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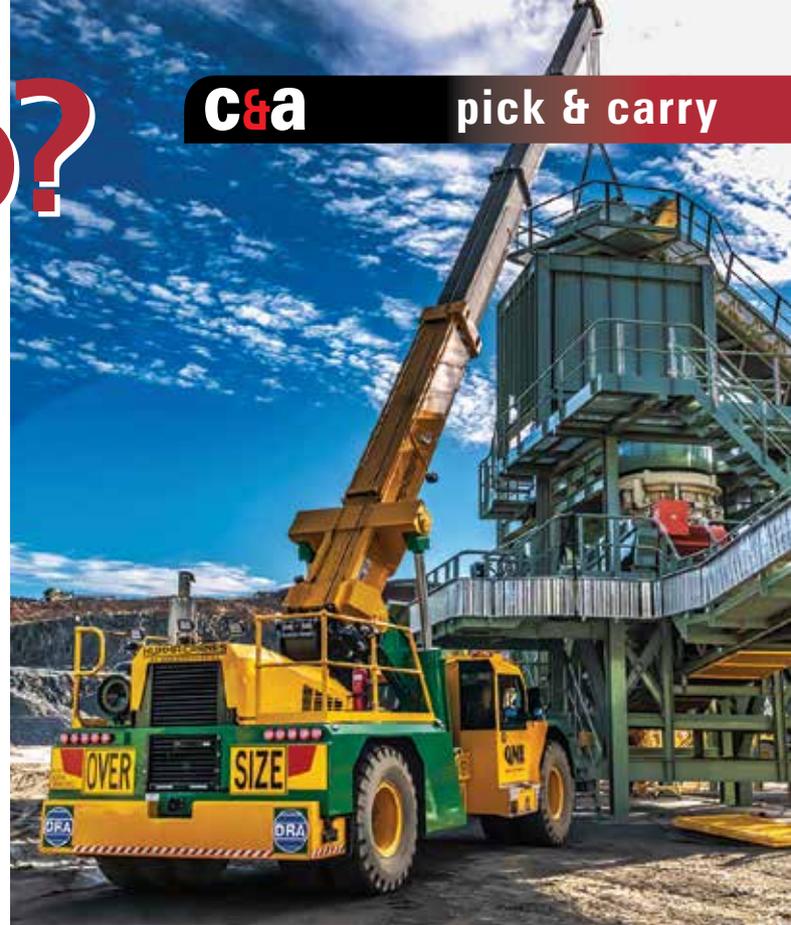
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Picking up?

C&A

pick & carry

The pick & carry market is one that has been growing in recent years after decades of decline as palletised loads and fork trucks took over from industrial material handling. It is however a fragmented market. In Europe most pick & carry cranes are classic 'industrial cranes' dominated these days by the Italians. They are used predominantly in production facilities and yards, although the smaller models have found an expanding role in construction with glass handling and high rise curtain walling. In the USA the 'carry deck' style from Broderson and Grove are more common place. Australia is clearly the leading market for articulated pick & carry cranes, while the Indian subcontinent is by far the largest market for articulated tractor based cranes. We take a look at some of the latest products, before focusing on the changing Indian market as we speak with the local crane manufacturer, Action Construction Equipment (ACE).



So what's new?

Valla

Earlier this year Valla introduced the first model in a new range of battery powered pedestrian controlled pick & carry cranes with its eight tonne V80R (V90R in the US). Unveiled as a seven tonne prototype at bauma, the company has since carried out a number of changes and modifications to uprate it from seven to eight tonnes.

With a 8.9 metre full power three section boom, the crane features a clever chassis telescope feature which effectively increases the distance between the counterweight and front axle by 600mm. A cross bar stabiliser which descends down from the front bumper, can also be deployed to increase capacities still further. The net effect is an average 50 percent boost to capacities throughout the chart, allowing it

to handle eight tonnes 600mm in front of the bumper, 1.9 tonnes at a distance of 5.2 metres or 2.5 tonnes at a hook height of nine metres.

