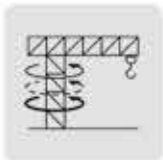


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The LT14.14RD-XP in road transport configuration



The Trailer Crane Company displayed the LT14.14RD at Plantworx in the UK

TRAILER BLAZING TOWERS

The use of self-erecting tower cranes varies enormously from country to country but does seem to be spreading. In the UK, where the concept is far from widely adopted, Robert Bird of Ladybird Cranes has been something of a pioneer. In his latest move he has started importing MiDi self-erectors from Spain, in particular the smaller models that can be easily towed to site. Nick Johnson reports.

Bird has formed a new subsidiary to market the cranes - the Trailer Crane Company - focusing on three LT models from the MiDi range, which, he says, complement the larger Potain self-erectors in the Ladybird Cranes rental fleet.

Manufactured by Euro Crane of Zaragoza, the small cranes have been marketed under the MiDi brand since 2008. The company was established by the Sarasa brothers in 1965 as Industrias Hersa in the La Quimica district of Zaragoza with the first 500kg crane launched in 1966.

"The launch has generated strong interest in the cranes from small builders, roofing contractors and solar panel installers who recognise the advantages of easy towability to site, fast erection and convenient up and over, direct load placement," says Bird.

Two models were displayed at the recent Plantworx exhibition, the LT14.14RD and the LT14.14RD-XP with outrigger footprints of 4.4 by 4.4 metres and 5.2 by 5.2 metres respectively. Both remote controlled cranes have a capacity of 1,500kg and can lift 350kg at the 14 metre maximum radius to a maximum height of 14.1 metres with the jib horizontal.

Carried on a special four wheeled trailer made by Iberica Remolques, the LT14.14RD-XP was exhibited behind a 4x4 Landrover 90, which is capable, but Bird recommends a slightly larger 4x4 vehicle such as a Ford Ranger or a Landrover 110 to provide the optimum towing performance.

For road transport, the LT14.14RD-XP weighs in at 3,500kg with its 540kg counterweight slab on board and ready to work. With its smaller outrigger base the LT14.14RD is towed with

600kg of counterweight, with up to two tonnes of additional ballast added to provide the crane's maximum load chart. The extra 400kg and 200kg slabs are installed with an onboard derrick attachment.

The fully erected LT14.14RDs outer jib section can be hinged back to provide a 650kg capacity at an 8.15 metre radius - the shorter jib can also be useful to combat oversailing issues.

With a power requirement of 230V, 50Hz, 16Amp and 4kVA, the LT14.14RD can luff its jib by up to 30 degrees and in this configuration 550kg can be taken out to eight metres and 415kg to its maximum of 12.1 metres with the maximum hook height of 20.8 metres.

The LT14.14RD has an informative OMRON touch display inside its control cabinet showing the counterweight installed, the selected jib configuration and the resulting load chart. The crane has an effective load moment indicator together with an array of limits and there is a remote diagnostics capability.

Once the outriggers are set and it is fully ballasted, the LT14.14RD takes only seven minutes to unfold and achieve its maximum height and outreach. Hydraulic outrigger jacks with automatic levelling are optional.

LOTS OF INTEREST

Bird reports that interest has been shown in the larger LT15.7 model which also lifts up to 1,500kg. This crane provides a greater hook height at 22 metres and can handle 510kg at a maximum radius of 17 metres. Towing weight remains 3,500kg.



Each crane comes complete with an OMRON touch display screen in the control cabinet



Robert Bird with the Autec remote control unit

To complement its MiDi cranes, the company offers a range of lightweight accessories from Kranmeister in Germany. They include a 630kg capacity tile clamp, a 500 litre tipping skip, 500kg brick forks and a two person lifting cage.

A builder has already expressed interest on using the LT14.14RD cranes for home extension projects. One of the cranes will be displayed at the Black Isle Show in Muir of Ord in early August in conjunction with a new Scottish dealer Caledonian Cranes of Inverurie. ■



The tower crane unloads materials from trucks parked in a compound at the bottom of the Castle Mound

CASTLE CRANE

A Jaso J160.10 tower crane is proving invaluable at Norwich Castle in the UK assisting with the recreation of the original Norman palace inside the ancient building's Keep. Nick Johnson reports.

Norwich, the county town of Norfolk, still has a skyline dominated by historic buildings including the imposing 22 metre medieval stone castle proudly sitting on top of its 18 metre high motte in the city centre. Having dominated the Norwich skyline for more than 900 years, the castle is undergoing work to recreate the layout of the royal palace originally created within the Keep by William the Conqueror's son Henry I in 1121 - with support from the National Lottery Heritage Fund amongst others.

