

Potain: Maximum productivity, minimum footprint



By choice or default?

Will the self erecting tower crane ever truly rival the telehandler as the preferred equipment choice on the small to medium build or is it being overtaken by the City tower crane? Mark Darwin attempts to answer these questions and more as he reviews the self erecting tower crane market.

Visiting construction sites over the last 25 years, I have always been intrigued as to why the UK has never adopted the self erecting tower crane (SETC) the preferred choice on smaller developments elsewhere in Europe. I know that the UK construction industry dislikes change and is wary of 'new-fangled' ideas, but here is an item of equipment that for many contracts offers increased speed and safety and is environmentally friendly.

The first self erectors arrived in the UK around 50 years ago and more recently have become a more familiar site. In fact over the last few years, their presence has grown significantly, albeit from a small base. There are however now two other items of equipment - the telehandler and the small City crane - that may slow further significant progress. Over the past decade or so the telehandler has elbowed its way past the backhoe

loader as the 'must have' item of site equipment helped by the mass adoption of palletised loads.

For some though, the safety and visibility aspect of placing packs of bricks at the upper limit of a 20-30 metre telehandler is a little scary.

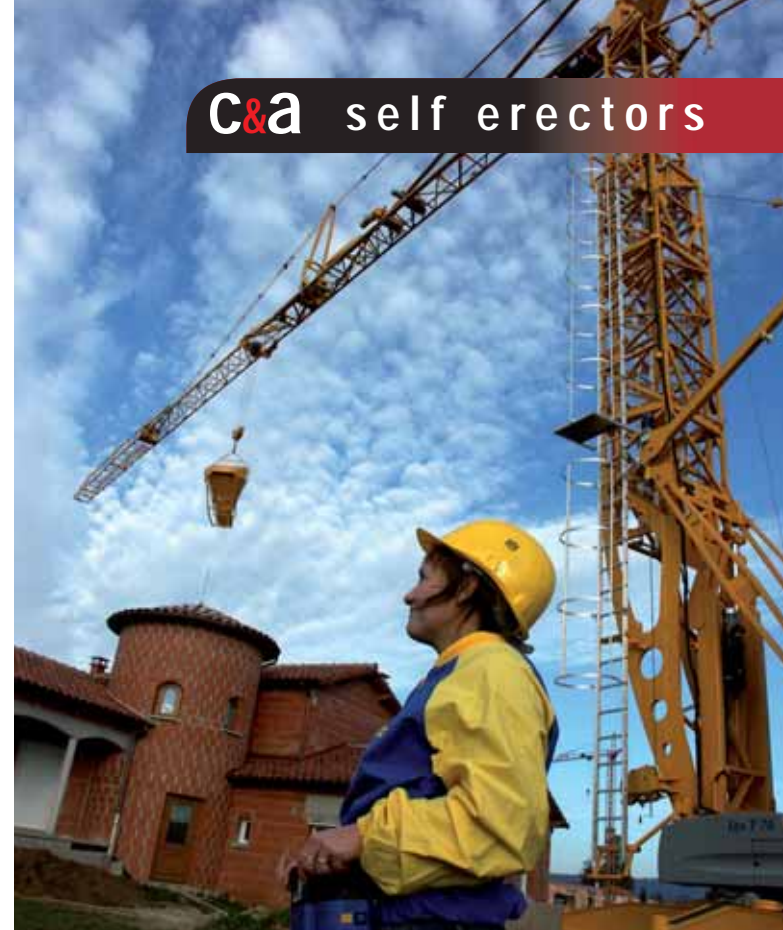
"I am not going to condemn telehandlers but when working two

Another tight situation for a self erector



storeys and above there are more economical ways of doing things," says Seamus McMenemy, chief executive of Irish manufacturer Mantis Cranes. "Self erectors have numerous unrecognised benefits and on the right sites, we have shown savings up to 45 percent." But because of its popularity there are now huge large numbers of telehandlers available for hire - and given the current economic 'crunch', they are available at increasingly competitive rates. If you are going to use a self erector there now has to be other good reasons.

