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It's Plant shutdown time again

For larger plants, where space is not critical, straight booms such as this 25 metre Haulotte are faster and more rigid than articulated booms, not to mention less expensive to hire.

In the next three to four weeks many production facilities in the UK and Ireland will close for summer vacations. As soon as everyone heads off to the sun the majority of manufacturing companies will swing into a period of frantic activity with plants undergoing anything from the complete restructuring of production lines to two to three weeks of intensive maintenance and repair activity.

In this short feature on industrial lifting and access we highlight some of the equipment and report on some examples of industrial moving, installation and lifting that we hope will provide the odd idea or two for the many readers who are responsible for industrial plant maintenance.

An empty plant is an ideal period to replace older equipment and make annual repairs in areas that cannot normally be shut down. With the UK and Ireland manufacturing sector

posting some of the largest increases in orders for many years, this year promises to be busy.

Last year we reported how industrial pick and carry cranes, once highly popular in the UK, were beginning to make a comeback. That trend has continued at a slow but steady pace. Companies that offer pick and carry cranes for hire, such as Ainscough Industrial and Hird are expanding their fleets and doing well, but it is still difficult to find any of the larger models in the

UK and availability of the smaller models can be limited during the busy shutdown period.

Companies selling pick and carry cranes, principally Valla UK and more recently Crowland cranes of Peterborough, have also reported an increase in the number of production facilities buying their own cranes, some of them switching from forklifts.

In addition to pick and carry cranes, rubber tracked spider type mini cranes are playing an increasing role in moving equipment. For simple loading and unloading machinery directly into its final resting point they can be ideal. Or when combined with skates, or transport trolleys they can also play a critical role in final positioning in extremely awkward locations.

Riggers can do it

For the most challenging machinery moving, there is often no option but to call in specialist riggers to find a solution. Companies like LGH or Ainscough Engineering/Vanguard, are rarely defeated and will usually find a solution using specialist jacking systems, chain blocks, small hoists and other equipment. In such situations much of their fee is taken up with engineering and planning the lift. (We cover two such applications later in this issue)



If you are using larger scissor lifts with black tyres and are concerned about your floor, insist that they are fitted with socks like these units, working on electrical installation at a new car parts manufacturing plant in Derbyshire.

With all but the most straightforward of lifts, proper planning is critical, the cost of dropping a load can be mind boggling. Dropping an expensive piece of machinery or vessel, can so easily, cause serious injury or death, plus damage to the item being lifted, beyond repair. As if this was not bad enough, it can put a stop to all shutdown work while an investigation is conducted, plus prevent that part of the plant from reopening after the shutdown while a new component is made and delivered. When you look at it this way the importance of proper planning and meticulous checking is obvious.

If you can source a big industrial pick and carry crane in the UK, like this 60 tonne Ormig, they are ideal for installing or moving heavy machinery from point to point. Not only can they pick and carry the load, but they are designed to work in low headroom situations.



Unforeseen changes to plan sort the men from the boys

In his presentation at the recent crane safety conference, Derrick Bailes, chief executive of the Lifting Equipment Engineers Association highlighted a number of serious accidents, mostly caused by poor planning and the handling of unforeseen changes on the day of the lift. An example of this is when a rigging method has been planned, using prefabricated attachment points or holes for slings on the item to be lifted. Then when the item arrives on site, the attachment points have been let off. This is when the men are sorted from the boys, or should it be the professionals from the cowboys?

simply following the instructions of a written plan.

If this summer you are faced with such a situation Stop.. take time and make sure that Plan B is clearly thought out. If not, the effects of a panic solution could be with you for a lifetime.

So what is new in access?

This time last year the new Work At Height Rules had just come into effect in the UK, They are now well developed and a number of headline grabbing prosecutions have taken place. In many cases without an accident having occurred. A key aspect that the HSE is focusing on now is falls from lower heights. It is clear that if you are working 20 metres up in steel works, you are

German company Norbert Wienold, has introduced a modification kit for the Genie Superlift, which allows it to be used in a reversed position so that it can lift up close to walls and other obstacles.



A special self propelled cutting tool is lifted into an upper floor for refit work at a Gatwick airport pier. What crane is it?



The use of mini cranes with rubber tracks is proving ideal in certain petrochemical maintenance jobs thanks to compact dimensions and pick and carry capability. Here a two tonne Valla 20TX prepares to remove a pump.

workplaces across the UK, with almost 70 percent of those injuries coming as a result of working at heights of two metres or less.

