EN

Solutions for material handling

Duty cycle crawler cranes HS series

LIEBHERR

Liebherr-Werk Nenzing GmbH

The applications

The machines

Those certain extras

The applications

Dragline operation

The duty cycle crawler cranes from Liebherr are used for a wide variety of applications with dragline bucket. Sand and gravel are most often conveyed. The dragline bucket is more or less cast as required through the swinging of the duty cycle crawler crane.

Earth movement

Dragline buckets are used for topsoil stripping in duty cycle operation.

Underwater gravel extraction

Typical applications with dragline bucket include the excavation of various bulk goods, such as gravel and sand from rivers or quarries for the production of construction materials.

Numerous aids are available to the operator for this relatively complex type of application. One example is the electro-hydraulic continuous proportional control, which enables smooth and simultaneous movements. In addition, a second or third swing drive – if required – increases swing torque resulting in short swing cycles as well as fast loading cycles.

The hydrostatic winch drive adapts the rope speed to the soil conditions and always provides for optimum filling of the dragline bucket.

Recultivation

After the excavation of raw materials in surface mining, duty cycle crawler cranes equipped with dragline buckets are used for land recultivation. In this respect, the duty cycle crawler cranes are also suitable for difficult terrain.

Grab operation

Thanks to their robust design and the high line pull of the main winches, duty cycle crawler cranes from Liebherr are ideal for jobs using heavy grabs. Hydrostatically driven hoist winches automatically distribute the load on both winches and convert the installed engine power into maximum hoisting speed, even when working with intermediate load. They provide for optimum filling, as well as precise lowering and emptying of the grab.

Sand extraction

Dredging of sand in surface mining: duty cycle crawler cranes are used when the outreach of hydraulic excavators and dump trucks is too severely limited.

During operation with material-handling grabs, the tagline winch with constant tension and 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.

Stone laying

Stone blocks are positioned with the aid of a mechanical or hydraulic orange peel grab in the construction of breakwaters or harbour facilities.

Dredging

In recent times dredging has become an increasingly important application for Liebherr duty cycle crawler cranes. For this purpose, the machines are either installed on ships or pontoons, or operate from water banks or harbours.

Development of riverbeds

The shipping channel is widened and the minimum depth increased.

Dredging is necessary when sediment settles and leads to shallow water, which impairs the shipping industry. This often occurs in estuaries. Excavation of sand from the seabed in the course of land reclamation is a further possible application. In doing so, the duty cycle crawler cranes must endure high dynamic forces. Thanks to their robust design the duty cycle crawler cranes from Liebherr are perfectly suitable for this task.

The machines are fitted with either mechanical or hydraulic clamshell grabs. While mechanical grabs convince with low operating costs, hydraulic models are especially recommendable for hard ground conditions.

Dredging of sediment deposits

The removal of sediments in order to maintain the necessary minimum depth is a constant task, particularly in estuaries or harbour areas.

Further applications

When fitted with appropriate attachments, Liebherr's duty cycle crawler cranes are excellent basic machines for deep foundation applications. Their flexible boom system means they also perform extremely well as lifting cranes.

If necessary, the main boom can be easily extended with an auxiliary jib.

Lifting applications

When required on the jobsite, the duty cycle crawler crane can also be used for lifting jobs. Thanks to the flexible boom system they are able to meet the requirements of various jobsite conditions.

The ground is loosened either through cutting or impact driving, depending on the tools.

Deep foundation work

With the appropriate attachments, the duty cycle crawler cranes are deployed for deep foundation work. Amongst other things, they can be fitted with casing oscillators, slurry wall grabs or cutters, vibrators and fixed leaders, as well as tamper weights for carrying out dynamic soil compaction.

Lateral striking with the demolition ball is mostly implemented for the demolition of especially high buildings.

Demolition work

Thanks to their robust design, Liebherr duty cycle crawler cranes are perfectly suitable for extreme applications, as is often the case in demolition work. They have optimum stability, even with high boom lengths.

The machines

HS series

Robust and versatile

Liebherr duty cycle crawler cranes offer versatile application possibilities: they are suitable for typical dragline and material handling work such as the removal of soil and the extraction of bulk goods, the building of dams or embankments, as well as dredging operation and the removal of sediments.

