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# Small crane market has legs!

Although the market for spider and mini cranes has been growing consistently over the past decade, the European market is still relatively small. This is reinforced by the fact that there are still just two major manufacturers - Maeda and Unic - which account for the vast majority of sales while relative newcomers such as Jekko struggle to carve out a share for themselves.

Like other niche products such as spider lift work platforms, the 'compact' crane sector is still performing quite well in spite of the current climate - but then selling a new concept is always a hard sell whatever the state of the economy. Cranes & Access investigates.

## What's in a name

There used to be some confusion over what to call the various small crane types but at least the machines are now popular enough to have established their own identities - spider cranes with legs, mini cranes without. The recent popularity of small industrial 'pick and carry' cranes - championed over many years by Valla with more recent additions from Galizia with the G20 and the Jekko with its MPK20 - has added another dimension to the compact crane market.

## Lack of awareness

The compact crane sector still suffers from a major lack of awareness among potential users which even extends to major contractors. One recent example of this was at a £200 million development in Bristol where several spider cranes were rented to keep the project on schedule. The spiders were needed to install both glazing panels and prefabricated curtain walling sections. The project planners had 'overlooked' how the



*A Jekko machine on glass handling duties*

site's tower cranes - still very busy with the erection of the concrete frame - were also going to have the time to install the glazing/cladding. Fortunately an experienced and knowledgeable project manager knew of the mini cranes' capabilities and the project is now even a little ahead of schedule. However, it was touch and go, while it was checked if the machine needed to lift the two tonne panels was physically small enough to gain access to the set-up points on each floor and then have enough room - particularly height - to carry out the task. Fortunately several Maeda MC 285s just managed to fulfil the requirements.

Too many developments still are designed and planned without due

consideration to the equipment needed, access and space requirements. And all too often, it results in the panic call to rental companies "can you help us solve this problem....."

As can be seen in the cemetery application on page 20, the spider crane can be of interest to a wide range of end users, although according to Maeda distributor Kranlyft, almost 90 percent of its sales are to hire companies. The cranes give hirers excellent returns on investment - touching as much as three percent of purchase price per week for some jobs.

Estimates of the total numbers of mini/spider cranes in UK hire fleets vary but a figure in the region of 300 would not be too far off. Rental companies that offer spider and mini cranes are now thought to number around 40, almost double the number in 2007. The key factor spurring on growth is the increasing realisation among users of what the cranes can do, thanks to the fact that they can get much closer to the work and set up in what might seem like impossible situations on slopes, stairs and spanning voids. The spider crane is taking work from larger

mobile cranes, but also replacing teams of men with chain blocks, winches and muscle power most of which no longer sits well with current health and safety thinking, with its method statements and risk assessments.

## So who does what?

Japanese market leader Maeda, claims a worldwide market share of over 70 percent. Its European master distributor, Kranlyft was the first to bring spider cranes to Europe. It says that while activity has slowed slightly, the Group continues to grow - perhaps not at the previous rate of 50 percent a year, but still at a decent rate. In the first two months of this year it has already sold about 40 cranes across Europe, not far off last year's figures.

The Maeda range is currently five models strong, four spider cranes - the MC104, MC285, MC305 and MC405 - and the larger 4.9 tonne capacity LC785 mini crane. The range is due to change with the introduction of the MC174 replacing the MC104 and the addition of the six tonne LC1385, both of which should make their first appearance at Intermat in April following their unveiling almost two years ago! UK customers will be able to see them



*Now a familiar application for the spider crane.*

at Vertikal Days show at Haydock Park in June.

"These new cranes have been a long time coming, but there have been a few additional tweaks to them since the initial announcement," says Kranlyft UK general manager Alan Peck. "Maeda does not rush into releasing new products until it is absolutely satisfied that the machine meets its exacting standards. It has been a long time since we first heard about the two new models, but it is better for everyone to have them up to Maeda's usual quality and performance standards before they start shipping."



Jekko's new SPD 1000 with four metre jib

The new MC174 has substantially increased lifting capacity of 1.72 tonnes at one metre rather than the one tonne of the MC104 which it replaces. Maeda has also managed to increase the maximum lift height by 100mm to 5.6 metres, install a more powerful Mitsubishi 6.6kW petrol engine, include a high and low speed transmission and substantially increase the hook speed in a machine that is 110mm shorter in length (1,870mm), 10mm narrower (590mm) and 5mm lower (1,300mm). The crane also has the benefit of a safe load indicator as standard and Kranlyft will also install an LPG conversion if required.

