LiReCon

Liebherr Remote Control

Safety. Comfort. Performance.

LIEBHERR

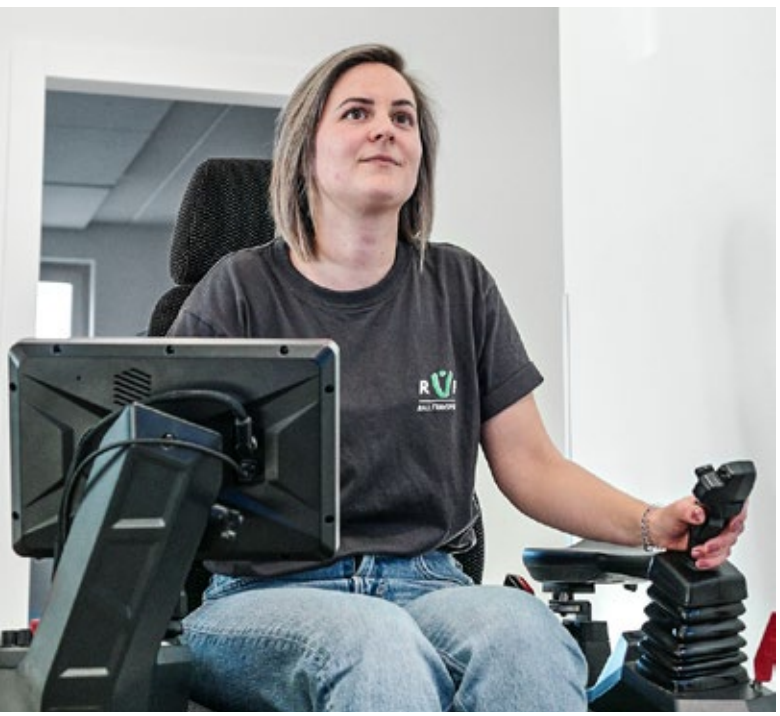
Crawler dozers



New perspective of safe and intelligent earthmoving

LiReCon is Liebherr's groundbreaking remote-control technology introduced for construction equipment, designed to merge safety, precision, comfort, and performance in the most demanding environments. The system enables operators to work from a secure, comfortable workspace while maintaining full control of the machine.

High-definition multi-camera feeds, integrated audio, and secure, encrypted connectivity deliver real-time visibility and responsiveness. Dozer operation has huge potential for remote operations since decades, and therefore represents an important benchmark for the technology. Operators can manage grading, ripping, and pushing tasks without exposure to dust, vibration, or hazardous terrain. In addition, remote operation supports more efficient shift changes, increased machine utilisation, and reduced idle time, contributing to lower operating costs.



LiReCon enables secure and convenient remote operation.



LiReCon expands the range of applications for Liebherr crawler dozers.

The construction site in transition

Today's construction sites involve countless interconnected processes, operators, supervisors, logistics teams, and machines working simultaneously. Traditional coordination via radio, printed plans, and on-site meetings often leads to delays and inefficiencies. As projects grow in complexity, lean construction principles demand transparency and responsiveness.

LiReCon supports this transformation by moving machine operation closer to planners and responsible decision-makers. By enabling teleoperation of Liebherr crawler dozers with real-time feedback, projects can be supervised and adjusted independently of location. Digital integration replaces outdated communication chains with precise, responsive workflows, reducing the need for travel, accelerating decision-making, and making projects faster, safer, and more predictable.

Modern construction sites are connected. LiReCon places the operators more at the center of construction site planning.




Work safe while keeping full control within reach. Manage operations from one location, from a secure, modern workspace.
LiReCon

What is LiReCon?

LiReCon, Liebherr Remote Control, is a fully integrated teleoperation ecosystem enabling a wide range of Liebherr construction machinery, tower and maritime cranes to be operated remotely. The state of the art teleoperation stand covers all aspects to remote control a machine with high-definition, multi-camera video, ambient machine audio, and optional person detection alerts.

