

# TEREX ROUGH TERRAIN VERSATILE PRODUCTIVITY



35

44

45

65

70

80

90

Max capacity (t)



30,1

31,1

32,4

34,0

37,4

42,1

43,5

47,0

Maximum main boom length (m)



in f

[www.terex.com/rough-terrain-cranes](http://www.terex.com/rough-terrain-cranes)

**FLINK**  
Telematics platform

**TEOS**  
Operating System

*A Link-Belt RTC-80130  
SeriesII working in Antarctica*



# ARE ROUGH TERRAIN CRANES 'OVER A BARREL'?

Historically, the fortunes of the Rough Terrain crane market are said to follow the average price of a barrel of oil, with a price of around \$60 appearing to be the make or break point. The average price today is around \$76, down from a high of \$94.53 in 2022 and \$77.64 last year.

With a product development period of about two to three years or so, the significant price increase since the low \$40 in 2020 to \$116 in May 2022, may account for many of the new RT cranes being launched onto the market over the past year or two. The main market for RTs is North America followed by the Middle East, with a high proportion of units going into the oil related market sector. Perhaps the fact that for many producers the Rough Terrain crane is their most profitable model may also be a factor.

A strong day to day crane rental sector in most parts of Europe meant that truck cranes and laterly All Terrains were the crane of choice, rather than Rough Terrains. One exception was Italy due to contractors buying their own machines rather than renting them. There are some signs that the European market might be shifting a little towards Rough Terrains, possibly

*Liebherr's new 130 tonne  
LRT 1130-2.1 is possibly  
a sign of a move towards  
larger RTs?*



due to stricter road regulations and a trend in certain sectors towards keeping cranes on site for longer periods. But also, as a result of improvements in the 'transportability' of the latest models on the market, not to mention improved technology and longer booms.

The major developments over the past 12

months have included the introduction of the first all electric RT from Tadano, and a move towards larger models such as Liebherr's 130 tonne LRT 1130-2.1 - even though the volume market falls between 60 and 80 tonnes - a far cry from the 1970s and 1980s when the vast majority of RT sales were between 15 and 25 tonnes.

## ALL ELECTRIC TADANO

Tadano has been working on its battery electric RT concept for several years and was finally confident enough to launch its first model, the 90 tonne GR-1000XLL EVolt at Conexpo last March.

The new crane will initially only be available in North America, Tadano's largest and most profitable export market. In essence it uses the same superstructure as the standard GR-1000XLL Rough Terrain, with a five section 46 metre main boom topped by a 10.1 to 17.7 metre bi-fold swingaway extension, providing a maximum tip height of 66.6 metres. However, it is mounted in a very different chassis with an all-new driveline powered by a lithium ion battery pack, said to be capable of a typical nine hour shift.

The battery pack feeds an electric motor which drives the hydraulic pumps mainly for the superstructure, while two large inboard electric motors are employed for the drive function - one for the front and one for the rear axle. This format was chosen to simplify the drivetrain and reduce the number of shafts required while creating more space within the chassis.

The battery can, according to the company, be fully recharged in seven hours with the standard onboard system, or two hours using a Tesla fast charger. The crane can also be operated while plugged in - a simple selection switch allows for 30, 50, 75 or 100 Amp inputs - as long as an AC outlet is available on site, of course.

Tadano claims the crane can travel an average of 12.5 miles on a single charge, although with regenerative braking this may be extended. Top speed is 11mph (18kph) which is the same as the diesel model.



*The battery charging input station*

The crane performance - in terms of function speeds and line pulls etc - is said to be exactly the same as the standard diesel unit, and while emissions are important the company says that one of the main driving forces behind the crane's development was noise, confirmed by customer input. The EVolt is almost silent with most of the residual noise emanating from the hydraulics, or the axle whine when travelling.

Finalisation of the production version always takes time, and the crane is scheduled for delivery sometime this year. However, at the end of last year Tadano introduced a smaller capacity battery electric model in Japan - the 25 tonne GR-250N EVolt. Again, it is the same as the equivalent diesel version but using electric power.

## A 25 TONNE ELECTRIC

The GR-250N EVolt can reach a top speed of 49kph and can work a typical 11 hour shift or travel 25 miles (40km) and still have enough



*Tadano launched its first battery electric RT - the 90 tonne GR-1000XLL EVolt at Conexpo*

*Tadano introduced a smaller capacity battery electric model in Japan - the 25 tonne GR-250N EVolt*



energy for a typical five hour shift. The integrated regenerative braking system also helps boost travel and operating times. A rapid recharge from empty to full takes around eight hours on a standard outlet or two and a half hours on a fast charger. Tadano says that additional EVolt models are in the pipeline.

