all terrain cranes C&A

City comeback?

While sales of larger capacity All Terrain cranes used on infrastructure projects have remained reasonably buoyant, sales of the smallest ATs have started to feel the force of the current downturn. However, some of the decline is due to the growth in alternative lifting machinery such as spider and mini cranes, trailer and aluminium truck cranes, large knuckle boom loader cranes, larger telescopic handlers and even the return of the traditional truck mounted crane.

The ultra compact two axle City crane almost vanished from the European market after Japanese manufacturers stopped exporting them to Europe for regulatory reasons. While further up the size range Terex Demag, the only major manufacturer offering a range of City cranes, has two models, a 30 tonne two axle and 40 tonne three axle unit, while Liebherr produces the three axle 55 tonne LTC1055-3.1 compact crane with hydrostatic drive. However, this month sees a significant new product launch in the sector, with the first ever City crane from Grove.

So does Grove sense a niche sector that is set to grow and exploit or has the City crane had its day? Cranes & Access investigates as well as rounding up the latest All Terrain cranes on the market.

The whole concept of the City crane makes sense. Take all the benefits of the All Terrain crane - compact dimensions, manoeuvrability, all wheel drive and steer, an ability to pick and carry and good road

manners - and put them into an even more compact package close to that of a Rough Terrain crane. Surely the recipe for a sure-fire winner? Well yes and no. The AT has always been more expensive to buy, more complicated to repair and more costly to run than a regular truck crane and the City crane tends to be more expensive again.

At the smallest end of the market, the rental rates hardly justify the purchase price or running costs of a two axle 20 or 30 tonne All Terrain crane. However, the three axle 40 to 50 tonne sector, including Grove's new 45 tonne City GCK3045, may well have the right combination of price, size and running costs. (See more details on the GCK3045 on page 36)

Until recently, Terex Demag was the only company amongst the three majors with City cranes, but has trimmed its line-up by dropping its four axle models and focusing on the 30 tonne two axle AC30 City and the 40 tonne three axle AC40





City. Liebherr has always maintained that it did not need (or see the advantages of the 'City crane' concept) saying that its best selling crane - the 55 tonne LTM1055-3.1 which has sold more than 1,000 units since its launch in 2001 - "is compact, extremely manoeuvrable and has the flexibility to satisfy the vast array of requirements in the European market."

For Grove its GCK3045 is a joint venture into new territory. Designed and built in co-operation with Kobelco, which pioneered the small city type cranes, with the original two axle,

seven tonner in the late 80s. It developed the concept, along with Kato and Tadano, up to about 25 tonnes on two axles, but has never built a three axle model before.

A tough design challenge

The reason why many manufacturers shy away from this type of crane is that it is much more difficult to design and manufacture than it at first appears.

High quality steels and close tolerances are required to make the six or eight section booms perform as well as the longer four and five section booms fitted to regular ATs and it is not easy keeping the weight down. Add to this the small additional selling price premium and it is easy to see why it may not be worth the development investment.

Grove has cleverly collaborated with Kobelco to benefit from its well proven experience and expertise in building compact City cranes for the Japanese market. In an article in a City crane feature in Cranes&Access two years ago we surmised that a joint venture with a big name backer might capitalise on the latent demand for the small City crane, particularly in the UK. Although many were hoping that this crane would be in the 20-30 tonne capacity range, it will be interesting to see if the 45 tonne Grove can carve out a decent market share for itself as well as expanding the overall



The Italian alternative

Historically, Italy has always had an affinity with small, compact cranes however today, there are only a few manufacturers left producing road going mobile cranes. One manufacturer that has been working hard on the small city crane concept is Locatelli.

Unfortunately the company has only had limited success on the export market with this product. In the UK customers have remained wary of a manufacturer that has had challenges maintaining a permanent presence in the market.



The Mister Gru name has gone replaced by MGI and this 35 tonne MG 35 HS.

The company currently offers two City cranes with capacities of 20 and 40 tonnes respectively.

Its two axle ATC 20, which has been around for several years, is a very compact machine which offers 20 tonnes lift capacity and 34 metres lift height. The company expanded the range with the introduction of the two axle ATC 40 which was seen for the first time at Bauma 2007. The unit has a seven section, 35 metre boom is powered by a 220kW

Mercedes engine giving a 70km per hour road speed.

