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Two axle cranes

C&A

small All Terrains

What is happening in the two axle All Terrain crane market? In spite of them having probably one of the poorest returns on investment of any crane - thanks to very low rental rates and a relatively high purchase price - reasonable numbers are still being sold. In fact there appears to have been a substantial pick up in the market in places like the UK and other parts of Western Europe.

Most larger crane rental companies say they are obliged to keep a number of these machines in their fleets in order to provide clients with a full service package. However there are alternatives such as aluminium truck cranes from companies like Böcker. We take a look at the market and compare the two axle All Terrains currently on the market and try and find out why they are still popular.

Why buys a two axle AT?

Even if you have decided that the small two axle crane is exactly what you want there are very few to choose from. Of the major crane manufacturers only Liebherr and Terex offer cranes with Euro 4 compliant engines - although Tadano does have a Euro 3 crane. If we look back over the past 12 years of the C&A UK rental rate survey we can see that while rates have fluctuated over the period. They have slowly improved from an average of about £330 a day for a 25-45 tonne AT to £457 for a 30-45 tonne crane in the

last survey carried out at the end of 2016.

While this is a 28 percent increase both the cost to buy the crane and its running costs - including labour - have increased significantly faster. One the factors that might have kept this sector alive is that jobs tend to be short duration routine lifts, allowing companies that run an effective hire desk to carry out two or three jobs a day, transforming the actual return.

Historically, sales of the two axle crane declined because larger three axle machines did not cost a great deal more, had very similar operating costs and were more versatile. While they might not be as compact or quite as manoeuvrable they are certainly able to cover the vast majority of the work. And for those jobs requiring something smaller or lighter many companies could resort to an old 10 to 20 tonne mobile crane such as an Iron Fairy or a 25 tonne truck crane. Given that these have not been available for some significant time an opening

occurred for products that might replace them.

Irish crane dealer Rivertek had been trying to fill this gap with one-off imports of Japanese City-type/high speed Rough Terrain cranes over the years and spotted the opportunity to do more. It persuaded Kato to create a European legal version of three small City-type cranes - a 13, 20 and 35 tonner - which are now selling very well, particularly in the UK.

The other crane that appears to have been bought as a replacement for small All Terrain and older truck cranes - particularly in Germany and the UK - is the Böcker aluminium crane. Over the past two years or so distributor UK distributor Kranlyft has sold more than 70 units after several years of negligible sales.

What to buy?

Given the recent state of the two axle All Terrain market it is perhaps not surprising that only two of the four major AT crane manufacturers continue to offer products. Liebherr has two cranes - a 30 and 40 tonner, while Terex has its 40 tonne AC40 in standard and long-boom configuration. Terex is also set to re-introduce a new range of Demag City cranes sometime in the near future, but until then Kato has the

market almost to itself. Tadano currently has no plans to equip its 40 tonne ATF 40G-2 which is sells in the Middle East and Oceania with a European legal drive train, nor is it rushing to Europeanise its 13 tonne GR-120EX City crane.

Perhaps the biggest surprise is that Grove no longer offers a two axle All Terrain crane in its range. Its smallest All Terrain is the 50 tonne three axle GMK3050-1 with a 38 metre main boom. The company still has the last few 35 tonne GMK2035E with Tier 3 engines to sell however according to Andreas Cremer - global product director All Terrains - the company decided that the changes in engine emissions coupled with the declining two axle market in recent years did not justify keeping the GMK2035E in the range.

"With the change in the different emission stages we had to set priorities as this has been and still is very time consuming. At the moment, we can still deliver some of the last GMK2035E in Tier 3 version but there will be no more units built. This doesn't mean we are never going to produce two axle ATs but for the moment we don't offer a two axle model. The rental rate for this type of crane is very



Liebherr LTM 1030-2.1



Tadano only has the Euro 3 ATF 40G-2



Grove no longer produces a two axle crane but still has a few GMK2035E's to sell

low and it is hard to get a good return with them. On the other hand, the smaller AT is needed for rental companies to offer customers a complete range for all applications. I cannot say when we might introduce a new two axle AT but the most important markets to us would be Central Europe, the UK and Algeria."

