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Spidersniche no more

While the spider crane has continued to increase its presence and market penetration around the world Japan still dominates the world population, with a reputed 10,000 units operating in its country of origin. With this in mind it is easy to imagine the incredible potential still to be realised in the rest of the world. This in spite of its increased international popularity, particularly in Europe which now has roughly 5-6,000 units as well as small but growing numbers in North America, the Middle East, Australia and even Africa.

While sales have generally been good in Western Europe - the best market outside of Japan - there are many who think the spider crane is still very early on in its adoption cycle, with a massive growth spurt likely to happen. It has certainly become a more established and recognisable piece of equipment - even compared with three years ago - as it moves from a niche to a mainstream product. But there is still a major job to do to educate potential users on their benefits even in Europe.

What is interesting is that the rise in sales has not drawn in new producers, with the market still dominated by the Japanese with Maeda and Unic leading the charge, followed by R&B Mighty Cranes (the old Toah company) which is still struggling to gain a foot hold in Europe and North America. Of the European spider crane

manufacturers only Jekko is has managed to build any significant volume. Others - such as Hoeflon and Reedyk - are more small capacity tracked cranes with moveable beam-type outriggers, than true spider cranes. These machines are ideal in very tight situations, but are more specialist and not as rental friendly, and tend to be used only when the more popular spider-type cranes cannot gain access because of their fixed and relatively large outrigger spread. What still surprises all those that work with spider cranes is their ability to complete lifts that would need much larger capacity mobile cranes. Most of the spider cranes





sold have nominal capacities of between three to six tonnes, but their ability to manoeuvre very close to the lift allows them to operate at a minimum radius, while bigger cranes have to carry out the same lift from afar. Generally the only limitation of using a spider crane is the ability of its operator to get it into its lift position.

Being so compact in travel mode the cranes can travel up stairs, through narrow doors and be lifted over obstacles. The downside of the spider crane is its relatively large outrigger spread that may restrict its set up in some very tight spots. But the positive is that they can carry out work more efficiently and safely for a fraction of the cost of a mobile crane, with much less disruption.

Market leaders

Unic and Maeda account for the vast majority of global spider crane shipments, having been produced in Japan for more than 30 years. Maeda became the first manufacturer to enter the European market in the late 1990s through European master dealer Kranlyft, the Kato crane dealer at the time. Unic followed several years later when GGR became its European master dealer. At that time there were two other Japanese manufacturers -Tadano and Toah. Tadano produced and sold cranes until 2006 but they are no longer exported and Toah (now R&B Engineering) is struggling to build sales volume outside of Japan.

Maeda has been the dominant producer and claims to have around 65 percent of the home market. However in Europe Unic and Maeda vie for market leadership with the two accounting for between 80 and 90 percent of the total global sales. Unic has the wider range of the two, with capacities from one to 10 tonnes whereas Maeda builds cranes from one to almost four tonnes. However it has now confirmed that it will be launching its largest crane - probably a six tonner - to compete with the popular six tonne capacity Unic URW-706 - at Bauma next year although no details have yet been released.

The only manufacturer looking like breaking the Maeda-Unic dominance is Ormet with its range of Jekko cranes. Based in Umberto, Italy the company over the past year or two has re-launched its range and is finding success, particularly in the Netherlands and Germany as well as in the USA. The company says that it has been working on new models and expanding its dealer network and hopes to increase its market share to about 20 percent over the next four years. Last year it introduced a complete new range

spider cranes





of products and it will be launching another new spider crane at Bauma also expected to be around the six tonne mark.

Tying in with its product range expansion, the company has increased production capacity by adding more than 1,500 square metres to its existing plant, to cope with sales growing at between 15 and 20 percent each year. Its product range currently includes the 990kg - 7.5 metre lift height SPB209CP, the 1,200kg - 10.7 metre SPB312, the 2,400kg - 13.5 metre SPX424, the 4,000kg - 23.5 metre SPX 1040 and its largest so far, the 7.5 tonne - 26.7 metre SPX 1275. Both the SPX1040 and SPX1275 can pick & carry a useful two tonnes. Both are powered by either diesel and/or battery electric and can slew through 360 degrees.

