

The variable supporting base from Liebherr



LIEBHERR

VarioBase®

More safety and enhanced performance



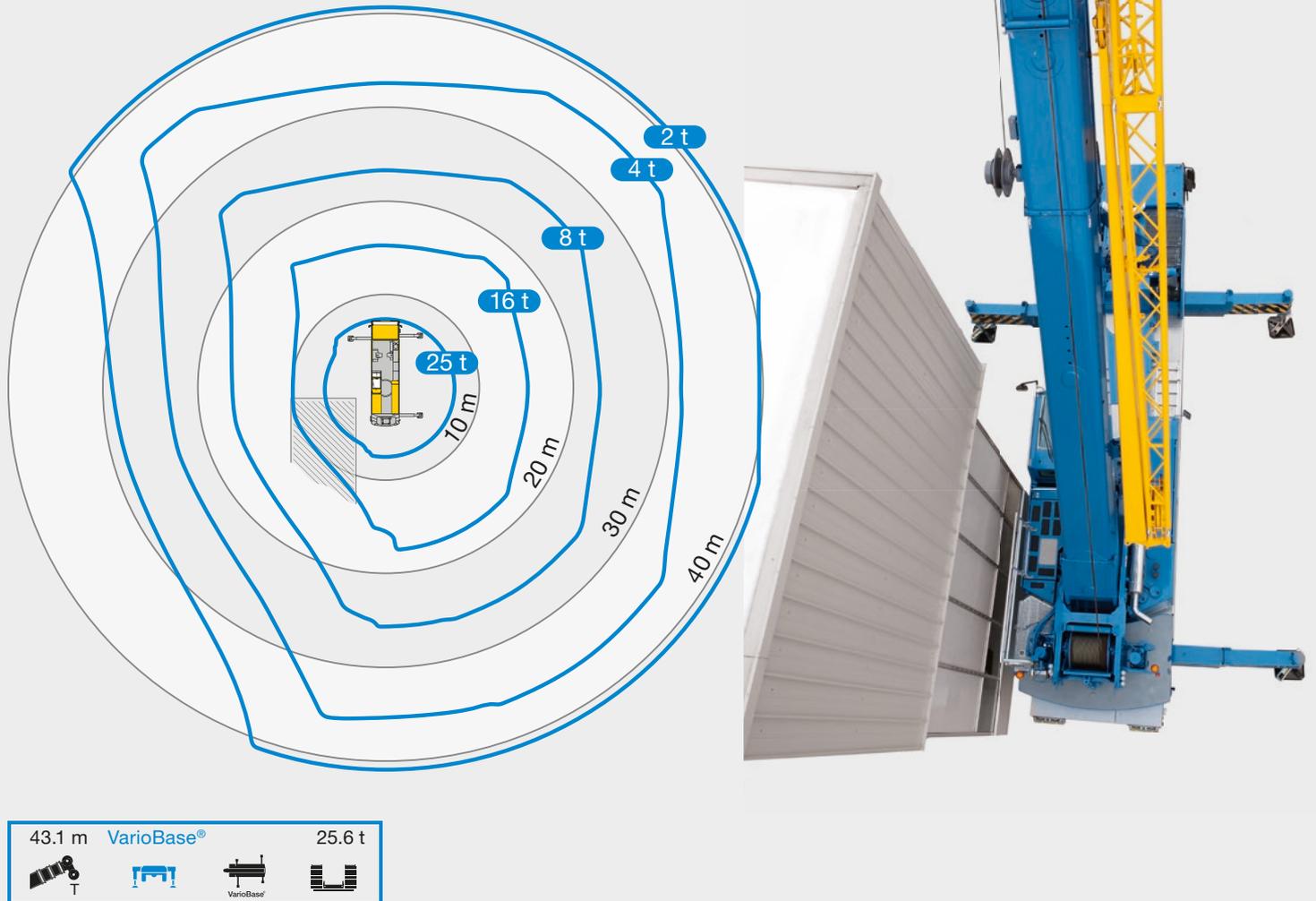


Working on sites often means constricted conditions. It is frequently impossible to extend all the supports on the mobile crane evenly. VarioBase® from Liebherr allows the crane to be used safely and flexibly in these difficult conditions. VarioBase® also provides higher load capacities and a larger working range in most working positions.

- Arbitrary practical support process
- Safe operation in constrictive locations
- Takes the strain off the crane driver
- Increase in lifting capacity and extension of working range
- LICCON work planner included in the crane cab

