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Spiders spark into life

Slowly but surely, the tracked spider lift is becoming more of a mainstream rental product as rental companies and end users appreciate its 'jack of all trades' abilities.

Of all the aerial work platforms, spider lifts can deal with almost every type of ground condition with outriggers that can be set in different positions and with huge amounts of levelling ability, making them the 'go anywhere' platforms. And when fitted with non-marking tracks and using an electric power source, they are perfect for use indoors on most types of delicate flooring.

When compared with self-propelled boom lifts, spiders are much lighter and more compact for similar performance and with features such as variable track width are narrow enough to pass through single doorways yet stable enough for tracking around site or from delivery truck to work place. Air and water outlets in the basket are also available adding to their versatility.

Two issues ago we took an in-depth look at hybrid technology and in particular how it is being applied to scissor and boom lifts. Hybrid technology however is also becoming important in other access platforms, and most particularly, spider lifts. One of the early pioneers of multi power source drives for access equipment was Danish manufacturer Omme Lift. It has been building aerial lifts for 35 years and produced its first bi-energy model - the Ommelift 2500EBD, a trailer mounted boom with diesel and battery power - in 1994. This platform had a powerful battery pack, which allowed independent and environmentally friendly operation which was especially appreciated in residential areas. However it was found that in certain applications - such as tree work - the battery did not have enough capacity to work for the whole day - and this was more apparent when the temperatures were low. The solution was to combine battery and engine power creating, with the engine acting



Platform Basket 22:10



Omme's latest 42 metre working height 4200 RBDJ is - is its largest lift to date



Harry Lorentsen, managing director of OmmeLift with a hybrid drivetrain

like a generator and automatically recharging the battery pack.

Using battery power rather than plugging into a mains supply eliminates the well-known 'voltage drop' issue. However when operating on single phase AC even relatively short extension cords can create a reduction in voltage, which means the machine does not receive sufficient power to operate effectively. Battery power therefore provides better lift operation and without an inconvenient, potentially hazardous cable connection to the mains.

Intelligent charging allows the operator to plug into the mains and recharge the batteries while using the machine. It can also trickle charge when dormant, switching to full charge when the lift is in use. Omme's latest hybrid machine - 42

metre working height Ommelift 4200 RBDJ tracked spider - is its largest lift to date and weighs in at 6,900kg, while boasting a maximum outreach of 15.2 metres with a reduced platform capacity of 80kg - 13.5 metres with its maximum 230kg capacity. The hybrid power pack allows cordless operation both outdoors using the diesel engine, and indoors with its eight battery pack. Paramount Platforms of the UK, ordered one of the first units at its Amsterdam launch last June. Lee Kerr of Paramount Platforms said: "We wanted a versatile machine that performs equally well on rough terrain for phone mast work as it would in a shopping centre putting up Christmas lights. The hybrid power train is a very important criterion for our London work, along with lightweight and compact dimensions for its height."

Spider Vs boom?

Given the reasonably similar working height and outreach, we thought it might be interesting to briefly compare the main differences between a large spider lift and self-propelled articulated booms of the same working height. The most obvious differences are that the spider is far more compact and weighs about a third of the self-propelled. Coupled with its 'go-anywhere' tracked undercarriage means the spider can access work areas unreachable for the boom lift, particularly when the booms much heavier weight is taken into consideration. By virtue of its unique levelling ability, the spider lift can also set up and work on steep slopes that no other platform could get near.

How the 42m Ommelift compares with a similar-sized articulated boom - in this case a Genie ZX-135/70

Type	Genie ZX-135/70	Omme 4200 RBDJ
Max. working height	43.15m	42 m
Max. outreach	18.3m riser extended	15.2 m
Platform dimensions	910mm x 2.44m	800mm x 1.25m
Travel length	12.93m	8.9/8.3m
Overall height	3.09m	1.99m
Stowed width	2.49m	1.75/1.35m
Operational width	5.03m	5.33/4.42m
Max. platform capacity	272kg	230 kg
Overall weight	20,502kg	6,900kg

Spider lifts are also leading the charge towards the adoption of high capacity, quick charge, long life lithium ion battery packs. Pioneered by Hinowa, the lithium power pack provides enough grunt and life for the spider lift to work all day on rough terrain - cutting trees or on high cycle indoor work - without the need for a back-up engine. However add an engine and the

versatility and autonomy can be truly exceptional.