With a weight approaching 16 tonnes and a six tonne lift capacity at 2.6 metres, the LC1385 is a rather large 'mini crane'. Perhaps more a small crawler crane, it has a two tonne 'pick and carry' capability at up to 3.5 metre radius and maximum lift height is 16.7 metres. The weight will be the main cause of concern to those more used to the smaller models, given that it is 6.46 metres long, 2.49 metres wide and 2.965 metres high, although it is quite compact for a crane with its capabilities. The crane has a similar lift capacity to Unic's URW 706 spider but is



perhaps competing with the likes of IHI and Hitachi crawler cranes available to hire and buy in the UK from AGD Equipment and NRC Plant respectively.

### The big spider

Unic's URW 706 - currently the largest spider crane on the market - is a bit of a beast. It lifts its six tonne maximum capacity at three metres, has a 22.7 metre maximum lift height, with extension jib, a total weight of around eight tonnes. Dimensions are 1.6 metres wide, 2.2 metres high and 5.6 metres long, but to achieve this impressive lifting performance it must set its outriggers at maximum extension giving it a whopping 6.5 metre by 6.6 metre footprint.

With a conservative quoted lifting capacity of eight tonnes, the Hitachi 160 LCT weighs 15.4 tonnes but has a footprint of only 2.49 metres wide by 7.36 metres long with an overall height of 2.9 metres and in the right conditions can lift and carry up to six tonnes. After many years on the market these machines are finally becoming increasingly popular and Hitachi has plans for a smaller, five tonne version to be launched this May. End-users in the know realised a while ago how well these cranes performed on site. However the rest

of the industry is now starting to appreciate their advantages.

Unic has made enormous strides in Europe through its master dealer GGR-Unic. Formed in 1996, GGR-Unic was originally a user of Maeda cranes as glass contractor GGR Glass, purchasing several units for its own use and renting them out in between jobs. Seeing a longer term potential for the product, GGR approached Unic's parent, Furukawa in Japan, which was initially uninterested in investing in Europe particularly with the CE approval problems.

GGR went ahead and purchased a few units, obtained CE certification and become the European master dealer, establishing Unic Cranes Europe as a division of GGR Glass. It now supplies, services and develops Unic mini cranes through a distributor network across Europe, the Middle

East and Africa and has done a great deal to expand the overall market for this type of crane.

GGR Unic has been one of the top growing companies in the UK - making it into the 'Virgin Top 100 fastest growing private companies'. The company was 95th this year having posted a compound annual growth percentage of almost 54 percent with revenues for 2007 of £12.8 million. This is the second consecutive year that GGR has made the chart, which measures growth over a three year period.

GGR now operates the western world's largest spider crane rental fleet which is now about 100 machines as well as offering 20 Galizia pick and carry cranes - a marque it began distributing just over a year ago.



Further modifications have been made since this early picture of the new Maeda LC1385.



A Galizia G20 from GGR

GGR chief executive Graeme Riley said: "The focus we put on our customers is at the core of our business, whether it's creating a bespoke lifting solution for a one-off job or ensuring the technical support we provide is consistently second-to-none. We are incredibly pleased to have maintained a place in the Top 100 in what has not been an easy year for the industry. This year has started better than we expected, with good utilisation of the fleet."

The growing market and success of the Japanese manufactured cranes has attracted a number of European producers into the market, primarily Italian and German. Largest of these is Imai with its Jekko range of cranes which were initially built as specials to meet the needs of Italian glass and curtain walling contractors working around the world and in particular, London.

### The Italian touch

IMAI has expanded its business moving from what were custom built units to serial production models which it markets under the Jekko brand. Last year it established Jekko UK in an effort to capitalise on the growth of the product in what is currently Europe's largest spider lift market.

Until recently its largest crane was the SPD500C, a machine capable of lifting a maximum of 1.75 tonnes and 650kg to 10.7 metres with its five section boom. The boom can also be fitted with a four metre, triple extension jib to reach a tip height of 11.5 metres.

However, the company is planning to launch a much larger spider crane - the four tonne capacity SPD 1000 - this spring. As with the other cranes in its range - the 265, 360 and 500 - it can be fitted with a mechanically or hydraulically operated jib up to 72 degrees which can which gives it a maximum working height of 21

metres. Measuring 5.25 metres long, 1.4 metres wide and 1.95 metres high it will weigh 5.5 tonnes.

UK based Peter Hird - the privately held group of crane and access businesses that includes Peter Hird rental and industrial moving in the UK, Valla cranes in the UK and Valla USA - has formed Compact Lifting Equipment to sell and service Jekko spider cranes in the Middle East.

