

FROM STANDARD TO HIGH-QUALITY DRIVE WITH PRECISION ENCODER

The bulk industry can improve the precision of processes by mounting a magnetic pulse generator between engine and gearbox. This makes it possible to upgrade outdated drives. The signal feedback of this technology enables more precise speed control and improved positioning and metering of dispensing equipment, such as dosing equipment, mixers and filling equipment.

A magnetic pulse generator or encoder can upgrade existing drives and significantly improve process accuracy. The added value of this technology lies in the improvement of the management of common processes in the bulk industry. Encoders feed signals from the drive back into the process so that process components run synchronously. An encoder measures the shaft revolutions of the motor, transmits these signals to the PLC, with which the frequency inverter specifies the control of the process. Whether positioning packaging, dosing bulk materials or powders, timing conveyor belts or stirring product, an encoder can optimize any existing drive.

INTEGRATED

The use of encoders in the bulk industry requires that they are well protected against extreme process conditions. Dirt, moisture and corrosion must not have a chance. BEGE Power Transmission has developed an encoder that is integrated in the drive, completely shielded from external influences and is easy to clean.

'More accurate dosing, with a more precisely adjusted drive'

This encoder also offers high precision. The current 'MIG encoder' is a fourth generation technology and part of a continuous improvement process. It is an entirely in-house development of BEGE, which boasts seventy years of experience in drive systems, including angle and coaxial gearboxes and recently also stainless steel three-phase motors.

HIGH-QUALITY DRIVE

According to Coen Paulides, International Sales Manager of BEGE Power Transmission, BEGE's encoder technology offers a number of benefits. "Regular encoders are very precise, but vulnerable in industrial environments because they cannot be installed between the electric motor and gearbox. The existing encoders that are suitable for intermediate mounting do not provide high precision. Our encoder is compact, because it can be installed as a flange in standard IEC sizes between the electric motor and gearbox. So it can be flexibly fitted in. It hardly makes machines and drives any longer, it is no more than 1.5 cm thick. With our customized drives, we make our encoder to measure. As mentioned before, it also offers highest precision. The MIG encoder thus combines the best of both encoder types. With our encoder, you can turn a standard drive into a high-quality drive."

FILLING PROCESS OPTIMIZATION

Paulides illustrates how an encoder can optimize a filling process using an example. "In many designs, the filling process is completed, while the containers are still in motion. An encoder ensures the correct table positioning in filling applications and can be mounted on a motor, drive shaft or other suitable shaft. When the correct number of counts is detected, the controller sends a command to activate the filling system. Encoder feedback ensures that the item to be filled is in the correct position before the filler mechanism is activated. Applications include bottles, tubes, cans or boxes that are transported to a filler via a conveyor, turntable or other delivery system."