Safe crane operation in constricted locations

LTM 1130-5.1



Conditions on constricted sites

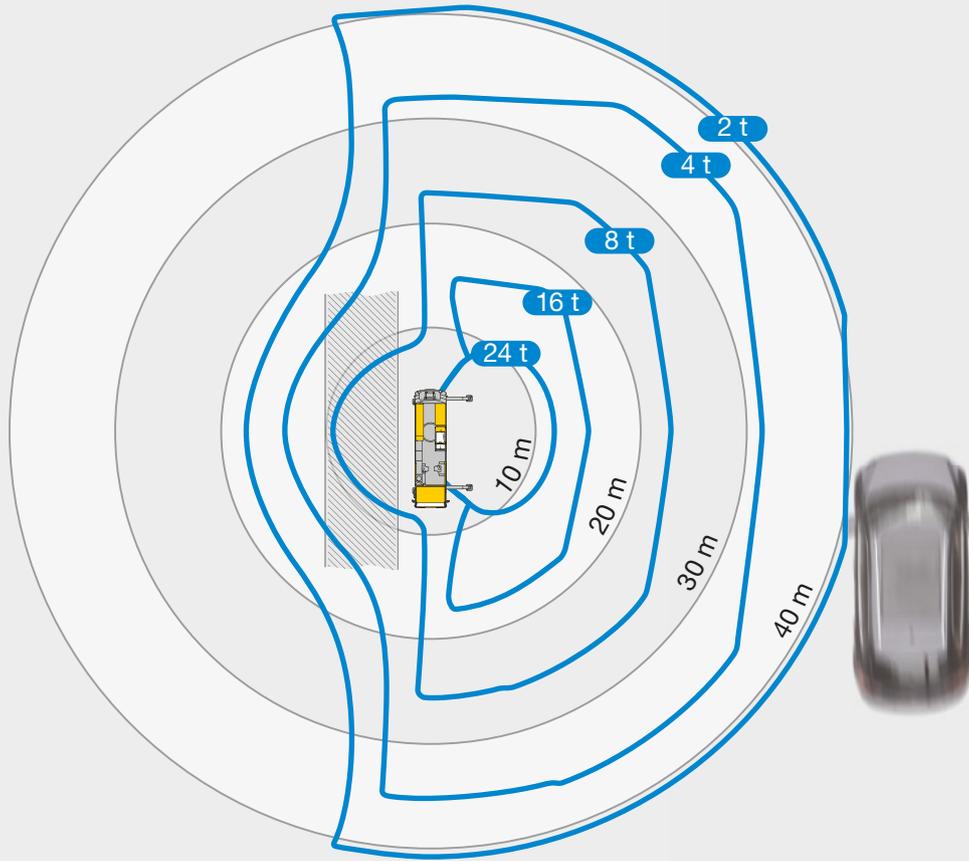
The space conditions are far from perfect for many crane jobs – it is often not possible to extend all the supports evenly on constricted job sites.

In the past this has meant that crane drivers have had to reduce their support bases and use appropriately programmed load capacity tables. However, drastically reduced load capacities meant that some hoists were impossible. Larger crane locations, further away from the load mean that larger cranes had to be used.

Arbitrary, practical support position

VarioBase® allows each individual crane support to be positioned arbitrarily. The crane work is controlled by the load moment limiter within the LICCON control which calculates the maximum load capacities precisely for this situation on the actual site. This prevents accidents by human error during both the set-up and when hoisting loads. The increased safety and ease of use takes the strain off the crane driver who can concentrate fully on the hoist.

LTM 1130-5.1

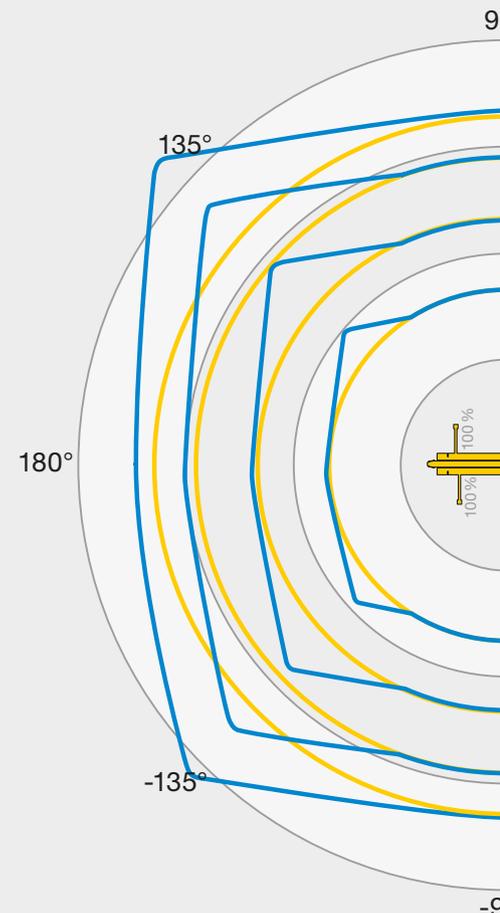
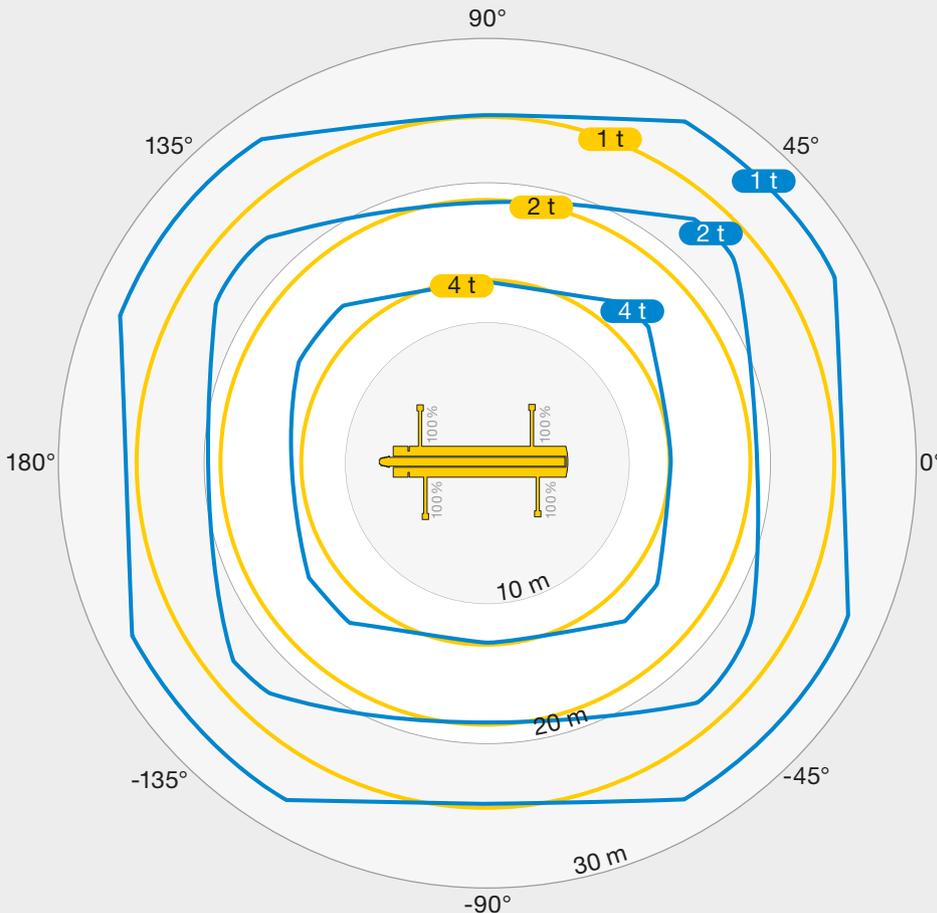


