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The new Work at Height Rules mean more companies than ever are looking at the methods they use to gain access to tasks that cannot be carried out from the ground.

Taking the assumption that for most applications a risk assessment will show that a powered aerial work platform is the safest method of reaching work at height. The financial leap from ladder to power can be daunting, especially for end users who want to have their access equipment constantly available.

A single person vertical lift, is often the most economical and practical step up from non powered access equipment. With a wide variety of lifts on the market we look at some of the alternatives and how they are used.

Push around and portable lifts

If you are looking for the lowest cost powered lift option, nothing comes close to a simple push around/ portable lift, especially in the 10 to 15 metre range. This type of lift features an aluminium mast and platform on a base with outriggers or a heavy counterweight. At the lower heights a few manufacturers offer versions with steel masts and platforms, such models cost less and are a little more rugged than their aluminium cousins, although heavier of course.

In the UK and Ireland the vast majority of vertical mast lifts are made largely from aluminium. They typically come in four our five standard platform heights, 20ft/6m, 25ft/7.5m, 30ft/9m 35ft/11m and 40ft/12m with all of the models in a range typically sharing the same working components. The different heights are achieved by adding mast sections up to 30ft, while the larger units feature longer mast sections. As a result the 30ft and under models usually offer a low overall stowed height of under two metres, for easy passage through standard doorways.

The taller units stand up to three metres high in the stowed position and need to be tilted in order to pass through two metre doorways. In order to do this safely, they are fitted with a tilt back mechanism that both assists the tilting and forms a trolley to allow the machine to be pushed along in the tilted position.

The other component that changes the higher you go, are the outriggers, the 20ft units have outrigger footprints in the 1.5 by 1.5 metre range while the largest units can be close to double that. Since CE and EN280 came into effect, this type of lift, at least in its standard format, is limited to indoor use.



single person lifts



Outdoor use?

Outdoor kits are available, however, usually consisting of longer outriggers. This will allow you to use the lift for such jobs as cleaning signs on your building or changing the bulbs in security or other external lights. You will though need to check that the outrigger spread does not prevent you getting close enough to a wall to do the intended work! Some users do buy two sets of outriggers, so that they are not encumbered by the big footprint when indoors.

Avoid the larger models unless you really need the height

Unless you really need the height, or you have three metre high doorways, avoid the larger models, they are cumbersome to move around and at the lowest heights the mast gets in the way. If on the other hand you do need to reach heights of 10 to 14 metres this is by far the most economical powered product available.

Mast design

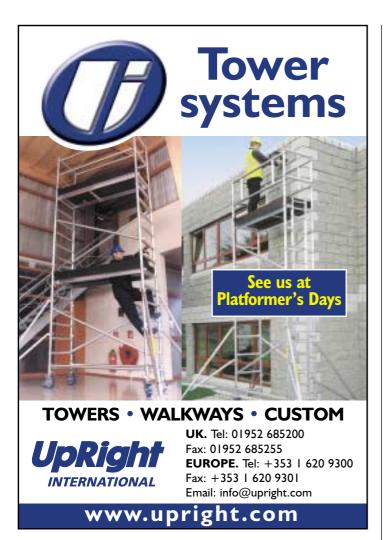
The vast majority of vertical mast lifts use an extruded aluminium

forklift type mast, with each section stacking in front of the other. The mechanism is raised using a single hydraulic cylinder and several sets of chains and sprockets. Once again just like a forklift.

One manufacturer, UpRight, builds its mast from an aluminium box section. created from aluminium sheet formed into two C channels and riveted together, with cast iron collars to house the running gear for each section.

The steel masts tend to be similar to the aluminium forklift design, but with wider spacing. Self propelled models with steel masts often use an inverted box section, for cost and durability reasons.

There is one further mast design in which the platform is simply attached to the top of a hydraulic multi stage cylinder. The height offered by this increasingly rare style, ranges up to 14 metres. The crows nest appearance of a fully extended lift looks frighteningly unstable, however these units usually meet all international regulations not only for indoor use, but also for outdoor use in up to force six wind conditions with two people on board! So appearances can be deceptive.





Outriggers or more weight?

If you are buying a vertical lift, and have no plans to load it into a van or a pick up, you might be better off looking at the models that use a counterweight in place of the outriggers. Often designated as "Industrial", these lifts are pushed around in the same way as the models with outriggers but when in position the wheels are retracted, dropping the lift down on to four pads. Once on these little legs, as long as the lift is level, you can step into the platform and up you go. When ready to move on, you push a foot pedal that lifts the unit back up onto its wheels and off you go.

These industrial models are heavier, often more than twice the weight. A 20ft vertical lift with outriggers usually weights around 300kgs, while a 20ft counterweighted /Industrial model can weigh up to 650 kgs! If you have smooth concrete floors and no ramps this should not be an issue and you can of course move them around using a forklift.