Data is transmitted over secure connections on a wide range of different data-infrastructures, from short to long-rage applications. A low latency connection allows precise control at extended distances subject to network conditions, always keeping highest focus on safety. The system's modular design enables quick machine switching and rapid deployment. Engineered for adverse terrain and hazardous environments, LiReCon enhances safety, uptime, and digital integration.

LiReCon allows operators to work from a safe and ergonomic control station while maintaining full control over the machine. The system helps reduce exposure to hazardous environments such as steep terrain, demolition sites, mining areas or contaminated zones. By combining real-time machine feedback with intuitive operation, LiReCon increases operational flexibility and supports efficient work processes.



LiReCon integrates perfectly into existing construction site infrastructures and enables the operation of a wide variety of Liebherr construction machines.

Camera system

Each LiReCon dozer includes a multi-camera suite covering the blade, ripper, and surrounding environment. Real-time images from multiple angles are integrated through the SkyView™ system, providing operators with a complete 360° view of the machine and its surroundings. Integrated microphones deliver ambient machine audio, enhancing situational awareness and supporting safe, precise operation in challenging conditions.

High-contrast imaging with reliable low-light performance, combined with machine-integrated work lights, enables safe operation around the clock, including night shifts, in dust-intensive, contaminated, or snowy environments, significantly extending operational availability. Camera systems shown are examples of possible integration; monitors are not included.



The cameras for LiReCon are installed in a protected and damage-resistant manner, providing a clear view of the work environment.

Why remote operation?

Crawler dozers are frequently deployed in challenging environments where ground conditions, visibility, and operational safety require careful consideration. Steep slopes, uneven or soft terrain, dust, debris, and extreme temperatures are part of everyday operations. With LiReCon, the operator can remain in a secure, climate-controlled environment, even when the machine is working in hazardous areas. This innovative approach brings the work to the operator rather than requiring the operator to be physically on-site, ensuring that the dozer is always ready and available when needed while maintaining full operational control and keeping personnel safe at all times.

With LiReCon, dozers can be operated in areas that require increased caution, such as post-blast zones, restricted work areas, unstable embankments, or during landslide and disaster recovery operations. Essential tasks including grading, ripping, and pushing can be carried out without interruption, supporting consistent productivity. LiReCon ensures a safe and comfortable workspace to a remote location, allowing operators to manage machines safely and efficiently, while ensuring high availability and reliable performance on site.



