



The Grove GMK5220

Grove's 220 metric ton (243 US t) all-terrain crane features the MEGAFORM™ boom profile with hook height to 105 meters (344 ft) and best in class capacity. The 'steer by wire' hydraulic-electronic steering system and industry leading MEGATRAK™ suspension provide unparalleled off-road performance. And, as with all GMK's, the GMK5220 comes standard with all wheel steering, TWIN-LOCK™ boom pinning, ECOS and EKS5 systems, and hydraulic luffing swingaway.

GROVE

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Manitowoc
Crane Group

choosing a 100 tonner

There was a time, not too long ago, when a 100 tonne crane was the top of the tree - a massive crane reserved for the largest crane hire companies. These days it has become almost a taxi crane with an increasing number of companies feeling that they can keep one busy in their fleet not to mention manage the logistics and planning skills required for the more complex lifts that these cranes are typically used for.

As such this sector has attracted the largest amount of research and development spending in recent years. With all major manufacturers introducing at least one new contender in the past two years it has created somewhat of a confusing cluster of products with nominal capacities of between 90 and 110 tonnes.

As many rental companies are only likely to buy one crane of this size, choosing the right one is not at all easy. The critical considerations are

boom length and type of work the crane is to be used for. For example, if the crane is likely to carry out a large number of one day heavy lift jobs with the possibility to squeeze in more than one job a day, then perhaps a five axle carrier that allows the crane to carry all or most of its counterweight in addition to all its equipment is the one to go for? Having the crane fully self-contained like this is also attractive for smaller operators who do not wish to carry the cost of additional support vehicles.

When equipped with all of its counterweight the AC100/4 out-lifts most of its four or five axle competitors offering a full 100 tonnes at three metres.



The new 90 tonne ATF90G launched at Bauma while carrying a lower nominal rating than most of the other cranes is far from being the weakest crane.

On the other hand for larger companies with a transport fleet on hand, a four axle carrier can offer lower operating costs and when on site is a more compact crane. The lower initial purchase price is also likely to appeal. We take a look at the most recent new launches and feature a comparison of the main features of each of the main models in this sector.

Terex Demag

Terex is claiming that its new four axle AC100/4 is the strongest four axle crane on the market and certainly looking at the basic headline specifications they do have a strong claim. It does though have the shortest main boom of all the 90 to 110 tonners that we reviewed, but at 50 metres it is not exactly stunted. Its bi-fold swingaway boom extension plus single, eight metre insert takes the maximum tip height up to 82 metres. Most buyers are likely to stay with the simple bi-fold swingaway which stows on the machine and still offers a 74 metre tip height.

This is an exceptional crane in that in the UK, it can travel on the road with more than 21 tonnes of its counterweight, its boom extension, hook blocks and slings. In this configuration it can still handle 12 tonnes on its fully extended main boom, nearly 28 tonnes at 10 metres and 1.5 tonnes at 44 metres radius.

When equipped with all of its counterweight the AC100/4

out-lifts most of its four or five axle competitors offering a full 100 tonnes at three metres, nearly 31 tonnes at 10 metres and over two tonnes at 44 metres.



Demag's five axle AC100 has the best lifting capacity at full boom - 13 tonnes.

One benefit of its shorter boom is that it is the most compact machine of the sector with a chassis length of less than 10.5 metres and an overall length of just over 13 metres. It is also the only crane in the range that can offer an overall width of just over 2.5 metres, but this is with 14.00 tyres. These are not a practical option for the UK or Ireland where the 16.00's are likely to be more popular. These increase the width to nearly 2.75 metres - the same as most competitors. All wheel drive and all wheel steer is standard.

In this sector outrigger spread is worth looking at, with a half metre difference between the models we have covered. The Terex is closer to the narrower end at 7.2 metres fully extended, with load charts for a total of four widths.

Viewed as an overall package, this new crane looks like a winner, at least on paper.

