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Can the Japanese remain dominant?

As the spider crane market outside of Japan grows at a steady pace, the sector continues to be dominated by two Japanese manufacturers. With Italian company Jekko upping its game in recent years, and several niche manufacturers entering the market, we take a look at the latest players and the models they offer and assess if there is a move towards European designed and built equipment?

The length of time it takes a Japanese manufacturer to get a machine designed and to market is usually considerable. 'Getting it right' is their philosophy, no matter how long it takes, and the lengths that manufacturers go to ensure each and every product is correct before it goes in to production, explains why Japanese reliability is second to none.

However this length of time also means that new models and

developments may not be as rapid as other manufacturers, such as the Italians. Over the past 15 years or so, Maeda and Unic have maintained their combined market share virtually intact, in spite of a massive increase in the number of machines sold. But there is still a long way to grow in the west. Japan is said to have in the region of 10,000 working machines, while the whole of Europe has less than half that number and North America substantially fewer. But





is the balance set to change as the market in Europe, North America, the Middle East and Australia gather pace?

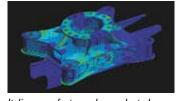
In the spider crane feature a year ago we questioned why - with the continued increase in sales were there no new manufacturers entering the market? Although if recent rumours have any basis in fact, we might just see one of the big mobile crane makers enter the market shortly via an acquisition? Since then Jekko has made more progress and increased its production volumes, while fellow Italian Brennero Gru has entered the fray. What could prove interesting is the different design philosophy that Jekko and to a lesser extent Brennero Gru have taken.

Similar design

All Japanese machines - from Unic, Maeda and R&B Mighty Cranes look very similar because they all have the same basic design - a long structural chassis with the slew ring located towards one end and outriggers mounted at each corner. The off-centre slew ring while helping keep the stowed machine compact, does compromise capacities, while the longer load bearing chassis adds weight while also increasing the outrigger footprint. Jekko has chosen a central structural 'tub' and cruciform X-type outriggers, meaning that the rest of the chassis is not

load bearing when lifting and can therefore be lighter. It does however mean that the boom needs more sections to achieve a similar length and generally results in a longer overall machine.

However, the Jekko concept begins to provide greater benefits with the larger models, in terms of overall machine weight and outrigger footprint, this is particularly true for the 7.5 tonne Jekko SPX1275 which we have compared with its potential rivals - the new eight tonne Maeda MC-815 and the six tonne Unic URW-706 - in the article on page 36 where it performs exceptionally well. And has the added benefit of a two tonne pick & carry capability.



Italian manufacturers have adopted the central structural tub - this is from

If we take a look at the smaller four tonne lift capacity Jekko SPX1040 CDH which also has a similar swing out telescopic outrigger design, it too has the smallest outrigger spread when compared with its rivals - the 3.83 tonne Maeda MC405 and the four tonne Unic URW 547 - but has the disadvantages of larger stowed dimensions and a shorter boom.



spider cranes



How the four tonne mini cranes size and outrigger spreads compare

	Jekko SPX1040	Maeda MC-405	Unic URW 547
Stowed dimensions	5,380 x 1,450 x 2,030mm	4,980 x 1,380 x 1,980mm	4,955 x 1,400 x 1,980mm
Outrigger spread	4,170 x 4,170mm	5,520 x 5,786mm	5,940 x 5,900mm
Max capacity	4,000kg	3,830kg	4,000kg
Lift height	14.5m	16.8m	18.2m
Overall weight	5,600kg	5,600kg	5,010kg

BG Lift from Brennero Gru

One manufacturer that is trying to break into the mini crane sector is Northern Italian Brennero Gru. The company unveiled a new, five model range of spider cranes at this year's Bauma, marketed under the BG Lift brand, Based in Verona, Brennero has sold and rented mini cranes and aerial work platforms since 1991, but is now expanding its own range of products. These range from the pedestrian controlled M060 tracked carry-deck crane with a capacity of 580kg, to two traditional spider cranes - the 2.5 tonne M250 and three tonne M300 - and the CWE 465 and CWE 525 which are essentially articulated loader cranes mounted on a crawler chassis.

Probably the key new products are

An optional 3.5 metre, three section jib luffs 75 degrees and is horizontal when the boom is fully elevated.

