



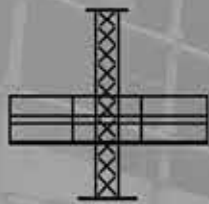
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- M4 Corridor
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- South West
- Cambridge
- Belfast



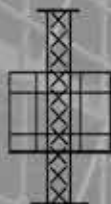
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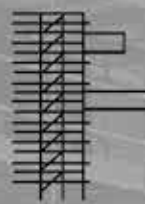
MAST CLIMBERS



COMMON TOWERS



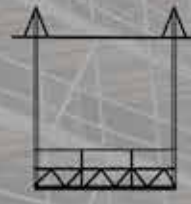
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Hoists on the up

We covered mastclimbers and hoists in our March issue but given the level of material we had on mastclimbers we barely touched on hoists. This feature plans to readdress the balance a little. We look at what is or might drive uptake of both products, before focusing on a number of new hoists and product developments in what is a relatively mature and well developed sector. We will also take a look at some interesting projects and applications, including an update on the massive Battersea Power Station redevelopment site.

Growing demand

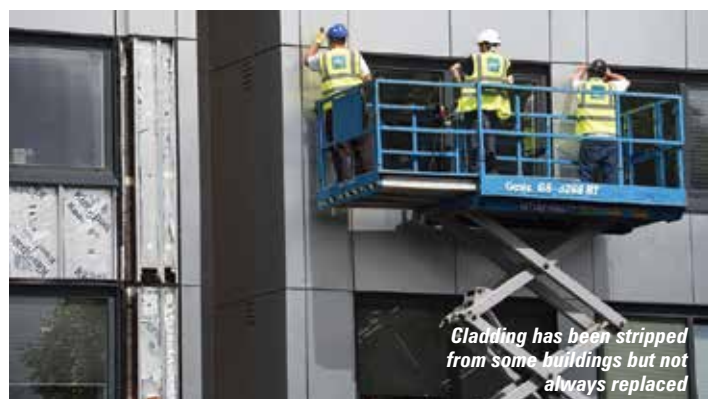
Every time we take a look at the mast climber market, we cannot but help comment on how slow the uptake has been across most western countries, there are a few exceptions, such as the Netherlands, Sweden and possibly Canada. This always causes us to scratch our heads, as the product has huge advantages over more traditional forms of access such as façade scaffold and tower stairs, and yet market penetration is still relatively low. However most of those who specialise in the sector that we spoke with confirm that demand has been very strong over the past few years and more importantly profitable.

UK based international mast climber and hoist specialist Brogan even went so far as to say that it has seen a "huge uplift in demand for mast climbers, hoists and common towers over the past two years" and as a result has repeatedly stepped up its investment programme adding both new equipment and expanding its product range. The company

must be doing something right as it is repeatedly listed among the 100 fastest growing independent UK exporters. In this year's chart, published in February, Brogan was 65th - and although that was down from 31st in 2019, its export sales increased 60 percent to £12.6 million, while total revenues for the year to the end of 2018 were £34 million - in 2019 that jumped a further 40 percent to £48 million.

The Grenfell factor

It has been three and a half years since the Grenfell tower block fire in London left 72 people dead and a similar number seriously injured. The fire was caused by a flammable aluminium-polyethylene cladding system, which prompted the call for all such cladding to be removed from high rise buildings across the UK and replaced with a more appropriate fireproof cladding material. The ongoing investigations have already identified 470 high rise tower blocks that are clad with a similar type of material, while at least a further 170 - mostly privately owned - towers are expected to join the list to have their cladding removed and replaced. Most



Cladding has been stripped from some buildings but not always replaced



publicly owned towers with the exact same material were quickly stripped of their cladding either using mast climbers or in some cases truck mounted lifts and on lower levels scissor lifts. Many tower blocks however have not yet had the replacement cladding installed. The lack of cladding is not only causing heat loss and a blot on the landscape, but also causing water ingress issues and dampness which if left will decay the structural fabric of the buildings. Once the burning issue of who pays is settled, the massive replacement task should pick up speed with the

potential to absorb a substantial percentage of the UK's mast climber population. This is one application ideally suited to the mast climber, with alternative access methods really not coming close in terms of efficiency and overall project cost. The key to unlocking this demand is almost certainly political with members of parliament under growing pressure mounting from tenants in the affected buildings to provide a solution. Phase two of the Grenfell enquiry opened in January and continues to drag on, after being held up by the UK's March Lockdown.



