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Continuing to evolve

The All Terrain market continues to evolve with manufacturers introducing a raft of new models with innovative features and developments, including the increasing use of new technology including telematics. There has also been the merger of two of the four big manufacturers which will have a significant impact on the market dynamics. We take a look at the major changes over the past 12 months and the developing trends.

Perhaps the biggest 'news' in the crane market has been the takeover of Demag Cranes by Tadano bringing together two of the top four manufacturers, creating a business that challenges market leader Liebherr in terms of revenues and the number of cranes produced. The deal - announced in February and completed in August - has seen the Demag business become Tadano Demag and be managed by Jens Ennen, who joined Tadano from Manitowoc earlier this year. In the next issue of *Cranes & Access* we hope to include an in depth interview with Ennen at the end of its first quarter and following a major strategic planning meeting, which will hopefully provide some clues to Tadano's long term plans for the new subsidiary and how it brings it together with Tadano Faun.

Few that know Demag well believe that its incorporation into Tadano will be easy given the challenges of merging cultures, design philosophy and reliability levels etc. However

the philosophy at Demag is probably a better fit with Tadano than it ever was with Terex, and although some of its traditional values had been eroded, the reinstatement of the Demag brand in 2015 has helped it recover a little.

The Demag product line is looking a little dated in parts - particularly the crawler cranes, although the company has some very interesting new products in the pipeline. It is beginning to look as though Tadano will not now rush into merging its German businesses, and take its time to integrate, a policy that has served it well in the past. The company is not sitting on its hands however. It has already started cross training the Tadano and Demag service engineers on the others product lines, providing them all with the tools and knowledge to work on both brands of crane, thus immediately improving the effective service coverage for both marques. It also looks as though any new products going into the development process today will become replacements for both



Tadano and Demag models in that size range, although that has not been confirmed.

While the Tadano Demag purchase was the main topic of conversation at Bauma in March, there were many other significant product launches.

Liebherr adds two ATs

Liebherr leads the All Terrain market by a fair distance and once again unveiled a crane that appears to be 'just what the customer wanted' in the form of the 650 tonne LTM 1650-8.1. It follows the introduction of the LTM 1450-8.1 at Bauma 2016 the 100th unit of which was recently delivered. The 450 tonne, eight axle LTM 1450 has an 85 metre main boom and can travel with outriggers and winch within 12 tonne axle loads. The crane also has the VarioBallast variable counterweight system, and VarioBase variable automated outrigger system which adds to its versatility, especially on sites where space is at a premium.

The new LTM 1650-8.1 has already racked up orders for more than 60 units and looks set to be as popular

as its smaller brother. It will also replace Liebherr's 500 tonne LTM 1500-8.1, the company's most successful crane ever, achieving almost 600 sales worldwide since its launch.

The LTM 1650-8.1 has an 80 metre main boom but to keep within the 12 tonnes per axle transport weight it can be specified with a 54 metre boom and removeable rear outriggers. Booms are interchangeable, with customers able to purchase the sections to convert from one to the other. To minimise the set up time the rear outriggers beams and boxes are installed as a complete unit and connected with quick release couplings. The flexible specification, provides a wide range of transport weights and axle load variation in a single unit to satisfy global mobility requirements, or simply to allow simpler travel for some lighter duty jobs or in areas with restrictions

The LTM 1650 is mounted on an eight axle carrier as is the current LTM 1500, but it offers capacity improvements of between 15 and 50 percent over the LTM 1500, with the VarioBase system delivering



The 450 tonne LTM 1450 has already racked up 100 sales



The LTM 1650-8.1 has an 80 metre main boom but to keep within the 12 tonnes per axle transport weight it can be specified with a 54 metre boom and removeable rear outriggers.

additional increases when lifting above a single outrigger. The single rope Y- Guying system has also been upgraded for better performance. The luffing jib has a maximum length of 91 metres and can be used with both the 54 and 80 metre booms.