As well as its cranes, Jekko has been busy adding a variety of options, recently launching a new jib - the Jib1500.3HL - for the SPX1275 which features three hydraulic extensions. Maximum capacity is 1,500kg and the length ranges from 3.5 to eight metres. The first unit of this new jib has been delivered to Hocap in Holland with a second



going to Jaromin in Germany. A manual fly jib - the Jib1500.1FL - is also available. As well as various types of hydraulic and standard jibs the company makes other attachments including manipulators and forks.

The main focus for Jekko this year is on the SPX 424 CDH. With a maximum weight of 2,400kg, the company claims it is the only crane in its class (2,400kg capacity) which can be transported on a 3.5 tonne flatbed trailer. More than 20 were sold in the first six months of the year.

Other new options include the first fork designed for a mini crane - the 455kg capacity Jekko Drywall Fork JDF450 - which can be used with a rotator lift and place up to 16 x 15mm thick plasterboard panels or 20 x 12.5mm boards up to 1479mm wide. Also new is the 600kg capacity MV600.3 glass manipulator with plug and play LMI, full remote control and dual vacuum system for the SPX 312. Finally there is a 3,500kg capacity runner jib for the larger SPX1040 and SPX1275.

This month Jekko USA will introduce a new JIB300GR modular grabber, which can grasp, rotate, manoeuvre pipes and poles from 100 to 325mm in diameter.

With a capacity of 7.5 tonnes the SPX1275 has the second biggest lifting capacity of any spider crane



Jekko is finding success particularly in the Netherlands, Germany and the USA



(largest is the 10 tonne Unic URW-1006). It has a five section 17.7 metre main boom with a 19 metre maximum tip height, at which it can handle 1,700kg. An 8.8 metre telescopic extension takes the tip height to 27.8 metres with a 900kg capacity. The outrigger base can be set from a minimum 3.36 x 3.36 metre footprint up to a maximum 4.6 x 4.6 metres, while the tracks can extend from 1.45 to 2.05 metres at which it can pick and carry 2,000kg. The unit is operated by a Scanreco radio remote control and power comes from an Isuzu diesel or an electric motor.

Pick and carry capability

With Maeda the only other spider crane manufacturer offering a model that can pick and carry - the MC405 with 500kg – the two tonnes offered by the Jekko SPX 1040 and 1275 stand out. The larger SPX 1275 still weighs less than seven tonnes - half the weight of a mini crawler crane such as the Maeda LC1385 which also has a two tonne capacity pick & carry capability.

The comparison between the two cranes is interesting with the new Jekko weighing in at less than half the weight of the LC1385, while offering the same pick & carry



capacity. It also has better lift capacity and more boom as well as being more compact in transport mode. Of course the advantage of any mini crane over a spider is that is does not need to put down outriggers and therefore is as compact when working as when travelling. The LC1385 also has a cab, better travel speed, gradeability and faster line speeds. Overall the Jekko stacks up well, and there are indications that the company will introduce cranes with cabs in the future - possibly at Bauma.

Spider cranes generally do not offer pick & carry capability, leaving the user to sort out additional equipment to move loads around,



Pick and carry capabilities of the Jekko SPX1275 and Maeda LC1385

	Maeda LC1385	Jekko SPX1275
Max capacity	6 tonnes	7.5 tonnes
Pick and carry capacity	2.0 tonnes	2.0 tonnes
Max main boom/capacity	16.7m/2,600kg	18.2m/1,700kg
Max with fly jib	22m with 820kg	26.7m with 900kg
Travel speed	2.9/5.1 km/h	1.6/3.1 km/h
Max outrigger spread	3.61 x 2.49m (track size)	4.60m x 4.60m
Weight	15,640kg	6,800kg
Dimensions incl boom	6545 x 2490 x 2965mm	5730 x 1450 x 2040mm
Gradeability	34 degrees	20 degrees
Ground pressure	0.54kg/sq cm	0.72kg/sq cm
Single line speed	112/164m/min twin speed	116m/min
Hoist rope	10mm x 115m	10mm x 125m



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for example when loading and unloading from a wagon.

