Liebherr hydraulic crawler cranes

LIEBHERR

Defining new standards

Flexibility, rentability and excellent performance are the distinguishing features of the hydraulic crawler cranes (HS series). On the international building machinery market Liebherr-Werk Nenzing GmbH, Austria, is the leading producer of modern hydraulic crawler cranes, lift cranes and carrier machines for special deep foundation applications.

1 Performance through leading technology

The hydraulic crawler cranes achieve excellent performance due to leading technology developed in-house. State-of-the-art Liebherr diesel engines, high performance winches with integrated brakes, the electronic control as well as the machine and process data recording system define new standards.

2 Flexibility in all respects

With their modular concept Liebherr hydraulic crawler cranes fulfil all requirements, especially in the fields of special and deep foundation, extraction, material handling as well as demolition and recycling.

3 Economy in all respects

Efficient transport, easy assembly and high productivity combined with low operational costs are convincing features of Liebherr hydraulic crawler cranes.

4 First-class comfort for higher productivity

Even the standard equipment includes numerous innovative technical features ensuring ease of operation. The ergonomic cabin design provides the operator with an unobstructed view of the entire working area.

5 Effective service

Thanks to low maintenance requirements, the possibility of remote diagnosis, quick assistance on site and an efficient spare parts supply, Liebherr guarantees continuous availability of its hydraulic crawler cranes throughout the world.

Performance through leading technology

High flexibility and excellent performance determine the application possibilities of Liebherr hydraulic crawler cranes. Whether used with dragline bucket, slurry wall grab or casing oscillator – the large dimensioned Liebherr diesel engines always guarantee maximum performance. Equipment such as vibrators or casing oscillators can be operated without additional power pack. Moreover, the powerful and maintenance-free free-fall winches are designed to fulfil highest demands and afford efficient and safe operation.

Unique selling points:

- State-of-the-art electronic control system
- Powerful Liebherr diesel engines
- Large dimensioned and maintenance-free free-fall winches
- Strong crawler and swing drive components
- Extremely robust steel structure

Control system

The core of the Liebherr hydraulic crawler cranes is the Litronic control system. Developed and manufactured by Liebherr, this comprehensive system encompasses all control and monitoring functions and is designed for extreme environmental conditions in tough assignments.

All information, warnings and failure indications required for the current machine operation are clearly displayed on the monitor in the operator's cab and stored. Documentation of operating data enables optimum diagnosis as well as early detection and prevention of more serious defects.

An electro-hydraulic proportional control allows several movements to be performed simultaneously. This ensures that all categories of loads can be positioned with utmost precision.

Automated control systems, e.g. for dynamic soil compaction or an "Interlock" control system for dragline application are available as an option.