Maximum tip height with the jib is just over nine metres, while maximum radius is almost seven metres with a capacity of 720 kg. With a stowed overall length of 2.7 metres, or 2.9 metres with iib, and an overall width of 780mm it is ideal for passing through standard single doorways. As with the Jekko, the tracks can extend - to 1.18 metres for greater stability when travelling. Overall weight is just over two tonnes. an AC electric motor option is available for indoor use. The longer boomed 2.5 tonne capacity M250, features a four section boom and will also be available with or without the jib. All machines can be

fitted with optional winches.

The M060 tracked carry deck crane features a three section boom with a 4.25 metre tip height and maximum radius of three metres two metres in front of the bumper. Overall length is 1.78 metres, and overall width 780mm and as with the spider cranes, this can extended to 1.1 metres for increased stability. The unit also has a slew ring that offers 25 degrees slew either side



of centre, total weight is 890kg, but 200kg of the counterweight is removable. In an effort to widen its appeal the crane can be removed from the undercarriage and replaced with a cargo deck. Power comes

from a Honda petrol engine or combined with an AC electric motor in the dual power option.

Other new products include a lighter, more compact version of its 14.5 tonne capacity CWE 525 spider crane and the CWE 465. Both of these are basically an articulated loader cranes mounted on tracked chassis.

Böcker crawler crane

Another variation on the spider crane theme from German aluminium crane manufacturer Böcker also made its debut at Bauma. The new RK36/2400 is basically the top from its trailer mounted 36/2400 on a crawler chassis, with spider type outriggers. Thus is has the same maximum 36 metre boom length and 2,400kg



maximum capacity at 4.5 metres radius, but weighs a tonne more at 4.5 tonnes. Being on tracks it can travel over rough terrain and up and down steps etc... with 25 percent gradeability

As well as its diesel engine, the new crane can be equipped with an electric motor giving the same performance without the noise and emissions. The Böcker crane can also be specified with an easy fit work platform. Other attachments include roof tile fitting platform, roof tile carrier and tipping skip.

The RK36/2400 has a 22 metre four section main boom with a capacity



the BG Lift M300 and M250 spider cranes, as they are similar to the more popular cranes offered by Maeda and Unic. However they are more similar in design to the Jekko than the Japanese, the M series uses a centrally positioned slew ring with legs attached to the chassis around the centre of the machine.

The three tonne capacity M300 articulated crane features a two section four metre main boom with a 5.7 metre tip height which can still lift 2.5 tonnes. With the boom horizontal, maximum radius is 3.2 metres at which it can lift 1,400kg.

How the Böcker RK36/2400 compares on capacity/weight and reach

	Böcker RK36/2400	Maeda MC 405CRM	Unic URW 1006	Maeda MC815C
Max capacity	2,400kg @4.5m	3,830kg @2.7m	10,000kg @3.0m	8000kg@
Capacity @ 4.5m	2,400kg	2,130kg	5,000kg	4,800kg
Max Lift height boom/jib	22m/34m jib	16.8m/20.7m jib	22.8m/30.7m jib	19.6m/25.5m jib
Cap at max radius	100kg@27.4m	210kg@16m	150kg@24.3m	300kg@18.8m
Cap at 12.2m	800kg	500kg	920kg	940kg
Cap at 24.3m	200kg	N/A	150kg	-
Weight	4,500kg	5,600kg	14,000kg	9,000kg
Dimensions L x W x H	8.44 x 2.11 x 2.82	4.98 x 1.38 x 1.98	6.1 x 2.0 x 2.46	5.9 x 1.7 x 2.4
Outrigger spread	5.4 x 5.4m	5.79 x 5.52m	7.07 x 6.66m	6.77 x 6.62

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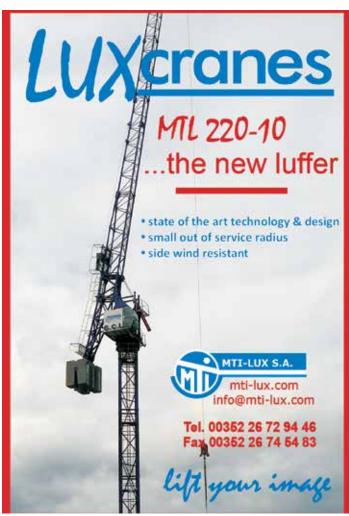
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when fully extended of 1,000kg, which it can take out to a radius of 10 metres. The three section iib extends from 4.1 to 11 metres with a longer option of 13 metres. This takes the maximum tip height to 35 metres at which it can lift 250kg to a radius of 23 metres, or 100kg at 27.5 metres. It can also handle a very useful 500kg on the jib at a radius of up to almost 17 metres.