Main contractor Morgan Sindall Construction is using a Jaso J160.10 saddle jib tower crane rented from local company Falcon Tower Crane Services, for work on the £14.9 million transformation of the building's historic heart - the Keep. Since 1894, the castle has been used as a museum and art gallery.

The challenges facing Morgan Sindall include limited access for materials and the constraints of working on the Grade 1 listed Keep and the Castle Mound - a Scheduled Ancient Monument - requiring an archaeologist to be present when any material is excavated.

As the access bridge to the Castle across the former moat has a seven tonne weight limit the contractor decided to install a tower crane so that delivery trucks could be unloaded from a 'Contractors compound' created at the bottom of the Mound. This also allows site vehicles to be kept separate from members of the public visiting the museum and galleries that remain open.

Special permission had to be obtained to construct the foundation for the crane. Then a small Klemm 702 CFA tracked piling rig - light enough to cross the bridge - installed nine 300mm diameter piles 20 metres down through the ancient Mound to support the four metre square tower crane foundation.

The Jaso J160.10 was erected by Falcon in October 2020 using a 300 tonne Grove GMK6300L from Bronzeshield Lifting.

The tower crane has a maximum hook height of 31.9 metres achieved using a combination of 1.7 metre square lower and 1.5 metre square upper sections. With some 275 tower cranes in its fleet, Falcon now marks all tower sections with a unique identification number and barcode, allowing it to track the location of its 3,000 sections and record their usage. The crane has a 45 metre jib with a jib tip capacity of 3,200kg, with five tonnes capacity at 30.7 metres.

The roof of the ancient Keep remains in place during reconstruction, keeping the building weatherproof. This means that a special ground floor entrance had to be hewn through the building's three metre thick wall to allow old materials to be removed and new materials - including the steelwork for the new internal floors - to be moved in.

The Jaso crane moves material to and from delivery trucks or builders' skips in the Contractors' compound on the south side of the site, with loads moved over a designated route to



The Jaso J160.10

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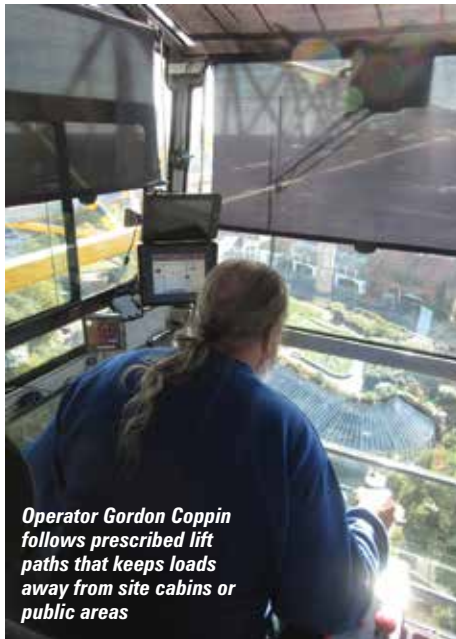


81 K.1

Max. hook height	40.40 m
Max. lifting capacity	6,000 kg
Max. radius	48.00 m
Lifting capacity at max. radius	1,350 kg



Contractor Morgan Sindall constructed a static base for the Jaso on top of the Mound beside the Keep



Operator Gordon Coppin follows prescribed lift paths that keeps loads away from site cabins or public areas



The exposed position of the tower crane means that accurate wind speed measurement is essential

an area outside the Northwest corner of the Keep close to the new entrance. Automatic zoning is not being used so it is down to Falcon's crane operator Gordon Coppin to follow prescribed lift paths.

Once new materials have been delivered by the crane to the North West entrance, they are wheeled into the building on trolleys. Internal assembly of the new steelwork by Croftons Engineering has been carried out with the aid of a five tonne Jekko SPX650 spider crane that was

narrow enough to pass through the new entrance. The exposed position of the tower crane means that accurate wind speed measurement is essential. Falcon uses Windcrane System made by Logic Energy of Kilmarnock in Scotland. Originally designed for use on wind farms, the system provides the operator with a live, in cab display of wind speed - with visual and audible alarms - and also remote transmission of wind speed data to the crane user and owner. The visual alarm warns of moderate wind speeds and

sounds when the maximum speed of 38mph is reached.

Wind speed information is recorded at 10 minute intervals throughout the day, and then used to compile weekly reports complete with a forecast for the coming week.