In the preceding article we covered self propelled lifts designed for lower heights, such lifts are also ideal for getting into tight areas. In some large plants maintenance workers use such lifts as a form of transport, carrying their tools and equipment to the work area and should they need to work at height, a push of a lever will take them right there safely and at the ideal height for the work.

Keep a lift or two on standby

While it might seem extravagant it is worth-while hiring in a few aerial lifts that are suited to your buildings and having them on standby during the shutdown/refit period. You will be surprised how often they are used and how much time they will save. In addition, when you need to reach something, it will be done safely. Many accidents are caused when a very short job needs to be done at height. To call and arrange the hire of an aerial lift is seen as too time consuming, not to mention expensive. So corners are cut, someone stands on a forklift, or uses a ladder inappropriately. We have all done it... just think an accident will cost a great deal more and the court procedures that follow a serious accident don't bear thinking about. Putting that aside, if you have not already used powered access, you will be amazed at how much time it will save.



It's a Hiab 600/7 hired from Gatwick Plant working with 18 metres of main boom and a nine metre 135X jib. The crane is fitted with full remote controls

Clearly a plan B is needed, but all too often no planning goes into Plan B, it is an off-the-cuff, quick fire solution to get the load off the delivery vehicle and into place so that waiting engineers can begin installing it. The pressures to take short cuts are massive. But this is when it is most dangerous. This is where you need the services of a person or company who knows what they are doing, rather than

unlikely to get away without using a serious piece of equipment such as a self propelled boom lift. Once using such a machine, safety is dramatically improved, regardless of anything else you might do. At heights of up to 2.5 metres though, people are far more likely to make-do and take risks.

According to official HSE statistics, last year, over 3,700 major injuries were recorded from falls at



An unusual application for a lorry loader, this big Fassi has been adapted for industrial machinery installation. Big knuckle booms are ideal for such work



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Second opinion pays dividends

When Portasilo faced the challenge of installing two eight tonne silos over the top of two 85 metre chimney stacks at the Ferrybridge power station, it called in a major crane hire company to assess the job with its engineers. Due to the limited space available to position a crane close in, the hire company said that it could not be done, obliging the use of a much larger crane working at a long radius.

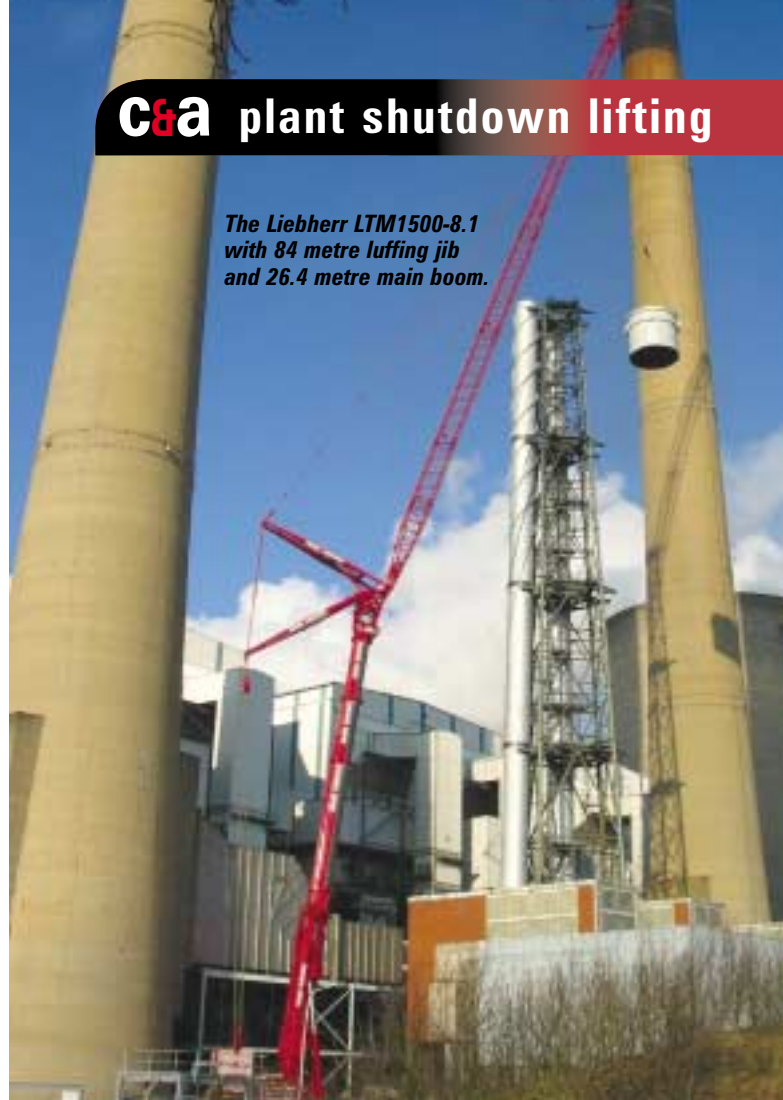
The cost of using a much larger crane, possibly a big lattice boomed model, would have been far more than the client had banked on. Its engineers clearly felt that with very careful planning it might be possible to use a smaller telescopic crane.