Tadano, of course, has an extensive lineup of 'North America Rough Terrains' ranging from the 31.8 tonne GR-350XL up to the three axle 145 tonne GR-1600XL. Given price differentials and the conservative nature of the market, most companies will stay with the existing diesel models, but there will be some market sectors that will find the new concept very attractive - it now needs a few 'product champions'.

Quebec based rental company Guay ordered 19 Tadano RTs last summer, ranging from the 50 tonne GR-550XL to the 145 tonne GR-1600XL, all diesel powered, although Guay made the point that the order was all about updating its RT fleet with the latest technology.

Guay executive vice president Guillaume Gagnon said: "We wanted to renew our RT rental fleet with better technology, like Tadano's Smart Chart, we also appreciate the reliability of Tadano RTs and the fact that they all have the same operational pattern and a lot of spare parts and components in common."

## LARGER LIEBHERR RT

Liebherr unveiled its largest Rough Terrain crane so far at Bauma in October 2022, in the form of the long-boomed 130 tonne, two axle LRT 1130-2.1. It tops a three model line-up, adding to the 90 tonne LRT 1090-2.1 and the 100 tonne LRT 1100-2.1 which were launched in 2016 when the company returned to the RT market after abandoning it in the early 1990s, having failed to gain a foothold after around 10 years of trying. This time it has done considerably better and with steady progress it looks set to carve out a share of the market for itself.

### THE LRT 1130-2.1.

The new 130 tonner features a seven section 60 metre main boom which it claims is the longest on a two axle Rough Terrain. It is topped by a 10.8 metre to 19 metre bi-fold swingaway extension with offsets of up to 40 degrees and can be extended with a seven metre insert for a maximum tip height of around 88 metres. A 2.9 metre assembly jib can also be stowed on the left side of the boom and a side folding auxiliary boom nose/rooster sheave is also available.



*The new LRT 1130-2.1*

The unit is 3.4 metres wide with an overall height of 3.85 metres, while the chassis length is 9.4 metres and transport weight 48 tonnes with swingaway and hook block, but not including the 20 tonne counterweight. Other features include tilting cab, Variobase variable outrigger set up and one touch AutoBallast installation function.

# Zero emissions, full power

The climate change demands power concepts which reduce CO<sub>2</sub> emissions. That is why our LTC 1050-3.1E features an additional electric motor. The crane operations can be powered by electricity so that it can satisfy the requirements of "zero emissions" construction sites. The power for crane operations can be supplied from the site or a battery pack. The crane operates with full power as long as the electrical power supply is sufficient or by powering the machine using its internal combustion engine.

[www.liebherr.com](http://www.liebherr.com)

## LIEBHERR

LTC 1050-3.1E



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The crane is also HVO fuel ready, lowering CO2 emissions by up to 90 percent. The first five units are in the process of being shipped to the US based All Crane group. US crane sales and rental company Bigge is also adding the new crane to its fleet.

Liebherr USA's general sales manager Brian Peretin said: "Larger Rough Terrains have become a phenomenon in the past 10 to 15 years. They offer many of the same features of All Terrains, but with a smaller footprint, pick & carry capabilities and a smaller cash outlay."

### 100 TONNE GROVE

Other Rough Terrains unveiled at Bauma 2022 included the 100 tonne Grove GRT8100-1, an upgraded version of its GRT8100, with a new chassis and componentry, taken from the larger 120 tonne GRT8120. The new 100 tonner also has an updated engine and transmission pack and new wider cab, with the option of the manufacturer's MAXbase variable outrigger setup and monitoring. However, it retains the overall dimensions, counterweight and five section, 47 metre full power boom of the unit it replaces.

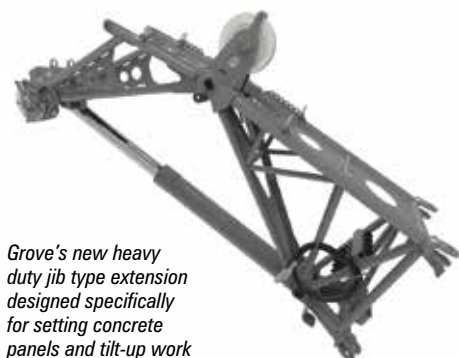
Late last year the first GRT800-1 to arrive in the UK was delivered to Scotland's port services group PSG Marine and Logistics, which took the full boom and extensions package. The company ordered the new crane at Vertical Days last year and will use it to support dockside logistical operations, supporting the marine, offshore oil, gas and wind energy sectors in the Scottish Highlands.

