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Development and growth in the RT sector

Historically sales of Rough Terrain cranes have been related to the price of a barrel of oil, the biggest market being North America taking two thirds of all RTs sold outside of Japan. However as the oil industry has increasingly found alternative methods of lifting and material handling, the demand for RT cranes has declined. There has however been growth in other parts of the world including Europe. We take a look at some of the latest developments in the sector.

Rough Terrain cranes have traditionally been a product of North America and the Middle East with a European outpost in Italy. Since the emergence of All Terrain crane in the 1980s, sales of Rough Terrain cranes have shrunk in most European markets. However there appears to be evidence of renewed interest in the product, possibly due to a more rigid application of road regulations and a move in some areas to keep cranes on site for longer periods. There are also indications that new product developments are encouraging more European buyers to take another look at Rough Terrain cranes.

Market changes

2019 saw some significant structural shifts in the Rough Terrain market following the split up of Terex Cranes after it sold its Demag business to Tadano and its US truck crane operations to the Load King subsidiary of Custom Truck One Source. Terex Cranes now focuses entirely on its Tower and Rough Terrain cranes, both of which are based in Italy. On the surface the decision by Tadano to exclude the Terex Rough Terrain cranes from the acquisition seemed a logical move given that the Japanese crane company already produced a wide range of market leading Rough Terrain cranes that appear to totally overlap with the Terex Rough Terrain range.

However a number of buyers we have spoken to since have said that the Tadano RTs are not as well suited to the European market as the Italian built Terex models. Quite why Tadano did not consider acquiring Terex RTs at the time is not clear, we understand that Tadano never raised the option in the negotiations, while Terex was happy to focus on the loss-making German Demag business. In a recent interview with C&A, recently appointed Tadano Demag chief executive Jens Ennen said: "The Terex RT business was simply not part of the overall discussion and we are happy with the current Tadano RT range as it is very successful and well known for its quality and reliability."

This may well be the case in most parts of the world, but if you go to the Tadano website and click on Rough Terrain cranes and enter Europe as the region the message 'Currently not available in your selected area' is displayed. While Tadano Rough Terrain cranes have been sold in Europe, it would seem that they are not currently offered - possibly due to engine upgrade demands?

Terex has launched several new products over the past year or two, including the RT90, RT1070, RT1080/1080L in the important 70 to 90 tonne sector, along with the 45 tonne RT1045/1045L. Since the Demag disposal this summer, it has



announced continual investment and development of the range with three new products including a new 35 tonne RT1035, a new global 75 tonner and the next generation, Terex developed, RT operating system - launched at Conexpo - offering an improved interface and usability.

Tadano v Terex?

Looking at the most popular Rough Terrain crane sector these days - the 80 tonner - we did a quick comparison of Tadano's GR-800 EX with the Terex RT1080L, the longer boomed version of two 80 tonne models offered by Terex.

The most noticeable difference between the Tadano and the Terex is the extra five metres of boom and Tadano's longer extensions providing a healthy lift height advantage. The GR-800 EX is also physically larger and heavier and of particular note is its overall width of 3.315 metres compared with a more manageable three metres on the Terex. Overall length is another example of a marked difference in that the Tadano is almost 14.4 metres, compared to Terex at 13.4 metres while the Tadano weighs

in at 51.4 tonnes compared to the Terex at just under 49 tonnes when similarly equipped - although the extra extension on the Terex taking it to 14 metres does not actually stow alongside the boom. The main difference in weight is of course Tadano's longer boom at 47.1 metres compared to 42.1 metres, the longer bi-fold swingaway at 17.7 metre versus just 14 metres on the Terex.



Terex has launched several new products over the past year or two, including the RT90, RT1070, RT1080/1080L.

The Tadano and Terex '80 tonners' compared

Make	Tadano	Terex
Model	GR-800 EX	RT1080L
Capacity	80t @ 3m	80t @ 2.5m
Main boom	47.1m	42.1m
Swingaway options	10.1 to 17.7m	8 to 14m
Extension offsets	0-45°	0-30°
Max tip height	67m	58.2m
O/A length	14.375m	13.417m
O/A width	3.315m	3.0m
O/A height	3.795m	3.87m
Outrigger spread	7.3m	8.0m
Weight	51.4t	48.8t
Counterweight	9.98t*	8.9t
Travel speed	36kph	29kph
Tilt cab	No	Yes

*includes auxiliary hoist

Rough Terrain cranes C&a

Tadano's 80 tonne GR-800 EX



Given that the Tadano RTs in this range are physically bigger being wider and heavier, and one can understand the comments regarding the product not being as well suited to the European market as the Terex models - at least when it comes to moving them from site to site. If you look at Tadano's smaller machines most models are less than three metres wide whereas the Terex models tend to be in the 2.5 metre range. It is worth recalling that the Terex Rough Terrain product line grew out of its acquisition of Bendini in 1999.

