

Scissors - the sharpest tools in the box?



Over the years, the self propelled scissor lift has become 'part of the furniture' on construction sites as contractors increasingly appreciate their productivity benefits and improved safety. Here we take a look at the latest developments and manufacturers that are hoping to extend the market sector.

Over the past 10 years or so, the more popular scissor platforms have seen a quiet and steady progression in design and performance, unlike the major developments seen in the mid 1990's. However the scissor has recently made great strides at the lower end of the market. Having taken this side of the Atlantic by storm, Pop-Up has just dipped its

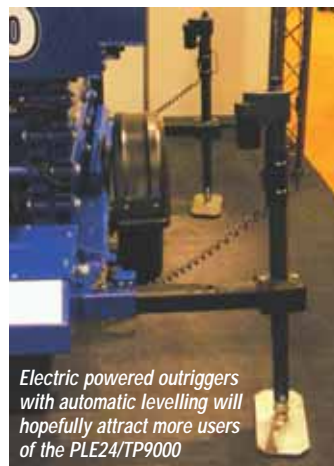
toe into the North American water by showing its push around scissor lifts at the ARA show last month. Undoubtedly the platform success of last year, the 1.63 metre platform height/ 3.5 metre working height, 240kg capacity platform sold 1,500 units in its first year and since its introduction in 2006 more than 3,000 units have been sold. A case

The platform success of 2007? - Pop-Up has sold more than 3000 units in since its introduction in 2006.



of the right product at the right price at the right time - benefiting also from the introduction of the 2005 Work at Height Regulations. The addition of the Pop-Up Plus+ gives an additional one metre working height and expands its range of applications further.

Another variation on the small scissor theme is the TP9000 - a towable, trailer-mounted scissor lift with a seven metre platform height. Imported from PLE in the USA, it is a refined CE version of the PLE24 which has been available for several years. With its 24ft platform height and weighing just 1,100kg, the unit is easily towable behind most cars.



Electric powered outriggers with automatic levelling will hopefully attract more users of the PLE24/TP9000

Sales to date (around 30 to 40) have not been as strong as expected. The company has recently installed electric powered outriggers with automatic levelling and hopes to appeal to users who dislike manual outrigger jacks. Once elevated, the 1,200mm by 2,400mm (when extended) platform offers a good working area and a 225kg capacity. A similar type of large platform (but

not extendible) was also launched by Italian SUP Elefant at last year's SAIE, but whether it is marketed in the UK remains to be seen.



Adding to the small number of trailer mounted scissor platforms is this from SUP Elefant.

Rough Terrain

The rough terrain scissor has been around since the birth of the self propelled platform yet over the last few years there have been few major technical developments. Even the tallest platforms are only marginally higher at 33 metres than they were 10 years ago. There have, however, been significant improvements in terms of choice and performance with narrower widths and increased platform capacities.

Something quite different was launched by Finnish manufacturer Leguan at Bauma 2006 with its four wheel drive 80SX skid steer-type scissor lift.



The Leguan SX80's skid steer type chassis gives good rough terrain capability and can level on slopes up to 25 degrees.

Developed in conjunction with European rental company Ramirent, the unit is fully self propelled in the stowed position with outriggers set before elevating to six metres. Being based on a skid steer type chassis, the machine has good rough terrain capability and can level on slopes up to 25 degrees. Its light weight makes it ideal for a number of applications.

Skyjack - the world's fourth largest platform manufacturer - has been enjoying excellent sales of its compact Rough Terrains in Europe probably selling more than all other producers combined. The Canadian-based company instigated the dual-deck extensions when it modified UK machines for cladding work in the mid 90's. Currently implementing a European expansion programme it has recently moved into purpose-built headquarters in Oswestry, Shropshire. The facility will be the hub for Skyjack Europe's



Skyjack instigated dual-deck extensions in the UK.

sales, service support, finance and administration operations.

