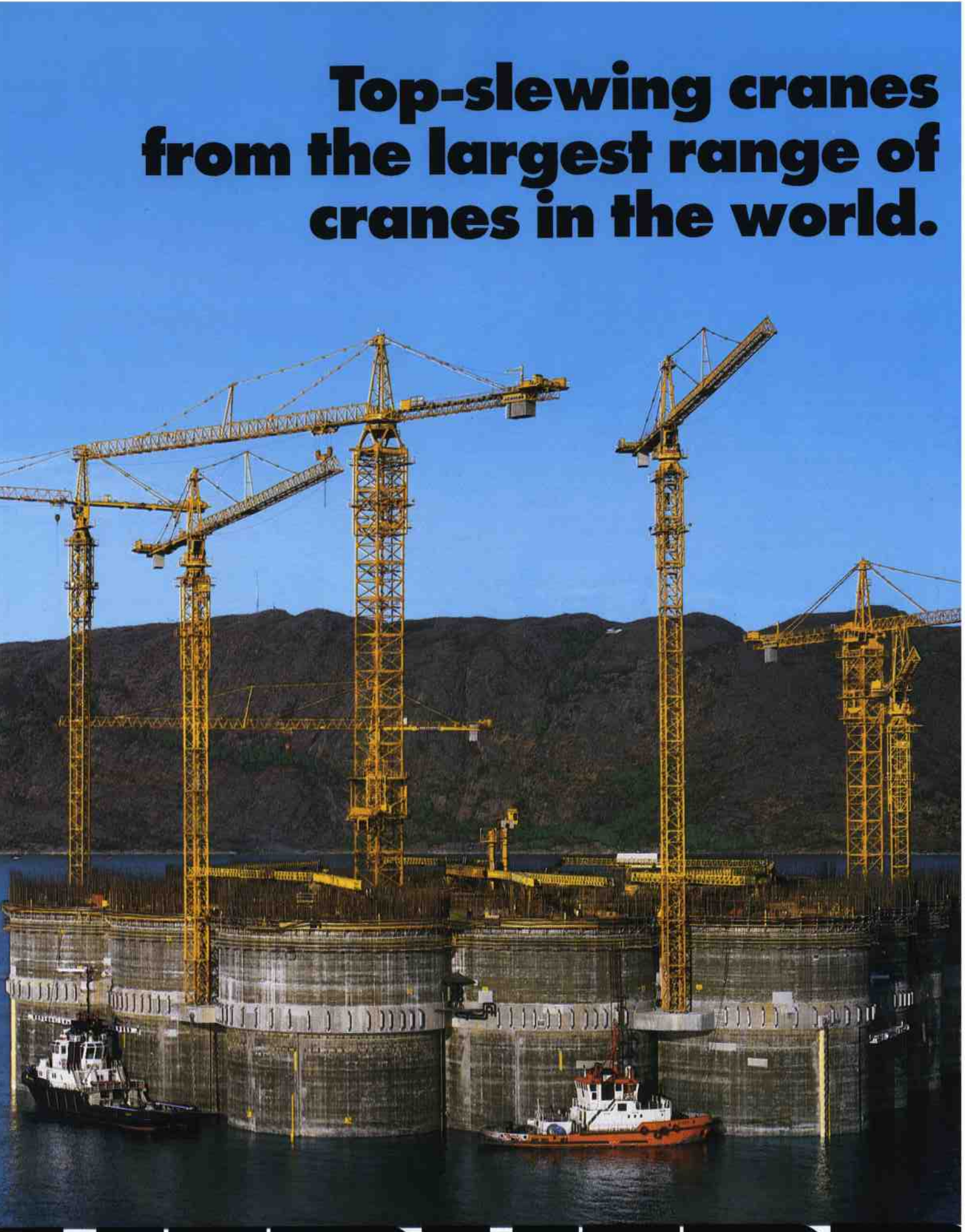
Top-slewing cranes from the largest range of cranes in the world.



LIEBHERR

How to built cranes.

