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# SCISSOR DEVELOPMENT IS BOOMING

Those visiting Vertikal Days in May could not help but have noticed the significant geographic shift in aerial lift production - particularly scissor lifts. As you entered the show you were met with an impressive wall of LGMG scissor lifts, and it didn't stop there with Dingli, Sinoboom, Zoomlion and XCMG all having a major presence at the show and unveiling many new models. Five years ago, Dingli was the sole Chinese aerial lift manufacturer present.

### It wasn't that long ago that nearly all scissor lifts were designed and built in North America with few European companies having the resources to produce in the large numbers needed to be cost effective. How times have changed...

Over the past 10 years or so the Chinese manufacturers have progressed from producing cheap copies of the most popular models to a position where they may well be out producing the North Americans with innovative, good quality, value for money products with decent product support. The momentum is currently clearly with the Chinese manufacturers to the point that the two major American brands were forced to try and stem the tide by forming an 'association' - the Coalition of American Manufacturers of Mobile Access Equipment to lobby the US Government claiming that US manufacturers were being harmed by Chinese manufacturers' 'unfair' pricing practices, assisted by state subsidies or support, requesting the imposition of import tariffs. While it succeeded in principle, the fact that both US companies also had significant portions of their product lines made in China meant they were also subject to the tariffs, in some cases higher than the Chinese manufacturers.

Chinese manufacturers are getting stronger and with the huge investments being made in R&D, manufacturing and distribution, it is now entirely possible that they will dominate the scissor and boom lift markets within five years, possibly producing their equipment in Europe and North America? Unless that is the current market leaders can adapt and regain customer's hearts and minds rather than fighting competitors.

### MOVING TOWARDS ZERO HYDRAULICS

The move towards all-electric zero hydraulic oil scissor lifts is gathering pace with several new models announced over the past year or so, starting with JLG's 19ft DaVinci AE1932 which went into full production at the start of last year. The concept of using a screw actuator to elevate a scissor stack dates back to the UpRight 'Flying Carpets' of 1972 - the original design and first units featured a horizontal hydraulically driven screw lift mechanism for lift. They were so unreliable in the field, that they were guickly replaced with hydraulic cylinders. In 1996 the all-electric Zefer Lift scissor lift range - built in Pennsylvania - was launched. It was totally free of hydraulics and used electric drive and electric screw actuators. Some were sold but it was simply way ahead of its time.



August 2014 - the first Dingli diesel RT scissor lift to arrive in the UK



The move towards all-electric zero hydraulic oil scissor lifts started with JLG's 19ft DaVinci AE1932

## SCISSOR LIFTS

The secret of success when moving to all-electric is the price, reliability and ruggedness of the electric screw type actuators. Improvements in technology now appears to have sorted this - at least for smaller electric scissor and vertical mast lifts - and larger scissors and booms may not be too far off.

### **COMPLETELY OIL FREE**

Following JLG's early lead Dingli announced four 'Hydraulic Oil Free' scissor lifts that use electric powered screw-type actuators. The 11.5, 12, 18 and 19ft scissors have working heights of 5.1, 5.6, 7.6 and 7.8 metres with platform capacities of 230kg for all except the 12ft JCPT0607PA which has a 240kg capacity. Overall lengths range from 1.16 to 1.86 metres with widths ranging from 760 to 810mm. The advantages include lower energy consumption, easy maintenance and elimination of oil leakage and oil and filter changes, helped by maintenance-free permanent magnet synchronous motors and AGM batteries.



Dingli announced five new 'No Oil' self-propelled vertical lifts in April this year

Dingli has also unveiled a more regular 15ft slab electric scissor lift - the JCPT0707DCM - with a working height of 6.5 metres, a platform capacity of 230kg and a 740mm by 1.44 metre platform which extends to two metres with the 600mm roll out deck extension. The new machine has an overall width of 760mm, overall length of 1.43 metres and a stowed height of 2.05 metres, or 1.68 metres with guardrails folded. Overall weight is 1,150kg. Direct electric drive, four wheel braking, non-marking tyres and automatic

active pothole protection are standard.

