

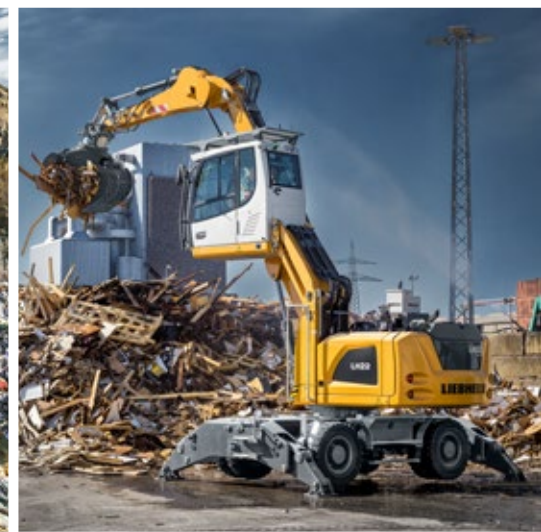
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# Waste management

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## LIEBHERR

Material handling



# Liebherr specialized machines for waste management

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Recycling is a rapidly developing industry. Recently, many waste disposal companies have advanced from being generalists to becoming highly specialized in recycling operations. This shift has created a new set of challenges for the machines utilized in the industry. Liebherr conquers these challenges by developing machines and equipment options for a variety of applications. Since Liebherr manufactures and engineers a variety of components internally, its machines possess efficient, consistent operating systems. During the development of these components, the future application of the machine is taken into account, so that the components and attachments are adequately prepared.

The material handlers and loaders have the ability to sort, separate and load all industry materials efficiently. The wide variety of applications they serve, establish the Liebherr waste management machines as the preferred product in the recycling and waste management industries. In addition to state-of-the-art diesel-powered material handlers, Liebherr also offers environmentally friendly and economical alternatives with electric drive.

- Material Handling Machines
- Wheel Loaders
- Crawler Dozers
- Crawler Loaders





# Material handling machines

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## Performance

Since the recycling industry is so diverse, the generation of Liebherr material handlers were developed for a wide range of industry tasks. Liebherr material handlers have the ability to load, move, pile, feed, or sort waste products of all kinds. The integration of maneuverability with the machine hydraulics allow for powerful, efficient, and precise movements during tasks.

## Economy

The existing generation of material handling machines are powerful, while remaining efficient. The Group achieves this standard of efficiency by utilizing its own internal components which are highly compatible with the controlled hydraulics in the machine. Liebherr relies on state-of-the-art engine technology with intelligent machine controls that optimize the interplay of the drive components in terms of efficiency. In addition to diesel-powered machines there are a number of electric drive material handlers in the range which guarantee extremely low operating costs. They are very environmentally friendly, completely emission-free and therefore independent of statutory exhaust emission standards. For conventional machines Liebherr-Power Efficiency (LPE) enables machine operation in the area of lowest specific energy use for less consumption and greater efficiency with maximum performance.

## Reliability

Liebherr material handling machines ensure smooth waste handling operations through their durable design. In areas with high air or dust contamination, the machine's filters and coarse matrix radiators ensure the machine remains in top operating condition. The engine hydraulic and electronic components, slew ring, swivel drive and steel structure are developed, tested and produced by Liebherr. In-house production of these high-quality components ensure long service life and maximum machine availability. The attention to quality provides superior reliability.

## Comfort

The Liebherr cab gives the operators the necessary space to make the best possible use of the machine's capability. Large glass panels, different types of cab elevations and rear and side area monitoring enable the operator an optimum view of the working area and the area around the machine at all times. Thanks to the low sound emissions and the lack of vibrations, the electric handling machines are particularly quiet and increase the working comfort significantly. Additionally, the Comfort driver's seat, the intuitive touch-screen color display, and central lubrication systems for the machine and its attachments offer the necessary convenience for operators to focus on what is important – the handling capacity.

## Maintainability

The service-based machine design guarantees short servicing times, minimizing maintenance costs and downtimes. All the maintenance points are easily accessible due to the large, wide-opening service doors. The enhanced service concept places the maintenance points close to each other and reduces their number to a minimum so service work can be completed quickly and efficiently.

