### Specialist machines for waste management

Material handling machines, electric material handling machines, wheel loaders, telescopic wheel loader, crawler dozers, crawler loaders



**Material handling machines** 











# Liebherr specialist machines for waste management

The recycling industry is growing rapidly and is changing. In recent years, many waste disposal companies have developed from generalists to highly specialised recycling operations. This has brought with it a whole new set of challenges to be met by the machines used in the recycling industry. Liebherr acknowledges this and develops machines and equipment options for every need and application. Because we manufacture many different components ourselves, for example engines, fuel injection systems, hydraulic cylinders, etc. which have to be optimally configured for each other, Liebherr offers extremely capable, yet efficient machines. Even during the development of these components, the requirements of future applications are taken into account to ensure that Liebherr specialist machines are optimally prepared for every feasible working situation. Liebherr material handling machines are used for a wide variety of tasks in the recycling and waste management sector. Mobile material handling machines, crawler material handlers, wheel loaders and telescopic wheel loaders, bulldozers and crawler loaders all sort, separate and load recyclables and solid waste quickly and reliably. These materials include glass, metal, wood, paper and agricultural waste, to name but a few.

- Material handling machines
- Electric material handling machines
- Wheel loaders and telescopic wheel loader
- Crawler dozers
- Crawler loaders











## **Material handling machines**



#### Performance

The recycling industry is highly varied. The generation of Liebherr material handlers are adept at a wide range of tasks: feeding a conditioner or crusher, loading and unloading trucks and containers, sorting materials and waste products and piling up and moving materials of all kinds. There are many challenges and Liebherr has the right solutions. The optimal interaction between the hydraulics and electronics guarantees fast and powerful movements when handling materials and at the same time sensitive and precise work for challenging sorting tasks.

#### Economy

The existing generation of material handling machines are powerful and efficient. Liebherr achieves this difficult balancing act with its own engine technology manufactured in-house and optimised to meet the requirements of controlled hydraulics. Liebherr relies on state-of-the-art engine technology with intelligent machine controls that optimise the interplay of the drive components in terms of efficiency. Liebherr-Power Efficiency (LPE) enables machine operation in the area of lowest specific fuel use for less consumption and greater efficiency with maximum performance.

### Reliability

Liebherr material handling machines ensure smooth operation in waste handling thanks to their sturdy and durable design. Equipment such as air filters with dust extraction, reversible fans or coarse matrix radiators have been especially developed for deployment in areas heavily contaminated with dust and also guarantee maximum reliability under these demanding conditions. Long service life along with maximum machine availability are also assured by the in-house production of all key components: diesel engine, hydraulic and electronic components, slew ring, swivel drive and steel structure, developed, tested and produced by Liebherr all at the high level of quality one would expect.

### Comfort

The Liebherr cab gives the operator the necessary space and comfort to make the best possible use of his or her machine's capability. Large glass panels, different types of cab elevations and rear and side area monitoring give the operator an optimum view of the working area and the area around the machine at all times. In addition, the Comfort driver's seat, the intuitive touchscreen colour display and central lubrication systems for the machine and its attachment provide the necessary comfort for the operator to allow him or her to concentrate on what is important – the handling capacity.

### Maintainability

The service-based machine design guarantees short servicing times, thus minimising maintenance costs. 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. This means that service work can be completed even more quickly and efficiently.

## Material handling machines overview

### Uppercarriage

- Greater fuel 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 thanks to maintenance free support cylinders





### Equipment

- High load capacities and extensive reach due to optimised kinematic properties and robust construction for greater handling performance
- Ingenious routing of hydraulic hoses optimises the oil flow and minimises 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 utilisation and greater handling performance

#### Cab

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



## **Technical data**

		LH 18 Industry Litronic	LH 22 Industry Litronic
Variants		М	M/C
Reach	m	9	11
Operating weight*	kg	approx. 17,000-18,000	approx. 19,200 - 22,200
Engine output	kW/HP	105/143	105/143
Emission stage	Stage	V/Tier 4 Final	V/Tier 4 Final/IIIA (compliant)
Sorting grab capacity	m³	0.40-0.70	0.40-1.10
Multi-tine grab capacity	m³	0.4	0.40-0.60

		LH 24 Industry Litronic	LH 26 Industry Litronic
Variants		М	М
Reach	m	12	13
Operating weight*	kg	approx. 22,700 - 23,200	approx. 24,200 - 24,500
Engine output	kW/HP	110/150	115/157
Emission stage	Stage	V/Tier 4 Final	V/Tier 4 Final/IIIA (compliant)
Sorting grab capacity	M3	0.50-1.10	0.50 - 1.10
Multi-tine grab capacity	m³	0.40 - 0.60	0.40 - 0.60

