

Novel bi-parting drive cuts the cost of machine automation

Festo has launched an electric bi-parting drive that provides a highly cost-effective and adaptable means of securing simultaneous movement of two carriages – in opposite directions – on the same linear axis

The new ELGG bi-parting drive has a pair of bearing guides supporting two identical carriages, driven by a toothed belt attached to the top of one carriage and the bottom of the other. This arrangement causes the carriages to move simultaneously, either away from or towards the centre line of the axis. Typical applications include centring items on a conveyor system, opening and closing safety doors on processing machines, and large-format gripping equipment.

The ELGG follows the innovative cost-optimised design concept of another popular low-cost Festo electric actuator, by dispensing with the type of full length profile used by conventional toothed belt drives. Instead, it relies on the rigidity of steel bearing guides to ensure straight line movement of the carriages. The bearing guides are supported at either end and the ELGG also offers the option of a centre support, resulting in an extremely rigid and robust structure. The supports and the carriages are all constructed from the same extruded aluminium profile to help minimise cost, and employ an innovative asymmetric extrusion geometry to provide the necessary offset.

Speed and precision

ELGG drives offer a choice of 35, 45 and 55 mm wide profiles, with maximum standard stroke lengths – per carriage – of 400, 500 and 750 mm, respectively. Longer stroke lengths are available to special order. The moving carriages can be equipped with sliding bushings or with recirculating ball bearing guides for higher speeds and loads. Depending on configuration, all

Festo's new ELGG electric bi-parting drive can move two carriages, in opposite directions, on the same linear axis. It is ideal for large format gripping, conveyor centring and door activation applications.



The feed force available from bi-parting drives is averaged between the two carriages. This means that if one carriage is subject to zero load, for example when centring an item on a conveyor system, the other carriage can provide the full feed force, making this a very cost-effective form of actuator for this type of application. The maximum (total) feed force available from the 35, 45 and 55 size models is 50, 100 and 350 N, respectively.

Festo ELGG bi-parting drives provide a variety of configuration options and accessories to maximise application flexibility and help speed design-in. Both sides of the axis can be equipped with a second standard length or extended length carriage, to accommodate loads with relatively high twisting or

turning moments. Festo also offers a passive guiding axis variant, known as the ELFR, which basically comprises an ELGG drive, but without a belt or pinions; this can be used alongside an ELGG drive to further increase system rigidity and resistance to torsional loads.

End-position sensing on ELGG drives is easily accomplished using Festo's latest SIES-8M inductive sensors. The sensors fit flush within slots in the centre and end supports of the axis, and detect the presence of flag plates on the moving carriages. Each sensor incorporates a built-in LED status indicator, and because the sensors and targets are external to the drive and clearly visible, they are easy to adjust for commissioning purposes.

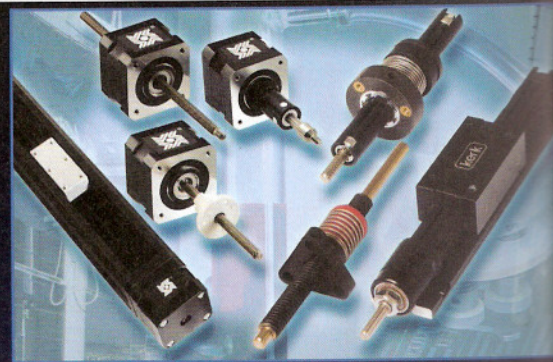
Configuration flexibility

ELGG bi-parting drives are fully compatible with Festo's range of stepper and servo motors and controllers, and can also be used with third-party motors. The motor can be mounted at either end and on either side of the axis, providing considerable configuration flexibility. Installation is further simplified by a hollow drive pinion and an elastomer motor coupling with an expanding shaft, which provides a highly reliable, backlash-free connection. Festo also produces a wide range of flanges and adaptor plates for the ELGG, and the drive is mechanically compatible with the company's modular multi-axis system.

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