However, it also has Jekko machines in its UK rental fleet and recently supplied Hull-based glazing contractor EYG with cranes and glass manipulators for handling and positioning its larger glazing panels. "Bringing the Jekko glass manipulators into our fleet has enabled us to refine our lifting techniques within the glazing industry," says Hird. "We are seeing our market increase very quickly and we foresee some long-term growth in this niche sector, where in the past a limited amount of companies have ventured into this field. The Jekko range has come along way since we first considered it. The company now builds a quality product with standardisation of components across the range making it a more attractive proposition."

Jekko launched its two tonne capacity 'pick and carry' MPK20W mini crane at last year's Vertical Days and seemed to spark into life several other machines including the similar capacity Galizia G20. These cranes are unlikely to take sales away from spider cranes, but offer a compact, easy to manoeuvre pick and carry capability that will create a market of their own serving industrial and institutional and construction markets.

Italian manufacturer Kegiom Lifting has a limited three model range of spider cranes including the 350E4 capable of being towed by a large 4x4 and able to reach 10 metre working height and lift just over two tonnes. The non-spider 350E4 has a

1.25 tonne pick and carry capability while the 8700E4 features a double articulated boom offering a 16 metre up and over capability and a maximum lift of 2.69 tonnes.

Another company not quite making it into the UK is Reibsamen from Germany again entering the market via the glass handling route but no UK dealers have yet been appointed.

A third Japanese spider crane manufacturer R&B Engineering, which until 2007 was known as TAO, has also been eyeing up the European market and could well dip its toe in the water later this year, if not restrained by the economic climate in its home market. The company currently produces two models, a 1.7 and a 2.8 tonner.

So it's the same old story for the niche, specialist products - the majority of sales to hire companies, slow but steady growth, good returns for hirers and a small number of suppliers in the market. Put like that, I am sure there are many equipment suppliers dreaming of having a product such as that in its portfolio. For the mini crane - the only way is up!



A Gatwick's Unic working for Proquip next to the Millennium Dome

# Cemetery safety

For the best part of two hundred years, Cardiff-based Memorial Services has specialised in the masonry and memorial trade.

Formed in 1821, the company has used traditional stone working and transporting techniques to produce, erect and dismantle stone monuments in cemeteries. However, recent Health & Safety changes affecting the work carried out in graveyards - or more to the point, the decision to enforce this legislation - has resulted in the company looking at safer and more efficient ways of working, resulting in an investment in a spider crane - a Maeda MC285.

Whilst it is difficult to give precise accident statistics, figures over the last five years from the HSE - excluding any collated by local authorities themselves - reveals 21 serious accidents to members of the public, including three fatalities. Those at risk include cemetery visitors as well as workers in the cemetery. Two 'near miss' incidents involved workers where a memorial fell into a grave as it was being dug.

However, most accidents have involved young children.

In 1998 the industry's own research highlighted the problem of unstable memorials, however it was the tragic death of a child in Harrogate in 2000 that has spurred the Burial Authorities (BAs) into taking action. This was given further impetus in 2001 by a report by the Select Committee on Environment, Transport and Regional Affairs that concluded a new approach was needed to cemeteries as a whole.

Current legislation that applies is the Health and Safety at Work Act 1974 (HSWA) which requires BAs (as employers), to ensure not only the safety of their employees but also members of the public who might be affected. Also, the Management of Health and Safety at Work Regulations 1999 require all employers to assess the risks to employees and non-employees. The HSE is currently satisfied that most of the 3,000 BAs across the UK are, in the spirit of self-regulation, dealing with the



issue effectively. However, a group representing the whole of the industry - and including the HSE - is looking to produce very simple guidance in the near future.

Modern monuments tend to be much smaller in size and weight compared to the impressive Victorian monuments' whose sheer size and weight poses potential safety problems for workers during repair and dismantling. Some monument stones can weigh up to half a tonne and may need to be raised several metres high. The taller needle type monuments can weigh over a tonne. However, it is not the older Victorian memorials that causing most of concern rather headstones poorly erected within the last 30 years. The industry is now addressing these failures and giving guidelines to stonemasons and cemetery managers on the installation of new headstones.

The cause of the toppling of memorials has in the great majority of cases been linked to inadequate cemetery upkeep and maintenance regimes. But poor design and installation of relatively recent memorials are also a factor. Traditional methods of lifting the stones such as block and tackle gave way to truck-mounted loader cranes but the size and weight of a truck doesn't always suit the narrow paths of many cemeteries, causing damage to both graves and access routes.

"We realised that we had to provide our staff with a safer method of working and after looking on the web at other countries with a similar cemetery problem, began to focus on the spider crane," says Simon Morgan, Mossfords managing director.

