

What goes around, comes around

There is a saying 'what goes around, comes around'. That certainly may be true for many things such as fashion - although that 1970's stripy tank-top may have to stay in the wardrobe a little longer - but can it apply to cranes?

Thirty years ago, few in the 'know' would have predicted the growth and then total domination of the All Terrain crane. At that time (1970s and early 1980s) the truck crane was king, with the AT an unreliable novelty.

Over the last year or two, an increasing number of crane hire companies have begun to appreciate that the truck crane had more going for it than simply being the only high speed road-going crane you could buy at the time. Several factors are encouraging buyers to consider truck cranes once again.

One is the 'economic' benefit. While everyone has been aware of this for some time, manufacturers had already phased out their European truck crane ranges by the time this really sank in.

The second factor is the long delivery times for All Terrain cranes, caused by the inability of manufacturers and their component suppliers to keep up with growing demand. This is causing many buyers to look either towards China where lead times are short and the truck crane is still king or to North America which has never turned its

back on truck cranes and where a cheap dollar is creating new export opportunities.

Add to this the fact that companies such as Terex have started to reintroduce European-built truck cranes to their product ranges and you have an interesting scenario where the All Terrain may well once again have to justify its premium cost and more importantly its higher running costs.

The 1963 Smiths All Terrain

The early days

The All Terrain concept was initially spurred-on by military demands for high speed off-road cranes. The first AT was arguably the Demag Krake, built in 1956, using the 'bent' boom design from the company's industrial pick and carry cranes. As far as we know only one unit of the Krake was ever built.

Thomas Smith (Rodley) in the UK also built a one-off All Terrain crane

in 1963 with a back to back driver-superstructure cab. This concept was later taken up by Gottwald in Germany when it introduced its 16 tonne AMK35-21 in 1970. The line was developed and produced in series production numbers and the concept was then copied by Grove

with its AT180 in 1976. But it was perhaps the Saturn cab-down crane made by Hydrokran AG in Switzerland that showed the true potential of such a machine. Its 25 tonne lift capacity and 75kmh road speed made it a true AT and it became a series production machine. Reliable yet expensive, it sold well in Switzerland but exports were largely restricted to military sales.



Demag Krake - the first AT?





The PPM 14.07 ATT

In the mid 1970's the Grove distributor in Switzerland, Stirnimann began converting Grove RT59S and RTR620S swing-cab Rough Terrain cranes into twin cab All Terrains. The design was unusual in that the chassis cab, located in the front tool well, could be folded away when the machine was on site. Around the same time PPM introduced the 14.07 ATT, essentially a high speed Rough Terrain crane with spring suspension and multi section boom. It was clearly ahead of its time.

The AT breakthrough

The true breakthrough though came in 1977 when Liebherr introduced the purpose-built LTM1020 and 1025 with their separate carrier and superstructure cabs, promising mainstream potential. Neither Stirnimann nor Liebherr were the first with this twin cab solution, the Gottwald AMK 45 of 1966 was in essence such a machine with its compact chassis and 4x4 drive, although it was marketed as a compact truck crane. That same year saw the introduction of the 25 tonne P&H WS250, designed and built in Dortmund, Germany, it was based on P&H's Cedar Rapids, USA built WS250 Rough Terrain crane.



Liebherr's LTM 1025

The Liebherr and the P&H were both notoriously unreliable, however Liebherr persevered with the concept introducing the LTM1030 in 1979 by which time it began to overcome the reliability issues that had dogged the first few years of production. The following year P&H launched an All Terrain version of the Omega 20 RT crane, with a relatively simple design, it was reasonably reliable, very compact and along with the Liebherr became very popular. While both machines played their

part in taking the All Terrain into the mainstream crane market, it was the Liebherr that really made the difference and the company went on to dominate the AT crane market. Even today Liebherr claims a 45 percent share of the global All Terrain market.

