

Press release

Innovative technologies: Liebherr at InnoTrans 2024

- Air-conditioning systems with alternative refrigerants and thus low global warming potential
- MACS 10.0: the efficient, flexibly configurable HVAC system with a high degree of standardization
- Digital development and smart maintenance: new solutions
- Liebherr presents high-performance A 922 railroad excavator

At the leading international trade fair for transport technology InnoTrans 2024, Liebherr will be presenting solutions from its product segments of transport technology and hydraulic excavators from September 24 to 27 in Berlin (Germany). The exhibits will be on display in the outdoor area, booth O/170. In addition to the products on display, Liebherr's presentation will focus on sustainability and service.

Berlin (Germany), September 2024 – At InnoTrans 2024, Liebherr will be showcasing innovative solutions in the rail transport sector as well as its contribution to make the transport technology sector even more sustainable and attractive in the future.

On a total exhibition area of almost 400 m², the company will be presenting heating, ventilation and air-conditioning (HVAC) systems that run on alternative refrigerants. These make it easier for rail vehicle operators to make a seamless transition to meet future CO₂ requirements - and beyond.

Furthermore, Liebherr-Hydraulikbagger will have its A 922 railroad excavator combined with the Liebherr LIKUFIX quick-change system on display.

HVAC systems with natural refrigerants

A lot has happened in the rail industry in recent years to make mobility more environmentally friendly. Liebherr-Transportation Systems is working intensively on using more climate-friendly alternatives compared to conventional refrigerants and is adapting its HVAC systems accordingly. Three technologies stand out in particular: the use of alternative refrigerants such as CO₂ or propane and Liebherr's proven air-cycle technology.

With a Global-Warming-Potential (GWP) of 1, CO₂ (R744) not only has a very low greenhouse effect compared to conventional refrigerants, but it is also particularly energy-efficient in temperate climate zones and can heat very efficiently in heat pump operation.

The natural refrigerant propane (R290) enables more sustainable cooling and, in terms of pressure, is very similar to the refrigerant R134 used so far. The corresponding technical concept, which takes into

account all relevant safety requirements such as the flammability of the refrigerant, was developed by Liebherr in collaboration with TÜV Süd.

Liebherr's air-cycle technology is a completely climate-friendly solution. It uses only natural ambient air for cooling - no refrigerant is required. Liebherr was one of the first companies to start using this technology in rail vehicles.

MACS 10.0 - Modules for flexible cooling capacity

The modular MACS 10.0 HVAC system from Liebherr impresses with its high degree of standardization, low weight and low overall height. Several MACS modules can be flexibly installed in the vehicle depending on the power requirement and position, thus ensuring energy efficiency.

Digital development and smart maintenance

The focus of Liebherr on system simulation and digitalization enables shorter development times and optimized products by the use of digital development methods and digital networking across the value chain. One trade fair showcase is the "Hardware-in-a-Loop" test bench: With a remote-control system and a webcam, each air-conditioning unit can be controlled in real time and the operating statuses can be subjected to live monitoring - both data-related and visually on the unit. Liebherr demonstrates the interactive transmission of control signals and webcam images from Berlin to the test bench in Korneuburg (Austria) and back.

Liebherr is also making maintenance more time-saving and cost-effective with digital solutions in the area of smart maintenance. The Liebherr Troubleshoot Advisor is an app that provides effective support in identifying and solving problems. A hands-on demonstration at the trade fair will show the potential of the app and the benefits for operators.

Flexible use on road and rail: the Liebherr A 922 railroad excavator

The Liebherr A 922 railroad excavator impresses with its performance: with its 120 kW / 163 hp engine, the A 922 Rail achieves a high working speed with the usual smooth working movements. The innovative hydraulic concept of the A 922 Rail includes a Liebherr variable displacement double pump with independent regulating circuits. Powerful hydraulic attachments can be operated independently of the working and driving movements of the Liebherr railroad excavator. For even more performance, the flow rate of the proven Liebherr variable displacement double pump has been increased to 2 x 220 l/min. In addition, a heavier counterweight was designed to achieve the best load lift values with improved weight distribution and a more compact tail swing radius of 2,000 mm.

The service-oriented machine design of the A 922 Rail excavator guarantees short maintenance times and minimizes maintenance costs thanks to time savings. All maintenance points are easily accessible from the ground. The A 922 Rail is available in various undercarriage versions with different track widths and track wheels, enabling it to be used on tracks all over the world. In addition to the A 922 Rail shown at the trade fair, the A 924 Rail rounds off Liebherr's portfolio of railroad excavators.

About the Liebherr Group – 75 years of moving forward

The Liebherr Group is a family-run technology company with a highly diversified product programme. The company is one of the largest construction equipment manufacturers in the world. It also provides high-quality, user-oriented products and services in a wide range of other areas. The Liebherr Group includes over 150 companies across all continents. In 2023, it employed more than 50,000 staff and achieved combined revenues of over 14 billion euros. Liebherr was founded by Hans Liebherr in 1949 in the southern German town of Kirchdorf an der Iller. Since then, the employees have been pursuing the goal of achieving continuous technological innovation and bringing industry-leading solutions to its customers. Under the slogan '75 years of moving forward', the Group celebrates its 75th anniversary in 2024.

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Liebherr's air-cycle air conditioning system does not require any refrigerant as it uses only natural ambient air for cooling.



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Air-conditioning system by Liebherr with CO2 as refrigerant



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The modular MACS 10.0 HVAC system by Liebherr has a high degree of standardization.



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The Liebherr A 922 railroad excavator impresses with a powerful engine and an innovative hydraulic concept.

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