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# CHANGING WITH THE TIMES

The pick & carry crane was one of the main forerunners of the modern mobile crane and were often seen trundling along public roads from one job to another. That has, of course, all changed with day to day rental now covered by All Terrain and truck cranes. The concept was close to being obsolete as forklifts, telehandlers and slick road going cranes took their place. In the past few years however, that has all changed with the arrival of sexy new products, mostly from Italian manufacturers.

The story of the pick & carry crane - once referred simply as an industrial crane - began in the UK, Italy and the US. Having possibly originated the concept with Coles and later Iron Fairy etc the UK no longer has a mobile crane manufacturer. However the USA and to an increasingly greater extent Italy remain active in the market, although the concepts have diversified. The US went to carry deck cranes, where a load could be carried more securely over rough ground and longer distances, typically seen in traditional American production facilities. The Italians on the other hand have largely stuck with the more traditional concept, but the units they build today have changed visually, although under the fancy new bodywork, the basic concept has changed little over the past 50 years.

*A more detailed history of the early pick & carry cranes is covered in last year's feature in C&A Vol 24 issue 7.*

The classic 'Italian' industrial pick & carry crane that we see today from manufacturers such as Ormig, Valla, Galizia and JMG did not appear until the early 1960s. The shift to other material handling methods led to the traditional pick & carry crane finding a new niche unloading, moving and placing machines, equipment and non-palletised materials, both outside and indoors.

While the basic concept has not changed, the choice has grown in both directions particularly small, pedestrian controlled units with capacities of two to three tonnes for work in confined areas and glass handling. The most popular capacities tend to be models up to 20 tonnes, with the even larger capacity cranes used for more specific applications. Demand for pick & carry cranes remained flat but stable for many years, largely serving a replacement market, however with design developments and new entrants into the sector, demand and interest appears to be growing.

## JMG 'CARRY DECK' CRANES

An interesting recent development has been the combination of a wheeled industrial pick & carry crane chassis with an articulated loader crane boom. Italy's JMG - a relatively newcomer dating back to 2008 - has produced the 50 metre/tonne MC-50000RE which features a Cormach crane mounted onto a JMG chassis with the addition of four beam and jack outriggers. The concept is basically a wheeled version of the tracked articulated cranes available from manufacturers such as Jekko, BG Lift and Palfinger. JMG calls this new model a Carry Deck crane but apart from a flat top to the chassis it is not designed to carry loads on the deck. However unlike its other cranes the Carry Deck models do have 360 degrees slew.



## PICK & CARRY CRANES

*The JMG 5000RE is a combination of a wheeled industrial pick & carry crane chassis with an articulated loader crane boom*



*The beam and jack outriggers can be set inboard or extended individually to various widths to the maximum spread of 4.85 metres*

The MC-5000RE is equipped with a seven section, 16.45 metre main boom with a maximum capacity of 9.43 tonnes at four metres - about 1.5 metres in front of the chassis. Pick & carry capacity is seven tonnes. The crane can take 4.85 tonnes to a height of about 18.5 metres on the fully extended main boom, while a five section 9.81 metre long hydraulic jib extends the maximum radius to 26.26 metres with 370kg on the hook. It can also handle 1,120kg at a radius of 11 metres with an up & over height of 19.5 metres with the boom fully elevated and the jib luffed down to horizontal. Maximum tip height is 29 metres.

The overall length of the MC-5000RE is 5.13 metres, overall width is just over two metres. It is 2.8 metres high and weighs 22 tonnes including two tonnes of removable counterweight. The beam and jack outriggers can be set inboard or extended individually to various widths to the maximum spread of 4.85 metres. The crane is unusual in the outrigger boxes are open ended and the extension cylinder set so that the chassis can be traverse sideways along the beams, allowing it to be repositioned slightly without having to reset the outriggers.

The 96 Volt/1240Ah batteries provide power to two 10kW, 26 Volt front wheel AC electric drive motors with 180 degree rear steering, allowing the crane to virtually turn on the spot. The battery pack is said to be sufficient for up to eight hours of normal use.