Liebherr offers a range of cranes that is unsurpassed in its variety. It is the widest of all design ranges and includes every conceivable system, in every size: fast-erecting bottom-slewing and top-slewing cranes. With trolley or luffing jibs, telescope jibs, articulated jibs, fold-down jibs and other special-purpose jibs. Liebherr cranes have an almost unlimited variety of applications: they are used as climbing cranes inside and outside buildings, on stationary foundations, screw jacks, rails, wheels or crawler tracks. There are tracked cranes with a permanently attached crawler track undercarriage, with two or more crawler-track assemblies or as a piggy-back system. Liebherr crawler-track cranes can cope with gradients of up to 17.5 %.

Liebherr cranes are designed for optimum versatility. As a result, they are highly economical and take in account future requirements. The perfected modular construction principle allows every crane to be adapted and combined with other components in a great number of ways, e. g. the installation of undercarriage and tower elements to create greater effective hook heights on the move or the conversion of trolley jib cranes into folding jib cranes, luffing jib cranes or concreting towers for special applications, simply by changing over elements of the crane's superstructure.

Liebherr cranes point the way to the future in technology and progressive design. They are built by the most up-to-date production methods, including computer-controlled production planning, NC machine tools, electronically controlled welding and robot handling. 85 % of all components are manufactured by Liebherr itself. This assures a level of quality which is without comparison throughout the world. Liebherr tower cranes feature advanced technology for greater user benefit.

From the world's largest range of cranes: top-slewing cranes of advanced design.

45 EC, 71 EC and 90 EC/120

Liebherr's Economic cranes are top-slewing cranes developed specially for use in confined spaces, such as are found on construction sites in heavily built-up areas, between existing structures or when renovating old buildings.

They have an extremely small base area. The tower cross-section of the 45 EC and 71 EC is just 1.2 x 1.5 m for the entire length of the tower. This has advantages for transportation and for use in elevator shafts.

Thanks to Liebherr's modular design system, these cranes can be combined with HC cranes. An example of this is the 90 EC/120. This has the tower and climbing mechanism of the 120 HC, which gives it a lower basic hook height and a rapid climbing facility.

An innovative feature of these EC cranes is the complete crane deck, which brings together all the important sub-assemblies in one ready-to-use unit with all the ropes and electrical wiring in place.

EC cranes can be erected in almost the same time needed until now for a fast-erecting bottom-slewing crane.

	45 EC	71 EC	90 EC/120
Max. radius	40.0 m	45.0 m	50.0 m
Lifting capacity	1,000 kg	1,500 kg	1,500 kg
Max. lifting capacity	2,500 kg	3,000 kg	3,000 kg
	4,000 kg	5,600 kg	8,000 kg

112 EC-H, 140 EC-H and 180 EC-H/170

This crane system combines the advantages of the EC series with those of the HC series. The performance range of this group covers the requirements of medium to large-scale construction activities.

Thanks to their compact transport and erecting units, these cranes are notable for their easy transport and particularly fast erecting times. The entire upper section of the crane can be dismantled for transporting into just three separate units. The tower elements and undercarriage are from the HC series.

The tower elements are complete ready-to-install units and are all identical. This means it is not necessary to go to the trouble of bolting them together or installing them in a specific sequence.

The tower elements come in lengths of 2.5 m, 4.14 m, 5.0 m, 10.0 m and 12.42 m. The 2.5 m and 5.0 m sections can be used with the rapid-climbing mechanisms.

	112 EC-H	140 EC-H	180 EC-H
Max. radius	55.0 m		60.0 m
Lifting capacity	1,550 kg		2,200 kg
Max. lifting capacity	8,000 kg		10,000 kg

120 HC and 140 HC

These are universal cranes for medium to large-scale construction activities. They can be used with one of the rapid-climbing mechanisms and have a low basic hook height, so that a small mobile crane is quite sufficient for erecting work.

The tower elements are complete ready-to-install units and are all identical. This means it is not necessary to go to the trouble of bolting them together in or installing them according to a specific sequence.

Tower elements are available in lengths of 5.5 m, 5.0 m and 10.0 m. If the cranes are used with the 10.0 m tower elements, they must be brought to their full operating height at once using the mobile crane.