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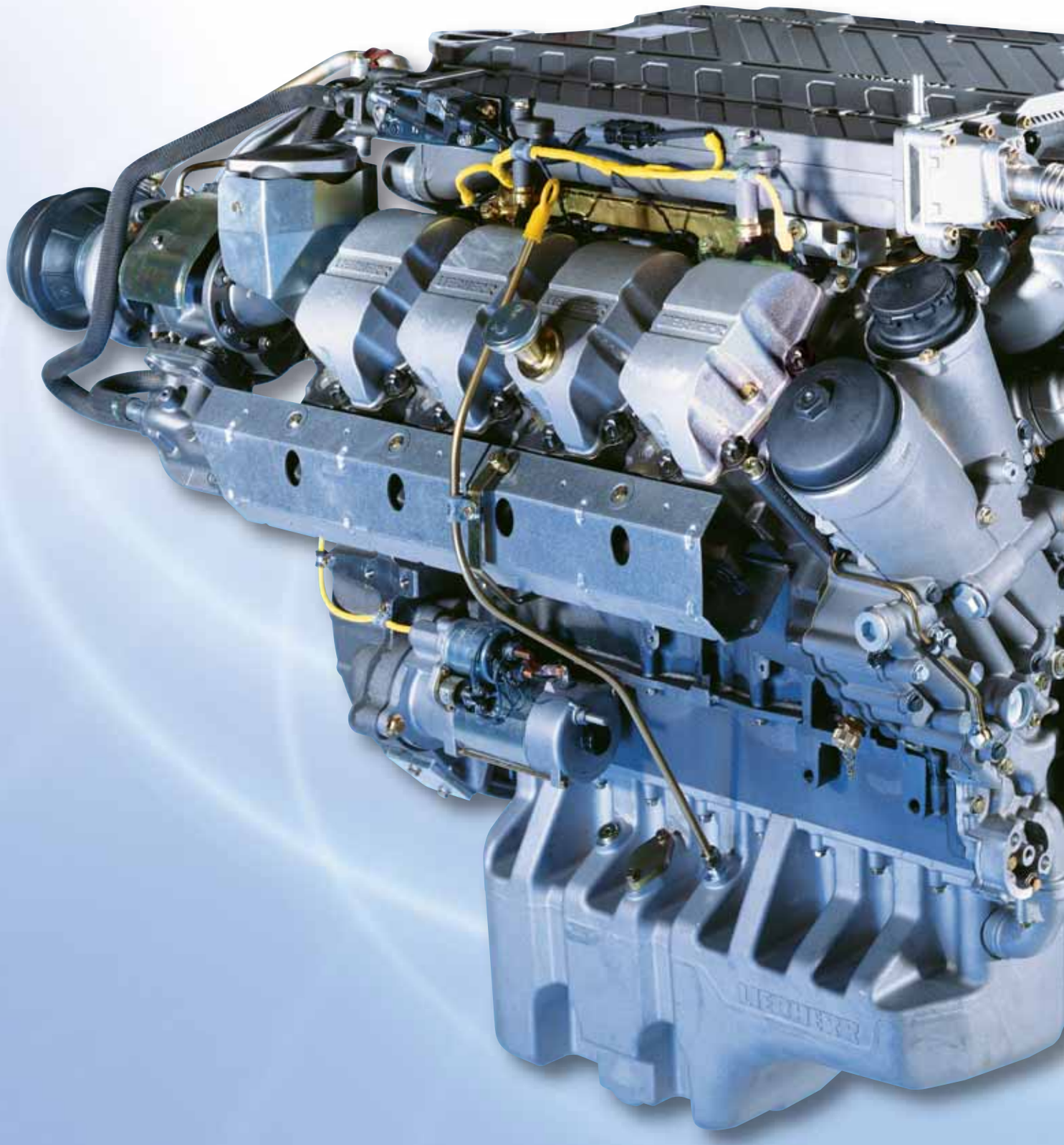
Drives



Liebherr hydraulic crawler cranes are equipped with powerful Liebherr diesel engines. Specially designed for dynamic applications in heavy-duty construction tasks, they are extremely reliable, durable and easy to service. The electronic control monitors and checks all machine data. Since engine electronics and crane control are optimally matched, the diesel engine can be directly inter-linked with the regulation of the hydraulic system, thus affording even more ease of operation. Possible failures are detected and localized immediately by the diagnostics system. All movements can be carried out simultaneously. Depending on the machine class, diesel engines ranging from 180 kW to 670 kW power are available.

Winches

The maintenance-free Liebherr free-fall winches are installed as complete units. The new concept with integrated drive and multi-disc brakes allows increased drum width with the same outside dimensions, thereby increasing rope capacity on the first layer. This produces a longer rope life and reduced operational costs. The integrated free-fall brakes prove their worth especially in difficult free-fall operations with heavy loads. The main winches are driven via an axial piston displacement pump and a variable flow oil motor in closed circuit. This design allows precise work cycles for all winch movements. The supplied energy is ideally used in acceleration and braking of the winches and regained when operating in the power lowering mode.

