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| Max. Lifting Capacity | Boom         | Boom Extension | Max. Sheave Height | Max. Radius | Engine (superstructure) | Gear                           |
|-----------------------|--------------|----------------|--------------------|-------------|-------------------------|--------------------------------|
| 60 t                  | 9,5 m – 48 m | 1,7 m – 7,4 m  | 58,4 m             | 44 m        | 260 kW (354 HP)         | 6 x 4 x 6 (6 x 6 x 6 off-road) |



# Barrelling along

A quick way of gauging the economic prosperity of a country is by counting the number of tower cranes on the skyline of its major cities. In the same vein, the health of the Rough Terrain crane sector is dependent on the price of a barrel of oil, particularly as the biggest market is North America which accounts for two thirds of all RT sales outside of Japan.

A year ago Terex Cranes president Steve Filipov said the RT crane market was 'fairly flat with a few little blips' and that was when the price of a barrel of oil was around \$50. He thought the situation would change when the price increased to around \$65. A few months ago the price hit more than \$76 a barrel and has been more than \$65 since April. Unfortunately since that high there has been a steady decline with prices now hovering back around the \$52 mark.

With oil prices fluctuating wildly coupled with a period of global economic 'nervousness', sales of RTs have improved but are still nothing to get too excited about. One sector in North America that appears to be booming however is the petrochemical industry, reflected in crane rental companies such as Maxim Crane Works recently purchasing 15 large Tadano Rough Terrain cranes with capacities ranging from 90 to 145 tonnes. The order included a mix of 91 tonne GR-1000XLs, equipped with a 47 metre main boom plus 17.7 metre bi-fold

swingaway extension, 110 tonne GR-1200XLs with 56 metre main booms and 17.7 metre extensions and the 145 tonne GR-1600XLs with its 61 metre main boom and 18 metre bi-fold extension.

The new cranes are part of the company's plans to expand its fleet of 2,500 cranes to cope with increased demand from the petrochemical industry by choosing Rough Terrain cranes over comparable All Terrains. According to Maxim's chief operating officer Frank Bardonaro: "The next generation Tadano RTs have longer reaching booms and better load charts than many ATs, with the added bonus of the superior ability to work in close quarters."

"Rough terrain cranes can also be more cost effective because they only require one person to operate and often do not require multiple trucks for transport. This improved transportability is key to Maxim's investment in Rough Terrain cranes."

He added: "The petrochemical industry is booming, but this can change over time. As customer needs evolve, Rough Terrain cranes can easily be moved to other regions across the country for infrastructure and commercial industry projects."

## New models

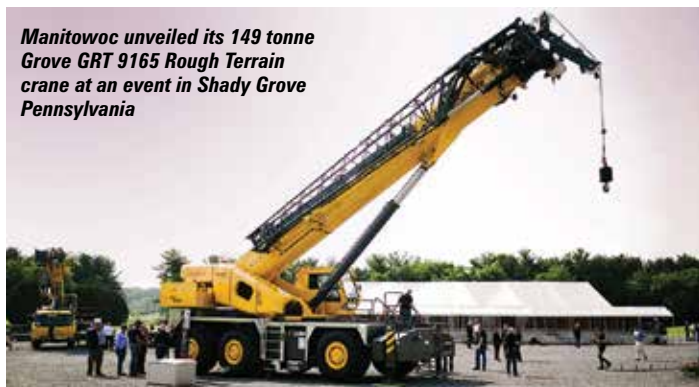
Over the past year Rough Terrain crane manufacturers have been relatively busy launching several new products including the 149 tonne Grove GRT 9165 and the 90 tonne Link-Belt 100RT.



C&A

RT cranes

Manitowoc unveiled its 149 tonne Grove GRT 9165 Rough Terrain crane at an event in Shady Grove Pennsylvania



Manitowoc unveiled its 149 tonne (165 US ton), three axle Grove GRT 9165 Rough Terrain crane at an event in Shady Grove Pennsylvania in June. The new crane has the longest reach and largest capacity of any Grove RT but is aimed at a very small sector of the market. It features a 62.5 metre six section, Twin-Lock pinned Megaform main boom plus a 17.8 metre bi-fold swingaway extension with either manual or hydraulic offsetting. It can be further extended with a single eight metre lattice section between boom nose and swingaway for a maximum tip height of 91.2 metres. The crane has three outrigger width settings with automatic outrigger sensing and monitoring. The new cab is 76mm wider than fitted to

other large Grove RTs and tilts by up to 20 degrees for a better view when using long booms etc. It also features an updated Crane Control System with a screen mounted in the centre of the steering wheel, with a larger screen mounted on a swing arm.