Many vertical lifts though are used for sports halls, theatres, and other places that have highly polished wood floors with limited point loading capability. If this is the case then forget the industrial models, they are simply not for you.

The platform height of the Industrial versions is usually limited to 30ft or less, for stability reasons. One major advantage, aside from not needing to fit the outriggers, is the fact that you can get up close to a wall or into a corner. In spite of this, several companies offer devices that provide extra outreach by cantilevering the cage out from the mast by between 60 and 90 cm.

Push around lifts offer the lowest cost per metre of lift.





Retail applications are ideally suited to vertical mast lifts.

This can be useful if a kerb, or other obstacle prevents the placement of the machines base directly under the work.



The Bravi range of self propelled masts offer remarkable gradeabilitiy

Who makes what?

In total there are around seven or eight producers of vertical mast lifts, yes if you turn over every stone around the world you will find many more, including some very strange beasts. However here in the UK and Ireland you will have your work cut out to get serious quotes for more than three different machines.

One company, Genie, is dominant, with its AWP and IWP product lines, it has been selling this type of lift for more than 25 years and today produces by far the widest range of products with a dazzling array of options. Its AWP line uses outriggers and is available in all five heights, while its IWP range, which uses a counterweighted base, offers 20, 25 and 30ft platform heights, the smallest of which is available with an outreach option offering up to 610mm of cage cantilever. Genie has also pioneered a wide range of options and attachments for its push around lifts, from the usual tool trays

and fluorescent tube caddies to rough terrain and narrow chassis options.

JLG also offer a wide choice of portable and push around lifts, as well as a good number of self propelled versions. Its main push around range is designated the Accessmaster line, and includes a 15ft Industrial/counterweighted model, the AMI15. The other models in the range employ outriggers. The line up covers all five heights, with the highest being 12.5 metres.

A year ago JLG acquired the Manlift PM range, built in France, It now identifies this range as "Personnel Manlift" The product line has six models, and is unusual in that it achieves the tallest heights by stacking up more mast sections, rather than using longer ones. The benefits of such an approach is that even the 12 metre model closes up to a stowed height of 1.98 metres. A tilt back



Atrium cleaning and maintenance are perfect applications for self propelled versions of the push around.

device is therefore not required for normal applications. The disadvantages are: a reduction in platform rigidity, due the extra number of sections and a longer machine. Also unusual is the range also includes two models in the 20ft height class, the P21 with 21ft /6,3 metre platform height (in addition to the 20ft /6,1metre P20) which uses an extra mast section, providing a very low closed height of only 1.72 metres. How or even, if JLG will market this additional range alongside the Accessmaster remains to be seen.

UpRight was at one time the number two supplier of push around vertical lifts, behind Genie, with its UL range. The UL is the one product to use an aluminium box section mast, rather than the forklift type masts used by most other producers. The box



The smaller models will go through doors and into elevators without tilting

section does provide better platform rigidity but the thin wall box sections or "cans" are significantly more prone to damage from abuse and are more expensive to manufacture.

UpRight has prototyped a UL with an extruded forklift type mast, but has no plans to proceed with it at this stage. Another producer that chooses to be different, is Helmut Kemkes, the German producer of the Kuli lifts. The KA range has a steel chassis supporting a multi stage hydraulic cylinder, onto which a cage is mounted. The largest model is 14 metres high and when raised appears to defy gravity, looking like a big crows nest on top of a slim mast. The range though is the only single mast product that can be used outdoors in force six winds with two men in the basket!

Other European producers

The only European owned producers of this type of lift are based in Italy and Germany, Robert Böcker produce the Alp lift range, in Germany, The line up includes the PH, PHC, and PHC-I ranges, all of which use outriggers and cover all of the height sectors up to 12 metres. It also builds the PHC-HI industrial model which has a counterweight and no outriggers.

All of the steel components on the Böcker lifts, such as the chassie frame, are galvanised, rather than painted. The result is a machine that does not look quite as nice as the Genie or JLG when new, but after a year or two of heavy use, the galvanised finish still looks very good, while a painted model can start to look tired with chipped paint and rust beginning to settle in.



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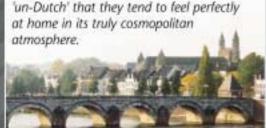
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Italy has a number of companies producing vertical push around lifts but Faraone is the largest and most well known. It offers two push around ranges, the basic ZP line that offers four heights, 6/8/10 and 12 metre platform heights, and are simple and inexpensive. The PK range in contrast, offers all sizes from six metres right up to a 46ft/14 metre platform height model the highest available. Unusually many of the models are available with an option of either a two man platform or a rotating cage that swings out to provide 600 mm of outreach.

