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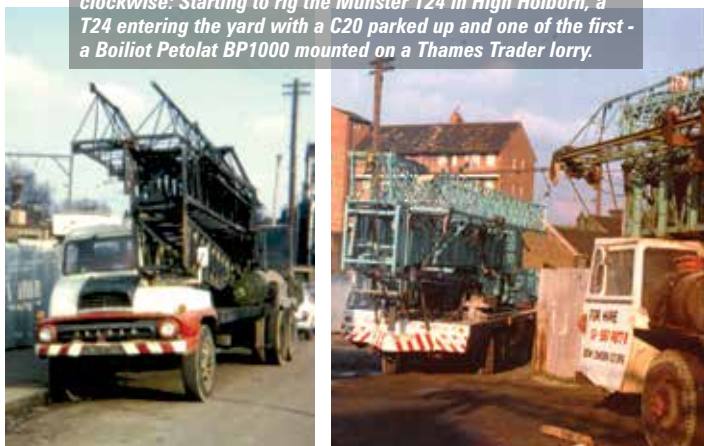
The first three *Cranes & Access* issues this year include features on mobile self-erecting tower cranes (January), tower cranes (this issue) and All Terrain cranes in the March issue. Unusually, one company has a sizeable fleet in all three of these usually disparate sectors. London-based City Lifting has the UK's largest fleet of mobile self-erecting tower cranes, more than 100 tower cranes and 35 All Terrains - as well as numerous spider cranes. Mark Darwin chatted with founder, managing director and self-confessed crane 'anorak' Trevor Jepson about the recent growth and changes in the company.

City Lifting's history has already been covered in the September 2007 issue of *Cranes & Access* following the delivery of its first seven axle Spierings SK 2400-AT7 mobile tower crane - which is still working in the fleet - and the first Unic 706 mini crane in the UK. However, it is its growth over the past five years that has been particularly exciting.

A brief history re-cap saw the company start in the early 1980s when Jepson left the family business started by his father and purchased two Potain tower cranes, operating one and renting out the other. The two cranes expanded to four and he also started working with other crane companies gaining a good reputation as a fitter/repairer. These services were offered on an



The early days of mobile tower cranes with Jepson's father's company LMTC (Lorry Mounted Tower Cranes). Top and clockwise: Starting to rig the Munster T24 in High Holborn, a T24 entering the yard with a C20 parked up and one of the first - a Boillot Petolat BP1000 mounted on a Thames Trader lorry.



C&A

tower cranes



City Lifting is Comansa's UK flat top tower crane distributor



Working at the Tower of London

increasing basis in the early years and the company grew rapidly so that by the start of 1991 it had a fleet of 23 cranes, all Potain. The company continued to expand adding its first Spierings mobile self-erectors around 10 years later. It also became the Comansa tower crane dealer in the UK offering its full range of flat-top cranes for sale and rental and works with Artic Crane in Sweden having helped with the development of the Raptor range of articulating tower cranes. City Lifting has a small fleet of Unic and Maeda spider cranes and a sizeable All Terrain fleet with capacities up to the new 400 tonne Grove GMK6400. Today it employs around 120 at expanded offices on its Purfleet site, on the north side of the Thames in East London. Although it has another yard a couple of miles away - as overflow for Purfleet with the smaller mobile cranes running from there - and another depot in Mundon for its tower cranes, its head office is once again bursting at the seams and Jepson is constantly on the look-out for the right plot of land to ease the situation. The problem gets worse every week that goes by as he expands the fleet. "We have made our purchases for this year but will be looking to order more cranes for 2017 later in the year," says Jepson, "including three Artic Raptors, two Wolff luffers and

two Comansa flat-tops."

It also has four more Spierings cranes on order - two of the new SK 597-SK4s as well as a new six axle crane and an almost new, 2014 five axle unit. Delivery dates had been delayed as Spierings - along with many other major manufacturers - is having problems adapting the machines for Euro IV, which requires radical changes to fit the new larger and heavier engines and much larger exhaust systems. The SK 597's also have steel mats with a placing crane built in so the driver can place the steel mats without assistance.