"The crane offers better site coverage and is able to deliver bricks, mortar and other material directly to where it's needed rather than setting it on



a loading bay on the periphery of the building," says McMenemy. "This equates to a significant reduction in labour and an improvement in site productivity resulting in a shorter build programme meaning the self-erector can be off-hired sooner. Savings can also be made in groundwork costs as reduced site traffic movements lower reinstatement costs."

Self erectors are also quiet in operation, have the capability to fold away to avoid over-sailing issues and benefit from a small on-site footprint making them ideal for brownfield urban developments. And generally they have a hire life several years longer than a telehandler which rarely remain in a fleet for more than five years.

Getting a self erector in and out of a site can though be a major headache. Up to the recent launch of the Gapo remote controlled power pack (see page 47) an RT forklift was generally the chosen method of loading and unloading a self erector from its trailer and moving it into the final operating position. This created additional cost for the rental company in purchasing and transporting the forklift.

Self erecting doubters point out the erection and folding away envelope of the jib together with a base of between four and five metres square require too much space and that the City type tower crane has a

smaller footprint, is less complicated and therefore less expensive, has a higher lift capacity and additional tower sections can be fitted to raise its height to avoid obstacles such as trees. The largest self erectors can be twice the price of an equivalent lift capacity flat top city crane.

Potain, with its Igo T70, was the first manufacturer to overcome one of these obstacles by offering variable hook heights of between 23 and 32 metres by adding three or six metre auxiliary sections to the crane's standard heights of 15, 17 and 20 metres. Additional lifting flexibility comes from the T70's varying jib lengths. The Igo T70 has a maximum capacity of four tonnes with 1.3 tonnes at its maximum 40 metres radius.

San Marco has also launched a crane that can increase its under hook height. Its new lattice mast

Getting a self erector on site can be a tight squeeze



A Ladybird crane working near the Houses of Parliament, London

45N has a maximum capacity of 1,500kg at 45 metre radius and is the first model in a new series that can add up to four, 2.5 metre tower sections giving various under hook heights from 26.5 - 36.5 metres. The unit has a maximum lift capacity of 6,000kg and final testing and certification is now taking place with production starting early next year.

So there are reasons why the self erector is not as popular as we think it should be but it does have its advantages. The cost of erecting a self erector is half that of a small tower crane saving around £2,500, so for contracts of less than 20 weeks, it has a financial advantage.

Mobile cranes are also an alternative with a mobile perhaps visiting the site twice a week to carry out lifts that have been lined up for it. A self-erector on the other hand is on site around the clock, so materials can be moved when needed. And once contractors get used to the crane being on site, it is used most of the time and no need to have a team of people or a truck waiting on the late arrival of a mobile.

Mobiles may also need to be positioned some way from the building to achieve the right boom



angle for the required over reach. This has two effects: first, the crane may need to be positioned outside the site boundary and second, a higher-capacity crane is needed. This does not of course apply to a mobile self erector, but then that is another beast altogether. Obviously a SETC cannot match a mobile on very short jobs. Because of the cost of getting it to site, setting up and taking it down again, mobiles are generally a less expensive option for jobs of up to six week duration.

Rental costs

Talking to a number of companies the current weekly rental for a 24 metre self erector is around £350 to £420, while a 36 metre might cost £650 to £700, depending of course on the length of the job. To put this in perspective a 20 metre, 360 degree telehandler carries a similar price while a 30 metre, if you can find one is a lot more expensive.

These rates might come under pressure in the year ahead, however, those rental companies we spoke to said enquiries were still coming in, keeping utilisation up and that they are expecting contracts to start in the New Year.

Bromsgrove based Ladybird Crane Hire, arguably the largest self erector rental company in the UK, has a fleet of about 50 cranes but has only 'added a handful' over the past two years, while almost doubling its City crane fleet to 30.

"We operate a fleet of Potain and Comedil cranes which are very reliable but the main problem are the radio remote controls which are often abused and expensive to replace," says Robert Bird, Ladybird's managing director. "The machines have load limiters which mean they are not over-lifting and



Liebherr's 26 K.1 has a 1,000kg capacity at 26 metres and a jib that can be raised to 40 degrees

regular servicing keeps breakdowns to a minimum. We also re-test the cranes every time they are moved."