New 51 tonne Kato

A few months ago Kato announced its new 51 tonne Rough Terrain crane aimed at the global market. The new model - the SR-500LX - joins the company's existing 51 tonner, the SR-500L however features a longer, 42 metre five section main boom compared to 35 metre four section on the older model. Maximum capacity on the fully extended boom is eight tonnes at up to 11 metres radius. Maximum radius on the main boom is 34 metres where it offers a capacity of 700kg. The LX also incorporates Kato's new 9.4 to 13.7 metre two section, telescopic hydraulically luffing E-Jib which offsets by five to 60 degrees and provides a maximum tip height of 59 metres at which it can lift three tonnes at a radius of 6.5 metres. In this configuration it can take that load out to 13.7 metre radius at a height of just over 55 metres. Twin hoists are standard.

The company says that the decision to introduce a longer boomed model was driven by demand from its international customers rather than

its domestic buyers in Japan where the current machine does well. The crane had its public unveiling at the Taipei building show in December, appropriate given that the first units were sold to local rental company Chi Deh.

Overall width of the new crane is 2.9 metres with an overall stowed length of 12.76 metres. Gross vehicle weight is just over 37 tonnes. Power comes from a six cylinder Mitsubishi diesel driving axial piston hydraulic pumps. As with most Kato RTs it has leaf spring suspension with shock absorbers, helping it travel more smoothly at its maximum 45kph. The new crane has a maximum capacity on tyres of 16.5 tonnes and the outrigger spread is variable up to a fully extended seven metres. Other features include a new ACS load moment indicator with high resolution readout, a data logger with SD card storage, a full camera system and touch screen information readouts displays.

With an unusual capacity of 51 tonnes at 2.5 metres (47 tonnes at three metres) the Kato comes closest to Grove's GRT655L and the Locatelli Gril55.50 in terms of nominal capacity. What is interesting is the similarity between the Terex and Locatelli cranes,



Kato's new 51 tonne SR-500LX features a 42 metre main boom.

So how does the new Kato compare?

Make	Kato	Terex	Sany	Zoomlion	Grove	Locatelli	Tadano
Model	SR-500LX	RT 1045L	SRC550C	RT60	GRT655L	GRIL55.50	GR500EX
Capacity	51t@2.5m	44t@2.5m	55t@3m	60t@2.8m	50t@2.5m	50t@3m	51t@2.5m
Main boom	42m	37.4m	34.5m	43m	43m	37.2m	42m
Extensions	9.4-13.7m	8m	9.2-16.4m	10-17m	7.9-13.7m	8m	8-12.7m
Mx tip ht	59m	47.8m	53.9m	62.4m	59.7m	48m	57m
O/A length	12.76m	11.241m	14.050m	13.733m	12.66m	10.9m	13.39m
O/A width	2.9m	2.543m	3.3m	2.99m	3.08m	2.54m	2.98,
O/A height	3.88m	3.50m	3.76m	3.75m	3.48m	3.63m	3.86m
Outrigger spread	7.0m	6.0m	7.2m	6.9m	6.81m	6.2m	7.0m
Weight	37.08t	29.3t	43t	44.26t	34.56t	33.1t	38.02t
Max speed	45kph	30kph	40kph	41kph	30kph	36kph	48kph
Capacity on tyres	16.5t	15.9t	19.72t	21.0t	13.825t	16.0t	13.9t

The 50 tonne Gril55.50 from Italian manufacturer Locatelli



The 200 tonne XCMG RT200E with 62 metre main boom and 20 metre jib and is currently the largest RT on the market.