The GRT 9165 has been designed for easy transport with an overall stowed height of 3.8 metres and hydraulically removable counterweight and outrigger boxes which reduce the overall weight to 52.6 tonnes. The crane also uses a hydro gas suspension system and has two or four wheel drive and all axle steer. The steering modes link the rear two axles for co-ordinated steer, front only steering and a mode called tandem which is the

## How the new Grove GRT 9165 compares

| Manufacturer Model   | Grove GRT 9165       | Tadano GR-1600XL-2 | Link-Belt RTC80160 II |
|----------------------|----------------------|--------------------|-----------------------|
| Capacity @ radius    | 149t @ - not given   | 145t @ 2.4m        | 145t @ 2.1m           |
| Max boom length      | 62.5m                | 61.0m              | 59.5m                 |
| Swingaway ext        | 17.8m-50° offset     | 18m-40° offset     | 16.8m-45° offset      |
| Max tip height       | 91.1m                | 82.3m              | 94.8m                 |
| Outrigger widths     | Three widths - 8.48m | Four widths - 8.2m | Three widths - 7.9m   |
| Drive/steer          | 6x4x6                | 6x4x6              | 6x6x6 Hydrostatic     |
| Counterweight        | 25,765kg             | 29,300kg           | 26,700kg              |
| Overall length       | Not available        | 16.19m             | 15.37m                |
| Overall width        | Not available        | 3.31m              | 3.66m                 |
| Overall height       | 3.8m                 | 3.78m              | 3.8m                  |
| GVW working          | 88,000kg est         | 89,725kg           | 77,863kg              |
| GVW no cwt/outrigger | 52,600kg             | 51,183kg           | 50,497kg              |



Maxim Crane Works recently purchased 15 large Tadano Rough Terrain cranes including the 145 tonne GR-1600XL



The new GRT 9165 is said to be easy to transport on a beam trailer having an overall travel height of 4.23m.



Grove launched the new 149 tonne Grove GRT 9165 last summer

How the new Link-Belt 100RT compares

| Make Model                        | Liebherr LRT1090-2.1 | Grove GRT 8100 | Terex RT90   | Terex RT100 | Tadano GR1000XL | OLD Link-Belt 100RT | NEW Link-Belt 100RT |
|-----------------------------------|----------------------|----------------|--------------|-------------|-----------------|---------------------|---------------------|
| Max capacity                      | 90 tonnes            | 90 tonnes      | 86 tonnes    | 90 tonnes   | 90.7 tonnes     | 90 tonnes           | 90 tonnes           |
| Main boom                         | 47m                  | 47m            | 47m          | 53m         | 47m             | 50m                 | 47.2m               |
| Telescope                         | Full Power           | Full Power     | Full Power   | Dual mode   | Full Power      | Pinned              | Full Power          |
| Max tip height                    | 69.5m                | 72.9m          | 66m          | 70.5m       | 67m             | 79.8m               | 72.2m               |
| Gross working weight              | 52 tonnes            | 56 tonnes *    | 52.58 tonnes | 57 tonnes   | 51.6 tonnes     | 53.1 tonnes *       | 55.2 tonnes         |
| Transport weight no counterweight | 38.96 tonnes         | 43.8 tonnes    | 42.58 tonnes | 47 tonnes   | 41.7 tonnes     | 40 tonnes           | 42.1 tonnes         |
| Counterweight                     | 12,000kg             | 12,248kg *     | 10,000kg     | 10,000kg    | 10,000kg        | 13,200kg *          | 13,200kg            |
| Overall height                    | 3.84m                | 3.75m          | 3.99m        | 3.95m       | 3.8m            | 3.94m               | 3.91m               |
| Engine                            | Cummins T4           | Cummins T4     | Cummins T4F  | Cummins T4  | Mitsubishi      | Cummins             | Cummins Stage V /T4 |
| Tyres                             | 29.5 x 25            | 29.5 x 25      | 29.5 x 25    | 29.5 x 25   | 29.5 x 25       | 29.5 x 25           | 29.5 x 25           |