"The cranes are relatively easy to use with operators competent to operate the machine after completing an approved course. The large number of attachments available - such as brick forks, block grabs, tipping skips and mortar trays, can also remove a lot of the slinging problems as well."

In much of continental Europe, self erectors are owned by the builders, who set them up on any new build themselves, having already installed mains power. With most UK builders preferring to rent their equipment the cost benefits are not quite as clear. Although if builders would truly consider the efficiencies of placing materials right where they are needed, while

reducing noise and site traffic, not to mention the advantage of having a crane on hand at all times, we might see more self erectors that we currently do. There are many contracts where the self erector is the ideal choice but unfortunately, it is not even considered by many contractors.



Self erectors are often found in unusual situations

The latest product launches:

The **Potain Igo 30** - built at Manitowoc's Niella Tanaro facility in Italy - is the largest in the range able to move with full ballast on a single truck. Available with either a 28 metre or 30 metre jib, it has jib tip capacities of 1,000kg and 900kg respectively. Maximum capacity for both versions is 2,200kg, while under hook height is 20.5 metres and the jib can luff to either eight or 20 degrees.

Liebherr 26 K.1 is the smallest fast erecting crane in its range with a 2.5 tonne maximum capacity and 1,000kg at its maximum radius of 26 metres. The 23 metre basic hook height jib can be increased to 37metres by raising the jib to 40 degrees. The crane, which features a telescopic mast, has a retracted hook height of 14 metres and a 160 degree obstacle avoidance range regardless of jib position.

San Marco's latest is the **45N** which offers 1,500kg capacity at a radius of 45 metres, while a 30 degree luffing angle gives a maximum under hook height of 56 metres. Mast height varies between 26.5 metres and 36.5 metres by adding 2.5 metre long tower sections and the unit has the unusual option of a cab.

Latest **Cattaneo** is the **CM370** with a 1,000kg capacity at 37 metres and 3,000kg at 15.1 metres. The jib can be raised to an angle of 13 degrees giving an under hook height of just over 30 metres. The unit weighs 16.4 tonnes and has a transport dimension of 13.7 metres long, 2.48 metres wide and 3.2 metres high.

FM Gru has two new models the **RBI 1140** - with a 40 metre jib, capacity of 1,100kg at a maximum height of 24 metres - and the smaller **RBI 724** with a 700kg capacity at 24 metres radius and height of 19.45 metres.

Celebrating its 50th anniversary this year, **Gru Benedini** has launched a new model - the **B37** is a 1,000kg at 37 metre machine which also has remote monitoring which can check and adjust many of the cranes functions.

Experience the Progress.

32 TTR on crawler chassis.

- Transport of crane in upright position with ballast
- Extremely mobile, even across rough terrain
- Low ground contact pressure
- Seven variable jib lengths



Liebherr-Great Britain Ltd.
Normandy Lane, Stratton Business Park,
Biggleswade, SG18 8QB
Phone: 01767 60 21 67
Fax: 01767 60 21 61
www.liebherr.com

LIEBHERR

The Group

This is a modern world

Berwickshire-based family business Rodger (Builders) may be the oldest building/civil engineering contractors in Scotland, but it has certainly moved with the times. Formed in 1846 the company today is at the forefront of modern construction with a growing rental fleet which includes self-erecting tower cranes and female operators.



Ellie Hooper (L) and Rebecca Adam - the first two female self erecting tower crane operators in Scotland

The proportion of woman working in the industry as a whole is just five percent, with an even smaller proportion operating equipment. Rodger's now employs the first two female self erector crane operators in Scotland for its growing fleet of Cattaneo cranes.

Ellie Hooper, 21 and Rebecca Adam, 29, have been put through their paces on the job as well as passing the relevant training and qualifications allowing them to operate the crane.

Director Willie Rodger, who owns and runs the business with brother Charles, explains: "Because of the skills shortage in the Borders, we actively seek to attract women into

the industry and Ellie and Rebecca have quickly settled in to become key members of the team. Ellie heard we were looking for a new employee to operate the self-erector we had just bought. She had previously applied to the Fire Brigade and has sense of determination and a great attitude which I really liked."