The new platform joins the 12ft JCPT0607DCM and the 19ft JCPT0708DCM which have similar specifications but weigh 920kg and 1,300kg respectively.

> Dingli's new 15ft micro - the JCPT0707DCM







### DAVINCI AND ELECTRIC REGENERATION

While the JLG Davinci AE1932 has been in production for more than 18 months, it is still worth looking at its advanced features. Although a totally new design, the Davinci is a classic 19ft unit in terms of dimensions and performance, with a working height of 7.8 metres, an overall width of 812mm, overall length of 1.74 metres and stowed height of 2.11 metres - reduced to just under two metres with the Quikfold guardrails. Maximum platform capacity however is better than average at 275kg, while the machine's overall weight is 1,565kg. The overall platform width is 810mm, almost the same as the machine's overall width, while a 910mm deck extension is standard.

Drive comes from AC electric wheel motors. each of which is controlled independently for reduced tyre wear or problems when working on sensitive floor surfaces. JLG's mobile control also allows users to operate the stowed machine from a smart phone for safe loading and unloading. The stowed machine is fast at 4 mph/6.5kph - while the elevated drive speed slows down progressively as the platform is raised, rather than dropping immediately to the lowest regulated speed at lift off. It also uses a single, maintenance-free 24 volt/72Ah lithium-ion battery which can be fully recharged in around three and a half hours, with the potential for opportunity top up charging during breaks. In addition, power is generated when the platform is lowered, the screw actuator reverses in order to generate power and provide a small top up to the battery which is expected to have a practical working life of at least 10 years.

### DIRECT ELECTRIC WHEEL DRIVE

Of course, before being able to offer all electric machines the major change was to convert





machines from hydraulic wheel motors to a highly efficient direct electric drive system. Once again nothing new here, even if you ignore the early pioneers such as the Zefer Lift. Imer or Iteco as it was back then, launched direct electric drive on its IT 7380 in 2004, but once again JLG led the way a year or so earlier with its ES range of slab scissor lifts.

Genie added direct electric drive at the end of 2020 with its E-Drive system for its full range of GS slab electric scissor lifts. The brushless E-Drive wheel motors are fully sealed against moisture and water and totally maintenance free. Machines equipped with them also have 70 percent fewer hydraulic hoses and fittings, substantially reducing the potential for hydraulic leaks.

The change has also allowed the company to reduce the width of the GS-4047. It currently had an overall width of 1.19 metres to accommodate the hydraulic brakes. When fitted with the more compact E-Drive electric motors, the width is reduced to 1.17 metres (46 rather than 47 inches) and became the GS-4046.







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### NEW GENERATION LGMG SCISSORS

LGMG's recently launched range of 14 second generation CE/Ansi slab electric scissor lifts however are not all electric. As with several other Chinese manufacturers LGMG has hedged its bets with the new line, opting to offer the seven base models with working heights to 16 metres with either Hydraulic or 'E' direct electric wheel motor drive.

The new machines have platform capacities ranging from 230kg to 450kg and are rated as two person for indoor use or one for outdoors. The lower control panel features a seven inch display, complete with multi-lingual support and Bluetooth for remote control. Other changes include upgraded components, a new swing out component tray with improved component layout and more water resistant electrical components. The new models are available with a lithium ion battery option.



#### **TWO NEW 26FT JLG SCISSORS**

JLG has also introduced two new 'wide bodied' 26ft slab electric scissor lifts - one with direct electric drive, the ES2646 and the other with hydraulic drive R2646. The two models fit into



e new 26ft JLG slab electric scissor lifts the range between the current ES2632/R2632 and ES3246/R3246, the key differential being the higher platform capacities and larger deck.

Both models share a high degree of common componentry including the chassis, lift stack and platform. They also offer similar basic specifications including a 9.9 metre working height and a maximum platform capacity of 544kg with both indoor and outdoor ratings - two person indoor or one person outdoors.

