

Clash of the titans

In our third look at the self-propelled scissor lift market over the past 12 months, Leigh Sparrow examines some of the more niche sectors of the market and notes the rapidly changing production and technology trends that seem to be gathering pace.

Of all the things I learned at junior school, one lesson - or more accurately one fact from the lesson - has remained deeply embedded in my memory. Not only have I never forgotten this fact, but it is one that has regularly come to mind over the years. Strangely I have no idea what the lesson was about, but the young teacher Miss Dawes told us about how China had ordered all of its citizens to go out and destroy any fly they encountered in a bid to rid the country of its persistently pesky fly population. Apparently it worked, virtually wiping them out as a species in the country.



I must have been seven at the time, but it made a huge impression on my young mind and the thought that if everyone worked together on the same task almost anything was possible captured my imagination. This simple message has stayed with me over the years, the thought that a determined and persistent focus on achieving a specific task, will eventually achieve something big, that might that otherwise have seemed impossible. No, I was not a precocious swat, I am sure I never thought of the information quite in those terms back then, but it did catch my imagination and has stayed with me. Before I continue make no mistake – I do not always succeed in practicing what I preach.

Focus on perfection or innovation?

In many ways this combined clear sighted focus on a task or process is similar to the attitude one finds in Japanese, and many German companies, of making constant improvements and refinements to a product, no matter how small, resulting in supremely reliable products. A fanatical dedication to a specific goal. There are problems with this idea however, in recent months I have heard several dealers and employees of Japanese



C&A

scissor lifts

manufacturers lamenting at how slow product development can be, especially for new models. At the risk of committing a massive generalisation and falling for stereotypes, Italian - and sometimes the British - are extremely innovative when it comes to engineering, new ideas and concepts, but have not always been good at converting them into ultra-reliable or profitable products.

改善

Kaizen Japan's fanatical continuous improvement has resulted in supremely reliable products

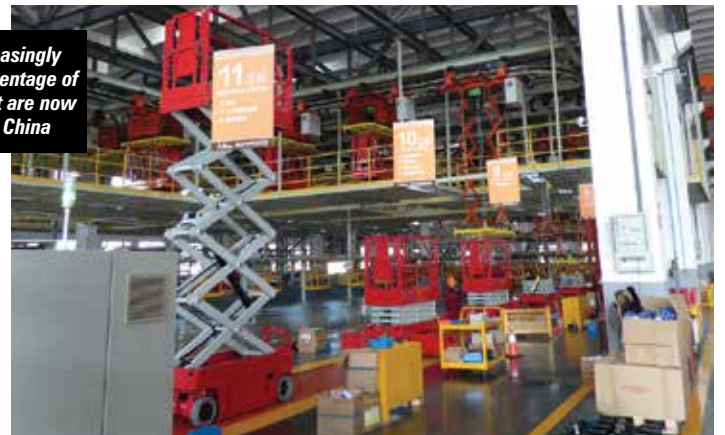
Both points involve a longer term outlook and focus, compared to the short term gratification/profit that so many companies - or politicians - in many western countries tend to focus on. With some very noticeable exceptions of course.

Shifting production centres

While looking at the scissor lift market I was surprised at just how dramatically and quickly it is changing, in terms of suppliers and major production sources. It was not so long ago that almost all scissor lifts were designed and built in the USA. Few European companies could generate the volume required to build them cost effectively or invest in the engineering and tooling required to compete etc...



An increasingly large percentage of scissor lift are now built in China



The Americans had the advantage of having 'invented' the self-propelled scissor lift, and thus having a head start, while also benefiting from a far greater openness in their home market to the adoption of new working methods.

It now looks as though China has become, or is rapidly becoming, the predominant production base for scissor lifts. Amazing when you consider that 15 years ago there was almost no local market or demand for such machines.