"Rebecca came to us after answering an ad. She had some knowledge of cranes when working as a receptionist for a construction firm and this experience and her great personal skills made me decide she would be a positive addition to our team."

"Both Ellie and Rebecca have been well received within the company



and have impressed our clients with their skills," said Rodger. "For example, the Bewater Leslie joint venture has been very supportive of the use of these cranes and woman operators and has sanctioned mentored training on their sites."

Rodger's is now proactive in its efforts to attract women into the construction industry and has vacancies for training as self erecting tower crane operators and slinger signallers.

"I began working in the retail sector but that just wasn't for me," says Hooper. "I really love my job, it's the first job I've ever had where I can say that I actually enjoy going to work."

Hooper learned her trade on the job, working closely with the manufacturers of the cranes as well taking part in a week long intensive course in England. Thanks to this - and hours of practice in the yard - she is now a fully competent tower crane operator and has also qualified as a slinger/signaller. Her first job was a six month spell on a crane at a



Stuart Spence of Weaving Machinery (L) with Willie Rodger at SED this year

Scottish Water Solutions water treatment project at Coulter Reservoir near Biggar for Bewater Leslie jv. After gaining some valuable on the job experience she has now moved on to a second project at Meals Gate WTW where the crane is integral to the reproofing works being undertaken by Border Steelwork for United Utilities. Adam, who joined the company more recently was put through her paces

in the yard and subsequently went on the same intensive training organised by Cattaneo distributor Weaving Machinery in England. She is currently operating her crane at the Bewater Leslie joint venture Robertson Water Treatment Works for Scottish Water Solutions. Scottish Water has also made its offices and facilities such as training rooms available as a training base for Rodger's 'mentor training' of five crane operators in the first two weeks of December.

"The support by Scottish Water and Bewater Leslie is very much appreciated by the company," said Rodger.

Rodger's initially added the Cattaneo self erector cranes to its hire fleet because it was the only item of lifting equipment that could access a remote site and do the job.

"We were initially approached by Bewater Leslie to supply a crane for the Coulter project" says Willie Rodger. "Originally our thoughts were to use two NCK crawler cranes, but the access to the site was so bad

that we had to look for another solution." Weaving Machinery was brought in with the challenge of ensuring that its largest crane - the one tonne at 41 metres, 25 metre high CM90S4 - could be towed by a tractor the five miles to site from the point where truck could go no further.

The deal was dependant on the machine safely negotiating a series of narrow roads, tight turns and bridges and making it to the site.

"These cranes are still in their infancy in the UK but can reduce build times and improve safety and not just on remote sites," says Rodger. "Demand for our self erector fleet - and our female operators - has certainly increased over the past year and is set to grow further."

Still in its infancy?

For many contractors, particularly in the UK, the self erector is often a 'last resort' item of equipment. Still a relatively rare sight, they have been available in the UK for at least 50 years. One of the crane's early adopters was Ken Dunham, father of Dunham Cranes' managing director Alan Dunham, the Ramsbottom/Bury based, UK distributor for Italian-built FB Gru cranes.

The Dunham family business - started by Ken - began in the early 1960's as a local house builder. Traditional construction methods and equipment were used - a tracked dozer and a dumper as well as manually lifting all the materials.

"The dumper would regularly get bogged down in poor ground before being pulled out by the dozer," remembers Alan Dunham. "Moving materials around was usually difficult and all lifting was manual."

Ken however could obviously see the potential of the self erector crane and this culminated in purchasing one in 1978 - the combination of a contract on a very steep hill with very difficult access for the dumper meant that getting materials to the point of use was even more difficult than usual.

The crane purchased was a second-hand tracked Liebherr 12KR - from drainage contractor Donnellan - with a 500kg lift capacity at the end of its 17 metre jib. The machine was relatively

expensive and had numerous reliability problems (including tracks which continually seized up) but was perfect for the small house builder which was building on a single house by house basis. With only 500kg capacity, the packs of bricks and larger items had to be split but overall the machine speeded up the construction and because rubbish could easily be lifted out, the site was much cleaner and safer.