Proven in continuous operation

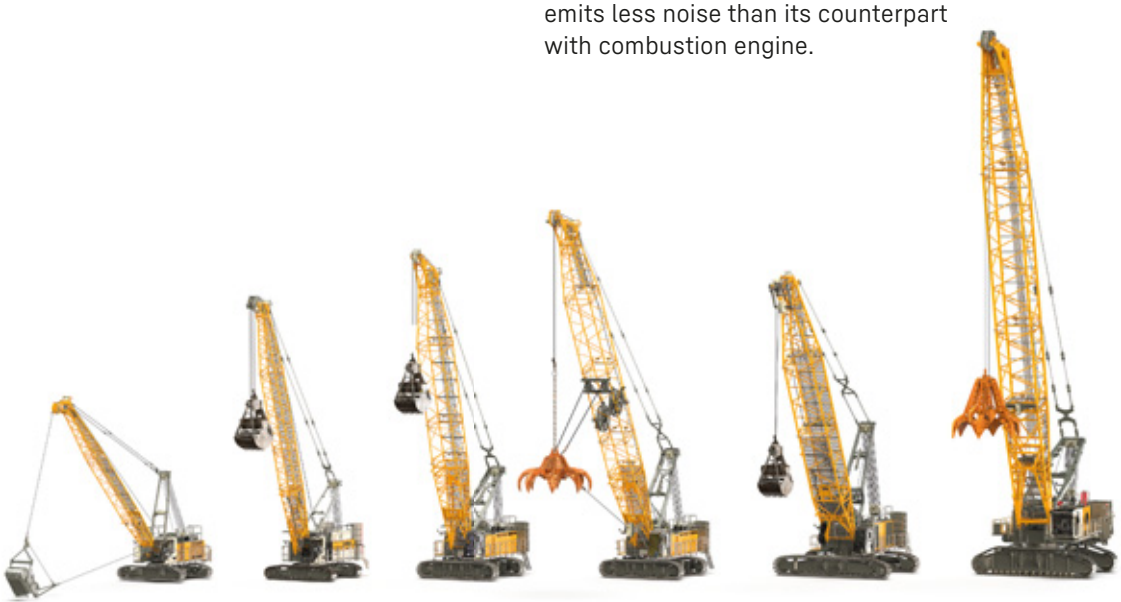
Thanks to their robust design the HS series of machines is ideally suited to continuous operation in material handling. In addition to the dragline bucket, a typical attachment for material handling is a mechanical clamshell grab. The duty cycle crawler cranes can also be equipped with a hydraulic orange peel grab. The HS series convinces with large working radii (swing radius), great digging depths, and short working cycles for maximum handling performance.

Video

HS 8100.1 E

Dredging with electric drive

The electric duty cycle crawler crane emits less noise than its counterpart with combustion engine.



	HS 8040.1	HS 8070.1	HS 8100.1	HS 8130.1	HS 8200	HS 8300.2
Max. capacity	40 t (44 US t)	70 t (77 US t)	100 t (110 US t)	130 t (143 US t)	200 t (220 US t)	300 t (330 US t)
Min. transport weight	41 t (90,390 lbs)	47 t (103,617 lbs)	40 t (88,185 lbs)	51 t (112,436 lbs)	47 t (103,617 lbs)	69 t (152,119 lbs)
Min. transport width	3000 mm (9.8 ft)	3000 mm (9.8 ft)	3500 mm (11.5 ft)	3500 mm (11.5 ft)	3500 mm (11.5 ft)	3980 mm (13.1 ft)
Dragline bucket max. depth	13 m (42.7 ft)	14 m (45.9 ft)	15 m (49.2 ft)	17 m (55.8 ft)	22 m (72.2 ft)	25 m (82.0 ft)
Dragline bucket max. capacity	1,9 m^3 (2.5 yd^3)	3,1 m^3 (4.1 yd^3)	4,6 m^3 (6.0 yd^3)	5,4 m^3 (7.1 yd^3)	7,6 m^3 (10.0 yd^3)	10,8 m^3 (14.1 yd^3)
Clamshell grab mechanical / hydraulic	3 m^3 / --	6 m^3 / 7 m^3 (7.8 yd^3) / (9.2 yd^3)	7 m^3 / 8 m^3 (9.2 yd^3) / (10.5 yd^3)	8 m^3 / 10 m^3 (10.5 yd^3) / (13.1 yd^3)	14 m^3 / 17 m^3 (18.3 yd^3) / (22.2 yd^3)	15 m^3 / 22 m^3 (19.6 yd^3) / (28.8 yd^3)
Pull force winches (2 winches each)	2 × 16 t (2 x 26,967 lbs)	2 × 20 t (2 x 44,962 lbs)	2 × 27,5 t (2 x 61,822 lbs)	2 × 35 t (2 x 78,683 lbs)	2 × 35 t (2 x 78,683 lbs)	2 × 50 t (2 x 112,404 lbs)
Engine	230 kW	320 kW	390 kW	565 kW	750 kW	750 kW

Characteristics

Duty cycle crawler cranes are exposed to high stresses in their various fields of application. A high level of stability is a basic requirement for dynamic continuous operation in material handling applications. Thus, the uppercarriage of the machine has a robust box design and is mounted on a large undercarriage. Therefore, the operating demands on the duty cycle crawler crane are met and, at the same time, an extended service life of the machine is achieved.