Application spread

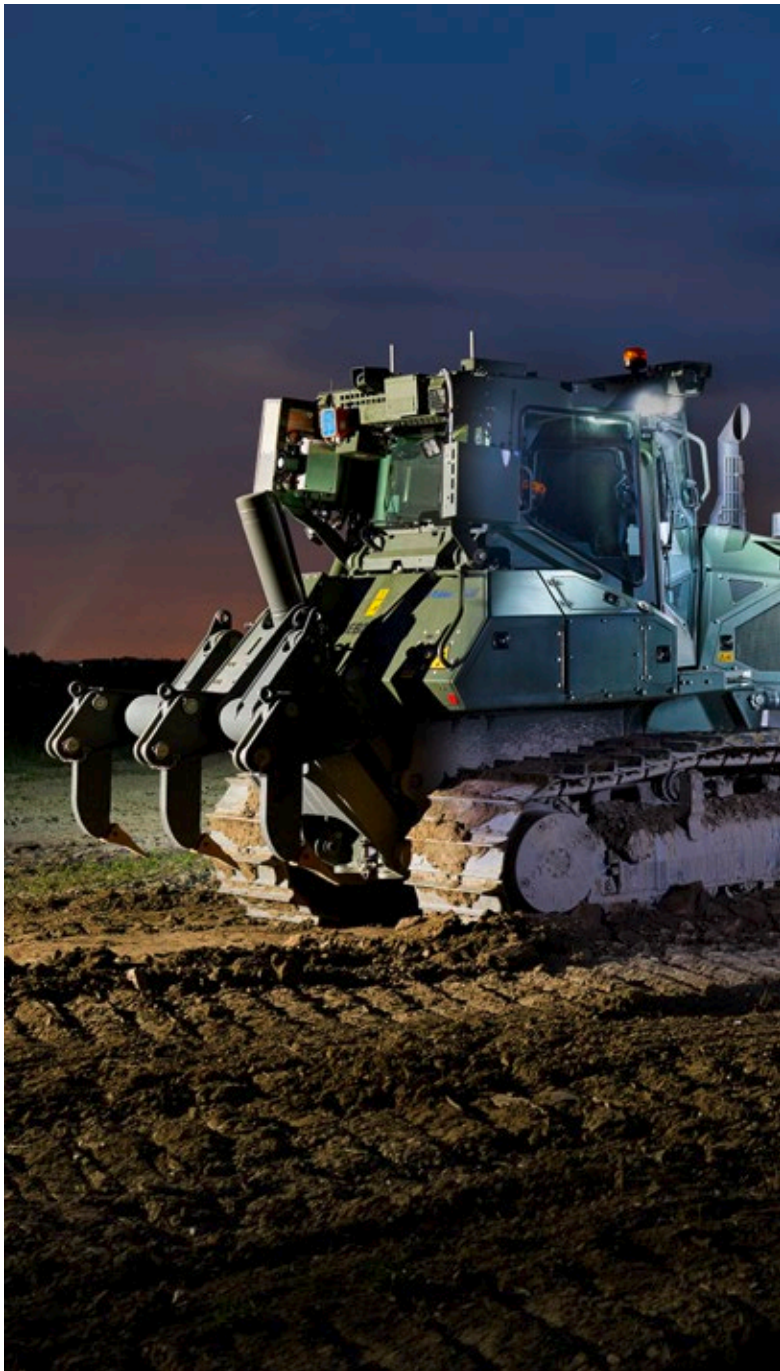
Mining Applications
In open-pit mining, crawler dozers maintain haul roads, form safety berms, relocate overburden, and support blasting activities, often in proximity to hazardous edges, unstable ground, or active blast zones. LiReCon mitigates these risks while keeping machines working at full capacity. Operators can resume work immediately after blasting or during adverse conditions, significantly increasing uptime. Remote operation also enables seamless shift changes, allowing continuous operation without machine downtime or operator relocation.

Specific tasks include blast pattern preparation, ramp and safety berm construction, pit floor cleanup, Run of Mine (ROM) management, pad and dump maintenance, overburden handling, and dam construction at controlled inclines. Remote operation supports consistent execution of repetitive tasks while reducing exposure during high-risk phases of the mining cycle.

Equally important is operator comfort and wellbeing. By relocating operators to a ergonomic workspace, LiReCon reduces exposure to vibration, dust, noise, and extreme temperatures. Fully adjustable seating, intuitive controls, and clear machine feedback improve concentration and precision, supporting sustained performance even during long shifts. This modernized operator environment not only enhances safety and productivity but also makes remote operation more accessible and attractive to a broader workforce.

Even during medium or light operations, when machines have standby periods, LiReCon enables more flexible and efficient planning of personnel and equipment. Tasks such as wheel loader operations or office-based supervision can be coordinated from the same LiReCon-station, optimising resource allocation across the site.

Heavy Construction & Infrastructure
Road construction, dam building, and large-scale earth-moving projects benefit from remote dozer operation where safety, precision, and continuity are important. LiReCon enables controlled operation along embankments, in flood-affected areas, or on unstable and soft ground where conventional operation would be limited or suspended. Real-time machine feedback and precise blade control allow operators to perform grading, cutting, and shaping tasks with high accuracy from a secure, centralized workspace.



Disaster Management
In exceptional situations, such as post-flood cleanup or landslide stabilization, remote operation can support disaster response activities by enabling early intervention while minimizing personnel exposure. Detailed disaster management use cases are addressed separately in dedicated government and defense applications.