Other new deliveries include a 160 tonne Liebherr for this month, along with a 40 tonner and a new 50 tonne LTC 1050 City type crane. The reason for Liebherr to change from the previous LTC 1045 (City Lifting has three) is again trying to fit Euro IV engines which needed a major change of the chassis to accommodate this.

Current fleet

Relatively recent additions to the All Terrain fleet include two Groves - a 300 tonner purchased 18 months ago and another UK first, the 400 tonne GMK6400, added last September. These are the largest units in its fleet of 35 All Terrains, not including the 16 Spierings mobile tower cranes which will increase to 18 at the end of March.

It is also expanding its mini crawler numbers with the fleet now predominantly Maeda.

"Kranlyft - the Maeda dealer in the UK - is more set up for supplying parts and looking after rental customers," says Jepson. "Also we have an old Maeda 305 - one of the first in the UK - which after a good clean and T-cut looks like new and is out working without a problem. All the Maeda machines are very reliable and parts are easy to obtain."

City Lifting was one of the first companies to take one of the new Maeda MK 1033 knuckle boom cranes. The new six tonner due to be launched at Bauma next month is also attracting Jepson's interest. All the spider cranes are stored under cover alongside the tower cranes in Mundon, Essex, as there is so no space for them at head office.

The company has a varied fleet of more than 100 tower cranes including 10 Wolff luffers - five 100 Bs and five 166 Bs - 11, two tonne at 32 metre Artic Raptor type 84 - which have a four metre out of service radius - with two more on order, Raimondi LR60's, self-erectors (mainly Potain) and also Liebherr telescopic 32TTs, one of which is crawler mounted.

"We have one Comedil bought a few years ago when we couldn't get a Comansa because of delivery problems but the majority of the tower crane fleet is made up of Comansa flat-tops as well as some older BKT cranes which are still a good crane. However, some need a lot of money spending on them, and it is easier to buy a new Comansa instead."

Purchase planning problems

"The problem with the crane business is it is very hard to

plan major purchases with any certainty," he says. "Due to the manufacturers' six to 12 month lead times, the general uncertainty in predicting what the state of the UK economy will be at that time, coupled with a fluctuating workload. All in all, it is a bit of a gamble when you are spending millions of pounds. And once you have decided to purchase a crane or two you don't know how much it will cost when delivered thanks to currency fluctuations. I always pay for the machine at the Sterling exchange rate when I get the crane, which is a gamble. Up to now I have been lucky with this approach but I think my luck may have run out due to the uncertainty the referendum is creating."

Just manoeuvring a fleet of more than 150 cranes keeping them busy is a nightmare in itself.

"We took delivery at the beginning of January of two new Comansa flat-tops for a contract that should have started straight away. That job has now gone back to the end of March," he said. "This is another problem with tower cranes, if you are a week late on a contract the customer goes berserk, however if they delay then we cannot use the cranes elsewhere as the original job still has to be done, especially if the bases are designed and poured. Most of the expansion of the tower crane fleet has been due to other contractors not releasing cranes due to contracts over running which are promised elsewhere."

"With the mobile cranes we have days where we don't have enough cranes and other days when only half go out - it is an absolute planning nightmare. Add to that the day could be all contract lifts needing a minimum of three men per crane, transport for all the mats



(L-R) Jerry Welford, Manitowoc UK sales manager, with Trevor and Clare Jepson of City Lifting taking delivery of the first GMK6400 in the UK



and ancillaries, method statements in place, traffic management, road closures and all the right security passes or specialised training for where the job is."

"The next day could be predominantly CPA hires with one man per crane and everyone and everything else in the yard. Add to that this year so far has had more than enough storms and windy days. Our office staff are superb and keep on top of this ever changing demand."