Jekko

The latest product from Jekko is the battery powered 600kg MPK06 mini picker. Designed for glass installation and material handling in builders yards, the MPK06 features a 2.8 metre three section boom, with a maximum tip height of 3.5 metres and a maximum forward reach of 1.7 metres. It can handle its maximum capacity at a radius of half a metre and can take 300kg to 1.7 metres.

When installed with a vacuum manipulator, the boom can slew up to 10 degrees either side of centre, while the manipulator itself offers 360 degrees continuous rotation. Capacities range from 600kg to

150kg at 2.1 metres radius.

The MPK06 weighs just under a tonne, including 270kg of removable counterweights, reducing the overall weight to 720kg. Two 12volt/155Ah traction batteries powering an electric motor and new electric actuators in place of hydraulic cylinders, allowing simultaneous operation of three functions without cross interference and eliminating the need for hydraulics.

The machine's overall width is 835mm or 760mm when equipped with indoor wheels. Outboard stabilisers are also available with an overall width of just under 1.7 metres. Overall length stowed is 1.85 metres with a stowed height of 1.36 metres.

The company is also working on the launch of the 900kg MPK09 and 1,200kg MPK12 with further details due later this year. Jekko R&D

manager, Marco Zava, said: "MPK09 and MPK12 are meant to complete the mini picker range, serving both civil and industrial sectors and covering the gap between MPK06 and MPK20. Although offering different maximum lifting capacities, the MPK09 and MPK12 will be substantially the same machine and will share the same functionalities of the MPK06."

First hybrid JMG

JMG has announced plans to launch its first hybrid pick & carry crane with its 10 tonne MC100HY.

The new crane is powered by lithium-ion batteries and features AC drive motors for wheels and pump. It is also equipped with an onboard diesel powered generator which sends power directly to the motors, with any excess generated used to top up the battery pack while the machine is working.

The crane can manage up to four hours continuous operation as a pure electric crane between recharges. Unlike some of the latest Italian pick & carry cranes of this size, the new MC100HY has a traditional operator's cab. Specification detail is exceptionally limited but the crane appears to share some features with its pedestrian controlled MC100S which offers an 8.9 metre three section boom. The overall width of the MC100HY is 1.85 metres, with



The new V80R in the Manitex blue and grey livery



The new Jekko MPK06 fitted with its glass handling manipulator



The new JMG MC100HY



an overall length of 3.96 metres and at 1.97 metres overall height will pass under two metre overhead obstructions.

New jib for MC160

The company has also added a new four section 2.6 to 8.3 metre telescopic jib for its 16 tonne MC160 classic pick & carry model. The jib pins to the nose of the three section 10.5 metre boom for a maximum hook height of 19 metres or 15.7 metres of forward reach. It is also able to luff from 10 degrees above horizontal boom to 45 degrees below. The capacity ranges from 500 to 1,800kg and is a substitute for the existing two section telescopic jib.

Galizia

Having first added front outriggers on its 25 tonne GF250 in 2015, Galizia is now rolling this option out across its range with its 18 tonne GF180 and 42 tonne GF420 the latest to benefit. The outriggers boost the capacities between 20 to

The new 8.3m telescopic jib for the JMG MC160



A GF180 fitted with front outriggers recently purchased by a customer



The Hooka fitted with its steel beam handling attachment

25 percent. When installed to the GF420 for example, it can handle 7.2 tonnes at an outreach of nine metres as opposed to the standard six tonnes.

Hooka

Hook-Up Solutions' 1.5 tonne Hooka tracked pick & carry crane is finding success in a wide variety of applications following the introduction of a new range of attachments. Launched in 2015 for lifting one tonne pallets or bulk bags, the crane can now be fitted with attachments for handling I-Beams and glazing panels, pizza ovens, large gas tanks for Openreach and railway bridge parapets for Network Rail.

Director, Charles Sterling, said: "Its one metre width was specifically aimed at moving bulk bags and pallets, but it is now increasingly used to lift, shift and install other bulky items. The machine has ended up combining the CVs of a micro forklift, spider crane and tracked dumper."

Franna

Terex unveiled its 22 tonne Franna AT22 at Conexpo earlier this year modified for the US market. Manufactured at the company's facility in Brisbane, Australia, the crane features a 17.9 metre four section boom plus a short jib raising the maximum tip height to 20.7 metres. Overall weight is 20 tonnes and the crane can handle its full capacity at 1.4 metres or 1,700kg at a 15.8 metre outreach.