43.1 m	VarioBase®	25.6 t
		
T		VarioBase®

Higher load capacity and a larger working range

LTM 1030-2.1

LTM 1130-5.1



30 m	6.3 x 6.0 m	2.3 t

30 m	6.3 x 6.0 m	2.3 t

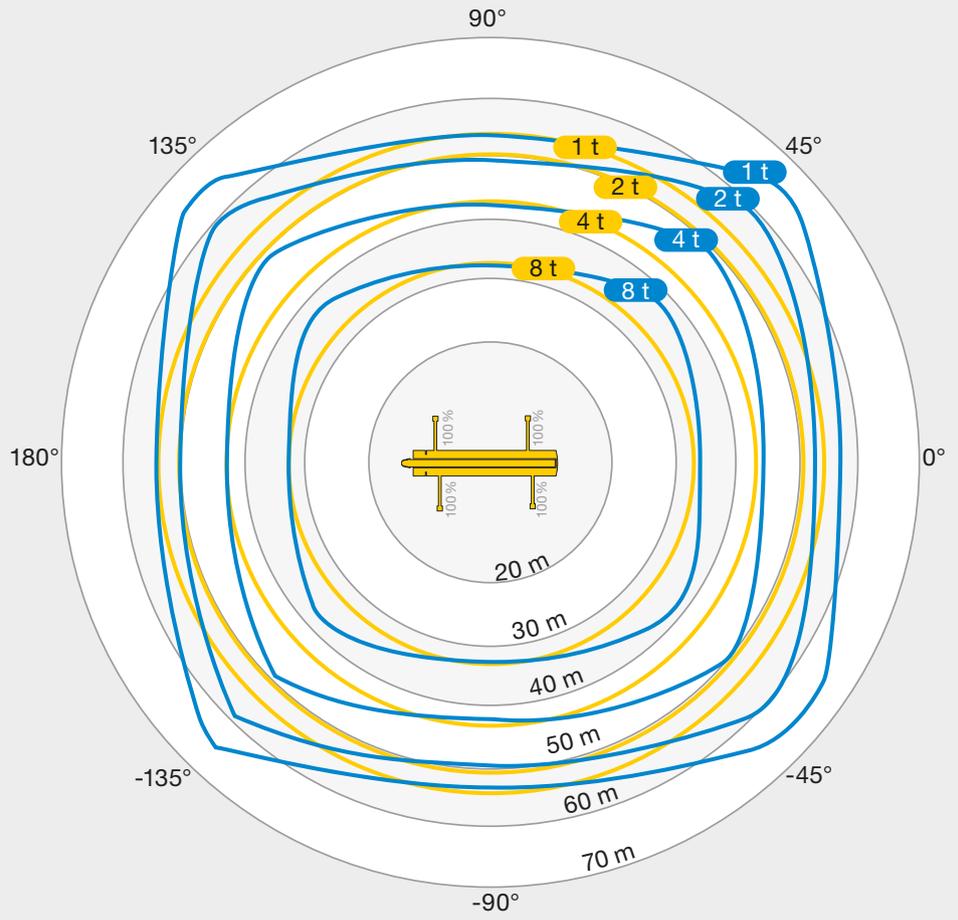
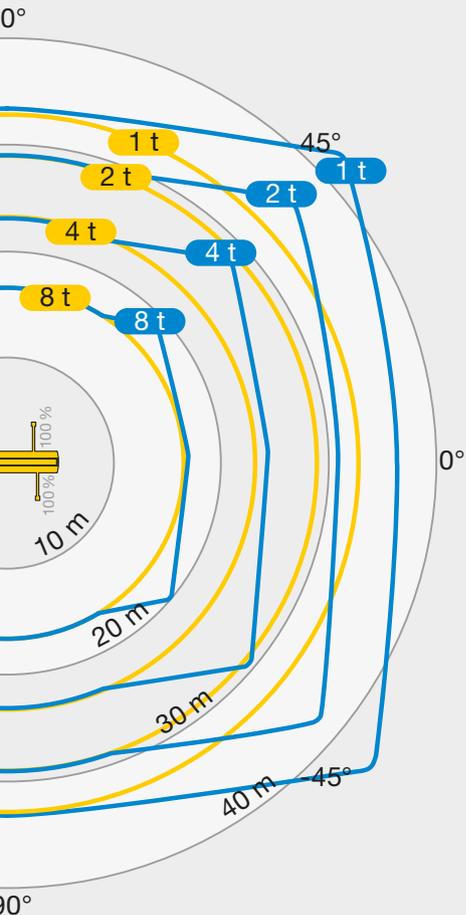
56.2 m	8.1 x 7.5 m	9 t

Increased load capacity compared to the load capacity table

VarioBase® improves efficiency for crane jobs by increasing the load capacity. The system identifies the machine's precise centre of gravity and the tipping edges and then sets the two relative to each other. If a load is hoisted over one support, the risk of tipping is lower than hoists to the side, for example. This means that the system here can permit a higher load capacity and loads can be moved to a greater outreach.

