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# Too much choice?

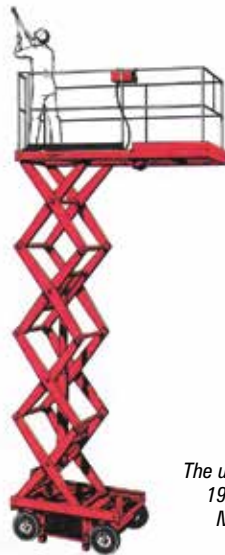
Small battery powered scissor lifts with working heights of between 5.5 and six metres - 19 or 20ft - have been the most popular self-propelled lifts in terms of units produced for more than 40 years. The new ANSI/ISO standards and the move to a global product has changed everything, as manufacturers try to second guess end user and rental companies' needs. We take a look at the state of this important market.

The very first 20ft slab electric models appeared in the early 1970s, however the big growth in the market came in the 1980s as machines dubbed 'Skinny Minis' became increasingly popular. Typically, they had a 20ft platform height and an overall width of around 32 inches/820mm, just enough to squeeze through a standard single doorway. They were however the same overall length as regular full-width 20ft models, often as long as 2.4 metres.

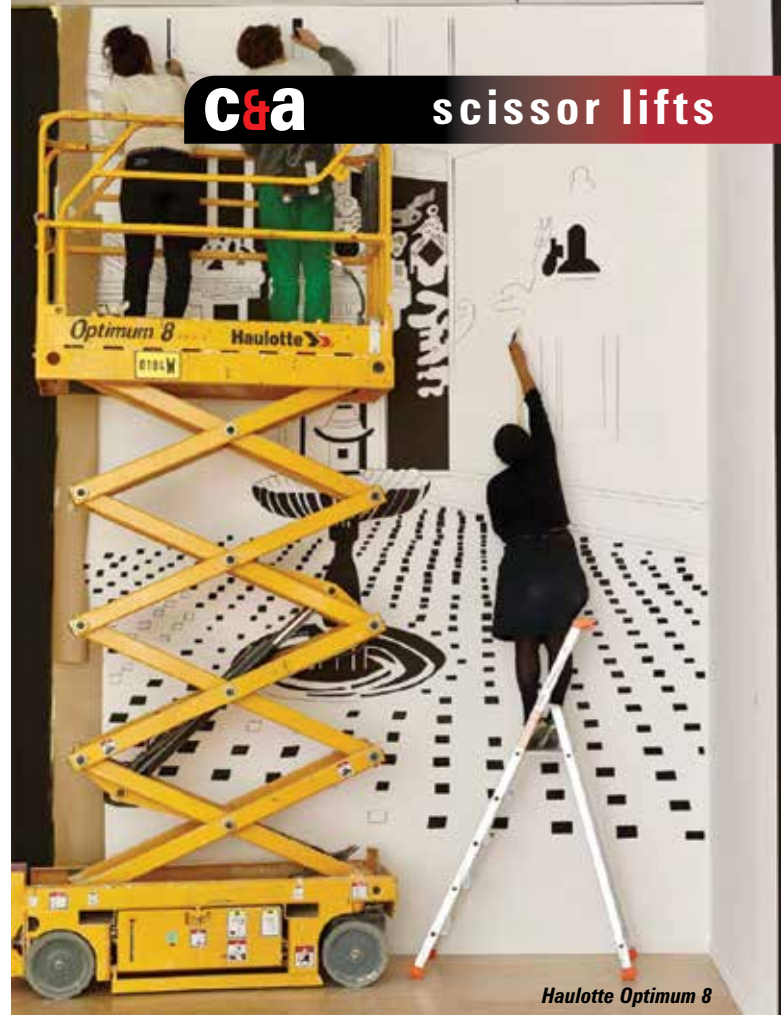
At the time the slab scissor lift market was led by Economy Manufacturing with its Wildcats and Cub - later acquired by Snorkel owner Figgie which eventually merged into Snorkel - along with Marklift, Mayville/Mec and UpRight initially with its Flying Tigers followed by the XL19 and 24s. In 1986 the SL20 - a sigma type lift which was priced right - was ultra-reliable, simple and robust. Selma Manlift was also active, but its smaller scissors were no match for the others, although it dominated the Rough Terrain scissor lift market. However it did have one of the first ever short 19ft models - the MSM

25B - but it was almost as wide as it was long at 1.12 metres! It was also on the heavy side as it had a stonking 567kg platform capacity!