# Material handling machines overview

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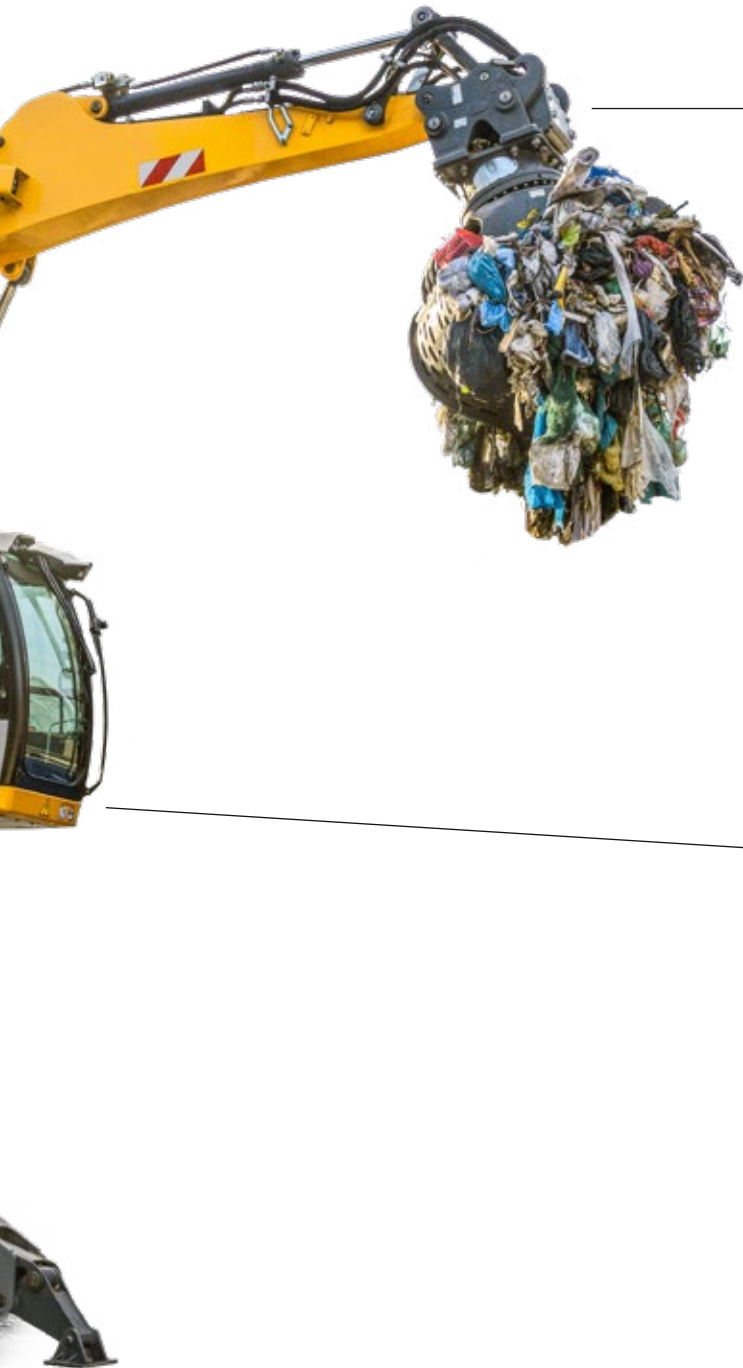
## Uppercarriage

- Greater energy efficiency due to the latest engine technology with intelligent machine control
- Optimal engine output and high pump flow for fast work cycles, convincing dynamics and maximum handling performance
- Recycling package with reversible fan, air pre-filter with dust trap and external air conditioning condenser to ensure high machine availability
- Optimized servicing concept and cleverly designed maintenance access points guarantees minimum machine downtime

## Undercarriage

- Various undercarriage options available including one with a dozer blade to further increase machine versatility
- Central lubrication system manual or fully automatic for more productive working time
- Standard load holding valves fitted on all support cylinders for maximum stability in every application
- Less downtime due to maintenance free support cylinders