Early All Terrain crane development

Year	Manufacturer	Model	Capacity	country
1956	Demag	Krake		D
1963	Smiths Rodley		10t	GB
1966	Gottwald	AMK45	20t	D
1968	Hydrokran	Saturn	25t	CH
1970	Gottwald*	AMK35/45-21	16/20t	D
1974	Krupp	AS18	18	D
1974	PPM	14.07ATT	14t	F
1975	Stirnimann Grove	AT59/620S	14/18t	CH
1976	Grove	AT180	18t	USA
1977	Liebherr	LTM1020/1025	20/25t	D
1977	P&H	WS250	25t	D
1979	Liebherr	LTM1030	30t	D
1980	P&H	Omega S-20	18t	D

* Gottwald introduced seven to eight different AMK All Terrains between 1970 and 1979, with capacities between 14 and 40 tonnes but all followed the same basic dual upper cab concept.

By 1979 Grove, which is now part of the Manitowoc Crane Group, was thoroughly frustrated by the lack of reliability of its AT180 and seeing



An old Krupp AS 35

that Liebherr and P&H were no better, it washed its hands of the AT product concept. As a result, it took the company many years - and several acquisitions, including Coles cranes in 1985 and Krupp Krane in 1995 (Krupp had absorbed Gottwald telescopic cranes in 1988), to subsequently catch up some of the lost ground as the AT concept began to dominate the European market.

All Terrains begin to take over

The key selling points of the All Terrain crane were initially compact dimensions, manoeuvrability, with all wheel drive and steer and the ability to pick and carry as well as relocate the crane from the superstructure cab. The AT basically promised the roadability of a truck crane with the on-site capability of a Rough Terrain. However its high price premium initially limited its take up in many countries, including the UK and Ireland.

As machines gradually found their way in to rental fleets however their ability to get in closer to the lift and cross poor ground made them popular with end-users and

it was not too long before more of them began to appear. It was not too long before rental rate premiums for All Terrains had vanished and the rest, as they say, is history.

But all was not sweetness and light, for the crane hire company. The AT has always been more expensive to buy, more complicated to repair and more costly to run, particularly as they get older. In the UK however the nature of the crane hire business where cranes cover higher mileages mean that the expensive tyres with their shorter life span, higher fuel consumption and higher service costs is really biting hard. These additional costs are not reflected in the hire rates that the machines commanded.

So while the AT has enjoyed a successful run for nearly 30 years, there are many who still believe in the second coming of the truck crane.

Small All Terrains on the way out?

The All Terrain crane though is still the preferred type of mobile crane in Europe, something that is unlikely to change dramatically any time soon. Its development over recent years has seen the introduction of ever larger models with increasingly long multistage booms. However at the smallest end of the market the rental rates for small mobile cranes

no longer justifies the purchase price or running costs of a two axle 20 to 30 tonne All Terrain. According to some hirers, the rates for small ATs have not moved for about 10 years - about £320 per day, yet the price for new machines have increased by about 25 percent over the last three years.

As a result most manufacturers have virtually pulled out of this market in Europe, leaving the end market to older cranes, loader cranes, industrial cranes, spider cranes and telescopic handlers. Many UK crane rental fleets now look at 40 to 50 tonners as the bottom end of their fleets and have started to look on a 100 tonner as a day to day taxi crane. A far cry from the early 1970's when a 100 tonner was a massive beast and the exclusive domain of the larger crane hire companies.

Most reasonably sized crane hirers now have at least one such machine and an increasing number of them are looking at 200 tonne models to top out their fleets. It is only the strong Euro and the long delivery times in an uncertain economic climate that is holding more companies back from ordering them.



A Terex Demag lifting an AC650



The GMK4100-L: powerful and innovative

The 100 t (110 US t) all-terrain crane from Grove provides excellent lifting capacity with a seven-section 60 m (197 ft) boom. The crane is capable of lifting 11 t (12 US t) at 53 m (174 ft), making it ideal for tower crane erection. The operator's cab is designed for comfort, contributing to operator safety and job site productivity. A 10-17 m (33-56 ft) hydraulic luffing swingaway and an optional 5 m (16 ft) insert increases hook height to 83 m (272 ft). The MEGATRAK™ hydro-pneumatic suspension system provides superior on and off-road performance.

For more information about the GMK4100-L, go to: www.mcgads.com/1182.

 **Manitowoc**



The new Terex Demag AC300/6

500 tonnes is the new big

A big All Terrain crane now is a 500 tonne plus machine. By the end of next year three 1,000 tonne Terex Demag AC1000/9 cranes will arrive on these shores - to Ainscough then Baldwins and NMT. One of the main trends at the moment with all larger cranes is their transportability - how easy are they to move between jobs and how fast they can be set up once they arrive. In the UK the STGO rules that govern the movement of large loads were modified in 2004/5 effectively allowing 16 tonne axles loads where the crane was designed to take it. This has allowed many cranes in the 100 to 450 tonne range to travel in a ready to work configuration with only one or two back up trucks to achieve full capacity.