Steve Clark of PSG said: "We have run a Grove RT600E Rough Terrain crane for many years and it has delivered reliable and productive service. In particular, it offers great time savings with its pick & carry capabilities."

Grove, a pioneer of the swing cab Rough Terrain crane in the late 1960s, dominated the market in the 1980s and into the 1990s, but now has to share the market with more players than at any time in the Rough Terrain's history. It now offers a range of 12 GRT Rough Terrain models ranging from 30 to 150 tonnes.

### HEAVY DUTY LUFFING EXTENSION

Grove launched its first three axle RT - the 150 tonne GRT9165 - in 2018, aiming to go head to head with the 145 tonne Tadano GR-1600XL-2 and Link-Belt's RTC-80160 Series II cranes. The model has all the key features of the other cranes, with a slightly higher nominal capacity, a slightly longer main boom and, significantly longer boom extensions all in the same dimensional package.



Grove's new heavy duty jib type extension designed specifically for setting concrete panels and tilt-up work



Miron took the first heavy duty jib on its GRT9165 to set panels for a new high school in western Wisconsin

In late 2022 however, it introduced a new heavy duty jib type extension for the crane, designed specifically for setting concrete panels and tilt-up work. It was designed in collaboration with Wisconsin based contractor Miron Construction and local distributor American State Equipment. Miron had a backlog of this type of tilt-up work in the healthcare, warehousing, manufacturing and higher education sectors and has seen the size of concrete panels grow as demand has increased. Many panels now have an average overall width of 3.7 metres, while being 7.3 metres high with an all-up weight of up to 27 tonnes. The extension is also available as a retrofit for existing GRT9165s, as well as on new models.

The 3.8 metre long extension connects to the standard boom nose lugs and offers a maximum capacity of 31 tonnes. It offsets/luffs hydraulically from zero to 50 degrees and has a two sheave jib tip for reeving with up to four parts of line. It is designed to work with an auxiliary hoist in conjunction with the main boom to turn or tilt panels or other loads.

Miron took the first production unit on an existing GRT9165, using it to set panels for a new high school in western Wisconsin. The GRT9165 was configured with its full 27.8 tonnes of counterweight and working at a maximum tip height of 38 metres with a 15 metre radius and zero degree jib offset.

### TEREX ADDS TO TRT RANGE

When Terex sold its Demag crane business to Tadano in 2019, it surprised many crane people by continuing to build Rough Terrains at its plant in Italy. Last year it launched the new 65 tonne TRT 65, the fourth model in its TRT/RT line which has capacities ranging from 35 to 90 tonnes. The crane features a 43.5 metre five section synchronised boom, an eight to 15 metre bi-fold swingaway extension with up to 40 degrees of offset, and a maximum tip height of 61 metres. Rated at 2.5 metres it can handle 60 tonnes at three metres. Capacity on the fully extended main boom is 10.1 tonnes, and it can lift 400kg



Terex's 65 tonne TRT 65

at the maximum radius of 38 metres. An 'extra wide' tilting cab features a large, glazed area and improved comfort for the operator.

Power comes from a Cummins Stage V/Tier 4F diesel, driving a Powershift transmission with two function modes - manual with three forward and three reverse speeds or automatic with six speeds forward and three in reverse.

Stefania D'Apoli, senior sales support manager for RT cranes said: "This new crane is an ideal example of our TRT cranes, since it features the new generation of the Terex Operating System (TEOS), which displays its information on a 10 inch full colour touch screen display with an intuitive interface. New features include the possibility to have a camera embedded in the screen, enabling the operator to watch directly from the TEOS display."

The first TRT 65 was delivered to oil & gas, petrochemical and energy industries company Welding Duebi, which is based in Fiesso Umbertino, Italy, for work in a refinery.

Welding Duebi chief executive Nicola Barotti said: "Within our refinery, from which we have contracted out maintenance activities, it is necessary to have at least one crane capable of carrying out all required tasks reliably and efficiently, available 365 days a year. While we have more than 20 Terex cranes in our fleet, the TRT 65 is an ideal solution for our refinery, since



*The Terex TRT 65's tilting cab*

it can work in the most congested spaces and areas with a restricted environment."

The crane's operator Gabriele Colonna added: "The TRT 65 is ideal for our work, thanks to its four steering modes and tilting cab, I also like the 'anti-stall' control which allows us to precisely manage the power and speed of the crane and the EcoMode function, which uses the automatic engine throttle to optimise power during crane operation and even the 'stand-by' function which reduces noise and cuts fuel consumption."