The change has been driven in part by a few increasingly successful Chinese manufacturers and by the number of American and European manufacturers shifting scissor lift production to their new Chinese, while others have succeeded by having branded products made by Chinese manufacturers to sell as their own. This is especially true of small slab electric scissor lifts, for example if you are looking at a 14ft micro scissor and do not want it to come from China, you have very little choice. This in turn has led to Genie and JLG teaming up to form the Coalition of American Manufacturers of Mobile Access Equipment - of which they are the only members - and petition the United States International Trade Commission to investigate their claim that US manufacturers are being harmed by Chinese manufacturers 'unfair' pricing practices, assisted by state subsidies or support.

More big scissor lift players

The growth in Chinese produced machines on the world stage is not new, but over the past 12 months it has taken on a new and surprising turn, with European and North American buyers now beginning to take larger models. The received



Chinese manufacturers are moving into the large scissor lift market

wisdom has always been that western buyers were prepared to 'take a punt' with a \$6,000 micro scissor lift but would never consider risking a larger single unit investment on a Chinese built platform - or crane for that matter. Now however not only are Chinese Rough Terrain scissors becoming increasingly popular in both Europe and the USA, but manufacturers such as Dingli are making substantial inroads into the big heavy duty narrow aisle scissor lift market, traditionally dominated by Dutch and German manufacturers. With prices in the €100,000 to €150,000 range per unit, the likelihood of a European rental company selecting a Chinese supplier for such big machines was close to zero. That is changing, particularly in the UK where Dingli has probably taken market leadership, in what has become a rapidly growing market for 'ultra scissors'.

The change has probably been spurred on by traditionally long lead times from the market leaders, coupled with the spike in demand. This spike has been fuelled in part by the growth in the construction of high stack warehouses, driven by



Dingli is leading the charge in the 'ultra scissor' lift market

the rapid shift towards online shopping during the pandemic, not to mention border and shipping challenges. Over the following few pages, we will look at this market along with other new products, from the smallest to the largest.

Oh, and by the way - I now know that China's 'fly initiative' was actually part of its 'Four Pests Campaign' in Chairman Mao's first Great Leap Forward from 1958 to 1962. The four pests to be eliminated were rats, flies, mosquitoes, and... sparrows. Maybe the inclusion of sparrows caused it to stick in my mind all these years? I think I would have remembered that though, but no, I

just remember the flies. Interestingly, the sparrows were dropped from the initiative in 1960 having been driven towards extinction. This was after their absence as a predator led to plagues of locusts the following year, which in turn contributed to the great famine. Their place was taken by bed bugs. And as for Miss Dawes another of her lessons that stayed with me included her extolling the virtues of Los Angeles: "Imagine this is a city built for the motor car, with roads in the sky. It is the future." Barely a decade later the increasingly heavy smog made her pronouncement a less attractive vision of the future.



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Dingli braves the high and narrow

Last spring, leading Chinese manufacturer Dingli launched two 66ft heavy duty battery powered scissor lifts. The 2.3 metre wide JCPT2223DC is an electric version of the classic diesel RT model but with a tight narrow scissor stack. This allowed it to be used on the 1.25 metre wide slab electric JCPT2212DC narrow aisle version. As a result, Dingli is possibly the first manufacturer outside of the Netherlands or Germany to enter this ultra-niche corner of the scissor lift market.

The decision has clearly been a good one with the company already shipping a couple of hundred units during the first year of production. There has also been a 50/50 split between classic wide RT and the narrow aisle model, which is surprising given the niche nature of the heavy duty high narrow scissor market. To put in perspective the total annual production of such narrow monster machines is typically in the 400 to 450 unit range.

Given the success of its 22 metre models, the company has now ventured further with the launch of two new heavy duty narrow aisle electric models, the 86ft JCPT2814DC and 99ft JCPT3214DC, which offer working heights of 28 and 32 metres respectively. The two machines share most of the same componentry but feature different scissor stacks, with the JCPT3214 gaining its extra height from slightly longer arms, rather than the addition of another stack. Both share an overall width of 1.39 metres, with a maximum unrestricted platform capacity of 600kg, rated for two people.