## Equipment

- High load capacities and extensive reach due to optimized kinematic properties and robust construction for greater handling performance
- Ingenious routing of hydraulic hoses optimizes the oil flow and minimizes power losses for maximum energy efficiency
- Pipe fracture safety valves on hoist and stick cylinders and retract stick shut-off for maximum safety during every application
- Quick coupling systems and attachments made by Liebherr for maximum machine capacity utilization and greater handling performance

## Cab

- Joystick steering without steering column to provide convenient operation, greater legroom and clear view of the working area
- Less strain on the operators and workers and reduced environmental pollution due to lower noise emissions
- Optimum visibility due to large glass surfaces and standard rear and side area monitoring with camera
- Standard proportional control with 4-way mini joystick provides greater precision, high precision control and functions

# Technical data

		LH 18 Industry Litronic	LH 22 Industry Litronic
Variants		M	M / C
System performance		-	-
Reach	ft in	29'6"	36'1"
Operating weight*	lb	approx. 37,500-39,700	approx. 42,300-48,900
Engine output	kW / HP	105 / 141	105 / 141
Emission stage	Stage	Tier 4 Final	Tier 4 Final
Sorting grab capacity	yd <sup>3</sup>	0.52-0.92	0.52-1.44
Multi-tine grab capacity	yd <sup>3</sup>	0.52	0.52-0.78

		LH 24 Industry Litronic	LH 26 Industry Litronic
Variants		M	M / C
System performance		-	105 <sup>1)</sup>
Reach	ft in	39'4"	42'8"
Operating weight*	lb	approx. 50,000-51,100	approx. 53,400-61,500
Engine output	kW / HP	110 / 148	90 <sup>1)</sup> 115 / 157
Emission stage	Stage	Tier 4 Final	Tier 4 Final
Sorting grab capacity	yd <sup>3</sup>	0.65-1.44	0.65-1.44
Multi-tine grab capacity	yd <sup>3</sup>	0.52-0.78	0.52-0.78

		LH 30 Industry Litronic	LH 35 Industry Litronic
Variants		M / C	M
System performance		-	-
Reach	ft in	45'11"	49'3"
Operating weight*	lb	approx. 58,400-66,600	approx. 67,700-70,300
Engine output	kW / HP	140 / 188	140 / 188
Emission stage	Stage	Tier 4 Final	Tier 4 Final
Sorting grab capacity	yd <sup>3</sup>	0.98-1.50	0.98-1.50
Multi-tine grab capacity	yd <sup>3</sup>	0.52-0.78	0.52-0.78

M = Mobile

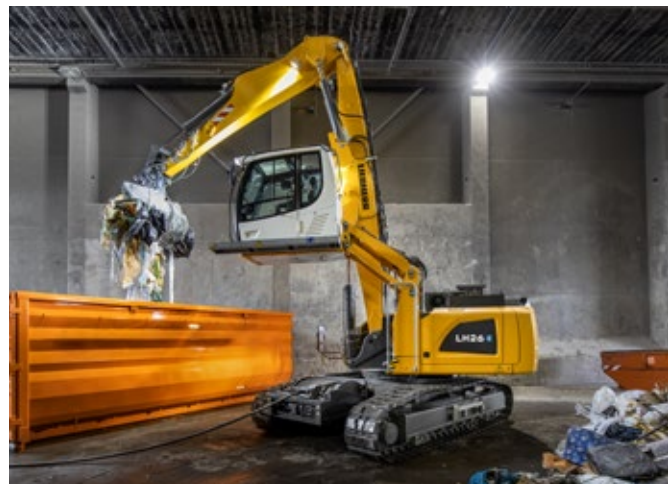
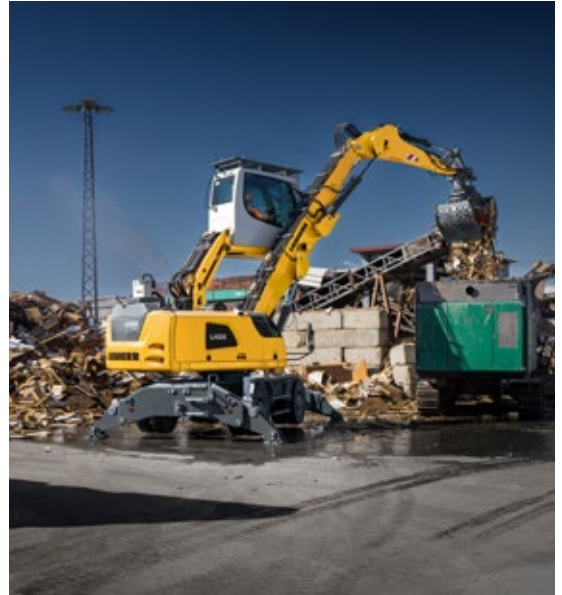
C = Crawler

