

Drive system for flexible automated guided vehicles

Maneuvered transport vehicles used in healthcare

Automated guided vehicles (AGV) have been in use for a long time in logistics and manufacturing divisions. Now they are also conquering the healthcare sector. Thanks to AGVs, processes can be designed and resources can be used more efficiently, starting from transporting different materials, e.g. hygiene products, laundry, meals and medicines, or even moving entire X-ray systems across departments in hospitals.

AGV manufacturers have a variety of requirements that require different drive systems. Fan and drive specialist ebm-papst offers the right solution for this with a variety of drive combinations. The "ArgoDrive" was developed, a compact and easy-to-integrate driving/steering system, including wheel, that can move loads of 100 kg, 300 kg and 500 kg per drive axis in the Light, Standard and Heavy versions respectively. The maximum expansion stage with four driving/steering systems in the Heavy version enables a load capacity of up to two metric tons, i.e. even x-ray systems that weigh many metric tons, like a CT scanner, are easy to move.

Compact despite high performance

Each drive unit consists of two motors, transmission, sensors and all the necessary connection plugs. With the superposition gear, the two motors contribute towards steering, acceleration, movement and braking, depending on requirements. The infinite steering angle enables free-range vehicle movement – even from a stationary position. Using two driving/steering systems, mounted diagonally on the left and right side of an AGV, guarantees omnidirectional freedom of movement and narrow maneuvering, e.g. when avoiding things. Two additional freely moving support wheels on the front and rear provide the AGV with the necessary load handling and stability.

Low-maintenance, fail-safe and safe

Reliable operation and safety are important aspects for AGVs in all areas of medical technology. The drive units are therefore designed to be reliable for the entire service life. If the wheel surface wears down after a long period of operation, a simple "tire change" is possible without removing the drive unit. The smooth surfaces of the wheel can be easily cleaned or disinfected. As a safety measure, the AGV must be able to initiate emergency braking immediately if protective zones in front of the vehicle are breached. Appropriate safety sensors ensure that the environment is continually scanned. If the protective zone is breached, the drive system must give the safety control system the command for a safe stop. The ArgoDrive supports all typical and necessary safety requirements.

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Fig. 1: Automated guided vehicles in the health sector have to transport light, sensitive and safety-relevant goods just as safely as medical devices that weigh tons.



Fig. 2: ArgoDrive: a compact and easily integrated drive system for a wide range of automated guided systems.

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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, information technology, mechanical engineering, household appliances, intralogistics and medical engineering.

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