

# Bright sparks

For anyone looking to buy or rent a boom lift for use indoors or in confined areas, choosing the right unit from the wide variety of models available today is never going to be easy. In its electric and industrial boom feature, **C&A** hopes to lend a helping hand.

Boom lifts used in indoor or industrial environments tend these days to be articulated and electric, but this hasn't always been the case. In the 80s and early 90s there was a number of zero-tailswing, straight telescopic with electric and propane power packs. Today, though, this product sector has completely disappeared, having been replaced by the articulated boom with its lighter weight, its up-and-over capability, narrow aisle dimensions and traditional zero-tailswing (at least in the working position).

In terms of work height, overall dimensions, boom geometry, working envelope and weight, the variety from today's producers is seemingly endless. The smallest units include the mast booms, which were covered in depth in the February/March 2004 issue of C&A. The majority of these units offer zero tailswing, an

overall width of one metre or under and around three metres of outreach. These units have not been covered again here, but there are, however, two units that go beyond the normal mast boom category thanks to a telescopic top boom.



JLG Toucan 1210.

## Top end mast booms

The first of these units is the Toucan 1210 now owned by JLG and delivered in its orange and cream livery with JLG logos but still retaining the famous Toucan name. The second is a relatively new product from the long-time niche producer from Germany, Lehmann. This company, led by founder Rainer Lehmann, has introduced a new version of its original 'Emu' mast boom. The unit was on display at the recent Platformers' Days event in Germany, where Lehmann expressed to C&A a keen interest in importing the new product into the UK and Ireland. The company is presently looking for agents or dealers. These extended mast booms offer up to 5.2 metres of outreach along with constant zero tailswing and pure parallel lift geometry.



Lehmann EMU ST-K-1200.

introduced units with platform heights in the 8- to 12-metre range, overall widths of 1.5 metres, and, most importantly, a GVW between 2.9 and 3.5 tonnes. UpRight joined Nifty in this sector some years ago with a 13.5-metre working height direct electric drive machine now known as the AB38. With a slightly higher reach, it is also slightly heavier. Both companies also offer a wide, light, unit with a width of 1.7-metres for applications that require a GVW of under three tonnes. The big three producers, JLG, Genie and Haulotte have looked hard at this sector, but have so far decided to leave it alone. Nifty and UpRight have this sector almost to themselves.

These units are simple, inexpensive and are becoming increasingly popular. They are very easy to



Niftylift HR12

## Mini booms

A step on from the mast boom is what some call the mini boom. This sector was originated by the UK's own Nifty Lift, which

## Mast Booms

Producer	Model	Working Height (m)	Outreach (m)	O/A Width (m)	Up-and-Over Height (m)	Lift Cap. (kg)	GVW (kg)
JLG	Toucan 1210	12.00	5.20	1.2	7.2	200	5,200
Lehmann	EMU ST-K-1200	12.05	4.20	0.98	7.2 (approx)	225	4,300

# Powerful Electric Performers



## UpRight International's AB38/AB38 Lite electric booms

are powerful performers. Packed with class-leading compact features, the **AB38 electric boom** has a 13.5m working height, and 6.1m of working outreach.

Smooth, one-hand proportional joystick control gives superb reach and precision in the air. The slim 1.5m wide chassis, 0.4m inside turning radius and 36% gradeability gives greater manoeuvrability and accessibility in narrow aisles.

The **AB38 Lite** at only 2,950kg will access freight elevators, upper levels and delicate floors where rivals stop short.

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transport, just about fitting onto a 7.5-tonne truck. The only downside for some indoor applications is that, with a relatively long single riser (first boom), mini booms have considerable tailswing in the stowed position and require around three to four metres of height to reduce the tailswing to zero. Their reduced weight, cost and sheer reliability, however, make them a practical and popular choice for indoor work.

### Narrow aisle

The next step up, at least in terms of price and complexity, are the narrow aisle booms. They have overall widths as low as 1.2 metres and zero tailswing in all configurations thanks to a two-stage parallelogram riser. These machines offer a wider and more intricate working envelope. When fully equipped, they offer a

arm with an end-mounted platform. They are ideal for reaching awkward places and covering wide areas from a restricted space.

