

Press release

Liebherr components for agriculture and forestry: powerful, efficient and innovative

- Liebherr develops different drive technologies for numerous applications and requirements
- Digitisation and electronic solutions provide more safety, efficiency, comfort and protect the environment
- Axial piston hydraulics offer new possibilities for agricultural and forestry machines with frequent and dynamic load changes

For the fifth time already, Liebherr is welcoming visitors to gaze upon and be inspired by the world of components for forestry and agriculture and its latest developments at Agritechnica 2023. No wish will be left unfulfilled – from various drive technologies all the way to digital solutions. The vast range of exhibition highlights offers a great product selection, be it a hydrogen or diesel engine, digital camera-monitor systems, the sensor for measuring the moisture of agricultural products or versatile axial piston hydraulics.

Nussbaumen (Switzerland), October 17, 2023 - Liebherr's components product segment has been providing a wide range of products for agriculture and forestry for quite some time. The multitude of applications tackled thereby does not only include machines that cover the entire harvesting cycle, but also equipment for timber transportation and processing.

Breaking new ground: drive solutions for tomorrow's agriculture

With the first hydrogen engine prototypes, Liebherr is reaching a new milestone in hydrogen propulsion for agricultural and forestry applications. The very compactly built 9-liter 4-cylinder H964 hydrogen engine is an ideal solution for off-road applications. Even in the development phase, it maintains almost "zero" Nox and CO2 emissions. The 4-cylinder is equipped with direct injection (DI), where hydrogen is injected straight into the combustion chamber. DI offers higher potential in terms of combustion efficiency and power density. This makes hydrogen engines an attractive alternative to diesel ones, when it comes to more demanding applications. The H964 also impresses with its dynamic performance, as well as high robustness against dust, dirt and vibrations. Distinct advantages of such an engine are, in addition to the interfaces comparable with a diesel engine – both thermally and mechanically – its lower expenditure for air and hydrogen purity and overall long maintenance intervals.

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With the objective to become carbon neutral by 2050, Liebherr's engines are ready for HVO and can also be powered by alternative fuels. One of the examples is the D976, the best-in-class 6-cylinder in-line engine for off-road applications. Its robust design makes it ideal for the toughest environmental conditions. And that's not all. The engine offers a low total cost of ownership. The highly efficient turbocharger, for example, does not only ensure lower fuel consumption, but also increased efficiency. Lower maintenance requirements thanks to maintenance-free valve train and crankcase ventilation systems also contribute to its performance. A fuel system integrated in the valve housing provides for a limited risk of leakage, as well as increased safety. Also worth mentioning are the two available power take-offs with different outputs. The icing on the cake is the Liebherr own development – the engine control unit with a broad range of functions.

Sowing the future with digital solutions

Liebherr has done a lot in the field of electronics and digitalisation. The latest digital assistance systems for agricultural machinery include, for instance, the 360° surround view system in the LiXplore® product range. It allows operators to efficiently and conveniently monitor the work process from a bird's eye perspective.

Equipped with high-quality digital cameras by Liebherr, the camera-monitor solutions stand out with the best HD image quality in any lighting situation, and thus ensure greater work safety at night and at dusk. Combined with high robustness, the systems reliably support farmers in their work under demanding environmental conditions. In product development, Liebherr places great emphasis on simple installation and time-saving integration into the machines. For example, the 360°surround view solution LiXplore® Bird's Eye can be calibrated and made ready for operation within a few minutes.

In addition to complete systems, Liebherr offers a broad portfolio of high-quality hardware and software that serve as the basis for digital assistance solutions. At Agritechnica, Liebherr will be exhibiting its fourth generation of digital cameras, which offers a whole new standard for image quality. Its compatibility with other sensors creates the basis for AI applications, not only to enable further automation of agricultural machinery, but also to make it even more comfortable and efficient.

From a security perspective, the new generation edge gateways open up broad possibilities – from telematics to CPU-intensive AI applications, as used for weed detection. As end-to-end IoT solutions Liebherr also provides OEMs with holistic, optimally-aligned tools, including device management and over-the-air updates, which they require to bring a secure machine into the field with minimum development effort.

Last but not least, Liebherr has developed a special sensor capable of measuring moisture for harvesting machines, such as combine harvesters, forage harvesters or feed mixers and balers. The robust, all-terrain P80-CAN sensor determines the moisture content, and thus also the quality of agricultural products, such as grain, corn, straw or silage. This eliminates the costly expenditure of time and resources on laboratory analyses. Based on the sensor data, the corresponding machine parameters are adjusted during harvesting, in order to decrease energy consumption and consequently fuel use in the machine – indeed a small sensor with a big effect.

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Reaching new horizons by using hydraulics

For some time now, Liebherr has garnered positive results with the use of its hydraulics in construction machinery, which is being operated under the toughest environmental conditions. The long service life achieved for machines and hydrostatics can also be projected onto agricultural applications.

For agricultural and forestry machines with frequent and dynamic load changes, the upgraded axial piston pump for closed circuits, the DPVG 140, offers numerous advantages. Its hydrostatic swash plate bearing ensures significantly lower material wear due to the reduction of mixed friction to a minimum, compared to a conventional bearing with rolling elements, where increased wear occurs. The DPVG 140 is also characterised by a load-independent stability of the rotary group. It impresses with its design for longer service life, robustness and reliability. For higher demands on operational safety – whether in the field or on the road – a version with a special "ELS" controller with additional valves, for instance, ensures that the pump can be switched on and off from any operating state: The pump can thus safely be reset to a zero position from any operating state. The modular structure of the components, including installed controllers, allows more flexibility for use in different applications or complete machine product ranges, making it a jack-of-all-trades – in traction, rotary, winch or drill drives, as well as shredder main drives.

About Liebherr-Components

In this segment, the Liebherr Group specialises in the development, design and manufacturing of high-performance components in the field of mechanical, hydraulic and electric drive and control technology. Liebherr-Component Technologies AG, based in Bulle (Switzerland), coordinates all activities in the Components product segment.

The extensive product range includes combustion engines, injection systems, engine control units, axial piston pumps and motors, hydraulic cylinders, slewing bearings, gearboxes and winches, switchgear, electronic and power electronics components, and software. The high-quality components are used in cranes and earthmoving machinery, in the mining industry, maritime applications, wind turbines, automotive engineering or in aviation and transport technology. Synergy effects in other product segments of the Liebherr Group are used to drive continuous technological development.

About the Liebherr Group

The Liebherr Group is a family-run technology company with a highly diversified product portfolio. The company is one of the largest construction equipment manufacturers in the world. It also provides high-quality and user-oriented products and services in a wide range of other areas. The Liebherr Group includes over 140 companies across all continents. In 2022, it employed more than 50,000 staff and achieved combined revenues of over 12.5 billion euros. Liebherr was founded in Kirchdorf an der Iller in Southern Germany in 1949. Since then, the employees have been pursuing the goal of achieving continuous technological innovation and bringing industry-leading solutions to its customers.

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