PRECISION DOSAGE

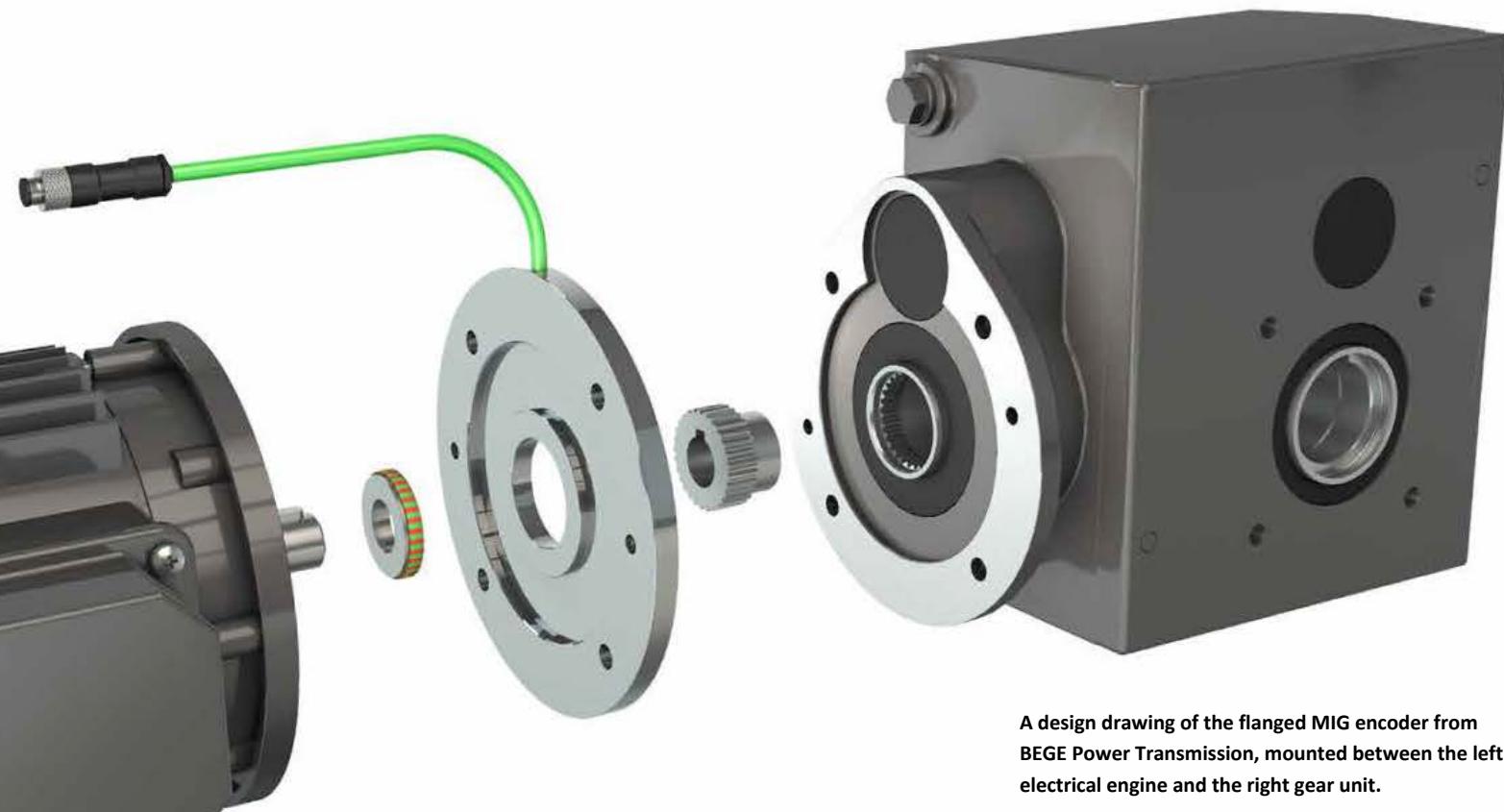
By analogy, the encoder can also prove its worth when it comes to precision dosing. "Encoders can also be used to control the movement of a filling nozzle or dispenser that must be lowered down to and pulled out of the holder. In addition, some fillers travel synchronously with containers during transport, and this movement usually also requires feedback from the encoder." And that's not all, the number of applications does not stop there: "Drills, pumps, mixers, conveyors, grippers, etc. can also benefit from encoder feedback and thus become more precise."

ROBUST

According to Paulides, what makes the MIG encoder innovative is the use of a flange in combination with the synthetic magnetic ring. Normally, an encoder contains an annular ferrite magnet, a ceramic material that is brittle and therefore vulnerable.

'IP67 certified, so it is absolutely dustproof and fully waterproof.'

ROBUST



A design drawing of the flanged MIG encoder from BEGE Power Transmission, mounted between the left electrical engine and the right gear unit.

Unlike other types of encoders and flange encoders, the MIG encoder has a robust magnetic ring made of vulcanized plastic. "It is easy to assemble and does not break during assembly. Not even during the process, because it is shock resistant."

PRECISE

Paulides emphasizes the high signal quality of the encoder. "This goes up to 2,048 pulses, while standard flange encoders usually only go up to 50 pulses. So our encoder is forty times as precise. This pays off, for example, in a much more precise dosage, with a more precisely adjusted drive. When filling packages by weight, this results in a much more accurate filling weight. So less overdose and less product give-away."

HIGH IP RATING

Last but not least – and not least for the bulk material sector – the MIG encoder has a high IP rating. "It is IP67 certified, which means that it is absolutely dustproof and fully waterproof. Because the housing is completely sealed, dirt is not able to accumulate. Our encoder is therefore interference-free and dust- and waterproof. This is also a prerequisite for applications in hygienic environments in connection with cleaning".



A close-up of BEGE's MIG encoder.

Thanks to its memory, the encoder immediately knows the correct position as soon as the machine is switched on again after, for example, a power failure. In environments where safety is an important factor, an absolute encoder is often used." •