One difference between the two

machines, aside from platform height, is the overall length – a by-product of the longer scissor stack on the larger machine. The JCPT2814 is 5.69 metres long, while the JCPT3214 is 6.41 metres. Dingli has also installed a longer deck on the 32 metre unit, in order to cover the longer scissor pack. That may seem obvious, but it has not always been the case. The retracted deck lengths are 5.08 metres on the JCPT2814 and 5.85 metres on the JCPT3214. Both offer the same 1.9 metre roll out extension with no capacity restrictions or limitations. The overall weight of each machine is 18,060kg and 22,200kg respectively, and the stowed height with the guardrails folded is 3.17 metres. The fact that they are the same in this respect is another benefit of the longer scissor arm solution.

Direct electric drive & lithium differentiation

The new machines share the 4x4 AC electric wheel motor drive, as well as four wheel steer, standard levelling jacks and the ability to drive at full height. However make no mistake, as with all other products of this type, these are slab machines – not Rough Terrain, in spite of the 4x4 drive. The



Dingli has had a strong reception for its two 66ft heavy duty scissor lifts since last year's launch



The 66ft Dingli JCPT2223DC Rough Terrain



The new 86ft Dingli JCPT2814DC

new models use an 80 volt/520Ah lithium-ion battery pack, rather than the 48 volt/620Ah full traction lead acid battery pack on the company's 22 metre models. The pack is said to be good for a full shift and then some. Gradeability is 25 percent, and the units need to be within one percent of level in order to elevate the platform.

The new Dinglis compete directly with Holland Lift's market leading HL-285 E13 4WDS/N and HL-330 E14 4WDS/N models which offer similar working heights, overall widths, and weights. The Holland Lift HL285 has a 750kg platform capacity however, while the HL330 offers 600kg. The Holland Lifts also have slightly longer

deck extensions at 2.2 metres, but other than that, they are surprisingly similar, at least on paper.

One major difference though is the drive train, Holland Lift prefers to stay with full traction lead acid battery packs and hydraulic wheel motors. The company says that the power draw required by the four electric wheel motors on such a heavy machine – they weigh more than 20 tonnes – can cause complications and battery life issues, thus the need for lithium batteries and 80 volt system. The lithium battery pack is also much lighter and requires additional counterweight to compensate, but this can be added at the lowest point of the machine, which might have some centre of gravity benefits? Holland Lift and some other manufacturers, such as Snorkel, cite the additional



The Holland Lift 285 E13 4W

challenges that can be involved for service engineers dealing with the higher voltages, with anything under 60 volts falling into the less onerous low voltage category.

A widening market

Until now the main market for this type of machine has been in the Netherlands and Germany – where Dingli also markets its lifts under the Magni brand. In the past year or so demand for high narrow scissors has also been growing in the UK, which has taken a good number of the 65ft/22 metre models. North American rental companies are also beginning to take a keen interest in larger scissor lifts, with 53ft having traditionally been the highest machines built locally and therefore sold. The interest in larger models is almost certainly due to the number of high rise warehouses being built or planned, which is also the case in the UK. In the USA this demand is already reflected in the recent introduction of several 60ft plus Rough Terrain machines from North American manufacturers, including Skyjack's all new 64ft SJ9664 RT, Snorkel's new 70ft S9070RT-HC - currently

the largest scissor lift built in the USA - and the older MEC 6092RT Ultra Deck. GMG is breaking the mould with its new 6094-ERT, which also happens to be lithium battery powered with AC wheel motor drive. Expect to see a battery electric version of Skyjacks new 64ft machine in the not too distant future.

The first units of Dingli's new narrow machines have already left the factory for European destinations and will be available for sale in the fourth quarter. The following charts show how the new models stack up against the existing products.

