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# Pick & carry options

**c&a**

**pick & carry**

In every industrial installation contract, lifting the component into its final position is just part of the total process. Whatever the job, materials/components must be produced, transported to site, unloaded then moved and lifted into position. Depending on the size and weight of the item, the equipment used will range from small hand operated lifting machines, through industrial pick & carry cranes right up to massive mobile and crawler cranes together with SPMTs, tracked carriers, gantries and jacking and skidding systems.

Obviously reducing the number of machines by using one capable of picking, moving and placing the item is easier, quicker and safer. We take a look at a wide variety of options.

Stricter manual handling regulations have resulted in an influx of smaller hand-operated lifting machines which are growing in popularity by offering a more efficient solution to moving heavier loads. Last year we reviewed several hand operated machines including the PowerAttack lifting/skid tug which can handle up to 25 tonnes, the 140kg capacity 'chicken wishbone' Powered Hand Truck from Australian company Makinex and the 600kg Portable Self Loading fork lift from American company InnoLift.

However, lifting an object is not usually the problem. Moving it over distances, up and down various levels such as stairs or across rough

terrain is much more difficult. There are various solutions for coping with flights of stairs such as CTE's 600kg capacity Pianoplan 600J, while transporting loads up slopes and across uneven ground is made easier using the various tracked carriers now entering the market.

## Tracked carriers

UK Jekko distributor JT Cranes offers various inhouse designed remote control, lithium ion battery powered, fixed deck tracked carriers with capacities up to the 4,000kg D40, with deck measuring 1.9 by 1.36 metres and a carrier bed height of 570mm. Tracked carriers are ideal when working in conjunction with a spider or loader crane, unable to do the carry part of 'pick & carry'. The company says it is also working on a new higher capacity nine tonne tracked carrier.



A JMG MC110



The Valla 220SE is proving particularly popular, especially in the aviation maintenance market

Jekko has also entered the market with its Multi-Loader - a range of remote control, battery powered tracked loaders with 2,000 and 2,500kg capacity. Weighing 1,800kg the main difference with the JT Cranes carrier is that its 2.4 by 1.1 metre deck is self-levelling on slopes up to 40 percent longitudinally and 25 percent laterally.

Fellow Italian manufacturer Almac offers a similar range of tracked carriers using its 'Bi-Levelleving technology' from its range of tracked scissor lifts. The units have similar capacities but the Almac deck is wider at 1.3 metres. Battery life ranges between five and 10 hours.

Jekko is also finding success with its new tracked articulated crane range, topped by the JF545 which unlike most spider cranes can pick & carry lighter loads. It will shortly add to its range with the new JF365 capable of lifting 11.5 tonnes. While spider cranes are generally not able to pick & carry there are a few exceptions. The 10 tonne capacity Unic URW-1006 for example can pick & carry up to 1,500kg. The largest Maeda spider crane - the eight tonne MC815C - has a pick & carry capacity of up to a tonne. However, the real pick & carry stars are the four tonne Jekko SPX1040 and the 7.5 tonne SPX1275 which can both pick & carry up to 2,000kg through 360 degrees.

The four tonne capacity Jekko SPX1040 can pick & carry up to 2,000kg through 360 degrees



Jekko also has a range of small pedestrian pick & carry cranes and has added lithium power to its two tonne MPK20 and the five tonne MPK50 remote controlled crane/glass handler. The units currently use lead acid battery packs but can

The Almac tracked carrier with its Bi-Levelleving technology'





*Another Italian pick & carry manufacturer - this Sarda Aton has a lift capacity of 12 tonnes*

be ordered with the optional Eco Scienlab lithium ion battery pack, which is said to double or triple the battery life, with a continuous operation of between 3.5 and four hours, longer of course in typical use. The units can also be charged while being used on battery power.

**Industrial pick & carry**

In recent years the traditional industrial pick and carry cranes from Italian manufacturers such as Ormig, Manitex Valla, Galizia and JMG have been evolving rapidly as manufacturers adopt the latest technology such as direct electric drive and more sophisticated control systems. This has helped the sector regain some of the ground lost to fork trucks and telehandlers over the years.

Valla - which became part of the Manitex group in 2013 - is currently producing more cranes than it has done for several years. It recently introduced a new walk behind/pedestrian controlled pick & carry crane, the Valla 19E Series, in North America which has a lift capacity of 903kg with the machine weighing just under two tonnes. The 48 volt/200Ah battery powered crane is compact at 934mm wide, two metres high and 2.39 metres long. Its three section boom has 2.7 metres horizontal reach, 4.57 metre maximum lift height and rear 180 degree steering.