*With jib the maximum radius is 26.26 metres*

### RANGE OF THREE

The MC-5000RE is the largest of three JMG 'Carry Deck' cranes, the others being the 10 tonne/metre MC-100RE and the 22.5 tonne/metre MC-22500RE.

The smallest 10 tonne/metre MC-100RE is a metre shorter than the 50 tonner at 4.15 metres and is 200mm narrower with an overall height of just under two metres. Overall working weight is 12 tonnes.

The MC-22500RE is the same length as the MC-100RE, but slightly wider at 1.86 metres and higher at 2.39 metres. It can lift 4.1 tonnes at a 4.2 metre radius and a maximum radius on the main boom of 11.56 metres with a capacity of 1.43 tonnes. Overall weight is 13.15 tonnes.

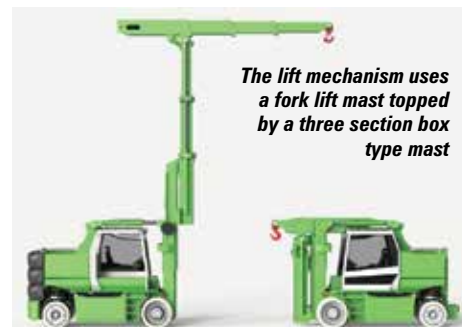
### IS IT A FORKLIFT OR CRANE?

Thinking outside of the box and trying something different is nothing new to JMG. A few years ago, it announced an all-new pick & carry/forklift mast crane similar in style to a Versa-Lift industrial forklifts. The MC 250.09 FL features a choice of 2.49 metre forks and/or a four section telescopic boom mounted horizontally on the top of a three section telescopic boom, which sits on the forklift mast between the forks. It provides a hook height of up to 7.5 metres and a maximum reach beyond the front of the machine of 3.5 metres at which point it can take eight tonnes to the maximum height with the mast vertical.

*The MC 250.09 FL pick & carry/forklift mast crane similar in style to a Versa-Lift industrial forklifts*



Tilting the mast forward extends the horizontal reach to five metres, with a capacity of 5.6 tonnes, although the lift height is reduced to just



*The lift mechanism uses a fork lift mast topped by a three section box type mast*

over seven metres. The maximum capacity of 25 tonnes is available at up to 500mm in front of the machine and, as with all capacities, is available at full height.

The mast offers a forward tilt of 12 degrees and rearward tilt of eight degrees, while the horizontal boom can luff from five degrees below horizontal to 15 degrees above. When used as a heavy duty forklift the unit is equipped with 2.5 metre long forks which can remain in place along with the boom. Lift height on the forks is 2.7 metres. Weighing 25,000kg, the MC 250 has a stowed overall height of 2.78 metres and an overall width of 1.8 metres.

Like the Versa-Lift, the MC 250.09 FL has an extending chassis moving the counterweight up to 1.2 metres to the rear, for maximum lifting capacities. The overall length is 5.3 metres when extended or 4.1 metres retracted. Capacities given above are with the chassis extended although they are still pretty good with the chassis retracted - a maximum of 17 tonnes at 500mm and up to 5.7 tonnes at its maximum radius of 3.55 metres.



*County Lifting's MC 250.09 FL handling a lighter load with retracted chassis*



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The order for 30 cranes to Collè is the largest in the company's 75 year history



The 20 tonne Valla V210R tops the company's latest generation of battery powered pick & carry cranes

Production was scheduled to begin at the end of 2021 however this was delayed, but deliveries have now started with one of the first units shipping to UK based rental company County Lifting. The company specified a quick change battery pack in order to allow continuous operation.

Daniel Drury of County Lifting said: "So far, we can't help but be impressed by the capability of this model. It went straight to work on its first major project, equipped with the forks and teaming up with our 35 tonne JMG MC350. The MC250 was tasked with removing a production line with component weights of up to 23.5 tonnes and handled it perfectly."

With growing demand for its products, JMG has been expanding its production facilities with a new manufacturing plant in Sarmato near Piacenza which produced its first crane - an MC100S - for customer Vecchiato Autotrasporti last year.

