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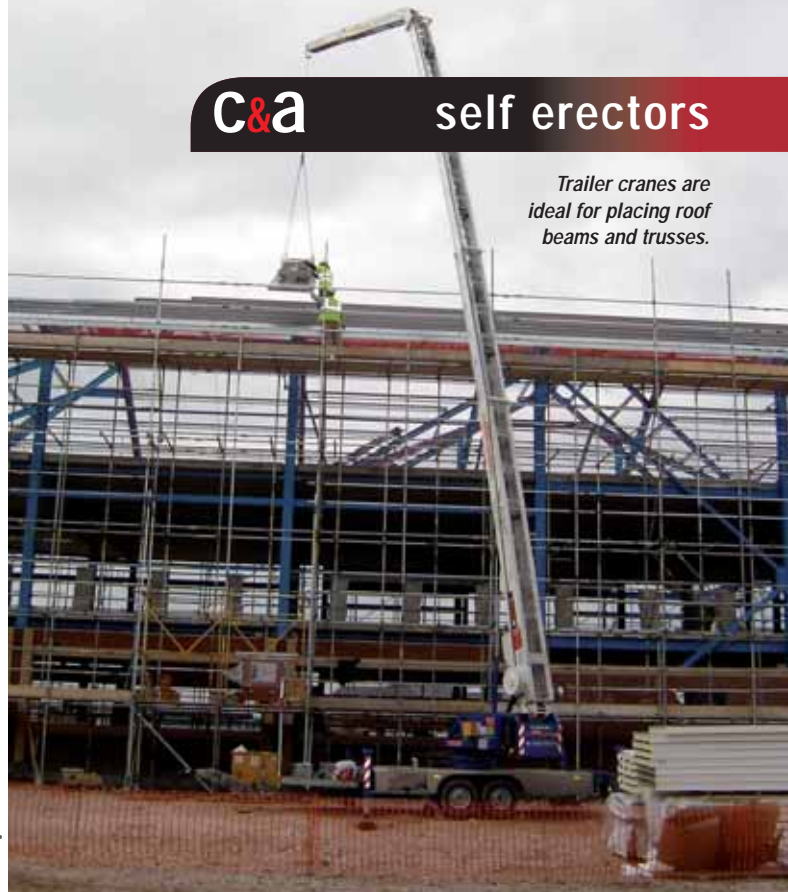
DIY cranes for builders

Increasing pressure to complete projects even quicker, changes to Health and Safety lifting regulations and more and more developments using congested, brown-field sites has made UK and Ireland contractors look seriously at trailer and small self erecting tower cranes. Now more common, many are probably wondering why these machines have taken so long to gain a foothold in the UK. C&A takes a look at what is currently available.

The UK construction industry has always been conservative - with a small c - about changing construction methods. 'That's the way we have always done it' was a common comment when rejecting the benefits of a new fangled piece of equipment. The backhoe loader for example - for so long the mainstay of the small UK building site - has now been surpassed by the telehandler (along with the mini excavator) primarily because of the changing methods in the way we supply materials to site and therefore a change in the construction process. Looming on the horizon, literally, are the quick and easy to setup cranes that offer benefits that are particularly attractive to an increasing number of builders and contractors.

The HSE has been keen to reduce site traffic and therefore accidents from equipment such as the telehandler. A compact, rapid set-up crane situated on one side of the site can help achieve this. The use of remote controls with the crane also allows the operator to stay with the load, positioning it with more precision and therefore more safely.

The use of a crane also allows construction materials to be centralised resulting in more benefits such as easier site deliveries once again cutting down on site movements - ie accidents. A crane permanently on site also reduces the number of visits by mobile cranes and time lost through site inductions and producing paperwork on every



C&A

self erectors

Trailer cranes are ideal for placing roof beams and trusses.

occasion. And its fixed location gives known radii and corresponding safe working load, making for simplified lift planning.

But there are two factors that have swayed the thinking of the traditional construction worker more than any other - these cranes can save money through increased productivity and now, because they are increasing in popularity, they are easier to source which has also led to more competition and thus keener hire rates.