Recent growth

The company has expanded enormously over the past five years after overcoming a problem with the head office mortgage during the financial crisis, when banks were trying to reduce exposure and squeezing companies with solid assets such as City Lifting.

"Once we sorted out the problem it wasn't a conscious decision to grow but if we needed a crane on a regular basis then we would buy another. The two criteria for purchasing a machine is having a specific job and whether the rates are viable?"

Until a few years ago Jepson preferred Terex All Terrains, and it was not until 2012 that he purchased his first Liebherr - an LTC 1045. Since then he has added two more, with a new LTC 1050 on order. He is also expecting a 160 tonner - a cancelled order and available at short notice - and looking to add one of the new 100 tonne, 2.55 metre wide Grove GMK4100.



An Artic Raptor articulated tower crane



City Lifting's 300 tonne Grove GMK6300L



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City Lifting has the UK's largest fleet of Spierings mobile tower cranes

Large yard investment

City Lifting has invested a good deal of money in its head office facility, but it puts the company in the heart of London with about 80 percent of its work within the M25 orbital motorway. "There is more than enough work in London," says Jepson. "We try to specialise such as carrying out lifts for glass installation and air conditioning unit replacement. We will also look at erecting steel work, but only the more difficult lifts on restricted sites."

For glass work it has a few Böcker aluminium boom truck cranes as well as the spider cranes and the Spierings. "We need to keep the fleet relatively new with the latest Euro engines for working in London's Low Emission Zone as the exemption may be removed at any time. The larger contractors already enforce it unless they cannot get a crane. The 10 year rule on tower cranes has also gone out of the window because of the shortage of cranes. When it goes quiet it will be enforced again. All this rule achieves is to force people to buy cheap tower cranes. Why buy a quality crane that may last 30 years if it cannot be used after it is 10?"

"Some sites force us to fit huge aviation lights to the towers and jibs even when the surrounding buildings are higher! They are so risk averse since the Vauxhall helicopter crash and demand 2000 candella lights even though a conversation with the local airports would probably let them know they are not required. The crane at Vauxhall needed the lights and was notified as an obstruction. These lights are of no use in daylight or fog."

Tower crane sector

The UK tower crane market is largely a rental one, so sales of its Comansa flat-tops are slow. When they do buy most companies tend to look for the cheapest, according to Jepson. "Comansa is a very good flat-top crane, at a good price, it is reliable, does the job and is easy to operate. We went with Comansa for flat tops as Wolff was too expensive, however the Wolff 166B luffer is ideal in London. It has a 12 tonne capacity and a reasonable jib length. The 166B can last 30 years and can do twice as many lifts in a day with many more safety features and with a lot of structural strength in reserve both for working and for out of service conditions

in the extreme winds we now get from time to time. Not all customers appreciate this and still only want 'cheap'. The tower market at the moment is crazy but the future is totally uncertain, particularly with the 10 year rule hanging over everyone."

New 184 Raptor

The new eight tonne capacity Raptor 184 - which can lift four tonnes at 36 metres - is progressing well and hopefully will be seen at Vertical Days in June. City Lifting is buying Raptor cranes as fast as Artic Crane can make them - about two or three a year - so at this point it has total exclusivity. The design of the Raptor 184 includes several new ideas and some of these may be added to the Raptor 84 making it a little less costly to manufacture. Jepson also wants to show a new tower crane rescue system at Vertical Days.

Tower crane operator rescue

"At the moment there is no ideal solution to rescue an operator that has been taken ill in the cab. I think the manufacturers could offer a solution but no one wants to pay for it. The system designed with Artic involves a stretcher on the same level as the cab allowing two people to get the operator out the cab then using a hoist arrangement lift the stretcher over the side and lower it to the ground. It is not difficult but no one has done it yet. Tower crane elevators are a good idea as it will help prevent the operator having a heart attack in the first place, but they are not ideal for working in the UK - and again who is going to pay for them?"