\* without attachment

<sup>1)</sup> only with electric

# Examples of use

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# Wheel loaders

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## Performance

A wide range of products ensures the versatile and universal operation of Liebherr wheel loaders in the field of waste management. In addition to the different types of machines, you can choose between industrial and Z-bar kinematics with the L 550 – L 566 XPower wheel loaders and the L 580 XPower. This means the right machine is always available for the specific operation such as loading and compacting bulk goods in high “walking floor” containers. This increases the utilization of the machine and increases productivity.

## Economy

The innovative drive concepts of the Liebherr wheel loaders reduces fuel consumption by 30%. The drive concept also creates minimal tire and brake wear at the maximum handling capacity. This feature is highly beneficial in reducing the fuel and servicing costs for customers.

## Reliability

Liebherr wheel loaders meet quality expectations in tough working conditions since many of its components were internally designed to work in synergy. Customers benefit from these expertly designed components, seeing that they can place high reliance on the machine.

## Comfort

The modern, ergonomic cab design provides the maximum comfort level to operators, allowing productivity to become the main focus. The cab's control lever allows accurate control of the machine, ensuring safe and precise operations. A comprehensive level of visibility is presented to the operator through the large surrounding cab windows. These features provide safety, comfort and productivity during applications, which benefit the customer.

## Maintainability

The Liebherr wheel loaders include easily accessible service points lowering maintenance costs and time for the customer.

# Wheel loaders L 526 – L 580 XPower overview

## Maximum operator comfort for greater productivity

- Automatic central lubrication system\*
- Liebherr control lever with mini joystick\*
- Joystick steering\*
- Operator's cab without steering wheel / steering column – joystick steering only\*
- Liebherr weighing system with "Truck Payload Assist"\*
- Ride control
- Preparation for protective ventilation and dust filtration device\*
- Stroke limit damping\*

## Highest level of performance

- Industrial lift arm or Z-bar linkage (L 550 – L 580\*)
- High Lift arms\*
- Solidlink quick coupler
- Programmable automatic bucket return
- Programmable automatic lift and lowering arm position
- Comprehensive range of special equipment for waste management\*
- Electronic tractive force regulation

## Robustness and quality for durable machines

- Tilt cylinder protection\*
- Lamp carrier in steel design (L 526 – L 546 as standard / L 550 – L 580\*)
- Guard for headlights\*
- Integral tire pressure monitoring system\*
- Special tires for waste management\*

\*optional





## Productive and safe working

- Soundproof ROPS / FOPS cab
- Windscreen guard\*
- Additional working lights, front / rear\*
- Adaptive working lighting\*
- Roof camera for front area monitoring (with Liebherr camera via Liebherr display)\*
- Skyview 360°\*
- Visualization of the equipment position
- Liebherr key with remote control incl. Coming Home / Leaving Home function (L 550 – L 580\*)

## Short service times for greater productivity

- Radiator easy to maintain
- Particle protection for radiator\*
- Large-mesh radiator (L 526 – L 546 as standard / L 550 – L 580\*)
- Reversible fan drive
- Air pre-cleaner\*
- Turbocharger insulation (L 550 – L 580\*)
- Dust protection for alternator\*

## Productive and safe working

- Anti-slip steps and sturdy handrails
- Rear space monitoring camera via Liebherr display
- Active personnel detection at the rear\*
- Reversing obstruction detector\*
- Back-up alarm audible
- Back-up alarm visual\*

## Robustness and quality for durable machines

- Crash protection, rear\*
- Crash protection, rear with guard (L 526 – L 546\*)
- Ramming guard with guard (L 550 – L 580\*)
- Chassis protection\*
- Widening for mudguard\*

