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Plant shutdown

lifting and access

This time of year many industrial plants are finalising plans for annual summer shutdown work. While most employees go off on holidays, production engineers and plant maintenance staff look to capitalise on the empty buildings to change out older equipment, move tools and fixtures or simply carry out refurbishment that would be disruptive when the plant is operational.

We take a brief look at some of the lifting and access equipment available and some interesting industrial applications that might give you an idea or two.

#### Lifting

The moving of machine tools and production machinery, presents some of the toughest challenges for the lifting professional. Every job is different and presents new challenges, access to the load is often congested, with height, weight and width restrictions. The load to be lifted is often surrounded by other equipment creating an obstacle course just to get into position. Add to this the most common limitation, Headroom, and you gain respect for those who specialise in such lifting.

The choices, of what equipment to use, while limited, is still as wide as your imagination and knowledge. In addition to smaller All Terrain city cranes, which can be used in larger buildings, the options include, industrial pick and carry cranes,

Top of the tree the Valla 90e Electric crane can carry 90 tonnes



articulated lorry loader cranes on special chassis, mini crawler cranes, mobile lifting gantries, jacking systems and custom designed solutions, not to mention telescopic handlers.



Industrial pick and carry cranes are making a bit of a come back in the UK, with products mainly coming in from Italy, where for some reason there are a large number of manufacturers. Valla UK, has done a great deal to "pioneer" Italian industrial cranes, especially the smaller electric powered models. Valla has also developed a range of rubber tracked models, the TRX models at bequest of Valla UK. Both crane types offer compact dimensions and are highly manouverable, ideal for machinery moving.

A more recent entry into the UK market is Ormig, which tends to specialise in medium to larger pick and carry cranes. Peterborough based Crowland cranes represents Ormig and has recently delivered two ten tonne battery powered cranes to Ainscough Engineering Services Ltd, both are equipped with hydraulic fly jibs offering three tonnes lifting capacity or forks with up to 4.8 tonnes capacity. Ainscough has grown significantly in the industrial lifting market this year following its purchase of Vanguard Industrial.

In the most congested plants compact

self propelleds can be ideal

Grove, which started out in 1947 building industrial cranes, still markets them in the USA and is now considering reintroducing them to Europe. It is test marketing the latest Yard Boss range in Germany and if it goes well will look to actively market them in the rest of Europe.



A typical shifting job

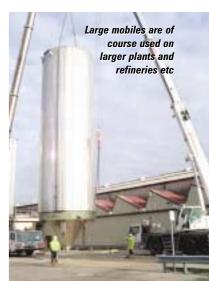
A more recent product that is increasingly used in machinery movement is the mini crawler crane. The larger units are well worth looking at to solve difficult to reach lifts. While the maximum capacities might not impress, they can get right up close to a piece of machinery and have extremely low ground bearing pressures. They can even be taken to upper floors to approach a tough lift from above, if floor loadings permit.

Moving away from mobile cranes a whole range of lifting gantries and jacking systems are also available.



A Valla demonstrates a tough restricted headroom lift at Drax power station

Companies such as LGH and Hydraspex specialise in this type of equipment, although many industrial installation and moving contractors also use this type of lifting gear.





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### industrial

#### Cha



There was Barely an inch of headroom for this lift.

#### Tight as it gets

A recent job at the London science museum best demonstrates the clever use of jacking gantry systems for machinery moving.

A ten tonne steam engine needed to be removed. However a massive flywheel protruded down from the floor above leaving only an inch or two of clearance above the engines large steam chest.

The solution was to create two 4100 hydraulic gantries, each one comprising two Megalift jacks joined by an overhead I beam. The gantries were set up one either side of the flywheel. Four sets of lifting chains were then slung from the I beams on large rings that rested on roller type skates running on the top of the beams. The lifting chains were attached to the four corners of the steam chest and the

A simpler self propelled platform from Mobilon



weight taken. The Bolts were removed from the flanges on the six legs that supported the steam chest and it was gently rolled along the beams on the skates. When clear of the rest of the engine it was lowered to the ground. With the steam chest removed the rest of the job was easy.