The command station

The state-of-the-art LiReCon operator station brings the feel of a Liebherr cab to a secure, central command environment. Intuitive controls, including joysticks, armrests, and high-resolution multi-touch screens, give operators familiar machine handling, while live camera feeds, real-time machine data and diagnostics provide full oversight and control.

Designed for long shifts, the operator station removes personnel from on-site vibration, noise, dust, and temperature extremes. The LiReCon workstation improves operator well-being, concentration, and precision while supporting consistent performance in demanding applications. Ergonomic seating, fully adjustable monitors, and an intuitive layout reduce fatigue and support accurate machine control.

The LiReCon operator station integrates seamlessly into on-site or off-site working environments like cabins, containers, control towers, offices and central operation centers. It connects operators directly with supervisors, planners, and foremen, enabling instant communication and coordinated decision-making in a secure, connected workspace.

The centralized setup simplifies training and onboarding through supervised operation and guided learning, supports flexible workforce deployment, and helps prepare future dozer operators for highly automated construction environments.







Multi machine control

One Operator. Complete Site Control.
LiReCon allows a single operator to control different construction machines from one central station. Operators can switch seamlessly between machines, coordinating tasks site-wide from a construction cabin or container. This reduces downtime caused by travel between machines and locations, allowing work to continue uninterrupted across large or complex sites.

Real-time camera feeds, integrated sensors, and intuitive controls enable precise operation on different machines, while maintaining safety and efficiency. Supervisors gain full transparency of site activities, making it easier to plan, monitor, and adapt work as needed. By centralising control, LiReCon increases productivity, improves machine utilisation, and ensures projects stay on schedule without compromising safety or precision. This approach sets a reference for connected, multi-machine operations, demonstrating how Liebherr is shaping the next generation of construction workflows.



Safety & Operator assistance

LiReCon integrates advanced assistance systems that continuously monitor the machine, its surroundings, and operational performance. Features include proximity and person detection, slope indicators, automated blade control via Liebherr's assistance systems, and emergency stop protocols. Comprehensive sensor technology and multi-angle camera feeds give operators full situational awareness, allowing precise control from a safe distance while reducing the complexity of remote dozer operation. This enhances reliable execution of demanding tasks such as grading, ripping, berm construction, and overburden relocation across a wide range of challenging environments.

Safety is at the core of LiReCon, protecting both the machine and personnel. Built-in assistance systems prevent collisions and overloading, ensuring machine integrity during operations.

Remote operation directly improves operator safety by relocating the workstation away from hazardous zones. Operators are no longer exposed to vibration, dust, noise, extreme temperatures, unstable terrain, or post-blast environments, while still maintaining full control of the machine.

At the same time, ground workers benefit from increased separation from moving machinery and active work areas. Reduced personnel presence around operating machines lowers the risk of accidents and unintended interactions, particularly in confined, unstable, or visibility-limited environments. Real-time integration with digital site data ensures supervisors and planners maintain full visibility of operations, enabling proactive decision-making and reinforcing safety as a core principle of LiReCon.

Beyond safety, LiReCon enhances productivity across the entire operation. Operators can continue working through shift changes, adverse weather, or immediately after blasting, maximising uptime and machine utilisation. Remote operation enables faster task execution, precise grading, and flexible allocation of skilled personnel across multiple machines or sites. By combining high operational efficiency with reduced exposure and downtime, LiReCon supports predictable project outcomes while helping to reduce operating costs in demanding environments.





LiReCon also offers numerous advantages in the government and defence sectors.

Tech features

LiReCon's platform supports secure, encrypted, low latency communication across a range of communications networks from radio control to web based global solutions. Tested efficient working distances ranging up to several kilometers for radio control to web based applications enable long distance allowing worldwide remote control.

Operators receive real-time telemetry with all vital machine data, blade position and angle, supporting precise, safe, and uninterrupted control making a wide range of machine applications available for remote control, while providing all required data to the operator and job planner.

LiReCon supports operators with advanced camera technology and intelligent assistance systems for safe and precise remote operation.