JLG was a major force in the aerial lift market at the time but struggled in the 1980s and early 1990s to build a decent competitive small scissor lift. Skyjack was not established until the end of 1985 although in the late 1980s it pioneered some game changing innovations such as swing out battery and component trays that



The ultra short 19ft Manlift MSM25B.



Haulotte Optimum 8

eventually became the industry standard. Genie did not enter the scissor lift market until the 1990s.

## The arrival of the 19ft 'Elevator' scissor lift

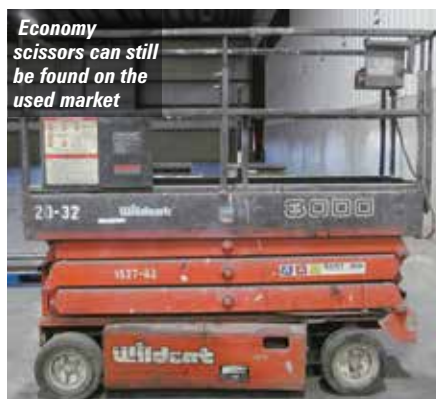
So MEC and Economy were clearly out in front, with the former carrying out a lot of clever development work with 'elevator' machines under the Dyna Mite name. It was the first to introduce an active pothole protection system years before anyone else took it seriously. Then at the end of 1993 UpRight developed a 15ft 'elevator scissor' - weighing less than 1,000kg - with an overall length of less than 1.65 metres in the form of the MX15 to compete with the 13 and 16ft MEC Dyna-Mite. The company quickly recognised that it could add an additional scissor stack to create

the 19ft MX19 so the product was rushed through in time for launching at the ARA show in 1994 and it became an instant success. At the same time the company swapped out its highly popular but dated XL19/XL24 models for a new range of 20 and 26ft slab scissor lifts in the form of the X20 and X26, both of which had active pothole protection.

MEC pioneered true 'Elevator' scissors



Skyjack SJ3219



Economy scissors can still be found on the used market



Mec also introduced active pot-hole protection



# REACH HIGHER

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Skyjack's new range of full-size rough terrain scissor lifts offer higher platform heights and increased capacity ratings. The new range replaces Skyjack's previous 88 and 92 models and consists of the SJ9233, SJ9243, and SJ9253 RT.

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13ft scissor lifts are becoming the new 19fts

### 13ft mini micro scissors

The 19ft scissor lifts almost completely replaced the full length 20ft scissor lifts and became by far and away the biggest selling powered access product ever, at least in unit terms. That may well be set to change with new standards over the years having made 19ft scissor lifts heavier and longer, and new 20ft machines appearing on the market. More critically perhaps is the growing popularity of 13ft micro scissor lifts. Most companies now have a product in this sector including JLG, Genie, Snorkel, Dingli, MEC, GMG, Sinoboom and Instant UpRight to name a few - all of them built in China. A pioneer in this market Hy-Brid Lifts has also seen sales take off for its lightweight compact 10, 14 and 16ft low level scissor lifts, all of which are built in North America.

### 19ft still the main product

While these mini micro scissor lifts, along with the 12, 16 and now 20ft mast type lifts, are taking an increasingly large part of the sub 26ft scissor lift market, the 19ft scissor lift remains a staple of most rental fleets and is almost certainly the most requested product by end users... "send me a couple of 19 footers" is a classic request to rental companies from regular customers. In most cases the end users are not that fussed which manufacturer's product is delivered - a Genie GS-1932, a Snorkel 3219, a Skyjack SJ3219 or even a Dingli. Until now if you were looking to buy or rent a 19ft scissor lift, the choice was relatively simple and straightforward with most models having very similar specifications and performance. Platform capacity was around 230kg, weight somewhere in



19ft scissor lifts are one of the most requested access rental products

the region of 1.5 tonnes and overall length 1.6 to 1.7 metres. The key specification choice was down to the overall width with some models at 30 inches/760 mm and others at 32 inches/820mm - both supposedly capable of passing through a standard doorway, although we all know that 760mm machines are a good deal easier than 820mm!