"We contacted Kranlyft and arranged for a demonstration of a Maeda crane which with its narrow width, low ground pressure and ability to get into very tight spaces,

was ideal for this application. The crane needed to be able to deal with the largest monument - about four metres tall - and weighing more than 1.25 tonnes," adds Morgan, "so we decided on the Maeda 285 which has a lift capacity of almost 2.9 tonnes, is just 750mm wide and can lift to 8.7 metres, more than enough for our needs."

"We were also impressed with the service from Kranlyft, being able to do a thorough examination and train our staff. The crane will mean that work is carried out more safely, quicker and because of its compact size, less inconvenience to cemetery users."

"This is a departure from the usual way we do things, but I think that it is the way we must progress, especially with the HSE taking more interest in cemetery work. If this machine is as useful as we think then we will be looking at purchasing a few more."



Being trained at Kranlyft

The Maeda MC285 at work in the cemetery



Headstones have been deliberately toppled for 'safety' Now perhaps a trip hazard?



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# Pontoon lock renovation

The lifting ability of the world's largest spider crane - a Unic URW 706 - was used to its full extent recently to lift the 4.8 tonne lock gates at Hatton Locks, Long Itchington for British Waterways.

The crane was moved to the site using a pontoon for several reasons. First the allowable load limit on the canal tow path - originally designed just for horses - is one tonne. Larger machines - including the 706, which weighs eight tonnes - are generally a struggle to move on the tow path, not to mention the weight restrictions on the bridges. By using the pontoon, devised by GGR, it avoids these issues as well as avoiding damage and subsidence to the path. Some lock gate refurbishment is also in remote areas so that the machine can be loaded in an accessible lock chamber and floated off to the work area.

Canal lock chambers generally have two widths - 4.6 metres and three metres - while the largest gates weigh more than four tonnes. In some instances, including this

case, the lock and a length of the canal needs to be drained to gain access to the cup (bottom hinge of the gate) and cill board (the bottom seal). In order to carry out the lift, the URW 706 straddled the width of the lock with its outriggers - which can extend to 5.7 metre centres. In order to get the crane into position the pontoon floats the crane into the lock which is then filled, taking the crane to the top. The crane then sets its outriggers on the bank on each side and lifts itself off of the pontoon.

A temporary coffer dam is rigged up across the canal and the lock and part of the canal drained ready for the lift. The 706 raised the old lock gates off their hinges using 10.6 metres of boom and working between three and four metres radius. Once the gates were removed the cill board was able to be removed and replaced.



*Lifting out the lock gate from the drained lock chamber*



*Using the pontoon reduces damage and subsidence to the tow path*



*The Unic URW706 moves into place on a pontoon*

## Spiders at Luton Airport

The UK's third largest airline Thomsonfly has become the latest carrier to invest in spider cranes for aircraft maintenance. Its new Unic URW 706 will be used to assist in servicing the company's fleet of 65 aircraft at its maintenance depot at Luton Airport.

The crane was selected by Thomsonfly after a visit to the Vertical Days 2008 exhibition at Haydock Park. Base maintenance group leader Dave Brundell says the class leading capacity and reach of the spider gave it an edge over rival machines.

"The machine was the only spider crane with enough lifting power for rudder removal," adds Brundell.

"The flexibility of the crane allied to

its radio remote control capability means we can position it very close to the aircraft for precise operation which is all important in aircraft maintenance."

Replacing Thomsonfly's ageing Coles mobile industrial crane, the 706 will carry out precision lifting work of aircraft components including tail fins, flaps, rudder and exhaust systems as part of the fleet's regular service schedule.



*The Unic URW 706 replaces an ageing Coles mobile crane and will lift aircraft components including tail fins, flaps, rudder and exhaust systems.*



1. The Jekko removes the glass panel from the van



2. Slews around ..... 3. And pops it into position



# c&a spider cranes Hird manipulations

EYG, the Hull-based glazing contractor, is now using Jekko spider cranes equipped with glass handling manipulators supplied by local crane and access rental company, Peter Hird for handling and positioning its larger glazing panels.

"Bringing the Jekko glass manipulators into our fleet has enabled us to refine our lifting techniques within the glazing industry," said Hird. "We are seeing our market increase very quickly and we foresee some long term growth in this niche sector, where in the past a limited amount of companies have operated in this field."

Italian-based Jekko cranes and glass manipulators is a sister

business of Imai cranes which has been expanding rapidly in the sector with the addition of new products, including new spider crane models and a new two tonne pedestrian operated pick & carry crane.

Hird initially bought six Jekko spider cranes last year but expects the figure to double. The units have all been ordered with the 'Multi-Power' option of DC/AC and Diesel power, with glass manipulators and hydraulic fly jibs.

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