While self erecting tower cranes of all types have increased in popularity over the past five years or so, the trailer crane is just starting to gain a foothold in the UK.

Three manufacturers now offer products here - all German-made. Klaas distributed by Octopus UK based in Bromsgrove, Böcker by Pfaff Silberblau and more recently Paus available from Unic-GGR.

Germany is besotted with the self erecting tower cranes at the expense of telehandler sales and more recently contractors have taken to the telescopic trailer crane for applications such as the placing of roof trusses.

The upcoming Bauma exhibition in Munich will see the launch of at least one new trailer crane joining a growing range of product.

Westphalia-based Böcker will unveil the lightweight aluminium AHK 31/1400, trailer crane that can also double up as a work platform.

The unit - which features a completely new, tandem axle trailer chassis - has a maximum lift height of 31 metres and a maximum lift capacity of 1.4 tonnes.

The new radio remote control also has remote diagnostics and full visual information of the load on the hook and boom position.

Weighing 3.5 tonnes the unit can be towed by some of the larger 4x4s and once on site, can be self propelled if the optional drive unit is chosen. In fact we would strongly recommend this feature for final positioning of the unit.

With a man basket attached the machine has a maximum platform height of 26 metres and lift capacity of 250kg. The platform also offers 35 degrees of rotation in each direction allowing it to be squared up to the working area.

According to Klaas distributor and hirer Octopus UK and its rental division 'The Little Crane Company', the trailer crane market has grown considerably since it first showed its machines at last year's SED exhibition. The company now has a growing fleet of trailer cranes working throughout the UK primarily because these machines can access and work on sites where space is restricted. It now has a complete mechanical handling division which offers cranes with fully trained operators or on a bare lease -self drive basis. It also offers the option of contract lift services with an 'appointed person'.



Weighing 3.5 tonnes, the new Böcker AHK 31/1400 here seen with man basket can be towed by larger 4x4s.

The Klaas K19-28 has a maximum lift height of 28 metres and outreach of 19 metres.



Klaas K19-28 trailer crane can lift up to 1.3 tonnes and offers a maximum lift height of 28 metres. It has a four section main boom and a three section jib for extra up and over reach resulting in a load of 250kg to a radius of 19 metres at a hook height of 16 metres. The unit also has 360 degree of continuous rotation. Like the new Böcker, the Klaas can also be used with a self-leveling basket and is movable without the towing vehicle thanks to a self-drive jockey wheel.

Last August, Paus appointed Unic mini crane distributor GGR Glass-Unic as the UK distributor for its Skyworker aluminium trailer crane range.

The 1.2 tonne capacity, 2.1 metre wide, self-propelled chassis weighs in at just below the critical 3.5 tonne trailer weight limit. The aluminium main boom and nine metre fly jib provide a maximum lifting height of 30 metres and a maximum working radius of 25 metres. Standard radio remote control and a 360 degree slew add to the cranes versatility.

GGR Glass-Unic distributes the Paus range of Skyworker trailer cranes.



So, all these very similar versions of the aluminium trailer crane offer easy and quick set-up in space restricted areas, towing capability with a 4x4 and easy positioning of loads using the remote control.

However these units are more suited to short term, specific lifts such as the installation of a set of roofing trusses, or to carry out a lift in a specific area, for example in situations where a very low ground bearing pressure is a necessity. Longer term jobs requiring 'whole site' coverage are far better suited to the self erecting tower crane.

Self erectors are available with a number of different chassis options, ranging from a simple set of bogie wheels for unloading purposes, low speed trailers or trolleys, to road going trailers and crawler undercarriages. However by far the most popular are the standard units with a set of unloading wheels. Delivered via truck the smallest units can travel with their counterweight in place while the larger units unload and install their own counterweights once they are set up.



Delivered by truck or tractor self erectors are easy to move about.