# Technical data

		<b>L 526</b>	<b>L 538</b>	<b>L 546</b>
Tipping load	lb	11,090–19,245	13,715–21,275	15,720–24,275
Bucket capacity	yd <sup>3</sup>	2.6–7.2	2.9–8.5	3.4–9.8
Operating weight	lb	29,035–32,560	32,010–35,385	33,975–37,410
Engine output	kW / HP	116 / 156	129 / 173	138 / 185
Emission stage	Stage	Tier 4 Final	Tier 4 Final	Tier 4 Final

		<b>L 550 XPower</b>	<b>L 556 XPower</b>	<b>L 566 XPower</b>
Tipping load	lb	18,300–27,560	20,505–30,315	26,675–35,055
Bucket capacity	yd <sup>3</sup>	3.4–12.4	3.7–13.1	4.6–15.7
Operating weight	lb	40,895–45,415	43,210–47,620	52,690–59,305
Engine output	kW / HP	163 / 219	183 / 246	203 / 272
Emission stage	Stage	Tier 4 Final	Tier 4 Final	Tier 4 Final

		<b>L 580 XPower</b>
Tipping load	lb	32,630–42,990
Bucket capacity	yd <sup>3</sup>	5.9–18.3
Operating weight	lb	60,960–66,360
Engine output	kW / HP	233 / 313
Emission stage	Stage	Tier 4 Final

# Examples of use

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# Crawler dozers

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## Performance

Liebherr crawler dozers are ideal for pushing, shredding, mixing, stockpiling and distributing all waste fractions on the landfill. At the same time, they compact the waste or do the prepwork for the compactors so that they can be used even more efficiently. In addition, bulldozers are used in all excavation work, such as site preparation or leveling of surfaces. The grids are specially designed for use on landfills and increase the shield volume and thus the thrust without restricting the driver's view. A range of optional equipment is available to protect and extend the life of the undercarriage and other components.

## Economy

Liebherr diesel engines offer performance and economic efficiency from the hydrostatic drive, which consumes a lower amount of fuel. The innovative cooling system enables the radiator to self-clean; this feature lowers maintenance and fuel costs for the customer.

## Reliability

Liebherr crawler dozers feature a wide range of protective guards for landfill applications. These prevent damage to the machine caused by oversized items of solid waste and reduce the dust and dirt contamination. This prolongs the service life of the machines and prevents unnecessary downtimes.

## Comfort

Liebherr crawler dozers offer operators a spacious and comfortable workspace. This cab provides a comprehensive view of the working area and equipment. The single lever control system, allows the machine to be controlled safely and precisely at all times.

## Maintainability

Liebherr crawler dozers have minimal maintenance requirements, however; posses easily accessible service points when needed. This service feature lowers maintenance time and costs for customers.

# Crawler dozers overview

## Operational safety

- The hydraulic fans cool when required to save fuel
- A hydraulic oil thermometer monitors the oil temperature constantly
- The reversible fans automatically clear the radiator of deposits

## Protection against contamination

- A pre-filter separates particles of dirt before they reach the air filter
- The external air supply provides the alternator with clean cooling air
- Seals at critical positions keep dust and dirt away from inside the machine

## Application-specific equipment

- Waste grille extensions on the blade increase its capacity
- Counterweights provide optimum balance even with heavy duty front equipment
- Rear rippers enable work to be carried out away from the rubbish tip





## Additional safety options

- Auxiliary headlights and rotating beacons
- Turbocharger cover
- Fire extinguishers

## Damage protection

- Solid protective plates prevent damage to the containers and tanks
- Special covers protect the hydraulic cylinders
- Rear scraper plates (not shown) prevent waste material from being drawn into the chain and causing damage

## Running gear components

- Base plates with trapezoidal holes and track drive segments with recesses prevent unwanted congestion of material in the running gear
- Protective rings on the final drive protect the double slide ring seal

# Technical data

		<b>PR 736 Litronic</b>	<b>PR 746 Litronic</b>
Operating weight	lb	46,738-56,218	57,100-69,446
Blade capacity	yd <sup>3</sup>	6.25-6.33	7.85-9.42
Engine output	kW / HP	160 / 217	190 / 258
Emission stage	Stage	Tier 4 Final	Tier 4 Final