## ITALIAN CRANES DOMINATE

While JMG is a relative newcomer to the pick & carry crane market dating back to 2008, its founders - Maurizio Manzini and Emilio Berti - each had more than 25 years in the business. Manzini was previously the general manager and then managing director of Valla for 12 years while Berti ran the engineering office at the company for 11 years.

Valla was founded in 1945 by Antonio Valla. The Piacenza based company prospered and his son John, a brilliant engineer, pioneered the electric battery powered pick & carry crane, introducing the first model in 1963. The company remained in the Valla family until it was acquired by Manitex at the end of 2013. At that time the company had a solid, but staid and aging range of products up to 90 tonnes. It had struggled to develop allowing a number of competitors to emerge. Under its new ownership, development and change was initially slow but has ramped up significantly in recent years. In 2020 it launched a new 600kg capacity glass handling manipulator attachment for its 900kg Valla 19, 2.2 tonne 25EL and 2.5 tonne 25E pick & carry cranes. This was followed by its largest single order in its 75 year history - 30 cranes to Collè Rental and Sales of the Netherlands. Up to that point Collè had been offering JMG cranes.

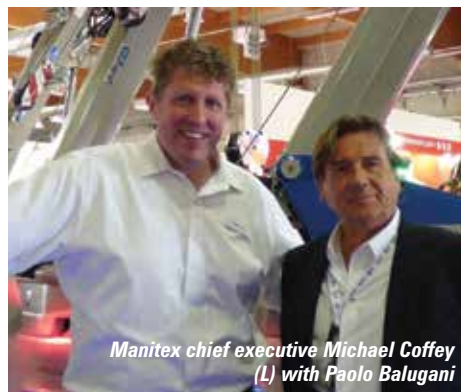
Since then, the company has added the compact 3.6 tonne V36R battery powered crane which joined the eight tonne V80R and 11 tonne V110R

launched a few months earlier. This was followed by a new 20 tonne V210R battery powered pick & carry crane at the end of 2021 with the first unit delivered to UK industrial services company AIS Vanguard.

The V210R tops the company's latest generation of battery powered pick & carry cranes and features a 12 metre three section boom, plus a three metre hydraulic swingaway extension rated at three tonnes. It can handle its full capacity 1.35 metres in front of the machine and to a height of 7.5 metres. It can also handle eight tonnes at its maximum height and take 3.6 tonnes to its maximum forward reach of 8.15 metres. Supplied by UK and Ireland distributor Hird, AIS which purchased the first in the UK, opted for the optional front outrigger bar, an operators cab and remote controls.

## NEW APPOINTMENT

Earlier this year access industry veteran Paolo Balugani took over as Valla's general manager, reporting to Giovanni Tacconi, chief executive of Manitex operations in Italy. Balugani was previously chief executive of Palfinger Platforms Italy and has had extensive experience with Sogage, PM and Oil & Steel.



Manitex chief executive Michael Coffey (L) with Paolo Balugani

Manitex chief executive Michael Coffey said: "Paolo has over 32 years of experience in the crane and aerial platform industry, most recently serving as chief executive and co-founder of Palfinger Platform Italy. The addition of Paolo is an important step in our updated corporate strategic plan. His leadership, industry knowledge and operating experience will be critical in advancing our growth plans, which include bringing Valla's line of electric industrial cranes to the North America market and developing and introducing new products to the global market."

## LATEST PRODUCTS

Valla has continued to add new models this year with the introduction of two new pedestrian controlled pick & carry cranes - the 4.6 tonne V46R and the 13 tonne V130RX. These were followed by two new 16 tonne and two new 18 tonne all electric cranes at GIS in October, presenting a highly impressive new model spread at the show.

The battery electric V46R radio remote controlled crane features a three section 7.5 metre boom which can be equipped with a short luffing jib. The crane has a maximum forward reach of 4.5 metres from the front bumper at which point it can handle 660kg. Capacity at full height of four metres is 2.45 tonnes. The maximum capacity can also be taken just beyond the front bumper.