Grenfell tower fire

New hoist developments

Moving inside

In recent years contractors and developers on some high rise projects have looked to reduce the number of traditional rack and pinion hoists on the outside of the building during construction. This might be due to the actual space available, cladding installation considerations or other reasons. One solution has been to install a hoist within the building's lift shaft moving up as each floor is completed. However the traditional solution - a 'traction jump lift' hoist - employs a similar mechanism to the elevators used in the completed building, in that they employ cables and a headstock beam, along with a travelling counterbalance counterweight.

Temporary goods/personnel hoists can also be combined in the same shaft with the building's actual elevator car running on the semi completed floors below. The system was used very effectively in the building of the Shard in London. The problem is that the temporary hoist requires its own mobile machinery room, cathead headstock beam and running gear, which makes raising or 'jumping it' upwards as new floors are added, time consuming and relatively labour intensive. Most



The new LSH hoist has been designed specifically for internal elevator shafts

of them also require two floors of headroom, preventing them from going right to the top unless the shaft is extended beyond the top floor. Rack & pinion lift shaft hoists have been around for many years, and most often used on building restoration work.

At the recent bauma China exhibition in Shanghai, market leading hoist manufacturer Alimak unveiled an all new, innovative product to compete in this sector, which it hopes might prove transformational.

Alimak elevator shaft hoist

Alimak has been a leading player in the construction hoist market for years, often leaving more specialist niche market hoist products to others. As demand has increased to bring hoists inside and away from increasingly complex external façades, it spotted the potential for a new solution. Its all new and innovative LSH construction hoist has been designed specifically for use inside internal elevator shafts during the construction phase of a new building.

The company says that the new hoist offers several features which will enhance efficiency and improve productivity compared to the traditional traction jump-lifts. For one it is able to reach the highest



The hoist car is made up of bolted sections and can be broken down into smaller components for assembly or removal if required

floors - something that is not always possible with jump hoists - and it can be installed quickly, while apparently halving the time required to add an extra level or two. There is also no need to cap and waterproof the lift shaft - something that is essential for jump hoists - so the new hoist can even be lifted in from the top by a tower crane.

Even where outside space is available for traditional construction hoists, the lift shaft can be exploited to add additional hoist capacity, help improve productivity and reduce wait times for skilled workers. This is particularly beneficial where outside space is limited of course. The LSH hoist has an internal size of 1.8 by 1.5 metres with a height of 2.8 metres. The hoist car can transport goods or people weighing up to 2,000kg.

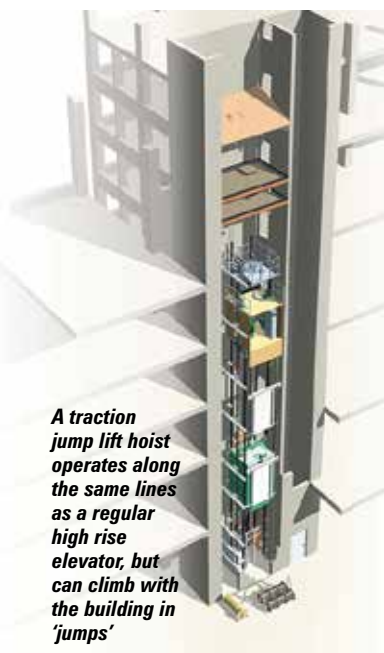
Before the Alimak LSH is dismantled and removed it can be used for the installation of the building's elevator guide rails inside the shaft and once again, it can be quickly removed by tower crane on completion, as long as the lift shaft remains open of course. If not, the bolted mast design allows for easy dismantling and removal in the traditional manner. The lift car also employs a clever modular construction with bolted panels and frames, allowing

it to be dismantled into smaller sections for removal through small access points if this is an issue.

Manufactured at the company's plant in China, the product has been designed to the same structural design parameters as the regular Alimak hoists and as such has been designed to withstand conditions faced by external hoists. Features include safety rails and fall protection on the car roof and a stainless steel control panel which includes a large user friendly seven inch touchscreen display, with protective glass and moisture protection to IP54 levels. The company's intelligent hoist monitoring system also delivers real time hoist status information.

New generation from Geda

German hoist and mastclimber manufacturer Geda has started delivering the new Multilift P18, its first in a new generation of personnel and material hoists. Unveiled at bauma last year, one of the first units has gone to work on a refurbishment contract in Helsinki, Finland. The residential building in the heart of the city is being extended and renovated, with the loft space converted into apartments, while the metal roof will also be fully refurbished.



A traction jump lift hoist operates along the same lines as a regular high rise elevator, but can climb with the building in 'jumps'



The new Geda Multilift P18 on its first job in Helsinki

The contractor, Skanska Rakennuskone, selected the new Multilift P18 to lift construction waste, various construction materials as well as construction workers to a height of 21 metres. The new hoist has been completely revised and updated with a cleaner design and is available with two platform/car lengths - 3.2 and 3.7 metres - ideal for bulky materials with a capacity up to 2,000kg on the longer platform. The lift speed is 40 metres a minute, while the hoist uses the Geda Uni-X-Mast, in place of the Uni-Mast system.