“The GRT9165’s longer reach will help lifters to bid for and complete more jobs with a single crane, increasing their capabilities,” said Paul Cutchall, product manager for Manitowoc RT cranes. “Rough Terrain cranes are often the first machine to roll onto the job site, so they have to be reliable. That’s why we

\* Optional heavy counterweight

equivalent of rear only steering. Despite unveiling the machine about six months ago a full set of specifications is still not available. However from information we have, the new machine compares well against the limited competition - the 145 tonne Tadano GR-1600XL-2 and the 145 tonne Link-Belt RTC80160 II. The new Grove has a slightly longer main boom and nominal capacity rating, but more importantly it puts the company firmly into the three

axle RT market. The Link-Belt is by far the lightest - by about 10 tonnes - when in working mode and also has the tallest maximum tip height. The Tadano has the longest swingaway extension, the heaviest counterweight and four outrigger extension widths rather than three. However on paper, the three are very evenly matched. The new crane will almost certainly raise interest and likely help expand a niche part of the market.

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**The new Link-Belt 100RT has a full power boom**

designed the GRT9165 to be the strongest, longest reaching, most cost-effective Rough Terrain crane we have ever assembled."

**Link-Belt's new full power 100RT**

Link Belt has recently launched its new 90 tonne 100RT Rough Terrain crane claiming it has the longest full power boom in its class. It is a hotly contested sector with all of the major manufacturers - Tadano, Grove, Terex and Liebherr - offering new competitive products over the past few years. Liebherr of course,

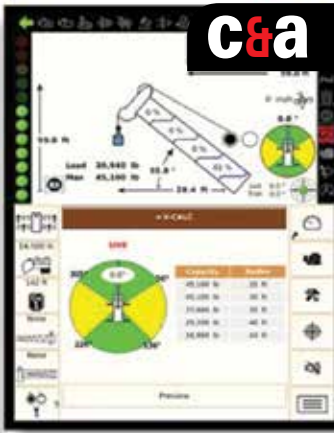


*The Link-Belt 100RT incorporates V-CALC (Variable Confined Area Lifting Capacities) which features 12 different outrigger configurations with real time 360 degree charts.*

entered the sector in 2017 with two models - a 90 and 100 tonner. Terex has also started deliveries of its new RT90 with full power boom.

The new Link-Belt 100RT features a 47.2 metre full power boom - rather than a 50 metre pinned main boom on the old model - and is topped by a 17.7 metre bi-fold swingaway extension with a new easy erecting system and offsets by two, 15, 30 or 45 degrees. A 4.9 metre lattice insert can be added to the extension to provide a maximum tip height of 72.2 metres.

The 100RT has an overall width of 3.2 metres and is just over 15.3 metres long. Overall height is slightly lower than the old model at 3.91 metres and overall weight of 55.2 tonnes including its removeable counterweight of 13 tonnes, almost two tonnes heavier



**C&A**

**RT cranes**

erecting and stowing the fly a one-man operation reducing work at height. Boom head speed screws and numbered spring loaded latches provide intuitive assembly. Given the natural elevation of a rough terrain crane boom, Link-Belt has simplified fly assembly with new ground level carrier controls. One control raises and lowers boom angle from zero to minus three degrees while another is used for the fly assist cylinder.

Easier maintenance includes reduced axle/suspension grease points, centralised electrical locations, remote mounted filters and easy-access fluid checks and a 24-volt electrical system makes running diagnostics quicker and easier. Deliveries of the 100RT will begin in the first quarter 2019.

**Italian production**

Outside of Japan and North America, Italy is probably the main producer of Rough Terrain cranes in Europe with both Terex and Grove producing machines in the country. In June this year, Terex Cranes celebrated 50 years manufacturing Rough Terrain cranes at its Italian facility at Crespellano located between Bologna and Modena in northern Italy (see story below).