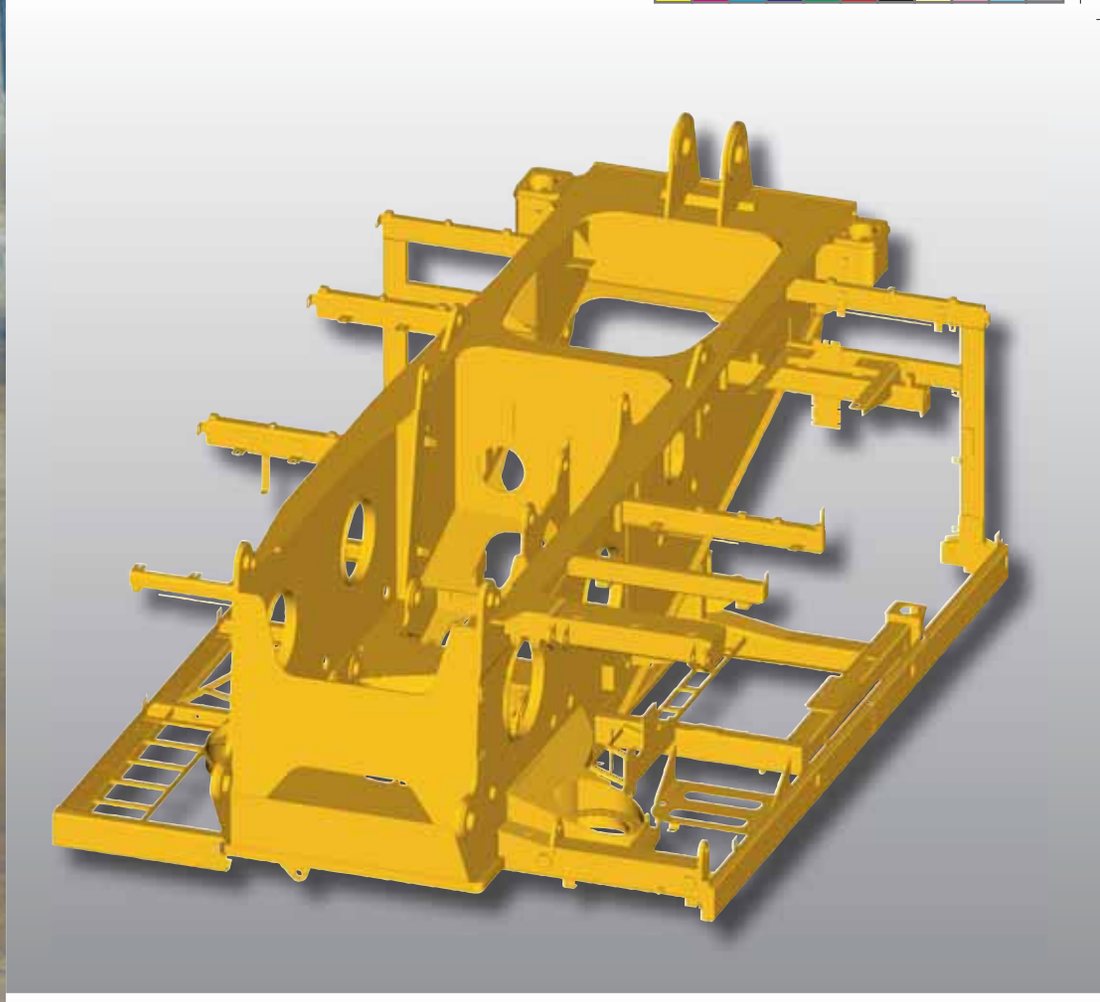
Through automatic speed adjustment according to line pull the high pressure controlled, variable flow hydraulic motors allow full utilization of engine power even when working with intermediate load.

For example, an “Interlock” control system for dragline operations allows power lowering of the grab line when raising the dragline bucket with the hoist rope which significantly reduces fuel consumption. The tagline winch is used as a constant tension or free-fall winch and enables efficient work with grab or demolition ball.