Winches

The low-maintenance hydraulic free-fall winches are installed as complete units. Thanks to state-of-the-art variable flow hydraulic engines, the rope speed is automatically adapted for all working ranges without any output losses.

Control system

The duty cycle crawler crane is fitted with an intelligent control system which also includes a multitude of monitoring functions. Service and machine functions are clearly displayed on high contrast colour monitors. Depending on the requirements and the application, further assistance systems, such as grab control, are available.

Crawlers

Depending on the machine's size, the crawlers can be dismounted with the aid of the self-assembly system or, thanks to a hydraulic cylinder, they can be retracted to transport width.

Safety

The duty cycle crawler cranes meet the highest safety standards. Platforms, railings and ladders are wholly integrated in the machine design.

Hydraulic system

Thanks to the innovative hydraulic design with a closed circuit, the duty cycle crawler cranes are fuel-saving and therefore economic. The available hydraulic power is optimally split between the main winches, luffing gear or the external devices. Thus, parallel operation of all movements is possible.

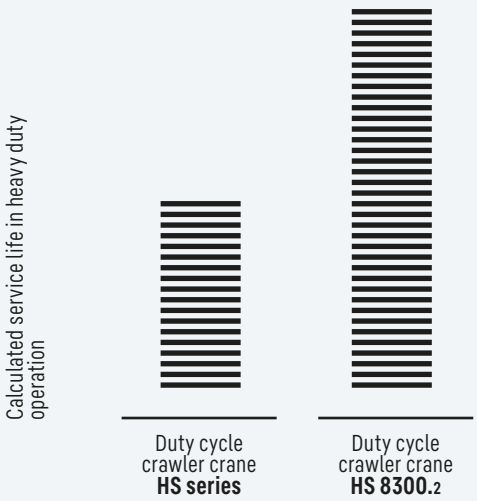
Self-assembly system

No additional auxiliary crane is necessary for the assembly of duty cycle crawler cranes. All components, such as crawlers and counterweight, have a space-saving design. These can be autonomously assembled using the sophisticated self-assembly system.

Designed for maximum service life

During the design phase of the HS series, Liebherr particularly focused on extending the product service life. Therefore, the steel construction of the basic machine has an extremely solid design. Furthermore, special production methods including the use of automated welding robots, ensure an increased service life even under extreme operational conditions.

Since the HS 8300.2 must endure especially high dynamic stresses during dragline or dredging operation, the steel construction was strengthened considerably. This not only increases the performance but also doubles the service life in comparison with the standard series.