Franna sales director Mark Lock said: "Whilst this type of pick & carry concept is relatively unknown in North America, customers are already starting to see the benefits now that the AT 22 is fully compliant for the USA."

Spyder

A new product line also debuted at Conexpo was the ultra-compact Spyder Crane PC094 pick & carry crane manufactured by Smiley

Lifting Solutions. With an overall width of 785mm and weighing 1,400kg, it can lift up to 690kg at an outreach of 600mm or 169kg at 3.9 metres. Powered by 48v 200Ah battery pack, the PC094 is manoeuvred manually with a drawbar with features including automatic overload protection, tilt alarm and fold away stabilisers. The PC094 will shortly be joined by larger PC194 and PC295 models.



The PC094 pick & carry crane on show at Conexpo



The first Franna AT22 in the USA has been in constant use since Conexpo on a large construction site

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ACE high



With more than 10,500 units produced each year, India is without a doubt the biggest market for pick & carry cranes. Ed Darwin spoke with Sorab Agarwal, executive director of Action Construction Equipment (ACE) to find out how the company went from producing its first pick & carry crane under a tarpaulin tent to become the market leader just eight years later, and how it has maintained its position ever since.

Global giants

“ACE started in a very small way,” explains Agarwal. “In 1995 my father, Vijay Agarwal, put all his savings into building a single eight tonne pick & carry crane. Built under a temporary structure on uneven land, it was far from glamorous, but he knew with only one or two players in the market there was an opportunity. A lot of hardship and a lot of work followed, but the company kept on growing, changing, improving and upgrading until we got to where we are today - the largest manufacturer of pick & carry cranes in the world.”



The company now claims a 63 percent share of the articulated pick & carry market, producing around 6,500 units a year at its 100 acre/400,000 square metre facility in Faridabad. The majority of these are traditional tractor-based

models however a growing number of the articulated cranes produced are from its ‘NextGen’ range which are more similar in design to the pick & carry cranes produced in Australia. The company has also expanded its crane product line - all designed and built entirely inhouse - to include self-erecting and top slewing tower cranes, crawler cranes and truck mounted cranes. More recently it has diversified into general construction equipment and tractors with its full product offering supported by more than 100 service and dealer locations throughout India.

“When we started out with pick & carry cranes we were competing against huge corporate companies in India but within eight years we were market leaders. Similarly when we began producing tower cranes in 2010 we were faced with competition from global giants such as Liebherr and Potain - which had been operating in India more than 20 years before we even started - to the point that we now have a 55 to 65 percent market share with the tower cranes we offer.”

Why so popular?

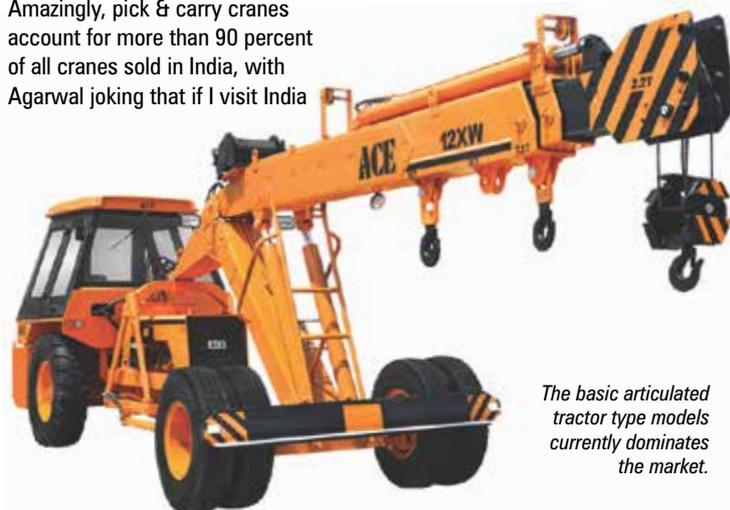
Amazingly, pick & carry cranes account for more than 90 percent of all cranes sold in India, with Agarwal joking that if I visit India

and do not see a pick & carry crane every 30 minutes to call him immediately because it will mean they need to sell more.

