) where else can spiders develop? The Cormidi KB19-4 is the industry's first crane designed as a multi-functional machine that operates as a spider crane, access platform and underbridge platform all rolled into one.

Representing the next generation of spider crane engineering, the KB19-4 is the first true spider lift/crane hybrid machine. No other combined access platform and



A Maeda involved in positioning glass panels in Bucharest



Helping with steel erection in the USA



Work on canal lock gates near Chester

compact crane in the market can rival its multi-functionality, capacity, flexibility and compact dimensions. The KB19-4 boom has a three stage telescoping hydraulic boom with an innovative knuckle section and hydraulic jib which provides accurate positioning and an impressive range of movement. With a rated capacity of 995kg, the KB19-4 offers more lifting power, control and higher reach than standard spider crane fly jibs

throughout its 11 metre working radius. It has an overall lifting height of 15.65 metres, 365 degree slew and fast winch speed for fast cycle times. As a work platform the KB19-4 flexible boom system can easily lift an operator up, over and down thanks to its four metre underbridge reach while boasting a 22.5 metre working height in regular platform mode.

At just 890mm wide, the spider lift can work in restricted spaces and



An MOD Unic URW-547 being lifted by a Chinook helicopter



This Reedyk mini crane is used to unload large mats on a 90m Bronto platform

has been used in a variety of lifting locations such as construction sites, ship yards, highways, waterways, factories and in low point loading areas. The twin-speed traction system means it can move over rough, uneven terrain and gradients of up to 20 degrees.

The KB19-4 has a number of safety features such as stabilisation sensors, over-lowering alarm, auto-levelling outriggers, diagnostic function and a radio remote for controlling all boom functions from the platform or alongside the machine. The KB spider lift can also incorporate remote trouble shooting, allowing any problems to be detected through the machines' GPS and remote diagnostic function. With the crane attachment fitted it has a maximum lift capacity of up to 800kg. This lift capacity pales into insignificance when compared to the larger dedicated spider cranes but it scores highly on lift height and reach.

The KB19 for example, can lift 500kg to a height of 16 metres and 450kg to a height of 12 metres with a radius of five metres. At nine metres maximum radius with a horizontal boom the lift capacity is 400kg. Compare this to the Maeda MC104 which has a one tonne capacity at 1.1 metres radius or the Unic URW 094 with a similar maximum capacity but with a slightly better radius of 1.5 metres. But both have a maximum working radius of just over five metres. To achieve a similar 16 metre lift height needs the three tonne capacity Unic URW 506 or the largest Maeda spider crane the MC405. GGR - the official European master distributor for UNIC mini spider cranes - is branching out into the powered access market with the introduction of these multi-purpose machines into its rental fleet as it becomes the official Cormidi distributor for the UK. "We are excited to bring these innovative machines to the UK and break new ground for GGR by offering powered access equipment to our customers," says GGR Group's chief executive Graeme Riley. "I'm confident that the Cormidi KB19-4 spider lift will be a popular addition to our range as they are unique, multi-functional machines that will also appeal to a number of niche markets."

The Cormidi KB solution is far neater and more powerful solution than the increasing number of spider lifts that offer hoist attachments either mounted on or replacing the basket. The Cormidi spider crane/lift can also be used with other attachments including those requiring hydraulic power such as a glass panel handler or hydraulic demolition breaker. Bluelift is the latest spider lift

manufacturer to offer a crane/winch attachment on its 21 metre C21/11. The device has a maximum capacity of 250kg, and is located at the end of the main boom before the articulated jib. CTE also offers a similar 250kg winch system on its spider lifts, which it launched in 2011.

This increasingly popular option was originally introduced by Palazanni many years ago, but switching between lifting people and loads was not considered acceptable practice, an opinion many still hold. Today all Palazanni spider lifts offer a winch option for lifting materials. The smaller machines can be fitted with an electric winch where the larger machines can have either an electric or hydraulic winch capable of lifting 300kg. While the lifting capacity isn't very high it is quite impressive at heights of 30 to 50 metres and is more than enough for items such as roof trusses.

Light and portable?

Another big advantage of the smaller capacity spider cranes is that they are light enough to be towed on a trailer behind a normal 4x4 - or can they? New EU driving licence rules introduce slight changes to what younger motorists can tow. Drivers with a Category B (car and small vehicle) issued on or after 1997 were able to drive a vehicle up to 3.5 tonnes

and tow a trailer up to 750kg (with a combined all up weight of up to 4,250kg) OR tow a heavier trailer so long as it is lighter than the towing vehicle and the combined weight is no more than 3.5 tonnes.