Cranes in this group can also be combined with larger HC crane towers in order to adapt them to an even wider variety of requirements.

	120 HC	140 HC
Max. radius	50.0 m	55.0 m
Lifting capacity	2,000 kg	1,700 kg
Max. lifting capacity	8,000 kg	8,000 kg

185 HC and 256 HC

Larger buildings require larger cranes. For projects on this scale, Liebherr has developed the HC cranes with load moments in excess of 195 metre-tons.

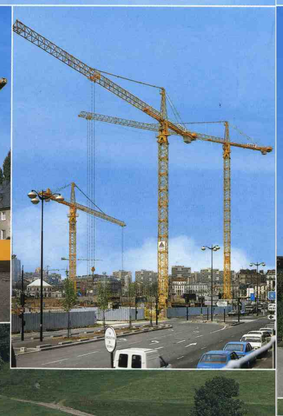
The characteristic features of smaller Liebherr cranes also apply to these large-scale HC cranes. They offer even more in terms of transport, erecting, climbing, structural steelwork, drive units and ease of operation.

The tower elements are again complete units with closed, tight-welded profiles. They are 4.14 m long. For transport purposes, the jib sections can be pushed inside the tower elements, so as to take up less space in transit.

In this performance class, the wide variety of possible combinations is particularly useful. Undercarriage, tower elements, climbing mechanisms – even entire crane systems can be combined and interchanged.

With their rapid-climbing systems, the cranes in this performance class reach all the required operating heights quickly, simply and safely.

	185 HC	256 HC
Max. radius	60.0 m	70.0 m
Lifting capacity	2,100 kg	2,700 kg
Max. lifting capacity	10,000 kg	12,000 kg



355 HC, 355 HC-S, 500 HC, 500 HC-S, 630 HC, 800 HC, 1250 HC, 2000 HC, 3150 HC, 4000 HC

HC cranes in these sizes are used on large-scale projects all over the world. By following the HC principle to its logical conclusion, the transport, erecting and dismantling of these large cranes has been made even more economical, just like the smaller HC cranes. Examples of how this is achieved include the special steelwork, the undercarriage, which can be easily stripped down and re-assembled, the simple tower element joints, the rapid-climbing mechanism and the straightforward electrical wiring.

	355 HC/355 HC-S	500 HC/500 HC-S
Max. radius	75.0 m	80.8 m/79.6 m
Lifting capacity	2,600 kg	3,250 kg/ 2,500 kg
Max. lifting capacity	16,000 kg/20,000 kg	20,000 kg/40,000 kg
	630 HC 800 HC	1250 HC 2000 HC
Max. radius	80.8 m 80.8 m	80.8 m 81.3 m
Lifting capacity	5,000 kg 7,000 kg	12,500 kg 21,000 kg
Max. lifting capacity	16,000 kg 20,000 kg	20,000 kg/ 30,000 kg/
	40,000 kg	40,000 kg 60,000 kg
	3150 HC 4000 HC	
Max. radius	80.0 m 100.0 m	
Lifting capacity	32,000 kg 34,000 kg	Larger cranes on
Max. lifting capacity	60,000 kg 80,000 kg	request.

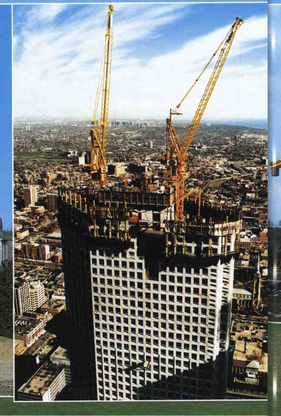
100 HC-L, 150 HC-L, 250 HC-L, 355 HC-L, 500 HC-L and 630 HC-L

These top-slewing luffing jib cranes are particularly suitable for the construction of tall steel structures and for other high buildings and confined sites. They also offer important advantages on sites where several cranes are required to work with overlapping slewing ranges.

Because of their compact rear slewing radii and adjustable jib angles (between 15° and 87°), Liebherr luffing jib cranes are superior to all other systems for such applications. These cranes can avoid obstacles in their path. The rear slewing radius is just 5.0 m, for example, on the 500 HC-L and 6.5 m on the 100 HC-L.