These benefits are also apparent with the maximum support base extension. The greatest increases are in working areas above the supports when partial ballast is in use. The load capacity increases also mean that the full ballast is simply not required and ballast transports can be reduced for many crane jobs.

LTM 1300-6.2



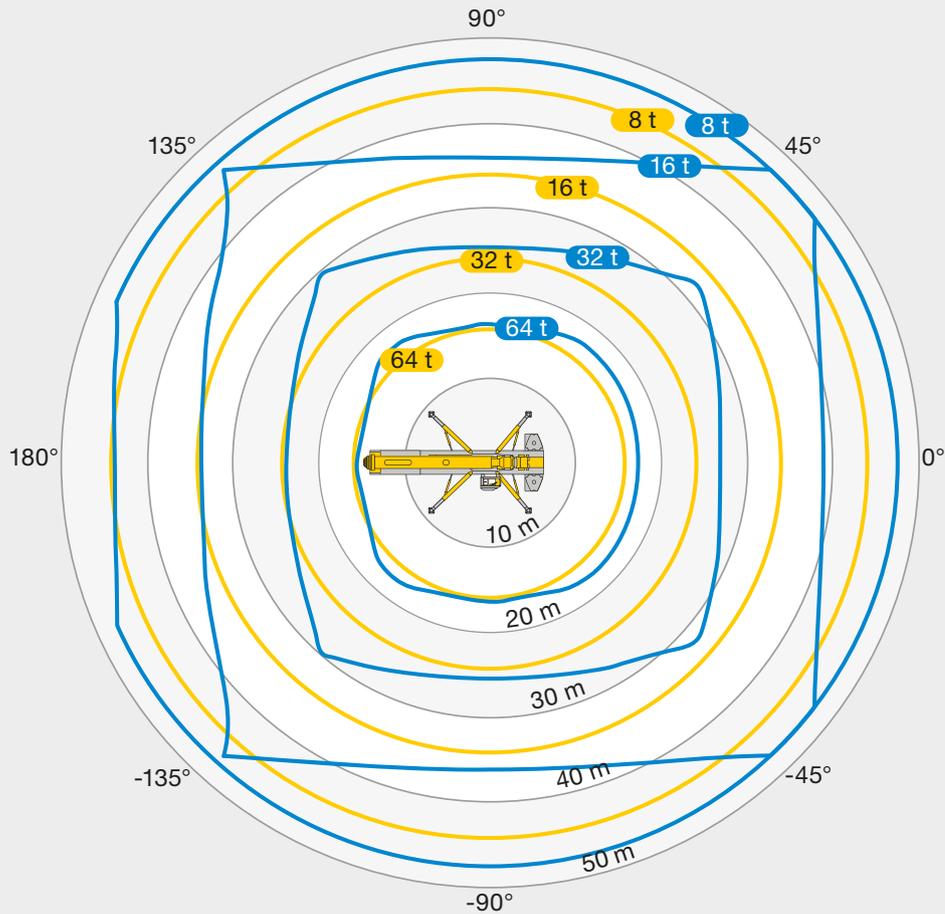
56.2 m	8.1 x 7.5 m	9 t
	VarioBase	

78 m	8.9 x 8.5 m	46 t
	VarioBase	

78 m	8.9 x 8.5 m	46 t
	VarioBase	

Higher load capacity and a larger working range

LTM 1750-9.1



49.1 m 12 x 12 m 54 t

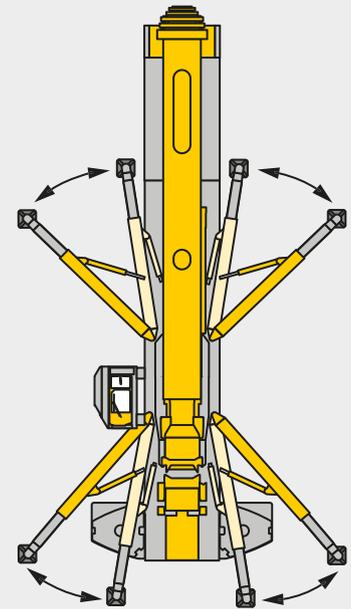
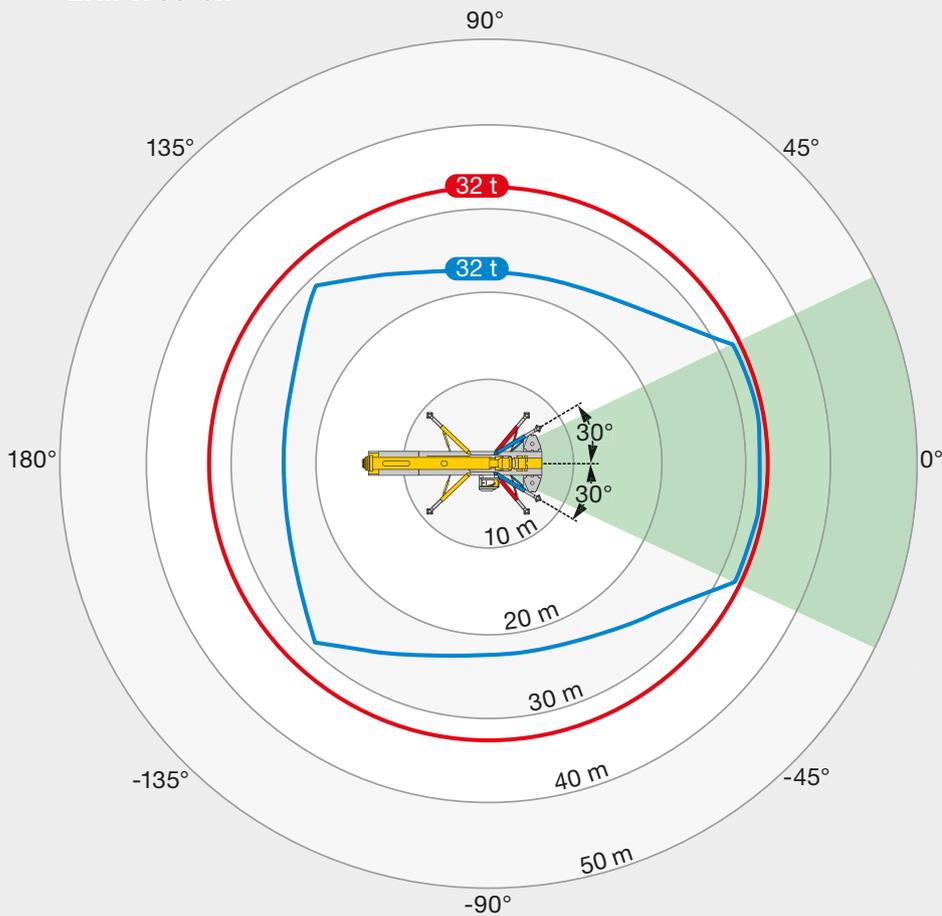
360°