1,000 tonners and up

Terex announced its 1,000 tonne, nine axle, AC 1000/9 at the end of 2006 and is hoping to launch this summer. Styled as 'an AC700 plus 50 percent', it is thought the crane will 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 reduce assembly on site and to keep moving costs down. Standard boom will be 50 metres with an optional 100 metre (boom off design) giving 126 metres maximum with a luffing fly jib.

According to Mark Ambridge of Bedford-based NMT which has ordered the third AC 1000/9, the machine is basically very similar in size to a 500 tonner and requires just two more trucks.

Liebherr's 1,200 tonne LTM 11200-9.1 was launched at Bauma last year claiming to be the world's strongest and highest - with an eight section 100 metre boom - telescopic crane. A 'short' four section boom can be created by removing boom sections for easier boom on transport - already proven on the 500 tonne LTM 1500-8.1.



Liebherr's 1200 tonne LTM 11200

The Y-Guy Superlift system offers a remarkable increase in load capacity more than tripling the capacity in some parts of the lift chart. The active, speed-dependent rear-axle steering developed by Liebherr is integrated into the nine-axle chassis, with disc brakes ensuring greater safety and economy.



Tadano ATF 360G

Jack of all trades

Moving down a little into the mainstream market, Terex Demag's latest All Terrain - the 300 tonne AC 300/6 - was launched at its open day held at Zweibrücken last October. Claiming to be an 'all rounder' the six axle machine fills the gap between its AC250-1 and the AC350. The unit has a 64 metre main boom, 72 metre luffing fly jib and 125.7 metre maximum tip height the longest boom and jib combination of any six axle mobile crane.

Terex claims that this 'jack-of-all-trades' machine can be used for a wide range of lifting duties. With partial counterweight it can compete in the 140 tonne to 220 tonne class as an alternative to medium to large 5-axle mobile cranes. Yet when fully rigged Terex claims it can tackle jobs normally requiring 400 tonne cranes thanks to its superlift device.

Tadano's four section, 31 metre telescopic jib



testing in Japan. While not quite as compact as the smaller 300 tonne Terex, it offers a first class load chart for a 360 tonner and features some innovative jib combinations. These include a four section, 31 metre telescopic top boom that pivots from the main boom nose and offsets from being in-line with the main boom for a 96 metre tip height, down to around 55 degrees. Alternatively a 47 metre luffing jib can be extended with a 25 metre fly jib to achieve the full system length of 120 metres. Tadano dealer Cranes UK has provisional orders for two machines from UK companies.

100 tonne taxi cranes

Over the last few years there has been more activity and development in the 100 tonne class than any other, with all the 'majors' - Grove, Demag, Liebherr, Tadano and now Link Belt - introducing at least one new model in the last year or so.

Critical considerations in this size of machine are boom length and the type of work it will be used for. If the crane might carry out a large number of one day heavy lift jobs with the possibility of squeezing in more than one job a day, then a five axle carrier that allows the crane to carry all or most of its counterweight in addition to its equipment is preferable. Being self contained is also attractive for smaller rental companies because it needs fewer support vehicles.

On the other hand, larger companies that operate a transport fleet might benefit from a four axle carrier which offers a lower purchase and operating costs and is more compact on site.

There is a lot of work in the UK for the 300-500 tonne sized crane. The in-demand AC300/6 is finding success with the largest crane rental company Ainscough Crane Hire which is adding at least one unit to its fleet. Whilst it is a devoted Liebherr customer, Ainscough bought the unit while waiting for Liebherr to launch its new 300/350 tonner into the market.

The overall length of the AC300/6 is 16.44 metres, making it the shortest six axle and most compact 300 tonne mobile crane on the market. The unusually tight turning radius is achieved thanks to its length, a less than two metre front overhang and speed-dependent rear-axle steering. Tadano has also entered this mid range market with the launch of its six axle 360 tonne ATF360G-6 which should be launched at the end of this year following extensive



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John Moynihan with Ireland's first GMK4100-L

Terex claims its four axle AC100/4 is the strongest of its type on the market. It certainly has an impressive lift chart but at 50 metres, sports the shortest boom. In the UK the unit can travel on the road with more than 21 tonnes of counterweight, 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 metre radius.