This is a sizeable piece of kit however, with an overall length of 8.44 metres and width of 2.11 metres, it is also 2.82 metres high. Its maximum outrigger footprint of 5.4 x 5.4 metres is however smaller than say a Maeda MC 405. The Böcker is also lighter than the

its largest mini crane to date.

Which is better depends on the job. As with the Böcker trailer and truck mounted cranes it is not the maximum lift capacity but the reach that is the attraction similar to selferecting mobile tower cranes.

Mini crawler crane developments

As well as the spider crane developments, two new six tonne mini crawler cranes have been launched recently- the Maeda CC1485 and the Jekko SPK60 both were shown for the first time at Bauma.

The Maeda CC1485S-1 features the new CC nomenclature - reflecting



MC 405, and while its maximum capacity is significantly less at 2,400kg compared to 3,830kg. The Böcker however easily wins in terms of lift height and outreach.

The following chart shows how it compares with the Maeda and also takes a look at it against the largest spider crane on the market - the 10 tonne Unic URW 1006 - which has four times more maximum capacity. Also compared is the new Maeda MC815C,

the fact that the undercarriage is now manufactured by Maeda, rather than being sourced from Komatsu

- it replaces the LC1385. The new

The Maeda CC1485S-1 replaces the and has a 16.7 metre boom crane features a 16.7 metre heptagonal fivesection boom, and a new swingaway extension which is said to be more user-friendly and easier to use. Power is supplied by an EU Stage 3B Isuzu compliant engine, which it claims is 40 percent more fuel efficient than that fitted to its predecessor Standard equipment includes a rear view camera, seven inch monitor, a fully enclosed air-conditioned cab with link slide door, two speed winch, hydrostatic transmission, four fall/two fall hook block and tilt sensor/ alarm.



Its main

specifications can be seen in the table below where we compare it with the other new entrant in this size of crane, the Jekko SPK60.

Jekko's new SPK60 can be fitted with a seven metre lattice extension or has the option of a four section telescopic luffing jib for a maximum tip height of 28 metres. Maximum radius with this jib is more than 19 metres, while it can luff from being almost in line with the boom down to horizontal.

Comparing the two cranes shows them to be - on paper - quite evenly matched. Both have a six tonne maximum capacity, similar maximum radius and maximum lift height, with the Jekko offering slightly more reach and the Maeda more capacity. The Jekko is more compact and has extending tracks giving it a narrower closed width, and a wider extended base. Perhaps the biggest difference is in the pick & carry performance with the Jekko lifting three tonnes to the Maeda's two tonnes.

Dealer backup for service support and a ready availability of replacement parts is critical with this type of machine, even if the Japanese made Maeda has an excellent reputation for build quality and bullet proof reliability.

The Maeda distributor in Europe is Kranlyft which has extensive experience of the products, having been importing the equipment for more than a decade. Jekko has made significant strides in some markets to improve its dealer network in the past year or so, such as the appointment of JT Cranes in the UK, and NordKran in Germany, as well as improving its reliability, add to this the latest new cranes with offer excellent performance, however only time will tell if its quality and reliability can rival that of the Japanese manufacturers.

	Jekko SPK60	Maeda CC1485	
Maximum capacity	6.0 tonnes @ 3.0m	6.0 tonnes @ 2.6m	
Max radius/capacity	16.8m/350kg	16.1m/430kg	
Max lift height/capacity	17.7m/1,500kg	16.7m/2,600kg	
Max height with extension/kg	25.2m/800kg	23.5m/820kg	
Dimensions	5.72 x 2.32-2.92 x 2.7m	6.56 x 2.49 x 2.87m	
Weight	12,500kg	14,400kg	
Gradeability	30 degrees	20 degrees	
Travel speed	1.6/3.3kph	1.9/3.2kph	
Ground pressure	0.54 kg/sq cm	0.49 kg/sq cm	
Engine	Yanmar	Isuzu	
Max pick and carry	3,000kg	2,000kg	
Pick & carry @10m	420kg @ 10m	470kg @ 10m	



Red, green or or orange?