Automatic lithium hybrid

Another spider lift manufacturer that has been an early adopter of lithium/hybrid is Italian company Bluelift which launched its lithium hybrid system at Bauma two years ago. The company says: "Eliminating any trailing leads is one thing, but offering uninterrupted and full power for drive and lift functions actually transforms the use of such equipment. There is still a little reluctance for people to embrace this technology as lithium batteries have had their share of bad press and some manufacturers' systems do not perform as well as they claim. But this technology is a game changer in the industry."

Platform Basket is another company that echoes this sentiment and suggests that customers check out the claims made by the manufacturers regarding the suggested recharging times and also the amp hour rating on the various battery packs.

The new Bluelift Hybrid line claims to be the first compact track mounted spider lift to combine a



Although the Genie articulated boom has more platform capacity and a bigger basket it weighs almost three times than that of the Omme

lithium battery with a combustion engine with automatic switching mechanism between battery and engine power supply. While dual power systems which combine a conventional battery system and combustion engine have been on the market for some self-propelled lifts and larger spiders, it has always been too much of a challenge to develop a battery system small enough to fit on sub 29 metre tracked spider lifts. Consequently, even with the use of lithium battery packs, the market has had to

choose between either battery power or combustion engine. Bluelift uses a 90 amp hour (200Amp/Hour on C22 model) lithium, iron-phosphate battery pack mounted directly to the machine which powers all functions in both travel and lift modes. The battery lasts between six to eight hours on one charge - claimed to be 20 percent better than the average - and can be recharged to 80 percent of full capacity within two hours when connected directly to mains power of either 110 or 240V.



Another early adopter of lithium/hybrid technology is Italian company Bluelift which launched its system at Bauma two years ago



The Bluelift lithium battery system is also detachable so it can be moved from one unit to another, offering fleet owners greater flexibility

In Hybrid Auto mode, the BMS (Bluelift Management System) system monitors and analyses the operation of the platform in real-time to help select the most power efficient usage at any time when working in an application that allows both combustion and battery modes. The operator simply selects Auto, leaving the BMS system to automatically decide which power source is the best for any given function with the view to reducing fuel consumption and decreasing pollution as much as possible. If the operator for example is lowering the main boom the BMS system automatically selects the electric power. If the operator raises the boom or drives the unit (where higher hydraulic pressure is required) the system automatically engages the combustion engine.

There is no battery memory effect and it can be charged as and when convenient with no ill-effects with the maintenance-free lithium battery lasting up to three times longer than traditional lead acid batteries.

In Hybrid Auto mode, the BMS (Bluelift Management System) system monitors and analyses

and it can be charged as and when convenient with no ill-effects with the maintenance-free lithium battery lasting up to three times longer than traditional lead acid batteries.

The addition of a small Honda diesel or petrol generator which kicks in automatically when the battery power drops below 20 percent means that the platform can be used for extended periods in areas where mains power is not available ie outdoors. The lithium battery system is also detachable so it can be moved from one unit to another, offering fleet owners greater flexibility. This means that depending on the battery/engine usage, a fleet owner can share one or two lithium battery systems between a larger fleet of standard units with only combustion engines.

Lithium innovator

The first manufacturer to offer lithium powered spiders was, as already mentioned, Italian manufacturer and spider lift market leader Hinowa, which launched its first, all-battery powered tracked Goldlift 14.70 at the end of 2009. This it followed with a 19 metre version about six months later when



Hinowa is continually adding new models – its latest is the 26 metre working height, 14 metre outreach Lightlift 26.14

the operation of the platform in real-time to help select the most power efficient usage at any time when working in an application that allows both combustion and battery modes. The operator simply selects Auto, leaving the BMS system to automatically decide which power source is the best for any given function with the view to reducing fuel consumption and decreasing pollution as much as possible. If the operator for example is lowering the main boom the BMS system automatically selects the electric power. If the operator raises the boom or drives the unit (where higher hydraulic pressure is required) the system automatically engages the combustion engine. There is no battery memory effect

other manufacturers - such as CTE and its 17 metre Traccess spider towards the end of 2010 - started to follow suit.