A solid section bi-fold swingaway jib extends the tip height to a maximum of 50 metres all of which can be carried on board within standard 12 tonne axle weights. The crane measures just over eight metres long to the boom tip and is 2.54 metres wide. Outriggers have multiple extension positions with a 6.2 metre square maximum outrigger footprint. A key feature of both Locatelli models is the fact that they offer a set of forks and/or a fully integrated work platform option for additional versatility.

The MGI

Another Italian crane manufacturer producing City cranes is new company MGI. Some will remember the Mister Gru City crane that first appeared at SAIE in 2005. However, this company has acquired by Fiorenzo Flisi, one of the founders of Oil&Steel, who guit and sold his shares in the business.

The Mister Gru name has gone, as have the smaller models (originally 20 tonnes and then 25 tonnes) as well as the Ecopower concept which combined diesel and battery electric power. The new MGI MG35HS City crane, a 35 tonne capacity unit, is a more conventional and possibly more practical, diesel powered crane that retains its six section 25.9 metre main boom plus a four metre telescopic luffing swingaway, which offsets up to around 80 degrees and can handle up to 3.5 tonnes. The crane is also available with an EN280 fully integrated work platform and radio remote controls.



The compact Locatelli ATC20 has been around for several years but offers 20 tonnes capacity and 34 metres lift height.

C&a all terrain cranes Latest All Terrain round-up

Most of the major All Terrain crane manufacturers Liebherr, Manitowoc and Tadano - have announced new models recently, with capacities from 100 to 350 tonnes.

Two new Liebherrs

Liebherr has two new cranes - the 100 tonne LTM 1000-4.1 which was launched at the end of last year and the soon to be launched 350 tonne, LTM 1350-6.1.

LTM 1100

The LTM 1100-4.2 is the successor of the LTM 1100-4.1, which dates back to 2003. Its 60 metre boom length is eight metres longer than the old model of which Liebherr has sold 350 units. It also has 30 percent better lift capacities particularly at full boom extension. Liebherr says its 10.2 tonne lift at 60 metres is the best in its class and therefore claims that it takes the crown as the strongest four axle AT crane on the market.

The crane's six section boom uses the Telematik rapid-cycle telescope system. Two seven metre long lattice sections offer an elevated pivot point for the 10.8 to 19 metre long swing-away extension, giving a 91 metre hook height with up to 58 metres radius. The swing-away can also be mechanically offset at angles of 0, 20 and 40 degrees and is available with a hydraulic luffing option. For two-hook operation a 2.9 metre long assembly jib and boom nose are also available.

With a 10.6 metre long, 2.75 metre wide chassis the LTM1100 is compact. The turning or rather clearance radius, measured over the carrier cab is just 8.3 metres, while the tail-swing of the 28.2 tonne maximum counterweight is just over four metres, with an outrigger spread is seven metres tail swing beyond the cranes footprint is modest. Where site conditions dictate, a reduced outrigger width of five metres is possible.

Liebherr makes much of the air activated disk brakes that it is fitting to all new All Terrain cranes.

claiming benefits of greater braking power, longer service life and fast, simple replacement of the brake pads, which are equipped with wear indicators. The company also claims that its active rear axle steering, with its five different steering programs reduces tyre wear.