The theory with these cranes is that the builder buys or rents his own tower crane, takes it to site and sets it up himself. In reality setting these cranes up properly is not only the most critical part of the entire operation, it is also relatively high skilled. In Germany and France, where more contractors own their equipment, it is true they do operate the cranes in this way. But many years of familiarisation and very regular use ensures that this is a safe and normal thing to do. In the UK and to a lesser extent Ireland, few contractors have the necessary experience or use them often

enough to make this a sensible option. As a result virtually all of the experienced companies renting out self erectors insist on installing the cranes themselves.

An experienced rental company can have the crane ready and working in a few hours. A key aspect of the set up is of course the electrical supply available. Increasingly contractors are using generators which can simplify this aspect of the set up. The next thing to consider is the training of those who will operate the crane. A special CPCS course is available for pedestrian controlled tower cranes and it is essential that all staff on the site who are likely to be called on to operate the crane are trained at least to this standard. Most rental companies will help arrange this.

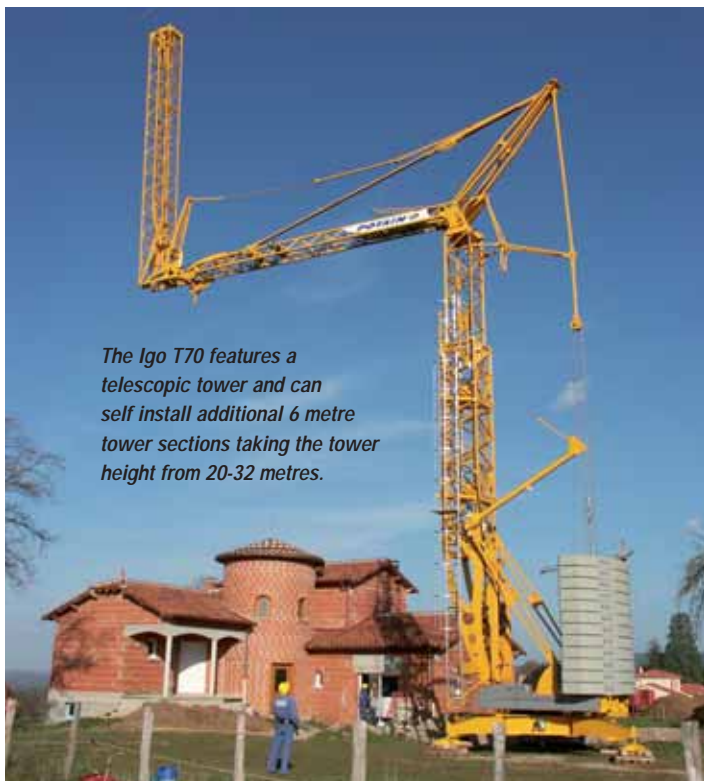
Thanks to the relatively low cost of smaller self erecting cranes, the rental rates of between £500 and £800 per week will not break the bank, especially considering the benefits of reducing the number of telehandlers on site and avoiding some if not all mobile crane rental. Potain has been making small tower cranes for as long as any major producer and has been a pioneer of the small self erectors. It says that its self-erecting crane range is one of its fastest growing product lines within the Manitowoc crane group and is launching two new models at Bauma - the compact Igo MC 13

and the much larger Igo IG70. This is really in a different league to the small units we are covering here, however it can still be transported on a single low-loader and install its own counterweight with its tower mounted swinging gantry jib. It is unusual in that it features a telescopic tower and can self install additional six metre tower sections to take the tower height from 20 metres to 32 metres. The jib can be raised up to 30 degrees for a maximum hook height of 45 metres at up to 34 metres radius.



The Igo MC13 can be towed at speeds of up to 25 km per hour and can be erected in less than 30 minutes.

The Igo MC13 is highly manoeuvrable when equipped with a trailer axle. The unit can be towed at speeds up to 25 km per hour while carrying full counterweight without exceeding 12 tonnes on the single rear axle. Potain says the crane erects easily in less than 30 minutes, making it ideally suited for smaller short-term jobs. In many parts of Europe this type of crane is set up to handle lifting work even on single dwelling sites. Maximum lift capacity is 1.8 tonnes while the maximum jib length is 22 metres at which radius the unit can lift 0.6 tonnes.