The GMK 4100 is more compact and offers better lifting capacities than its longer-boomed sister the GMK 4100L



Grove

Grove now has a packed range of offerings in this sector with no less than four cranes and possibly two more new models on the way. If main boom length is what you want then the four axle Grove GMK4100L leads the sector with an outstanding 60 metres extendable to 82 metres with a bi-fold swingaway.

Like its regular 52 metre sister machine, the new GMK4100L launched late last year, is selling like hot cakes. The shorter boomed model has until now been the more popular, probably due to the fact that 52 metres is more than enough for most companies and

probably offers the most usable combination for taxi crane type work. It is more compact, offers better lift capacities, and can carry more equipment for a given weight. However the longer boomed version does not need the bi fold extension to reach the same heights.

The fact that the 4100's are selling so well suggests that capacity is not critical. The two models, while rated as 100 tonners, are only 70 and 69 tonners at three metres and neither will lift 10 tonnes on fully extended main booms. However they remain strong in the middle of the chart and offer between 28.5 and 29 tonnes at 10 metres radius. The company is working on two

new models, the GMK4100B whose provisional data indicates a 51 metre boom, most likely from the Grove GMK 5100 and the GMK 5110-1 a 110 tonne machine that shares much of the componentry from the existing GMK5100. While few details are yet available, it looks as though the company has fitted its new carrier cab to the 5100 and upgraded a number of other aspects while giving the crane a higher nominal capacity rating.



Liebherr currently has four mobile cranes that it considers to be in or around the 100 tonne sector. This is the LTM 1100 4.1

Liebherr

Liebherr currently has four mobile cranes that it considered to be in or around the 100 tonne sector, The 90 tonne LTM1090-4.1 and 100

five axle machines both carry 95 tonne ratings.. In the UK the 1090-4.1 is the more popular of the two in that it can carry more counterweight on board than the 1100, however it sacrifices two metres of boom length and mid range lift capacities as a result. The 1090 also has the distinction of being the shortest crane in this sector in terms of overall length.

LTM 1095-5.1, launched just over two years ago, has a 100 tonne nominal rating in spite of its name, chosen to avoid confusion with the 1100, but it offers a 58 metre main boom, bettered only by the Grove GMK4100L. The long boom compromises its long reach capacities, dropping to a poor 6.2 tonnes at full extension. You need to think of the last boom section in the same terms as a lattice extension. At 50 metres boom length the 1095 offers a respectable 10 tonnes ideally suited to tower crane work. One advantage particularly for those markets where 12 tonne axle loads are the rule, is its ability to carry 15 tonnes of counterweight within the 12 tonnes.



The LTM 1095-5.1, launched just over two years ago, has a 100 tonne nominal rating in spite of its name.

tonne LTM1100-4.1 both with four axle carriers and two five axle units, the LTM 1095-5.1 and the LTM1100-5.2. At three metres radius the four axle units are both rated at 90 tonnes, while the two

In the UK it can of course carry all if its counterweight with relatively low axle weights.

The LTM1100 also comes in four or five axle guise, the five axle being the more popular in the UK and Ireland. These units have the advantage of Liebherr's active, speed-sensitive rear-axle steering and disc brakes.

Tadano-Faun

Tadano-Faun has two models in this sector including the new 90 tonne ATF90G launched at Bauma, the successor to the popular ATF 80-4. While carrying a lower nominal rating than most of the other cranes we have looked in this feature it is far from being the weakest crane. Its 51.2 metre main is right in the middle of the field, as are its 10