Some companies scour the market to uncover machines that offer that little bit extra rather than following the crowd or mirroring competitors' purchases. Mark Darwin travelled to Hampshire to chat with one UK company that likes doing things a little bit differently.



Specialist crane and access supplier TCA Lifting says it likes buying the best product for the job and as such has a wide variety of equipment from numerous manufacturers. The company was known as Tracked Access until it changed its name in 2013 to Tracked Cranes and Access (hence TCA Lifting) to better reflect its involvement in both mini cranes and spider lifts.

The company was formed in 2005 by partners Phil Lomax and Tony Gettins with three guite diverse machines - a tracked 34 metre Palazanni spider lift, a Maeda MC 285 spider crane and a small Snorkel scissor lift.

"In subsequent years almost every rental company began offering tracked access machines," said Lomax, "coupled with the fact that Palazanni platforms were also

available with wheels, rather than tracks, meant that a name change was the right thing."

Growth over the 11 years since has been steady and included several moves to larger premises to cope with company and fleet expansion. Currently the head office is near Basingstoke in Hampshire - with a hire desk in Reading - following a move from Farnborough which followed a couple of moves from its original base in North West London.

The TCA rental business is now split equally between spider/crawler cranes and larger spider lifts. It is also the UK Palazanni spider lift dealer, but also supplies other new access equipment for customers as and when needed.

"During the 11 years we have been in business, the spider/mini crane



The majority of TCA Lifting's mini cranes are Maeda although the number of Jekko cranes in the fleet is growing. "We considered Jekko soon after we formed the business but build quality and reliability weren't up to scratch at that time," adds Gettins. "We were one of the first rental companies buying Maeda and have probably bought more than 30 of them over the years. All are extremely reliable and just keep on going out on hire without any trouble. The original MC 285 bought in 2005 is still out working happily."

"Selling and renting the larger Palazzani spider lifts opened our minds to alternative products. We are the greatest critics because we use the equipment every day, but Palazzani lifts - particularly at the top end from 25 to more than 50 metres - are well designed and built."

The Italian manufacturer has spider lifts with working heights ranging from 17 to 52 metres and also offers a crane option on all of its models. TCA currently has a 43 metre XTJ 43 with crane attachment which makes it the largest spider crane in the UK. The XTJ 43 is the only platform in the fleet with the crane attachment and is used on about a third of its contracts, particularly on space restricted jobs that would otherwise have required a sizeable All Terrain

"The XTJ 43 recently went out on a job installing 500kg skylights on a very restricted building refurbishment in Shepherds' Market in Mayfair, London, after several other companies were unable to supply a machine to do the job. Nothing else, including mini cranes, trailer cranes, telehandlers etc, was





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spider cranes

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small enough to get into the lifting position and then lift the skylights to a height of almost 40 metres after negotiating a steep ramp with a tight turn into a courtyard.

"The XTJ 43 recently went on a contract developing a three storey town house with roof terraces in Shepherds Market in the heart of Mayfair," said Gettins. "The unit was primarily used to lift 500kg skylights into position but also to lift a selection of other materials

including steel and scaffold poles onto the roof area. No other equipment - including mini cranes, trailer cranes, telehandlers etc - could fit into the very congested and space restricted area which also had low floor loading - and then lift loads to 38 metres high and nine metre radius. As a result of this we decided that in future when we add more Palazzani's - particularly the XTJ models - we will also specify the crane attachment option."

As well as skylights the XTJ 43 was used to lift steel and scaffold poles

While scouring the market for machines that may have been suitable for that contract it also looked at the Jekko mini cranes.

