ABM Greiffenberger with Powerful Drive Technology for Intralogistics

From 0 to 100 instantaneously

Marktredwitz, 2021-09-01 – As a systems provider, ABM Greiffenberger develops and manufactures drive systems for stationary and mobile intralogistics applications. Upon request, customers can be supplied with individual solutions allowing them to reduce their costs – and with conveyor systems quickly accelerate even heavy loads from a standstill. This is made possible by the ABM's close cooperation and partnership with customers. But what characterises the tailor-made system solutions?

'What requirements do manufacturers of intralogistics solutions have for drives?' Ralf Fickentscher takes a moment to think. 'They want highly efficient solutions that are always available and run without any problems.' Fickentscher is head of development at ABM Greiffenberger in the Upper Franconian city of Marktredwitz. The company is a one-stop shop for drive solutions that helps customers slash costs and thus profit from a fast return on investment. 'Our motors are extremely efficient, especially in the partial-load operational range the systems primarily operate in,' says his colleague Stephan Thoma, ABM team leader & product manager for inverters. The fact that an electric motor can operate very efficiently precisely in partial load operational range is one of the main reasons for its higher energy efficiency. The Sinochron motor, for example, is a motor that can also be operated without sensors and has a high starting torque. This is particularly important in intralogistics applications because conveyor systems often have to be able to move heavy loads from a standstill: with a speed control range of 1:200, the Sinochron series can immediately apply the full starting torque to move stationary loads– virtually from 0 to 100.

Powerful and compact

The Sinochron series are permanently excited synchronous motors, which, thanks to their special design, are perfect for sensorless operation. 'They are very dynamic,' explains Stephan Thoma. This drive solution differs from the induction motor by a short-time overload capacity that is approximately twice as high. 'In addition, even the smallest IEC frame size of 63 can already reach nominal torques of 4.5 Nm and nearly doubling the overload capacity,' explains Ralf Fickentscher. 'And because the motor achieves this high power density, we can make our solutions more compact,' As a result, the user can often select a smaller motor and thus reduce installation space and energy consumption.

In contrast to comparable drives, the motor can also be operated with 400 V – instead of just 24 V. This makes project planning much easier because multiple drives can be operated from one power supply and are switched in series according to the so-called daisy chain principle – just one power supply is needed for this. Moreover, the drives are networked via a bus system for communication and can therefore be controlled from a central point.

Via the sensorless speed control, the control system calculates the rotor speed as well as the rotor angle at a given time from the electrical measurements. With this information, the currents for torque generation can be fed precisely to the motor. ‘We achieve very good control characteristics with this without having to use an expensive encoder,’ says Thoma. And because the drive does not require any sensors, it is also robust. ‘Almost like the famous bunny. It keeps going and going and going,’ says Fickentscher. Through this, users also experience significantly lowered maintenance costs and a high system availability, both of which are important benefits for the total cost of ownership. The drives also have a service life of up to 50,000 hours.

Individual Solutions from a Modular Design

ABM Greiffenberger can also cater to the individual needs of users with the drive solutions. To what extent? ‘That depends on the requirements,’ says Thoma. ‘With our intelligent modular design, we can find the right solution for every application.’ Various gearbox designs such as angular, helical and parallel shaft gearboxes are also available and are developed, manufactured and tuned to the performance values of the respective motors by ABM. Thanks to its modular design, the drives can also meet special requirements of the system manufacturer with standard components. This positively affects the quality because only proven modules are used.

With this modular design, the systems provider also reduces the number of possible variants – ‘with it, we control the complexity,’ says Thomas. The system manufacturer can also select from different mechanical interfaces easing commissioning. The drive variants can also be reduced because the same motor series can often be used for a variety of tasks. If higher torques at lower speeds are required for high loads, the motor can simply be combined with a gearbox. Various mechanical and electrical interfaces are available to simplify installation. Many connections are realised as plug-and-play connections. This increases the system availability.

‘However, we can also design a completely new solution if the customer requests it,’ explains Fickentscher. With the individual solution, the user gets the maximum added value and a permanent, significant reduction in costs because the drive is precisely tailored to their requirements.

Sinochron in container conveyor technology

Wearless direct drive, gearless, without brakes, energy-efficient and with high availability: all this is what makes the ABM solutions suitable for, amongst other things, roller conveyors that transport containers with different weights, often over several kilometres. ‘Our motors offer high efficiencies and power densities. In addition, they are ideal for tight spaces due to their compact designs. With the Sinochron drives, the rollers in the conveyor systems can convey loads weighing up to 180 kilograms – and accelerate them from a standstill. ‘A high torque is required to start the load and then the drives operate

about 90 per cent of the time with a partial load operational range,' explains Thoma. Typical travel speeds are from 0.3 to 1.5 m/s.

Because the gearless motors require no oil or lubricants, they can also be used in the food industry. A further advantage of the Sinochron drive is its suitability for use in deep-freeze storage facilities: the series can be used in a temperature range of -30 °C to +60 °C. 'Established drum motors, in contrast, are only suitable down to 0 °C,' reports Thoma.

One user who relies on this drive solution from ABM is Witron Logistik + Informatik GmbH from Parkstein in the Upper Palatinate. The single source general contractor plans, realises and operates automated logistics and material flow systems. The company assumes the logistics planning, information and control technology, mechanical design and manufacturing, and the operational responsibility. Added to that are all service and maintenance tasks for a project. ABM Sinochron motors are integrated into Witron logistics systems around the world, currently in a project with a German grocery chain with several kilometres of conveyors. 'We could reduce installation space and energy consumption with these solutions,' says a satisfied Josef Uschold, head of development of control technology at Witron. 'I was especially impressed with the cooperation with ABM. It was a good partnership right from the start. We always receive high-quality and reliable components.'