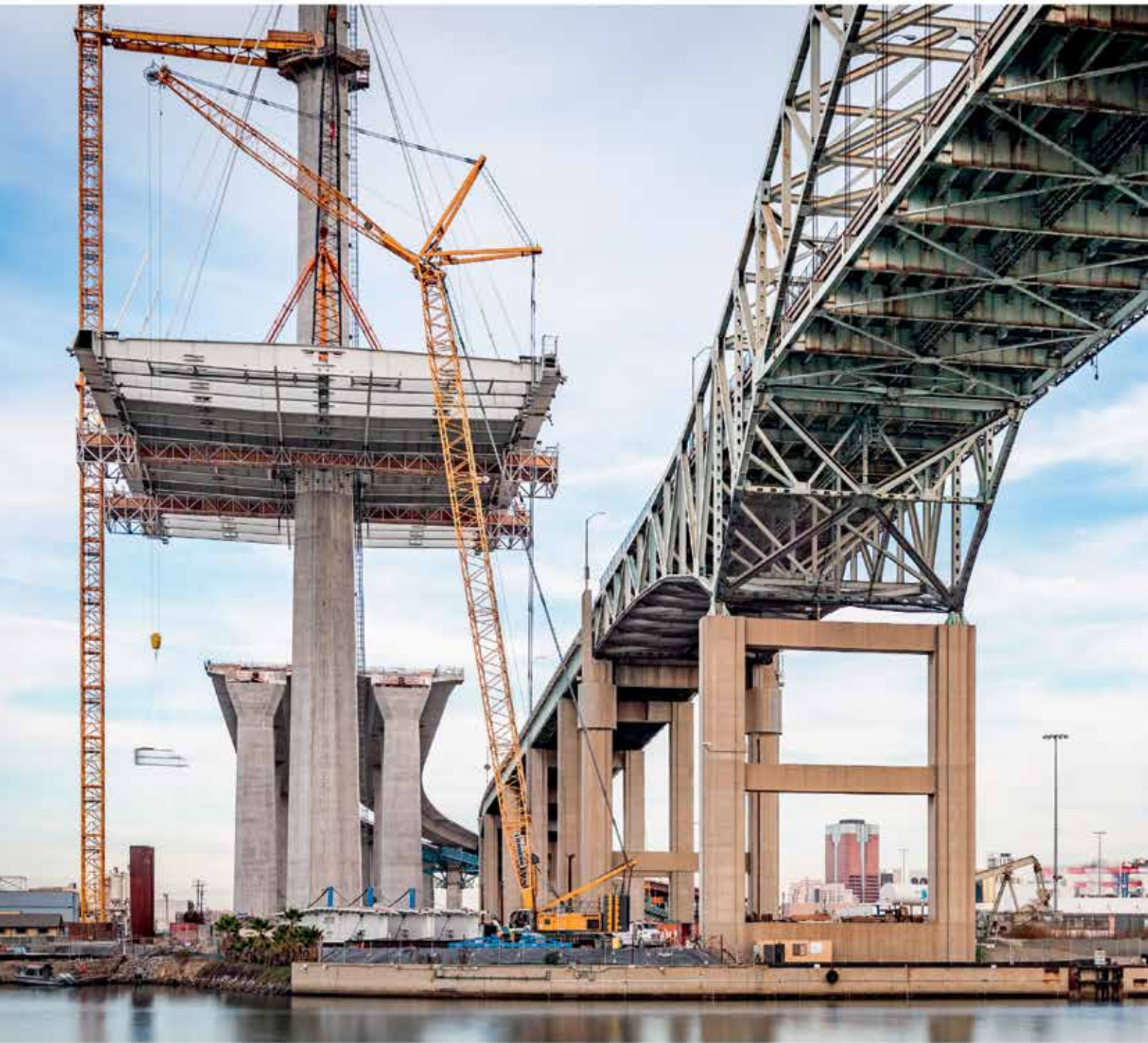


including the fact that both are Italian designed and manufactured. Although the Terex has a lower maximum capacity and is smaller and lighter, the other specifications are almost identical. Overall however, the Kato - at least on paper - performs very well against its main rivals.

Moving on up

Despite the move towards higher capacity Rough Terrain cranes, the majority of units sold are under 90 tonnes. In our last RT crane feature we covered the launch of Grove's 149 tonne GRT 9165 with a 62.3 metre main boom and compared it to other large RTs from Tadano - the 145 tonne GR-1600XL-2 - and the 145 tonne Link Belt RTC80160 II. However it is the 200 tonne XCMG RT200E developed in China and Germany with a 62 metre main boom and 20 metre jib that is currently the largest RT on the market. The crane weighs over 90 tonnes and has a travel speed of 25kph.

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Link-Belt's latest Rough Terrain is the 110 tonne 120RT

New 90t Link-Belt

We also reviewed Link-Belt's latest 90 tonne 100RT. The company has since launched the all-new 110 tonne 120RT which features a six section 50 metre pin & latch boom, topped by a 10.7 to 17.7 metre bi-fold swingaway which manually offsets from no offset to 15, 30 or 45 degrees. Two additional 4.9 metre lattice inserts take the maximum tip height to 79.8 metres. The crane includes a three slab, hydraulically removable 13.2 tonne counterweight giving a total working weight of less than 56.5 tonnes.

The crane features a Cummins Stage V/Tier IV diesel - or a Tier III Cummins for emerging markets - powering a six speed transmission with two axle four link suspension. New ladders and steps give improved access to the carrier deck which now uses slip resistant paint. Link-Belt's V-CALC - Variable Confined Area Lifting Capacities - system features 81 different outrigger configurations and once set, the crane's Pulse 2.0 system indicates the available capacity for the specific configuration.