"I am surprised that there are not more companies willing to look at alternative products. It is almost like the early days of access platform when everyone would only buy Genie or JLG. The Palazzani platforms are a bit out of the ordinary but are very popular, which is why we now look at all the products on the market with a fresh pair of eyes. There is still the mentality in the spider crane market that you can only buy Unic or Maeda - red or green. We

looked around and went orange! We are obsessive about checking out at every machine available - you need to know what is out there."

"There is currently a gap in the Maeda capacity range which until the announcement of the eight tonne MC805 stopped at the 3.83 tonne MC 405," adds Lomax. "We have used a Unic 706 which is a nice crane but we don't want to



just go down the red or green route. The majority of our work is contact hire so we can then look at the job and suggest an alternative/better solution."

Jekko making inroads

The TCA rental fleet current includes around 30 mini crawler, spider and pedestrian operated cranes, the majority being Maeda but also Valla, Unic and Jekko. However when it needed a crane of around the six to





spider cranes

Specification comparison between the Jekko SPX1275 CDH, Unic URW-706 and the Maeda MC815C



*1.2 tonnes with 360 degree slew



eight tonnes it was helped by the introduction of two new models, the 7.5 tonne Jekko SPX1275 and the eight tonne Maeda MC-815. The two had initially looked at the new six tonne Jekko SPK60 crawler crane and has ordered one for delivery this month - but saw the SPX1275 and was impressed with its features, build quality and performance.

The SPX1275 was ordered with a lattice swingaway extension, 3.5 tonne searcher hook and 415 volt electric power pack. It also features 360 degree slew and two tonnes pick & carry capacity with the tracks extended. When the tracks are retracted it still has the same capacity but no slew.

"Its pick and carry capabilities are so impressive we intend to rent it out as a crawler crane," he said. "We believe Jekko products have improved significantly and expect their reliability to be up to Maeda/ Unic standards, but with significant advantages in terms of outrigger positions, removable counterweight and pick & carry duties. I think it is important for Jekko to have a strong



support structure in the UK so we hope the appointment of JT Cranes as the new UK Dealer will prove successful."

Comparison highlights strengths and weaknesses

Looking through the comparison of the three cranes above, ignoring the obvious differences in maximum rated capacity - Jekko's strong specification stands out. This should perhaps be expected when comparing a 7.5 tonne capacity crane with the six tonne Unic, but the Jekko also more than matches the new eight tonne Maeda.

It has the best capacity at 10 metres - 1.5 tonnes and 800kg - with outriggers in both maximum and minimum configurations, in spite of the fact that its maximum outrigger footprint is smaller than both the Unic and Maeda's minimum settings! The Jekko also has the equal best jib capacity (1,500kg) and easily the best capacity on the searcher hook. It is also lower and narrower when in transport mode and yet is only 200kg heavier than the Unic and a full tonne lighter than the Maeda.

The Unic is of course the lightest crane and offers the best gradeability, the Maeda offers the longest boom - the Jekko is almost two metres short but does make up for it with jibs and extensions. The Maeda has the highest maximum capacity as well as the equal best jib

capacity. That said, the three cranes are quite similar in many ways with the Jekko standing out for its two tonne pick & carry capacity and perhaps more important, its compact outrigger footprint.

"By not having drop-down spider legs the Jekko has even more of an advantage in that this leg configuration needs half a metre less set-up space," says Lomax. "Also the Jekko can operate in narrow set-up mode and has variable position, hydraulically powered outriggers."

The two also rate the Jekko's remote controls and like the removable counterweight feature, very handy for riding an elevator/hoist or being lifted into position by a tower crane. The Jekko also has a load chart without

by a tower crane. The Jekko also has a load chart without counterweight, for jobs requiring a lighter overall weight.

TCA has a Maeda MC405 which features a 500kg pick & carry capability but says it is unusable in reality. When it realised the Jekko had a two tonne pick and carry capability it thought it little more than an add-on. However now it has seen the machine in action it realises that it is a genuine pick & carry performer with full duty cycle and full rotation. "It works fantastically well," says Gettins, "and we think we will use this feature to help with the usual problems of carrying materials down reduced width corridors and alleyways etc."