Crane Services/Nationwide crane hire, was called in for a second opinion. Its lift planning engineer, Andrew Clark, carried out a site evaluation and formulated the CAD drawings. The first impressions seemed to confirm the first crane hire company's view, everything seemed to be against a smaller crane. The rigging space was very confined to say the least. The only position in which to place the crane looked impossible. In spite of this Clark was confident that the Liebherr LTM 1500-8.1 could do the job. He planned the lift on the company's CAD system and using an 84 metre luffing jib on a 26 metre main boom length with 135 tonnes of counterweight installed. He figured that the lift could be completed with a maximum radius of 74 metres. With only millimetres to spare, boom deflection would be critical.

In the end Clark was proved to be right and the lift worked perfectly to plan. Although literally with only millimetres to spare.

C&a plant shutdown lifting

The Liebherr LTM1500-8.1 with 84 metre luffing jib and 26.4 metre main boom.



Minimum headroom

When Haas-Tek Services, a specialist machinery installation company, had to lift a 25 tonne 'planing' machine onto a high plinth, with very little headroom, it called in LGH Megalift to help.

Two problems were highlighted by LGH, firstly the 'planing' machine had to be placed on a three metre high plinth and secondly there was

a lack of available headroom within the premises, as the roof sloped significantly at one side of the building.



Following an engineering study it was decided that the machine would be installed from the side of the plinth, as the angle of the roof prevented an end on approach. Two lengths of rail track were placed running past either end of the plinth. As the machine was relatively narrow and because a second machine was situated in close proximity to the back of the plinth, only two of the lift cylinders from a 4400 jacking system were utilised.

These cylinders were placed upon the rails and fitted with a 10 metre lifting beam, which had been offset upon the jacks in order to maximize the roof clearance. Once the jacking system had been put in place, the client positioned the machine alongside the plinth.

The 'planing' machine was constructed with an upper control box section, containing all the electrical power

LGH Megalift lowers the 'planing' machine onto the plinth.

cables, which ran along the top of the machine. It was essential that contact with this section was avoided. So lifting slings were passed over the top flange of the lifting beam and the sharp edges were "softened" with large semi circular tubes.

Once the rigging had been successfully attached, the machine was lifted and temporary supports introduced underneath. This enabled the slings to be readjusted to accommodate the tight headroom before the final lift took place. The Megalift jacks then hoisted the machine above the plinth, before tracking along the rails to complete the operation by placing the 'planer' in its final position on the plinth.

'We were impressed with this solution which was selected in preference to other options for safety reasons and to minimise disruption to other site activities,' said Jim Bell, managing director, Haas-Tek.

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How to remove over 300 tonnes of press in a closed building

Lamberton Engineering, a specialist press manufacturer, was contracted to dismantle and remove a large press from the premises of Motherwell Bridge in Glasgow.

The press comprised a machine bed situated within a concrete base. Four eight metres high "tie rods" or shafts, one at each corner, made the job particularly difficult. A 105 tonne press crown was fixed to the top of them, while an adjustable table, weighing 75 tonnes, slid up and down.

Lamberton sub-contracted the lift to LGH Megalift which then faced the challenge of lifting the crown off and lifting the table up and over the top of the rods. Following an engineering study LGH Megalift developed a cost effective solution.