Steel construction

The hydraulic crawler cranes' uppercarriage with its robust and torsion-resistant box design is mounted on a large undercarriage featuring wide track and long crawlers. This results in good ground pressure characteristics and stability.

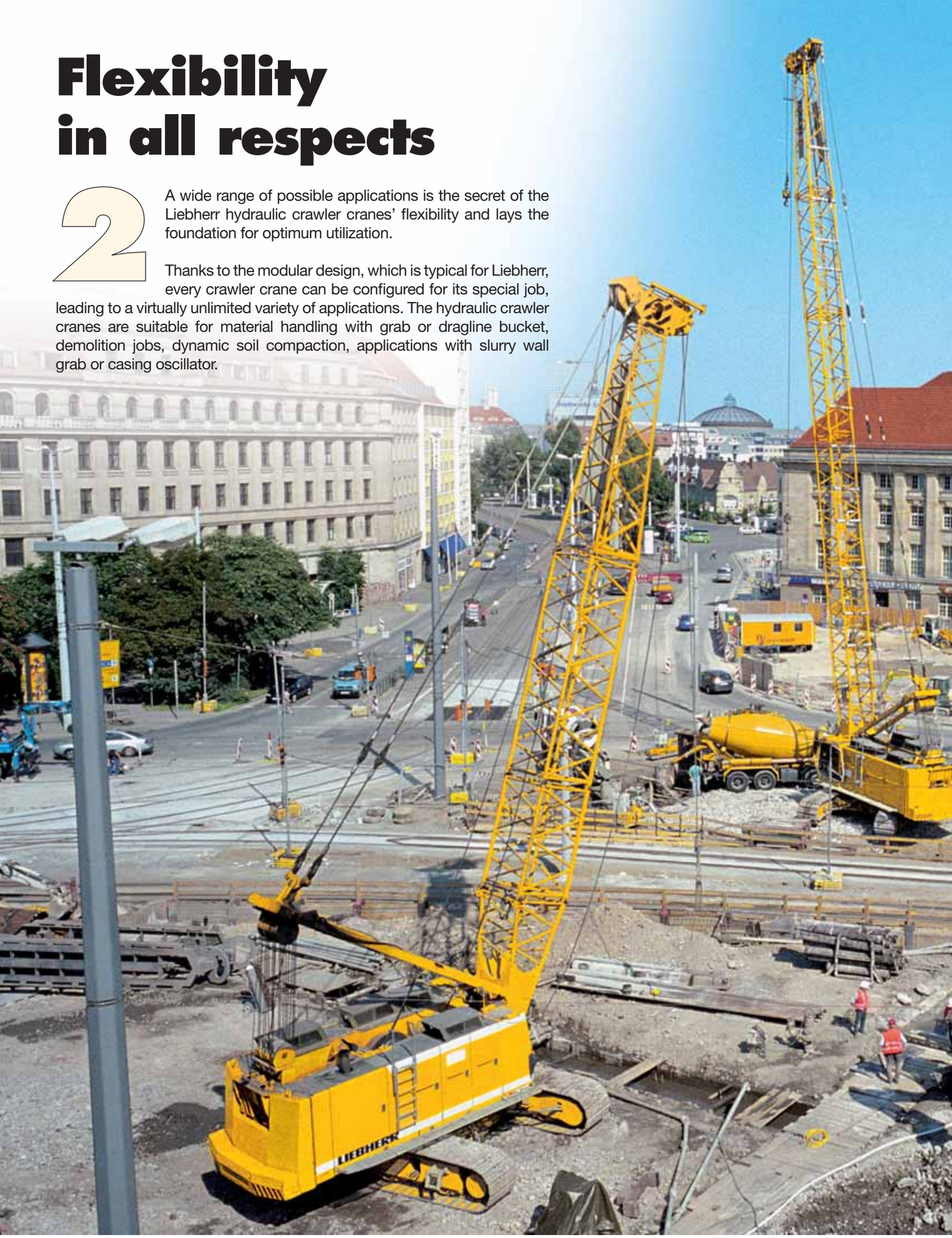
The external, large dimension teeth of the Liebherr swing drive guarantee optimum absorption of the high torque combined with minimum wear. Roller bearings in the swing drive ensure a superior, low-fit connection between upper and undercarriage. For special applications, e.g. rotary drilling or dragline application, an additional increase in torque is achieved through the installation of a second and/or third swing drive.