### What about access equipment?

When it comes to Access equipment that can cope with the same congested areas, there is an even wider selection of equipment, ranging from the single person lifts covered in our feature on page 17, to narrow aisle articulated booms that offer up to 10 metres platform height, to self propelled mast



The biggest scissors are ideal for some applications, here a 19m Holland lift (red) and 22m Liftlux

booms which now reach 12.5 metres, often with respectable outreach, to massive battery powered scissors that exceed 22 metres, to narrow atrium boom lifts that reach up to 42 metres or simplest of the lot, aluminium tower systems and derivatives.

For the tallest jobs The crawler or trolley mounted atrium type booms can reach most industrial jobs, some have simple straight booms, while others offer articulated up and over reach. The versatility of these units is incredible, with the ability to climb stairs or escalators and pass through regular door ways.

More typically though, heights in many industrial buildings are 10 metres and lower, The small narrow aisle self propelled boom lifts, that feature dual arm risers, telescopic

booms and articulating jibs, some of which rotate, are able to get in almost anywhere. Most rental companies run at least a few of these lifts, which are usually electric powered with non marking tyres and overall widths in the 1.2 metre range. These lifts are heavy though, up to six tonnes. If you can manage with 1.5 metre wide lifts, models area available for a lot less money and with gross weights in the region of three tonnes.

Mast booms which feature a telescopic mast and top mounted jib are also well suited, to shutdown maintenance, while not



Telescopic lifting gantries are highly versatile for industrial moving.

offering as much outreach as the booms, they are significantly lighter, often a third of the weight, and are just under a metre wide. The platforms are best suited to one person, although most will take two.



40/45 ft articulated booms are widely used, note the rotating jib

Scissors of course are often the mainstream access product for shutdown work, running from the small 12 ft/4m mast type models right up to 20 metres or more.

One thing to consider in a shutdown project with very tight deadlines is battery life, if two or three shifting. While the latest electric scissor lifts are significantly more efficient, a 16 hour plus work day can not only deplete the batteries but might well leave insufficient battery charging time.





### industrial



A rare use of a full lorry loader working in plant, they are usually mounted to special chassis for such jobs.

Solutions to this problem, include operating the unit when plugged in (if not travelling and If the unit is fitted with a line contactor) or renting /buying one of the latest models that thanks to all electric drive can usually cope with such shifts.

## Lower heights are the most dangerous

With all of the new powered access products available it is easy

to get carried away with the latest 40 metre self propelled lift or 82 metre truck mount etc. The vast majority of routine work, however, is under four metres and is at the lower heights where most accidents occur. Anyone needing to reach 20 metres or more has no choice but to use a purpose built piece of access equipment which is intrinsically safe.

If it is three metres though standing on a chair stood on a

table will do for some and yet a fall from this height can seriously injure and often kills!

A couple of non powered, and yet self propelled work platforms have caught our eye recently. The first, at the ARA is the Crawler, that uses a standard lightweight steel scaffold base with optional extension kit, and features a drive wheel that allows the user to relocate the tower from the platform.

The power source

The power source for the wheel is a simple cordless electric drill.

The device works well and offers working heights of up to 3.8 metres.

The other product is of a similar nature but more of a fully featured unit than a scaffold is made by Mobilon. Available in

UpRight International TM12



four heights with up to five metres working height, it comprises an anodised aluminium tower with a similar front drive wheel, In this case the wheel is powered by a foot pedal that uses a very simple ratchet drive system.

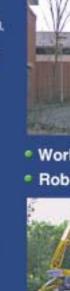


- Narrow and compact
- Versatile in application











- Working heights up to 30 m
- Robust yet lightweight







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