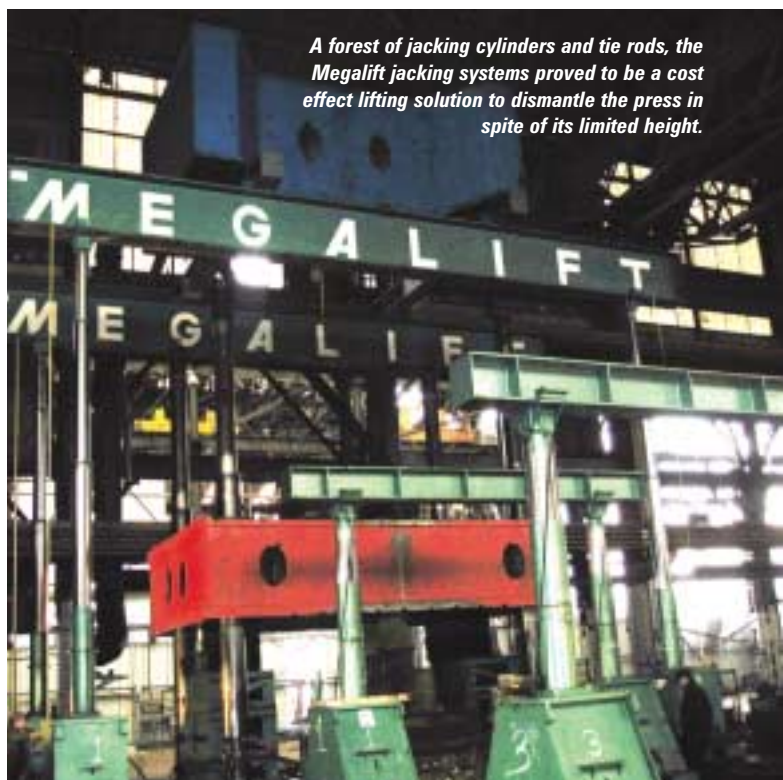
Two lengths of track were placed on either side of the press and Megalift jacking cylinder modules were installed upon them. The cylinders were connected across the rails by two 12 metre beams. Two additional beams were positioned on top of the 12 metre units, both passing under the crown. This allowed the Megalift jacks to extend sufficiently to push the crown clear of the tie rods by almost a metre.

The crown was then tracked clear of the press body and lowered. However, as the jacks had lifted the crown from underneath, the crown was still 4.5 metres in the air when they were retracted.

To overcome this, a second Megalift jacking system was pre-erected in front of the press to support the weight of the crown whilst the first system was re-rigged and positioned over the crown so that it could lift it from the top and then track it further into the building. At that point heavy transport was reversed under the crown allowing it to be lowered onto the vehicle and removed.

The 75 tonne table was removed in a similar manner. As soon as Lamberton had removed the tie rods, the base could be freed from the concrete. The operation was then successfully completed by lifting the base and loading it onto the transport.

'We were impressed with the solution provided by LGH Megalift. The clever application and versatility of the Megalift system meant that we were able to overcome the problem of restricted access quickly, enabling the demolition works to be completed on schedule,' said Colin Totten, project engineer for Lamberton Engineering.



A forest of jacking cylinders and tie rods, the Megalift jacking systems proved to be a cost effective lifting solution to dismantle the press in spite of its limited height.

Mondi has installed two 50 tonne cranes with tandem hoists and full data overload and data display



50 tonne cranes use tandem hoists

Austrian paper company, Mondi, has taken delivery of two 50 tonne overhead cranes at its paper production site in Hungary. The cranes were installed by the Budapest based crane specialist ECO-Cranes and the Mannheim based hoisting specialist SWF Krantechnik GmbH.

The cranes' task is to transport finished paper rolls, which weigh up to 40 tonnes from production to storage location. The two double girder cranes of spar box construction have a span of 24 metres each and a lift capacity of 50 tonnes. Each crane features two 25 tonne Nova NF electric wire rope hoists. The two hoists operate in tandem to transport the paper rolls.

The hoists are equipped with an electronic hoist monitoring system, the Nova Master which, says the company, makes smooth lifting and stopping of the load easy. The system is similar to the standard frequency inverters for crane and trolley drive. The user can read all data concerning the hoist, such as current load on hook, current number of starts, operating hours logged, remaining safe working period, or the current temperature of the hoisting motors, via a display on the control panel or remote control box.

World biggest bore

An Alimak SE-450 lift has been installed in the world's largest tunnel boring machine (TBM). As the world's largest, the manufacturer expected it to have a large number of visitors, so the lift was installed to transport people and materials between the three floors within the massive machine. Apparently it is the first time that a lift has been installed in a TBM.

The S-300 EPB Shield is manufactured by Herrenknecht AG and is going to work on a new, 3.65km tunnel that is part of the re-routing of the M-30 motorway around Madrid. The TBM weighs

4,364 tonnes and has an excavation diameter of 15.20 metres. It also possesses the highest torque ever installed in a TBM.