The Skyview function provides an enhanced all-round view of the machine and its direct working environment. This helps the operator to identify obstacles, slopes and potential hazard zones at an early stage. Multiple camera perspectives allow intuitive machine control, even in demanding jobsite conditions. In addition, person detection supports the operator by identifying people in the machine's surrounding area. This safety feature helps reduce risks and increases awareness during remote-controlled operation. Clear visual feedback is essential for precise, efficient and safe machine handling. Together, Skyview and person detection improve safety, visibility and operator confidence in daily use.



LiReCon offers numerous high-resolution camera views.

Operational benefits

- **Reducing downtime:** Dozers can operate immediately after blasting, in adverse conditions, or in hazardous zones.
- **Improved precision:** Fully integrated assistance systems, and a highly ergonomic workspace.
- **Lower risk exposure:** Removing personnel from dangerous zones, like unstable slopes, landslides, or hazardous areas and reduces risk of accidents.
- **A new standard of working:** A completely new personal workspace from an independent off-site location, making both the work more attractive and increasing performance across long shifts.
- **Inclusive Workforce:** Enables less mobile, or disabled operators to work remotely without exposure to vibration or harsh conditions.
- **Enhanced Productivity & Satisfaction:** Combines safety, precision, and accessibility to increase efficiency while improving the overall working conditions.





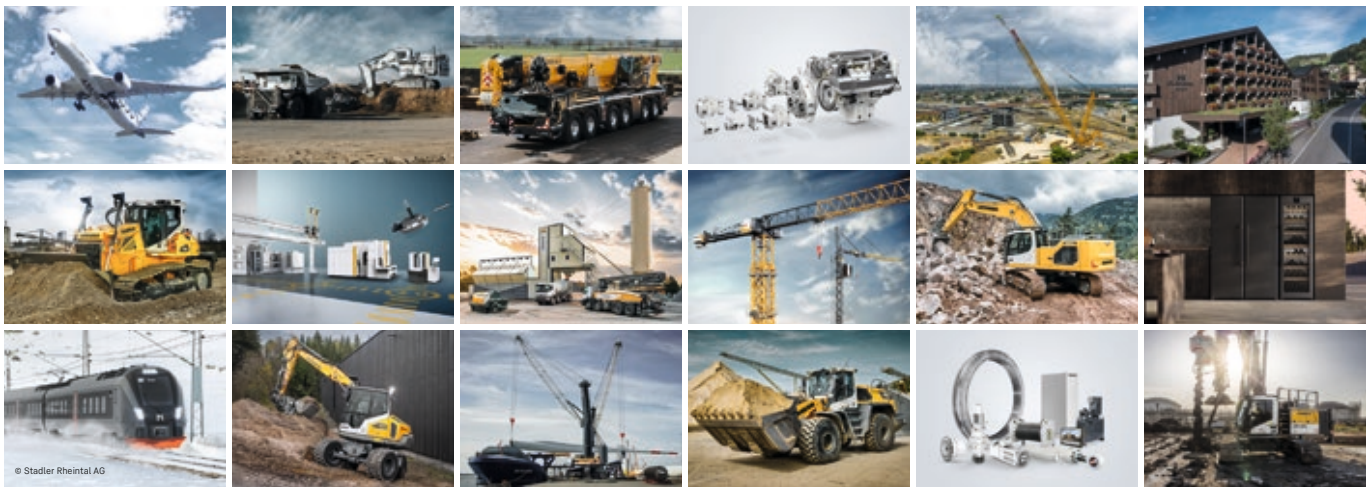
Technical information



LiReCon-equipped crawler dozers include robust camera housings, vibration-isolated mounts, dedicated wiring looms, antennas, and rugged connection modules rated for extreme conditions. Stations can be installed in permanent buildings or mobile environments. Tested in large open pits, elevated dumps, and areas with limited line-of-sight, using antennas and robust signal paths.

Real-time machine feed, covering engine condition, track speed, and blade position angles, is streamed to the operator console for precise remote control.

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 55,000 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

⚠ 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.

⚠ 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.

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