As part of the redesign of the car interior, the control unit for the switch box and the assembly guard have been recessed and integrated in order to avoid protrusions that would interfere with the internal space. The unit has been designed for easy maintenance, with all wear parts quickly and easily accessible, it is also equipped with an automatic lubrication system for the rack and pinion gear as standard. A remote service and diagnostics option is also available.



The Multilift P18 was delivering materials at 21 metres

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The unit can run on 32 or 63 amp power supplies by adjusting the load capacity and/or lift speed. Previous hoist models featured two car switch boxes, while the new hoist has a single larger box, and a completely revised innovative control system, which is said to be considerably easier to operate.

Geda regional sales manager for Scandinavia Florian Draxler said: "The positive feedback from Skanska Rakennuskone indicates that the second generation of the Geda Multilift P18 meets the latest demands of the market, allowing us to create customised solutions for our partners."

SAE Climber PH20 Twin transport platform

Spanish hoist manufacturer SAE Climber has added the all new PH20 Twin transport platform/material hoist to its range. The new hoist has a rugged build quality and is aimed at high usage heavy duty applications, while also having the ability to be built to greater heights - up to 250 metres when anchored with a maximum lift capacity of 4,000kg. The new platform is equipped with



The new SAE Climber PH20 transport platform

square mast sections in a twin mast configuration for greater capacity and stability, utilising four large gear high performance synchronised motors with VFC Frequency converter drive to support both a larger load car and provide the increased payload.



The SAE Climber PH Twin has a modular platform and is designed for tough applications



The mast sections are the same as ones used on the company's E20 P&M hoist and P45 mast climbing work platform, while the galvanised modular platform/load car allows users to achieve a three metre width if and when required by simply adding another platform module. A heavy duty full width collapsible entrance/disembarking ramp are standard. Elevation speeds range from 12 to 24 metres a minute, with a Dual Speed format. The car length can be adjusted from 3.5 to 4.5 metres with a two or three metre width. Automatic

digital control of landing along with an overload device with load cell detection and digital controls are all standard equipment.



The standard heavy duty ramp



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E20 - E30 TWIN CAGE



P45S 18 M LONG IN SINGLE MAST



E20 WITH "C" 3 M DOOR

The Easy Climbing

Bringing Battersea back to life

London's iconic art deco style coal fired Battersea Power Station was constructed in various stages between 1929 and the mid-1950s. By 1983 however the entire site was decommissioned to be left empty and decaying on the south bank of the River Thames until 2013 when work was approved to begin a long term restoration and transformation project set to cost £9 billion.

Scheduled for completion in 2025, the newly restored Power Station and the 42 acre site will house 3,444 new homes, a new underground tube station, 233,000 square metres of office and retail space, a new medical centre along with a six acre public park, and a town square. Currently in the third phase of construction, mast climbers and hoists have played a significant role in the work from the very start, with the UK based Brogan group supplying more than 75 hoists, as well as scaffolding, mast climbers and common towers for the project.

For the first phase the company provided a combination of mast climbing platforms together with 17 construction hoists with payloads of up to 2.7 tonnes. It also worked with the main contractor to provide design and fabricated solutions to overcome any obstacles that came up during the build. During Phase Two of the project, which focused on preserving the Power Station's historic features and character, Brogan supplied 40 hoists to the main contractor Mace, although tying in the heavy duty hoists to the

structure, which is made up of more than six million aging bricks, proved a real challenge. The hoists vary in size and configuration and include both goods and passenger hoists with single and twin cars. They are currently in operation internally and externally to accommodate the varying challenges of servicing a building that is both complex in size and layout while respecting its Grade II listed status.

The company is also using Maber MBC50 goods hoists with platform cars ranging from 3.2 metres square to five by 3.2 metres, with maximum capacities of 5,500 and 5,000kg respectively. Alimak Scando 650 FC/39 goods and passenger hoists in both single and twin car configuration with a maximum capacity of 3,000kg are also employed, as are a few Stoss hoists. The vast majority of the hoists were purchased new specifically for the project and are therefore the latest generation machines.