During the summer, Grove competed the first 90 tonne GRT8100 to be manufactured outside of the USA. It was built at its Niella Tanaro facility to the south of Turin, Italy and then shipped to the Middle East. Up to this point most Grove Rough Terrain cranes - including all the larger versions - were built in Shady Grove, Pennsylvania.

The Niella Tanaro plant produced



*The 145 tonne Link-Belt RTC80160 II*



*The cab of the 100RT is the latest design from Link-Belt*



*Grove has completed the first 90 tonne GRT8100 to be manufactured outside of the USA - built at its Niella Tanaro facility in Italy*



its first Grove RT in 2005 and has manufactured smaller models for Europe and the Middle East including the RT530E-2, RT540E or RT550E. In addition to the GRT810 the plant will build the 80 tonne GRT880, which will also continue to be manufactured in Shady Grove. "We are confident that our customers in Europe, Africa, Middle East and Asia Pacific will benefit greatly from this decision," said Jens Ennen, VP mobile cranes in Europe and Africa. "Benefits will include shorter lead times, lower shipping costs and preferential import duties in certain countries that recognise the EUR1 certificate of origin, with the specifications and



Sany SRC8130

quality level being as high as the Rough Terrain cranes manufactured in Shady Grove."

This move to European production looks quite perceptive given the current US steel tariffs. One wonders if it might even be logical to ship the European-built cranes to North America, in particular Canada and Mexico, in order to avoid the punitive steel tariffs and other duties.



A Zoomlion RT100



Link-Belt 75RT



The Link-Belt 100RT during testing



Terex Cranes held an open day to celebrate the 50th anniversary of its facility in Crespellano, Italy.

**Terex celebrates 50 years at Crespellano**

Earlier this year Terex Cranes held an open day to celebrate the 50th anniversary of its facility in Crespellano. The plant was established by Elio Bendini in 1968 to build cranes, shipping the first Bendini - an eight tonne truck crane - the following year. The first Bendini Rough Terrain crane, the 16 tonne 1622 cab down model came off the line in 1971. The RI series from 12 to 22 tonnes followed soon after. The improved Delta series of cab downs with capacities from 12 to 25 tonnes began shipping 10 years later. The first Bendini swing cab RT - the RI/CT models - was introduced in 1975 with the popular Beta series coming in 1985.

In 1989 Bendini became part of the French All Terrain crane manufacturer PPM group which in turn was acquired by Terex in 1995 with Bendini changing its name to PPM SpA. Four years later there was another name change to Terex Italia Srl and in 2002 it became part of Terex Cranes. Average production in the early days was around 150

units however this was increased to more than 350 by 2007. Half of all sales went to western Europe - the Italian market taking 20 percent - and the remainder going mainly to the Middle East. In the mid 1990's the Beta and Delta cranes were replaced by A series models - A300 and A600 - which were based on the crane's capacity of 30 and 60 tonnes respectively.

"Terex was a company built on mergers and acquisitions purchasing about 75 companies and investing \$3 billion," said Terex Cranes president Steve Filipov. "Currently the company is in a rebuilding phase making changes to quality and reliability after losing \$30 million in 2016. The markets are improving but it is still very challenging. We have three crane businesses - mobiles, towers and utilities - with mobiles accounting for about 60 percent of revenues. In Europe we have three main facilities - Zweibrücken which produces mainly AT cranes and crawlers and possibly some new products, Crespellano for RTs and Fontanefreda for tower cranes for the global market. Finally in Brisbane



The full RT line-up at Crespellano



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*The first RT crane produced at the Crespellano facility which was established in 1968*

we produce pick and carry cranes. We have consolidated or closed a lot of factories, but this was needed to simplify the business."

Rough Terrain cranes are produced in Crespellano and Oklahoma but they are two very different products. However going forward we are looking at using common platforms, systems and hydraulics. We have to continue to drive a local product for the market but also have a global design so we can leverage the size of the business. Making a couple of hundred RTs a year we need to drive costs down.

