

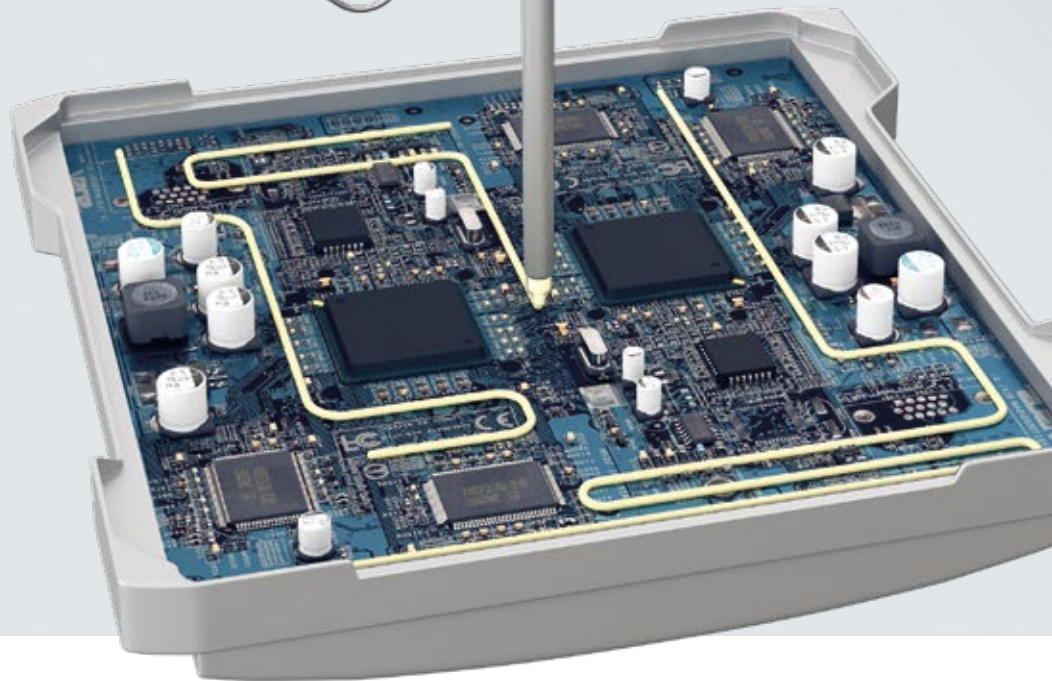


电动交通行业的点胶方案

DISPENSING SOLUTIONS IN E-MOBILITY

自动化、创新和可靠的工艺：
先进技术迎接电气化的未来交通

Automated, innovative and reliable processes:
Technology for an electrified, mobile future





技术-我们的目标是实现最大的精度

TECHNOLOGY – OUR AIM IS TO ACHIEVE MAXIMUM PRECISION

ViscoTec 维世科代表着能可靠处理从低粘度到高粘度的、研磨性的、压力和结构敏感的、剪切敏感的和含固体颗粒的流体。无论粘度如何，总能以很高的可靠性输送物料。系统总是按照客户的要求设计。

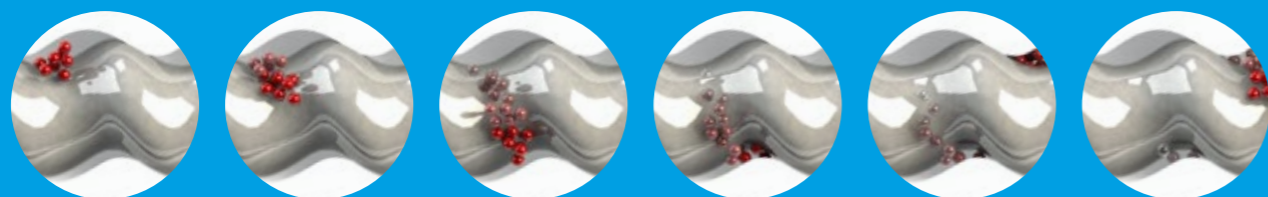
ViscoTec stands for reliable handling of low to high viscosity, abrasive, pressure and structure sensitive, shear sensitive and solid-containing fluids. It is possible to dispense with a high degree of liability, regardless of viscosity. Systems are always designed to customer specification.

核心竞争力

对我们的产品质量至关重要是：定子和转子在几何形状上的完美配合。在为定子选择合适的弹性体时，使用了不同的专有配方。它们确保最优的和长久的使用效果。

CORE COMPETENCE

Crucial for the quality of our products: A perfectly coordinated geometry between the stator and rotor. When choosing a suitable elastomer for the stator, different proprietary recipes are used. They enable optimal and long-lasting operation.