A novel but increasingly popular solution is using tracked carriers. J T Cranes the UK Hoeflon dealer now has two units with carrying capacities of two and four tonnes which it uses with spider cranes to carry the loads between lifts. Hoeflon has also launched a revised version of its 1.5 tonne capacity C6 mini crane with infinitely variable outrigger configurations. It is also now available with or without fly jib which has a 15 degree negative angle and can lift 210kg to 14.5 metres. Maximum lift height is 16 metres with a capacity of 500kg. The crane can also remove its own ballast to reduce weight, giving a minimum GVW of 2,100kg, compared to 2,800kg with counterweight and jib but can still be towed by a standard 4x4, particularly as it carries everything - pads, searcher hook, hoist winch and remote - on board.

Maeda changes

Distributor Kranlyft was singlehandedly responsible for establishing the spider crane in Europe when it introduced the Maeda range in 2002. Over the years it has seen a huge change in attitudes towards the equipment, with much higher awareness recently.

"We don't have to explain the product or concept as we did a few years ago - people generally now know what a mini crane is," says Christer Dijner managing director of Kranlyft, "but there is still a long way to go before it becomes an established, mainline product. European sales are going very well - a combination of new customers and existing users who purchased machines up to 10 years ago renewing their fleet."

Unlike GGR which has a rental fleet in the UK of more than 150 spider cranes, Maeda sticks to the principal that combining sales with rentals is not the way to go.

"We have had up to 12 spider cranes in a rental fleet for more than 10 years but these are more to help customers with equipment problems rather than hiring them out to make





money," says Kranlyft's Alan Peck.

The most recent new spider crane from Maeda is its articulated boom MK1033. To date the company claims to have sold more than 30 in mainland Europe. "The MK1033 is a more of a technical crane with a different SLI system and full radio telemetry," says Peck, "and so people need to be brought up to speed with the new technology which over time will be added to other cranes in the range."

Maeda is also changing the nomenclature for its mini crawler cranes from LC to CC. The LC was used because of the links with Komatsu and its excavator undercarriages. However the new CC models will be built on Maeda undercarriages and use tier 3B/4 compliant Isuzu engines. Hence the LC1385 will be replaced by the CC1485 and the 4.9 tonne capacity LC 785B will become the CC985. The first CC1485 will be shipped at the end of December and has been sold to Heli in Belgium, with the second and third sold in the UK to mini crane rental company NRC and an un-named user.

So far the LC1385 has had limited success, however the change of engines is attracting more interest. In mainland Europe German rental company Beyer-Mietservice's recently ordered 50 new Maeda cranes including seven LC383 and LC1385s, along with some MK1033s. The new CC1485 will be lighter as it dispenses with the front blade but even so still weighs almost 15 tonnes so transport is still an issue.

Maeda is also adding more bolt-on options such as larger searcher hooks which now





offer up to 850kg capacity and can be fitted to its MC285, MC 305 and MC405 cranes. The MC285 is now powered by petrol or LPG and has an auxiliary winch mounted onto the base boom, giving it 100 metre below ground performance with 990kg safe working load ideal for glazing companies working on high rise buildings.

Unic developments

Perhaps as an answer to the Maeda MK1033, Unic Cranes Europe has developed a hydraulic luffing jib attachment for the URW295 and URW706 spider cranes, which effectively converts them into a form of articulated spider crane - while retaining the same lift-to-weight ratio and dimensions as the original models. The URW295-2 has a hook height of 11.6 metres and a 700kg lift capacity, while the URW706-2 has a hook height of 25.9 metres and an 800kg capacity. Both hydraulic luffing jibs can offset by up to 60 degrees and can be fitted with a jib nose mounted hook.