"The best hoists/elevators are the ones on the inside of the tower such as Potain and Liebherr, easy to erect, as they are inbuilt. We have talked about doing an internal with a Raptor but this may be too much with so many other things happening."

Fire starter

Over the past few years City Lifting has had more than its fair share of crane fires and as a result has fitted engine and gearbox anti-suppression systems on all its mobile cranes. Unfortunately since fitting these systems it has suffered another crane fire caused by a wheel bearing on a Spierings.

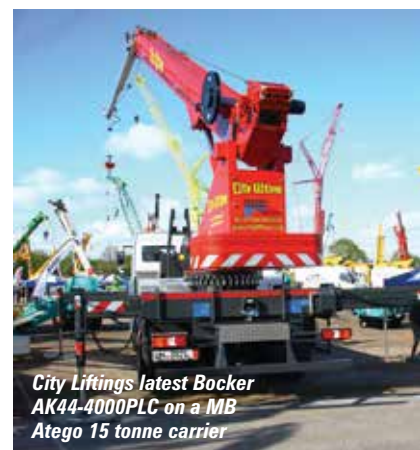
"The problem is when a wheel bearing suddenly collapses and the



City Lifting has more Artic Raptors on order

drum runs on the bottom shoe, the heat build-up even over a kilometre or two, results in a fire and the driver is unaware of it. Spierings now fits disc brakes which will eliminate the problem and are a lot easier to maintain. Fire suppression systems are expensive to install and have to be maintained every six months. They can be transferred from older to new cranes but again the costs are enormous."

"Time will tell how the Euro IV technology fares with engines and exhausts running much hotter and less room around the engines." The expansion of the company over the past five years or so has been spectacular. Further growth looks dependent on finding another location and in London that is almost impossible and hugely expensive. Until then City Lifting will continue to grow adding cranes where needed and hope that through careful planning and a buoyant London economy they will be constantly out working.



City Lifting's latest Bocker AK44-4000PLC on a MB Atego 15 tonne carrier

Cadiz bay bridge

Two 18 tonne capacity Linden Comansa 21LC400s have been working for eight years on the construction of the cable-stayed Bridge of the Constitution of 1812 - nicknamed 'La Pepa', which connects Cadiz with Puerto Real. The 3,092 metre long structure - one of Spain's largest infrastructure projects in recent years, adds a third route out of the city. The bridge has two, 185 metre high main pylons with a 540 metre main road deck span 69 metres above sea level.

The tower cranes, owned by construction company Dragados, are positioned on the two main pylons, one located on the edge of the bay at Puerto Real and the other in the middle of the bay. A team from rental company Eleva Grúas Torre de Seville, has been in charge of erecting and dismantling the cranes, as well as maintaining them.

"The two cranes reached a height of 195.6 metres. Strong winds are very common in the Bay of Cadiz which has hampered many tasks carried out by our team," said Tomás Criado, manager of Eleva Grúas Torre.

Erecting the two cranes was a challenge, especially the one in the middle of the bay which needed a barge-mounted mobile crane to assemble it up to its 14.2 metre minimum height, when the hydraulic climbing frame could be installed.

The crane was then climbed to a freestanding height 69.2

metres, using a further 10 tower sections. It then began work on the construction of the pylon, tying in and climbing as it progressed, until it reached a height of almost 200 metres. The crane needed just four ties to the pylon to reach full height. The work included lifting all the pylons' steel and concrete, followed by the cables that supported the bridge deck.

A change in the design of the metal anchors that attach the cables to the pylons - increased their weight from 18 to 23 tonnes - forcing Linden Comansa's engineering team to find a last minute solution to lift them into place. A large mobile crane was used to place the anchors on the on-shore pylon. For the middle pylon, the crane's sheaves, trolley/hook set, hoisting cable and counterweights were all beefed-up to handle the heavier weight.

