

Press Release

From zero to one hundred: The IE5/IE6 Motor Drive System with i650 motec sets new standards in terms of performance and efficiency

Barcelona/Aerzen, 16. September 2025. Lenze is setting new standards in decentralised drive technology with the IE5/IE6 Motor Drive System. At its centre is the i650 motec frequency inverter, which, in combination with the m550/m650 synchronous motor, offers a powerful and energy-efficient solution for demanding applications such as those used in the printing industry.

The i650 motec impresses with its integrated Logic PLC and a positioning function that enables independent motion control without a higher-level controller. This makes the system ideal for applications such as format adjustment or film wrapping.

Impressive performance: 300 per cent starting torque (overload torque)

High performance is also important to customers: "We promise 300 per cent overload torque from a standstill and we deliver. Starting from a standstill to full load is no problem," emphasises Klaus Dierkes, Product Manager Electromechanics. This means that the system can be designed more precisely for continuous operation, as it is not oversized, and then immediately delivers the required power.

Lenze offers the new m550 synchronous motor in the power range 0.25 - 11 kW and m650 for dynamic applications in 0.75 - 22 kW. Both can be seamlessly combined with the gearboxes from the Lenze modular system.

There is a choice of helical, angular or bevel gearboxes for a wide range of requirements.

The first test customers worked with Lenze's new EASY System Designer for the design. The result: a precisely dimensioned drive solution through to an energy-efficient machine design. The web-based engineering assistant shows the energy consumption of the respective application and drive components.

Encoderless and safe

Thanks to precise control of the m550/m650 synchronous motor, encoderless positioning is possible with the i650 motec. The integrated safety functions such as Safe Torque Off (STO) or Safe Torque Off over CIP (Common Industrial Protocol) ensure machine and personal protection. In future, the system will be expanded to include additional encoderless safety functions such as SLS.

Energy efficiency and transparency included

The Motor Drive System is also impressive when it comes to sustainability: the combination of motor, gearbox and inverter reduces motor losses by up to 60%. The integrated energy recovery in the motec automatically feeds excess energy back into the grid - without any additional hardware. Machine operators also receive high-quality information from the machine sensors via the IO-Link interface and benefit from increased system transparency.

The new Motor Drive System is extremely resource-efficient. The sensorless feedback means a budget-friendly chain reaction on the hardware side: no expensive feedback system, more compact drive, no expensive cables. Another effect: assembly and installation are quick and safe.

If the highly efficient motor is controlled with the decentralised i550 or i650 motec inverter, there is no need for even more hardware, as braking resistors are not required. The regenerative unit integrated in the motec feeds any braking energy back into the grid. The i500 cabinet inverters can also exchange excess energy via the DC network and make it available to other axes.

Lenze has a new solution for the format adjustment of printing rollers frequently used in printing presses: "We use the SLSM algorithm (Sensorless Synchronous Motor Control) in the inverter, which enables us to achieve the performance of a closed control loop without a motor feedback system and cabling. This allows us to realise sensorless and precise positioning," says Klaus Dierkes.

About Lenze

Lenze is a leading specialist in drive and automation technology for machine and plant engineering. For more than 77 years, the company has been a pioneer in automation and a strong partner to its customers. Through the triad of electromechanics, electronics, and software, Lenze supports its customers in optimizing production and logistics processes, reducing costs, and lowering energy consumption.

The Lenze Group, headquartered in Aerzen, employs more than 3,600 people worldwide and is represented in 45 countries. Across the group, the company generated sales of 828 million euros in the 2023/2024 fiscal year.

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