In Europe most 19ft's have been indoor only and all needed to fold or drop the guardrails to pass under a two metre overhead obstruction, while in North America most could squeak in under two metres thanks to the lower guardrail height standards. 19ft scissor lifts therefore almost a generic product with the choice largely based on the manufacturer along with availability, price, build quality, parts and service coverage, not to mention finance package and relationships.



Not all 19ft scissors have had an outdoor CE rating

Today that has all changed with buyers now faced with a myriad of decisions. Do they want a heavier indoor/outdoor machine? Are they happy with reduced performance when using it outside? Do they want a machine with an overall width of 760mm and limitations, or an 820mm model? Both of these factors have a bearing on the machine's overall weight. If two tonnes is acceptable then you can have it all. But extra weight can add cost and or performance - possibly requiring larger motors pumps and wheels. And then there is the cost of transport - four units weighing 1,500kg or less equates to a six tonne load, four units weighing 1,900kg is 7.6 tonnes. With more rental companies looking to improve truck loadings for greater delivery efficiency and a lower carbon footprint, weight and overall dimensions are becoming a significant issue. On top of this



Floor loadings can be critical in some applications

C&A

scissor lifts



Aichi SV2632E



The more machines that can be loaded on a truck the lower the cost



Folding guardrails

floor loadings are often important for these small machines. One of the big selling points of Hy-brid Lifts over the years has been the ability for its machines to work on suspended floors thanks to their ultra-low overall weight.

### Guardrails!

And then there is the guardrail issue. Can you, or if you are a rental company, your customer be bothered with folding guardrails down every time you want to go through a standard doorway? The salesman at a trade show makes folding the guardrails look a breeze, so nothing to be concerned about? However try and do the same slick manoeuvre with a three year old machine on a wet day in the middle of winter and it is another thing entirely.

### Knowing your customer

The problem for rental companies is that they need to consider what is really important for their customers. Some companies are good at this, especially with larger, more specialised machines. But there has never been much need to bother with such considerations when looking at 19 footers, unless

