

Press release

Compact and revolutionary – new electric machines for off- highway applications

- **A permanent magnet machine for mobile off-highway applications offers a significantly more efficient, safe and low-maintenance alternative to hydraulic motors**
- **With the same power density as a hydraulic motor, the electric machine offers decisive advantages in terms of ease of installation, durability, maintenance, operational reliability and operating costs.**

The newly developed electric machines by Liebherr offer manufacturers of mobile off-highway applications revolutionary added value. With the same power density of hydraulic motors, they provide for a significantly higher efficiency of an application: Simpler installation, low maintenance, little downtime and the much higher efficiency of 94 - 96 % turn the electric machines into technology leaders in their field.

Baden (Switzerland), January 30, 2025 – When it comes to mobile machinery, operational reliability, robustness, durability and efficiency along with compact designs have always played a vital role. Until now, hydraulic motors were able to offer a power density that met the high demands of mobile applications, such as excavators, wheel loaders and telehandlers. The new design of the permanent magnet machines now comes with the same power density, but without the effort and risks caused by the extensive piping systems of hydraulic motors.

A sustainable and future-proof alternative

The direct oil-cooled electric machine, which has been specially developed for battery and diesel-electric traction drives, enables quick and easy installation, as well as the electrification of existing hydraulic drive concepts. Thanks to moderate pressures in the cooling circuit, the risk of leaks is significantly lower, which results in higher safety. In addition, there is no further risk of emissions, contamination or accidents because of burst pipes. The permanent magnet machine is the sustainable alternative that makes applications future-proof.

The innovative design of the motor significantly reduces maintenance efforts. This results in less downtime and lower maintenance costs. In addition, the high torque in relation to the speed ensures a longer service life of the machine and an increase in the MTBF (mean time between failures) in the system due to the reduced number of gear stages. Liebherr's permanent magnet machines are ideal for mobile applications, in which compact installation space as well as the reduction of emissions and contamination are crucial.

With an efficiency of 94 to 96 %, a permanent magnet machine is far more effective than a hydraulic motor (approx. 50 %), and therefore consumes significantly less energy. Even though the acquisition costs of an electric motor are generally higher than those of a hydraulic one, the new electric machines prove to be more cost-effective over the entire service life of an application, when the operating costs are taken into account.

About Liebherr-Components AG

In this segment, the Liebherr Group specialises in the development, design, manufacturing of high-performance components in the fields of mechanical, hydraulic and electric drive and control technology. Liebherr-Component Technologies AG, based in Bulle (Switzerland), coordinates all activities in the component 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 with 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 2024, it employed more than 49,000 staff and achieved combined revenues of over 11.6 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.

Images



liebherr-electric-machine-off-highway-application_01.jpg

Compact and revolutionary – the innovative design of the new electric machines by Liebherr significantly reduce maintenance efforts.



liebherr-electric-machine-off-highway-application_02.jpg

The permanent magnet machines for mobile off-highway applications offer a significantly more efficient, safe and low-maintenance alternative to hydraulic motors.

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