		LH 30 Industry Litronic	LH 35 Industry Litronic
Variants		M/C	M
Reach	m	14	15
Operating weight*	kg	approx. 26,500 - 30,200	approx. 30,700 - 31,900
Engine output	kW/HP	140/190	140/190
Emission stage	Stage	V/Tier 4 Final/IIIA (compliant)	V/Tier 4 Final/IIIA (compliant)
Sorting grab capacity	m³	0.75-1.15	0.75-1.15
Multi-tine grab capacity	m³	0.40-0.60	0.40-0.60

M = Mobile C = Crawler \* without attachment

### **Examples of use**











# Electric material handling machines

#### Performance

The electrically-powered material handling range has been specially developed to deal with the arduous demands of industrial material handling. A large spectrum of equipment and an uppercarriage optimised for extensive reach makes it possible to cater for all waste and cargo handling requirements. With all of its major components manufactured inhouse and combined with the power of an electric motor, the drive train output maximises the machine's performance in terms of lift capacity, precision and work pace. The scope of this high performing equipment is enhanced considerably thanks to a tracked undercarriage.

#### Economy

Investing in an electric material handling design pays dividends in the long term. Continually rising costs from conventional energies are a burden on operating costs and considerably reduce profit margins. Environmental factors and  $CO_2$  emissions, in particular, are growing in importance with the choice of engines / motors and working methods. With the electric drive system, Liebherr offers an economically beneficial alternative to conventional machines and, moreover, an eco-friendly solution. Furthermore, the material handling machine is always available because refuelling is unnecessary as are particulate filters and AdBlue.

### Reliability

With more than 30 years of experience in designing electric material handling equipment, Liebherr developed the existing models EP 934 C, EP 944 C and EP 954 C to comply with every demand from the market. The layout of the machines was completely revised due to the components of the electric drive system, which means the unit is more than just a conversion of a conventional diesel drive machine. All of the important components of the electric drive system have been integrated within the existing exterior dimensions of the uppercarriage. Liebherr electric material handling machines offer a high level of reliability so that they can consistently fulfil their key functions when deployed in industrial areas. The already long service life of the hydraulic components is further enhanced by the low noise electric drive system. The drive concept, with just one electric motor, ensures that the high voltage is limited to the range of the switch cabinet and drive system, the low voltage functions are capable of being enclosed in one terminal box.

### Comfort

To allow the operator to focus fully on his or her work and utilise the machine's maximum performance, all electric material handling machines feature an ergonomically designed driver's cab with a high level of comfort and good all-round vision. The new electric material handling machines offer the same level of comfort as conventionally-driven material handling machines (layout of control elements, operator's seat, climate control, large glazed surfaces, etc.). Thanks to low noise generation and the elimination of vibrations, the electric drive system provides greater comfort. For Liebherr, comfort also means easily accessible service and check points for all daily maintenance tasks on the machine in order to keep downtime to a minimum.

### Maintainability

The large, wide-opening service hatch allows optimal service access. All service points can be accessed conveniently and safely resulting in short servicing times for more productivity.

# Electric material handling machines overview



### **Cab elevation**

- Large range of fixed and hydraulically adjustable elevations
- Perfect view of the working area and surrounding area of machine

### **Spring base**

- Absorption of dynamic loads in order to be able to operate the machine safely on one pillar over the long term
- Number of platforms based on size of machineAssembly kit for customer
- (for concrete, steel)



### **Electric motor**

- Designed to withstand even extreme environmental conditions
- Constant speed whatever the load rating
- Integrated sensors for maximum availability

#### Integrated switchgear cabinet

- Designed to withstand even extreme environmental conditions
- Overpressure system to prevent ingress of dust
- Fastenings with standard padlocks
- Robust and durable

#### Access

- In series production, safety and comfort for accessing the workstation
- Secured anti-slip ladders

### Freestanding undercarriage with 4-point outrigger

- Consistent machine performance on interchangeable undercarriage
- Reduced ground space
- Modular and upgradeable

## **Technical data**

		EP 934 C Handling	EP 944 C Handling
Reach	m	13-20	15-22
Operating weight*	kg	39,100	51,900
Engine output	kW/HP	160/218	200/272
Capacity	m³	0.80-1.10	1.10-1.70

		EP 954 C Handling	ER 934 C Handling
Reach	m	16-24	12-16
Operating weight*	kg	64,500	38,050
Engine output	kW/HP	250/340	160/218
Capacity	M³	1.10-1.70	0.80 - 1.10

		ER 944 C Handling	ER 954 C Handling
Reach	m	15-18	15-20
Operating weight*	kg	52,050	75,400
Engine output	kW/HP	200/272	250/340
Capacity	m³	1.10-1.70	1.10 - 1.70