The downside to this boom category, though, is a high 'kerb weight', which is often five to six tonnes – equalling that of a normal 15-metre (45-foot) unit. The narrow aisle boom is also a much more complex unit to operate. To use a unit efficiently, an operator will need a lot more familiarisation than is required with the lighter, simpler booms mentioned above. They do, though, represent exceptional value as the production costs for these little units must be close to that of the 15-metre (45-foot) sector and yet they sell for a fair bit less.

When specifying these compact booms, C&A recommends that the

### Mini electric booms under 3,600 kilograms GVW

Producer	Model	Working Height (m)	Outreach (m)	O/A Width (m)	Up-and-Over Height (m)	Lift Cap. (kg)	GVW (kg)
Airo	VG 700E	8.9	3.235	0.99	5.65	265	2,800
Nifty	HR 10	10.0	4.5	1.5	4.2 (approx)	200	1,930
Nifty	HR10/N	10.0	4.5	1.4	4.2 (approx)	200	2,150
Sky High	ST 100	10.0	4.5	1.5	4.5 (approx)	215	2,050
Airo	VG 900E	10.45	3.435	1.12	6.95	265	3,100
Sky High	ST 120	12.0	6.0	1.5	4.5 (approx)	215	2,850
Manitou	120AE	12.1	4.96	1.75	5.7	250	2,910
Nifty	HR12	12.2	6.10	1.80	4.2 (approx)	200	2,400
Nifty	HR12/N	12.2	6.10	1.50	4.2 m (approx)	200	2,950
UpRight	AB38	13.45	6.1	1.5	5.4m	215	3,550
UpRight	AB38	13.45	6.1	1.7	5.4m	215	2,950



Haulotte 15IP

two-stage riser, a two-stage telescopic boom plus a 140-degree arc jib, plus rotators on both the platform and the jib. Platform heights range from 8 to 11 metres. The net result resembles a multi-jointed robot

full specification is purchased, including non-marking tyres and jib rotator if available. This option allows the jib to rotate by up to 90 degrees from the boom's centre line for precise positioning - handy for difficult to

reach areas. And, while some would argue that this option is just another item to go wrong, and that the benefits are marginal, the unit's resale could be affected if the option is not fitted.

### Tides-a-turning

So far we have covered electric booms with platform heights of up to around 11 metres (13 metres working height). The next step up is to the 15-metre (45-foot) core class, once the largest boom lift category by far in the UK and the rest of Europe.

Most 15-metre (45-foot) articulating booms now sold are equipped with diesel engines and 4 x 4 rough terrain capability. In the early days, the dimensional, and cost, variation between the 10-metre (32.8-foot) and 15-metre (45-foot) electric booms were not that significant. Many companies, rental companies in particular, choose to 'trade-up' to the larger units and simply discount them for work at lower heights, if and when obliged. These days the variations and cost differences are such that the smaller, more

### Electric booms under 1.4 metres wide

Producer	Model	Working Height (m)	Working Outreach (m)	Up & Over Clearance	O/A Width (m)	Lift Cap. (kg)	G.V.W. (kg)
Genie	Z-30/20N RJ	10.8	6.8	3.8	1.2	227	6,622
Genie	Z-30/20N	11.1	6.9	3.8	1.2	227	6,577
Iteco	IT 92 S	11.1	6.9	3.7	1.2	220	6,600
JLG	E300AJ	11.14	6.6	3.99	1.22	230	6,735
JLG	E300AJP	11.14	6.75	3.99	1.22	230	7,052
Manitou	120AETJ	11.95	7.0	4.7	1.2	230	6,550
Basket	12 AJN	12.5	7	3.6	1.2	200	4,200

In recent years, however, sales of electric booms in this category have diminished significantly.

compact units that we have already covered now take much of the indoor work previously carried out but the "45ft electrics"



Manitou 120 AETJ.