The lift is a standard Alimak SE-450 DOL with a capacity of 450kg and a lifting height of nine metres.

A second 15 metre TBM weighing 4,000 tonnes and manufactured by Mitsubishi/FCM of Japan, is being used on another part of the M-30.

The manufacturer ordered an Alimak SE300 DOL lift for this tunneller following the news that the Herrenknecht was to be equipped with one.

The S-300 EPB Shield, manufactured by Herrenknecht AG is fitted with an Alimak lift



The rack and pinion lift covers the three floors within the TBM



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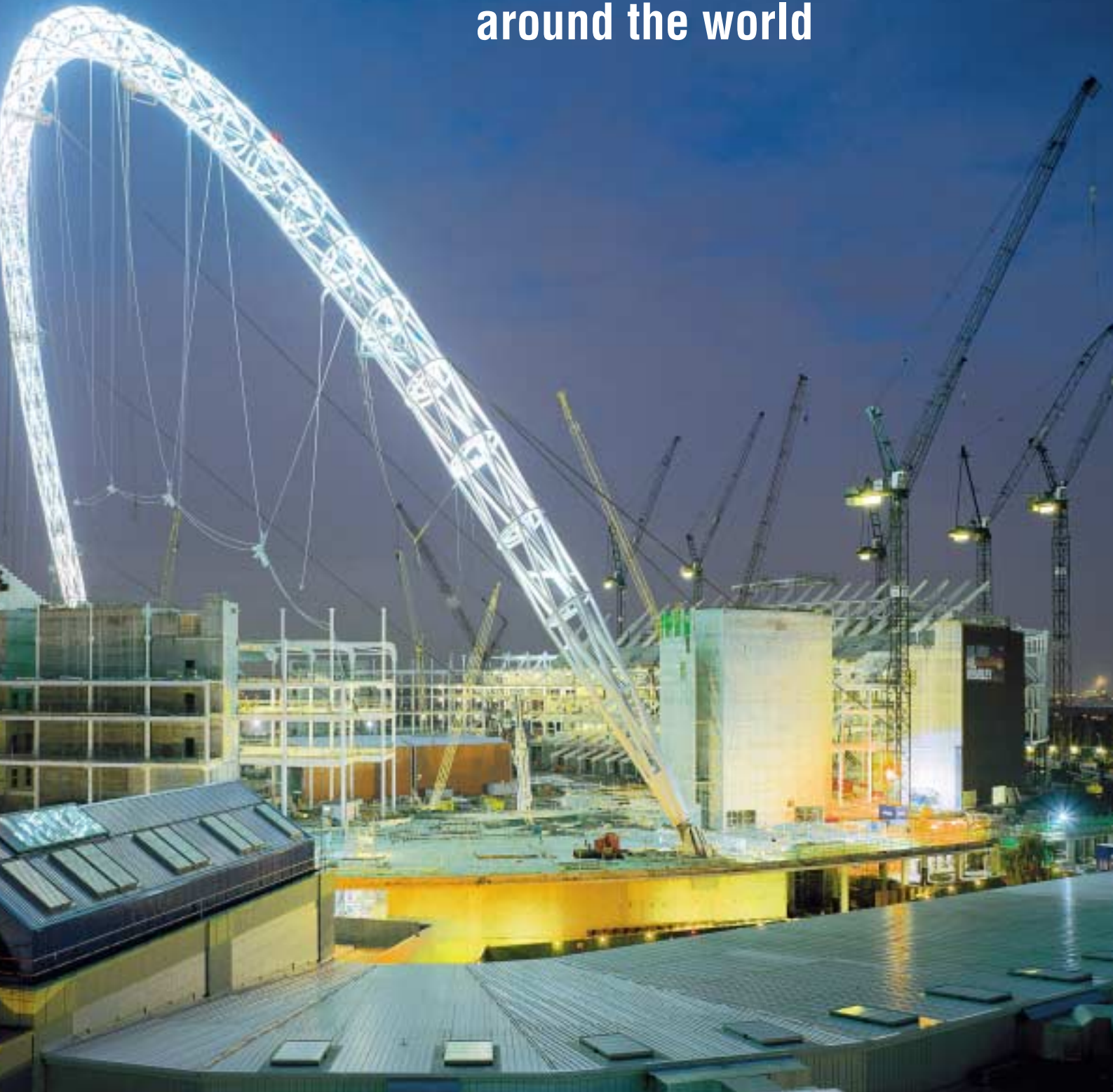
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