The winches feature a single line pull of 10,700kg and include ultra-wide drums to maintain line pull performance. The crane includes a new cab first seen on the 75RT in 2017, which has improved visibility and operator comfort and a 20 degree tilt. A full camera package is included with reversing, winch and right side of superstructure monitoring as well as a full telematics system.

Small but perfectly formed

One of the smallest Rough Terrain cranes on the market is Tadano's 13.6 tonne GR-150XL. Earlier this year the company launched the GR-150XL-3 - an updated version of the GR-150XL-2 - for the North



Link-Belt 110RT



Locatelli 55.20

American market. The crane's upgraded features include a reduced tailswing - down from 1.6 to 1.25 metres - better capacities, a 70 percent increase in single line pull, an updated cab with a much larger colour touchscreen - now 10.4 inches - and Tadano's AML-E automatic moment limiter. It also features Positive Control System which governs and adjusts hydraulic pump output during crane operation in response to the amount of controller movement applied, in order to reduce fuel consumption and emission levels. The 24 metre main boom plus 3.5 to 5.5 metre underslung offsettable jib remains unchanged, giving a maximum tip height of 31.7 metres. It has an overall length of 7.56 metres and

an overall width of just two metres, excluding wing mirrors.

In the Middle East, Australia/New Zealand, Asia and South America the company offers the very similar 13 tonne GR-130EX.

The Chinese factor

The RT crane sector - along with crawler cranes - was one of the sectors in which Chinese crane manufacturers have produced machines that are considered to be competitive and which they have not only exported to emerging markets, but also to Europe and North America. Sany and Zoomlion have led the way but have now been joined by XCMG. It is particularly surprising in that when these manufacturers began designing

Earlier this year Tadano launched the GR-150XL-3.



Grove GRT8100



and building Rough Terrain cranes, there was no domestic market to rely on in order to build volume. Today Chinese manufacturers have a significant market share, having made substantial inroads in developing markets where their cranes are often part of a wider package of equipment offered by trading houses, or brought in by Chinese contractors working on Chinese financed infrastructure projects.

Sany has been successful in a number of western markets, including North America and the Middle East. Its current six model line up extends from the 30 tonne SRC300C with 31.5 metre main boom to the 120 tonne SRC1200

with a 49.7 metre main boom. As can be seen from the 80 tonne comparison on page 18 the Sany SRC550C performs well, however its size, weight and resale value may be an issue with some buyers. Zoomlion was one of the first to make inroads in the western market when it introduced an American style RT range and signed a worldwide distribution agreement in 2010 with Global Crane Sales of Houston, Texas. Today it offers a mix of RT and ZRT models - the latter being the 'next generation' machines. It has four RT models - the 35 tonne RT35, 60 tonne RT60, 75 tonne RT75 and 100 tonne RT100 - along with the 30 tonne ZRT300 and 85 tonne ZRT850. The ZRT850 features a 47 metre 'U shaped' main boom which Zoomlion claims is 20 percent stronger than any of the products from its direct competitors. Weighing 52 tonnes, the crane has a maximum travel speed of 36kph and an outrigger spread of 7.3 metres.

We have already mentioned XCMG's largest RT - the 200 tonne RT200E - which is just one in a bewildering 20 model range which starts at 25 tonnes.



The ZRT850 features a 47 metre 'U shaped' main boom

Sany SRC550C



Sany SRC550C



Contraband Bayou shaft replacement

A 70 tonne Link-Belt 75RT Rough Terrain crane was recently used to remove and replace 16 shafts from storage tanks at the Lake Charles Wastewater Treatment Plant in Louisiana, USA. Each shaft has an overall length of 1.2 metres and weighed just over two tonnes. The project is intended to improve water sediment flow into the nearby Contraband Bayou. The plant treats 36.4 million litres of wastewater daily and more during periods of flooding.

Max Foote Construction rented the crane from Doggett Crane Sales & Hire, it was chosen for its ability to fit into the limited space available between the tank wall and the perimeter fence. The shafts had to be lifted in and out of the two side by side oval treatment tanks. There were just three places around the tanks in which to set the crane up, from where it could reach the load and handle weight. Fortunately there was just the right amount of room between the tank and fence for the 75RT to set up and fully extended its outriggers.

The crane worked at a radius of 28.9 metres with the boom at an angle of 49 degrees. The crane then slewed the loads 120 degrees to the storage/unloading area. The 75RT was then used to install several motor assemblies, each weighing 1,315kg, working at a radius of up to 35 metres on full boom.

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Each shaft is 1.2 metres long and weighs just over two tonnes



The 75RT was able to fit into the limited space available between the tank wall and the perimeter fence

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