The LTM 1650 VarioBallast system hydraulically adjusts counterweight radius between 6.3 and 8.4 metres. Maximum ballast is 155 tonnes and is compatible with the counterweights on the LTM 1350-6.1, LTM 1400-7.1, LTM 1450-8.1, Liebherr's nine axle cranes and the LR 1350/1 crawler crane.

An eight cylinder Stage V Liebherr diesel can also be ordered to comply with Tier 4F for the USA or Stage III emission standards for countries where low Sulphur fuel is not available. New features include ECOdrive which saves fuel as well as reducing noise levels and Hillstart Aid which makes starting on gradients easier. The interarder - a zero wear hydrodynamic brake integrated in the transmission - acts as a retarder and a Telma eddy current brake is standard.

Liebherr LTM 1110

At Bauma Liebherr also launched the 110 tonne LTM 1110-5.1 with 60 metre boom. The new single engine, five axle crane has axle loads of 12 tonnes with 13.1 tonnes of ballast but can also be driven with a gross weight of less than 48 tonnes with a maximum axle loads of 10 tonnes. For countries such as the UK it can travel with its maximum counterweight of 28.7 tonnes and remains below 15.5 tonnes per axle. Demand has been growing for cranes that can meet 10 tonne axle loadings by simply removing the counterweight, even in countries where 12 tonne axle loads are permitted allowing movement with fewer limitations, permits and route notifications. The LTM 1110-5.1 also features the new VarioBase Plus which features a rear outrigger spread that is up to 1.3 metres wider than the front providing higher capacities over the rear quadrant. The LTM 1110-5.1 60 metre boom is one of the longest in its class. In addition, a 19 metre extension with hydraulic luffing offsets up to 40 degrees. With all sections



The 110 tonne LTM 1110-5.1 has a 60 metre boom

installed the new 110 tonner has the same maximum tip height as the 130 tonne LTM 1130-5.1. The new LTM 1110-5.1 also features the ECOmode system for crane functions providing a reduction in fuel consumption of up to 10 percent.

Three new Groves

Bauma also saw the launch of three new Grove GMK All Terrain cranes, including the five axle 250 tonne 5250XL-1, the three axle 50 tonne 3050-2 and 60 tonne 3060L.

The GMK5250L has been around for more than three years with its 70 metre main boom. The new 5250XL-1 - Extra Long -

however has a 78.5 metre boom which Grove claims is the longest main boom on a five-axle All Terrain crane and also has the "best lifting capabilities in the industry". As with all Grove AT cranes it features Megatrak suspension and the Twin-Lock boom pinning system. It is also available with the MAXbase variable outrigger function for added versatility for setting up in sites with limited space.

Grove's new GMK5250XL-1 has an extra long 78.5 metre boom



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Grove GMK3060L with 48 metre boom and Maxbase variable outrigger setup

Options include the VIAB turbo retarder clutch, which first featured on the original GMK5250L for wear free starting and braking enhanced manoeuvrability and operator comfort.

The 60 tonne GMK3060L features a seven section, 48 metre main boom with a maximum tip height of 65 metres. Features include Manitowoc's Crane Control System with boom configurator for fast and efficient set up.

The new GMK3050-2 is an updated version of Grove's long running three axle GMK3050-1. It offers a 40 metre main boom, fast operating speeds and a single counterweight configuration for simplicity. Its engine and design have also been updated to meet the latest Stage V emission standards (which also covers both Tier 4 Final and Tier 3 regulations in the US and the rest of the world).

Grove claims that both the GMK5250XL-1 and GMK3060L offer the most compact footprint in their class and the best in class load charts when configured in taxi mode with 12 tonne axle loadings.

All Terrain product director Andreas Cremer says: "The GMK5250XL-1 is an

updated version of our existing GMK5250L but we have added 8.5 metres of boom for more reach, so it can take on a wider range of jobs. At the same time we have maintained the class leading lift performance, manoeuvrability and fast set up of the GMK5250L which make it such a popular choice with our customers."