A number of manufacturers are looking to take a piece of the European scissor lift market. On page 22 we report on Japanese market leader Aichi's first 'global' scissor lift family, the 20 and 26ft 'skinny mini' electric slab machines.



S-Mac showed a 19ft elevator scissor at the Big-5 show in Dubai

Japan's number two aerial lift manufacturer S-Mac exhibited at the Big-5 show in Dubai in November where it showed a 19ft elevator scissor lift to 'test' the local market as a first step towards stepping up its export efforts. Prices are very high which will probably limit its progress. Leading

Chinese manufacturer Jing Cheng Heavy Industries (JCHI) is also preparing to enter the European market with three new electric scissor lifts with working heights between eight and 10 metres. Once CE approved, the company's next project is a range of four wheel drive diesel scissors with working heights of 10, 12 and 14 metres.

An all-American manufacturer which is finally preparing to launch its CE models is Custom Equipment. It offers a two scissor lift product line, the HB1030, with 10ft platform height and a new 14ft model both designed for low level internal applications. With a 1.5 meter overall length and at 530kg or 750kg



Custom Equipment's new 14ft HB1430 should now be fully CE compliant

GVW they are ideal for elevators, upper floors and delicate surfaces. In fact their dual steering wheels are designed to turn full arc without twisting or rucking carpet.

A little closer to home, German manufacturer PB Liftechnik showed its products at Vertikal Days last September - the first time in the UK. Two new heavy duty scissor lifts were seen including the brand new S171 which has an overall width of 1.2 metres. Both machines are driveable at full height and equipped with jacks which allow the machine to be levelled on uneven ground. The company is looking to sell direct or to find a local distributor.

The improving performance of the electric platforms is also the cause of a major expansion for this type of machine. At the recent ARA

German manufacturer PB Liftechnik is looking to sell its products in the UK.



MEC showed two new machines at the ARA - the 30ft 3072 and the 37ft 3772

show MEC unveiled an electric version of its 72 inch wide compact rough terrain scissor lift range, the 3072 and 3772. With a massive battery pack the new model provides similar performance to the diesel version including four wheel drive and leveling outriggers. The only downside is slower drive speeds.

This is not the first such machine. UpRight produced an electric version of its XRT and Holland Lift in particular has done well with four wheel drive electric machines, but volume producers have generally had little success with this concept.

The UK is in fact Holland Lift's second largest export market after Germany, surprising in that 10 years ago, few, if any were prepared to pay for ultra high spec, heavy-duty scissors. UK distributor Russon Access has made a significant impact with these high quality machines including two 32 metre Holland Lift G-320DL30 to Access Rentals which has also ordered four 27 metre M250-27 - the first in Europe - which has a useful 1.2 metre wide side platform extension. Delivery is expected spring/summer this year.



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Enhanced ES

Some four years or so after it first launched the ES series, JLG has given its models a thorough evaluation and introduced a number of enhancements and product improvements, even though visually the machines look very similar.

These changes include a faster system start up time eliminating the need to 're-boot' the system if a function is engaged before the system is ready. Gone too is the need for a separate analyser - the machine's digital display will now show any error codes as well as providing a readout of battery status.

The deck extension has new U-shaped channels on each side in order to help reduce the chance of debris causing the deck extension rollers to hang up or jam. The platform cable also features a coiled "stinger" reducing the amount of slack cable on the platform and a curved cable hanger has been installed on the platform's mid-rail to provide a means of securing the cable completely out of the operator's way.

The welded steel wheels, which were all too easily damaged when the lift was driven into curbs etc, have been replaced by heavier, thicker 'abuse resistant' cast steel wheels. Drive wheel motor cables have been re-routed and provided with strain relief to prevent excessive flex and wear while the brake housing has been made into a two-piece cover that provides more corrosion-resistance and is easier to service.



JLG's welded steel wheels were too easily damaged.

Finally a lower cost J.R. Merritt joystick - completely interchangeable with the pricy PQ controller - has been installed on the control box. JLG anticipates that the upgrades will eliminate the 'niggles' that some owners experienced with the ES range and will help the product win a greater share of the market.