49.1 m 12 x 12 m 54 t

VarioBase

More flexibility with stellate support

LTM 1750-9.1



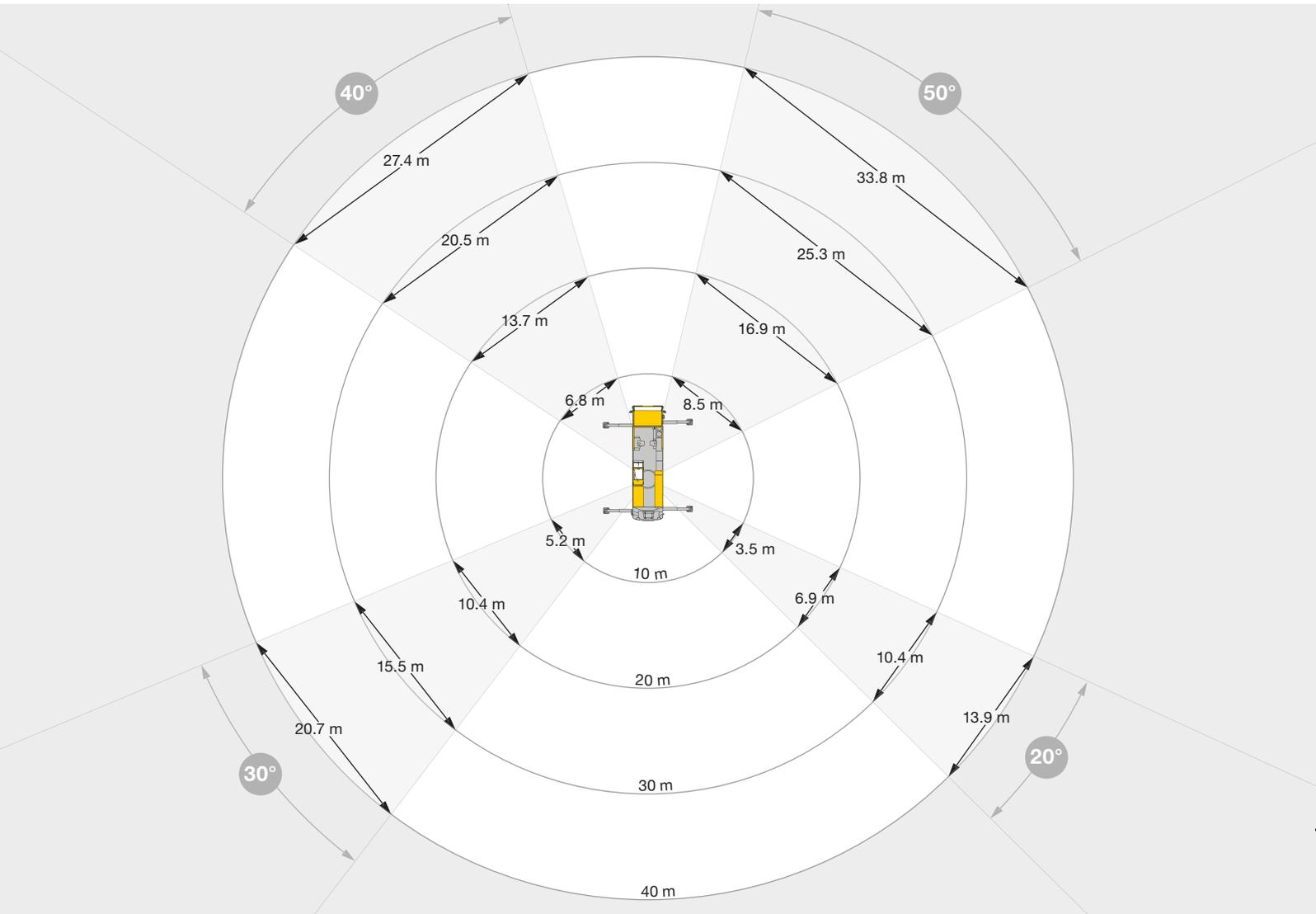
49.1 m	12 x 12 m	360°	94 t

49.1 m	VarioBase®	VarioBase®	54 t

Improved folding beam angle

Mobile cranes with a stellate support are even more variable due to an adjusting folding beam angle. At lower folding beam angles the support base increases to the front and rear. This results in vastly increased load capacity in these working areas. The LTM 1750-9.1, for example, even with part ballast can almost achieve the load capacity values from the standard table with high ballast.