我们的技术

容积计量和填充系统是基于**无限循环活塞原理**，适用于从低粘度到高粘度的流体。

每个应用的核心都是一个纯容积输送计量泵。转子和定子的相互作用为物料的输送提供保证，该功能类似于无限移动的活塞。

这能够确保压力的稳定和泵的线性特性。明确说明了流量与转速、时间之间的比例关系。因此，可以通过一定的时间或通过一定的旋转圈数，实现一个恒定的体积输送。确保泵出口的点胶精度为±1% (也取决于材料自身的特性)，在实际应用中通常会低于此值。

OUR TECHNOLOGY

Volumetric dispensing and filling systems are based on the **ENDLESS PISTON PRINCIPLE** and are used for low to high viscosity fluids.

The core of every application is a purely volumetrically conveying dosing pump. The interaction of rotor and stator results in a feed and dosing characteristic that is similar to an endlessly moving piston.

This results in a pressure-stable, linear pump characteristic. It makes a clear statement about the ratio of revolution, time and flow rate. Therefore, a constant volume can be dosed either over time or over a number of revolutions. A dosing accuracy at the pump outlet of ± 1 % (depending on the material), which in practice is often below this, is guaranteed.



具有很高的工艺可靠性的点胶应用

从低粘度到高粘度的、研磨性的、压力和结构敏感的、剪切敏感的高填料流体 - 输送时不受粘度影响。

APPLICATION WITH A HIGH DEGREE OF PROCESS RELIABILITY

of low to high viscosity, abrasive, pressure and structure-sensitive, highly filled or sensitive to shear fluids – for dispensing, regardless of viscosity.



具有很高使用寿命的点胶阀

由于在输送物料时磨损小、摩擦小，所以效率极高。

DISPENSER WITH A HIGH SERVICE LIFE

and extremely high efficiency due to low wear and low friction when conveying material.



定量输送

对于不同的机器人速度，出胶量总是与转速成线性关系，且重复性精度可达99%。

DEFINED FLOW RATE VOLUME

for a repeatability of > 99 % with linear dependency between the application quantity and revolution for a variable robot speed.



广泛的应用范围

适用于各种不同的工艺应用的独立适用系统。

BROAD APPLICATION RANGE

and individually adaptable systems for a wide range of different process applications.



持续创新

基于我们的创新理论：“停止不前意味着后退，持续前进是进步的唯一途径。”创造力和想象力成就创新。

PERMANENT INNOVATION

according to our claim: “Standing still means moving backwards – keeping moving is the only way to advance.” Creativity and imagination create innovations.



体积式输送

持续不间断地输送所需物料，具有高重复性、无脉动、低剪切力和低压力。

VOLUMETRIC DISPENSING

with continuous non-stop dispensing at the desired flow rate with maximum repeatability. Pulsation-free with minimal shear and low pressure.



德国制造

所有工艺流程都在德国Töging制定并实施。根据德国制造的质量和“全球思考，本地行动”的方法。

MADE IN GERMANY

All process steps are created and executed in Töging. According to the quality feature Made in Germany and the “Think global, act local” approach.



测试和培训

在我们的客户创新中心（CIC），我们提供培训、点胶测试、开展相关活动并有针对性地关注您的点胶应用。

TESTS & TRAININGS

In our Customer and Innovation Center (CIC), we offer training, dosing tests, events and also focus on your dosing application in a targeted way.



超过20年的经验

广泛的专业知识基础，结构化知识管理有助于创建最佳解决方案。

MORE THAN 20 YEARS OF EXPERIENCE

is the base for extensive expert knowledge. A structured knowledge management helps to create optimal solutions.



所有的方案都来自同一个技术源头

从清桶，脱泡到点胶系统，包括工程和物料知识！

ALL FROM ONE SOURCE

From emptying to degassing to dispensing systems. Engineering and material know-how included!