JLG has recently improved its ES range of scissors.

Slab machines

Until the mid 1990's it was common for electric scissor lifts - such as the Economy Wildcat and UpRight XL24 - to have high flotation versions that were good on gravel and soft ground around buildings. When pure slab machines arrived with solid tyres and pothole protection, compact electrics were truly restricted to smooth surfaces. Attempts to reintroduce such machines, including electric 4x4 models have not sold well.

Back in 1995 the slab scissor market was relatively simple, with 'skinny' 32 inch (820mm) wide models with 20ft working height, and a 46 inch (1,200mm) wide chassis for a 24 to 26ft models with a 20ft wide version available. Above that the larger 68 inch wide units had 32ft platform heights.

That has all changed with the introduction of the 19ft elevator models such as the UpRight MX19, with overall widths of around 29 inches, (760mm) an overall length of 1.6 metres and initially a GVW of just under 1,000 kg. These units were designed to be transported in lifts to upper floors.



There is a high demand in the UK for Holland Lift's high spec, heavy-duty scissors.

While several companies have built 'side extension platform specials' Italian manufacturer Iteco launched its small electric IT4680M scissor in 2006 which has a 360mm wide side extension and could be a sign of things to come although there are not many takers at present.



This 360mm wide side extension from Iteco could be a sign of things to come.

AC/DC

Aichi is hoping its new 'global' scissor range will take a significant slice of the world scissor lift market. The new models not only incorporate front wheel direct electric drive, first introduced by JLG in 2003, but have chosen to skip the DC motor technology employed by JLG and more recently Iteco moving directly to AC wheel motor drive.

According to Aichi, the benefits of AC wheel motors include compact brushless motors, which will not overheat from extended running or wheel spinning and even better battery life. The AC drive is clearly smoother than anything currently available, with none of the pulsing felt with many motor controlled drive systems.

Until now the other volume producers of electric scissor lifts such as



A JLG wheel motor.

Genie, Skyjack, Haulotte and UpRight have appeared to ignore the direct electric drive breakthrough made by JLG. They have continued to fit their small scissors with the traditional hydraulic motor drive, albeit coupled to a motor control system, which provides smoother operation and longer battery life.

However an increasing number of end users are learning that for applications that involve extended working hours and particularly longer travel distances, direct electric drive offers tangible benefits. Some rental companies have added JLG ES scissors to their fleets and charge a premium for them which they all too often manage to obtain.

Over the next 18-24 months, expect one or two of the volume manufacturers to introduce similar drive systems, with Genie likely to follow Aichi into the AC motor system. The overall reluctance to change is down to cost and reliability. Modern narrow electric slab scissors are notoriously reliable, offer good battery life and keep going day in day out with very simple maintenance routines.



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However more importantly they were compact and manoeuvrable and at least in North America contractors began renting them in sufficient volumes to ensure that every tradesman on site had his own micro scissor lift. Then the 26ft machines were stretched to

Genie GS3232 is an ultra narrow scissor that does not require massive counterweighting.



32ft high while maintaining their 46 inch (1,200mm) overall width and the resulting machines became very popular.

Skyjack made the next breakthrough by creating a 26ft version of the regular 32 inch wide 20ft narrow scissor lift. Genie and UpRight soon followed and these machines gradually became popular with the full size 2033 models fading in popularity as users settled into using the 1930, 2633 and 3246 models.

Last year Genie moved to break the mold by introducing a 32ft ultra narrow model with 32 inch single door width that does not require massive counterweighting, keeping costs down. In order to make the 3232 work it equipped it with a set of four automatic self-leveling jacks, allowing all calculations to be made without needing to allow for slopes and - as it does not drive at full height - the EU kerb test. The resulting machine is still something of a niche product, as was the case when the first 2633 was launched. It is too early to judge if the 3232 concept and its jacking system has mass appeal.