		ER 934 C High Rise	ER 944 C High Rise
Reach	m	13-20	15-22
Operating weight*	kg	56,200	73,400
Engine output	kW/HP	160/218	200/272
Capacity	m³	0.80-1.10	1.10-1.70

		ER 954 C High Rise
Reach	m	16-24
Operating weight*	kg	95,800
Engine output	kW/HP	250/340
Capacity	m³	1.10-1.70

		LH 26 Industry Litronic	
Variants		M/C	
Reach	m	13	
Operating weight*	kg	approx. 26,200 - 27,900	
Engine output	kW	90	
System performance	kW	105	
Sorting grab capacity	m³	0.50-1.10	М
Multi-tine grab capacity	m³	0.40 - 0.60	C : * \

M = Mobile C = Crawler \* without attachment

## **Examples of use**







# Wheel loaders and telescopic wheel loader

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#### Performance

A wide range of products ensures the versatile and universal use of Liebherr wheel loaders in the field of waste management. In addition to the different models, 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 application such as loading and compacting bulk goods in high "walking floor" containers. This increases the utilisation of the machine and thus increases productivity.

### Economy

The innovative drive concepts of the Liebherr wheel loaders reduces fuel consumption by up to 30%. In addition there is minimal tyre wear and hardly any brake wear, at maximum handling capacity and efficiency, thus reducing operating costs and also protecting the environment.

### Reliability

Liebherr wheel loaders satisfy Liebherr's exacting standards in even the toughest conditions. They feature many components which are produced in-house and are therefore perfectly tailored to work in synergy. This ensures machine reliability and availability.

### Comfort

The modern, ergonomic cab design provides the operator with maximum comfort enabling them to concentrate on their work without fatigue, which once again means more safety and productivity. The Liebherr control lever allows precise and sensitive control of the machine. This ensures accurate and safe handling. The generous glass surfaces of the cab offer excellent all-round visibility thus ensuring maximum safety for people, the machine and the load.

### Maintainability

The Liebherr wheel loaders offer excellent service accessibility. All points for daily maintenance can be reached safely and conveniently. A clear benefit which saves time and money!

# Wheel loaders L 526 – L 580 XPower® overview

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### Maximum operator comfort for greater productivity

- Automatic central lubrication system (optional)
- Liebherr control lever with mini joystick (optional)
- Joystick steering or 2-in-1 steering (optional)
- Operator's cab without steering wheel / steering column – joystick steering only (optional)
- Liebherr weighing system with "Truck Payload Assist" (optional)
- Ride control (L 526 L 546 optional / L 550 L 580 as standard)
- Preparation for protective ventilation and dust filtration device (optional)
- Stroke limit damping (optional)

### Highest level of performance

- Industrial lift arm linkage or Z-bar linkage (L 550 L 566 and L 580 optional)
- High Lift arms (optional)
- LIKUFIX quick hitch (L 526 L 546 optional)
- Programmable automatic bucket return
- Programmable automatic lift and lowering arm position
- Comprehensive range of special equipment for waste management (optional)
- Electronic tractive force regulation

## Robustness and quality for durable machines

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



### Productive and safe working

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

### Short service times for greater productivity

- Radiator easy to maintain
- Fluff trap for radiator (optional)
- Large-mesh radiator (optional)
- Reversible fan drive (optional)
- Air pre-cleaner (optional)
- Turbocharger insulation (L 550 L 580 optional)
- Dust protection for alternator (optional)

#### Productive and safe working

- Anti-slip steps and sturdy handrails
- Rear space monitoring camera via Liebherr display
- Active personnel detection at the rear (optional)
- Reversing obstruction detector (optional)
- Back-up alarm acoustic / visual (optional)

### Robustness and quality for durable machines

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

## **Technical data**

		L 507 Stereo	L 509 Stereo	L 514 Stereo
Tipping load	kg	3,490 - 3,750	4,200-4,430	4,075 - 5,750
Bucket capacity	M <sup>3</sup>	0.9-1.6	1.2-2.0	1.4 - 3.5
Operating weight	kg	5,550-5,730	6,390-6,465	8,860 - 9,985
Engine output	kW/HP	50/68	54/73	76/103
Emission stage	Stage	V	V	V

		L 518 Stereo	L 526	L 538
Tipping load	kg	5,025-6,550	5,030-8,730	6,220-9,650
Bucket capacity	m³	1.5-4.0	2.0-5.5	2.2-6.5
Operating weight	kg	9,190-10,445	13,170 - 14,770	14,520 - 16,050
Engine output	kW/HP	76/103	116/158	129/175
Emission stage	Stage	V	V	V

