Press Release

Bonding Magnets in Electric Motor Manufacturing

Automated solutions for repeatable dispensing

In the production of electric motors, the use of automated dispensing technology is on the rise. The mechanical fixing of magnets is proving to be a big challenge in relation to the automation of this process, especially as the process is associated with high costs. However, the bonding of magnets in laminated core provides a solution. And offers numerous advantages: Noise caused by vibration is prevented because no mechanical connecting elements are required. Contact corrosion is avoided, the components can be processed more quickly, and the strength is optimized. Tolerances resulting from the manufacturing process can be compensated.

How the bonding of the magnets is achieved using ViscoTec dispensing technology can be seen in the video or read in the text below: <https://youtu.be/SsecdmMIrfo>

Materials for magnetic bonding

One or two-component adhesives such as high temperature stable, thermosetting epoxy or polyester resins are often used. The component, preheated by the shrinking process, favors a faster curing of the resin, and therefore optimizes the process time.

Two-component materials can have an additional positive influence on the entire process duration, thanks to the shorter curing time. Further process steps, such as balancing the rotor, can be started immediately whereby long heating sections are ultimately reduced. Depending on the size of the rotor, the quantities of adhesive to be dispensed can vary widely - to suit the requirements of the particular application.

Challenges for dispensing technology

In addition to optimizing the production process, increasing the efficiency and performance of electric motors is a major goal of magnetic bonding. For an optimal result, the fitting surfaces must be clean and free of impurities.

The adhesive is applied after joining the magnets. This can be achieved with different processes, depending on the laminated core design and requirements: For example, by filling the magnet pockets or by applying an adhesive to the magnets. The repeatability of the dispensing process is important here.

Advantages of ViscoTec dispensing technology

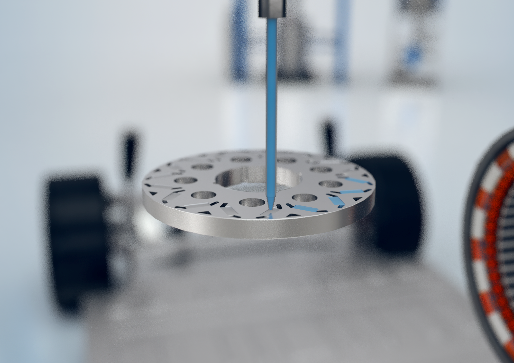
ViscoTec dispensing systems enable a continuous, repeatable, and gentle dispensing of adhesives - regardless of viscosity. Repeatable and precise dispensing of one and two-component adhesives in magnetic pockets of laminated core are achieved.

The material treatment systems from the ViscoTreat series, prevent the fillers from settling in the material to be dispensed - due to an integrated agitator. To achieve a better flow behavior of the material, ViscoTec dispensing systems can be optionally heated. Two-component adhesives can be dispensed without any problems even at extreme mixing ratios.

The dispensing parameters can be easily and flexibly adjusted for variable component sizes. Dispensing units based on the endless piston principle dispense are precise and offer complete repeatability. Filled adhesives are conveyed with particularly low shear. In addition, curing of the adhesive within the pump is conceptually not possible.

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**Photos**



*ViscoTec dispensing systems enable repeatable dispensing for magnetic bonding.*

ViscoTec – Perfectly dosed!

ViscoTec Pumpen- u. Dosiertechnik GmbH manufactures systems required for conveying, dosing, applying, filling, and emptying medium to high-viscosity fluids. The headquarter is in Töging a. Inn (Bavaria). ViscoTec has subsidiaries in the USA, in China, Singapore, India and in France and employs about 260 people worldwide. Numerous sales partners all over the world complete the international distribution network. Next to technically sophisticated solutions to even the most complicated application, ViscoTec is the single point of contact to deliver all components for a complete system: From emptying to preparing and to dosing. This guarantees successful interaction of all components. All fluids showing a viscosity of up to 7.000.000 mPas can be conveyed and dosed almost pulsation-free and with extremely low shear. ViscoTec offers comprehensive consulting for every application and, if required, extensive tests will be carried out in close cooperation with the customer. The dosing pumps and systems are perfectly adapted to their respective application whether it is the food sector, the e-mobility industry, the aerospace field, the medical technology, the pharmaceutical industry, or many other branches.

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