New Kato 100 tonner

Kato unveiled two new All Terrains at Bauma, the 25 tonne CR-250-V city crane - a replacement for the CR250 - and the 100 tonne KA1000Rx single engined prototype.

Designed initially for the Asian market, the four axle KA1000Rx was shown in Europe to gauge customer feedback. It features a 51.3 metre six section main boom and an 8.8 to 20.4 metre telescopic swingaway extension. The crane is fitted with a Stage IV Mercedes diesel and includes an anti-lock braking system as standard. At 12 tonnes an axle it has a 7.2 metre outrigger spread, a 75kph road speed, an overall length of just over 13 metres, with an overall width of 2.7 metres and overall height of 3.79 metres. Feedback from European crane rental companies suggested that the main boom was too short and that it needed to be at least 60 metres to make it attractive. The factory is said to be considering the feedback.



Grove GMK3050



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Kato 100 tonne KA-1000RX with 51.3 metre main boom

The 25 tonne CR-250R-V City type All Terrain crane has been built specifically for the European market and features a 29 metre main boom topped by a 5.7 metre telescopic offsettable jib and standard 8.5 tonne searcher hook. Power comes from a Stage V Cummins diesel, while a 360 degree camera system and anti-lock braking are standard. The first units should be arriving in Europe shortly.

Demag E-Pack

Whilst Demag has not announced any new All Terrain cranes, it has launched a new electro hydraulic E-Pack for its three axle, 45 tonne/31.2 metre boom AC 45 City. The new power pack allows the AC 45 City to operate lifting functions with zero emissions and significantly lower noise levels, making it ideal for working in city centres and through the night in residential areas.

To use the E-Pack the relevant electric and hydraulic connections are required and can be either factory fitted or installed as a retrofit kit on older models. As well as powering crane functions, the E-Pack can also be used to run the air conditioning system and charge

the vehicle battery. The pack can be carried by a special transport system when travelling, eliminating the need for a support vehicle. Once on site, the unit can be unloaded from the crane and connected to a common 400V/63A electrical power supply.

Demag says the performance when using the pack is similar to that of the diesel engine in most areas, with only a few functions where it is slower such as the maximum lifting capacity is available with a hoisting speed of 32 metres a minute compared to the diesel's 111 metres a minute. Maximum slew speed with the E-Pack 1.2 RPM, compared to 1.9 RPM with the diesel. Demag says that it will offer the E-Pack for other AC crane models in future.

IC-1 Remote

Demag has also launched a cloud solution for its fleet and crane management. The new IC-1 Remote cloud allows remote access and diagnosis of relevant crane data from any location using a SIM card that is connected to a central cloud server where crane data is transmitted and stored, accessible at any time from any location and from any terminal device including



A Demag AC45 City moving its E-Pack

PCs, mobile tablets or smartphones. In addition to the access available for the crane owners, it is also possible for Demag customer service to provide support services via IC-1 Remote.

The system enables customers to access to information on the crane's location and its operating status from the load weight on the hook during an operation to the main boom length, complete with boom angle and anemometer readings for the wind speed, to the fuel level and the oil and coolant levels including fluid temperatures.

On the start page of the system, users can see all the cranes in their entire fleet that are connected to the IC-1 Remote network. They can read whether a crane is "logged in" to the system, when the machine was last connected, if it is currently in operation or

whether error messages or alarms are displayed. It is also possible to call up geographical map data such as the location of the crane or the distance traveled. In addition, IC-1 Remote offers service functions via remote diagnosis and in the future will be able to perform software and parameter updates.