The company says that its 22 tonne Valla 220SE electric powered

crane, is proving particularly popular, especially in the aviation maintenance market, as it can be easily tailored to customers' requirements and offers 360 degree slew. Its four section 13.5 metre boom can be extended with a new jib to provide a lift height of 24 metres, allowing it to work on all wide bodied aircraft. The cranes are also fitted with the latest GPS and self-diagnostic systems informing the factory and client of any problems and possible issues.

Earlier this year it supplied a new 25 tonne Valla 250E to its UK distributor Hird. With a gross vehicle weight of less than 24 tonnes, it can lift up to seven tonnes to a height of 10 metres. Maximum radius with the boom horizontal is seven metres at which it can still handle a four tonne load. Ideal for indoor use, the machine has an overall width of 2.15 metres is 5.8 metres long and 2.3 metres high and is fitted with 3B6 digital load monitoring system. The machine has already been used by Ainscough Vanguard and British Aerospace for machine installations.

The demand for electric and hybrid powered industrial cranes has resulted in many of the pick & carry crane manufacturers adding this option. North America manufacturer Bailey Cranes offers battery and hybrid electric conversion kits for various manufacturers including Shuttlelift/Grove Yard Boss carry deck cranes, along with the



*JMG MC32 with winch*

complete line of Broderson carry deck crane line, with ranges from the 1,130kg pick & carry capacity of the IC20 to the 11 tonne IC400. The conversion features high capacity 24 to 80 volt lead acid battery systems located in the vacated engine bay and a 208/240/400 volt battery charger with a typical charge time of eight hours. An optional combustion engine can be installed for continuous running of the crane or charging the batteries.

**JMG electric**

Italian manufacturer JMG Cranes has been expanding its range of electric pick & carry cranes for more than 10 years now, and has a line that runs from the two tonne capacity walk behind MC 20 up to the 58 tonne MC 580. The company has launched two new models the 990kg capacity SpeedyLifter 99 and the 10 tonne MC 100S.

The compact SpeedyLifter 99 has an overall width of 840mm and an overall length of 2.36 metres with a 1.58 metre overall height, making it ideal for passing through single doors. It is lithium ion battery powered with two electric wheel motors powering the front wheels and 180 degree electric steering at the rear. Operation is solely by radio remote control. The little crane can

take its 990kg maximum capacity to a height of just under four metres and handle 390kg at 1.74 metres beyond the front wheels. The 1,350kg crane has removable counterweight in the form of 16, 25kg blocks so when removed results in the crane weighing less than a tonne. The crane has two front wheel stabiliser type outriggers, giving an overall width of 1.62 metres. Options include a hydraulic jib and winch - with maximum capacity of 770kg at over four metres lift height with 0.79 metre forward reach - an onboard battery charger, ATEX conversions for working in areas with explosive/flammable atmospheres, non-marking tyres and a hydraulic manipulator.

The MC 100S is a larger version of the SpeedyLifter and is also only operated by radio remote controls, with twin electric drive motors on the front wheels and two steering wheels at the rear. Overall weight is 11 tonnes, but this can be reduced to 7,600kg by removing the two 1,700kg counterweight sections. The three section main boom can lift 5,300kg to a height of more than nine metres and has a clear forward reach of 5.72 metres with 1,750kg capacity. With the front stabiliser bar deployed this is increased to



*Bailey Cranes offers battery and hybrid conversion kits for manufacturers including Broderson, and Shuttlelift/Grove Yard Boss*



*JMG MC25 glass manipulator*

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The compact 'push around' M1 Microcrane features a four section boom offering a maximum tip height of 6.7 metres and a capacity of 905kg

2,400kg. The crane measures just over 4.5 metres long, 1.5 metres wide and is almost two metres high.

**Alternative pick & carry machines**

Earlier this year Canadian manufacturer Microcranes - formerly SmartRig - launched the M1 Global model lightweight modular mini crane. The compact 'push around' crane features a four section boom offering a maximum tip height of 6.7 metres and a capacity of 905kg. It has an overall width of 762mm and weighs 816kg with 136kg of removable counterweight meaning it can fit through doorways and inside smaller elevators/lifts.

The crane is equipped with castors on both the base frame and outriggers allowing loads to be manually moved into position. It has several configurations, including a roof top mode allowing floor to floor or ground to roof lifting of materials on buildings of up to seven storeys. M1 portable lifters has a four section pull out boom with hand operated pump for the hydraulic elevation, a battery powered winch features a 24 volt deep cycle battery with an onboard charger.