The City crane alternative

While the Japanese developed and refined the City crane through the late 1970s and 80s, PPM was almost certainly the first with its 14 tonne 14:07 ATT high speed Rough Terrain, which it launched in 1974. From then on it was Kobelco, Tadano, Kato and Komatsu, with the first major European manufacturer entering the market was Demag which launched its 25 tonne AC75 in 1996 making the concept even more popular. For many years Terex-Demag was the only major crane manufacturer with a range of City cranes - made up of the

AC30, AC40, AC55 and AC75 - although Liebherr did introduce its hydrostatic drive three axle LTC1055-3.1 and in 2009 Grove launched the Kobelco-built 45 tonne, three axle GCK3045 City crane with six section 34 metre boom and heavy duty bi-fold swingaway extension. Most of the major manufacturers thought that there was a limited market for 'City' cranes - a very similar attitude to the one they are taking towards the two axle market today.

Over the years it has been engine and road regulations and the challenges of meeting them that made things difficult for the Japanese manufacturers, effectively killing off exports of truck and City cranes to Europe. Then Terex began to phase out its City models which left a void and pent up demand for the smaller City cranes. Some companies looked to source machines through 'grey imports' with others refurbishing older machines. That has all changed with Kato's re-entry. For buyers, the situation



Terex-Demag had a four model City crane line-up - this is the AC40.



The 35 tonne CR-350Ri can often carry out work undertaken by a normal 40 tonne All Terrain

should get even better with Terex due to launch new Demag City class cranes, most likely starting with a 45 tonne AC45.

Does it all add up?

Those producing alternatives to small All Terrains are not - as you might expect - touting the lower cost to buy and run their cranes, but instead tend to promote the fact that they can earn more. For example, Rivertek managing director Colin Cleary said: "Rental companies are surprised that the Kato CR-130 can earn between £480 and £500 a day, compared to £400 to £420 for a 40 tonne AT. Especially as the Kato is also about 40 percent cheaper to buy."

He maintains that Kato's largest City crane - the 35 tonne CR-350 - can often carry out work undertaken by a normal 40 tonne All Terrain but its compact size is also very useful when working in tight situations or inside a building. The one downside

of a City crane is its road speed - the CR-350 has a maximum of just under 50kph compared with 80 to 85kph for the typical two axle All Terrain.

The relative demise of the City crane over the past decade has meant that companies struggled to find a road going 'pick & carry' crane. In Australia rental companies have had the option of the articulated



Tadano ATF 40G-2

Two axle mobile cranes vs two alternatives

Make Model	Liebherr LTM1030-2.1	Liebherr LTM1040-2.1	Terex AC 40/2	Terex AC 40/2L	Tadano ATF40G-2	Kato CR350Ri	Böcker AK 42/4000	Allen T664
Capacity	35t @3m	40t@2.5m	40t@ 2.6m	40t@2.6m	40t@2.5m	35t @ 2.6m	4t@8.2m	6.1t@3.05m
Boom	30m	35m	30.4m	37.4m	35.2m	32.5m	32.0m	19.8m
Axles	2	2	2	2	2	2	2	2
Max lift ht	44m	44m	47m	47m	45m	47.3m	40.5m	20.7m
Max radius	40m	39m	28m	36m	38m	34.5m	37m	13.71m
Max jib/ext	15m double	9.5m single	15m double	15m double	9m single	14m 3 section	8.9m double	3.05m single
Length	10,310mm	10,930mm	10,575mm	10,684mm	11,031	9,765	10,550	6,170
Width	2,550	2,550	2,550	2,550	2,550	2,620	2,550	2,410
Height	3,550mm	3,550mm	3,350mm	3,350mm	3,551	3,595	3,990	3,460
Outrigger Spread	6,028mm	6,028mm	5,950	5,950	6,000mm	6,800mm	5,550mm	N/A
Drive/steer	4x4x4	4x4x4	4x4x4	4x4x4	4x4	4x4	4x2	6x4x2
Max speed	80kph	80kph	80kph	80kph	85kph	49kph	N/A	53kph
Power	210kW	210kW	205kW	205kW	205kW	200kW	N/A	103hp
Emission	Euro 4	Euro 4	Euro 4	Euro 4	Euro 3	Euro 4/3B	N/A	N/A
Grade	60%	60%	58%	58%	74%	56%	N/A	N/A
Cap@ 10m	8t	9.1t	8.1t	8.55t	8.8t	8.1t	3.0t	1.5t@ 9m
Cap@ 20m	2.5t	3.0t	2.4t	2.8t	2.8t	2.2t	1.0t	0.82@13.7m
Cap@ 30m	1.1t	1.2t	1.05t@28m	1.25t	1.2t	0.55t	0.5t	N/A
Cap@ 40m	0.4t	0.4t@39m	0.7t@36m	0.7t@36m	0.6t@38m	0.35t@34.4m	0.25t@37m	N/A

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crane, led by Terex-Franca, although unlike a Kato City crane they are surprisingly physically large machines.