Hinowa is continually adding new models and its latest which will be seen at Intermat will be the 26 metre working height, 14 metre outreach Lightlift 26.14 - the company's largest platform to date and which is also available with a lithium battery pack. Hinowa says that the 230kg capacity 26.14 will be compact and light enough to transport as easily as its 23 metre Lightlift, and as with the smaller platform it will have a 72 volt, three phase, 3500W electric motor powered by a battery pack containing 15 or 22 LiFePO4 cells with battery management system,

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It is now more than four years since Hinowa signed its supply agreement with JLG to build and sell its spider lifts under the JLG brand name. While slow to get started, activity and interest from the wider JLG distribution network is now gathering pace. Its latest platform, also launched at Intermat is based on the new Hinowa 26 metre lithium powered lift and becomes the JLG X26J with 230kg unrestricted platform capacity.

More new manufacturers

Intermat was also the launch pad for two new manufacturers entering the market, with all-new spider lifts from established aerial lift manufacturers.

The first is from French mast and articulated boom and scissor manufacturer



CoMet is also entering the market with its first spider lift the 21.3 metre Leopard

ATN and the other from Italian truck and van mounted lift manufacturer CoMet.

At the point of going to press just before the show, ATN has not revealed too much about the new platform - the MG23 - other than it is a 23 metre tracked spider lift with a maximum platform capacity of 230kg. Overall length is 5.54 metres, width 1.88 metres and it boasts a gradeability of 32 percent. Like all of ATN's other aerial products the MG23 will be aimed at the rental market, will be simple to operate and easy to maintain.

Italian manufacturer CoMet is also entering the market with its first spider lift the 21.3 metre Leopard. The new machine has a classic dual sigma type riser and two section telescopic boom with short jib and pedestal mounted platform offering a maximum outreach of 10.8 metres. The platform capacity is higher than usual at 265kg and 60 degrees of platform rotation is standard.

New Platform Baskets

Another company offering lithium/hybrid power is Platform Basket, which will launch the first lithium-powered 33 metre Spider 33.15

Hybrid at Vertical Days in May. That particular unit has been purchased by Bradford-based Tracked Access Platforms. The Spider 33.15 has 15.5 metres of outreach and 17 metres up and over height. The company will also show its 18.90 Pro lithium and 13.80 Hybrid with lithium power.

Platform Basket offers lithium battery powered options up to 500Ah capacity as well as a selectable charging system input of between 10 to 23 amps and a charger with a capability of up to 100 amps output - all key elements to be considered when understanding recharging times. The battery used on the Spider 18.90 Pro-E lithium is about one third lighter than a lead acid battery of

the same capacity and even under severe use, the lithium batteries guarantee between 2,000 to 5,000 recharge cycles - up to five times more than conventional batteries. They are also maintenance free and there is only a small level of self-discharge - up to five percent - when not in use and by using single phase AC electric motors with inverter technology it efficiently manages battery use.

An LCD display enables the user to monitor real time information on battery state, discharge rate, charge rate, current use and cycles etc. allowing constant and easy monitoring of the batteries. When charging in low temperatures, there is even a cell heating system to improve efficiency. The intelligent battery charger system allows shorter charging times and use of the platform during the charging cycle, thus reducing down time. During use the machine will alert the operator by audible alarm when the batteries have discharged to 85 percent and will automatically shut down the system equipment before power is too low.

Platform Basket has also recently updated its 22.10 launching the new



The new ATN is a 23 metre tracked spider lift with 230kg maximum platform capacity



The 33 metre Platform Basket 33.15 shown as a prototype at Bauma last year



Northern Italy-based rental company Viviani has a wide range of Palazzani spiders including its largest the 52 metre XTJ 52/C.

22.10 EVO (Evolution) which is lighter (less than 3,000kg) and has 30kg more basket capacity at 230kg.

Palazzani is another Italian spider

manufacturer which has introduced lithium-ion power on its TZX Ragno Exo Execution series, resulting in a lower overall weight. The company has also improved the platform

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capacity. Discharging when not in use is said to be less than one percent a month and it does not lose its recharging capacity when partial recharges are repeated. The manufacturer says that the estimated life cycle of the LiFePO4 24V, 40 amp battery is more than 2,000 cycles with discharge to 80 percent. A full recharge takes four hours.