The Valla V46R



The front wheel drive, rear wheel steer crane has an overall width of just 900mm, an overall height of 1.56 metres and an overall chassis length of 2.47 metres, while weighing 4.33 tonnes including the 900kg counterweight. A tilting boom nose and non-marking tyres are standard, while options include a winch, ATEX explosion proofing and lithium battery pack, as well as the jib.

The 13 tonne V130RX is as compact as its 'sister crane' - the 10 tonne V110R - when stowed, thanks to its telescopic chassis that extends from an overall length of 3.7 metres to 4.4 metres. The crane features a 10 metre three section boom, to which a short hydraulically luffing jib can be added. Capacity at full height is seven tonnes, while capacity at maximum forward reach of six metres from the front bumper is just over three tonnes. Overall width is 1.5 metres with an overall height of 1.95 metres. The dual 2.1 tonne counterweights can be removed to reduce weight.

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Valla VR series



The DK100 is the largest pick & carry crane from Delta. An 80 tonne DK80 has been announced as well as the 12 tonne DK12 and 20 tonne DK20



Another rapidly growing pick & carry crane maker is Delta with the DK100

In October Valla launched a further four models - the 16 and 18 tonne V160R and V180R radio controlled models along with the 16 and 18 tonne V160RC and V180RC cranes with cabs, slotting into the range between the new 13 tonne V130RX and current 21 tonne V210R.

The latest innovations introduced on the V-R/RC series have, says the company, resulted from customer feedback. The Extreme Hold Valve (EHV) is a double zero leakage valve block system specifically designed for pick & carry cranes in collaboration with specialist Valvole Italia. The valve completely eliminates hydraulic oil leaks which can affect the stability of a suspended load, particularly during maintenance and installation operations when a load may be suspended for several hours.

Valla claims that it provides superior performance, even when oil contamination might be present. Additionally, the valve is equipped with a damped opening system which combines with the machine's control system, to ensure precise positioning and smooth movements, even at low speeds, making it ideal for precision lifting work.

The Vertical Mode setting is now available on the V-R and V-RC series - another customer request which is new to the market. The Vertical Mode setting can be simply activated on the radio remote control and guarantees true vertical lifting or lowering. This new control mode will be particularly appreciated in Hook and Forklift modes, enabling a vertical lift without needing to separately control boom elevation and telescope functions. The decision to lift or lower is made by using one switch on the radio remote controller, with movements controlled within the onboard software and mechatronics.

The company has also instigated a new quality control inspection at the end of the production line - after testing, calibration, cleaning, and washing. A thorough check of all documentation and a detailed visual inspection of each individual machine is conducted, and this includes all the optional equipment and accessories. After the inspection, a full hydraulic oil analysis is taken to check for any contaminant particles. The oil must conform to ISO 4406 standards to pass when a 'Final Quality Control Inspection' plate is applied next to the CE plate.

**DELTA CRANES**

A new name to the industrial pick & carry crane market, Delta Cranes, is also Italian, based in San Paolo - between Brescia and Cremona. It does however have a good pedigree being a sister company to long established heavy truck crane manufacturer Idrogru.

Its first crane is the 100 tonne capacity all-electric DK100, the first of which went to crane rental company Sassuolo Gru, based in Sassuolo near Modena. It features a three section 14.8 metre main boom and is designed primarily to handle heavy loads in factory buildings. Power is supplied by a 96 volt/1550Ah battery, with a 35kW motor for the crane functions and two 25kW direct wheel drive motors. The battery pack is said to be sufficient for a full eight hour work shift.

The 179 degrees rear wheel steering - +96/-83 degrees - allows it to turn within its own length. Turning circle radius with the 20 tonne hydraulically operated counterweight extended is 6.17 metres and 5.65 metres when retracted. Options include hydraulic winch, hydraulic jib, hydraulic forks and radio remote control.

The company also announced an 80 tonne DK 80 which is very similar to the DK 100, but from what we understand does not have the telescoping chassis.

Two smaller models include the 12 tonne DK 12 pedestrian controlled crane, with a maximum lift height of just over nine metres at which point it can handle 2.5 tonnes, while the maximum forward reach from the front bumper is six metres with a capacity of 1.7 tonnes. And finally, the 20 tonne DK 20 has a maximum lift height of 10.5



Delta DK100



The Jekko JF545



The Jekko MPK06 with manipulator



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*Articulated tracked cranes are also gaining in popularity*

metres, at which it can handle nine tonnes and a forward reach of 7.6 metres with a capacity of 4.5 tonnes with outriggers set or three tonnes free on wheels.