A similar type of crane is the Greenlifter from JMG. With a lift capacity of 900kg, the compact unit can be disassembled and folded



The JMG Greenlifter has fold out 1,740mm wide front stabilisers when in lifting mode

into two push around parts - boom and counterweight/engine - each measuring about a metre long, making the crane very compact, portable and manoeuvrable. With an overall width of just 620mm, it has fold out 1,740mm wide front stabilisers when in lifting mode. Overall length is 2.34 metres with

an overall height of 1.58 metres. It weighs just 1,150kg but has 650kg in removable counterweight. The three section boom is manually extended but hydraulically elevated and can lift 250kg to a maximum height of about four metres with three metres forward reach. Once



The Greenlifter can be folded up into two push-around parts - boom and counterweight/engine

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The IMK 35500 can pick & carry its maximum load of 500kg through 360 degrees.

the load has been lifted, the crane can be pushed into position on its wheels.

#### Hematec mast boom crane

A variation on the compact lifting theme is the new German made Hematec IMK 35500 mast boom crane. Based on the Helix 1205 work platform, the self-propelled IMK 35500 can pick & carry its maximum load of 500kg through 360 degrees and is able to drive itself into very narrow, restricted areas. The IMK 35500 has an overall width of just 980mm, a five section telescopic vertical mast topped by a 5.1 metre four section telescopic jib. Maximum tip height is 10.5 metres at which it can handle its maximum capacity and take it out to a radius of 3.5 metres and a height of 6.6 metres, with the mast fully extended and the jib horizontal. Maximum radius in this configuration is 4.3 metres and which it can handle 350kg all free on wheels of course.

The first unit was recently delivered to UK sales and rental company GGR, which is promoting it as the AC500 Assembly Crane. Chief executive Graeme Riley said: "We see the AC500 Assembly Crane being used across a variety of industries. This innovative piece of kit is perfect

for projects operating in confined and restricted areas, particularly in the automotive industry."

#### Hüffermann cranes arrive in USA

Another unusual crane with pick & carry capability is the Hüffermann articulated self-propelled electric crane. The first in the USA has recently been purchased by BMW North America for its production facility in Greer, South Carolina. The Type III third generation 34 tonne/metre model uses a Palfinger loader superstructure and can take 1,420kg to a radius of 16.7 metres through 360 degrees.

The new modular chassis has been redesigned to handle articulated cranes up to 56 tonne/metres. Both ends of the chassis can also be extended to almost double its length for a longer outrigger footprint while maintaining a compact base for manoeuvring into position. The Type III is more compact than earlier models, with greater steering and drive power, but retains all key features, such as quiet, emission free operation along with four wheel drive and steer, allowing it to move in virtually any direction including turning on the spot.

The outriggers can be set to fill the space available, with a maximum footprint of 6.5 metres square. Hüffermann claims that the new crane is the only such machine that can handle the latest heavy duty manufacturing robots from typical factory aisles, giving manufacturers the ability to place heavy machine tools - such as Kuka's Titan 1000 which can weigh almost five tonnes - in more confined spaces.

#### Tractor/articulated chassis cranes

Another pick & carry crane are those with articulated chassis, ranging from simple tractor-based cranes used widely in India, to the sophisticated 'Franna' type cranes popular in Australia. Terex Australia - previously Terex Franna - has booked a number of new orders for the Mac 25-4 and AT-22, following a few years of quieter sales volumes.



A Franna AT-22 articulated crane.

The Hematec crane can lift 350kg at a radius of 4.3 metres and a lift height of 6.6 metres.

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One of many pick and carry cranes made in India - this is the Indo Power 14FXN.

The 25 tonne Mac 25-4 features an 18 metre four section boom and a short three metre jib for a maximum tip height of 21.5 metres. The crane has no outriggers and can lift its entire load chart free on wheels. Weighing almost 24 tonnes the Mac 25-4 has a maximum travel speed of 75kph. Recent orders have come from Mammoet, Brendon Penn Crane Hire and Melmar Cranes. Companies including South32, Cannington and Mandurah Crane Hire have ordered the smaller 22 tonne AT-22 which features a 17.9 metre four section boom with the final section manually extended. A short jib raises the maximum tip height to 2.07 metres. Overall weight is 20 tonnes.

**Humma 55-25**

Australia's Humma Cranes has launched a new chassis for its 55 tonne capacity articulated Humma 55-25 which uses a new dynamic levelling suspension allowing the crane to pick & carry over uneven ground and on side slopes of up to five degrees without the need to derate the charts. Working with

specialist commercial and vehicle suspension systems company Hemscheidt Fahrwerktechnik the chassis features a new modular hydro-pneumatic suspension and damping system which can be adapted to various configurations. The dynamic levelling suspension is said to be a world first in a crane of this type.

According to Humma, side slopes are the biggest cause of reported crane accidents. Even an incorrectly inflated tyre can put an articulated crane into a dangerous side stability condition. The Humma's custom designed suspension automatically adjusts the crane chassis while lifting to maintain its level, allowing the operator to complete the lift safely and quickly.