For those looking for good lifting performance in a compact and manoeuvrable package and good road speed the regular two axle, two cab All Terrain ticks all the boxes - its only downfall is its price and it seems the rental rate it can achieve.

Two axle ATs v the alternatives

Comparing the current two axle ATs it is not surprising to see they are

very close in size and performance. The Terex AC/40L boasts the longest boom by 2.4 metres at 37.4 metres. Two section extensions on three of the cranes add a further 15 metres giving maximum lift heights between 44 and 47 metres. The physical sizes of all the regular All Terrains are very similar with the 35 tonne Liebherr being the most compact - 600mm shorter than its 40 tonne brother which is the longest at 10.93 metres. Outrigger spreads are also very similar, with the Terex AC40/L slightly narrower. All have four wheel drive and steer, a road speed of 80kph, a Euro 4 engine with a power output of just over 200kW and gradeability of



Terex AC 40/2L

around 60 percent. Lift performance throughout the charts is also very similar although the 35 tonne Liebherr is the only one capable of a 40 metre lift radius.

Comparing them to the Kato City type crane, it also shows very similar performance. However the Kato is more compact - about 300mm shorter than the shortest

AT - but with a wider outrigger spread. However the main difference is the slower road travel speed of 49kph on the Kato and it also does not offer crab steering.

The Böcker is quite a different beast, with a maximum capacity of just

four tonnes, but at an 8.2 metre radius, it also boasts a 37 metre main boom and can handle a tonne at 20 metres or 500kg at 30 metres. This makes it a practical alternative for a lot of jobs such as placing roof trusses, or lifting substantial domestic loads into upper stories or installing solar panels for example. The 40 percent lower purchase price, excellent road performance and lower running costs are also major incentives for companies to try something different. Certainly the numbers of Böcker truck mounted aluminium cranes being sold in recent years, shows that rental companies are thinking outside the box and that these cranes are finding plenty of work in rental company fleets.

With a significantly lower purchase price the Böcker cranes are a practical alternative on many jobs



liebherr LTM 1030-2.1

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High tech 1965 style

Those of you who visited Vertical Days at Silverstone this year will probably have seen the immaculate 1965 Allen Oxford three axle T 664 truck mounted crane which has been painstakingly restored by Crowland Cranes.

When originally produced the crane had several innovative and unusual features so we thought it might be interesting to include it in the comparison table just to see how it

stacks up against the current crop of two axle cranes 50 years on. It should be noted that this unit would have been one of the last built, as the 22 tonne Allen Grove telescopic were already in production at the Oxford plant and soon stifled any appetite for such small lattice boom cranes.

The T 664 was mounted on a three axle chassis, with either single or dual rear axle drive (the T 642 or T664). Maximum capacity was

C&A small All Terrains



six tonnes, with a lattice boom of up to 19.6 metres and a three metre jib. The crane had a single Leyland six cylinder engine with all crane functions 'air-controlled through short throw levers requiring only finger-tip pressure and giving perfect feel of the load' and 'totally eliminating operator fatigue'. The basic nine metre main boom folded for road travel with the other boom sections carried on board.

These compact, self-operating ALLTERRAIN cranes have a maximum lift of six tons, and can be supplied with boom up to 19.6m, plus 3.0m jib. They are air-controlled throughout for smooth, precise operation, all crane motions being controlled by short-throw levers requiring only finger-tip pressure and thereby eliminating operator fatigue. One engine only is used - a Leyland type 30-hp diesel power unit chassis and gearbox. The basic 9m boom folds for travelling, and provision has also been made for carrying other boom sections up to the maximum length in the chassis. The crane's fuel tank is standard equipment, and we housed a main storage compartment in the chassis, which can be used for tools, spares, and other equipment. The crane's steel lattice can be fitted with safety glass windows and glass panels in the cab, affording the operator an extra shield with heat and cold, practical "holocaust heat" - an essential essential for safe, secure working.

Models
T 642
&
T 644

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Crowland Cranes had many compliments on its refurbished six ton capacity 1965 Allen Model T664 also available as the T 642 two axle crane



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