HS 8070

Duty cycle crawler crane HS 8300.2

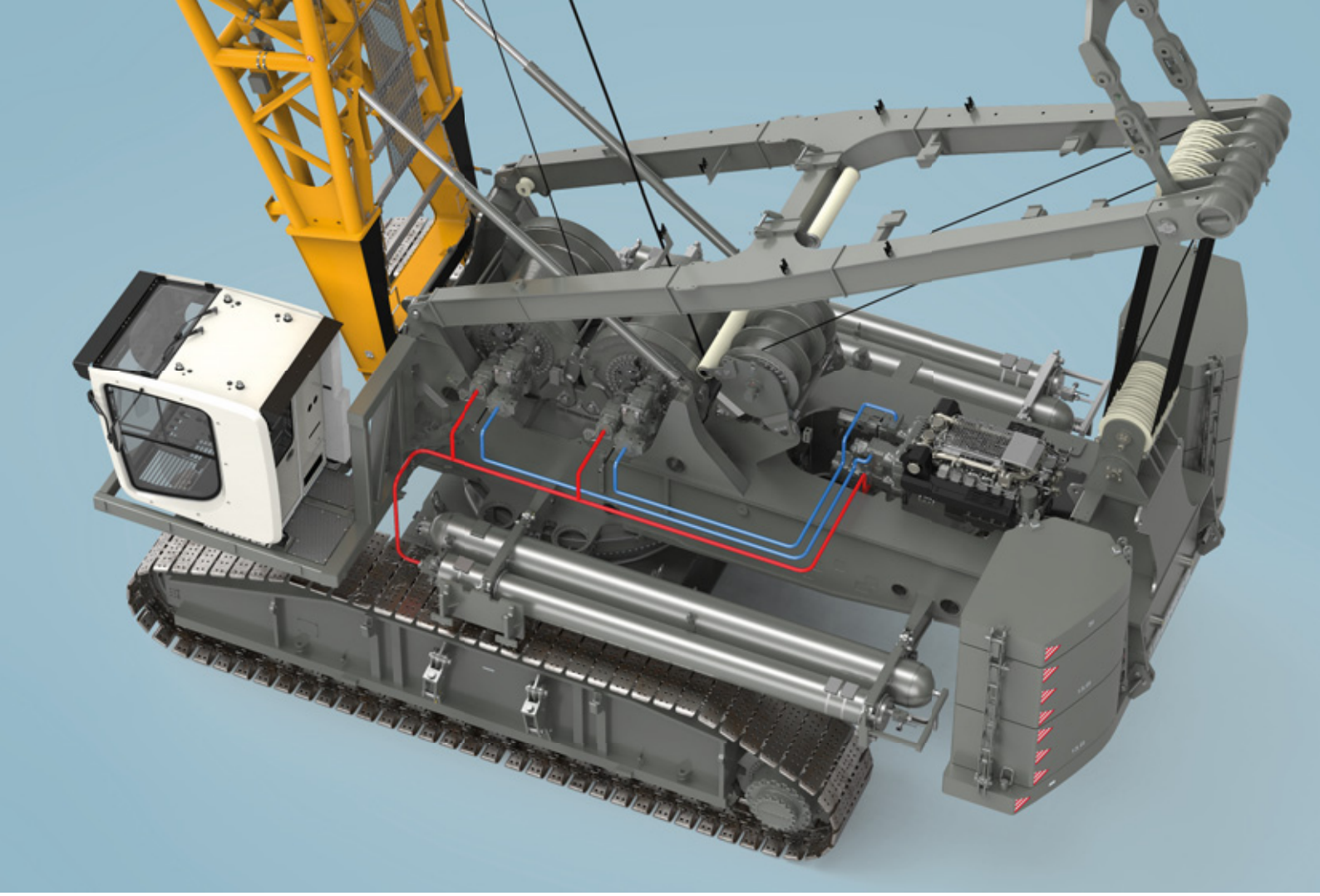
Highlight

With an operating weight of 350 tonnes, the HS 8300.2 from Liebherr is one of the largest duty cycle crawler cranes available. It can be equipped with various high-volume dragline buckets and grabs.

A modern drive system, consisting of a 725 kW V12 diesel engine and an innovative hydraulic concept, ensures economic machine operation. Optionally, the duty cycle crawler crane can be fitted with a hydraulic hybrid drive system. Through the storage and subsequent reactivation of surplus energy the turnover can be increased and, at the same time, the fuel consumption can be significantly reduced.

In the design phase of the HS 8300.2 Liebherr paid particular attention to an extended service life. The uppercarriage has a box design and is mounted on a large undercarriage. This composition ensures stability and is suitable for dynamic continuous performance. The service life of the HS 8300.2 has been doubled in comparison with that of the standard series.

On the high seas
Video



Hybrid technology Pactronic®

With the hydraulic hybrid drive Pactronic®, Liebherr has introduced an innovative technology to the market, which has already proven itself for mobile harbour cranes. The HS 8300.2 is the first duty cycle crawler crane that can be fitted with this innovative hybrid drive. The drive, which is based on hydraulics, offers both economic and environmental advantages. Surplus energy is stored and subsequently reactivated. Thereby, the handling performance is increased and, at the same time, the fuel consumption is reduced.

HS 8300.2 hybrid

- revolutionary hydraulic hybrid drive - significant improvement in the hoisting and lowering speeds
- 725 kW diesel engine enables 800 kW on the hook as well as a system performance comparable to a conventional drive system with 1250 kW
- enhanced turnover through improved hoisting and increased lowering performance
- proven technology from the series of Liebherr mobile harbour cranes

Advantages of Pactronic® at a glance

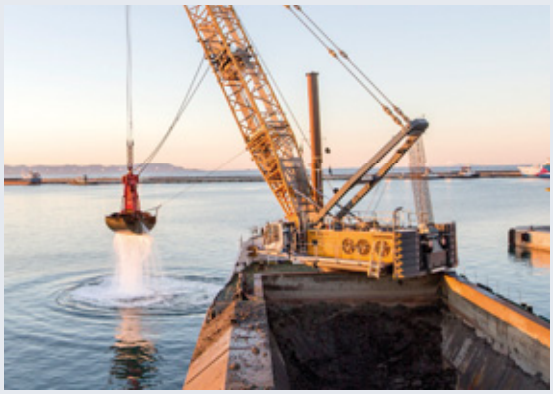
- increased efficiency through improved hoisting and lowering performance
- higher hook capacity
- higher winch speeds and shorter working cycles
- reduced fuel consumption and therefore less CO_2 emissions
- less noise emission
- reduction in maintenance costs

Applications

The HS 8300.2 can be equipped with various high-volume dragline buckets and grabs. The duty cycle crawler crane is suitable for various material handling and excavation applications, for example, dredging or topsoil excavation in surface mining.