The two units feature JLG's 'Variable tilt' system which extends the working envelope on sloping ground by measuring the weight in the platform and the slope angle and allowing the platform to raise to a safe height for the configuration, rather than simply cutting the lift completely on slopes greater than one or two degrees. On these units it allows operation on side slopes of up to 2.5 degrees and longitudinal slopes of up to 3.5 degrees.

Both machines have an overall length of 2.4 metres, an overall width of 1.17 metres, and a stowed height of 2.28 metres which can be reduced to 1.82 metres with the guardrails folded and offer a 910mm roll-out extension with 120kg capacity which takes the overall deck length to just over three metres. Total weight of the ES model is 2,400kg while the R model is 2,389kg.

Options include JLG's Mobile Control which uses a smart phone as a remote controller for drive and steer and QuikFold guardrails. The new ES2646 is also available with JLG's CleanGuard leak containment system.

### HAULOTTE UPDATES COMPACT RANGE

Haulotte has introduced a completely new Compact range of slab electric scissors. One major change is the move to synchronous AC direct wheel motor drive rather than hydraulic. However, the company has decided to go with rear wheel drive and fit the front steering wheels with sensors to help ensure smooth turning even when the front wheels are fully turned to more than 80 degrees.

The five new models follow classic overall width and heights and include 20ft and 26ft narrow models with an overall width of 810mm, plus three 1.2 metre wide models with platform heights of 26ft, 32ft and 39ft, with working heights of 9.8, 12, and 14 metres respectively.



The Compact 10N and Compact 14 are indoor rated only, while the other three have both indoor and outdoor ratings and platform capacities of 250kg to 450kg. The overall length of the units is 2.5 metres. The new chassis and scissor stack design is more rugged than the units they replace, with all critical components such as the drive motors and steering wheels fully integrated and protected from damage through crashing into obstacles while driving. All five units drive at full height and feature active pothole protection and 940mm roll out deck extensions.

The steering cylinder and sensors are located behind the solid front chassis frame cross plate, while the rear ladder and battery charging sockets are fully built into the counterweight which also serves as a heavy duty bumper.

To simplify loading onto transport, both lateral and longitudinal forklift pockets are available. On the scissor stack, the cable and hose routing have been integrated while heavy duty scissor stack cross brace tubes help improve platform rigidity and guardrail tubing is heavier gauge and larger cross section.



Folding guardrails are standard, while Haulotte's Sherpal telematics suite is optional as is a new Lidar secondary guarding system on the upper control box which monitors the operators position in real time and cuts the machine if any obstacles or strange movements from the operator are detected.

Access for service has been given some serious thought and optimised with electrical and hydraulic componentry separated and access improved, while the routing of hoses has been designed to avoid the risk of friction and leaks. The new scissors are also equipped with Haulotte's Activ'Energy Management and intelligent CAN BUS charger, which constantly



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## SCISSOR LIFTS

monitors battery parameters to ensure optimal charging, and incorporates dedicated charging cycles for battery maintenance. To reduce maintenance costs and effort, the lead acid batteries can be equipped with manual or automatic centralised electrolyte top up systems.

The Haulotte Activ'Screen on-board diagnostic tool is also available via the Haulotte Diag mobile application, which also offers advanced diagnostics with detailed resolution procedures.

### TOUGH AND SIMPLE -GOOD CALL OR BAD?

Haulotte's decision to place the drive motors on the rear axle is an interesting one, given that compact AC drive motors are now widely available for mounting on the front steering axles,

which help with steering on tight turns as they pull in the direction of travel. Mounting them on the rear is simpler and saves the need for the power cord to flex and potentially chafe, while also enabling them to be better protected



The Haulotte Compact 10N

from other damage or contamination. Add in the choice of lead acid battery pack, a heftier chassis frame, guardrails and scissor stack, and it looks like Haulotte has decided to go for a simple tough durable model line to take extreme real-world abuse, rather than more delicate sophistication. Given that slab electric scissor lifts are the mainstay of most rental fleets this could well prove a good call, alternatively it might be a move back to basics, when the market has moved on?