The Jaso crane is a far cry from the lifting devices that were used by the castle's original builders - probably a form of treadmill powered windlass crane. The project is scheduled for completion in time for next Easter. ■

OVER THE BRATISLAVA ROOFTOPS

When Liebherr dealer Kranimex was asked to install a 40 LC tower crane on a city centre site in the Slovakian capital Bratislava, the question was how? After much planning it selected a helicopter to lift transport crane sections.

The Liebherr 40 LC is now helping build new apartments in an up and coming area in central Bratislava. However, the project had no direct road access and the job would have required at least a 350 tonne All Terrain crane with full boom and extensions and would have necessitated the suspension of the tram service, including the removal of the overhead power lines. In collaboration with heavy haulage specialist Tech-Mont, using a helicopter proved the best solution.

HEAVY CRANE ELEMENTS

The challenging assembly took a total of two days using an MI-8T helicopter with a three tonne lifting capacity - the heaviest component was the 2,750kg slewing platform. The helicopter collected the tower sections, jib and counter jib, from a temporary storage location by the Danube and

flew them over the city's rooftops to the site -11 flights in total. Crane erectors from Kranimex carried out the installation.

NARROW TOWER SYSTEM

The Liebherr 40 LC has a 25 metre jib and a hook height of 30 metres with a four tonne maximum capacity, allowing it to reach all areas of the site, placing bricks and concrete. The crane's narrow 63 LC tower system, has external dimensions of 1.2 x 1.2 metres and is mounted on space saving foundation anchors. The 40 LC is scheduled to be on site until the end of the year, when it will be dismantled by helicopter and flown back over the rooftops of Bratislava. ■





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A SUB COMPACT OPERATOR HOIST

Chinese hoist manufacturer 3S Lift has launched a new low cost, ultra-compact tower crane operator hoist - the Tower Climber.

The new product is based on a well proven hoist used internally in wind turbine towers, of which more than 150,000 are in use across 61 countries, covered by 100 different certifications. The company used the JDL exhibition in Beaune, France for its European launch - France is one of the countries that requires an elevator for the operator on all but the lowest height tower cranes.

LIFT WITH A DIFFERENCE

The lift is unusual in that it is open with no sides or rear, and comprises two foot pads and two hand grips, all four need to be activated for the elevate and descend functions to work. The hand holds have triggers or buttons while the footpads detect weight. A sliding harness anchor point is also provided. The hoist can be installed within the tower, or even attached to the internal ladder. Upper and lower soft stop controls and buffer stops are included as is a mechanical overspeed lock on the rack and pinion lift system.

The rated capacity is 150kg, with a maximum lift speed of 18 metres a minute, equating to a two minute climb on a 40 metre tower. The hoist uses a lithium ion battery pack with enough capacity

for 40 round trips between charges. When the battery capacity reaches 15 percent it will only allow descents, enabling the operator to return to the ground. The battery pack can be charged in situ or swapped out for a full charged one. A remote control is also available.

The hoist has an IP65 waterproof rating and can operate in temperatures from minus 20 degrees Celsius to plus 55 degrees and in wind speeds of up to 13 metres a second. The hoist is fully CE certified and available now.

In conclusion: The Tower Climber is easy to use and very well engineered and is certainly not less bulky than anything else we have seen. It is also a good deal safer than a ladder, especially the continuous vertical ones that still exist in some places. It is definitely worth a look. ■



POWER EFFICIENCY

When UK tower crane sales and rental company Bennetts Cranes was challenged to supply a tower crane to lift and place concrete frames on a congested urban redevelopment project in Slough with oversailing and space restrictions, it selected a six tonne Jost JTL 108 hydraulic luffing jib model.

The project aims to revitalise an underutilised area by building new residential properties. Managed by Feltham Construction, the crane addresses the risks of oversailing and collisions common in high density urban sites and as it does not need a generator makes it more environmentally friendly and quieter.

"The Jost JTL 108 excels in energy efficiency requiring only a 50kVA mains power supply," said Edward Seager, managing director, Bennetts Cranes. "With inverters on all three motors, it achieves a power surge just 20 percent higher than the running current. This innovative design makes it ideal for city centre sites as it reduces power consumption, eliminates the need for a separate generator and offers cost savings, environmental benefits and quieter operation."

The crane's compact design requires a relatively small 24 metre tower. At this size, the tower can be transported to and from the site truck, reducing costs, minimising disruption and emissions.