Flexibility in all respects

A wide range of possible applications is the secret of the Liebherr hydraulic crawler cranes' flexibility and lays the foundation for optimum utilization.

Thanks to the modular design, which is typical for Liebherr, every crawler crane can be configured for its special job, leading to a virtually unlimited variety of applications. The hydraulic crawler cranes are suitable for material handling with grab or dragline bucket, demolition jobs, dynamic soil compaction, applications with slurry wall grab or casing oscillator.

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Dragline operation

The electro-hydraulic continuous proportional control of Liebherr hydraulic crawler cranes enables precise and simultaneous crane movements, which are indispensable for dragline applications. In addition, a second or third swing drive – if required – increases swing torque resulting in short swing cycles and fast loading cycles. The “Interlock” control system, which has been specially developed for dragline applications, allows power lowering of the grab line when raising the dragline bucket with the hoist rope, which saves energy and prolongs service life of the hoist rope. The hydrostatic winch drive adapts the rope speed to the soil conditions and always provides optimum filling of the dragline bucket.

Machines offering production levels of 80 - 400 m^3 per hour and digging depths of 6 - 24 m are available.

Grab operation

The robust design of Liebherr hydraulic crawler cranes combined with the high line pull of the main winches is ideal for working with heavy grabs. Hydrostatically driven hoist winches with variable flow hydraulic motors for optimum filling, precise lowering and emptying of the grab, automatically distribute the load on both winches and convert the installed engine power into maximum hoisting speed even when working with intermediate load.

When working with material handling grabs, the constant tension winch with free-fall prevents swinging of the grab and ensures exact positioning of the material. In combination with the powerful swing drive this results in quick work cycles and excellent turnover in material handling.

When working with a slurry wall grab, the hydraulic free-fall winches enable precise grab handling e.g. during emptying directly onto a truck. Furthermore, precise grab control is supported by electronic multi-functional joysticks. These joysticks incorporate all operating elements required during operation as well as engine speed control. Thus, the operator is able to fully concentrate on his operating area.

Soil compaction and demolition

For dynamic soil compaction Liebherr offers an automated free-fall control system creating rope tension just before the drop weight hits the ground which reduces rope wear to a minimum. Furthermore, this control system avoids any slacking of the rope on the winches which is typical during free-fall applications.

Although demolition jobs present an extreme situation for operator and machine, the design of the Liebherr hydraulic crawler cranes guarantees optimum stability even when working with long booms. The large dimensions of the tubular booms enable lateral striking with the demolition ball even at great heights.

Special equipment for demolition and soil compaction:

- Massive protection and armoured glass for the operator's cab
- Hoist rope guides on the boom
- Winch for use of a personnel basket
- Cab tilting device for a better upward view
- Additional hydraulics for operation of concrete cutters
- Tagline winch for the demolition grab
- Control system for soil compaction
- High-pressure windscreen wiper system

Lifting application

Only the extremely flexible, extendable and highly efficient boom system of Liebherr hydraulic crawler cranes is capable of fulfilling the widest variety of jobsite requirements. Due to the integration of the load moment limitation in the control system some additional components, which otherwise would have been necessary, are no longer required. The boom configuration can be pre-selected quickly and easily on the monitor in the operator's cab. The powerful system allows every possible equipment configuration to be operated without changing the software.

Liebherr hydraulic crawler cranes offer the following boom configurations:

- Main boom
- Auxiliary jib
- Fixed jib

Thereby, the fixed jib sections and heads can be used for all hydraulic crawler crane types.