Make	Model	Work Height		Platform capacity		O/A	O/A	Stowed Height*	Total Weight	Platform Extension	Drive Elec/Hyd
		Indoor	Outdoor	Indoor	Outdoor	Width	Length				
JLG	1930ES	7.72m	7.72m	230kg	120kg/1p	760mm	1.87m	2.02m	1,565kg	900mm	E
JLG	ES1932	7.79m	7.79m	230kg	230kg/1p	810mm	1.7m	2.1m	1,521kg	910mm	E
JLG	ES1932I	7.79m	N/A	230kg	N/A	810mm	1.7m	2.1m	1,213kg	910mm	E
JLG	R1932	7.8m	7.8m	230kg	120kg/1p	810mm	1.74m	2.1m	1,565kg	910mm	H
JLG	R1932I	7.8m	N/A	230kg	N/A	810mm	1.74m	2.1m	1,213kg	910mm	H
Genie	GS-1930	7.8m	6.47m	227kg	227kg/1p	760mm	1.83m	2.1m	1,505kg	910mm	H
Genie	GS-1932	7.8m	6.47m	227kg	227kg/1p	810mm	1.83m	2.1m	1,360kg	910mm	H
Haulotte	Optimum 8	7.77m	7.77m	230kg	230kg/1p	790mm	1.9m	1.98m	1,590kg	860mm	E-AC
Haulotte	Star 8S	7.95m	N/A	200kg	N/A	790MM	1.4m	1.98m	1,150kg	400mm	E-AC
MEC	Micro 19	7.6m	6.5m	227kg	227kg	760mm	1.5m	2.12m	1,280kg	600mm	E
MEC	1930SE	7.8m	7.8m	227kg	227.1p	760mm	1.9m	2.1m	1,420kg	900mm	E
GMG	1930-ED	7.8m	7.8m	230kg	230kg/1p	760mm	1.82m	2.2m	1,490kg	910mm	H
Skyjack	SJ3219	7.6m	7.6m	227kg	227kg/1p	810mm	1.80m	2.1m	1,476kg	910mm	E
Snorkel	3019E	7.8m	7.8m	250kg	250kg	770mm	1.91m	1.76m	1,581kg	910mm	H
Snorkel	S3219E	7.8m	7.8m	250kg	250kg	810mm	1.78m	2.11m	1,614kg	910mm	E
Hy-Brid	PS-1930	7.5m	4.7m	295kg	295kg	762mm	1.76m	1.88m	900kg	762mm	E
Dingli	JCPT0807DC	7.8m	7.8m	230kg	230kg/1p	780mm	1.86m	2.15m	1,415kg	900mm	H
Dingli	JCPT0807HD	7.8m	7.8m	230kg	230kg/1p	780mm	1.86m	2.15m	1,435kg	900mm	H
LGMG	AS0607	7.8m	N/A	230kg	N/A	760mm	1.83m	2.12m	1,580kg	900mm	E
LGMG	AS0607E	7.8m	7.8m	230kg	230kg/1p	760mm	1.86m	2.14m	1,610kg	900mm	H/E
LGMG	AS0607W	7.8m	7.8m	230kg	230kg/1p	810mm	1.83m	2.12m	1,600kg	900mm	H
JCB	S1930E	7.8m	7.8m	230kg	230kg/1p	760mm	1.78m	2.11m	1,330kg	900mm	E
Sinoboom	GTJZ0608S	7.8m	N/A	230kg	N/A	760mm	1.78m	2.1m	1,526kg	900mm	E
Sinoboom	GTJZ0608M	7.8m	7.8m	230kg	230kg/1p	810mm	1.78m	2.1m	1,458kg	900mm	E
Zoomlion	ZS0607DC-Li	7.8m	N/A	230kg	N/A	760mm	1.85m	2.1m	1,455kg	910mm	H
Airo	XS8E Light	8.03m	N/A	230kg	N/A	765mm	1.82m#	2.24m	1,520kg	1,000mm	H
Airo	XS8 E Wind	8.03m	8.03m	230kg	230kg/1p	820mm	1.82m#	2.24m	1,770kg	1,000mm	H
ELS	EL8S	7.6m	6.5m	230kg	230kg/1p	760mm	1.83m	2.19m	1,560kg	860mm	E
Imer	IM 5980	7.8m	N/A	230kg	N/A	800mm	1.85m	2.1m	1,290kg	1,000mm	E
Imer	IM5980EX	7.8m	7.8m	230kg	230/1p	800mm	1.85m	2.1m	1,500kg	1,000mm	E
Imer	IM59080MC	7.8m	N/A	220kg	N/A	800mm	1.85m	2.13m	1,730kg	360!	E-AC
Aichi	SV06E1NS	7.72m	7.72m	227kg	227kg/1p	760mm	1.87m#	2.2m	1,230kg	900mm	E-AC
Eastman	ES1930E	7.8m	N/A	230kg	N/A	760mm	1.80m	2.16m	1,460kg	910mm	E
Eastman	EX1932E	7.8m	7.8m	230kg	230kg/1p	810mm	1.80m	2.16m	1,470kg	910mm	E
XCMG	GTJZ0607E	7.8m	N/A	230kg	N/A	760mm	1.88m	2.16m	1,490kg	900mm	E
Mantall	XE80N DC	7.78m	N/A	230kg	N/A	760mm	1.85m	2.13m	1,490kg	900mm	H
Airo	XS9E	9.38m	N/A	200kg	N/A	765mm	1.82m#	2.35m	2,000kg	1,000mm	E
Imer	IM7380	9.2m	N/A	200kg	N/A	800mm	1.85m	2.2m	1,700kg	1,000mm	E

\*Guardrails up With Step # folded guardrails increases overall length to 2.04m ! Lateral extension