The crane is needed to lift concrete frames and concrete skips filled with reinforced steel bar, bricks, blocks, plasterboard and other general building materials. And with a minimal out of service radius of 9.6 metres it covers all corners of the site while minimising the risk of oversailing neighbouring properties. ■



*The efficient
Jost JTL 108*



BENCHMARK ON 7 AXLES.

THE AC 7.450-1

The Tadano AC 7.450-1 is in a class of its own: With a carrier length of 15.99 m and an outrigger base of 8.45 m, it is as compact as a six-axle crane, and yet is as powerful as some eight-axle cranes. In fact, the AC 7.450-1 can reach lifting capacities of up to 23.7 tonnes when its 80 m main boom is fully extended, and that is without even using the SSL system. Bring in SSL, and the lifting capacity goes up to an unbeatable 37.3 tonnes. In addition, Tadano is using a new Sideways Superlift design for the first time ever in the AC 7.450-1 – one that makes handling and setup easier. The system can be extended with an 81 m luffing jib, and the sections of this jib can also be used to assemble fixed extensions.



The Vortex simulator provides very realistic tower crane training using stunning graphics

WOLFF BOOSTS CITB TRAINING

Ever since the UK's Construction Industry Training Board (CITB) opened its training centre in 1964 on an old airfield at Bircham Newton in Norfolk, tower crane courses have featured prominently. Numerous equipment updates have been a necessary fact over the last 57 years. Nick Johnson reports from Bircham Newton where a new tower crane and simulators are helping meet the high demand for operator training.

The first tower cranes to appear on the skyline over Bircham Newton were two Babcock Weitz machines. Subsequently Liebherr, Potain, Terex Comedil and Ramondi cranes have been used for training over the years and the latest addition is a Wolff 6023.8 flat top. The new crane has a maximum height under hook of 31.5 metres with a 40 metre jib with jib tip capacity of 5.2 tonnes and includes an HBC Radiomatic radio remote control unit.

The new crane joins three others at what is now called the National Construction College. The older cranes being a Liebherr 132EC-H saddle jib, a Terex Comedil CTL140 luffer and a Potain Igo 18 self-erector. As part of the CITB's desire to provide trainees with the latest generation machinery, plans are underway to replace the luffer and the self-erector.

The arrival of the new Wolff came as demand for tower crane training is increasing. While the college is geared up to provide tower crane operator training for both adults and apprentices the current focus is on adult training courses, while a discussion on the future structure of the Tower Crane Operation Apprenticeship scheme and format of its end-point assessment continues.

The adult courses include those for operators with no formal training and those requiring refresher training. The nine day DCW03 course for standard top slewing cranes - including both saddle and luffing jib machines leads to a CPCS Red Trained operator card. The college also offers the five day DCW60 course for Pedestrian Operated Tower Cranes, with the Potain Igo 18 used for practicals.

VORTEX SIMULATORS

The college runs a total of 12 high tech simulators, six of which are Vortex simulators from CM Labs in Canada with a very realistic tower crane simulation programme, which can be set to replicate tower cranes with under hook heights of up to 70 metres. The displays include a realistic load moment indicator with a wide range of training scenarios available, from unloading trailers to lifting steelwork, skipping concrete, placing concrete panels and carrying out blind lifts using radio commands from a signaller.

A separate instructor's console allows lift conditions and complexity to be dramatically and suddenly changed. Wind speeds and gusts can be increased, visibility reduced (by the introduction of shadows, low light, fog, rain or snow) along with a range of common distractions such as a mobile phone ringing and the sound of an emergency vehicle siren. The instructor can also 'glue' a load to the ground to see if the trainee is monitoring their LMI screen.

CITB senior instructor (programme manager) John Aiken says the simulators are invaluable and are used at the start of each course, while allowing training to continue should the real cranes be 'winded off'. They also enable a trainee who is struggling to 'catch the swing' to master this essential skill from the comfort and safety of the simulator seat.

The college has also considered operator rescues at height from the cabs of its tower cranes. With the nearest Norfolk Fire Service aerial ladder platform, a 27 metre Bronto located 15 miles away in Kings Lynn, the College has acquired



The new 6023.8 has this HBC Radiomatic radio remote control unit



The Wolff provides trainees with the latest high tech operating experience



The CITB's new JLG 1200SJP can be deployed for a tower crane operator rescue should the need arise

its own high reach rescue solution, a new 120ft JLG 1200SJP boom lift. With a working height of 38.73 metres, it can be quickly deployed for a tower crane operator rescue. The rest of the time it forms part of the aerial lift operator training fleet. ■

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