The five axle GMK 5095 has an 83 metre maximum tip height



| Make | Model | axles | Drive / Steer | Width m | Overall length mm | Chassis length mm | boom length | Max tip ht | O-R Spread | at 3m | at 10m | w/full boom |
|------------|--------------|-------|---------------|---------|-------------------|-------------------|-------------|------------|------------|-------|--------|-------------|
| Demag | AC100/4 | 4 | 8x8x8 | 2.55 | 13,105 | 10,456 | 50m | 82m | 7.2m | 100t | 30.7t | 12.0t |
| Demag | AC100 | 5 | 10x6x8 | 2.75 | 14,043 | 11,030 | 50.2m | 86m | 7.0m | 85.5t | 30.7t | 13.0t |
| Grove | GMK4100 | 4 | 8x6x8 | 2.75 | 13,120 | 10,750 | 52m | 82m | 7m | 70t | 29t | 9.5t |
| Grove | GMK4100 L | 4 | 8x6x8 | 2.75 | 13,470 | 10,750 | 60m | 83m | 7m | 69t | 28.5t | 8.0t |
| Grove | GMK 5095 | 5 | 10x6x10 | 2.75 | 13,476 | 11,447 | 60m | 83m | 7.5m | 69t | 29.5t | 8.0t |
| Grove | GMK 5100 | 5 | 10x6x10 | 2.75 | 14,468 | 11,940 | 51m | 88m | 7.5m | 100t | 37.5t | 12.2t |
| Liebherr | LTM 1095-5.1 | 5 | 10x8x10 | 2.75 | 14,090 | 11,313 | 58m | 86m | 7.0m | 95t | 26.7t | 6.2t |
| Liebherr | LTM1100-4.1 | 4 | 8x8x8 | 2.73 | 13,050 | 10,525 | 52m | 89m | 7.0m | 90t | 28.7t | 10.7t |
| Liebherr | LTM1100-5.2 | 5 | 10x8x10 | 2.75 | 13,643 | 11,443 | 52m | 88m | 7.0m | 95t | 32t | 11.4t |
| Linkbelt | ATC 3130 II | 5 | 10x8x8 | 3.00 | 14,950 | 11,950 | 52m | 84.7m | 7.5m | 110t | 44.9t | 12.5t |
| Tadano | ATF 90G-4 | 4 | 8x8x8 | 2.73 | 13,222 | 10,782 | 51.2m | 73m | 7.2m | 81.6t | 28t | 8.9t |
| Tadano | ATF 110G-5 | 5 | 10x6x8 | 2.75 | 14,908 | 12,051 | 52m | 84.2m | 7.5m | 110t | 38.1t | 11.5t |
| Grove | GMK 4100 | 4 | 8x6x8 | 2.75 | 13,120 | 10,750 | 52m | 82m | 7m | 70t | 29t | 9.5t |
| New | | | | | | | | | | | | |
| Grove | GMK4100B | 4 | 8x6x8 | 2.54 | 12,530 | 10,308 | 51m | 75m | 7m | 69t | 26.5t | 7.1t |
| Grove | GMK5110-1 | 5 | 10x6x10 | 2.75 | - | - | 51m | 85m | 7.5m | - | - | - |

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metre and full boom capacities. It's only weakness in comparison to the 100 tonners is its 73 metre maximum tip height.

The ATF90 also offers Tadano's Lift Adjuster system which is intended to automatically compensate for boom deflection as a load is lifted clear of the ground. While this is a fine idea in theory and does work, it has not captured the imagination of crane buyers in Europe, many of whom would consider that a decent driver should manage this with standard controls and preferring not to pay for the option. The company's five axle ATF110G-5. is at the top end of our sector and as a result has the longest chassis at more than 12 metres. The benefit though is a very strong lift chart starting with its 110 tonne rating at three metres and with more than 38 tonnes it was our strongest machine at 10 metres. On a fully extended main boom though it is beaten by both of the Terex cranes and the Grove 5100 but then they all have shorter main booms so.....

Linkbelt

One crane we have included in the chart but not yet mentioned is the Linkbelt ATC 3130 II. Although not marketed in Europe and not even CE approved, the company is currently testing the European waters for a possible launch, initially of its HTT 8690 truck crane. If the positive response so far is anything to go by, Linkbelt may well look to distribute more of its mobile cranes in Europe.



The ATF110G-5 has a very strong lift chart starting with its 110 tonne rating at three metres and with more than 38 tonnes it was our strongest machine at 10 metres.