		L 546	L 550 XPower®	L 556 XPower®
Tipping load	kg	7,130-11,010	9,800-12,500	11,000-13,750
Bucket capacity	m³	2.6 - 7.5	3.1-9.0	3.4-10.0
Operating weight	kg	15,410-16,970	18,550-20,500	19,600-21,500
Engine output	kW/HP	138/188	163/222	183/249
Emission stage	Stage	V	V	V

		L 566 XPower®	L 576 XPower®	L 580 XPower®
Tipping load	kg	12,100-15,900	17,400-17,600	14,800-19,500
Bucket capacity	m³	3.5-12.0	4.7-5.2	4.5-14.0
Operating weight	kg	23,900 - 26,900	25,700-25,800	27,650-30,100
Engine output	kW/HP	203/276	218/296	233/317
Emission stage	Stage	V	V	V

		L 509 Tele
Tipping load	kg	3,600 - 3,800
Bucket capacity	m³	0.9 - 2.0
Operating weight	kg	7,000 - 7,150
Max. payload, forklift	kg	2,300 <sup>1</sup> )
Max. lifting height, forklift	mm	4,800
Engine output	kW/HP	54/73
Emission stage	Stage	V

 $^{\rm 1})$  Maximum payload on even terrain = 80 % of the static tip load when articulated- in accordance with EN 474-3

### **Examples of use**











# **Crawler dozers**

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#### Performance

Liebherr crawler dozers are ideal for pushing, shredding, mixing, stockpiling and distributing all waste types 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, dozers 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 solid items 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**

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### 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**

		PR 736 Litronic	PR 736 Litronic
Operating weight	kg	20.000 - 24.900	21.200 - 25.500
Blade capacity	m³	12,7	12,7
Engine output	kW/HP	160/217	160/217
Emission stage	Stage	IIIA (compliant) / Tier 3	V/Tier 4 Final

		PR 746 Litronic	PR 746 Litronic
Operating weight	kg	25.900 - 31.500	25.900-31.500
Blade capacity	M³	16,7	16,7
Engine output	kW/HP	190/258	190/258
Emission stage	Stage	IIIA (compliant) / Tier 3	V/Tier 4 Final

		PR 756 Litronic	PR 756 Litronic
Operating weight	kg	35.400 - 43.000	35.400 - 43.000
Blade capacity	m³	19,8	19,8
Engine output	kW/HP	260/353	260/353
Emission stage	Stage	IIIA (compliant) / Tier 3	V/Tier 4 Final

		PR 766 Litronic	PR 766 Litronic
Operating weight	kg	16.225 - 54.187	53.460 - 54.333
Blade capacity	M³	28,7	28,7
Engine output	kW/HP	310/422	310/422
Emission stage	Stage	IIIA (compliant) / Tier 3	V/Tier 4 Final

### **Examples of use**



## **Crawler loaders**

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#### Performance

Whether its household or natural waste – Liebherr crawler loaders prove to be all-rounders 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 loamy 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 versatility, minimal 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 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 pressurised 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**

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### 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 turass 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**

		LR 626 Litronic	LR 636 Litronic
Operating weight	kg	16,460-19,360	21,690 - 23,047
Bucket capacity	m³	1.50 - 1.80	1.90-4.60
Engine output	kW/PS	110-150	135/184
Emission stage	Stage	V/Tier 4 Final	V/Tier 4 Final

### **Examples of use**





### Notes

### **The Liebherr Group**



#### Global and independent: more than 70 years of success

Liebherr was founded in 1949 when, with the development of the world's first mobile tower crane, Hans Liebherr laid the foundations for a family business now employing nearly 50,000 people and comprising over 140 companies across every continent.

The parent company is Liebherr-International AG in Bulle, Switzerland, whose associates are exclusively members of the Liebherr family.

#### Leaders and pioneers

Liebherr is a pioneer and its forward-looking approach has seen it make important contributions to technology history over a wide variety of industries. Employees throughout the world continue to share the courage of the founder, sharing a passion to produce innovative products and a determination to provide world-leading equipment and machinery.

#### **Diversified portfolio**

The company is one of the world's biggest construction equipment manufacturers and provides high-quality, user-oriented products and services to sectors including: earthmoving, material handling, deep foundations, mining, mobile and crawler cranes, tower cranes, concrete production and distribution, maritime cranes, aerospace and transportation, gear technology and automation, refrigeration and freezing, components and hotels.

#### **Customised care**

Liebherr solutions are characterised by precision, implementation and longevity. The company is committed to technological excellence and to providing customers with solutions that match their needs exactly. That customer focus does not end with delivery of a product but continues through a comprehensive range of back-up and support services.

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