S-125



G5-4300RT



Z-45/25RT



GTH-2500

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## Booms over 1.4 metres wide AND over 3,600 kilograms GVW



*UpRight AB38.*

The traditional 15-metre (45-foot) electric unit has an overall width in the 1.75-metre range and is capable of passing through most industrial, and many double, door openings. In most, if not all cases, the units feature a double parallelogram riser, a two-section telescopic boom and a jib. This configuration provides an excellent working envelope, with an end-mounted, low-entry level basket. In many cases the jib can be offset by at least 140 degrees, (70 degrees

below horizontal to 70 degrees above) so that with the main booms stowed, the jib can be fully raised to provide an excellent vantage point and view of the machine without going into creep speed. This is ideal for driving in congested areas.

Up until now we have not spoken much about manoeuvrability. With the smaller units there are certainly differences, but these become more significant with the larger units. One



Producer	Model	Working Height (m)	Outreach (m)	Up-and-Over Height (m)	O/A Width (m)	Lift Cap. (kg)	GVW (kg)
Airo	SG 1000 E	12.0	6.3	4.45	1.50	200	3,900
Haulotte	HA 12 IP	12.0	6.7	5.25	1.34	230	5,800
Genie	Z-34/22N	12.5	6.8	4.6	1.47	227	5,216
Genie	Z-34/22DC	12.6	6.8	4.57	1.73	227	4,763
Genie	Z-34/22Bi/E	12.6	6.8	4.57	1.73	227	5,103
Basket	13A	13.0	7.4	3.5	1.8	200	5,800
Airo	SG 1100-JE	13.1	8.1	4.7	1.50	200	5,400
Snorkel	AB38J	13.6	7.1	5.0	1.50	227	6,350
Basket	14AJ	14.0	9.6	6.5	1.8	200	6,900
JLG	E-400AN	14.19	6.95	6.55	1.50	230	5,942
JLG	E-400A	14.19	6.95	6.55	1.75	230	6,037
JLG	E400AJP	14.19	7.33	6.55	1.75	230	6,214
JLG	E-400 AJPn	14.19	7.33	6.55	1.50	230	6,795
Manitou	150AET	15.0	9.1	4.8	1.50	250	7,040
Haulotte	HA 15 IP	15.0	8.5	6.6	1.50	230	7,100
Haulotte	HA 15 I	15.0	7.7	6.5	1.50	250	6,600
JLG	E450 A	15.72	7.54	7.49	1.75	230	5,940
JLG	E-450AJ	15.72	7.74	7.49	1.75	230	6,670
Genie	Z-45/25DC	15.8	7.8	6.9	1.75	227	6,091
Genie	Z-45/25Bi/E	15.8	7.8	6.9	1.75	227	6,166
Genie	Z-45/25JDC	15.8	8.2	7.1	1.75	227	6,166
Genie	Z45/25JBi/E	15.8	8.2	7.1	1.75	227	6,278
Basket	16A	16.0	7.1	6.2	1.80	200	5,800
Airo	SG 1400-JE	16.0	8.0	7.8	1.80	230	7,300
UpRight	AB46E	16.1	8.0	7.62	1.75	227	6,486
Snorkel	AB46J	16.1	8.0	7.3	1.80	227	7,212
Basket	17AJ	16.7	9.3	6.2	1.80	200	6,900
Manitou	171 AET	17.0	11.0	4.7	1.50	230	7,500
Basket	19A	19.0	10.4	6.6	1.8	200	6,850
Basket	20AJ	20.0	12.5	6.5	2.1	200	9,500
JLG	E600J	20.29	13.56	3.0	2.44	230	6,900
JLG	E600JP	20.29	13.76	3.0	2.44	230	7,000
Airo	SG1850-JE	20.55	11.25	9.4	2.40	230	14,000
Basket	22A	22.20	12	7.6	2.4	20	12,000
Basket	23AJ	23.2	14.1	8.0	2.4	200	12,000
Basket	28LJE	28.0	25.7	TEL	2.5	200	19,200

point to look out for is the size of the turning circle. The variation in this particular sector is surprisingly wide. Some units offer tight, cramp angle turning, while others look to achieve this with four-wheel steering.