		<b>PR 756 Litronic</b>	<b>PR 766 Litronic</b>
Operating weight	lb	78,044-94,799	117,859-119,784
Blade capacity	yd <sup>3</sup>	11.67-15.43	17,8
Engine output	kW / HP	260 / 353	310 / 422
Emission stage	Stage	Tier 4 Final	Tier 4 Final

# Examples of use

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# Crawler loaders

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## Performance

Whether its household or natural waste – Liebherr crawler loaders prove to be best all-around in the construction phase as well as in the operating and renovation phase. They can be used for the installation and pre-compaction of waste as well as for the application of surface layers, for material handling and for various auxiliary work. Crawler loaders with their high breaking forces are indispensable for sorting out bulky waste fractions or excavating loam or frozen soil. Their unmatched traction on unstable ground benefits them when pushing garbage, working on embankments or recovering trucks that have got caught.

## Economy

Due to their versatile application possibilities, low maintenance requirements and low fuel consumption, Liebherr crawler loaders are suitable as universal machines for smaller landfills or are as an integral part of the vehicle fleet at larger landfills. The bucket shape and volume, as well as the grid and cutting tool can be precisely adapted to the general conditions of the quality of the waste and cover material at the landfill. As an option, the machine can also be equipped with a rear ripper. The demand-driven hydraulics and reduced engine speed in ECOmode further reduce fuel consumption.

## Reliability

Liebherr has decades of experience in the development, design and manufacture of key components such as support frames, diesel engines, hydraulic cylinders, final drives and electrics. When used on landfills, extensive protective measures against dust, particles, deposits, alkalis or acids as well as bulky or falling material are added. Thanks to sophisticated technology and innovative detail solutions, Liebherr crawler loaders offer maximum availability and service life even under the toughest operating conditions.

## Comfort

The pressurized cab with powerful air conditioning, effective sound insulation, air-suspended seat, hydraulic cab suspension and optional windshield protection offers ideal conditions for safe, relaxed and productive work. The intuitive, sensitive single lever control and unobstructed view of the work equipment allow the operator to concentrate fully on their work.

## Maintainability

The long maintenance intervals and easily accessible service points of the Liebherr crawler loaders are of particular importance in intensive continuous operation at the landfill site, ensuring that they are ready for use at all times. For the user, a dense service network means short distances, optimum planning, high availability of spare parts and fast repairs. As part of the new Liebherr Reman range, components can be economically reconditioned to the highest industrial standards.

# Crawler loaders overview

## Safety

- Polycarbonate windscreen and protective grille made from impact resistant glass for increased safety of the operator, while maintaining clear view to the front
- Container protection made from solid steel provides protection of the hydraulic tank or AdBlue tank
- Hydraulic oil thermometer as gauge on touchscreen display

## Durably designed equipment

- Heavy duty tilt cylinder guard protects against falling parts
- Lift cylinder line guard for best protection of hydraulic lines as well as greater reliability of components in exposed areas
- Attachment grille for bucket increases bucket capacity and makes it easier to shift bulky material





## Maintenance concept

- Seal between basic unit and cab prevents the accumulation of dirt in cavities and niches as well as its penetration into the cab
- Fine grids on engine compartment doors reduce the penetration of small particles into the engine compartment
- Foldable and reversible fan for easy access to the radiator. Interval and duration of the reversible fan can be individually adjusted as needed
- The new air prefilter system cleans the intake air of dust and dirt particles, dust is discharged automatically from the main filter

## Detailed drive protection solutions

- Track shoes with a dirt hole avoid deposits, which can accumulate between the bushings and track shoes. Particularly effective in combination with gutted turrass segments
- End drive protective ring as additional protection for the double mechanical seal
- Scraper plate on rear for better self-cleaning of chain running gear

# Technical data

		<b>LR 626 Litronic</b>	<b>LR 636 Litronic</b>
Operating weight	lb	36,288–43,681	47,818–50,810
Bucket capacity	yd <sup>3</sup>	2.22–2.35	3.01–3.14
Engine output	kW / HP	110 / 150	135 / 184
Emission stage	Stage	Tier 4 Final	Tier 4 Final

# Examples of use

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# Strong partner – strong service

Our services tailored to your everyday challenges



## Saving time – for experts who face the challenges themselves

Hand in hand to the optimum solution. Would you like to maintain and service your machines yourself? Order the spare part you need quickly and flexibly, regardless of time and place, and be safe in the knowledge that you have selected the right part?