技术-我们的目标是实现最大的精度

OVERVIEW OF APPLICATIONS IN E-MOBILITY

汽车工业目前的变化是采用创新电池技术、电动引擎、精密传感器、全联通、人工智能和它们之间的交互。优化工艺和具有挑战性的物料对点胶技术提出了重大但可解决的挑战。

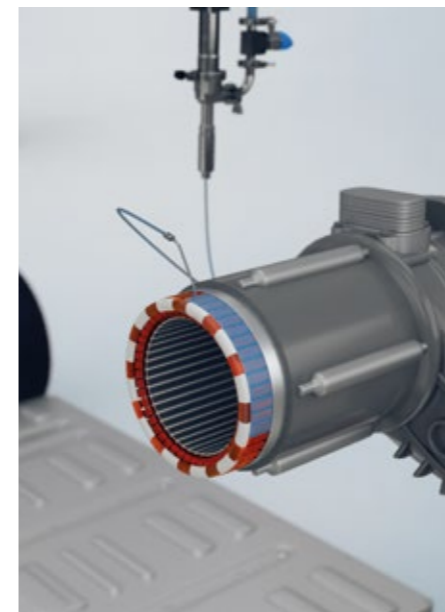
即使是对于大量的填料，物料输送过程也必须确保不影响物料的特性。

重点是快速和简单地处理物料，同时考虑明确的成本控制。ViscoTec维世科物料输送系统可以完美处理所有从低粘度到高粘度的、剪切敏感的和具有研磨性的单组分或双组分的物料，应用广泛。

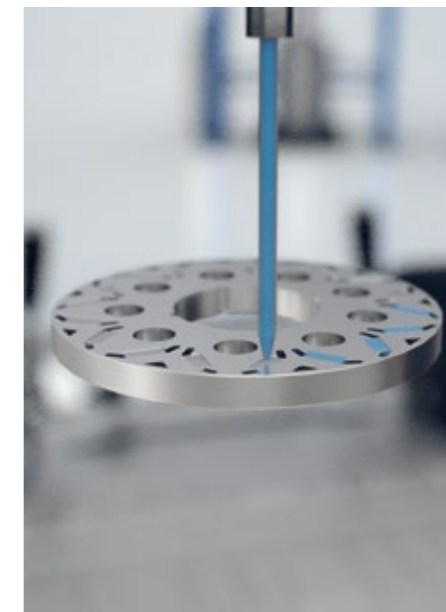
The current change in the automotive industry is now shaped by innovative battery technologies, electric engines, sophisticated sensors, full connectivity, artificial intelligence and their networking with each other. Optimized processes and challenging materials present the dispensing technology with considerable, but solvable challenges.

Specific characteristics of the materials must be preserved, unaffected by the dispensing process. Even with large amounts of fillers.

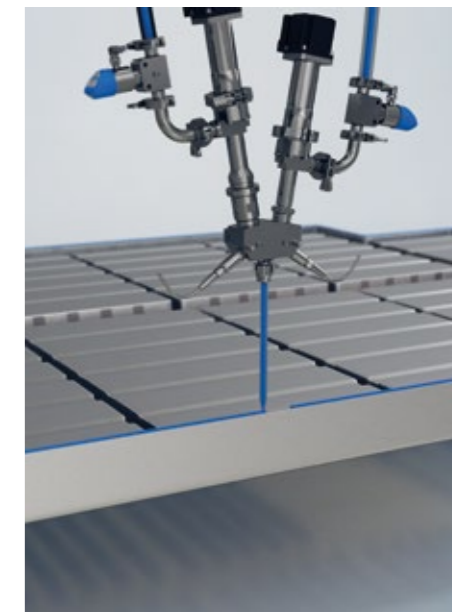
The focus is on fast and uncomplicated processing of the materials, combined with defined cost control. ViscoTec dispensing systems are perfect for processing all low to high viscous, shear sensitive and abrasive one or two component materials in a wide variety of applications.