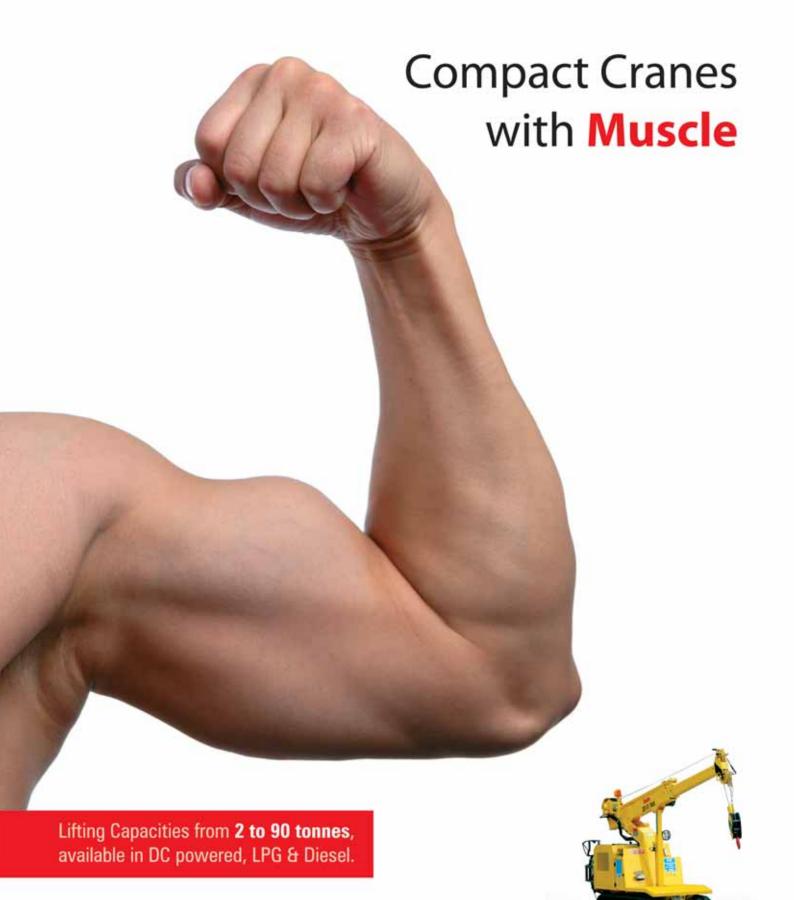
The 350 kW (476 hp) diesel powers a 12 speed ZF-AS-Tronic transmission with two-stage transfer gearbox providing minimum creep speeds for final manoeuvring. The separate superstructure engine features electric load sensing control providing four simultaneous functions without cross interference. Liebherr's new crane control system Liccon2, includes a number of additional functions, with a more powerful computer, colour display and brighter, clearer in-cab monitor. Touch screen displays are also incorporated for easy selection of some functions.

Bluetooth remote

The new crane also incorporates Liebherr's increasingly popular BTT Bluetooth terminal, for setting up the crane. The remote controller can now operate the hydraulic erection device for assembling the swing-away jib as well as the boom elevation and hoist for hooking and unhooking the hook block from the front bumper.



The LTM 1100 4.2 has a 60 metre boom eight metres longer than the model it replaces.



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New six axle 350 tonner

The second new model from Liebherr is the 350 tonne LTM1350-6.1 with 70 metre main boom, 10 metres more than its predecessor - the LTM 1300-6.1. Lifting capacities have also been enhanced and when fitted with the company's latest Y-boom suspension system (also fitted on the LTM 1400-7.1) boasts some of the best lifting capacities of any six-axle crane. Liebherr claims that this allows the new model to perform work that up until now has been the domain of seven or eight-axle models.

A 78 metre luffing fly jib provides a maximum hook height of 132 metres, 16 metres more than the 1300. The LTM 1350 can also self-erect the Y-suspension. The suspension frames are located on brackets on the sides of the telescopic boom, and then pinned to the heel of the boom's base section. The operator uses the BTT Bluetooth remote to control the set up.

The counterweight frame with luffing jib winch already installed and the base-plate with counterweight blocks in position can travel as a complete package with an all up weight of 60 tonnes. Maximum counterweight is 140 tonnes.

The six axle chassis has an eight cylinder 450 kW (612 hp) engine and 12-speed ZF TC-Tronic transmission, coupled to a torque converter for on site manoeuvring. The four rear axles have active steering, dependent on road speed, during crab steering, all six axles are steered, eliminating



the need to central axle lifting.

The crane superstructure cab is a new design and does not have to be rotated rearwards during road travel.

As with the LTM1100, the 350 tonner includes the new Liccon2 computer/ crane control system, and the BTT Bluetooth controller.

Grove GMK5110-1

Grove has been busy catching up with the Liebherr and Terex Demag by introducing new models with longer booms, better lifting capacities and a host of new features from the new Mercedes designed commercial carrier cab to the two speed transfer case on the transmission for good on-site creep speeds.



The new 110 tonne Grove GMK5110-1 replaces the GMK5110, and has a 50.6 metre main boom, 18 metre swing away extension and two, eight metre extension inserts for further reach. This results in a maximum tip height of 87 metres with up to 46 metres maximum radius.