The Igo T70 features a telescopic tower and can self install additional 6 metre tower sections taking the tower height from 20-32 metres.



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Liebherr's latest fast-erecting crane - the 22HM - is a larger version of its 13HM first seen in 2002. With a bigger, two tonne lift capacity and its 'super-raised' jib under hook height of 33.4 metres, the HM22 is aimed at construction trades looking for good lifting capacity and compact size.

The 22HM can either be towed via a fifth wheel coupling or drawbar or transported on a three axle truck at up to a maximum speed of 80 km per hour.

The undercarriage is, according to Liebherr, completely new. Undercarriage steering - where the crane superstructure can be released allowing the undercarriage to turn freely - is also joined by the ability to steer the crane manually via the remote control, at speeds up to 10 km per hour. At speeds more than this, the crane switches to trailing steering axle which

fitting a 40 degree 'super-raised' working angle jib. The jib can be moved steplessly from 0-20 degrees and from 20-40 degrees making it a lot easier when working alongside steep pitched roofs for example. The unit also has a ballast slider for moving the cast iron ballast and fitted as standard are the frequency controlled slewing gear and rotary power connector.

The vertical mast of the 22HM and other self erecting tower cranes gives a distinct advantage over trailer cranes thanks to their up and over capability allowing them to set up in very narrow streets and still clear the roofs of buildings.

Despite the slow start, there are now numerous self erectors available in the UK, mostly from well established manufacturers based in Italy, France and Germany. One that isn't is Mantis Cranes.



Cattaneo cranes are available through Weaving Machinery - this is the CM90S4.

ensures that it follows in the truck's tracks with considerably reduced tyre wear. The unit also features twin tyres, which help with reduced ground pressure allowing it to travel across sites without sinking.

Using the space-saving, tried and tested hydraulic erecting linkage system, the HM22 opens the jib at 15 metres - over the top of most obstacles. This is claimed to be a quick, one-person operation.

Liebherr also claims that the 22HM is the only crane with the option of

The company now offers a range of self-erectors with jib lengths from 20-45 metres including the TC25 unveiled last year. Developed by the Irish-based manufacturer and the Engineering Department of The University of Ulster, the TC25 features ease of mobility, siting and erection - all important factors to builders of one-off houses and those erecting timber frame and light steel framed structures.

The self-contained unit is built on a road-going chassis and has fixed ballast so that one articulated



Liebherr's 33.4 metre under hook height 22HM is a larger version of its 13HM launched in 2002.

tractor unit can move the 20 tonne rig to site in a single vehicle journey. The TC25 can deliver a one tonne load to 20 metres or 750kg load to 25 metres at a hook height of 19 metres. According to the company interest and order intake looks promising. Mantis is obviously doing well having moved into new premises late last year while also taking on more employees.

As with many types of crane, Italy is by far and away the home to the largest number of manufacturers of self erectors. In addition to the big international names there are a vast number of small local suppliers, some of whom have made it to the UK.

Terex Comedil, one of the largest producers has launched the new CBR 40H which can lift the same as the smaller CBR 36H despite having a hook height 2.7 metres higher and a jib four metres longer. While Comedil is a major player in the UK top slewing tower crane market it has been less successful when it comes to its self erecting cranes - in spite of a wide product range.

Another Italian producer Vicario has been sold in the UK for many years by Vanson cranes of Grantham which is celebrating its 25th year in business. Vanson markets the

line under its own name and until recently also operated a rental fleet. However in October last year the company sold most of its rental fleet to City Lifting (See Face to Face page 58) in order to concentrate its efforts on selling tower cranes. The company offers a range of 12 different models of self erectors starting with the VC15 (See Rob the builder opposite).

Cattaneo - available in the UK through Weaving Machinery near Evesham - launched three new cranes at the end of last year - the CM73A, the CM76B and the largest the CM90S4. Most compact is the CM73A measuring 11.9 metres long and 2.95 metres high in travel mode. The crane can set up in a space no larger than 3.3 metres square and lift 750kg to a 21 metre radius at a height of 18.2 metres. With this load, the jib can raise by 18 degrees above horizontal, increasing the hook height by five metres. With lighter loads (500kg) the jib can raise up to 30 degrees giving a maximum under hook height of 27 metres.