Special equipment

All product-related innovations have been developed in close co-operation with customers and operators. This guarantees optimum rentability and user-friendliness. The close contact between customers and manufacturer is of benefit to all Liebherr partners, whenever the customers' own ideas and solutions are put into practice.

Economy in all respects

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Economy and good customer service commence with the machine's transportation. Low weight and the possibility to load the single components in a space-saving manner enable smooth transportation of Liebherr hydraulic crawler cranes on all roads. This provides maximum savings in time and costs even before the machine starts work on the jobsite.

The self-assembly and self-loading system significantly reduces expenditure of time and money. Even auxiliary cranes, which are usually required, become redundant.

For the operation of Liebherr hydraulic crawler cranes the main focus is put on economy, reliability and cost-effectiveness. These features are provided by robust and durable components, low fuel consumption and low maintenance requirements. This is true for the powerful Liebherr diesel engine as well as for the crane winches, the undercarriage and all other components.

Efficient transport

Solid but light construction and compact design distinguish the components of Liebherr hydraulic crawler cranes. Both of these basic features – low transport weight and low dimensions – enable Liebherr to guarantee unhindered transport on all roads on the way to the site. All equipment can be transported on standard trucks and many crane parts are designed to fit into standard containers.

Furthermore, the transport volume is reduced by placing the luffing jib sections into the main boom sections and thanks to their low dimensions, counterweight pieces can be placed below the boom sections for transportation. Specially designed brackets allow storage of the pendants and pins on the boom sections.

Quick and easy assembly

A special feature from Liebherr is the time and cost saving self-assembly and self-loading system. The auxiliary crane usually needed and its related costs are eliminated thanks to this standardized system.

For transportation of the heavy hydraulic crawler cranes the crawlers have to be removed from the basic machine. Self-assembly starts with the unloading of the basic machine. The hydraulic crawler crane raises itself using hydraulic jacks (Jack-Up System) allowing the low loader to simply drive away. Subsequently the uppercarriage unloads the crawlers, counterweight and boom sections using either its A-frame or boom foot. Hydraulically activated pins, quick connections and an auxiliary winch for rope reeving facilitate and accelerate the assembly process. All boom configurations can be erected by the crawler cranes themselves.


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Cost-effective operation

For the contractor the costs per achieved production unit are of vital importance. This is why Liebherr offers a highly efficient machine with low operational costs. All applied components are designed for reliability and longevity in order to reduce downtime and minimize repair costs.

Apart from their excellent performance, Liebherr diesel engines are outstanding in their economical consumption. Moreover, the maintenance-free free-fall winches as well as the lifetime lubricated undercarriage components are equally customer-friendly and significantly reduce maintenance requirements.