The ATC 3130 performs well. Although slightly wider at 3.0 metres, the unit is very competitive in terms of boom length, maximum tip height and lifting capacities. It also uses all German running gear including Mercedes power and ZF transmission.

Although slightly wider at 3.0 metres, the Linkbelt ATC3130 is very competitive in terms of boom length, maximum tip height and lifting capacities.

The conclusion

It is totally impossible of course, for us to say which is the best. They are all different and as we have already said it depends on what applications you are using it for. On top of that of course is who is selling it and what sort of deal they can offer you. This along with delivery time is likely to sway the decision far more than our chart will. One thing is clear though, nominal lift capacity is even less of an indicator than it used to be and if you are looking at this sector you should have no problem finding a machine that is ideally suited to your work.

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Bigger & better?

The biggest and most anticipated crane launch this year had to be the Grove GTK 1100 at Bauma. However at the same time, Liebherr unveiled its LTM 11200-9.1 and Terex has its own 1000 tonner on the drawing board which should be available next year. Mark Darwin takes a brief look at the new telescopic cranes in the 1,000 tonne range.

Grove

Manitowoc has had a major challenge on its hands keeping up with Terex and Liebherr in both the big crawler and big telescopic crane markets. However rather than simply trying to catch up in the big AT stakes, it decided to take a totally different path - the GTK 1100.

At its launch at Bauma, Grove already had more than 10 orders. The launch machine - sold to part

designer/developer Wiesbauer Krane in Germany - will not be delivered until October time so it will be 2008 before production really starts.

While not an All Terrain crane, its lift capacities place it firmly at the top end of the 1,000 to 1,250 tonne telescopic crane bracket and it should be every bit as mobile as the big Liebherr and Terex AT's. Until final load charts have been released it is difficult to compare but we understand that it will lift 70 tonnes to 120 metres, enough for the current biggest wind turbines. It is a bold design that has certainly grabbed the attention of people even outside of the crane industry.

Liebherr

Liebherr's more traditionally styled LTM11200 claims to be the strongest telescopic crane on the

market and at 100 metres, has the longest telescopic boom in the world. A four section 'short' telescopic boom, created by removing boom sections, for easier transport is a design that has already proved itself on the LTM 1500-8.1.

For both booms various lattice extensions are available, reaching lifting heights of up to 170 metres.

The Y-Guy Superlift system gives remarkable increases in load capacity, more than tripling the capacity in some parts of the chart. With the guying system in place the Liebherr looks able to compete with Grove's claim of 70 tonnes at 120 metres.

Terex

Styled as 'an AC 700 plus 50 percent', the Terex AC 1000/9 is due sometime next year and is said to have a load moment of around 3,000 metre/tonnes. One of its main features is that it has been designed for boom-on transportation to avoid assembly on site and reduce moving costs. The standard boom will be 50 metres with an optional 100 metre boom which would offer performance similar

The GTK 1100 - seen here at its launch at Bauma - is a bold design that has grabbed people's attention



Conclusion

Three machines, one radically different, but all appearing to offer similar performance, at least when it comes to heights of over 100 metres. Given the global demand

Liebherr claims the LTM11200's 100 metre boom is the longest telescopic boom in the world.



Styled as "an AC 700 plus 50 percent", the Terex AC 1000/9 is due sometime next year.



to both the Grove and Liebherr cranes. The maximum luffing fly jib will be 126 metres. The nine axle unit will ride on 16.00x R25 tyres and with the 50 metre main boom and front outriggers in place can travel within 12 tonne axle loads.

for all cranes at the moment, I am sure that all three will sell in sufficient volumes to keep the manufacturers happy. It will be interesting however to see which of them customers prefer when they can make a more rational choice.

A brand new Terex Demag AC700 teams up with its twin for a series of tandem lifts.



Tandem twins

A brand new Terex Demag AC700 delivered to Wiesbauer in Germany went straight from the Zweibrücken factory heavy load wharf at the Port of Heilbronn, where it joined another AC700 in a series of tandem lifts to load five MAN marine engines onto a cargo vessel. Each of the massive engines weighed 225 tonnes.