### LARGER RT SCISSORS

Increasing sales of larger - over 55ft - electric drive Rough Terrain scissors has been driven by the surge in high cube warehouse construction in both Europe and the USA. The net result is there is likely to be ongoing growth in the market for these high capacity, heavy duty scissors.

Holland Lift once totally dominated what was a niche market sector seeing off its main competitor Liftlux, but in recent years has been struggling to keep pace with growing demand which has meant even more extended delivery times. This seems to have played into the hands of one or two Chinese manufacturers which appear to have a steady supply of components while having maintained production levels during Covid lockdowns and more recent supply chain challenges.

### ALL NEW HOLLAND LIFT

Holland Lift is set to unveil an all-new 72ft heavy duty scissor lift range in October, available in three different versions. They include two full width RT models the HL-240 E25RT and HL-240 D25RT one electric and one diesel powered - along with a narrow electric model, the HL-240 E13. All three offer four wheel drive, although the narrow model



has two wheel drive as standard with 4x4 and an oscillating axle available as options, both of which are standard on the wider Rough Terrain units. Working height is 23.9 metres, although the narrow model can extend a further 200mm indoors. Platform capacity is 750kg on the wide models and 600kg on the narrow and all three can drive at full height. A 2.6 metre platform extension provides a seven metre long deck on the narrow model with the capacity on the extension the same as on the main deck. Overall weights range from 12.7 tonnes on the diesel RT up to 13.1 tonnes on the narrow electric.





### WIDE 32M DINGLI

Dingli has recently launched wide versions of its biggest scissor lift models - the JCPT3225DC and JCPT3225RT. The new machines offer a working height of 32 metres and use the same scissor stack as the 86 and 99ft narrow JCPT3214DC 1.4 metre wide slab electric models unveiled in January. However, for the wide version, the heavy-duty stack is mounted on a 2.5 metre wide chassis with four wheel direct electric drive on the DC model and hydraulic wheel motors for the RT. Rough Terrain non marking tyres and four wheel steer are standard on both models.

The new machines also have a wider deck of course, now 6.2 by 2.45 metres when retracted. A powered 2.1 metre roll out deck extension is available which extends the deck length to 8.3 metres. Platform capacity on both main deck and the extension is 1,000kg/four people.

Power comes from either an 80V/520Ah high capacity lithium battery pack on the all electric, or a Deutz Stage V diesel on the RT. Drive at full height is possible on both models, while the levelling jacks feature a 'one button levelling' function.

Overall height when stowed is 4.13 metres, which can be reduced to 3.19 metres with guardrails lowered. Total weight is 23,400kg for the diesel/ RT or 23,900kg for the DC model. The gradeability on the electric drive machine is 30 percent while the diesel RT is 40 percent.

Finally, the slightly lower 86ft platform height/28 metre working height versions are also available in the form of the JCPT2825DC and JCPT2825RT. Most of the performance characteristics remain the same, including the 2.1 metre deck extension, but overall stowed length is just under six metres, while they weigh in around four tonnes lighter. The new models - both diesel and electric - will probably land in Europe during the summer.

### LEVELLING WITHOUT OUTRIGGERS

Earlier in the year JLG introduced the 47ft RT4769 Quik Level Advanced Rough Terrain scissor lift to the European market. The lift features selflevelling independent axles which replace the levelling outriggers of the standard machine. The levelling is not dynamic but will suit applications where the lift needs to be levelled up yet move frequently on slopes. The system avoids the need to use outrigger mats and is therefore faster and more efficient. Essentially it mirrors the benefits of the Snorkel and MEC speed level machines.





After years of hard work and dedication we have planned an exciting launch of our new "Tulip" at Bauma 2022. In the upcoming weeks we will reveal more of our Tulip product line on social media before launching at Bauma.

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## SCISSOR LIFTS

### **59FT AIRO RT**

Italian aerial lift manufacturer Airo has added a new battery powered 59ft XL20RTE Rough Terrain scissor lift, which offers a 20 metre working height and a 700kg platform capacity with six person rating. Features include four wheel drive, an oscillating axle, non-marking RT tyres, drive at full height and auto levelling jacks that can level up on slopes up to four degrees.