Mining

Fitted with a dragline bucket or various clamshell grabs, the HS 8300.2 is deployed to remove topsoil or for recultivation in surface mining.



Dredging

Typical dredging assignments include so-called “maintenance dredging”, which involves the removal of sediment in estuaries or harbour areas using mechanical or hydraulic clamshell grabs.

Extraction of material

The 300-tonne duty cycle crawler crane is deployed to excavate various bulk materials such as sand and gravel. In dragline operation the duty cycle crawler crane convinces with high performance turnover.

Those certain extras

Operator comfort

Modern cabins

With Liebherr machines, the focus is on the operator. High operator comfort makes the handling of the duty cycle crawler cranes considerably easier. The innovative design of the cabin sets new standards in the construction industry regarding ergonomics, interior fittings and air conditioning. Furthermore, the optimum visability from the cabin allows for precise and safe operation.

Optimized visibility
Safety on site is Liebherr's highest priority. An unobstructed view from the cabin combined with a camera system for all working areas ensures this important factor.

Sunshade
A standard sliding window and sun-shade serve as additional features for improving comfort.

Comfortable operator seat
The orthopaedic seat with automatic adjustment can be heated or cooled as required.

Ergonomic operating elements
All operating elements including redesigned joysticks, control buttons and pedals are ergonomically arranged and allow for precise control of all machine movements.

Ingenious interior

An optional cooler for provisions, various storage areas and surfaces, as well as a holder and USB port for mobile phones are all within easy reach of the comfortable seat.

Transport and set-up

Focus on cost-efficiency

Special attention was given to the uncomplicated and economic transportation of Liebherr's duty cycle crawler cranes. Thanks to minimum set-up work, the machine can be quickly mobilized between jobsites so promoting economic deployment.

Easy transportation and straightforward set-up

All components in Liebherr's duty cycle crawler cranes have a space-saving design and weights are optimized so allowing for smooth transportation on all roads in accordance with current international transport regulations. Pendant straps and pins remain in the intended mountings during transportation so speeding up assembly.

The smaller duty cycle crawler cranes can be transported in one piece so reducing assembly and disassembly work to a minimum. By larger models the basic machines are transported without the crawlers. First of all, the uppercarriage is unloaded independently using a jack-up system, whereby the duty cycle crawler crane is supported by hydraulic jack-up cylinders. Subsequently, the uppercarriage unloads the crawlers, counterweight, and boom sections using either its A-frame or boom foot. Hydraulically activated pins, quick connections and a rope winch simplify and accelerate the assembly process.

Intelligent assembly
The self-assembly and self-loading systems provide for assembly and disassembly of the machines without the need of an additional auxiliary crane.