Grove has several machines in this sector and if boom length is your prime requirement then the four axle GMK4100L and the five axle GMK5095 both have 60 metres.

J. Moynihan Crane Hire has taken delivery of the first Grove GMK4100-L all-terrain crane in Ireland. The company, which operates across the Cork and Kerry regions of the country, runs five cranes including the GMK4100-L and a GMK5100. Company owner John Moynihan said: "It's got 60 metres of boom and only four axles so it's easy to move around even the tightest areas of the city. Since we've had it, it's been very busy and working well."

Liebherr also has several four and five axle machines around this 100 tonne mark. At three metres both of its four axle units - the LTM 1090-4.1 and LTM 1100-4.1 - are rated at 90 tonnes, while its two five axle units are rated at 95 tonnes. The LTM 1090 is more popular in the UK in that it can carry more counterweight on board than the LTM 1100, however it has two metres less boom and sacrifices mid range lift capacity.



XCMG QAY240

Tadano-Faun has two models including the 90 tonne ATF90G-4 and the 110 tonne ATF 110G-5. The ATF90G offers solid performance with its 73 metre maximum boom and extension length the only area that it is noticeably less than the competition. The unit also offers Tadano's Lift Adjuster system which automatically compensates for boom deflection as the load is lifted. Tadano's UK distributor Cranes UK has made some major strides in the past two years or so breaking into many of the mid to large hire fleets and becoming increasingly popular.



Grove's latest AT the GMK 5170

In fact its ability to win a greater share of the UK market is largely limited by availability.

Link Belt is another company offering a wider range of All Terrains and its 110 tonne ATC 3130 competes in this dynamic part of the market. The company is currently testing the European waters and has so far concentrated on its TT truck terrain model a truck crane with some AT features and will show its HTT 8690 truck crane at SED in May.



New products take a breather

After several years of frenetic new product development this year is showing signs of the industry taking a new All Terrain product breather. Even last month's Conexpo only saw one new All Terrain crane, the Grove GMK5170, which it says boasts the strongest load chart and the longest boom in its class at 64 metres and can achieve tip heights up to 100 metres with extensions.



Zoomlion's AT cranes will not be seen in the UK for some time

On-site flexibility is aided with a choice of four outrigger width settings. The unit also features Groves Megatrak suspension, ECOS electronic control, all-wheel steer and Twin-Lock boom pinning.

XCMG is by far and away China's largest crane producer and has a range of All Terrains that stretch from the two axle 25 tonne QAY 25 through three, four and five axle machines up to the seven axle 240 tonne QAY 240 and 300 tonne QAY 300.

China's number two manufacturer of mobile cranes Zoomlion has reorganised its crane operations and is gearing up for export. Aiming to be a global company, it concentrates on mid-range cranes, exporting a total of about 750-800 cranes of all types last year. It is said to be developing 200 tonne and 250 tonne AT cranes, although the company is establishing itself with its well-proven smaller truck and crawler cranes.

Perhaps the biggest development in the All Terrain sector is the growing presence of Chinese manufacturers. Companies such as XCMG and Zoomlion have been developing their ranges, primarily to satisfy the huge demand from the home market. But with increased production capabilities they are now also looking at tackling exporting markets.

The major producers - Liebherr, Terex, Grove and Tadano - could begin to see some increasingly

serious competition which is rapidly improving in terms of quality and performance, while already being ahead on price and delivery times. With the current insatiable global demand for cranes, means delivery for major brand cranes already stretches into 2010 with no sign of this slowing. This naturally creates an opportunity for new entrants and the Chinese manufacturers are determined to do all they can to take advantage of that opportunity.

So will the All Terrain still be as dominant in a few years? When it comes to 80 tonnes and up, the line between All Terrains and Truck cranes begins to blur and the AT looks to be firmly entrenched. One thing that is for sure though is that the truck crane looks set to regain a share of the under 60 tonne and under market and it looks likely that a fair share of those will be made in China particularly if they maintain their price advantage and provide a good parts and service back-up.



Marsh Plant took the last order for Japanese truck cranes in the UK

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