FB Gru - available from Dunham Crane Hire - has launched the compact, 12.2 tonne tow weight GA136 which features twin cylinders to provide a faster

Rob the builder

Vanson Cranes recently supplied a VC15 tower crane to small builder Robin Bonds Builders of Barnstable. This self-contained, compact unit, the smallest in the Vanson range is aimed at small sites and is ideal for use in congested urban or even retail environments where it would normally be impractical or costly for other types of construction cranes to operate. It has a retracted transport width of only 1.6metres, 2.2 metres high and only requires 2.7metres square of ground space.

In spite of its diminutive size, it can lift 1.5 tonnes to seven metres radius at 15 metres height or will take 600 kg to 15 metres at the same height, maximum hook height is 19 metres.

"As we mainly build single or double unit houses and small factory buildings we have very much appreciated this small and manoeuvrable crane" said Robin Bonds, the company's managing director. "Not only is it very compact and very versatile, but it solves most of our Health and Safety problems by taking away the need for manual lifting. This is now done by the crane, so we don't have to have guys going up and down ladders carrying materials. Instead the crane is used to lift all of the roof slates, trusses, tiles, blocks etc. It is a superb piece of kit, which we get a lot of use out of and I am surprised that there aren't more of them around."

"It is easy to use and training is fairly straightforward and this only costs around £300 per person, which isn't excessive. The VC15 is ideal for the small builder like us," he said.

The VC15 is completely self-contained, and incorporates a ballast handling derrick to avoid the need to bring in lifting equipment. As a result it can be erected and dismantled using just two people. The jib can also be folded to avoid violating another party's airspace. Although it is essential that the operators are properly trained to do this.

Once erected, it is well suited to three and four storey construction work and has the added advantage of a minimal physical impact on the site. Only a single phase 3KW mains or 5 KVA generator is required to power the crane.

As with all of Vanson's VC cranes the VC15 includes 'soft start' on each of the crane's hoist, trolley and slew functions. This technology enables the load to be positioned much more precisely and also creates a smooth hook action.

"Once our clients have had a VC crane they soon realise the cost savings that can be achieved due to its operational efficiencies, speed of operation, low operating costs says Vanson Crane's managing director, Trevor Vanson. "Also, its ability to reduce handling risk is becoming an important factor in a builder's decision making process."



The VC15 is the smallest self erector in the range from Vanson Cranes.



The FB Gru GA136 seen here at its launch at the SAIE show in Bologna.

erection time. Working from a 4.2 metre square outrigger base, the unit has a one tonne lift capacity at 36 metres with a hook height of 22.5 metres. The jib can also be raised to give an increased hook height of 30 metres reducing the radius to 34.9 metres. Dunham says that it sold around 30 cranes into the UK last year but like most manufacturers, this figure is on the increase. Dunham is unusual in that the company is also a builder and developer and has been using self erecting tower cranes on its sites for many years. It only decided to start selling them two years ago.

Several other Italian companies such as Gru Dalbe - with its HS380 - and Gelco Clever Crane manufacture self erectors but as yet they are not available in the UK or Ireland. As well as offering conventional self erectors, Gelco Clever Crane has an interesting self lifting chassis option where the base of the crane can be jacked up by 2.75 metres to allow car or pedestrian access underneath.

The unit also is very short, courtesy of three section telescopic tower, and with the four wheel steering motorised chassis which can cope with gradients up to 25 degrees to manoeuvre itself into very tight spots. The telescopic tower also allows the height of the crane to be changed when working.



The Gelco Clever Crane's 4WD chassis can cope with gradients up to 25 degrees..



Clever Crane's telescopic chassis allows up to 2.75 metres of head height giving access to cars and pedestrians.



When folded, self erectors are small enough to gain access through some surprisingly small openings.



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