The CMC S19N achieves its maximum 8.8 metres outreach with an up and over height of 8.5 metres



24GT from 21GT

Teupen's latest spider lift is the 24 metre Leo 24GT - the bigger brother of the Leo 21GT launched last year. The Leo 24GT has an additional telescopic section in the lower boom/riser, adding three metres to its working height. Both models have an outreach of 12 metres and 250kg unrestricted platform capacity. The 24GT also has exactly the same overall transport dimensions at 1.99 metres high,

980mm wide and 6.40 metres long, which can be reduced to five metres when the detachable basket is removed.

Slightly heavier at 3,300kg, the Leo 24GT has the same height and width adjustable tracked chassis, as well as the detachable and 180 degree rotatable basket. Instead of the standard cable control set, both models now have an optional

Abitron (formerly Hetric) radio remote control.

The Leo 24GT also features a new basket design allowing the replacement of any of its constituent parts when damaged. The new lithium battery drive option is now in series production. Seen at the last Intermat on the Leo 21GT, the battery pack fits into the same housing as the combustion engine and consists of four Lithium-ion cells which supply the 48 volt system,



Teupen's latest spider lift is the 24 metre Leo 24GT - the bigger brother of the Leo 21GT launched last year

with 120Ah of capacity. Charging the pack fully is said to take two and a quarter hours.

Rapid spider expansion

Italian manufacturer CMC has rapidly expanded its range of spiders over the past few years and now has six models, ranging from 15 metres to the six-wheeled 41 metre, 19 metre outreach S41. Its latest model is the 18.8 metre CMC S19N (Narrow) which shares the same structural configuration, control system and componentry as the 14.9 metre S15. It will sit alongside the existing S19 model - now renamed the S19HD - which only has working height and control system in common.

The new model features a two section telescopic boom with articulating jib, giving an outreach of 8.8 metres and an up and over height of 8.5 metres. Maximum platform capacity is 230kg but this is reduced to 150kg to achieve maximum outreach.

Overall stowed dimensions are 4.48 metres long with basket removed, under two metres high and 780mm wide - the original S19HD is 930mm wide. The extended outrigger footprint is 2.8 by 3.58 metres long and it weighs 2,500kg. Power options include a Kubota Z482 diesel or Honda petrol engine with AC motor or a Lithium-ion pack. The company has also said that a hybrid diesel/electric system should be available shortly. Also new is

the 25.3 metre working height S25 and 14 metre outreach. Weighing 3,800kg the unit is 880mm wide by 5.95 metres long.

Conclusion

What is apparent at the moment is the healthy state of affairs for the spider lift sector which has attracted several new manufacturers.

As more customers realise the benefits, the demand is growing for machines that can work both indoors and outdoors. While slow to take off, the availability of the lithium battery pack has blossomed enormously over the past year and is now being offered by almost every manufacturer with hybrid power also growing strongly. Most of the recently introduced models are in the mid-range sizes - say 19 to 25 metres - with very few over 30 metres. Demand for the very large spiders around 45 metres and above, remains a niche sector dominated by Danish manufacturer TCA. Most machines of this size are purchased for specific end user applications, such as working in high atriums etc... However some specialist rental companies - such as Irish company Easi-Uplifts - are offering them for short term rental. For day to day rental, most companies and users will stay with machines in the 15 to 25 metre range, which would appear to cover most applications, and over the next year or two, will probably be mostly powered by lithium or hybrid technology.

First Lithium-ion Hinowa for Avon Access

UK specialist rental company Avon Access of Bristol, has expanded its spider lift fleet, with its first lithium-ion powered machine an Hinowa Lightlift 20.10 Lithium, one of a number of Hinowa Performance IIS machines.

Lee Roberts, Avon's founder and managing director, said: "We do an increasing amount of internal

and external work for abbeys and churches. These customers really appreciate the benefits of the silent, clean battery power provided by the Hinowa Lithium unit. It has similar power and speeds to the regular diesel machines in our fleet, and offers five hours of continuous working before the batteries need recharging, so we operate it with complete confidence regardless

of the job." The machine has an unrestricted platform capacity, of 230kg, and up to 9.7 metres of outreach. The dual sigma riser provides a perfectly parallel lift, ideal for working on walls, while its 800mm overall width and stowed height of less than two metres, allow it to pass through narrow doorways. The easy-set outriggers include single button self-levelling.