As age began to exasperate its reliability the Liebherr was replaced in 1984 by a Munster 24KA. With double the jib tip capacity (1,000kgs at 26 metres) the unit made a big difference, reducing the amount of work needed to move materials such as packs of bricks and blocks which could now be done in a single lift.

At this point, the crane was only used on Dunham's own house contracts and the concept was still a rarity in the housing sector not only in the Bury area, but in the North West.



This retaining wall had to be built specifically to position the crane



c&a

self erectors



Alan (L) and Phillip Dunham

"Everyone who worked or visited the sites thought we were mad using the crane," said Dunham, "however, after benefitting from having materials and tools rapidly positioned at the place of work rather than man-handling them, they all had to agree that it was an impressive bit of kit."



The Munster however also kept breaking down - mainly electrical problems - and was replaced by a new Jaso 4510 in 2004 - with 1,000kgs at 45 metres - which was put out on a long-term hire. It was at this point that Dunham Cranes was formed and coincided with Alan and son Phillip looking for a smaller self erector to their own use and Italian self erector manufacturer FB Gru looking for a UK distributor.

"We looked at a few possible crane manufactures but FB stood out as it manufactures a high proportion of

the crane, including jibs and pins, in-house so is in as much control of the manufacturing process as possible," said Phillip Dunham. "Since taking on the distributorship we have brought in around 25 cranes and they have all been extremely reliable. If there is a problem, many items on the crane can be sourced in the UK, but for our peace of mind and that of our customers we have a sizeable parts stock which includes motors and invertors which are specific to each crane model. While FB is very good on spare parts, this negates any time delay in transporting parts from Italy allowing us to get the cranes back operating usually on the same day."

Since the first FB was added to the fleet in 2005, Dunham's own hire fleet has grown to include nine self erectors and two top slewers. The company is looking to expand this to as many as 25 machines in the coming years. Its most popular crane, with four in the fleet, is the GA 136 which has a maximum capacity of 4,000kg at a radius of 11.5 metres and can take 1,000kgs out to 36 metres. Maximum under hook height is 22.5 metres.

"We work very closely with the manufacturer on product

self erectors C&a

development and constantly feed back ideas on improvements that they usually take on board," says Alan Dunham. "One such improvement specifically for the UK is the addition of a trolley arrestor which raises an arm that stops the trolley from moving in the unlikely event that a cable snaps."

But as a regular user of self erecting cranes over the past 30 years, has the concept become more popular?

"There has definitely been an increased acceptance of the crane over that time, but even now, we have to continually explain what it is and the benefits it can bring to contractors that are not aware of its capabilities," says Dunham.

"Talking to some contractors is like banging your head against a brick wall!"

Phillip Dunham also believes that the self erector will continue to gain in popularity and having recently returned from the SAIE exhibition in Bologna, Italy, pointed



Dunham also distributes Butti attachments.

out that there were probably more self erectors in Bologna than in the whole of the UK, so there is a long way to go.

"I also think that the small top slewer crane - such as FB Gru's new GHS 401 - has great potential in the UK," he adds. "It is a lighter machine overall and needs a much smaller base than a self erector -



FB Gru's latest GHS 401 small top slewer has 'great potential' in the UK

2.8 metres by 2.8 metres compared with 4.5 metres square."

Dunham has just taken delivery of the first GHS 401 in the UK. Designed in six metre modules, the unit can be easily handled and transported to site on one truck. "The units can also increase its height with the addition of more tower sections, unlike the fixed height self erector," says Dunham.

"We recently did a job with one of our self erectors that reduced the build time by three months. This alone saved the client £50,000 in finance costs without even counting any of the other financial savings through having a crane permanently on site," says Alan Dunham. "Demand is growing but even though we have been in the

tower crane industry for 30 years, there is still huge potential in the UK for the self erector."



MAT & TIMBER SERVICES



CRANE MATS

OUTRIGGER MATS

**TEMPORARY
ACCESS ROADS**

RAMPS

**For all types of
cranes under any
application -
Nationwide and
Overseas**



TEL: +44 (0) 1264 811005
FAX: +44 (0) 1264 810600

e-mail: info@sarumhardwood.co.uk

web site: www.sarumhardwood.co.uk