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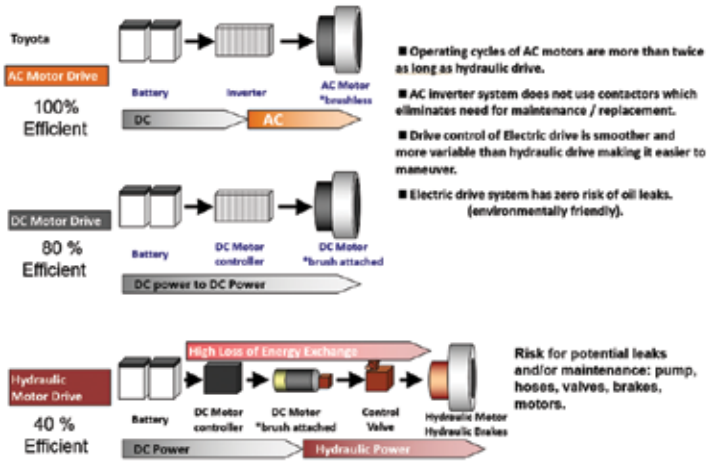


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The majority of models on the market now incorporate direct electric drive.

it was battery life, when direct drive was something that initially only JLG ES machines and Iteco offered. It was a strong selling point for a few end users whose work involved significant travel during the working day. Today however control systems and components have improved dramatically and it is less of an issue. Additionally the majority of machines are gaining direct electric drive with a choice now of indoor only, or indoor and outdoor ratings with each manufacturer mastering this in a different way. Including extra width or weight, or restricted working heights when working

outdoors. How important is overall width or weight or limiting outdoor working heights? Having strong customer relationships and knowing how they use the machines they rent from you is more important than ever.

### Comparing them all

The opposite chart shows the wide range of 19ft type scissor lifts that is currently available. It is by no means exhaustive but does include the main manufacturers, which are principally Skyjack, Genie, JLG, Snorkel Haulotte, with Dingli and LGMG making up strong ground with Sinoboom not on the scene in

Europe and the USA.

We have also included two models from Airo and Imer that are actually 24ft machines but share the same dimensions as their 19ft offerings and are only marginally heavier.

As you can see there is not only plenty of choice but several manufacturers are now offering alternative machines in order to overcome the different end user requirements. While others are installing systems that aim to make a single machine cover all of the various requirements.

The key factors to look at tend to be overall width and weight, then rating - indoor only or indoor/outdoor - and in the latter case what if any restrictions there are when working outside. Other important aspects include stowed height with guardrails up. All machines that are over two metres have fold down guardrails that reduce the overall height well below two metres. Overall length - we have shown length with platform entry steps in place. Many models have pinned or bolted steps that can be removed to reduce the overall length by around 200mm. Finally note the deck extensions, two of

the companies offer full one metre extensions which can be handy in some applications, while most are 900mm and some shorter. Drive type is increasingly important, with the majority now being direct electric wheel motor drive, some using AC brushless motors, which are claimed to offer an additional 10 percent efficiency and long-term maintenance costs savings.

Interestingly some manufacturers - particularly those based in China - are currently offering customers a choice of electric or hydraulic drive on what is otherwise the same model.

### Catching the leaks

Another subject that has emerged on slab electric scissor lifts in the past year or so concerns hydraulic leaks and other forms of contamination. End users have been paying increasing attention to the risks of such issues, which has led to greater interest and take up of items such as absorbent leak Diapers - nappies if you are British - to catch any drips from leaks. Some of the latest machines have been designed to eliminate the risk all together. For example, both the Snorkel 3019 and Hybrid PS-1930

## Cover story

Snorkel supported street artist Gent 48 in the creation of a Covid-19 themed mural in Birmingham, UK, by providing him with a 33ft S3370RT compact rough terrain scissor lift from which to paint, the massive mural which was commissioned by the Birmingham based art4charity. Located on Meriden Street in Digbeth, Birmingham, it pays tribute to frontline professionals who worked to combat the virus. Art for Charity is the combined brainchild of Paul Cadman,

Professor of Entrepreneurship at Birmingham City University, and Nathaniel Hanna, co-founder of Melting Pot Birmingham. Their goal is simple: to harness the creativity and skills of artists and creatives across

Birmingham to raise funds for the Lord Mayor's Charity. In return, the artists receive royalties for everything they produce, but with the most significant portion reserved for charitable causes in the city.