Skyjacks 64ft SJ9664RT



28m Narrow Aisle models

Make Model	Dingli JCPT2814 DC	Holland HL-285 E13 4WDS/N	AB S 280-12 E4WDS AC	PB S275-18ES 4X4
Work height	28m	28.2m	28m	27.5m
Platform capacity	600kg	750kg	600kg	900kg
Platform length - base	5.1m	5.21m	5.1m	6.15m
Platform extension	1.9m	2.2m	1.9m	2.25m
Platform length - extended	7.0m	7.41m	7.0m	8.4m
Drive height	Full ht	Full ht*	Full ht	Full ht
O/A width	1.39m	1.32m	1.25m	1.8m
O/A length	5.69m	5.6m	5.55m	6.6m
O/A height stowed	4.16m	4.1m	4.2m	4.22m
O/A height - rails down	3.17m	3.21m	3.2m	3.27m
Gross weight	18,060kg	19,370kg	15,950kg	23,000kg

32m Narrow Aisle models

Make Model	Dingli JCPT3214 DC	Holland HL-330 E13 4WDS/N	AB S 320-12 E4WDS AC	PB S320-18ES 4X4
Work height	32m	33.05m	32.4m	32.14m
Platform capacity	600kg	600kg	600kg	750kg
Platform length – base	5.85m	5.21m	5.48m	6.15m
Platform extension	1.9m	2.2m	1.9m	2.25m
Platform length - extended	7.75m	7.41m	7.35m	2.25m
Drive height	Full ht	Full ht*	Full ht	Full ht
O/A width	1.39m	1.4m	1.39m	1.8m
O/A length	6.4m	6.6m	6.42m	6.6m
O/A height stowed	4.16m	4.1m	4.2m	4.33m
O/A height - rails down	3.17m	3.21m	3.2m	3.32m
Gross weight	22,200kg	23,950kg	21,500kg	24,220kg

*Optional



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New product round up

This year has seen several additions to the full size Rough Terrain scissor lift market, some of them all electric, such as Haulotte's new Pulseo and GMG's 60ft 6094ERT, which we covered in the January issue. We will now take a brief look at other new models to have hit the market since then.

53ft Sinoboorm RT on the water

China's Sinoboorm is planning to launch an all new 53ft 1623 full size Rough Terrain scissor lift this autumn, with a choice if either 'RD' diesel or 'RE' battery electric power. The new machine features an 18 metre working height with 680kg/ four persons platform capacity and 4x4 AC electric wheel motor drive. Details of the new machine have not yet been released, but we do have the basic specifications. The chart below compares the new machine with the some of the leading Rough Terrains already on the market.



A glimpse of the new Sinoboorm 1623RE

New Holland Lifts

Holland Lift has been working on a number of new models and adding updates to its range. The company may unveil some of these at Vertikal Days, along with a new distributor, but is keeping tight lipped about them. One thing it has stressed however is that it will maintain its current electro/hydraulic drive train on at least its larger models. On the new development front, it mentioned electric versions of its 65ft/2.5 metre wide Rough Terrain model, which becomes the HL-220 E25 4WD/P/N with 750kg platform capacity, and the 82ft HL-275 E25 4WD/P/N with 1,000kg platform capacity.



The new HL-220 E25 4WD/P/N from Holland Lift



Imer IM17220E

Snorkel's mega machines

Snorkel unveiled prototypes of two new top of the range full size plus Rough Terrain scissor lifts at Conexpo last year, the 56ft S9056RT-HC and the 70ft S9070RT-HC with high platform capacities. The S9056 offers a platform capacity of 1,134kg and a working height of 19.1 metres, while its 70ft big brother has a generous 907kg with a working height of 23.3 metres. Not only do these new machines offer big capacities, but the dual deck option provides an extended platform of 8.23 metres. Despite this, the big units have stowed dimensions that are not too dissimilar to the regular 53ft machines, with an overall length of 4.87 metres, an overall width of 2.28 metres and an overall height of 3.09 metres folding to 2.1 metres. Maximum drive height is 13.1 metres, but they are of course considerably heavier - you cannot escape physics - at 9,030kg and 11,600kg respectively. The units have a very high standard specification and are now ready for delivery.



The new 70ft Snorkel S9070RT-HC is the largest scissor lift built in North America

And its new lithium range

Snorkel has also started manufacturing its new lithium Rough Terrain scissor lifts, seen as prototypes at Conexpo last year. The new RTE models include the 1.4 metre wide 22ft S2255RTE and 27ft S2755RTE scissor lifts, plus the 1.8 metre wide 27ft S2770RTE, 33ft S3370RTE and 39ft S3970RTE. The machines join the two lithium battery powered Speed Levels unveiled at Bauma 2019. The new machines feature two 5.75kWh lithium-ion battery packs, with built-in battery management systems, which the company claims delivers at least eight hours operation on a single charge, and up to a week between charges for lighter usage. An third optional 5.75kWh battery pack can also be easily retrofitted thanks to spare space within the battery cabinets. 4X4 direct electric wheel motor drive, and oscillating axle, automatic levelling jacks and non-marking tyres are all standard.