Marco Wilhelm of Wiesbauer said: "What was unusual about this job was that, with the number of motors involved, the cranes had to be moved and re-positioned several times to move the engines from the back of the wharf to the front, so both 700 tonners were equipped with short main booms and 100-tonne part ballast."

It's a wrap

At 124 metres high, the Spire or Tower of Light in O'Connell Street, Dublin needs careful consideration when cleaning or maintenance is required. To help solve the tricky problem, Dublin City Council contacted McNally Crane Hire.

Two areas had to be sorted - working at more than 120 metres and the problems caused by the tapering of the Spire which is three metres diameter at its base and just 150mm at the tip.

Its height meant that an access platform could not carry out the task, and careful consideration had to be given to the regulations governing the use of a crane man-basket. McNally also had experience of working on such structures and quickly realised that this was not an option.

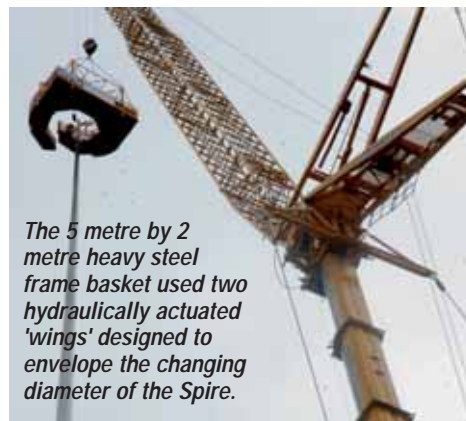
"In a previous role I have hoisted personnel to the top of a tapering spire and 'square peg in a round hole' is very apt!" said Declan Corrigan, McNally's operations manager. "We quickly realised that any work at this height would have to be self-contained i.e. no power leads or hoses could

be allowed to trail from the ground to basket. Therefore we decided to design and build a specialist man-basket."

The basket consists of a five metre by two metre heavy steel frame with two hydraulically actuated 'wings' designed to envelope the Spire. The floor area was spacious enough to accommodate a generator/hydraulic power pack, two power washers, 800 litres of water (in 205 litre barrels), 4 tonne of ballast and personnel to carry out the work.

"We mobilised one of our 500 tonne, Liebherr LTM 1500 cranes complete with 68 metres of main boom, 63 metres luffing jib, Y-guy and spacer and 90 tonne of counterweight," said Corrigan. "This combination gave us 13 tonne capacity at 34 metre radius - unrivalled in the 500 tonne class. We were also most fortunate that the wind speed was negligible and every part of the operation went very smoothly.

Despite all the work that had gone into the preparation, the cleaning operation took just over eight hours on a wet Monday in early June.



The 5 metre by 2 metre heavy steel frame basket used two hydraulically actuated 'wings' designed to envelope the changing diameter of the Spire.



McNally had to design and build a specialist man-basket to work on the 124 metre high Spire.



The cleaning operation itself took just eight hours on a wet Monday in June.

Something different

While not the largest stand at Bauma, Tadano-Faun launched the largest number of truly new models, including its new flagship the 360 tonne ATF360G-6. Nominally the largest six axle AT on the market, the 360 is impressive in many respects with its 60 metre main boom and lift capacities that go head to head with Demag and Liebherr in spite of lacking a super lift or guy system.

The most remarkable aspect of this new model though is its telescopic boom extension option. Literally a second 31 metre four section boom that mounts to a 1.6 metre support base on the tip of the main boom. It takes the tip height to 96 metres, all of which is telescopic. We have yet to see a final load chart for this 'second boom', but with an offset of up to 40 degrees it promises to be a popular option. Mounting can apparently be carried out easily without the need for an assist crane.

The ATF360G-6's telescopic boom extension option is literally a second 31 metre four section boom that mounts to a 1.6 metre support base on the tip of the main boom taking the tip height to 96 metres.



Tadano's new flagship is the 360 tonne ATF360G-6