The company says that it is 'the beginning of the heavy lift, high tech era of pick & carry cranes' and sees no technical reason why a 75 or 100 tonne Humma could not be built to meet market demand.

**RT cranes**

Another option for pick & carrying loads is the Rough Terrain crane.



A 22 tonne Valla 220SE



Humma 55-25 claims to be the new standard in high capacity articulated pick & carry cranes

Often the first machine to roll onto a job site, they must be 'jack of all trades'. The latest RT launch is the 149 tonne three axle Grove GRT 9165 with 62.5 metre six section, pinned main boom which can be extended to a maximum tip height of 91.2 metres with a choice of manual or hydraulic offset

extensions.

The new crane has been designed for easy transport, with an overall stowed height of 3.8 metres, hydraulically removable counterweight and outrigger boxes, taking it down to an overall weight of 52.6 tonnes. The crane uses a hydrogas suspension system and is able to pick & carry a maximum of



Two 45 tonne Ormig cranes



The 149 tonne capacity three axle Grove GRT 9165

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- 2/4 parts load block reeving
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five tonnes at a five metre radius. The crane is the first three axle Grove Rough Terrain crane and goes head to head with Tadano's 145 tonne GR-1600XL-2 and Link-Belt's 145 tonne RTC-80160 Series II. The Tadano can pick & carry just under 10 tonnes, even without counterweight, while the Link-Belt with 14.3 tonnes of counterweight can pick & carry a massive 39.6 tonnes. At the smaller end of the market, Locatelli unveiled the 45 tonne Gril 52.47 at Intermat, which interestingly can pick & carry a very respectable 16.5 tonnes.

**Telescopic crawlers**

The recent growth in the popularity of telescopic crawlers means there is yet another range of equipment capable of pick & carrying a load.

Most crawler cranes can pick and carry their full load charts. One of the most recent launches is the 32 tonne Tadano Mantis GTC telescopic crawler, the smallest model in the company's GTC - Global Telescopic Crawler - range to date. The load chart is good for pick & carry through 360 degrees on level ground anything up to 1.5 degrees.

The crane has a 27 metre three section full power boom designed and built by Tadano Japan for heavy duty crawler crane applications such as pick & carry, foundation and grab work. It is topped with a 7.1 to 12.7 metre bi-fold swingaway extension that offsets at 5, 25 or 45 degrees and provides a maximum tip height of 41.1 metres. Load charts are also programmed for

slopes up to four degrees on main boom, or 2.5 degrees when lifting with the extension.

**30 tonne Sennebogen**

Another relatively new 30 tonner is the Sennebogen 633 - its own version of the badged Grove GCH30 unveiled earlier this year. The new crane features a 25.2 metre three section full power boom designed for heavy duty and use and frequent cycling. A 6.5 to 13 metre offsetable bi-fold swingaway extension takes the maximum hook height of 38 metres. All capacities are 360 degrees and the unit can pick & carry its full load chart. Load charts are also available for slopes of up to four degrees.



Most crawler cranes can pick and carry their full load charts such as this 32 tonne Tadano Mantis GTC telescopic crawler



Galizia G150 working at Stanstead Airport



Ormig 60tm



Almac tracked multi-loader

# Going Underground

A Valla 250E electric pick and carry crane has been lowered 20 metres down a shaft to support construction of the latest £500 million, two mile extension of the London Underground Northern Line being built by a joint venture of Ferrovial Agroman and Laing O'Rourke.

The line will serve major new leisure and office developments and 20,000 new homes on the site of the former Battersea Power Station as well as the new United States and Dutch embassies at Nine Elms. Two new stations will be built at Battersea and Nine Elms and will then

terminate at Clapham Junction. It is scheduled to open in 2020.

The 25 tonne capacity Valla 250E is being used to carry and install reinforced concrete panels lowered into the shaft by a tower crane. With an overall width of 2.15 metres and overall length of 5.8 metres the

crane is fitted with the latest all-round camera system, helping ensure safety while moving in the confined area.

Deividas Matulevicius, senior AP - Lifting Operations - for Laing O'Rourke, said: "The Valla 250E is the most manoeuvrable crane I have worked with. The confined spaces we can operate in underground are quite amazing. Being an electric crane, it is also environmentally friendly with low noise and zero emissions so is ideal for such a job, helping to make our work environment safer and easier to work in."

The crane has a four section



The Valla 250E is being used to carry and install reinforced concrete panels



The Valla 250E electric pick and carry crane being lowered down a shaft on the two mile extension of the London Underground Northern Line

telescopic boom, and a maximum radius of nearly 10 metres. It is also fitted with non marking tyres, the latest 'InTouch' tracking system and advanced remote access diagnostics."

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