

Press Release

Schaeffler at EMO 2023 in Hall 7, Booth A10

New L7 linear motor series achieves top values in energy efficiency and dynamics

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- Power loss reduced by up to 50 %: L7 linear motors offer particularly low operating costs
- Up to 40 % more nominal force: Significantly shorter machining cycles achievable with L7 linear motors
- Higher machine accuracy due to reduced warming of motor and machine base

For many years, Schaeffler has supplied water-cooled, iron core linear motors of series L1 with peak forces of up to 5,171 N. With the new L7 series, Schaeffler is expanding its range of linear motors with peak forces of up to 24,300 N. This means that Schaeffler linear direct drives can now be used much more widely in handling systems and the main axes of machine tools.

L7 – The benchmark for efficiency and power density

By optimizing the copper windings, heat transfer, and cooling circuit, development engineers have been able to achieve a reduction of up to 50 % in the power loss with the same drive force or an increase of up to 40 % in the nominal force with the same power loss compared to the current benchmark. While motors with optimized peak force or power loss characteristics are already offered on the market, the L7 linear motor thus combines both these strengths and offers an outstanding acceleration capacity, while remaining significantly cooler. This allows a significant reduction in the operating costs and a considerable increase in productivity. The L7 motor demonstrates its strengths particularly in the case of continuous oscillating motion where extremely high accelerations are required and the motor is continuously heated: The high acceleration capability reduces the cycle times and the high energy reserves ensure high contour accuracy of the workpiece. Due to the very low power loss, less heat is introduced into the machine bed, which also has a positive effect on the overall accuracy of the machine.

The perfect motor configuration for every task

The L7-series of linear motors comprises twelve motor sizes in the four secondary part widths of 100, 150, 200, and 300 mm and the three lengths of 350, 500, and 650 mm.

Alternatively, the high energy reserves can be used for downsizing. The reduced moving mass has a positive effect on the dynamic behavior. The dimensions of the motors were selected so that existing axis designs in milling, turning, and grinding machines, as well as in laser machining, can be converted with little outlay.

Schaeffler Group – We pioneer motion The Schaeffler Group has been driving forward groundbreaking inventions and developments in the field of motion technology for over 75 years. With innovative technologies, products, and services for electric mobility, CO₂-efficient drives, chassis solutions, Industry 4.0, digitalization, and renewable energies, the company is a reliable partner for making motion more efficient, intelligent, and sustainable – over the entire life cycle. The Motion Technology Company manufactures high-precision components and systems for drive train and chassis applications as well as rolling and plain bearing solutions for a large number of industrial applications. The Schaeffler Group generated sales of EUR 16.3 billion in 2023. With around 84,000 employees, Schaeffler is one of the world's largest family-owned companies and one of Germany's most innovative companies.

A new benchmark for linear motors in the nominal force range from 1,800 to 11,200 N. Photo: Schaeffler

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