In the UK it has always been possible to drive scissors at full height so long as the machine was designed to do so. In continental Europe this was not always true with Germany and Holland restricting the maximum travel height to eight metres and Italy where driving at height was not permitted at all. EN280 changed all that although some manufacturers and users prefer to keep to the old eight metre cut out devices.

With platform heights now over 30 metres, the effect of hitting a curb or driving on a slope is magnified. Most manufacturers have drive and tilt alarms set at two degrees which should prevent the lift from being driven on anything but a level surface. American-built machines still meet ANSI stability regulations and have to withstand a five degree slope in its least stable position with a 30 percent overload.

The key to driving at height is to be fully trained and only drive on level ground after having walked and checked the route to check for voids and obstacles.

So in spite of being 'part of the site furniture' the scissor platform is continually evolving and widening its range of applications. It will be interesting to see how it develops over the next year or two.

C&a scissor lifts



The Airtrax ATX1933 with omni-directional wheels

Nothing new under the sun

A radical new product that is not totally new is the Airtrax range of omni-directional scissor lifts launched at last month's ARA show. The very first scissor lift with such a wheel was shown at Bauma in the mid 1980's when Grove exhibited an SM3270E modified with a set of Polypenco steel omni-directional wheels. The machine was complicated to operate, was hard on floor surfaces and had limited battery life. Although the machine had been ordered by a customer it was eventually converted back to regular wheels.

In Sweden MaxMade produced a range of electric scissor lifts that used conical wheels that rotated through 360 degrees to provide the same effect of being able to rotate or even move sideways. The concept was commercially viable but more complex to operate than a regular scissor lift and only practical on perfect surfaces.

In February 2004 MEC exhibited a 32ft scissor full size electric scissor lift with the Airtrax wheels. Dubbed the Phoenix the concept was the cause of much interest but no orders. The machine appeared again the following year but was then quietly dropped. Airtrax the company that owns the patent for the wheels which it fits to an industrial fork lift called the Sidewinder, has been talking about its Cobra scissor lifts for the past 18 months. At the ARA the company showed off three models which it says will go into production one by one during the year. The smallest model is the 19ft ATX1933 but at almost 1.8 metres, it is a touch long for an elevator model. It is also a tad wide at 33 inches but then most 19ft elevator scissor lifts have grown too heavy over the years for small elevators, and the Cobra does have the additional manoeuvrability benefits. Next up is

the ATX3247, with classic 32ft narrow aisle scissor dimensions and performance.

Finally at the top of the range is the 33ft full size ATX3368. The new Airtrax scissors use a fifth generation omni-directional wheel control system (the MEC Phoenix was fitted with a second generation system). The dual axis joystick also twists to provide a very intuitive directional control that allows you to place the lift exactly where you want it. If manoeuvrability is critical then it doesn't get any better than this. The four wheels are controlled by four AC drive motors while a microprocessor channels the joystick movements to the wheels to move the lift in the required direction. One down-side is the ground bearing pressures from the rubber coated rollers, however they do perform exceptionally well on carpet.

The main issue with these products will be the price - they cost around three times that of a regular scissor lift. The ATX1933 for example is being discounted for the first 100 units to \$26,681 while a regular 19ft scissor can be had for around \$8,500. The sale price on the ATX3247 is \$37,511 and on the ATX3368 a whopping \$80,773 net. At these prices only those who can really benefit from the advantages will consider acquiring them. The deal on the first 100 of each is likely to remain open for a very long time.

Three Airtrax models were shown at the recent ARA show.



Global scissors from Aichi

Aichi, the leading aerial lift producer in Japan, has finally unveiled its first 'global' scissor lift family, the 20 and 26ft 'skinny mini' electric slab machines. With their 800mm overall width and 2.3 metre overall length the new models are designed to American and European dimensions. Cranes&Access had the chance of an early preview of the first machines to arrive in Europe.