Part of Hy-Brid's LeakGuard system on the PS-1930

have electric drive, electric steer and sealed batteries and the only fluid on board is that used for the lift cylinder with the Hy-Brid machine having a built in drip tank and small absorbent mats all of which it promotes under the 'LeakGuard' name. The Snorkel also incorporates most of the lift cylinder hydraulics into the lift cylinder module, an idea pioneered by JLG with its initial ES series almost 20 years ago.

MEC was one of the first manufacturers to look at the issue of leaks in a different way when it launched its Leak Containment System, or LCS this time last year, for which it has applied for a patent. The move followed a study into the causes and sources of hydraulic oil leaks on slab scissor lifts which to no surprise confirmed that the vast majority of leaks come from the hoses feeding the hydraulic wheel drive motors, which are constantly stressed by the back and forth steering function. That issue is eliminated with electric drive, while all other components are placed in a containment box with a drip tray for the steering cylinder, complete with absorbent mat, while any lift cylinder leakage is diverted to the tank.

The Hybrid PS1930 takes this a step further having had it designed in from the start, while most other manufacturers are now offering built in pads, the problem is that if the machine has not been designed for them they tend to be complex in shape and can be challenging to both fit and change. You can be certain that as manufacturers introduce new models this will be a factor that is built in, and one that is also likely to move up the food chain to include larger machines.

## Some machines of particular note

Among the 37 machines in our comparison chart there are a few that deserve some additional coverage, mostly because they are new products and/or have features that are likely to become more widely adopted as we go forward and as such are worth consideration. We begin with two machines that really stand out due to some ground breaking new features - the Snorkel S3019E and the Hy-Brid PS-1930.

The Snorkel 3019E was unveiled as a prototype at Bauma last year. Its most notable feature is the way the scissor stack completely disappears into the chassis making it look more like a mast type machine, but without the mast up front. The design is very clever indeed and provides several benefits, the key ones being a significantly lower platform entry height at just 660mm, requiring just one step for entry. That also translates into an overall stowed height of just 1.76 metres, easily the lowest on the market.

Add that to an overall width of 770mm and you can see that it will pass easily through a standard single door. It also has an outdoor rating, without a derate.

The new Snorkel slab scissor lifts use a new variable angle sensing system, incorporating a side angle algorithm in its control system software, that reduces the permissible side slope of the unit based on the height of the platform. It is linearly interpolated so that it constantly reduces as the height is increased. What that means is that if the machine is working outside on a decent concrete slab with very little wind it will sense the fact and allow work at full height and capacity. However if the ground is sloping a little, or the machine is being pressured by wind gusts it will automatically lower the permitted work height to a safe level. All this with no input required from the operator. In reality operators will find that platform height is typically limited to 70 percent of its maximum, which on the 19ft means 13.3ft for a working height of 5.5 metres.

Other nice touches on this machine include all key services located at the rear so that units can be parked close to each other to maximise warehouse space. The emergency descent is also located here and uses a long lever so that the person using it is well back from any potential pinch points.

As with other small Snorkel machines the S3019E is equipped



Snorkel S3019E single step with integrated electrics

with an additional short tethered remote control for drive and steer when loading and unloading etc, and dual swing-out doors requiring significantly less space to open for access to the few chassis mounted components. Finally the fork pockets are incorporated into the top rail of the chassis and run straight through allowing lifting from either end. The machines sells for a premium over the company's other 19ft model, the S3219E. Downsides? Well the S3019E is on the long side at 1.91 metres just pipping the Haulotte Optimum 8 to be the longest machine we looked at. The step is bolted on and looks as though it can be removed, but given that it incorporates the charging points lower controls etc.. probably not something you would want to do too often.

## Best for weight

We reviewed the Hy-Brid PS-1930 in some detail in the ARA show report in our March issue, but it is worth just mentioning its key attributes again. The major point is its overall weight of just 900kg - the lightest of the machines we looked at by a wide margin - and its high platform capacity at 295kg while maintaining an outdoor rating! All this and it is only 762mm wide and 1.76 metres long with an overall height - with guardrails in their



The MEC LCS leak containment system



The use of under machine Diapers/Napkins has become more widespread in recent years



Snorkel S1390E



the Imer 5980 MC has a lateral deck extension



Mec Micro 19

working position - of 1.88 metres. Too good to be true? Well yes there is a downside in that the working height when outside is reduced to 4.7 metres and the deck extension is a little shorter than most at 762mm - but that is it. Add in the direct electric drive and bullet proof leak protection system and it looks like a real winner.

