

Innovative Drive Unit Solutions in Intralogistics

Purchasing behavior in the private sector has changed considerably recently: more goods are being ordered online, and thanks to optimized logistics, these goods can be delivered to people's homes within just a few days.

E-commerce companies invest in highly automated intralogistics; for a large number of orders, the goods must be put together and be ready for delivery promptly.

This makes it increasingly challenging for the intralogistics supplier (automated warehousing), requiring intelligent and standardized modules for their system solutions. For this purpose, fast and efficient drive units with decentralized intelligence are required, with speedy activation and simple networking over commercially available bus systems.

High-power density demands also come into play—minimum installation space with maximum efficiency. This places high demands on the manufacturers of industrial drive engineering, and with its new drive unit components, such as the Optimax transmission series, ebm-papst is rising to the challenge. The first installation size of Optimax 63 will soon be available to customers. Combined with the ECI 63 or ECI 80 BLDC engines, it results in highly dynamic drive unit systems, offering unrivaled value for money.



With the installation edge dimensions from 63 mm and a length of just 102 mm in its two-stage design, it offers peak torques of up to 150 Nm.

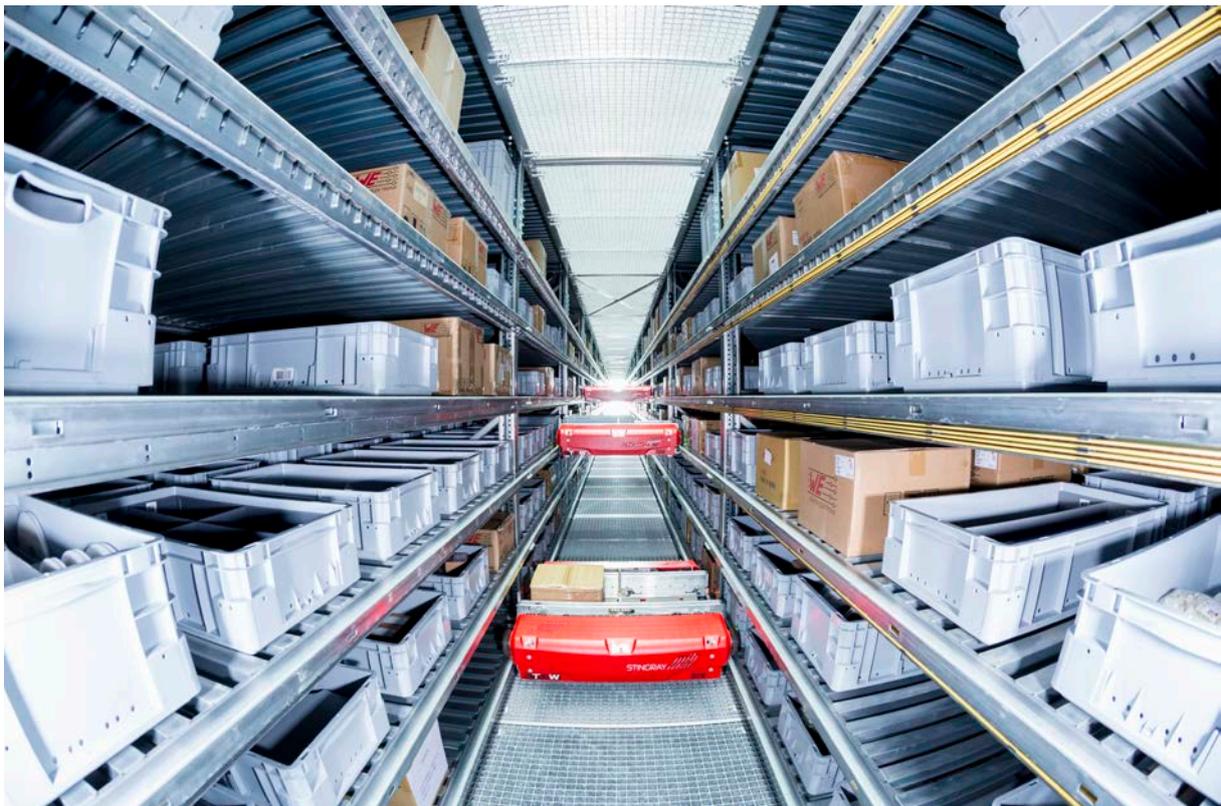
In the single-stage range, the finely tuned Optimax reductions go from 3:1 to 5:1 (preferred type) and up to 9:1. The two-stage design is available with reductions of 9:1, 15:1, 25:1 (preferred type) and 45:1.



The Optimax transmission is ideally suited for demanding applications, such as crossbelt sorters for sorting packages weighing up to 60 kg. Its square design allows the drive unit to be mounted flat between the conveyor straps. In order to be able to accelerate the packages to up to 4 m/s², a very high overload capacity of the transmission is required. This is achieved partly by the use of hardened, sintered steel for the geared parts as well as by its design: despite a smaller wheel diameter, which fits inside the engine at 63 mm, a large gear diameter was achieved by placing four axial fastening screws into the corners of the square. In applications with high radial loads, such as those caused by drive belts or eccentric, the

transmission still scores highly on the following points: the output stage with two large ball bearings is very stable and boasts a service life of minimum 20,000 hours with a 500 N radial load.

Shuttle vehicles for plastic container transport (KLT) are another perfect area of application for the Optimax transmission. These normally battery-driven vehicles require drive units with very high efficiency. The Optimax transmission achieves this by means of continuous straight gearing and optimized tooth geometry, which extends the battery life. Even in a deep-freeze area, the use of special gear grease can ensure efficient and reliable operation.



ebm-papst stands for progress and innovation. It is obvious that the development of new products takes into the account the applications that are only just coming along. Driverless transport systems with a total weight of about 500 kg will take vehicles between storage, production and dispatch. Reducing transport units to a minimum, these vehicles will offer a potential to provide time- and staff-optimized means of obtaining the required goods. Forklift traffic, schedule-related routing and large quantities of goods on pallets are now a thing of the past. However, these vehicles must be reliable, compact and yet robust enough to cope with not-always optimal routes over long periods of time. Here, drive engineering is the focus of the special attention. Often, the wheels are mounted directly onto the output shaft and each shock is transmitted unsprung on the transmission and drive parts. Furthermore, very short-build drive systems are required so that the opposite drive axles do not excessively increase the vehicle width.

The combination of the ebm-papst BLDC external rotor motor VDC-49.15-K4 with a single-stage Optimax 63 offers a perfect combination for a wheel motor: a 100 watt rated output,

over 75% overall efficiency (control electronics, motor, transmission), size 63 mm, total length 125 mm. Due to its precise motor control and the stiffness of the transmission design, virtually jerk-free cornering and demanding positioning tasks can be realized.

Its compact size, overload capacity and durability features, which could be universally utilized in many applications, in addition to the outstanding design of the Optimax planetary transmission, makes it an extremely interesting commercial proposition.

With its specially trained teams and many years of application experience, ebm-papst is your partner in the development and optimization of innovative automated modules with the highest standards of cycle time and reliability.

Bilder und Bildquellen

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