All crane operations - including both superstructure and carrier functions - are controlled via Manitowoc's ECOS system in tandem with the EKS 5 Light load monitoring system. The EKS constantly monitors the crane's lifting operations providing a warning alert for faults or errors and can transmit data to any Manitowoc

Crane Care centre worldwide, allowing fast and accurate diagnosis. Neil Hollingshead, Manitowoc's product manager for All Terrain cranes said: "The crane replaces the highly successful GMK5100, but builds on that crane's heritage. It has an improved load chart when rigged with maximum counterweight, but also offers good options for travelling within the 12 tonnes axle limits, but customers can be reassured that it maintains all the performance benefits that made the GMK5100 one of the industry's most successful cranes ever."

Tadano continues to go global



Tadano Faun has been making considerable inroads into various European markets doing particularly well in the UK through its distributor, South Yorkshire-based CranesUK.

The latest addition to its well regarded All Terrain range is the ATF130G-5, a 130 tonne capacity,

five axle crane that slots between the 110 tonne ATF110G-5 and the 160 tonne AFT160G-5. It is hoped to be seen in public for the first time at the Vertikal Days show at Haydock Park in June. For more information on the ATF130G-5 see the 'two new Tadano mobiles' news story on page 7.

Chinese ATs

Chinese crane manufacturers are also stepping up their efforts adding AT cranes in addition to their growing truck and crawler crane ranges.

XCMG, by far and away, China's largest crane producer has launched its top of the range, eight axle 500 tonner. Its previous largest model was the seven axle 300 tonne QAY 300.

Number two manufacturer, Zoomlion, has recently unveiled the six axle,

220 tonner QAY 220, its second All Terrain crane after the 160 tonner.



XCMG is China's largest crane producer. This 240 tonne QAY 240 is now part of a range that extends to an eight axle 500 tonner.

all terrain cranes

New kic

Since being 'spotted' by eagle-eyed readers in Germany last August, Grove has done an excellent job of keeping everyone guessing who was behind the prototype City crane. The 45 tonne Grove GCK3045 - its first ever City All Terrain - will have its grand unveiling at this month's Intermat

show in Paris and looks

set to rekindle interest

in the sector.

Small, reliable City cranes are notoriously difficult to build and Grove has sensibly opted for a joint venture scenario with Japanese manufacturer Kobleco. Japanese manufacturers - and indeed Kobelco with its RK70M in 1989 - perfected this type of crane and therefore have a good reputation and experience in designing and building practical, reliable small City cranes. We will have to wait and see whether or not the new crane delivers in terms of performance, price and reliability. But if it succeeds, it is likely to prove to be a winner and the joint venture will prove to be a coup for Manitowoc.

Manitowoc already has OEM agreements with Kobelco to market its small crawler cranes in Europe and North America under the Manitowoc badge. Kobelco on the other hand, has agreements with Grove to market its GMK 5130 and GMK 6300 All Terrain cranes in Japan.



Terex Demag with its 30 and 40 tonne City cranes has virtually had the European City crane market to itself over the past few years. Liebherr's hydrostatic drive, 55 tonne LTC1055-3.1 is an impressive performer, but is seen as more suited to industrial-type lifting applications or crane rental work over shorter distances.

For Manitowoc, the launch could help widen its AT customer base as buyers look for something different, in order to tap congested urban and specialist industrial applications.

The crane is a compact three-axle, single cab unit with classic city 'Nose down' design. Its 45 tonne rating is at 2.5 metres, while its 34 metre main boom - is best in class. The crane has an optional 6.3 to 10.2 metre 'twist' jib which attaches through a simple elevation of the boom and then a twist of the jib by the operator before pinning into position. The entire operation is said to be a one-man job and can be done within the crane's 2.55 metre overall width, meaning full boom and jib can be rigged in a narrow street or aisle. The hook block stows automatically for travel.

The new crane is compact at just over nine metres long, three metres high and 2.55 metres wide. To facilitate working in narrow locations, the crane also has a choice of five outrigger widths and the ability to set up with uneven outrigger settings.