With the documentation available online and the spare parts store in MyLiebherr, you can access all the information you need with just a few clicks. Take advantage of the sophisticated logistics for fast delivery of the required items, naturally in original quality. So you can work efficiently. If you ever get stuck, our experts are just a phone call away.

## Transparency – so number crunchers always have an eye on availability, costs and much more

Modular maintenance packages and Reman components to suit your company and budget. Figures and their informative value are your specialty. You always want to keep an eye on ongoing investments and ideally be able to calculate and plan in advance what the costs and how available they are?

With Liebherr's CarePacks, you know in advance and in modular form what costs you will incur so that your machine can continue to deliver full performance tomorrow. We also have a clever and economical solution for older machines with our Reman program.



Further information, services and contact persons can be found at

# Reliability and support – for decision-makers and anyone looking ahead

It's not just short-term success that counts for you, you want to be successful in the long term. Success for you is not just your turnover, but also satisfied customers and a contribution to the successful conservation of resources?

Our dense service network offers consistency and predictability, now and in the future.

If necessary, our experts are available for you around the clock. With original parts and our service experts, we enable you to maintain the value of your machines. Our Reman program and lubricant product range offer you the opportunity to be economically successful while conserving resources.

## Some of our services for you in detail:



### Strong partner

It feels good to have a strong partner at your side. Thanks to our dense service network, our service experts are close to you. It's important to us that you have a personal contact person, because if the worst comes to the worst, it's good to know who can provide reliable help and advice.



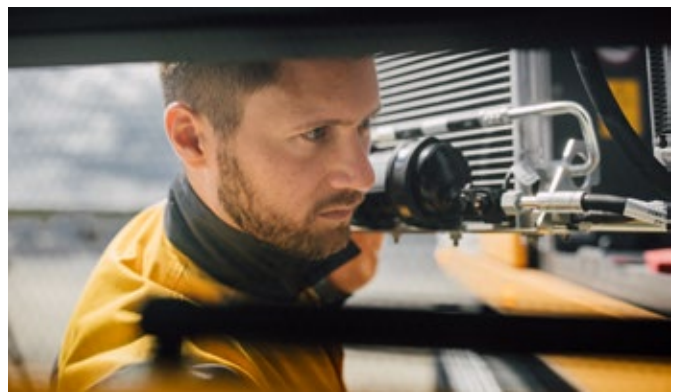
### Reman program

The same performance and quality as a new part, with simultaneous cost savings – that's what the replacement parts we offer you in our Reman program stand for. A large number of components are available on a daily basis. An ideal solution, especially for older machines, and at the same time you help to conserve resources by reusing parts.



### Lubricants

Our lubricant portfolio offers a range of products with which you can actively contribute to conserving resources – for example by using oils with longer change intervals or good environmental compatibility. This can also save you money.



### CarePacks

With our modular CarePacks, we offer you coordinated packages of services for a fixed amount. So you can concentrate on your work.

Liebherr Connect

# The networking of man, machine and environment

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## Networking in the digital world of Liebherr

Thanks to intelligent machine networking, Liebherr Connect enables access to digital services and comprehensive machine and process data. When using fleet and asset management systems, Liebherr Connect forms an essential basis for any type of component or machine condition monitoring. The solution also enables efficient data exchange and opens up a wide range of possibilities for further developing the machines and adapting them to individual customer requirements.

Liebherr Connect ensures that the machine is connected to the digital world via cloud applications – in almost all of the Group's product segments: earthmoving machines, material handling machines, mining, tower cranes, mobile and crawler cranes, maritime cranes and components. To help customers and partners throughout the entire life of an application, the Group provides the assurance to use all the benefits of modern technology with Liebherr Connect. This, in turn, allows users to optimise their work processes.