Different design

The Jekko uses a different design concept to the Unic or Maeda cranes - both of which feature traditional spider leg outriggers and an off-centre superstructure with a X-type cruciform outrigger arrangement with centrally mounted superstructure. This means that the rest of the chassis does not need cope with the loads imposed during lifting. The reliability of the new Jekko cranes over the longer term is still unknown, the manufacturer's first models while technically ingenious, were notoriously unreliable. However over the past decade or more the cranes have evolved beyond all recognition and gained a much more positive reputation. TCA says that its MPK20 has performed well and been very reliable. It has some exceptional



spider cranes CET

An old Falck
Schmidt TST29
occasionally
comes in handy

The XTJ 43 in action

the XT I 43 with crane attachment

competition in that both the Unic and the Maeda cranes are 'bullet proof'.

"We bought the Jekko because of its weight and outrigger settings but the pick & carry is a bonus. We also had a close look at the new Maeda MC 815 at Vertikal Days. It has good features and traditional crane-type control systems but it is not available until next March.

However, we are still interested in it, because although the Jekko is close in capacity at 7.5 tonnes the two have their own particular strengths. We are also keeping an eye on the new cranes from Italian manufacturer Brennero although we don't think they have something suitable at the moment - but we would never rule anything out."

Geographically TCA Lifting

predominantly operates on sites around London and the South East, although will take its larger equipment around the country. It specialises in difficult to access, space restricted sites such as new basement construction in London. Its fleet includes Maeda 285s, 305s, 405s, Jekko MPK20, a Maeda LC785 mini crawler, Jekko SPX1275, Palazzani XTJ range with

the XTJ 43 with crane attachment and one Unic 295. It also has the new Jekko SPK 60 mini crawler on order. The spider lift fleet includes a range of models with working heights from 14 to 43 metres. As such it is one of the few companies in the UK that rents both cranes and aerial lifts. So far this year it has spent around 750,000 on new equipment and it is looking to add a 25 tonne telescopic crawler crane next, either a Marchetti or Sennebogen, along with more 48 and 52 metre spider lifts, and perhaps a Maeda MC815.

Maeda reaches the parts others cannot reach

When the cladding contractor working on Amegy bank's new 25 storey headquarters in Houston, Texas came to install glass curtain wall panels to the façade of the car park it faced a serious challenge in that the larger, heavier panels could not be handled safely with existing equipment. The installation area was also outside the working radius of the site's tower crane. It solved the problem by using a 2.82 tonne capacity Maeda MC285 spider crane.

The existing equipment was also time consuming in that it could only lift and install one panel at a time before it was relocated. The MC285 can cover a radius of 8.2 metres, allowing it to place up to six panels in sequence without moving the crane, greatly speeding up the installation. Repositioning the MC285 was also quicker and easier.

The MC285 was able to drive to the top deck of the car park structure under its own steam, thanks to its compact dimensions, low weight and low ground bearing pressure, thus avoiding the need to wait for the heavily utilised tower crane. The MC285's load moment limiter combined with its outrigger interlock system made lifting the various weight panels from the floors below safe and efficient.



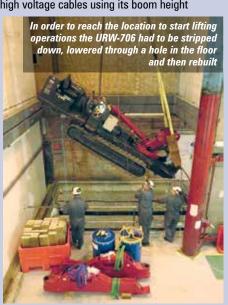
Unic goes nuclear

A six tonne Unic URW-706 is currently working for nuclear site management contractor Magnox which purchased a unit to assist in its site management projects. Magnox is the management and operations contractor responsible for managing numerous nuclear sites and hydroelectric plants in the UK working for owner The Nuclear Decommissioning Authority.

The first job for the URW-706 was at Torness Power Station where it was used in the decommissioning of the primary containment within the steam generating heavy water reactor. It was put to work removing floors and working in conjunction with another crane, to dismantle high level pipe work, valves and mini platforms.

In order to reach the location to start lifting operations the crane had to be stripped down in order for it to be lowered through a hole in the floor and then rebuilt. The crane was also used on the removal of the East pipe line, where it came into its own working on soft ground conditions and operating under the high voltage cables using its boom height

limiter. The Unic 706 can handle its six tonne capacity at a radius of three metres and at a height of 7.2 metres. An optional searcher hook and a 3.1 metre long jib gives it a maximum hook height of 22.7 metres. It can be controlled from the operator's seat or by a radio remote control. Digital feedback and data logging are also available.





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