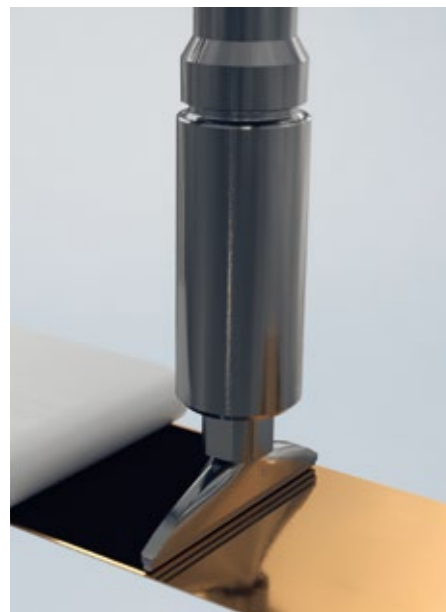
树脂浸渍
RESIN IMPREGNATION



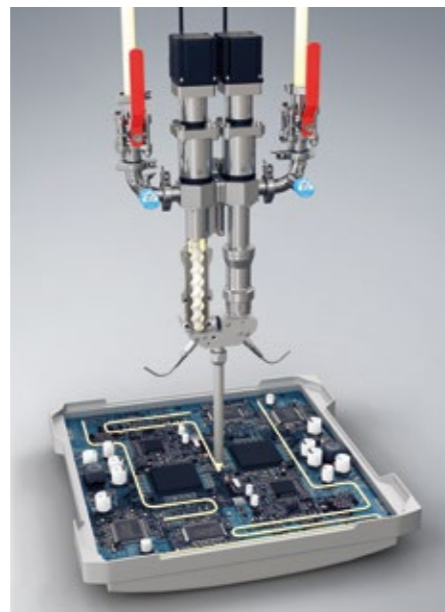
磁铁粘接
MAGNET BONDING



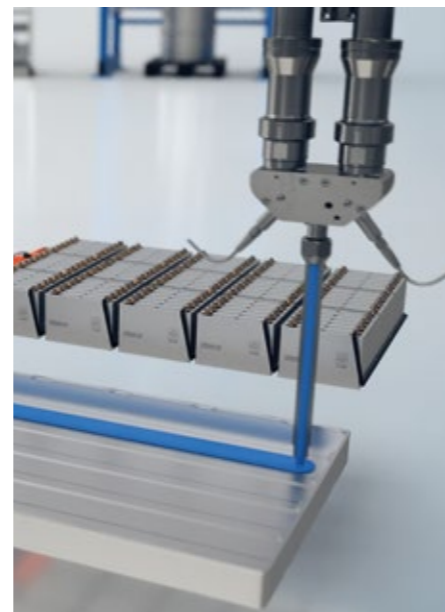
密封
SEALING



浆料输送
SLURRY DISPENSING



热管理
HEAT MANAGEMENT



电池模组&电池组的组装
BATTERY MODULE &
BATTERY PACK ASSEMBLY



动力电子
POWER ELECTRONICS



燃料电池
FUEL CELL



电解液输送
DISPENSING OF ELECTROLYTE



浆料输送

SLURRY DISPENSING

在电极生产中，高精度地处理活性材料，即“浆料”，是一个关键工艺。该工艺对电池的性能和质量起决定性的作用。对化学活性物质的涂布会极大地影响电池的储能能力和充电能力。

浆料是各种添加剂和粘合剂的混合物。该制成的混合活性物质以薄的膏状形式涂布在集电极上。

ViscoTec维世科输送系统非常适合这种物料。我们的系统能确保整个过程无空气并且工艺安全。由于使用了无限循环活塞技术，可以实现持续均匀的物料输送 - 无脉动并且无压力峰值或压力波动。