Battersea Power Station Development Company appointed the contractor Sir Robert McAlpine to carry out the third and latest



An artist impression of the development



Battersea power station 1934

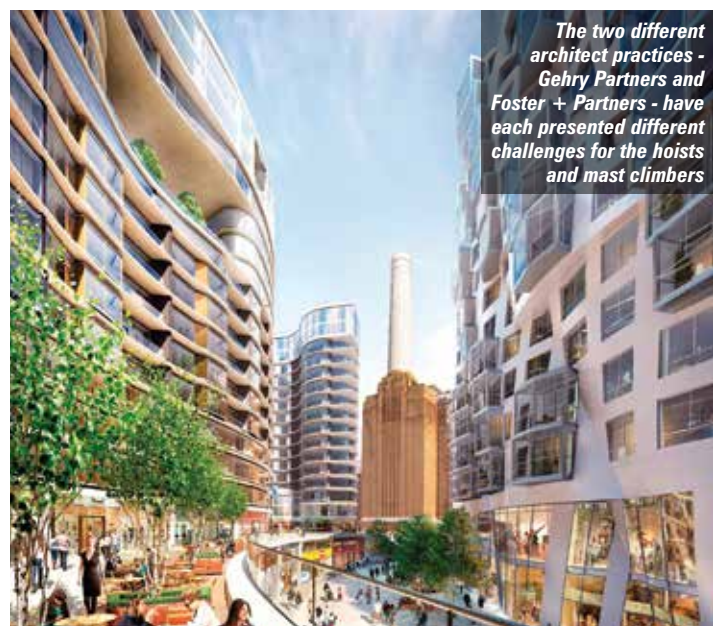


And in 2012

phase of the project, which will see the 'Electric Boulevard' gateway connecting the new underground station with the power station added to the development. The phase is presenting different challenges for Brogan design team with the provision of four CAS common towers reaching 16 storeys/ 52 metres in height, they

are fed by a total of 15 hoists with varying cage sizes in twin and single car configurations and lifting capacities of up to 5,000kg.

A further complication is the curved façade of the Foster + Partners building which has been overcome by ensuring that the common tower decks were built to suit the profile of the building, varying in length and



The two different architect practices - Gehry Partners and Foster + Partners - have each presented different challenges for the hoists and mast climbers

Brogan
Battersea



The New
Cathedral Linz



Maber hoist

Top of the Dom in Linz

Two Geda material hoists, a 500 Z/ZP and a 1500 Z/ZP transport platform, are currently supporting the refurbishment work on the Neuer Dom - the New Cathedral - in Linz, Austria, which is also known as the Cathedral of the Immaculate Conception. Built between 1862 and 1924, the Cathedral is the country's largest - although not the tallest - as its tower design had to be reduced to 134.8 metres due to the Austro-Hungarian ruling at the time that forbade any building in Austria to be higher than the St. Stephen's Cathedral in Vienna, which stands at 137 metres.

Although relatively new, the building is crumbling and is currently undergoing comprehensive

refurbishment work behind a wall of scaffolding. The façade in particular is suffering from dissolving sandstone and a network of more than 3,500 metres weathered joints between the sandstone blocks, along with other stone and statue elements, are urgently in need of repair.

Over 150 tonnes of scaffold alone were required around the tower with many of the stonemasons working on the upper areas of the tower. The project also requires large volumes of heavy materials to be transported to heights of up to 130 metres - complicated by the extreme winds acting on the scaffolding and façade.

The Geda 1500 Z/ZP was installed for the first phase of the project with a steel tube support scaffolding to a height of 75 metres, roughly the height of the tower clock. The base scaffold is built on all eight sides of the tower and supports the upper tower and spire scaffolding, alongside which the 500 Z/ZP is installed, running all the way up to the top. It was lifted 75 metres into place by a large All Terrain crane and built up from there. It is not only those working on the tower that must ride both hoists to reach the spire, but also all materials need to be 'transhipped' between the two hoists in a two stage lift. Equipped with two separate control units the Geda 500 Z/ZP can handle materials up to 1,000 kg, while in passenger mode it can take up to five persons with a maximum load capacity of 500kg.

The Geda 1500 Z/ZP runs from the ground and has been erected

as a twin mast unit, allowing it to transport seven passengers at a speed of 12 metres a minute. When used in material mode it can lift 2,000kg and travel at 24 metres a minute. Both platforms are fully equipped with the usual safety devices such as limit switches, speed dependent safety gear, safety stop and overload protection. A wide range of hot-dip galvanized landing level safety gates have also been provided for safe transfer between the platform and the respective landing level. A standard automatic lubrication device helps keep wear and maintenance on the rack & pinion gear drives to a minimum.

make up to cope with the shifting profile of the building on each floor. The design engineers determined a solution using varying lengths of structural support beams with differences in angle and depth to accommodate the waved shaped slab allowing the lifting of the five tonne bathroom pod units for internal fit-out.



The Geda 500Z/ZP hoist goes right to the top



The Geda 1500Z/ZP helped install scaffold and takes material to 75 metres



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