Joking aside, with an estimated 90,000 pick & carry cranes in the market, it is clear that this is a product that has been wholeheartedly adopted throughout India and is used for all manner of lifting work. In most countries pick & carry cranes tend to be limited to industrial plants and factories, with perhaps only Australia being an exception. In India however they are used for almost every application with more than half used on construction and infrastructure projects and the rest used for industrial, manufacturing and logistics applications. If there is a load that needs lifting, you can be sure it will be done using a pick & carry crane - and more than likely a basic articulated tractor type unit which dominates this market. This is due in part to their simplicity, versatility and manoeuvrability, offering up to +55/-55 degrees articulation, however the key driver for their dominance is price. On average, a traditional pick & carry



Seven of ACE's eight facilities are located on its 100 acre site in Faridabad



The basic articulated tractor type models currently dominates the market.

'NextGen' models are becoming more popular over the past 10 years



crane from ACE will be anywhere from 40 to 50 percent cheaper than the NextGen models it builds and this gap is likely to be a good deal wider when compared to cranes from international manufacturers. "There are no construction sites of any size in India where you cannot find a pick & carry crane. And they will never be totally replaced for one very simple reason - price. Like a lot of other developing countries, India is a very price sensitive market,"

says Agarwal. Encouragingly, however, there has been there has been a gradual shift in the past 10 years towards a number of NextGen-type products even though they come at a greater cost. This is because they offer more stability, greater visibility and in general, more safety features. Currently, ACE's NextGen models account for almost 25 percent of its pick & carry sales, and although Agarwal does not believe they will



ACE's new Multi Activity NX360 pick & carry crane

ever eclipse traditional models, he is confident that they will account for 40 to 50 percent of the market over the next five years.

Multi activity cranes

ACE first introduced its NexGen range back in 2008. It now comprises of a four model, four wheel drive F-range with capacities from 15 to 20 tonnes and five model, two wheel drive FX-range with capacities ranging from 15 to 30 tonnes. In addition to being safer and more stable, standard features include front outriggers, rear view cameras, rear leaf suspension, synchromesh transmission with road speeds of up to 40kph and up to 45 degrees of articulation. A slightly more basic three model SX range, incorporating the company's original axle/transmission system, is also available for yard and factory applications with capacities ranging from 12 to 16 tonnes.

Last year it added to its range with the introduction of its new 2-in-1 Multi Activity cranes. This included a 20 tonne NX360 pick & carry crane that features four outriggers and 360 continuous slew and two 15 tonne NXP150



The addition of four outriggers allows it to double up as a 360 degree slewing crane.

and NXT150 models that offer aerial work platform and telehandler attachments.

The NX360 Multi Activity crane features a four section main boom - three section full power synchronised plus a manual power extended pinned section - to offer a 19.7 metre tip height. This can be topped by an optional 2.7 metre extension rated to 1,250kg, which takes the tip height to 22.1 metres. Capable of pick & carrying its maximum capacity over the front using its mid boom hook at a radius of 1.5 metres, it can also handle 500kg at a maximum radius of 18.6 metres.

With outriggers deployed it can handle 18 tonnes at 2.5 metres and

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The 15 tonne NXT fitted with its telehandler attachment

500kg at a radius of 17 metres. Power comes from either a 101HP Tata or Ashok Leyland diesel engine with a maximum road speed of 35kph, while features include safe load indicator with overload cut out, 40 degrees articulation and a rear and load camera system. Weighing just over 20 tonnes, it has an overall chassis length of 6.84 metres and an overall width of 2.7 metres, while maximum outrigger spread is four metres.

The NXP150 Multi Activity crane is a 15 tonne pick & carry crane which features a hydraulic quick coupling connector for a work platform attachment. Complete with a 2.5 metre articulated jib, it offers a maximum work height of 21 metres and up to 17 metres of outreach, with an unrestricted platform capacity of 230kg. The crane operator controls the movement of the boom, which can be positioned anywhere within the crane's 40 degrees of articulation, while the operator in the platform is able to control 140 degrees of jib articulation and 180 degrees of platform rotation.