Maximum load capacities above the supports



VarioBase® allows the maximum load capacity to be achieved in the working range directly above the supports. Even at an angle of just 20° the working range is adequate for a great deal of hoisting work.

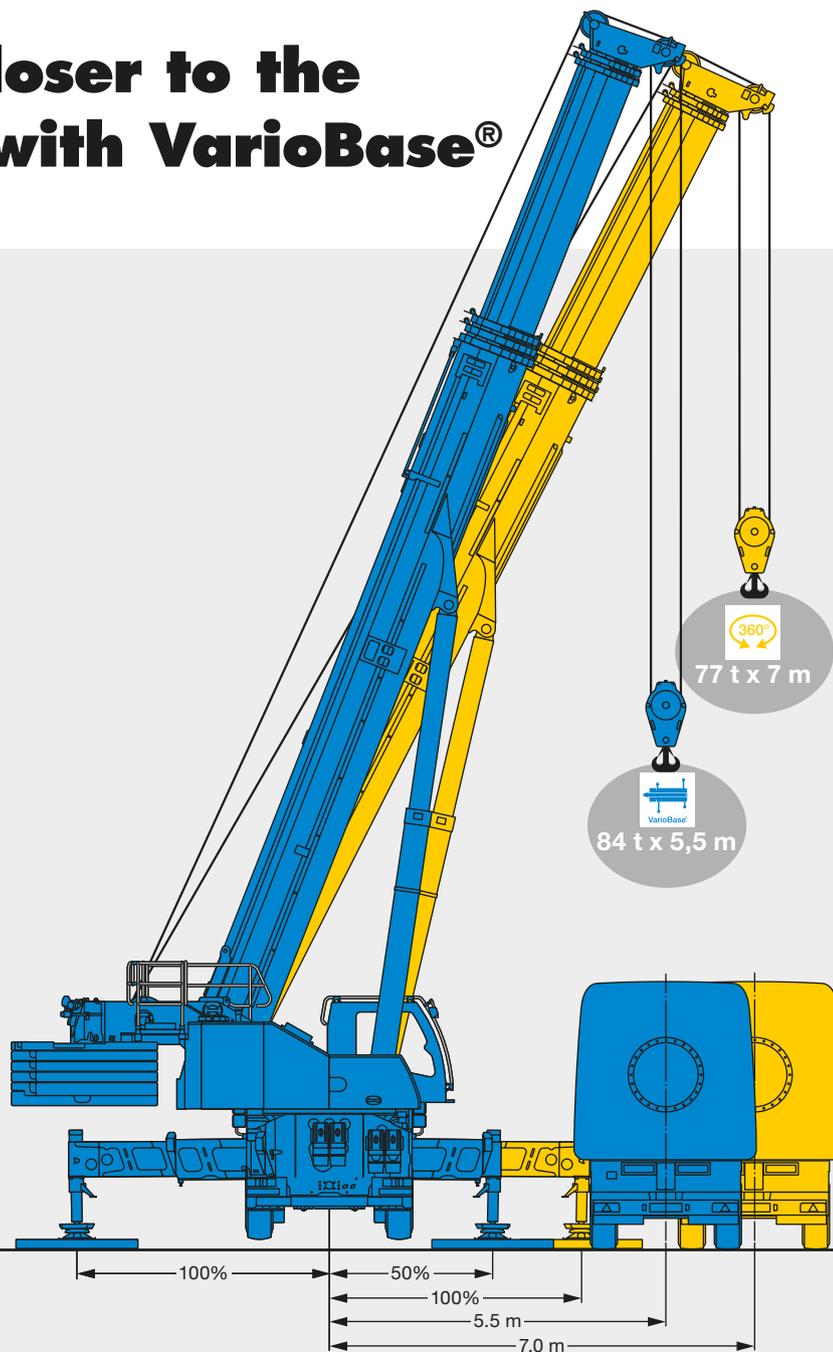
47.5 m 7.6 t

LTM 1100-4.2

	360°	20°	30°	40°	50°
10 m	14.9 t	15.2 t	15.2 t	15.2 t	15.2 t
20 m	5.0 t	6.7 t	6.7 t	6.2 t	5.8 t
30 m	1.7 t	2.8 t	2.8 t	2.6 t	2.4 t
40 m	-	1.0 t	1.0 t	1.0 t	0.7 t

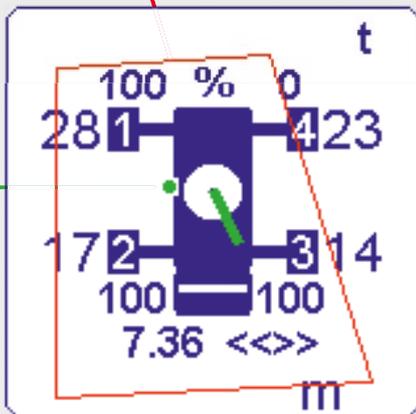
In this example the working angle of 30° above the supports is perfect. A smaller angle would not achieve a higher load capacity. With larger angles the load capacity is reduced compared to the 30° table but the crane still hoists larger loads than those in the 360° table.