### Feel the width

The width of the units in this class should also be considered. Surprisingly, there has not been a great deal of competitive pressure to reduce the width in this height category. Some manufacturers

though have introduced 1.5-metre wide models, but they have not exactly taken the market by storm. It seems that most users can manage with the wider offerings.

Near the top end of the scale is the 18.3-metre (60-foot) JLG AJ 600 series - an electric hybrid unit equipped with an on-board engine and generator, which tops up the batteries when they fall below a certain level. The unit has also been designed with weight in mind

and offers a GVW of under seven tonnes. This offers transportation benefits, as well as low ground bearing pressure, better gradeability and longer battery life. The largest battery/electric boom lift in our survey, though, is the 28.0-metre Basket 28LJE.

Not only is this unit big, but it also boasts optional four-wheel-drive - a rarity on electric booms.

With a GVW of 19.2 tonnes, however, perhaps it needs it.

### Drive systems

We do not talk a great deal about drive systems in our product reviews, but the electric boom sector has been transformed in this area over the past ten years with the adoption of direct electric drive. The system uses electric motors to turn the wheels in place of the old hydraulic motors. The result is a massive improvement in the machine's drive efficiency and autonomy. Units are now able to travel several kilometres between recharges, compared with less than one kilometre with a traditional hydraulic drive unit.

The direct drive systems also offer much better gradeability with quieter and smoother operation, and significantly improved braking performance. On the smallest, lightest machines the difference is significant - a little less so on the larger and heavier units. Most manufacturers now fit direct electric drive on their battery-powered units, but by no means all of them.

### 3-D jibs

As we have already mentioned, many electric booms now also offer articulating jibs that can rotate from side to side of the boom centre line in order to provide even more reach versatility. Producers have rapidly adopted this option in the last two years with JLG offering it on most of its units including the AJ 600. Genie also offers this option on its narrow aisle industrial type units, as does Manitou. The jibs generally rotate 90 degrees each side of the boom's centre line via a helix-type platform rotator being fitted at the point where the jib connects to the

boom. This option certainly offers extra potential in narrow aisles, but some big users feel that it just adds to a machine's complexity, while reducing platform rigidity. "Just one more thing to go wrong," said one fleet owner!

### Power sources

As this article covers 'electric' booms, you would expect the power source to be battery/electric, naturally! But there are some variations on the theme. If you are using a machine both indoors and outdoors, or, if you do not wish to depend on the location's mains power supply for recharging, many producers offer Bi-Energy options on their units. The method of achieving this varies, but increasingly an engine with a DC generator is the norm. This allows the operator to start the engine, which then puts power straight into the batteries and provides DC power for machine operation. Using the engine when outside conserves battery power, but a unit can also completely recharge its battery pack in four to five hours if left with the engine running.

Other producers use two independent systems, one being the traditional hydraulic, the other electric. This concept, while providing a dual system in case one fails, does not fit in with the attractive direct electric drive technology. If selecting a unit with the former, you may need to check that the machine has the same battery pack as the manufacturers' pure electric drive model. In the early days of this development, some producers removed one of the battery packs to make space for the diesel engine.

Finally, a number of specialised companies will also equip larger boom lifts, including straight telescopic, with a built-in 240-volt, or three-phase mains-powered electric motor, so that these large machines can be used quietly and cleanly indoors. The downside of course is that the machine has a large trailing lead, but for many applications this is not a major problem.

# Loads Better

## Swing Lift

A range of electric cranes with up to 2000kg capacity for pickups, drop sides, flat beds and vans

## Side Lift

Designed for 3.5 to 17 tonne vehicles, this lift enables deliveries to be made directly onto the kerbside

## Tail Lift

A lightweight and compact lifting platform with up to 550kg capacity for pickups, Luton and box vans

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