The MEC Micro 19 is far and away the shortest of the machines we looked at, with an overall length with steps in place of just 1.5 metres - 1.3 metres with steps removed! It is a true elevator machine



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HEIGHT	ELECTRIC	ENGINE
30m	BT30ERT	BT30RT
28m	BT28ERT	BT28RT
26m	BT26ERT	BT26RT
26m	BT26SERT	BT26SERT
24m	BT24ERT	BT24RT

ARTICULATING BOOM LIFTS

HEIGHT	ELECTRIC	ENGINE
28m	BA28ERT	BA28RT
24m	BA24ERT	BA24RT





with similar dimensions to the 12ft mast type lifts. Overall weight is just 1,280kg - very light by modern standards - although this will prohibit it from riding in 1,000kg elevators. Remarkably it has an outdoor rating at working heights of up to 6.5 metres, add in direct electric drive and this is another really interesting machine.

Larger manufacturers are still adapting to the new rules with Skyjack, Genie and JLG undergoing transition arrangements towards global models, having launched the new ANSI machines this year, but yet to add all features to all CE models. As a result JLG, for example, has five machines in its range - (which will drop to four) - as it wrestles to offer all things to all customers. It continues to offer the premium ES direct electric drive models alongside the more basic R 'Rental' series with hydraulic drive. The new models have the range designation at the start of the model name with the ES1932 rather than the slightly narrower 1930ES, while the 1932R becomes the R1932. Both new models have lighter indoor only versions - the ES1932i and R1932i.

## New global machines

Genie has two new 'global' 19ft machines, the GS-1930 - not previously available in Europe - with its 760mm overall width, and the GS-1932 which is wider but lighter. Both feature the company's 'Dual Zone Control' with two buttons, allowing operators to switch between indoor and outdoor use, with the Load Sense system adjusting the performance parameters for the environment selected. The lift has the same platform capacity whether working indoors or outdoors but

the maximum working height is adjusted downwards from the maximum of 7.8 metres to 6.47 metres when working outdoors. If no choice is made on start up, the machine will default to outdoors. The operator can however change between the two settings at any time from the platform controls.

Skyjack has completely updated its highly popular SJIII3219 to the SJ3219. Most of the characteristics and its look remain exactly the same, although everything has changed under the skin, including much of the machine's structural components. While the company uses dual working height controls on its larger slab electric scissor lifts it has kept the 19ft model simple, and the only restriction when working outdoors is a one person only rating.

Looking to European manufacturers Haulotte revamped its Optimum 8 scissor lift a few years back, but more recently it unveiled the European version of its 20ft mast type lift, the Star 8S which fits into this category although it clearly uses a different type of lift mechanism. It is clearly an indoor only machine but has some handy specifications for this type of work, being compact and light in weight. Certainly it is a good alternative for some end users.

## Longer deck extensions

Airo has two models, the XS8E Light and XS8 E Wind. The Wind model is clearly designed for both indoor and outdoor applications being slightly wider and heavier. As already mentioned the company also has a 24ft model the XS9E with a working height of almost 9.4 metres and similar dimensions to the other machines in our chart - strictly indoor only of course. Fellow Italian Imer has three models in this category - all very similar, but slightly different. One has a lateral slide out deck extension, ideal where it is not possible to get right alongside a wall when the full length of the platform is required. It also offers a machine with 9.2 metres working height that we have included in the chart.

JCB entered the scissor lift market in 2017 with a line of Sinoboom built scissor lifts, including a classic 19ft model the S1930E, it now builds its scissor lifts at its own plant in India. That same year GMG entered



Sinoboom factory



the market with a line of Chinese built scissor lifts. It has introduced a number of innovations, especially at this end of the market. Its 1930ED has a good all-round specification and an excellent folding guardrail set up which truly is easy to operate and rugged enough to remain that way.