The NXT150 features the same chassis and quick coupling connector as the NXP150 but when fitted with its telehandler attachment it can take three tonnes to a maximum height of 12.3 metres.

ACE is looking to extend its 4WD F-range with the addition of a 25 and 35 tonne model



Similar to the NX360, the NXP and NXT can operate as a standard pick & carry crane, handling its full capacity at a radius of 1.5 metres and 800kg at its maximum radius of 13.2 metres. The crane also has a 2.75 metre extension for a maximum tip height of 16.3 metres. Weighing 15 tonnes, power comes from a 49HP Tata 4 cylinder diesel engine and offers road speeds of up to 32kph.

Agarwal said: "Our Multi Activity range started to catch on really well after the launch but unfortunately Covid-19 has since impacted this. I am sure interest will start to pick up again soon though because it's a wonderful concept, with these products costing up to 50 percent less than a traditional 15 to 20 tonne slew crane or truck mounted platform. Essentially you are getting twice as much for half the cost and some of our customers are freaking out!"

Preparing for the future

The company has discussed plans to extend the top end of its 4WD F-range with the introduction of the 25 tonne F250, while a 35 tonne model is also under development. Details on both are minimal at this point however the company has confirmed it will look to follow up on the F250 with a 25 tonne NX360 model within the next 18 months.

"We have developed the F250 to meet the increasing demand to lift larger loads, but the 35 tonne will be more focused on handling steel coils which in India range anywhere from eight to 29 tonnes. It will also be used for wind turbine and mining applications with stone quarries in India very busy at the moment and frequently requiring to move blocks of stone weighing 20 to 25 tonnes."

The wind turbine and mining industries are not the only industries experiencing substantial growth currently. With India set to invest more in construction than the USA over the next five years, the government is investing hundreds of billions in urban infrastructure projects throughout the country. These include various

transit/metro systems, waterways, airports, ports and smart cities, with more sophisticated - and importantly - safer products being

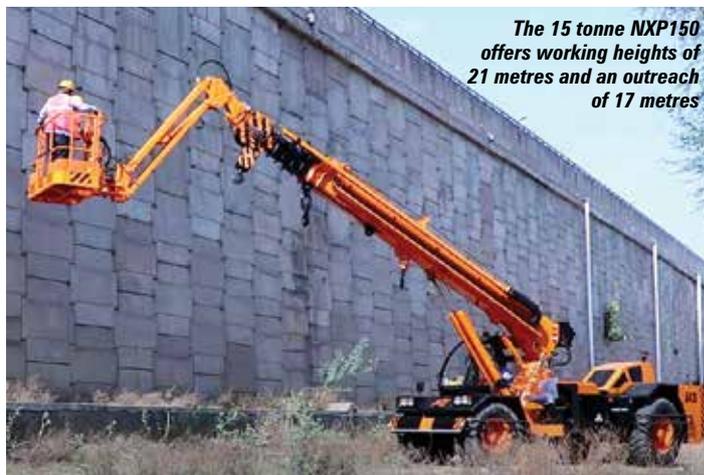


Covid-19 has delayed the date that engines of construction equipment larger than 50HP must be compliant with BS-IV emission standards until April 2021.

requested by contractors. This focus on safety is also being aided by a number of Government regulations being introduced at the moment such as mandating load moment indicators with overload cut out function on all mobile cranes as well as the adoption of BS-IV diesel engines (Tier IV/Stage IV equivalent) for construction equipment engines larger than 50HP.

Another element will see more attention given to training and certification. Agarwal explains: "There is practically no certification for crane operators in India as of now. In order to operate a crane you just need to have a heavy vehicles licence. If you have this, then

technically you can operate any equipment including truck cranes." Agarwal explains how the absence of a recognised training body has made way for 'trained' operators to recruit helper-come-apprentices who are then trained over six to 12 months before they become operators and recruit their own helper. With cranes becoming more sophisticated ACE recognised the need for enhanced training, setting up its dedicated training centre in Faridabad in 2010. Last year, the company trained more than 2,000 operators and engineers in the use of its machines with the training provided free of charge for any customers.