Two new Tadanos

News of the impending takeover of Demag overshadowed several other Tadano product announcements at Bauma including the addition of two new All Terrain cranes - the four axle 100 tonne ATF-100-4.1 and the five axle 120 tonne ATF-120-5.1. Both stick with Tadano's two engine concept and feature the AML-F crane control, Lift Adjuster and HTLJ jib which can telescope under load. The ATF-100-4.1 also has Euromot 5 engine and eight metres more lifting radius than most comparable 100 tonne cranes.



The 25 tonne Kato CR-250R-V with 29 metre main boom



The four axle 100 tonne ATF-100-4.1

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Tadano says that the ATF-120 is "consistently the most powerful lifting crane in its class at between 16 and 56 metres radius"



Both new cranes feature a 60 metre main boom and have similar superstructures. Tadano says that the ATF-120 is "consistently the most powerful lifting crane in its class at between 16 and 56 metres radius". The ATF-120 can carry 9.2 tonnes of counterweight and additional equipment as well as a 17.7 metre heavy duty extension while remaining within 12 tonnes axle loadings. However, it can also be configured with axle loads of less than 10 tonnes, or travel with 24 tonnes of counterweight where axle loadings are less critical. Both cranes have an overall width of 2.75 metres, overall lengths are 13.15 metres for the 100 and 13.51 metres for the 120, both have overall heights of just under four metres. The ATF-100 with full 30.4 tonnes of counterweight installed has a tailswing of 3.8 metres, while the ATF-120 is four metres with its full 35.4 tonnes of counterweight in place.

Both have a maximum 84.7 degree boom elevation, providing a clearance radius of nine metres with the 60 metre boom fully extended, enabling the cranes to be positioned

close to a building or load on confined sites. Maximum tip height is around 94 metres and maximum radius 68 metres for the ATF-100 and 72 metres for the ATF-120. Both cranes will be available from the end of this year.

Zoomlion

Chinese manufacturer Zoomlion showed several All Terrain cranes at Bauma - the ATC range - developed jointly by Zoomlion and one of its acquisitions, CIFA. In recent years, Zoomlion has not achieved a great deal so far in Europe, focusing its efforts of developing markets, establishing sales and service centres in more than 120 countries. Over the past 10 years it has made several other acquisitions including Powermold in Britain, Ladurner from Italy, m-tec and Wilbert in Germany and Raxtar in the Netherlands.

At Bauma, Zoomlion showed the CE rated, Italian built 150 tonne ZAT1500 and claimed that the seven section 72 metre main boom is the longest in its class, giving a maximum tip height of around 97 metres. Power is provided by a Stage IV engine providing a maximum road speed of 75kph.



At Bauma, Zoomlion showed the CE rated, Italian built 150 tonne ZAT1500 with 72 metre main boom giving a maximum tip height of 97 metres



Zoomlion ATC960

XCMG

Another Chinese manufacturer XCMG debuted two cranes at Bauma the XCA60E and XCA130E. XCMG first attended the show in 1992 and now claims to be the sixth largest manufacturer worldwide. In May this year its largest All Terrain crane the 1,600 tonne XCA1600 installed an Envision turbine weighing nearly 90 tonnes and assembled rotors with a 141 metre diameter - to a height of 140 metres at the Baixiang onshore wind farm project in Hebei, China. The crane lifted and docked the turbine assembly in just 40 minutes.

XCMG crane business division general manager Jianzhong Sun said: "China has the greatest number of wind farm installations. The XCA1600 is designed for projects at height and has not only overcome many

construction challenges with world leading technology and strong quality but has now made its name with this new record-breaking project."

The XCA1600 has a maximum lift height of 155 metres. Its eight driven axles give it 30 percent gradeability and 80kph travel speed. Overall weight is 92 tonnes. Its seven section main boom has a maximum lift height of 92.4 metres and with its 51.5 metre luffing jib can lift 95 tonnes to 140 metres.



XCMG XCA1600



The 130 tonne five axle XCMG XCA130 E has a 61.5 metre boom and 91.5 metres with jib

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