When the cranes are not in operation, the jib angle can be adjusted between 15° and approx. 70°.

	100 HC-L	150 HC-L	250 HC-L	355 HC-L
Max. radius	45.0 m	55.0 m	60.0 m	60.0 m
Lifting capacity	2,000 kg	2,500 kg	3,000 kg	4,500 kg
Max. lifting capacity	12,000 kg	16,000 kg	24,000 kg	24,000 kg
	500 HC-L	630 HC-L		
Max. radius	60.0 m	60.0 m		
Lifting capacity	6,000 kg	8,500 kg		
Max. lifting capacity	32,000 kg	32,000 kg		



100 HC-T and 300 HC-T

These cranes were specially developed for building sites where the jib slewing range is restricted by tall structures and the jib cannot avoid these by going either higher or lower. On such sites, a conventional tower crane cannot be used because of structures that are in the way or other obstructions in its slewing range. Or a crane may be required to work under a dome, with obstacles in the slewing range.

The HC-T system of cranes consists of a telescopic jib, with one fixed and one movable section. The lower jib can be retracted and extended telescopically, which means that maximum jib length can in effect be reduced by almost half. The trolley can operate even while a telescopic movement is being performed.

	100 HC-T	300 HC-T
Max. radius	50.0 m	60.0 m
Lifting capacity	1,500 kg	4,500 kg
Max. lifting capacity	8,000 kg	6,000 kg

HC-K cranes

Thanks to Liebherr's modular system, a special crane for unusual buildings can be produced simply by exchanging the HC upper section for that of the HC-K. Examples include the construction of cooling towers and TV masts. HC-K cranes can adapt their jib to the different diameters inside a cooling tower. Under load, they can luff their jib from 0° to 75° and in this way move safely round obstacles.

The building contractor can save on tower elements, as the unused radius potential can be converted into height under the hook.

	112 HC-K	140 HC-K	180.1 HC-K
Max. radius	50.0 m	55.0 m	65.0 m
Lifting capacity	1,800 kg	2,000 kg	1,800 kg
Max. lifting capacity	8,000 kg	12,000 kg	12,000 kg

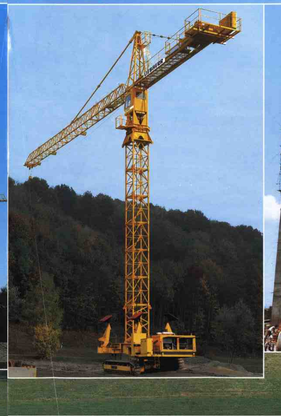
HC cranes with crawler track undercarriage

Liebherr top-slewing cranes can also operate on crawler tracks, with two or more sets of tracks or with a piggy-back system.

Operations with crawler-track undercarriage are particularly advantageous when it is important to achieve fast turnaround. These cranes need no expensive roads built specially on site. They can travel on virtually unprepared surfaces such as grass, clay, sand and gravel.

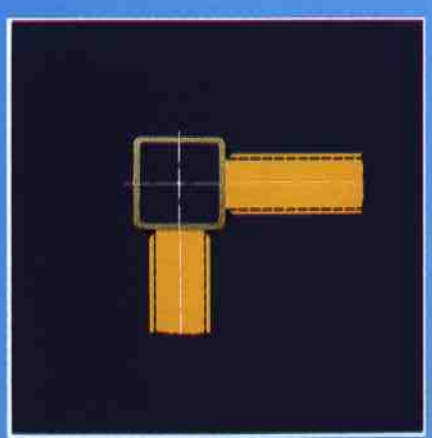
The piggy-back system consists of a special set of crawler tracks for transport, which simply picks up the crane and moves it to the new working site. A single set of crawler tracks can be used to transport any number of separate cranes.