"We have recently incorporated its IC 1 control system - precise and smooth control of swing

movements and gives operators access to real-time information for quick diagnostics in the field - in our new RT 90 which uses Demag technology but is being integrated into the US-built products. We own the technology and manage the volume so rather than fitting it to a few hundred AT cranes in Zweibrücken we are expanding its usage and fitting it on the Rough Terrain cranes built in Italy and the US. Several of the RT cranes are being updated to include Stage V/Tier 4F engines for next year including the Quadstar 1065 which becomes the Quadstar 1070 and the Quadstar 1075 and 1075L will become the 1080 and 1080L."



*Two Link-Belt RTs working on a basement foundation*

## Recent orders

### First Liebherr RTs

The first 100 tonne Liebherr LRT 1100-2.1 in Poland was recently delivered to crane and aerial lift rental company Dzwigi Mazowsze Marcin Zielonka. The crane features a five section 50 metre main boom, with 10.5 metre swingaway extension and the Variobase multi position outrigger set-up system. It is the first Rough Terrain crane in the company's fleet, which includes All Terrains up to 500 tonnes, and is earmarked for long term construction projects and applications involving extreme ground conditions.

In the Middle East, Dubai-based Al Faris Equipment Rentals has taken delivery of a 90 tonne LRT 1090-2.1 and a 100 tonne LRT 1100-2.1. The two axle LRT 1090-2.1 features a 47 metre main boom and a 10.5 to 19 metre bi-fold swingaway extension with up to 40 degrees of offset. The cranes will be used on medium and long term civil construction and mineral oil industry projects.

### Tadano GR-200EX for Australia

Australian rental and heavy lifting company Wildmans Cranes has taken delivery of a 20 tonne Tadano GR-200EX Rough Terrain crane. The GR-200EX features a 27.5 metre main boom and a 4.5 to 6.9 metre extension providing a maximum tip height of 35 metres. The crane can lift its maximum capacity at 2.5 metres, has an overall travel length of 8.31 metres and an overall width of 2.45 metres.

### Maxim's buying spree continues

Following its 15 large Tadano Rough Terrain order US-based rental company Maxim Crane Works has added eight 100 tonne Grove GRT8100s. The GRT8100 features a 47 metre main boom plus extension, which takes the maximum tip height to 73 metres.

### Four Terex RTs for Ecuador

Ecuadorian crane, heavy transport and rigging company Transportes Noroccidental has purchased four new 90 tonne Terex RT 100US Rough Terrain cranes. The company - which focuses largely on the petrochemical market - chose the cranes for its 47 metre, five section full power boom and the strength of its load chart compared to other similar sized units. The cranes join four other RTs in the Transportes Noroccidental fleet, all of which are deployed in its oil field operations.

### 34 Terex RTs for Italy

Italian crane rental and sales company Tecno-Gru ordered 34 Terex Rough Terrain cranes including three 35 tonne RT 35-1s, three 45 tonne RT 45s, 10 of the 45 tonne RT 45Ls, seven 65 tonne Quadstar 1065s, seven 75 tonne Quadstar 1075s, three 75 tonne Quadstar 1075Ls, and one 90 tonne RT 90.

### Groves for southern Italy

Italian rental company Officine Dandrea has taken delivery of two 45 tonne Grove RT550E Rough Terrain cranes, with two more on order. The crane features a five section, 39 metre main boom plus an eight metre swingaway extension which can be offset at zero, 20 or 40 degrees. The four cranes were purchased through Fimi, the Grove distributor for southern Italy.

## Road and bridge work for Link-Belt 75RT

Dallas, Texas-based concrete paving company Ed Bell Construction recently purchased a 70 tonne Link-Belt 75RT to handle the demands of larger, heavier lifts in modern road and bridge work.

The crane was immediately utilised on the \$30 million Interstate 20/Center Point Road Interchange project which includes new entry and exit slip roads and three new bridges, as well as redirection of three miles of two-way frontage roads for improved mobility and safety. The Link-Belt 75RT was used to lift bundles of rebar weighing 2.7 tonnes, large concrete form panels, concrete buckets and drainage culverts along both sides of Interstate 20. It was also used to place concrete finishers on the concrete bridge decks and new traffic barriers weighing more than 10 tonnes.



*The Link-Belt 75RT is used to lift bundles of rebar weighing 2.7 tonnes*



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