How do the new 53ft models stack up?

Make Model	Sinoboorm 1623E/D	Haulotte HS18EPro	Skyjack SJ9253RT	JLG RT5394	LGMG SR1623D	Zoomlion ZS1623RT	Genie GS-5390
Work height	18.2m	19m	18.15m	18.15m	17.9m	18m	17.95m
Platform capacity	680kg	750kg	680kg	680kg	680kg	680kg	680kg
Platform length	3.96m	4.94m*	4.36m	3.8m	3.98m	3.98m	3.98m
Platform extensions	1.5m+1.2m	1.28m x2	1.52m x2	1.22m x2	1.45+1.14m	1.3m x2	1.52+1.22m
Platform length - ext.	6.66m	7.5m*	8.3m	6.2m	6.57m	6.58m	7.38m*
Drive height	Full ht	13m	10.06m	9.75m	8.5m	9m	9.14m
O/A width	2.28m	2.3m	2.3m	2.31m	2.3m	2.3m	2.29m
O/A length	4.88m	4.4m	4.42m	4.9m	4.9m	4.88m	4.88m
O/A height stowed	3.21m	3.25m	3.19m	3.07m	3.18m	3.16m	3.15m
O/A height - rails down	2.44m	2.36m	2.4m	2.36m	2.5m	2.47m	2.47m
Power	Electric or Diesel	Electric	Diesel	Diesel	Diesel	Diesel	Diesel
Gross weight	9,250kg#	8,048kg	8,100kg	7,712kg	8,100kg	8,650kg	7,926

#Without outrigger option *XL/Superdeck platform option



The opposite end of the market

From the sublime to the ridiculous perhaps? We take a brief look at an all new entrant to the low level market, the Italian built AxoLift, which goes head to head with JLG's Pecolift/Ecolift products. OK it is not a scissor lift, but most type lifts along with scissors simply go up and down, so whether the lift has a scissor stack, a sigma lift mechanism or a mast, it does exactly the same job.



Axolift's new Manulift

AxoLift is the brand adopted by well established northern Italian fabrication company Gromet. The family owned company has traditionally made fabrications for others and as such is equipped with the latest cutting, bending, and robot welding equipment, allowing it to produce a high percentage of its new lifts in house – a distinct advantage in these times of supply issue challenges. The company has set up a dedicated assembly and testing facility for the AxoLift products on the other side of its home town of Veneto, northern Italy and is now launching the first two models, the manually operated Manulift and battery powered push around eLift.



The Manulift has a 4m working height

At first glance you might think 'Power Towers Pecolift/Ecolift copy!' does that mean patent or copyright issues? This is not the case, the Manulift uses a different internal lift mechanism that does not involve a gas spring, just a few more turns of the crank. In fact, the company has taken out two of its own patents on the new products, with further models planned. Here is how these two compare with the JLG equivalents.



The Axolift Elift has battery powered lift to almost 5m

How does the AxoLift models stack up?

Brand Model	AxoLift Manulift	JLG/Power Towers PecoLift	JLG Ecolift 70	AxoLift Elift 350	JLG/Power Towers 830P
Working ht.	4.0m	3.5m	4.2m	4.95m	4.3m
Platform cap.	110kg	150kg	150kg	180kg	150kg
Stowed ht.	1.67m	1.55m	1.93m	1.74m	1.56m
O/A width	770mm	700mm	700mm	750mm	750mm
O/A length	1.16m	990mm	1.28m	1.16m	1.19m
Weight	249kg	180kg	305kg	355kg	285kg

Spec for spec they offer an interesting alternative. Perhaps with long lead times for the JLG models, the company's timing may well be ideal?

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