Up until now Aichi designed and built its lifts for Japanese customers. If the resulting products appealed to overseas buyers, all well and good, if not then so be it. This policy has given the company a dominant market share at home, where it claims 75 percent, but patchy sales in Europe and the America's. Its crawler mounted booms found a niche overseas and in recent years its wheeled boom lifts have carved out a strong market share in Holland and Germany, thanks to their unrivalled reliability and five years full warranty.

Recognising the vulnerability of this sales concentration, it set out three years ago on a five year plan to introduce a full 'global' product line, to reduce its dependency on the home market. These new scissors are the first fruits of the programme. If Aichi has one mantra for a new product it is 'bullet-proof reliability', as a result it is not known for trendy or breakthrough products. However the new scissor lifts introduce new ideas and technology to the sector, emphasising the company's change in strategy.



Roll out deck

AC-DC

Having recognised the benefits of direct front axle electric drive, Aichi decided to go one step further and selected AC rather than DC drive. The benefits says the company, include brushless motors, which will not overheat from extended running or wheel spinning and even better battery life.

In addition to these reliability points, the AC drive is clearly smoother than anything currently available, with none of the pulsing felt with many motor controlled drive systems. Start and stop is exceptionally smooth and ramps up and down brilliantly, however letting go of the enable switch or the drive controller does not produce the violent emergency stop that is possible with most small scissors. This can be viewed as good or bad, depending on you viewpoint.

Radical progressive steering

Another radical feature is what Aichi calls proportional steering. This refers to the fact that its circular controller is progressive, with the wheels moving to the position you move the controller to, just like your cars steering wheel. The

wheels also immediately return to straight when you release the spring-loaded controller. While feeling very strange, one quickly adapts to it, this optional feature might just change the way steering controls are designed if the uptake is sufficiently high.



Staying with the control box, a spring-loaded dual pole toggle switch serves as the dead man control, so that when steering you must keep one finger on this, your hand on the main controller while the other operates the steering control. In reality - easier than it sounds, thanks in part to the excellent hand-rest/grab handle on top of the box, which also protects the controls from the operator.

From here on out the rest of the machine is relatively traditional, although its full one metre roll-out deck extension is clearly better than most. Platform rigidity on the test machines was average - good at full height with quite of bit of sway at mid height, in other words quite typical. Batteries are located in a heavy duty sliding steel box on one side of the machine with most other components arranged on the other, electric drive keeps hydraulics to a minimum. The battery charger is well protected and fully automatic, able to cope with any voltage from 100 to 240 volts. A battery charge indicator is built into the lower controls and easily visible as you enter the machine.

Pothole protection is mechanical and the steps to the platform are located within the

machines overall length, great for keeping the machine compact and preventing damage, not so good for those who exit the platform front first, but since this is not good practice this is hardly a disadvantage. In the platform the stamped steel floor is practical, but the guardrails seem overly fussy and the control box cannot currently be hung on either side. The tabs that retain it in its principle location will not function bashed.

In summary

An excellent effort, with some fine tuning these new models could easily set a new benchmark for small scissor lifts. Whether they achieve Aichi's aims to win a respectable share of the European and North American market will depend most of all on how effective its distribution is and the pricing strategy it employs.



Control box

26ft, 32 inch wide (Skinny Mini) scissor lifts

	Aichi	JLG	Genie	Skyjack	UpRight	MEC	Haulotte
Overall length	2.3m	2.3m	2.44m	2.31m	2.35m	2.49m*	2.48m*
Overall width	80cm	76cm	81cm	81cm	83cm	84cm	81cm
Stowed platform ht	1.16m	1.23m	1.16m	1.14m	1.12m	1.09m	1.08m
Lift capacity	230kg	230kg	227kg	227kg	340kg	227kg	230kg
Roll out deck	100cm	90cm	91cm	90cm	90cm	106cm	92cm
Lift/lower speed	40/40	40/40	30/40	56/	42/40	27/35	51/42
GVW	2,060	2,155	1,956	1,876	2,358	2,105	2,106

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