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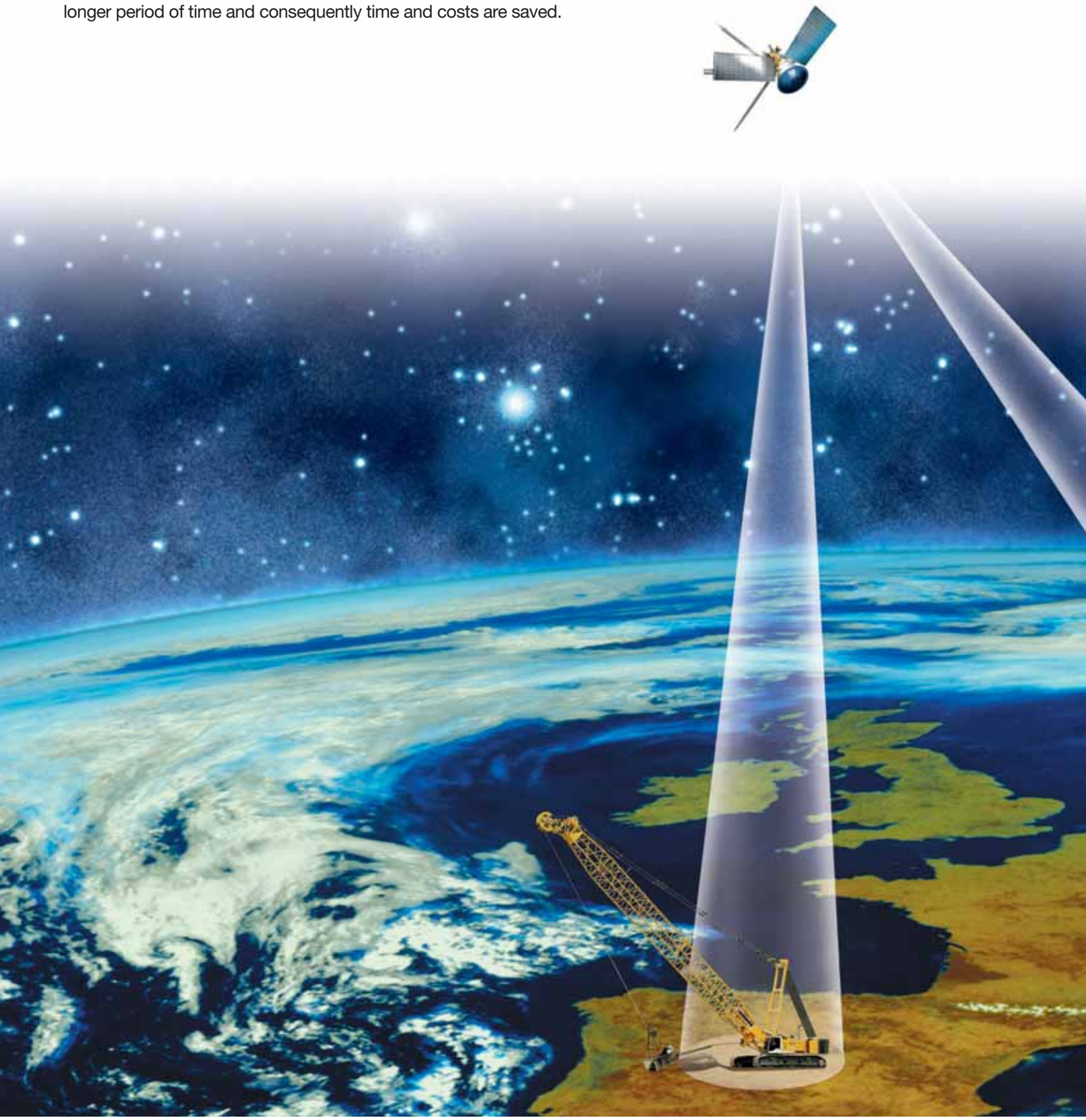
First-class comfort for higher productivity

4 In the spacious cabin featuring a seat with multiple adjustments as well as air conditioning, all operating elements are clearly and ergonomically arranged. All machine movements are controlled proportionally and precisely by one joystick, one double T-lever and foot pedals. As an option two joysticks for crane operation and special applications can be delivered. Generous all-round glazing ensures an unobstructed view of the entire working area.

Everything has been done to facilitate the handling of the hydraulic crawler crane for the operator. Stepless cabin tilting up to 20 degrees for a better upward view is available as an option. For special applications Liebherr also offers hydraulic cabin elevation. All service points are easy to access which considerably facilitates maintenance work.

Effective service

5 Liebherr guarantees its customers optimum world-wide service and availability of spare parts at any operating point. Moreover, failures can be detected and sometimes directly repaired via GSM service modem and remote diagnosis. Software updates as well as maintenance work can be carried out with this modem. Downtime is reduced, the machine is available for a longer period of time and consequently time and costs are saved.



Rapid service on site

Permanent readiness for operation is a major prerequisite for a smooth and efficient application on the jobsite. Downtime is enormously expensive and has to be reduced to a minimum. A tight network of service stations with qualified contacts and well-trained personnel guarantees quick assistance at any place and any time. The required spare parts are also available at short notice.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Liebherr-Werk Nenzing GmbH

Printed in Germany by Höhn BK-RP LWN-10350607-2.5-04.07

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