**MINI PICK & CARRY CRANES**

Another pick & carry crane which is gaining in popularity at the lower end of the market are tracked carriers with small loader cranes installed from companies such as Almac/AlmaCrawler and new entrant Elma, a sister company to Platform Basket. The cranes can simply lift the load onto the tracked carriers acting like small crawler mounted carry deck cranes.

Articulated tracked cranes - articulated loader cranes on tracked undercarriages - are also gaining in popularity, with companies such as Jekko with its JF range of machines the market leader.

Jekko has five models in this category ranging from the 6.15 tonne 25 metre maximum height JF235, to the 21 tonne, 34.2 metre JF990. These models combine the versatility of articulated cranes with the stability of tracks and are ideal when working on uneven ground or difficult to reach places.

These machines however cannot carry a load. For this Jekko has its MPK range of four wheeled 'Mini Pickers' - the all-electric MPK6, MPK10, MPK20 and MPK50.

Smallest in the range is the 600kg capacity MPK6 which Jekko claims is the only such crane that can be used with a manipulator with a vacuum handler, or in hook mode in compliance with EN13000 regulations. Maximum lift height is four metres, while the maximum radius is 2.1 metres. The rear steer crane has an overall width of 765mm, an overall length of 1.85 metres without an attachment, and an overall height of 1.48 metres.

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The five tonne MPK50 which has a 6.9 metre main boom and is powered by a 48 volt/620Ah 12kW motor

At the opposite end of the range is the five tonne MPK50 which has a 6.9 metre main boom and is powered by a 48 volt/620Ah 12kW motor. Dimensions without an attachment are 3.01 metres long, 1.19 metres wide with a 1.74 metre overall height. The boom has a five degree side to side movement - giving a total of 570mm side shift either side of centre - and with rear wheel steer the turning circle is just 2.74 metres. Overall weight including one tonne of counterweight is 4.45 tonnes. Travel speed is four kilometres an hour, and it can lift five tonnes just in front of the bumper, or 800kg at 4.9 metres. Pick & carry capacity is 4.5 tonnes.

The unit also has a front stabilising bar which

adds to its performance allowing it to lift 1,100kg at 4.9 metres. Accessories include a 1,800kg capacity short jib and 700kg capacity long jib.

**MINI CRAWLER CRANES**

Currently the leading manufacturers producing mini crawler cranes with cabs include Maeda and more recently Sunward. Maeda has a four model range, the 2.93 tonne CC423S-1, the 4.9 tonne CC985S, the six tonne CC1485S and the 8.1 tonne CC1908S. The CC1908S can pick & carry 3.5 tonnes while at the other extreme the CC423S-1 manages 1.465 tonnes.

**SUNWARD ALTERNATIVE**

Chinese manufacturer Sunward now boasts an

impressive range of 10 telescopic crawler cranes from five to 80 tonnes although only two are available in Europe - the five tonne SWTC 5D and 10 tonne SWTC10, rated at 2.1 and 2.5 metres respectively. The SWTC 5D has a maximum lift height of 16.5 metres, a 14.53 working radius and weighs almost 11 tonnes. The 10 tonner has a 21.5 metre maximum lift height, 19 metre working radius and weighs 20.5 tonnes.

Sunward distributor GGR, which worked closely with the manufacturer to bring the two mini cranes to Europe, offers a wireless hook block monitoring system for the 10 tonne machine allowing the operator to see the load and hear what is going on in the surrounding area, providing an unobstructed, live audio visual feed of the critical areas, which might simply be impossible when working blind. Although useful on general construction sites, the system is ideal when working in areas where seeing the load throughout the lift is otherwise difficult or even impossible. such as when lowered material into shafts. ■



The 10 tonne Sunward SWC10 has a 21.5 metre maximum lift height, 19 metre working radius and weighs 20.5 tonnes

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