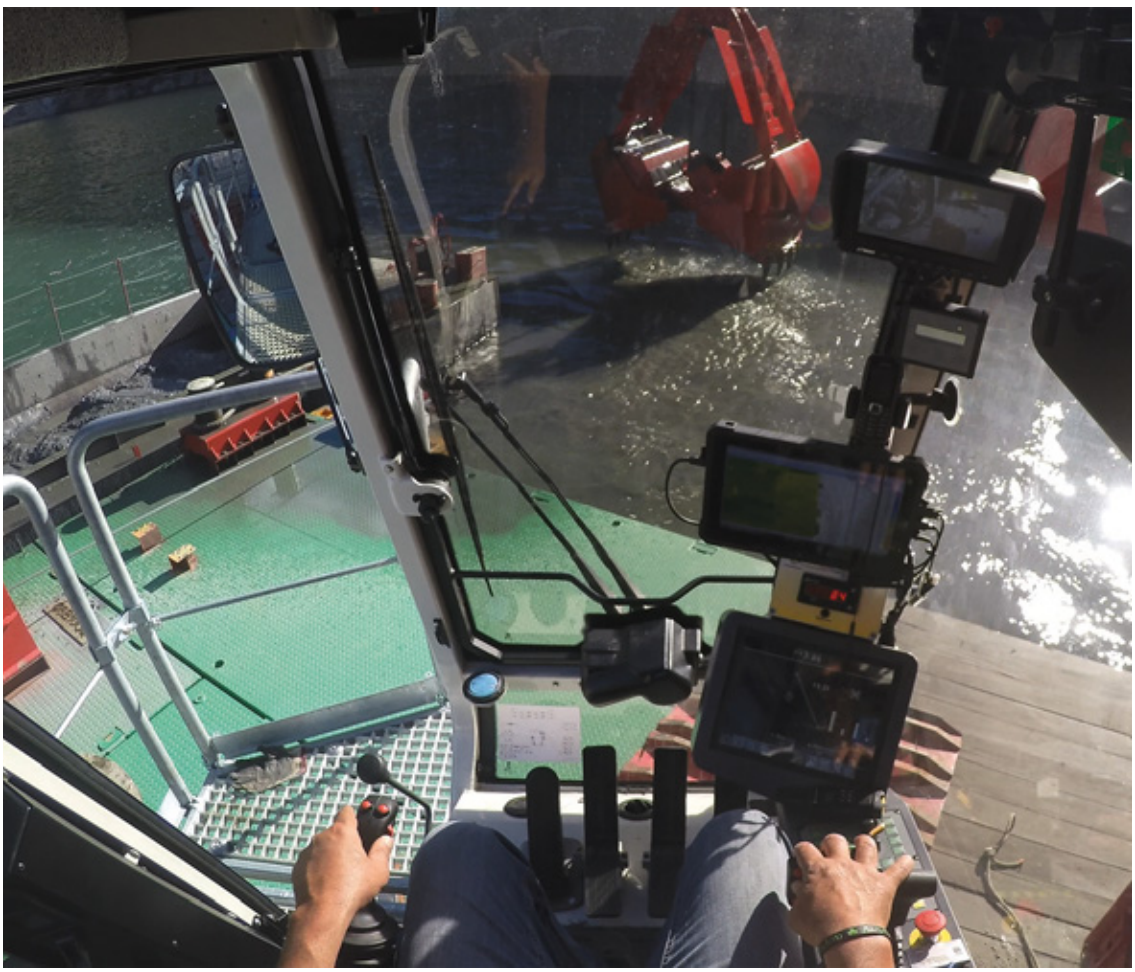
Unloading the counterweight
With the aid of the boom foot the duty cycle crawler crane unloads and installs the counterweight autonomously.

Quick set-up
All boom configurations can be erected by the duty cycle crawler cranes themselves within a very short time.

Safe access
Platforms, railings and ladders are wholly integrated in the machine design and no longer need to be dismounted for transportation.

Control and assistance systems

All control and assistance systems are user-friendly solutions from Liebherr - including the Litronic® control system, the core of the duty cycle crawler cranes. All information regarding service and machine is clearly displayed on a colour monitor. This also includes the electro-hydraulic proportional control for precise operation. A range of control assistance systems, which facilitate machine operation and allow for short working cycles, is available for material handling applications.



Dredging Assistant

The dredging assistance package supports the operator in his work and simplifies handling in grab operation. This increases safety, minimizes rope wear, and improves the turnover.

Dragline control (Interlock control system)