> Unic Cranes Europe has developed a hydraulic luffing jib attachment for the URW295 and URW706 spider cranes.



The LC785T rail mounted crane is available and has track adjustable from 1047 to 1465mm. The cost of getting network rail type approved means it will probably not be available in the UK.



spider cranes C:a Lift Mini Cranes expands

Lift Mini Cranes is the largest spider crane rental company in the UK Midlands. Part of Darren Lee Construction, which specialises in on-site steel fabrication and erection, the Leicester-based company grew out of the group's internal demand.

Managing director Darren Palfrey spotted the spider crane's potential for steel erection in 2008, when he purchased a second hand Unic 095 to help with a job - up to this point the company had either rented in or used its own mobile cranes. The small Unic worked well and is still in the fleet today. Palfrey soon purchased a second spider crane - a 2.9 tonne Unic 295 and both worked for the steel business, attracting interest from contractors on site which eventually led to them being rented out on short contracts when being used internally.

Palfrey decided to build on this external rental potential and drafted in Kevin Conception to run the new division called Lift - complete with



Kevin Conception with hire manager Jade Burton.

its distinctive yellow and red livery. It now operates as a separate business still supplying spider cranes to Darren Lee Construction although external rentals now make up the majority of its activities. In the early days Conception was one of only three staff. Initially an

operator he was put through slinger/ banksman, crane supervisor and AP courses, allowing him to survey jobs. As demand increased more





cranes were added and the fleet now includes 25 spider cranes and a Klaas TC-30 trailer crane with big ambitions for further expansion.

"We are all about being a one stop shop and keeping the customers happy, so we are constantly looking to add more machines," says Conception. "We have a mixed fleet of Unics and Maedas and with a range from one to six tonnes we can cover most eventualities. When we started there was GGR and also JT Cranes with one or two units, but very few companies offered spiders at the time. A Mini Crane Company and Hird entered the market just after us and we have very good relationships with them all, helping each other when we can. The sector is too small not to get along with the others. There is a lot of work at the moment and rates are good."

Lift says that the internet has helped fuel growth as people use it find out more about specialist equipment. The company used to run a couple of mobiles, including a 25 tonne Kato truck crane, both were sold when it started specialising in spiders. The current fleet includes almost every Unic model up to the six tonne 706, and now the Maeda MC104, MC305 and MC405.

"The spiders are ideal in accessing areas that would be impossible

with larger cranes. At the MK Dons football stadium one of the Unic 095s had to climb the stairs to the upper tiers and onto a specially prepared crash deck in order to erect a steel frame, lifting beams weighing up to 400kg to support a large LCD display."

Any time, any place....

Geographically Lift will work anywhere in the UK and as its fleet has expanded it has taken on staff including a new hire manager, Jade Burton who joined from



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spider cranes

Quinto Cranes. It also has a team of operators employed by the company who if they are not driving the cranes can be delivering or working on the Darren Lee Construction side.

"The advantage of employing our own operators is that we can maintain standards. Having them is a real bonus and some clients ask for the same operator again and



again. We also use independent operators that we know are good," says Conception. "Since September last year we have been very busy on refurbishment and regeneration

<image>

projects such as railway stations and shopping centres. We are always finding new ways of using them - tandem lifts, working on high rise buildings, installing cladding etc."

"We have the facility to totally rebuild and refurbish any of the cranes and generally sort most of the servicing and repairs ourselves. And should we notice any recurring problems we make the necessary changes ourselves. We spend a lot of money on maintenance, keeping the machines in the best condition possible. Generally customers look after the machines well, but occasionally - particularly on the longer hires - the cranes suffer damage such as the pressure transducers in the cylinders. They are so easy to damage but affect the whole machine. We now protect them using a small guard, saving us



money and the customer downtime in the long run."