The 15 tonne NXP150 offers working heights of 21 metres and an outreach of 17 metres



Last year ACE provided its training to the majority of delegates for free

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He adds: "Everyone finally wants safety and I am sure that over the next five to 10 years more regulations will be introduced in respect to manpower, training and certification. It is unfortunate that Covid-19 will set us back a year in terms of progress but I am sure it will eventually happen in India."

What does the future hold?

Given the scale of projects planned in India combined with a gradual shift to precast and prefabricated construction, there will be increased demand for Rough Terrain and truck cranes capable of lifting larger and heavier loads.

ACE is working on a new 80 tonne truck crane which will be ready later this year.



ACE currently sells a small number of its 20 tonne Rough Terrain cranes each year however it is currently focused on developing a 45 tonne model so that it is able to compete with a truck crane which is proving more popular at the moment. Agarwal believes this is due to the recent introduction of Chinese truck cranes 'selling at good prices' over the last few years and also the company's decision to introduce its 45 tonne TM450 and 55 tonne TM550 truck cranes last year as well as plans for a new 80 tonne model later this year.

He said: "Truck crane sales are now up to 200 units a year in India so obviously we have to be there in order to not miss the market. This is why in the last two years we introduced our own models with capacities of between 25 and 60 tonnes. We are also working on a new 80 tonne truck crane which will be launched in the next eight to 10 months."

Last year we talked about manufacturers developing telehandlers for the Asian market with Manitou, for example, launching its 7.6



Manitou's 'back-to-basics' MXT 840 and MXT 1740 will be looking to capture some of the pick & carry market share

metre MXT 840 and 17 metre MXT 1740 with 4,000kg capacities. The company's thinking was, with the right pricing and a simpler product some tractor crane buyers might switch to telehandlers. Agarwal spoke out on his reservations on the adoption of telehandlers by the market, however: "We just don't see them as good value at all. We made telehandlers some 10 years back (a 2.5t/5.7m model) and we still have a few standing in our factories. For the cost of a telehandler that can lift three to four tonnes, you might as well buy a pick & carry crane that can lift 15 tonnes for slightly less money!"

He added: "The main problem with telehandlers is no one likes them! If you go to any site and tell them that they have to use a truck crane or telehandler over a tractor crane your output will be finished. That's how they are used to working." But ever the entrepreneur he concludes: "If JCB, Manitou or Genie start to sell more than 20 a month I am sure we will catch them."



Right place, right time

One company that is looking to benefit from the shift in attitude and the growing demand for more sophisticated cranes in India is Terex.

Last month, the company announced plans to begin production of Franna pick & carry cranes alongside Terex Rough Terrain and tower crane models at its recently expanded manufacturing facility in Hosur, located to the south of Bangalore. Located on a 45 acre plot with around 60,000 square metres of machining and fabrication shops as well as large assembly halls, the facility employs 600 staff including a research & development unit staffed by 150 engineers.

Details on the new Franna crane have yet to be announced but early indications suggest it will be a new 15 to 20 tonne unit specifically for the Indian market. Scheduled for launch early next year, the company plans to produce up to 500 cranes a year and will initially look to follow the blueprint adopted by its Powerscreen division when it first entered the market in 2009.

Franna plans to design a 15-20 tonne model specifically for the Indian market.



Terex has announced plans to manufacturing Franna cranes at its facility in Hosur, India

Danny Black, general manager of Franna Cranes explains: "What started with the manufacturing of one Powerscreen model, the company has since grown to be one of the top three local manufacturers of crushing, screening, washing and conveying products in India. With the new Franna crane incorporating a product design specific to the requirements of the local market and featuring higher specification of safety and technology, we are confident we can similar successes."

Black added: "Our next generation Franna cranes will be built to the Australian standard which goes above and beyond the current stability requirements in India. We believe we can make a positive contribution to the overall safety of mobile pick & carry cranes in India, particularly in the area of stability. In addition to safe design features, Terex will invest in education of the local market on the safe use and operation of these cranes."

Although there is a huge market to go at, Terex is unlikely to have an easy time given the sheer competitiveness of companies like ACE, however the latest developments will certainly put it in the right place at the right time.


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