Avon Access has added its first lithium-ion powered machine

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A Canterbury tale

Conservationists recently inspected stonework and stained glass at Canterbury Cathedral in the UK - now part of a UNESCO World Heritage Site - with a 42 metre Omme Lift tracked spider lift. The inspection and survey of the cathedral were required prior to the proposed conservation to the Nave roof, stained glass windows and West Towers, together with stonemasonry to the upper Nave buttresses.

The spider was repositioned outside to inspect stonework on the West Towers, requiring the machine's full 42 metres



The project - funded by a grant from the Heritage Lottery Fund (HLF) along with support from private individuals, charitable trusts and foundations - is part of The Canterbury Journey project which aims to transform the accessibility and sustainability of the cathedral. The Ommelift 4200 RBDJ, allowed the cathedral's expert team to easily

access the seldom-seen 25 metre high interior vaulting of the Nave, before repositioning the machine outside to inspect stonework on the West Towers, requiring the machine's full 42 metres.

The non-marking tracks spread the machine's 6,805kg weight, reducing ground pressure, avoiding damage to the Nave floor. The tracks also helped the machine work comfortably outdoors. The 4200 RBDJ has 15.2 metres outreach and 230kg platform capacity.

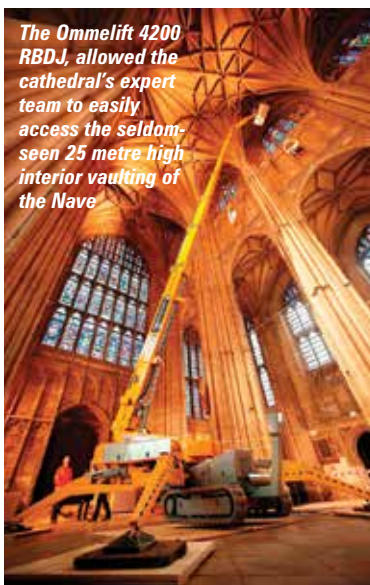
Heather Newton, the head of Stone Conservation at Canterbury Cathedral, said: "This particular lift was invaluable in facilitating a survey of the nave vault and the exterior fabric of the western towers. It enabled the Cathedral's Surveyor to assess the condition of the stonework and more accurately scope the work for the 'Canterbury Journey' HLF projects."

Lee Kerr of Paramount Platforms, which supplied the spider lift, said: "The cathedral required a machine that could pass through quite a



The cathedral required a machine that could pass through quite a narrow doorway, work inside and outdoors, had low ground pressure and yet could reach heights of more than 40 metres

The Ommelift 4200 RBDJ, allowed the cathedral's expert team to easily access the seldom-seen 25 metre high interior vaulting of the Nave



The non-marking tracks spread the machine's 6,805kg weight, reducing ground pressure, avoiding damage to the Nave floor

narrow doorway, work inside and outdoors, had low ground pressure and yet could reach heights of more than 40 metres. The Ommelift 4200 allowed the entire inspection to be completed within three days."

Paramount was established in

Chelmsford, Essex in 2014 with a fleet of spider and truck mounted lifts. The 4200 - the first in the UK - was purchased from Omme distributor Access Platform Sales (APS).

Four 32m Falcons in Bangkok airport

Thailand's Bangkok International Airport - formally known as Suvarnabhumi Airport - has taken delivery of four, 32 metre Falcon FS320Z spider lifts. The diesel/electric FS320Z offers up to 15 metres of outreach with its 200kg maximum platform capacity - 16 metres with 100kg - with an up and over height of up to 10 metres.

The new spider lifts will be used to maintain and clean the airport's glass facades both inside and out.

Brian Falck Schmidt, sales manager at TCA Lift, said: "We are very proud, once again, to be the preferred supplier of Airport of Thailand. 10 years ago we won a contract to deliver 10 Falcon spiders to the same customer and all are still

working at the airport. Being selected again after 10 years using our equipment is the best reference we can get."

New Bangkok International Airport was opened in 2006, and is one of the biggest airport terminals in the world. The airport also has the world's tallest free-standing control tower at 132.2 metres.

The new FS320Z spider lifts will be used to maintain and clean the airport's glass facades both inside and out.



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