As the bridge reached completion last year, the mid-bay crane was removed, its top pylon tie weighed 10 tonnes and was 23 metres long, so lifting it down was a major issue. The tower crane was assisted by a loader crane installed on the top of the pylon for maintenance duties. After the tower crane had been jacked down closer to the top of the pylon, the maintenance crane removed three sections from the 50 metre jib, reducing it to 20 metres, as well as some of the counterweight. These were stowed on top of the pylon, so that the tower crane with its shorter jib could lower them to the deck. In this configuration it was also able to manage the other three ties itself as it climbed down.

The inland tower crane was positioned further away from the pylon, preventing the maintenance crane from assisting, so Linden Comansa conceived a device to self-remove two jib sections taking it down to 30 metres. The loader crane was then able reach the last section reducing it to 20 metres at



Total length of 'La Pepa' is 3,092 metres and is one of Spain's largest infrastructure projects in recent years



The bridge connects Cadiz with Puerto Real

which the tower crane was able to remove the top two ties, leaving the two lowest to a mobile crane.

Rodrigo García, head of Eleva Gruas Torre's erection team said: "The removal of both cranes was complicated, but was done very efficiently. We jacked down and dismantled the middle crane in just 21 days, when 30 had been scheduled. The 21LC400 located inland took just 17 days, even though several days of bad weather hindered our work."



The two main bridge pylons are 185 metres high



Removing the tower cranes was a tricky operation.



The bridge deck is 69 metres above sea level



The 18 tonne Linden Comansa 21LC400s reached heights of almost 200 metres

A Liebherr 85 EC-B 5 FR.tronic tower crane has been erected on the 225 metre high elevator test tower in Rottweil, Germany with the aid of a 265 metre hook height 280 EC-H 12 Litronic. Both cranes will cover all materials handling on the site. The tower will be Baden-Württemberg's tallest structure and cost around €40 million. It will feature 12 shafts for testing elevators, including the first cable-less elevator in the world said to significantly increase personnel transport capacity. The elevator tower will also have a visitor platform open to the public - the highest in Germany.

The two tower cranes are currently working on the interior fittings, the facade and the surrounding construction work. The 280 EC-H 12 was working during the carcass phase and climbed to a final hook height of 265 metres as the elevator test tower grew. The 85 EC-B 5 flat-top was erected on the top of the building for the interior fittings work.

Using Micromove fine positioning mode, the 280 EC-H 12 was able to position the crane components for the 85 EC-B 5 at an altitude of 225 metres, bolted to a specially designed and manufactured steel structure, the crane is rigged with a special 12.5 metre short jib providing a 4.2 tonne capacity and allowing both cranes to work without hindering each other.

Liebherr tower cranes solutions project manager Michael Weiss Schädel said: "This steel structure had to be permanently connected to the building, assembled with millimetre precision and be sturdy enough to ensure the stability of the crane at this altitude. The base tower section is directly secured to the steel structure, allowing the use of standard Liebherr tower sections."



Two Liebherr tower cranes working on the construction of the elevator test tower in Rottweil



The Liebherr 280 EC-H 12 Litronic and 85 EC-B 5 FR.tronic cranes at work



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Six Potain tower cranes are helping with the construction of one of the world's largest experimental nuclear fusion reactors in the South of France. The €300 million ITER fusion reactor - built from stainless steel sections with thicknesses ranging from 50 to 250mm - will house the operation Tokamak complex where the nuclear power will be generated. The seven storey concrete building will be 120 metres long by 80 metres wide and will use 16,000 tonnes of rebar, 150,000 cubic metres of concrete and 7,500 tonnes of steel. The project is designed to demonstrate the large-scale production of electrical power and the self-sufficiency of tritium fuel.

The six tower cranes working on the project include two topless cranes - an MDT 308 and an MDT 368 - and four traditional top-slewing tower cranes, the MD 610 M40, MD 485 B, MD 560 B and MD 175. The cranes were supplied new to Dodin Campenon Bernard - a subsidiary of Vinci Construction - which is managing all lifting work on site.