Also suitable for very high loads

But what if the drives have to move much higher loads – as is the case with a pallet conveyor? 'Then we attach an existing gearbox to the motor,' explains Fickentscher. The user can then handle loads of up to 1,200 kg and still profits from the advantages of the Sinochron motors, such as a compact design, maximum torque over a large speed control range or a large number of mounting and integration options.

'If our compact parallel shaft gearbox FGA is used in a conveyor system, it can be installed, for example, parallel to the motor shaft. This makes the U design and thus also an output shaft on the motor side possible, which makes this solution even more compact,' says Thoma. For a helical gearbox with an axial output shaft, the motor shaft and the output shaft can be configured in a line if so required. An angular gearbox, e.g., could be mounted laterally to save space. 'We always cooperate closely with our customers to implement their requests,' says Fickentscher. 'To enable higher external radial forces to be absorbed in the drive, we have pulled the output shaft mounting forward into the flange.' This is a big advantage, e.g., for pre-tensioned belt drives or external gear wheels because the distance between the point of force application and the bearing is greatly reduced. The ABM gearboxes can also be extended to yield additional system advantages. Through the flexible installation and the additional assumption of further tasks in the application, system advantages arise: for example, several

movements can be implemented with just one highly efficient motor. This saves money and speeds up commissioning.

Requirements met

'We always accommodate our users' requirements with our solutions,' says Thoma. Thanks to the modified modular solutions, the customer profits from fast availability. The engineering partner and provider supports manufacturers with efficient drive solutions – in automated guided vehicles, in automated logistics systems with conveyors, lifting gear and forklift trucks or in cold storage facilities. ABM Greiffenberger offers everything from a single source. The full-range provider has more than ten years of experience in the applications. 'More than 500,000 of these drive solutions are being used successfully in companies around the world,' stresses Ralf Fickentscher.

9,875 characters including spaces

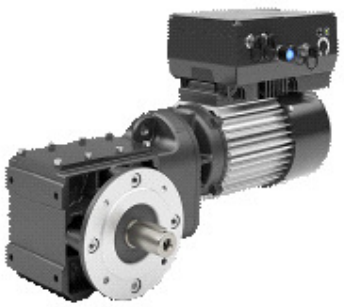
Meta-title: ABM Greiffenberger with Efficient Drive Technology for Intralogistics

Meta-description: As a full-range provider, ABM Greiffenberger develops and manufactures drive systems for stationary and mobile intralogistics applications.

Keywords: ABM Greiffenberger; drive technology; Sinochron; modular kit; system provider; helical gearbox; parallel shaft gearbox; angular gearbox; efficiency

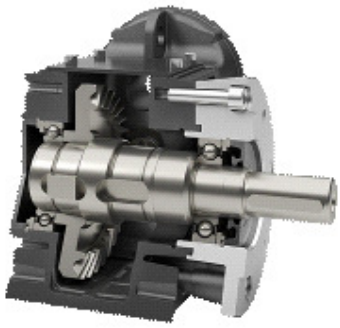
Figure captions:

Figure 1:



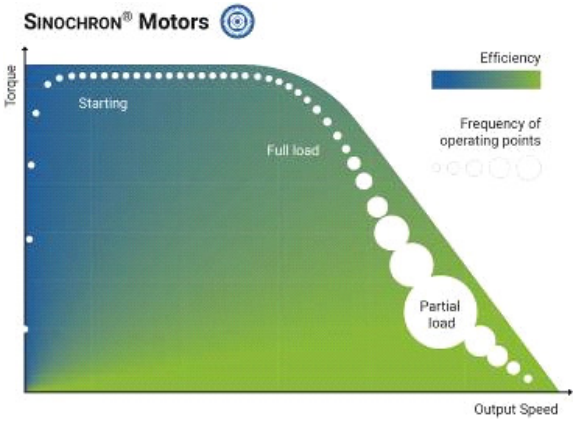
When, for example, an angular gearbox is added, very high loads can be transported with high efficiency and high power density.

Figure 2:



The pulled-out mounting of the output shaft makes the drive extremely robust.

Figure 3:



The high energy efficiency of the sensorless drive, particularly in the part-load region, significantly lowers costs and ensures a fast return on investment.

Figure 4:

Ideal for tight spaces: the parallel shaft gearbox with decentralised inverter and permanently excited synchronous motor (Sinochron motor) fits compactly into the belt conveyor.

Figure 5:

Angular geared motors also drive transport units reliably and efficiently in the logistics systems of industrial companies.

Figures: ABM Greiffenberger Antriebstechnik GmbH

The high-resolution images can be downloaded under the following link.

Reprint free of charge – voucher copy requested to:

a1kommunikation Schweizer GmbH | Eva Neubert
Oberdorfstraße 31 A | 70794 Filderstadt / Germany

About the company

ABM Greiffenberger Antriebstechnik GmbH is one of the leading international system providers of high-profile, high-performance drive solutions for machines, plants and mobile devices. Founded in 1927, with its head office in Marktredwitz, Bavaria, the company belongs to the senata Group (www.senata.eu), an owner-managed medium-sized family company, since the 1st October 2016.

At several national and international production sites, approx. 330,000 drive units on average are produced annually for most diverse applications in the field of machine and plant engineering. The continuous growth of ABM Greiffenberger is due to a productive, committed and reliable cooperation with customers worldwide.

Press Contact:

ABM Greiffenberger Antriebstechnik GmbH
Dagmar Koziel
Phone +49 9231 67-6387
dagmar.koziel@abm-antriebe.de
www.abm-antriebe.de