# Electric drives offer high positioning repeatability

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Whether for alignment, conveying, or pick-and-place and vertical transport applications: Electric drives are used throughout the industry to move workpieces. To ensure the required process reliability, very precise positioning repeatability and very low backlash are necessary in some cases. To enable users to meet these high requirements even better, SMC has expanded its established LESH series of electric actuators to include the LESYH series as electric compact slides in a highly rigid design. They impress with a positioning repeatability of ±0.01 mm (±10 µm) thanks to recirculating ball screws, a backlash of max. 0.1 mm and a vertical payload of up to 20 kg.

They also feature a battery-free absolute encoder that enables fast (re)startup.  Transfer applications using electric drives are part of the standard repertoire throughout the industry. If the requirements for precise positioning are particularly high, users must resort to solutions with very accurate repeatability. With the LESH series from SMC, designers already had established drives at their disposal for this purpose - whose performance figures have now been increased again with the series. Thus, the new electric compact slides in a highly rigid design have, in addition to a positioning repeatability accurate to the micrometer, also a very low backlash, can move even higher payloads vertically and also make reference runs unnecessary thanks to a battery-free absolute encoder. The specialist for pneumatic and electric automation thus covers an even wider range of applications.

## Precise and powerful

Thanks to the use of a recirculating ball screw for the drive, which can be operated with either a stepper motor or servo motor (24 VDC each), the series achieves a repeat accuracy of ±0.01 mm during positioning. This means that it meets particularly high requirements in terms of precision. This is further supported by a maximum backlash of 0.1 mm. Designers thus benefit from improved process reliability in high-precision applications - and this at a max. acceleration of 5000 mm/s2 and a maximum speed of 400 mm/s, which ensures short cycle times. The series is available as a design with or without belt. The latter allows the use as a Z-axis for lifting or lowering workpieces. Compared to the previous series, the vertical payload has once again been significantly increased: from 0.5 to 6 kg (size 8), from 2 to 12 kg (size 16) and from 4 to 20 kg (size 25). If users opt for the option with motor brake, they can access a holding force of up to 385 N. Overall, designers can thus cover a significantly more extensive range of applications.

## High flexibility, compatibility and productivity

With the LESYH series, motor mounting is possible in three directions: axial, right or left parallel. In the stepper motor version, the JXC series controllers provide control of the drives via various fieldbus systems (PROFINET, EtherCAT, EtherNet/IP) or other control systems such as IO-Link as well as parallel inputs - in the case of AC servo motors, these are the LECN-T series controllers. As an extension of the LESH series established on the market, it can also be easily integrated. In addition, motors (motor power 100/200 W) from 18 manufacturers can be used for the motorless version. Together, this gives users a high degree of flexibility in machine design.  In addition to its impressive performance figures, the LESYH series features a battery-free absolute encoder that stores the last position of the drive in the event of a power failure or emergency stop, for example.

This means that operation can be resumed immediately without a time-consuming reference run, which means more productivity. In addition, not only storage and maintenance requirements are reduced, but

also the ecological footprint, since no battery is required, which therefore does not have to be stored or maintained, nor does it have to be disposed of. To reliably detect end positions and intermediate positions, the series can be optionally equipped with a D-M9 series electronic signal transmitter from SMC. This has a 2-color display, whereby the optimum operating range (green) is immediately apparent.