"The cab has excellent ergonomics with a highly intuitive graphic LMI display as well as hoist and rear view cameras which transmit to a display on the dashboard for better

working conditions and less operator fatigue," says Neil Hollingshead Manitowoc's product manager for All-Terrain and Rough-Terrain cranes Power comes from a six cylinder 330 kW diesel and maximum travel speed is 80 kph. The hoist has 160 metres of 16mm diameter rope and a single line pull of 44.4 kN. The GCK3045 travels with its full complement of counterweight fitted within 12 tonnes per axle.

The front two axles are power steered with electronic rear wheel steer, the crane also offers a smart function where the third axle detects the first axle's steering angle and adjusts according to the speed of travel in order to minimise tyre wear. For off-road manoeuvring it offers standard crab and co-ordinated steering modes.

How does it stack up?

Make	Model	Max capacity	Main boom	LxWxH	Chassis length	Drive	Max speed	Outrigger spread
Terex Demag	AC30 City	30t @ 2.7m	25m	8.38 x 2.5 x 3.04m	6.88m	4 x 2 x 4 (4 x 4 x 4)	85	5.95 x 4m or 5.9m
Terex Demag	AC40 City	40t @ 3m	31.2m	8.57 x 2.55 x 3.2m	7.09m	6 x 4 x 6 (6 x 6 x 6)	85	6.35 x 4m or 6.2m
Terex Demag	AC40/2	40t@ 3m	30.4 m	10.69 x 2.55 x 3.33m	8.46m	4 x 4 x 4	80	6.255 x 4.79 or 5.95m
Grove	GCK 3045	45t@ 2.5m	34m	9.07 x 2.55 x 3.09m		6 x 6 x 6	80	6.94 x 3.6 to 6.47m
Grove	GMK 2035E	35 @ 3m	29m	10.22 x 2.55 x 3.58m	8.38m	4 x 4 x 4	84	6.33 x 4.4 or 6.2m
Liebherr	LTC 1055-3.1	55@ 2.5m	36m	8.47x 2.54 x3.3m	7.41m	6 x 6 x 6	75	6.26 x 6.27 or 4.5m
Liebherr	LTM1050.3.1	50 @ 3m	38m	11.53 x 2.54 x 3.84m	9.17m	6 x 6 x 6	80	7.15 x 4.5 or 6.4m
Liebherr	LTM 1055-3.2	55@ 2.5	40m	11.36 x 2.54 x 3.75m	9.36m	6 x 6 x 6	80	7.34 x 4.5 or 6.30m





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AC120 for AB2000

AB2000, the Scottish-based crane and earthmoving rental company has taken delivery of a new 120 tonne Terex Demag AC120-1 All Terrain crane, the first to be based in Scotland. The five axle crane will be the largest in AB2000's nine unit fleet which ranges from a 15 tonne Jones Iron Fairy to the new 120 tonner.

A feature of the new crane that appealed to AB2000 was its ability to carry up to 27 tonnes of counterweight on board, making it almost as easy to move as its 80 tonner, while sporting a 10 metre longer

main boom at 60 metres. The unit also has a 17 metre bi-fold swing-away extension.

AB2000 managing director Adam Bruce said: "This new addition will compliment our existing fleet,



allowing us to provide a wider more comprehensive service to our existing customers while helping us to attract new customers from sectors which require the larger cranes."

AB2000 is based in Cambuslang, near Glasgow and was founded in 1995 by Adam Bruce acquiring G.Plant Rail Ltd in 2002 and the mobile crane and plant fleet of Motherwell Bridge Ltd in 2005.

Mind the gap

Network Rail is re-opening Laurencekirk train station in Aberdeenshire in a Transport Scotland-funded initiative to restore passenger services to the town after a break of more than 40 years.

Contractor Galliford Try Rail called in Hewden crane hire and a 100 tonne Demag crane to provide a contract crane lift solution to position six precast concrete support beams and a new pedestrian bridge linking one side of the track to the other. The lifts were carried out through the night to minimise any interference to the rail line.

The entire lift was organised and conducted by a team of three from Hewden cranes, headed by Douglas McCully who said: "Putting this local train station back on track will

have a real impact on the whole Laurencekirk and wider Mearns community. Having been a victim of the Dr Beechings rail closures, the station has been closed since 1967 so a whole new generation will now benefit from improved rail links. The lift itself was a great success, with everything going to plan and schedule, with the pedestrian bridge in place by six am so there was no disruption to the East Coast Main line."