Finally we have Aichi, which manufactures one of the best scissor lifts on the market in terms of performance and reliability and yet outside of Japan or the USA where minority owner Toyota distributes them, it is a major challenge to try and buy them or even obtain information on them, even though they have been sold in Europe in the past. We have heard that it is restarting in Europe but appears to be focusing on boom lifts at the moment and has apparently already restarted scissor lifts sales in Australia. Its SV06E1NS is sold as the SV1932E in North America

## Battery moves

We have already mentioned the battery life issue, but in addition to direct electric drive and more efficient hydraulics and control systems, a number of manufacturers are also offering lithium ion battery pack options. If all of the other factors are in place the benefits are debateable and will depend on price premium. In addition to the longer life - both between charges and overall life - lithium eliminates the maintenance issue. However the latest AGM batteries are also pretty much maintenance free, cost less and also have improved battery life. Some companies such as JCB offer lithium ion batteries but only install two rather than four. Lithium batteries also have their issues including cold starts and recycling challenges.

In summary the jury is out on what specifications will become the most popular. However, expect to see more machines like the Snorkel S3019 and the Hybrid PS-1930.



Airo XS8E



Zoomlion 0608DC-Li



Dingli JCPT0807



Imer 5980 offers a full 1m deck extension'



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# PB updates Top 12 and 16 models

German scissor lift manufacturer PB is putting the final touches to a full 'Technical Update' for its 1.2 metre wide TOP 12 range and 1.6 metre wide TOP 16 series of narrow aisle heavy duty slab electric scissors. C&A was given an advance look at some of the changes.

The Top 12 range offers platform heights of between 36ft and 67ft with 13 to 22.5 metre working heights and platform capacities of 400 to 700kg. The Top 16 line offers platform heights of 36ft to 50ft / 13 to 17.1 metre working height and 400 to 700kg platform capacity. They currently use many of the same key components such as scissor stack, and among the changes proposed are even greater commonality between the two, thanks to modular design and build.

The changes and improvements are extensive, with changes to many of the machines' structural components.

Starting with the most critical area, the scissor arms have been changed as part of an entire scissor stack redesign, with a new geometry, new pivot pins and bearings. Considerable weight has been saved in the upper areas of the lift mechanism including new arms. The material and weight has not been lost, but rather transferred into the lower part of the stack and the chassis, so that the lifts are strongest where the forces



*New lifting cylinder mounting*

are highest. The changes have significantly lowered the machine's centre of gravity while reducing the weight of the scissor stack, so that it is now a good deal easier to extend. This has also lowered stress levels throughout the upper areas of the lift mechanism.

The lift cylinders and attachment points within the scissor stack have also been redesigned, making them simpler, while helping increase overall platform rigidity. The result is a more 'maintenance friendly' design, which should provide



*The updated  
PB S225-12ES*

greater long-term reliability.

Moving to the top of the machine, the platform extension has been redesigned, making it easier to extend and retract, while a great deal of work has gone into protecting the slide/rolling mechanism from contamination - such as dirt and sand - with harder material used in the high point load areas of the tracks and easier more effective lubrication. Staying on the platform, the guardrails have also been redesigned with rounded, smoother profile square tubes and improved paint cover and quality with additional anti corrosion treatment. The same applies to all of the bolts and other fixings used on the platform.

The machines now also use the same modular chassis on both the Top 12 and Top 16, with a better steering system which allows front wheels to turn almost 90 degrees for improved manoeuvrability. The battery covers have also been changed making it fast and easier to gain access to components for

maintenance and repair. The battery compartment is also larger allowing the battery size to be increased 560 to 640Ah.

All of the changes provide an indoor/outdoor rating with two people in the platform, as well as capacity increases in some cases of 33 percent, taking the lower capacities up by 150kg to 600kg. Finally the control system has been improved providing smoother operation and greater operating efficiency, adding to battery life between recharges.



*The platform  
and roll-out deck  
have been improved*



*New pivot points*



*New steering offers greater manoeuvrability*



*The new easier to use  
battery storage cover*



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