The XL20RTE has an overall width of 2.24 metres, an overall length of 4.52 metres and a stowed height of 3.35 metres - or 2.52 metres with the guardrails folded. Two 1.5 metre manual deck extensions take the platform length from 4.4 metres to 7.4 metres. Total weight is just over 11 tonnes, while two 48 volt 455Ah full traction batteries drive two AC electric motors to provide 40 percent gradeability and up to 4.5kmh drive speeds.



### NEW SINOBOOM ELECTRIC RT SCISSOR LIFT

Late last year Sinoboom launched a brand new 53ft 5389 Rough Terrain scissor lift and at Vertikal Days unveiled the 40ft 4069 compact electric Rough Terrain scissor.

The 5389 is available with diesel or battery electric power, however Europe will only see the battery powered model as Sinoboom Europe has taken the decision to only offer electric powered machines in Europe going forward. The 5389RE has an 18.2 metre working height with a 680kg/ four person platform capacity. The base platform has an overall length of 3.96 metres which can be extended to 6.68 metres with twin roll out deck extensions, one of which is 1.5 metres and the other 1.2 metres. Drive comes from four AC electric wheel motors, offering better traction and torque than the diesel alternatives. The overall width is 2.28 metres, with an overall length of 4.88 metres and a stowed height of 2.44 metres with the guardrails folded. Four self-levelling jacks are available as an option - total weight without them is 9,250kg.

The 40ft 4069RE has a 14 metre working height and features four wheel drive, active axle oscillation and auto levelling jacks. It has a single extension and 365kg platform capacity. Both machines are now being delivered with Irish rental company Balloo Hire taking delivery of some of the first 4069RE and 5389REs to arrive in Europe.

### **TWO NEW ZOOMLIONS**

Vertikal Days saw the launch of two new Zoomlion scissor lifts, the 53ft full size ZS5390RT Rough Terrain and a 22ft tracked compact scissor lift, the ZS2242C. The diesel powered ZS5390RT has an 18 metre working height, four wheel drive, oscillating axle and 40 percent gradeability. Platform capacity is 680kg.

The tracked ZS2242C has an 8.8 metre working height and 250kg platform capacity although this is reduced to 113kg on the 910mm deck extension. With an overall weight of 1,700kg the unit has a platform size of 1.94 metres by 0.95 metres. Overall size is 2.1 metre long by 1.05 metres wide. The 4 x 6V/220Ah batteries power two electric drive motors giving a maximum speed of 2kph.





The Zoomlion ZS2242C



### SAFE EXTRA REACH

Skyjack has launched its new XStep step up platform in Europe. The attachment provides 480mm of extra height and is intended as a safe alternative to operators standing on the middle guardrail to reach something, or when working through false ceiling panels. The XStep comprises a swing down base with full height guardrails and a self-locking swing gate and is securely mounted on the mid rails of the scissor lift.

Skyjack says that one person can install the XStep in five minutes without the need for special tools. It can be retrofitted to all exiting Skyjack DC scissor lifts and easily be moved from one scissor lift to another, allowing it to be offered as a rental option.



### EUROPEAN SCISSOR PRODUCTION MOVES UP A GEAR

European volume scissor lift production has traditionally been limited to Haulotte - which built a dedicated plant in Reims, France and then in Romania - along with Italian manufacturers Iteco/ Imer and Airo and Snorkel in the UK. However, in recent months Genie began producing its '69' series of compact Rough Terrain scissor lifts at its plant in Umbertide, Italy, and more recently Sinoboom dispatched the first units from its plant in Poland.

Genie's European scissor lift series covers three base models - the 26ft GS-2669 RT, 33ft GS-3369 RT and 40ft GS-4069 RT - all of which have an overall width of 1.75 metres or 69 inches if you prefer. Each model is available with diesel or DC battery electric power and features oscillating axles and an indoor/outdoor rating. The DC models use AC wheel motor drive and non-marking Rough Terrain tyres.



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