Overall construction management is being handled by the VFR Group, a consortium made up of Vinci, Ferrovial and Razel Bec.

The structure's design and the complex construction process meant that a range of crane capacities were required. Pascal Ducrot, director of Manitowoc's lift solutions division said: "Building an experimental facility, the contractor wanted to minimise the amount of unknown factors on the project, so it was important that the cranes had proven capabilities in real world situations."

The cranes were delivered at the end of 2014 and are expected to be on the contract for at least five years. Because of the complexity of the project, erection of the cranes took six months to complete.

The Potain cranes are currently working long shifts, handling the assembly of more than a million components fabricated by suppliers from all over the world. The cranes have capacities up to 40 tonnes and jib lengths of up to 60 metres, working at heights to 81 metres.



Six Potain cranes - two topless and four traditional top slewers - are helping construct the €300 million ITER fusion reactor in the South of France.



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Boa Vista in Hamburg

Two Terex flat top tower cranes, a CTT 91-5 and CTT 161A-8 helped build the new seven storey Boa Vista office building in Hamburg, Germany.

The cranes, supplied and erected by sales and rental company Proschwitz, took three erectors a day each to erect, helping keep the necessary road closures to a minimum. The 3.3 tonne CTT 91-5 was mounted on a free-standing C38 cruciform base had a hook height of 40.8 metres and a 30 metre jib. The eight tonne CTT 161A-8 was installed on cast-in anchor bolts, had a hook height of 49.5 metres, and a jib length of 40 metres at which it could handle loads of up to 4.15 tonnes.

Construction manager Robert Friske of main contractor Köster said: "The high-pressure deadlines normally involved in this type of project mean that we can't afford any downtime, so dependable machinery is crucial if the job is to be completed on time."

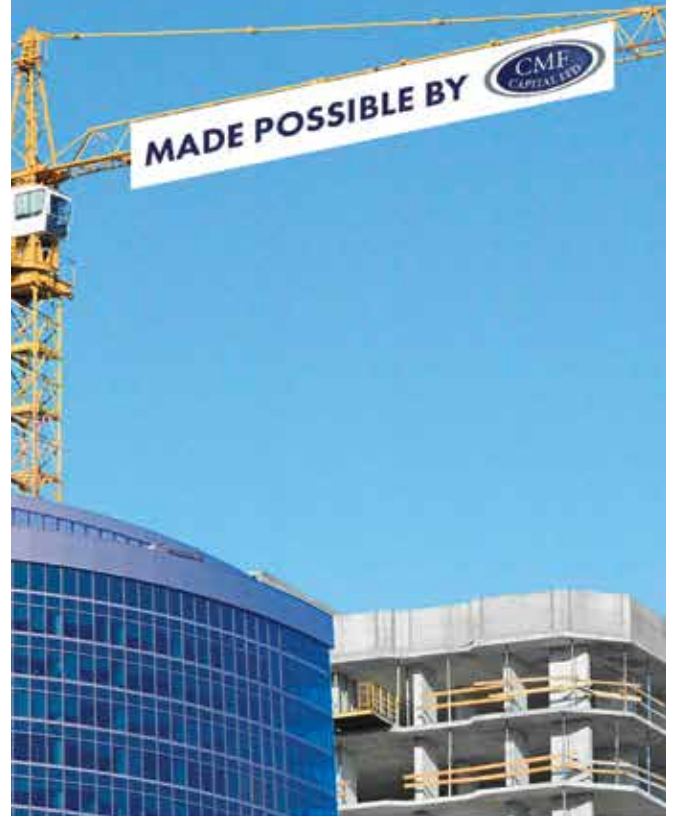


Two Terex flat-top cranes are helping build the new seven storey Boa Vista office block in Hamburg, Germany.



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