Galliford Try's James Cable added: "As a company we have hired



various pieces of kit from Hewden over the years but this is the first time that I have worked with them on a project. McCully and the team have really eased the pressure of organising and conducting the lift;

to work alongside people who do this kind of thing day in day out has made a massive difference. With the pedestrian bridge now in place we can look to complete the final stages of the train station."



Crushing performance from Grove

Australia mining giant, BHP Billiton Iron Ore, has purchased Grove's largest All Terrain crane - a 450 tonne GMK7450 - to carry out maintenance work on its large processing equipment. Delivered by WATM, the Manitowoc dealer for Western Australia, the crane was immediately put to work dismantling the primary iron ore crusher at its main facility, the Mt Whaleback Mine located in Newman, Western Australia.

"BHP already owns several Grove AT cranes, but the company needs more lift capacity for the maintenance work on the main iron ore crusher," said WATM sales manager Stephen Lazenby. "Until recently, it was renting in large capacity cranes from Perth more than 1,200 km away. Therefore it made perfect financial sense to purchase a crane the company can keep at the mine."

The processor - an Allis Chalmers primary crusher - had been in service since 1969 but needed two of the central components - the 68 tonne 'spider' and the 62 tonne mantle - lifting out, a process that will be repeated every four months. The first job was completed successfully and the crane was then moved to other remote BHP sites to perform routine bi-monthly maintenance on other mining equipment.



"The crew that was operating the GMK7450 were very pleased with how well it performed," said Lazenby. "It completely exceeded expectations, both in terms of lift capacity and overall operation."

The GMK7450 has a 450 tonne maximum capacity and a 60 metre main boom featuring Grove's Twin-Lock pinning system. With jib extensions, reach can extend to 130 metres. The seven-axle carrier

includes a fully automatic Allison transmission and Grove's Megatrak independent suspension system for improved performance both on and off road.

Based in the Pilbara region, BHP Billiton Iron Ore is one of the world's largest suppliers of iron ore with an integrated system of seven mines, more than 1,000 km of rail track and two port facilities to support its operations.



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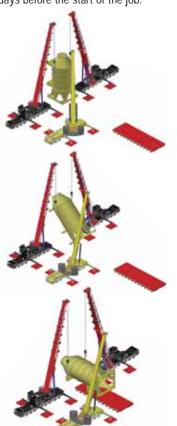
Billingham-based crane hire, heavy lift and transportation company Mammoet UK used a variety of CAD produced 3D views to show the client exactly how the job would be carried out, then completed the job exactly as planned.

The contract to lift and turn through 90 degrees, two 226 tonne, 20 metre high, 6.5 metre diameter waste heat recovery units involved two 500 tonne capacity Liebherr LTM1500-8.1 working in tandem and a 350 tonne Demag AC350 acting as a tailing crane.

The unit on a site in Hull, then had to be transported to the King George Dock in Hull before sending it to Kakinada Andrha Pradesh, India. Once operational there it will be used for gas processing on the landfill gas site of the Krishna Godavri gas field in the Bay of Bengal on the East coast of India. The waste unit recovers heat from the gas turbine's exhaust system and then uses the steam produced to turn a steam turbine, producing electricity.

One of the two Liebherr cranes used had to be delivered to Mammoet earlier than scheduled - just two

days before the start of the job.



Both LTM1500s were using 105 tonne of ballast at an eight metre radius, lifting the vessel vertically away from the temporary trestles. A Demag AC350 with 122 tonne ballast acted as the tailing crane.

The first unit was transported vertically to the dock on the transport and turned using ship cranes. The second unit was lifted by a 1000 tonne Liebherr and tailed with a 500 tonne crane. However this was delayed by seven days due to high winds because of the significant height above the unit of the spreader beams and lifting equipment.

Mammoet UK redesigned and simplified the lift doing away with any special lifting tackle and keeping the height of the jibs to a minimum. Not only did the job go as planned but the sun also came out!

Mammoet currently owns and operates about seventy mobile telescopic cranes, ranging from 10 tonne to 500 tonnes and has depots located in Newcastle, Teesside, Scunthorpe and Leeds. The company is a wholly owned subsidiary of Dutch company Mammoet B.V. created through the acquisition of Mammoet by Van Seumeren BV. Both companies had UK based subsidiaries which were merged together in 2000.













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