

Bespoke drive

Modular drive system for individual solutions

Electric motors rarely stand alone. They usually only become drive and positioning systems that meet an application's requirements when they are combined with other components, i.e. reduction gears, brakes, an encoder, and the right control electronics. The right approach here is provided by modular systems that can combine everything needed for an application.

There is a wide range of different drive variants so that the right solution can always be provided for many different drive tasks. Therefore, ebm-papst offers a broad selection of motors, control electronics, transmissions, and brake and sensor modules that can be combined to create a customized drive within a short amount of time. In principle, all ebm-papst motors with a diameter of 63 mm can be used as motor modules for the drive system. With rated torques of up to 880 mNm at 4,000 rpm and a motor efficiency level of up to 90%, the electronically commutated motors from the ECI 63 series are primarily setting new power density standards. For example, they are well suited as dynamic drives for conveyor and sorting systems, but are also suitable as powerful yet sensitive adjusting drives in operating tables. Motor modules from the tried-and-tested VDC and BCI series can also be integrated into the system housing. As all motors are operated with safety extra low voltage, they are ideal for battery operation. The motor can be used directly without a voltage transformer or inverter.

Various electronic modules and additional functions

Sophisticated connection technology guarantees very compact drive housing dimensions and seamless interaction of the individual modules, ensuring compliance with degree of protection IP54 as standard – and even IP65 is possible. At the same time, the system is open to external extensions and electronic networking of all kinds. Does the drive need to run reliably at speed, master precise positioning and be ready for IoT, predictive maintenance and condition monitoring with integrated intelligence? The integrated K4 electronics can be operated with analog or digital inputs and outputs with speed, torque and position control. K5 electronics, which can also be integrated as a module, enable the drive to be integrated into networks using standard bus interfaces. Numerous fixed and – similarly to a PLC – freely programmable functions are also possible, meaning that the drives can process program sequences independently of the higher-level control system. In future, the K4 and K5 electronics will also be available with an STO (Safe Torque Off) function. If there is a safety-relevant error, the power supply is interrupted immediately and the drive is stopped without torque in accordance with Performance Level d or SIL2. An external, certified safety sensor can also be added behind the electronics. It is also possible to use a second transmission on the B-side, e.g. for swiveling gates or loading ramps.

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Fig. 1: Modular drive concept: All individually selected drive components are placed in a common housing.

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About ebm-papst

The ebm-papst Group, a family-run company headquartered in Mulfingen/Germany, is the world's leading manufacturer of fans and drives. Since the technology company was founded in 1963, it has continuously set the global industry standard with its core competences in motor technology, electronics, digitization and aerodynamics. With over 20,000 products in its portfolio, ebm-papst provides the best energy-efficient, intelligent solution for virtually every ventilation or drive-engineering task.

In fiscal year 2021/22, the "hidden champion" generated revenues of € 2,288 billion. The group employs roughly 15,000 people at 29 production sites (in Germany, China and the USA, to name but a few) and in 51 sales offices worldwide. ebm-papst sets the benchmark with their fan and drive solutions which are used in almost all industries, such as ventilation, air conditioning and refrigeration, heating, automotive, information technology, mechanical engineering, household appliances, intralogistics and medical engineering.

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