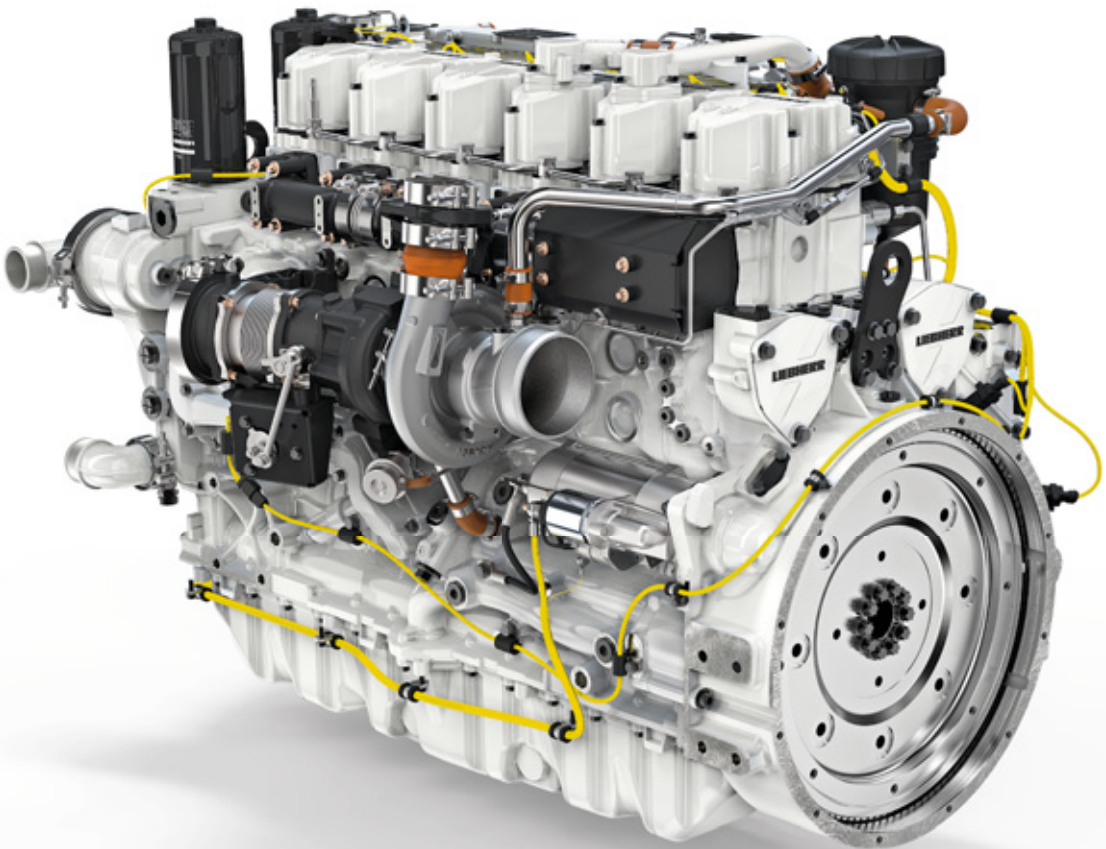
The Interlock control system allows for power regeneration in dragline operation. This reduces the fuel consumption as well as the wear of the free-fall winch.

Explanatory video

Fuel costs matter

Reduction of noise emission and fuel consumption

The latest drive and control systems help to reduce fuel consumption and emissions, and at the same time increase the reliability and performance of deep foundation machines.



Duty cycle crawler cranes are fitted with Liebherr's own diesel engines. All diesel engines complying with Stage IV/TIER 4f have a reduced engine speed of only 1,700 rpm. This means fuel savings of about 5 % in comparison with previous engines.

Engine functions for increased efficiency

Downsizing of the engine

Thanks to the machine's optimized hydraulic system the size of the primary source can be reduced without negative effects on the turnover. The efficiency is thus significantly increased while the fuel consumption is decreased.

In the new duty cycle crawler crane HS 8130.1, for instance, the engine power has been reduced to 505 kW compared to 670 kW in the preceding model.

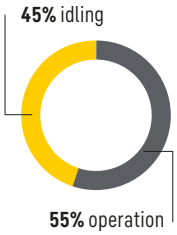
Automatic Engine Stop Control

This control system switches the engine off automatically during longer idling periods, after having checked certain system functions.

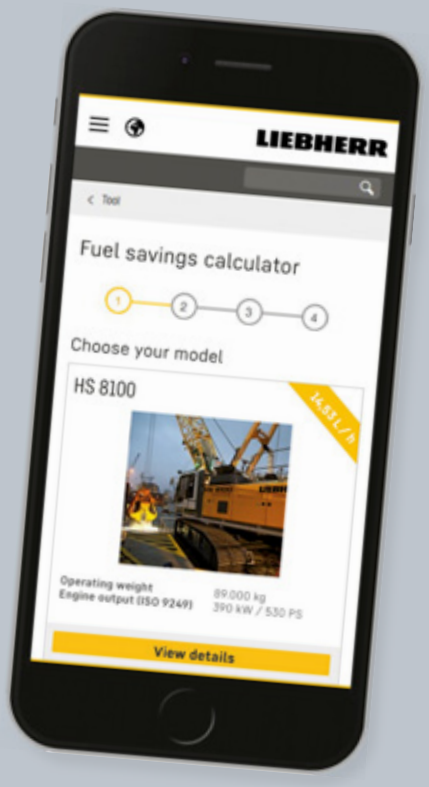
Eco-Silent Mode

With the aid of this feature the engine speed is reduced to a required predefined level.

Lower engine speed while idling



Duty cycle crawler cranes are in idling mode for 45 % of their operating time. With the lowering of the engine speed from 950 rpm to 750 rpm while the machine is in idling mode, up to two litres of fuel can be saved per hour.