Utilisation has been around 75 percent this year with five new cranes being added. The company is also moving to larger premises a mile from its current depot with more office, workshop and yard space. During the London Olympics the company kept machines at a storage depot in the city, moving them back to Leicester when the work was completed. With demand for spider cranes always high in London - often half its work load - it is most likely the location for second facility. In the meantime the plan is to grow the fleet to between 70 and 80 cranes over the next five years.





£14 million pier renovation

Hastings Pier in the UK is currently being rebuilt following a devastating fire in October 2010 that destroyed 95 percent of the superstructure. Built in 1872 the pier enjoyed its prime in the 1930s and was a popular music venue in the 1960s. Since then it suffered major storm damage in 1990 and was finally closed in 2006 amid safety issues.

Work started on the £14 million renovation in September 2013 with completion now scheduled for next year. Initial works included the renovation of the Grade II listed substructure, refurbishing what's left of the Pavilion and the construction of a new visitor centre. Most of the funding came from the Heritage Lottery Fund while 3,000 people also bought community shares in the company that will own and operate the pier. Through the summer four, six tonne Unic 706 spider cranes from Coppard Plant have been helping replace 500 deck beams and 350 lattice girder beams. When finished there will be about 72,000 metres of new timber and 11 new structural piles. The spider cranes are also being used to place the steelwork for the base of the new visitor centre, two of them equipped with suspended man baskets

to provide the erectors with an access platform from which to connect the steelwork over the water.

Unic 706 spider cranes from Coppard Plant. have been helping replace 500 deck beams and 350 lattice girder beams.



Maeda reaches parts other cranes cannot reach...

A Maeda spider crane has erected a steel frame at St. David's Medical Facility in Austin, Texas, which was beyond the limit of the site's tower crane. The tower crane was however able to hoist the 2.8 tonne capacity MC 285 onto a nearby roof from where it could erect the steel structure.



Erectors said that assembly was much faster using the spider crane because of its proximity and its precision placement. The operator was also able to easily monitor and communicate with those fixing the beams which helped improve safety. This solution also proved to be a much lower cost alternative to a large mobile crane and freed up valuable tower crane time.

Caa spider cranes

New Hüffermann electric crane

German crane and access rental company Hüffermann Krandienst has launched a new version of its AC electric self-propelled crane for industrial applications. Based on a 53 tonne/metre Palfinger PK 53002-SH loader crane, the machine has been designed for the automotive and food industries and lifts in other confined areas.

The new crane is lighter and more compact - 5.6 metres long by less than two metres wide - than the original and includes four wheel steer, a higher drive speed and can raise the boom while travelling. It can also jack itself up 1.2 metres to allow a trailer or flatbed truck to reverse underneath for easy self-loading. The two stage beam and jack outriggers can be configured

asymmetrically with the load chart adjusted to suit the jacked base.

The 10.5 tonne crane has a 25 metre lift height and can handle 2.5 tonnes at 16 metres radius. ATEX Explosion proof versions are available, along with three different counterweight configurations in order to tailor the crane to suit various jobs and weight restrictions.

Based on a 53 tonne/metre Palfinger PK 53002-SH loader crane, the machine has been designed for the automotive and food industries and lifts in other confined areas





Spider turns master thatcher

A Unic URW-376 from GGR fitted with an MRT4 Quattro vacuum lifter helped install an innovative thatch cladding system at the new £11.6 million Enterprise Centre at the University of East Anglia.

Timber cassette cladding modules are filled with straw from local thatchers' barns across Norfolk and then fixed to the outside of the building, combining a traditional craft with modern construction methods in a completely new way of using thatch. The building has one of the lowest carbon footprints of any building of its size in the UK. The spider crane was equipped with a searcher hook to allow the 320kg capacity vacuum lifter to install glass underneath the overhang of the thatched cladding.



The spider crane with searcher hook was used with a vacuum lifter to install glass underneath the overhang of the thatched cladding