Get closer to the load with VarioBase®



VarioBase® enables you to achieve maximum load capacity for hoisting heavy loads by getting closer to the load. The supports at the side are only partially extended whilst the supports on the ballast side are fully telescoped. The shorter distance to the load means a higher load capacity.

Intelligent crane control



Overall centre of gravity of the crane

Clear visualisation in the crane cab

The main parameters are visualised in readily comprehensible form on the LICCON monitor in the crane cab. The crane driver sees the current support position with extension length and support force for each individual support. The crane's tipping edge and centre of gravity are also shown. These factors are calculated by the in-house developed programs and are updated permanently.

[m]	[t]	CODE: 0469	T206.05001	1(4)
11.5	15.2	15.2	15.2	19.0
3.0	999.9			
3.5	999.9	999.9	999.9	999.9
4.0	999.9	999.9	999.9	999.9
4.5	999.9	999.9	999.9	999.9
5.0	999.9	999.9	999.9	999.9
6.0	999.9	999.9	999.9	999.9
7.0	999.9	999.9	999.9	999.9
8.0	999.9	999.9	999.9	999.9
9.0	999.9	999.9	999.9	999.9
* n *	* 10 *	* 8 *	* 7 *	* 6 *
4(95)	0+	0+	0+	0+
1	0+	46+	0+	0+
2	0+	46+	0+	0+
3	0+	0+	46+	0+
4	0+	0+	0+	46+
5	0+	0+	0+	0+

Set-up image display with VarioBase®

[m]	[t]	CODE: 0004	T206.60001	1(4)
11.5	15.2	15.2	15.2	19.0
3.0	82.6			
3.5	82.6	71.5	60.8	51.3
4.0	79.9	72.4	61.5	51.9
4.5	73.1	69.7	62.4	52.6
5.0	66.9	64.1	62.7	53.5
6.0	58.3	56.3	56.7	53.4
7.0	50.5	50.3	50.8	49.1
8.0	43.5	43.4	43.8	44.2
9.0	37.9	37.8	39.3	39.7
* n *	* 10 *	* 9 *	* 8 *	* 7 *
4(95)	0+	0+	0+	0+
1	0+	46+	0+	0+
2	0+	0+	46+	0+
3	0+	0+	0+	46+
4	0+	0+	0+	0+
5	0+	0+	0+	0+

Set-up image display with the 360° table

No set-up display with VarioBase®

With VarioBase® it is not possible to display a 360° load capacity table since the load capacity changes individually depending on the rotary angle.