Fuel savings calculator

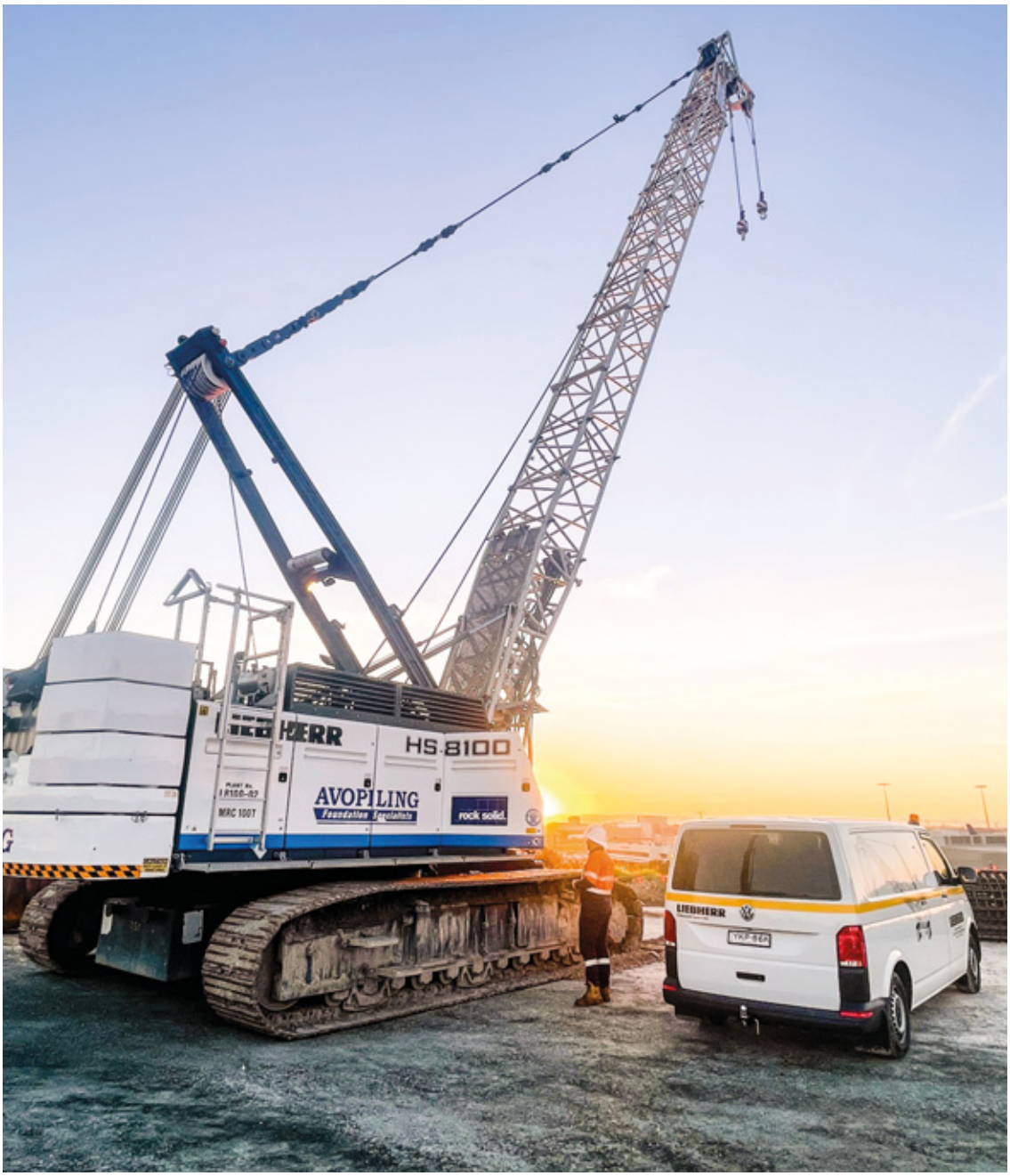
Check how much fuel you can save! Compare your consumption with worldwide fleet values.

Further information

Customer service

Your reliable service partner

The combination of customer focus, high quality, innovation, and commitment ensure the highest level of service. Based on many years of experience, we offer you effective support in all matters worldwide.



Further information

Technical support and field service

Professional field engineers provide support from the moment the machine leaves the factory and accompany it throughout its whole service life. Whether ad hoc or on a contractual basis, they have the knowledge and equipment to solve every problem. Immediate assistance and fault analysis are also possible via audio-visual connection. In order to provide the best possible service around the world, continuous improvement and expansion of the service network is one of our most fundamental commitments.

Parts and service products

Liebherr original spare parts are optimally suited to Liebherr machines and fulfil the highest quality standards. This significantly increases efficiency and value retention of your machine. The availability of cost-effective new parts is ensured over the lifetime of your machine. A wide range of products that support you in your daily tasks is also available.

All parts and products can be viewed and ordered online to provide round-the-clock service.

Applications

Download brochure

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