The other American

Push around vertical mast lifts have long been popular in the USA, and Archibold, Ohio based Bill Jax has long been a significant player, particularly with its Cougar and CAT ranges which are constructed in steel. The Cougar lift has been sold here before, the latest models are the 30ft CAT 2900 and XLT-CAT 24ft/7 metre models which are both CE approved, along with the company's sole aluminium model, the Odyssey 34 with 10m platform height. The Odyssey uses a totally different outrigger design



to the other products on the market, with its four legs pivoting from the top of the masts base section. This provides extra support to the mast, faster erection and a small footprint. Bill Jax is looking to

import these and other key models from its range into the UK and Ireland again.

Power sources

All producers offer DC battery or AC mains power options, while Genie also offer an air option for sensitive areas. The UK and Irish markets tend to prefer DC battery power on this type of lift, while the rest of Europe generally go for AC. Why the difference? as usual historical preference. In the UK a higher percentage of vertical lifts are rented and with the UK's 110 or 230 volt power variations it is simpler to stock a battery powered model with a dual voltage charger.

In continental Europe a higher percentage of this type of lift are purchased by end users,

Self propelled versions

The aluminium mast from push around vertical lifts has also been used by some manufacturers as the lifting mechanism on a self propelled



chassis. There are a essentially two types of self propelled models, those that are literally self propelled versions of the push around models and those that are designed from scratch as a self propelled lift, simply using the mast concept as its lift mechanism.

The former usually feature two drive wheels and two castors and offer platform heights in the 12 to 20 ft range. They steer by counter rotating the drive wheels, and the castors simply trail behind. As a result they offer exceptional manoeuvrability and very compact dimensions. JLG has driven this market with its Accessor range with platform heights of 15 and 20ft, a stock picking version is also offered. The Kuli lift, made my Helmut Kemkes GmbH, uses a steel forklift type mast in is KB5 three metre self propelled

lift. This is a good stable unit but a

little on the low side in terms of

Caa single person lifts

working height and a little wide at 870mm, however thousands have been delivered and they are very much appreciated for stock picking.

This type of lift is well suited to applications such as retail, hotel, office or warehousing work, where the buildings offer smooth level floors and the compact dimensions are desirable, both for work and for storage.

More a Scissor alternative

Overall however, the preferred models with most users are those that have a full self propelled chassis with similar features to small scissor lifts.

The Genie Runabout has sold well in this category, with its GR12 -12ft/3.5m and GR15, 15ft/4.5m platform height models. Earlier this year the company dropped its eight foot model and introduced the GR20 a 20ft/6m platform height version.

JLG has now acquired the Toucan Junior range with platform heights of 12ft/4m and 20ft/6m, it was redesigned a couple of years back to incorporate a heavy duty front axle and is now a superb machine.

Haulotte has had products in the range for some time, its Star 6 uses a steel mast section, which all things being equal, most buyers prefer.

The company that pioneered this type of lift outside of Japan, UpRight, also features a steel box section mast on its TM12, which offers a 12.5ft/4.3m

platform height.

The TM12 was

for many years

leading product,

but it is now

Runabout. It

still sells in

large numbers,

particularly in

Scandinavia

where they

outsold by

the Genie

the market



A rare two man platform on a portable lift

are highly appreciated.

In the UK HSS runs both

UpRight TM12 and Haulotte Star 6 in its fleet, in addition to the aluminium mast

Genie GR15 Runabout.

The principal appeal of this type of lift is the low entry level height, you step in rather than climb in, the low overall height, which allows users to



The self propelled mast lifts are ideal for stockpicking.

drive through a single door from the platform and most important of all the Gross weight and overall length.

The four to five metre models typically weigh between 750 and 800 kgs, while the six metre models are around 1,000kg. This, combined with a lengths of under 1,660 mm mean that they will fit in all but the smallest elevators for work on upper levels.

The shortest models on the market offer an overall length of just over 1,300 mm while the longest come in at 1,550mm so if length is critical, check the specs.

Something in between

For something slightly different we go back to Italy, where Bravisol produce a small range of self propelled mast lifts, that literally fit between the two above. They feature small wheels with a relatively large platform and excellent gradeability, at least in terms of climbing a steep but smooth slope.

Faroane also make a range of Self propelled models that have evolved from its push arounds, and as with the Bravi they fit between the self propelled push around and the scissor derived mast lift.

Manufacturer	Push Around	Self propelled
Genie	Yes	Yes
JLG	Yes	Yes
UpRight	Yes	Yes
Haulotte	No	Yes
Böcker-Alp Lift	Yes	No
Faraone	Yes	Yes
Bill Jax	Yes	Yes (Not CE)
Bravisol	Yes	Yes
Helmut kemkes	Yes	Yes