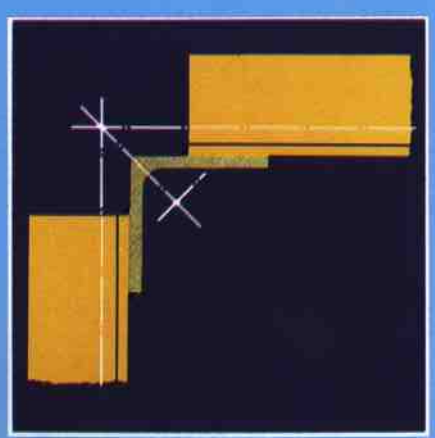
It is possible to traverse gradients of up to 17.5 % in the direction of travel and 18 % across the direction of travel, thanks to the automatic electro-hydraulic self-levelling system.



The crane as a concreting tower

Liebherr top-slewing tower cranes can of course also be operated as single- or multiple-unit concreting towers. Thanks to the rapid-climbing mechanism, the concreting tower can "grow" as the building becomes higher. As well as their conventional applications, Liebherr concreting towers can also be used with the piggy-back system or on a permanently attached crawler-track undercarriage.



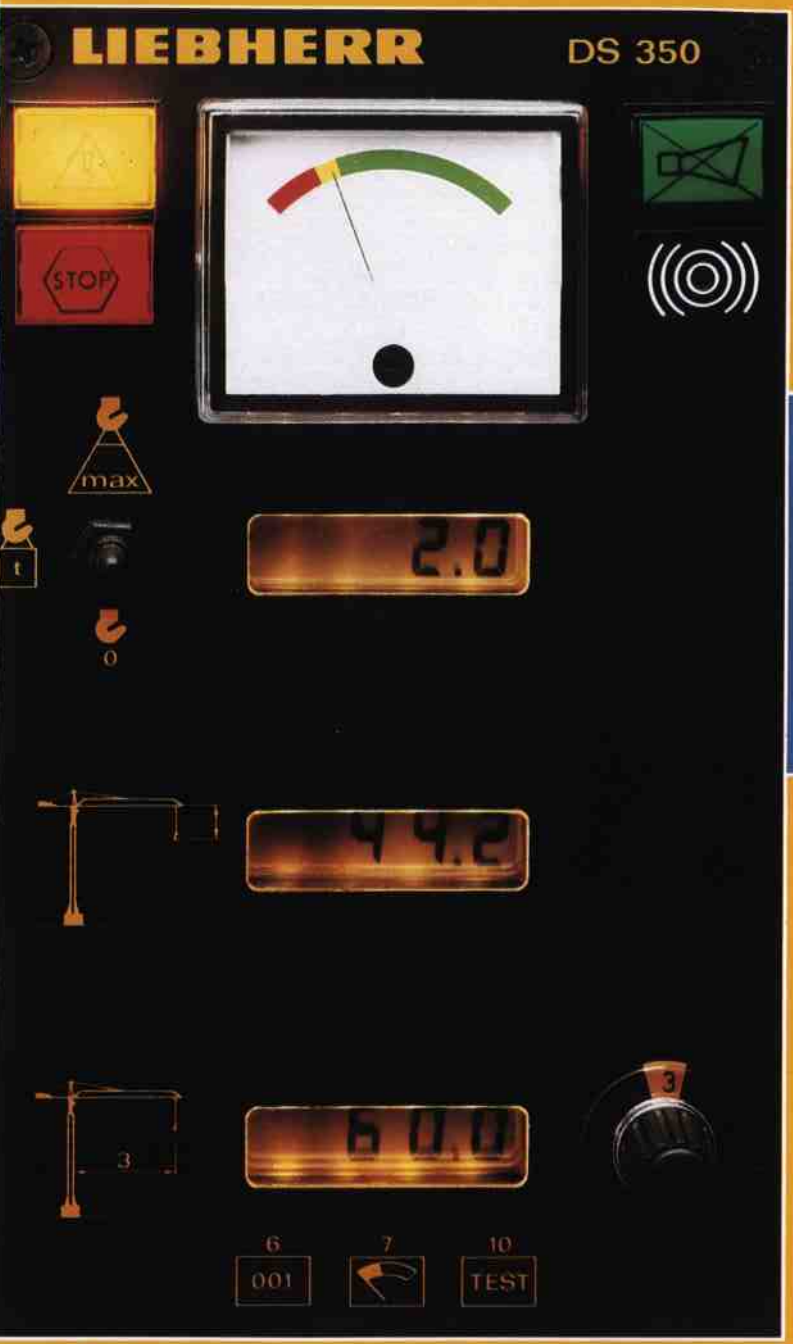


More benefits from no-compromise high performance.