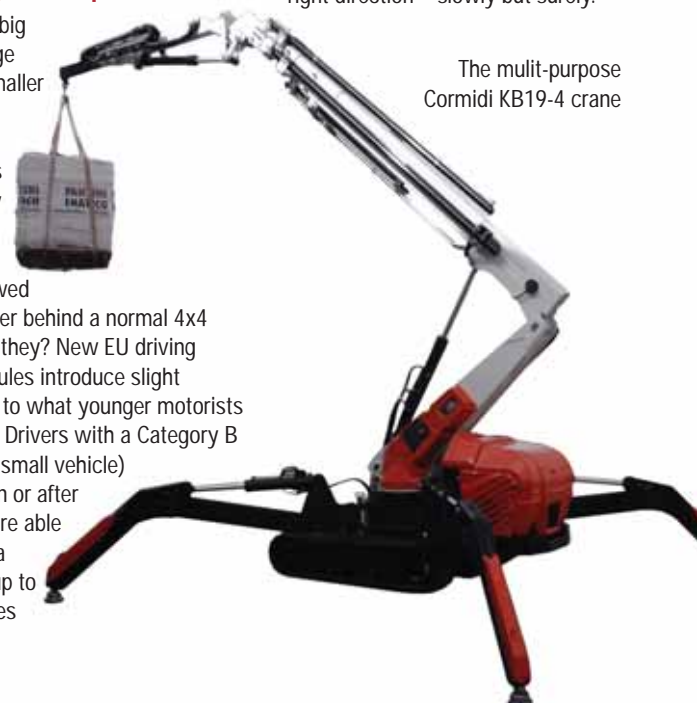
The new rules for a Category B licence passed after 19th January 2013 mean that new drivers can only tow trailers weighing less than 750kg OR trailers more than 750kg if the combined weight is less than 3.5 tonnes. So now only older drivers, or younger ones having passed a heavier licence, can tow most spider cranes, or for that matter spider lifts.

So in summary

Recent developments such as the 10 tonne Unic 1006 and the multi-purpose Cormidi spider will no doubt tempt more users to try spider cranes. Whether this then helps the rest of the market remains to be seen but at least it is heading in the right direction - slowly but surely.



A spider crane and scissor platform working together at the Westfield shopping complex in London



The multi-purpose Cormidi KB19-4 crane

Fashion icon at Selfridges

Late last year a spider crane took on an unusual lifting challenge at one of London's most famous shopping destinations, Selfridges on Oxford Street. The crane helped install a six metre high statue of iconic Japanese artist Yayoi Kusama to mark the second phase of Louis Vuitton and Yayoi Kusama collaboration in Selfridges' Concept Store. The store also dedicated all 24 of its shop windows to the artist, and exchanged its famed, yellow, branded rooftop flags for those covered with the artist's signature polka dots.



The 2.9 tonne capacity Unic URW-376 spider crane was rented from GGR, while a large decked Skyjack SJ8841 scissor lift, supplied by Charles Wilson assisted. The crane arrived long after the London crowds had gone then lifted and placed the 500kg sculpture to a height of 10.5 metres, placing it in front of the store's famed clock and historic Queen of Time statue. The scissor lift was used to access the canopy and take all the packaging material down once the statue was firmly in place.



The 6m high statue installed



Museum pieces

The smallest Unic spider crane was recently used at the Grade II listed World Museum - a popular tourist spot in the heart of Liverpool in the UK. Operating in an extremely confined space outside of the museum, the Unic URW-095 was used to remove eight Victorian lamp-posts for refurbishment.

Each 150kg lamp-post was rewired, repainted and fully restored the crane - rented from Unic European master dealer GGR - then returned to put them back into place. With work space of just 2.6 metres wide, the spider crane had to be carefully positioned around the museum's steps to safely lift the refurbished lamp-posts back onto their bases.

Spider cranes are ideally suited to museum work, GGR has used them to lift archaeological finds from the Antonine Wall at Glasgow's Hunterian Museum, install display cabinets inside the atrium of London's National Maritime Museum and move abstract sculptures at the Ashmolean Museum in Oxford.



Unic URW-095 at the Liverpool World Museum



Columbia chooses Maeda

As the only commercial operators of the Columbia 234 and 107 (formerly Boeing), Columbia Helicopters based in Aurora, Oregon, has had a history of pioneering lifting techniques and revolutionising helicopter features since its beginnings in 1957 when founder Wes Lematta began with a single helicopter performing precision lifting using longer than average cables.

Today the company is a world leader in commercial heavy-lift helicopter operations with customers in the oil exploration, logging, fire suppression and construction sectors which often means the

company has to maintain the equipment in remote areas, such as the Amazon Basin, Papua New Guinea, Alaska and Afghanistan supporting various operations.

"We needed a precision device to lift vertical shafts that have to be removed and maintained along with transmissions accessible from the top of the helicopter," said Rick Carroll, Columbia support equipment manager. "Four years ago the company discovered mini cranes as a solution to their lifting needs. They are easily transportable because of their small size and they offer the smooth precise load placement that larger cranes don't have. The

quality, safety features and the ability to operate them by remote control made them a natural choice."

The company now owns four Maeda MC285C's with a 2,820kg lifting capacity and an 8.7 metre maximum lift height. "In our maintenance facility in Oregon, there are also some advantages to using the mini cranes instead of our overhead cranes, because of the precise winch control capability of the Maeda, setting the loads with smooth controlled accuracy," adds Carroll. "Heavy duty

rubber tracks and high ground clearance make travelling over rough terrain easier and an overall weight of 1,900kg means the mini crane is easily transported by road or air, even in our helicopters if necessary."



A Maeda MC285C on helicopter maintenance duties



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