**FIRST 55 TONNE XCMG**

While the market for RTs in China is small, several Chinese companies have had some success in the developing world such as Sany, XCMG and Zoomlion. Sany has an extensive range of models from the 30 tonne SRC300T to the 120 tonne SRC1200. XCMG unveiled its new 55 tonne XCMG XCR 55L5\_E at Bauma 2022. The first unit to arrive in Italy was delivered to international oil and gas drilling company Bonassisa Drilling of Foggia in Southern Italy, joining Bonassisa's four existing Rough Terrain cranes.

The XCR features a five section 43.6 metre main boom and can handle its rated capacity at a three metre radius and manage 11.1 tonnes on the full boom at a radius of nine metres. A 16 metre bi-fold swingaway extension - which offsets at 15 or 30 degrees - takes the maximum tip height to 62 metres. The overall width is three metres, transport length is 13.76 metres and overall weight 41.8 tonnes, split 50/50 between the two axles.

XCMG says the crane can be driven and operated equally with the boom over the front or rear and claims that it has the smallest turning circle for its capacity. The maximum travel speed is 40kph and maximum gradeability 70 percent. Features include a hydraulic torque driveline which XCMG says can reduce fuel consumption by 20 percent when driving at high speeds. An Eco energy saving mode also reduces fuel consumption by between five and nine percent during lifting operations.



*The first XCMG XCR 55L5\_E was delivered to Bonassisa Drilling (L-R) Rafael Romão and Jingwen Liang of XCMG, Angela Staniscia of TCT, Monica Bonassisa of Bonassisa Drilling, with Hu Yuan of XCMG and Gianluigi Ciarallo of TCM*



*Zoomlion launched its 50 tonne RTC500 which is built in Italy*

**NEW ZOOMLION 50 TONNER**

Zoomlion has been adding to its already extensive crane and access product lines, including its Rough Terrain crane line-up.

The company has also been on the acquisition trail, taking concrete pump manufacturer CIFA in 2008, Jost flat top tower cranes in 2011, Raxtar hoists in 2014 and Wilbert tower cranes in 2018. In the same year Zoomlion Europe based its Italian headquarters near Milan and in 2021 opened a 10,000 square metre production facility in Castiglione delle Stiviere, between Brescia and Verona in Northern Italy, specifically for local assembly, customisation, PDI and distribution of Zoomlion lifting products including All Terrain and Rough Terrain cranes.

At Bauma it launched the new 50 tonne RTC500 with a 37.1 metre, four section main boom. All major components are sourced from European manufacturers, including Hydreco cylinders, Stage V Cummins engines and ZF transmission, as well as the winches and cooling system.

Features of the RTC500 include a 20 degree tilting cab with large glazed area, a touchscreen display for crane and chassis functions, a screen for

winch and rear view cameras, a load sensing system which helps reduce fuel consumption, four slew speeds from slow to fast controlled from the joystick, and a road speed of up to 30kph.

With outriggers fully extended and 5.5 tonnes of counterweight the RTC500 can lift its maximum 50 tonnes at 2.5 metre radius or 13.5 tonnes at 19.8 metre radius and 3.3 tonnes on the fully extended main boom at 17 metre radius.

A fleet management system tracks location, performance, fuel consumption, service and error logging and is available on customisable dashboards and reports. Overall weight is 31 tonnes, overall length 11.32 metres, overall width is 2.52 metres and overall height 3.45 metres.

**LINK-BELT THREE AXLE RTS**

Link-Belt has a seven model Rough Terrain range including two, three axle models - the 120 tonne RTC-80130 Series II and the 145 tonne RTC-80160 Series II - which are the largest in the range. The smaller two axle RTs range from the 60 tonne RTC-8065 Series II to the 110 tonne 120IRT.

There are currently a couple of Link-Belt RTs working in Antarctica - including a three axle RTC-80130 - as part of United States Antarctic Program, run by the National Science Foundation's Office of Polar Programs with the aim to help improve communications. Because of its remoteness there are significant challenges, including the sole reliance on satellite communications. Currently, internet support at NSF's McMurdo Station is about the same as that of a rural single family home but shared among anywhere from 100 to 1,000 people. The RTs are on hand for general lifting duties. ■



*A Link-Belt RTC-80160*



*Sany has an extensive range of models from the 30 tonne SRC300T to the 120 tonne SRC1200*



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Tower Cranes