Further information on Liebherr Connect and digital solutions can be found here:



### MyLiebherr Portal

MyLiebherr is the portal for construction machines, mining machines, mobile and crawler cranes, maritime cranes, material handling technology, gear technology and automation systems or components.

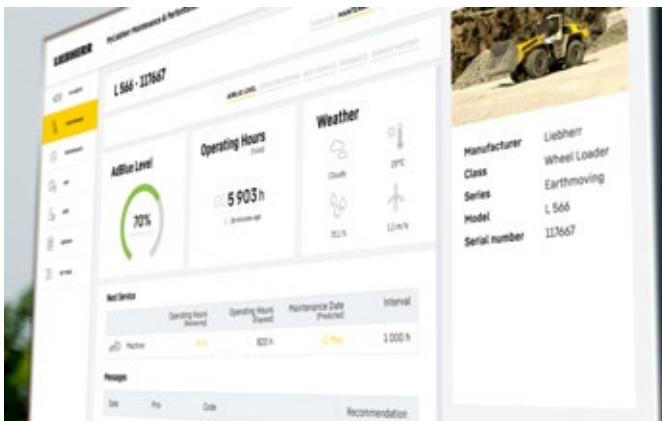
### One portal, all services

The customer portal offers comprehensive services, digital services and software solutions for efficient machine utilisation. Once registered, machines can be stored and managed, suitable spare parts can be ordered and licences can be purchased. In addition, a wide range of digital services are available for efficient machine utilisation. The range is constantly being revised and updated.



### MyLiebherr Performance

Always be well informed about the performance of your machines and attachments. MyLiebherr Performance is available for earthmoving and material handling machines in MyLiebherr. It enables plant managers in particular to recognise inefficient machine use, save fuel and reduce idle times. In combination with our extensive knowledge as a machine manufacturer, this solution can be used to reduce operating costs by means of optimisation suggestions to make machine deployment more efficient.



### MyLiebherr Maintenance

Stay up-to-date about the condition of your machines and attachments. MyLiebherr Maintenance is available for earthmoving and material handling machines in MyLiebherr. This service enables workshop managers to operate their fleet with maximum reliability. A particular advantage is that, in addition to proactive maintenance planning, specific recommendations for action are also provided. Customers benefit from the knowledge of an integrated technology group with expertise ranging from components to the entire machine. In short, MyLiebherr Maintenance helps to reduce or completely avoid unplanned machine downtime and reduce the time required for problem identification, assessment and resolution.

# The Liebherr Group



## Global and independent: more than 75 years of success

Liebherr was founded in 1949. With the development of the world's first mobile tower crane, Hans Liebherr laid the foundations of a successful family-run company which today comprises more than 150 companies on all continents with over 50,000 employees. The holding company of the Group is Liebherr-International AG in Bulle (Switzerland), whose shareholders are exclusively members of the Liebherr family.

## Technology leadership and pioneering spirit

Liebherr regards itself as a pioneer. This spirit has enabled the company to make a decisive contribution to the technological history of many industries. Today, employees around the world still share the courage of the company founder to take new paths. They are all united by a passion for technology and fascinating products and the determination to perform outstanding work for their customers.

## Widely diversified product program

Not only is Liebherr one of the biggest construction machine manufacturers in the world, it also provides high-quality, user-oriented products and services in a wide range of other areas. The product range includes the segments earthmoving, material handling, deep foundation, mining, mobile and crawler cranes, tower cranes, concrete technology, maritime cranes, aerospace and transportation systems, gear technology and automation systems, refrigerators and freezers, components and hotels.

## Customized solutions and maximum customer value

Liebherr solutions are characterized by maximum precision, outstanding implementation and exceptional longevity. Its mastery of key technologies enables the company to offer its customers customized solutions. For Liebherr, customer focus does not end with the product; it also encompasses a wide range of services that make a real difference.

[www.liebherr.us](http://www.liebherr.us)

## WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with exhaust system.
- Do not idle the engine except as necessary.

For more information go to [www.P65warnings.ca.gov/diesel](http://www.P65warnings.ca.gov/diesel).

## WARNING

This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information go to [www.P65warnings.ca.gov](http://www.P65warnings.ca.gov).