Special steelwork for greater economy.

The special steel structure is fabricated from standardized killed structural steels with high resistance to brittle fractures and notching impact, and strengths of 370 N/mm² and 520 N/mm². Further principal features include corner posts and diagonals made from closed, tight-welded sections, diagonals connected to the centre of the profile, tower elements joined together by external forged connectors, broad flat-milled contact faces, low-stress areas, tower elements joined together by high-tensile bolts (or quick-release safety connections on the larger HC cranes). These special design characteristics ensure that bar stresses are transmitted to an excellent degree and no additional moments occur at the corner posts. And since external dimensions are minimized, there is less surface area for the wind to act on, which in turn is beneficial in terms of height under the hook, ballast and the number of structural guys or tierods needed (the illustrations above clearly show the differences in external dimensions).

This successful system is in stark contrast to the open angle profile system. Liebherr cranes constructed as described here have significant advantages over the open angle profile system. For example, the point where the lines of force intersect on open angle profile cranes lies outside the structure. This means that the corner posts and diagonal rods have to withstand additional load moments.



Construction cranes with Litronic

Litronic was specially developed by Liebherr for heavy duty applications in the construction industry. It is a checking, monitoring and warning system (LCS Liebherr Control System) made up of a central microprocessor unit, display panel, measured value sensor and potentiometers for the trolley travel and hoisting gear.

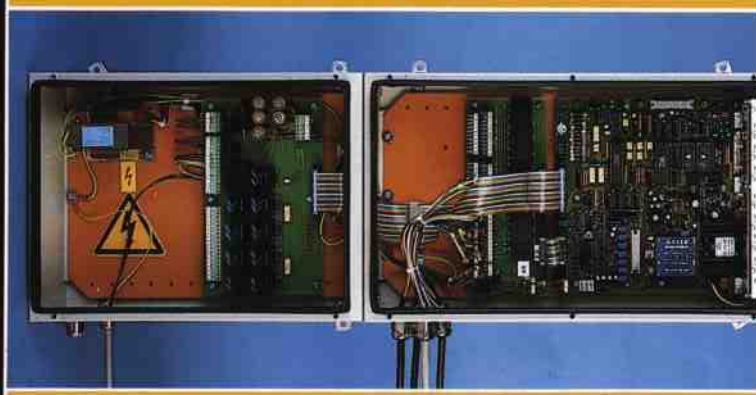
The display panel provides information on the crane's loading, geometry and movements. The display panel actually consists of an analogue moment display, digital load indicator, digital display for geometrical values (e. g. operating mode) and trouble-shooting, plus a digital hook height display.

The crane operator is therefore constantly informed of the suspended load and its height above the ground. A signal lamp lights up whenever the crane's load reaches between 90 to 100 % of the nominal limit. Whenever an overload situation is imminent, the signal lamp changes to red and an audible warning signal is emitted.

To adjust and test the limit cut-out switches, all that is required is to suspend a load (the weight of which is already known), and then compare it with the value shown on the load display.

All Liebherr tower cranes with electromagnetic-shift hoisting gear can be fitted with Litronic.

Liebherr Litronic (LCS) operates by comparing nominal and actual values. The actual values recorded by the sensors are constantly compared with reference values



stored in the central data bank and assessed by the microprocessor. As a result of its high switching speeds, the efficiency of the whole crane system is considerably increased, improving economy still further.

Liebherr switchgear cabinet with memory-programmed control. On the Liebherr switch cabinet with

SPS Litronic, there are no auxiliary contactors such as timer relays and interlocking or control contactors. This means less wear and tear. Once tested, the switch settings remain constant.

In switchgear cabinets with SPS, it is possible to perform rapid and accurate diagnosis, e. g. troubleshooting in the event of faults occurring. All inputs and outputs can be checked by means of light-emitting diodes.

Erect a landmark of progress at your construction site, with Liebherr.

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