Integrated work planner

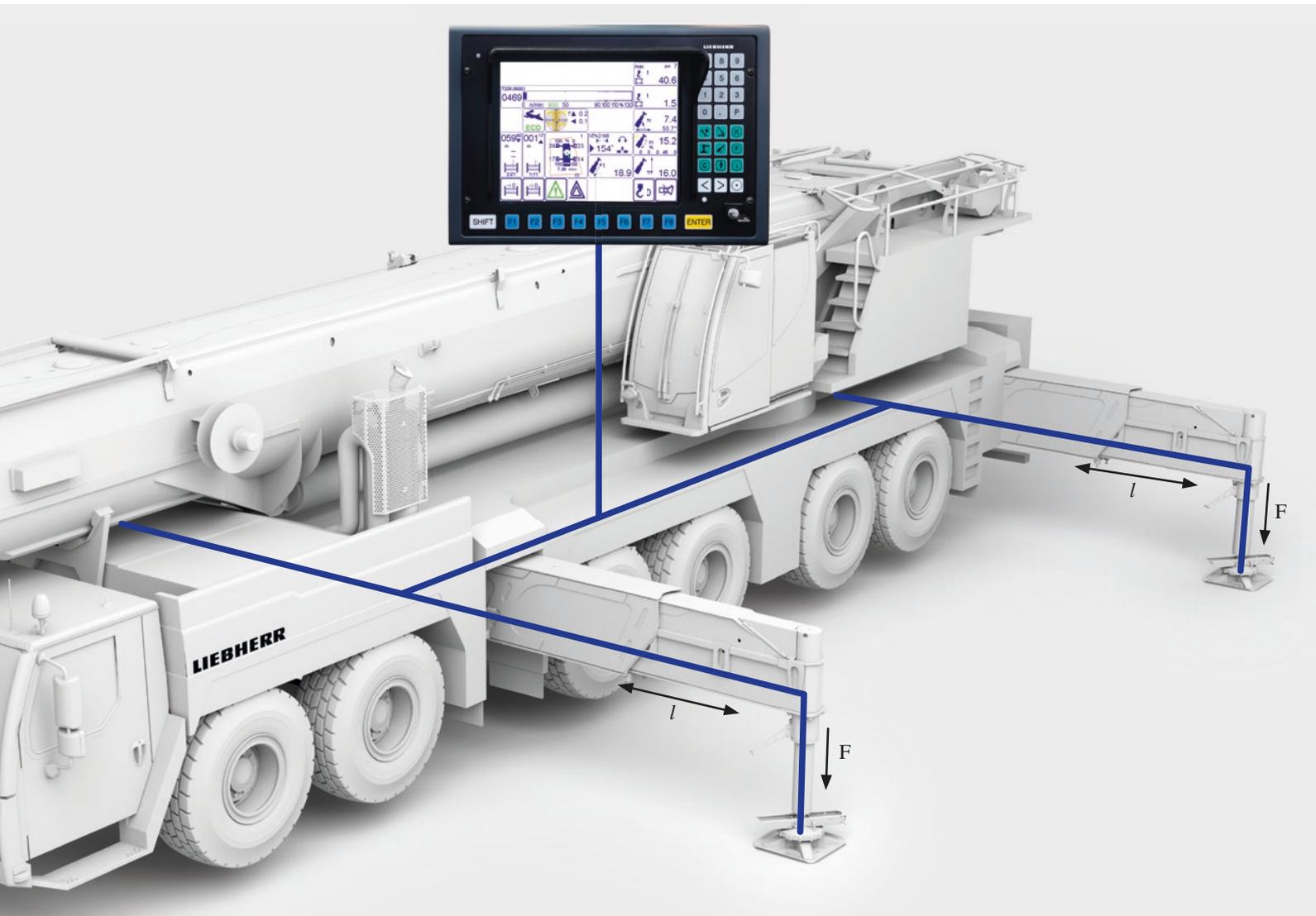


Planning and simulation with the LICCON work planner

The LICCON work planner is included in the crane control for planning crane jobs with arbitrarily extended supports. The crane driver can simulate the hoist on site using the F key.

The PC version allows planners to prepare crane jobs with VarioBase® in advance.

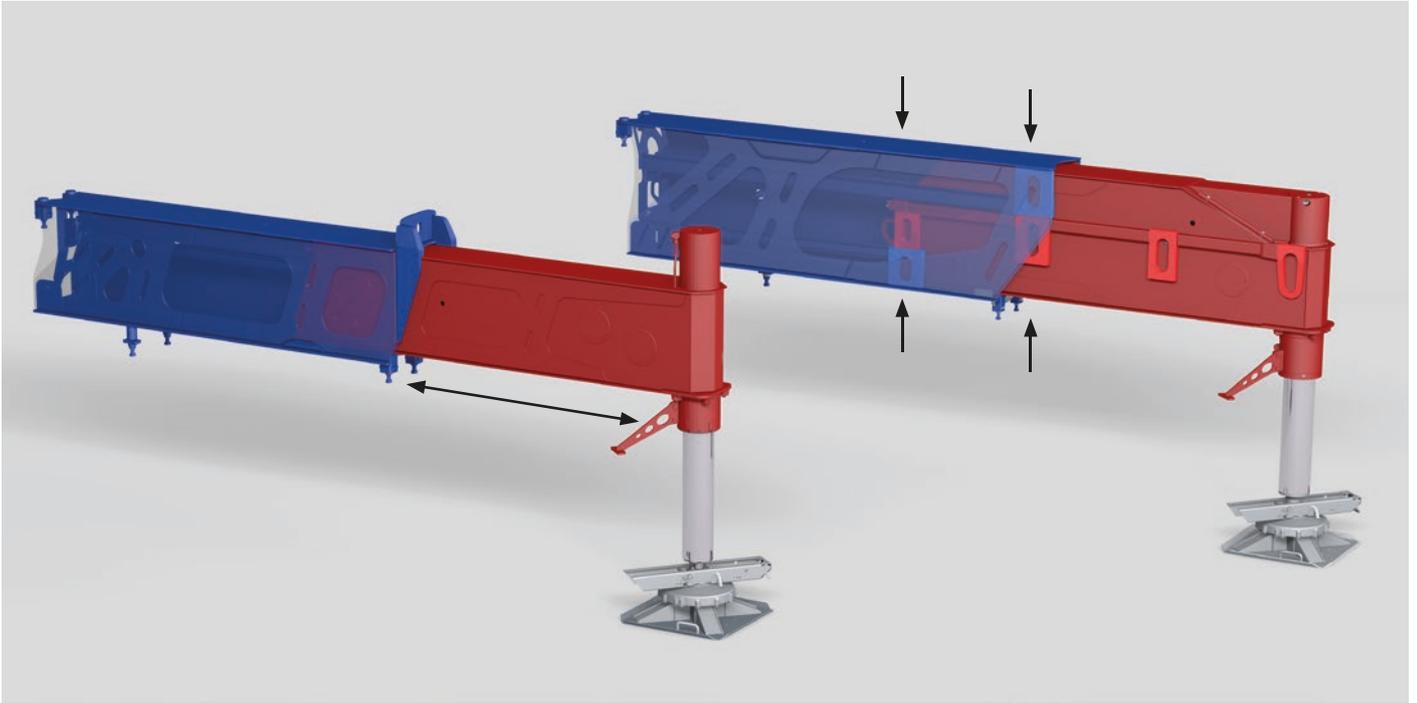
Innovative measuring technology for precise calculations



A milestone in safety

Liebherr has developed various innovative measuring technologies to provide maximum safety. The systems can only provide accurate results and meet the high safety requirements if accurate values are available.

- A newly developed length measuring system l records the precise extension position of every outrigger.
- At the same time a sensor establishes the precise support force F .
- The crane control can therefore calculate the precise maximum load capacity for every angle position of the superstructure.
- All the relevant parameters are displayed on the screen for the driver.



Load carrying capacity of the outrigger beams

LTM cranes with up to five axles, LTC cranes and LTF cranes have outrigger beams with a consistent load carrying capacity which can be extended to completely arbitrary positions. Outrigger beams without a consistent load carrying capacity on larger mobile cranes can be extended arbitrarily to their existing pinning positions. On the LTM 1300-6.2, for example, these are 0%, 50%, 75% and 100%.

Universal jobs with VarioBase®

The variable supporting base cannot just be used with telescopic booms but also with folding jibs and fixed jibs.



With awards from expert committees

In 2014 VarioBase® won the LLEAP-Award in the USA – the award for Leadership in Lifting Equipment and Aerial Platforms. ESTA – the European association of abnormal road transport and mobile cranes, presented the variable support with an Award of Excellence in the safety category. The Baublatt Österreich trade journal named VarioBase® its Innovation of the Year.