以低剪切力输送该敏感物料。低输送压力防止浆料分离并保护其他设备，如宽的缝隙式胶嘴。

ViscoTec维世科的物料和工艺专家会根据您独特的要求，支持您设计与实施该输送系统。

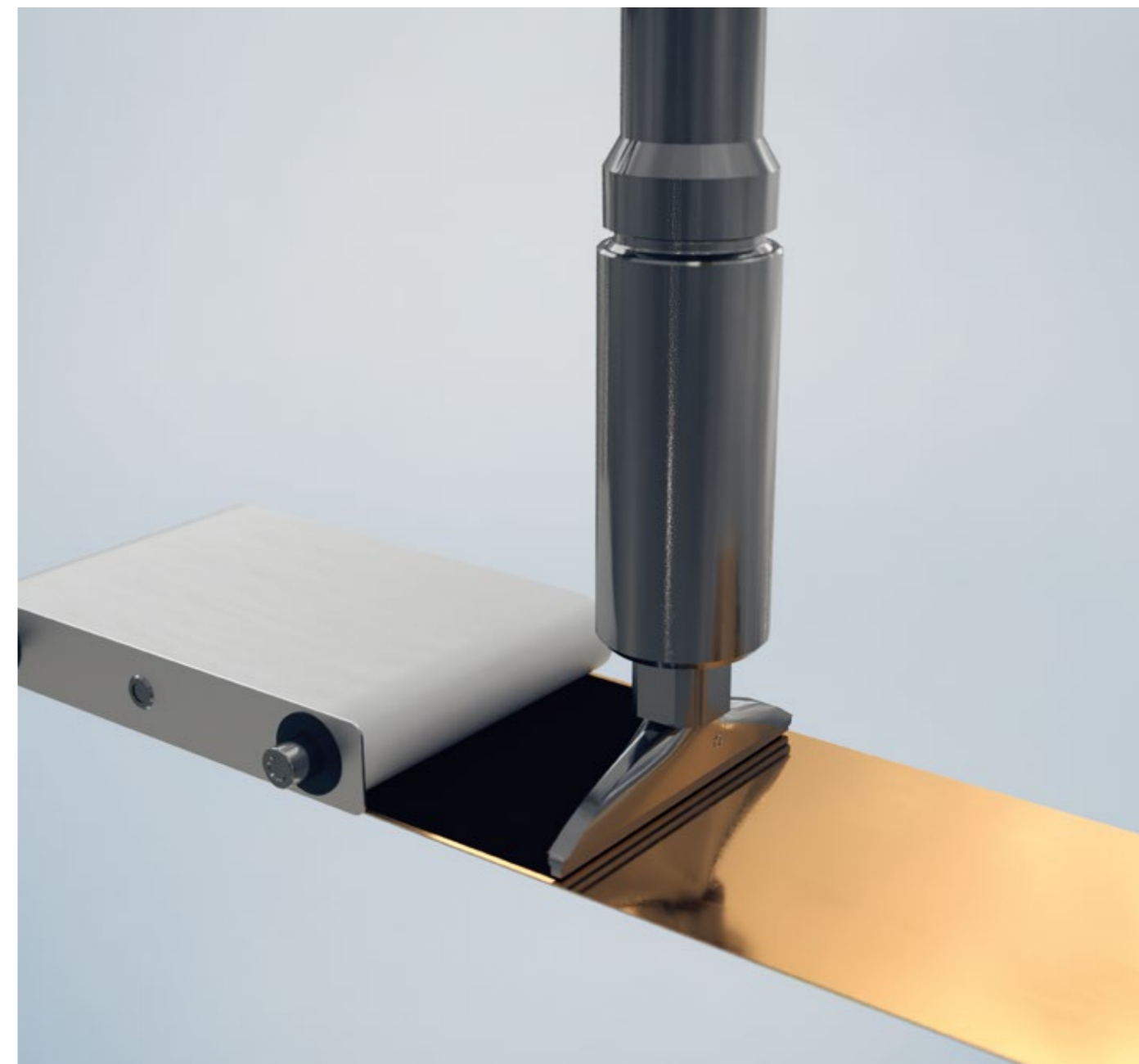
In electrode production, the high precision application of the active material, the so-called „slurry“, is a key process. This process plays a decisive role in the performance and quality of the resulting batteries: The dispensing of the chemically active substances essentially determines the energy storage capacity and charging capability.

Slurry is a mixture of various additives and a binder. The finished mixed active material is dispensed as a thin paste onto the current collectors.

ViscoTec dispensing systems are perfectly suited for this material. They guarantee an air-free and entirely process-safe solution for this type of application. Thanks to the integrated endless piston technology, a continuous and uniform dispense is achieved – pulsation-free and without pressure peaks or fluctuations.

The sensitive materials are conveyed with low shear. Low dispensing pressures prevent separation and protect other equipment, such as the wide slot nozzle.

ViscoTec material and process experts support you in the design and implementation of your dispensing system – according to your individual requirements.



任务

将薄的、均匀的和无气泡的活性物质层涂布到集电极上。

TASK

Application of a thin, even and air bubble-free layer of active material onto current collectors.

解决方案

容积计量泵可以连续、无脉动、低剪切、无空气、在最小压力范围内输送物料。ViscoTreat-Inline维世科在线处理装置可以对活性物料进行脱泡并防止沉淀。可以根据基材运行的速度灵活调节输送量。

SOLUTION

Volumetric dispensing pumps enable continuous, pulsation-free, low-shear and air-free dispensing within a minimum pressure range. The ViscoTreat-Inline degasses the active material and prevents sedimentation. The dispensing quantities can be flexibly adjusted to any conveying belt speed of the foils.



热管理

HEAT MANAGEMENT

高压电池是电动汽车的核心。发热尤其会影响高压电池和连接组件的性能和安全性。为了使电子系统和能量存储系统长期高效运行，可靠的热管理是必要的。

导热胶或热界面材料(TIM)具有典型的填充物料，以确保例如在电池模组或电池单元与外壳之间的散热。液体形式的应用确保了最佳的润湿，因此可以确保到热源的热连接并传输到散热器。

必须精确地应用导热胶或热界面材料(TIM)，并且不能有气孔。只有这样，才能保证有效的热传递，电子系统或电池系统才能在最佳温度范围内安全持久地工作。

由于导热胶或热界面材料(TIM)含有高比例的研磨性的陶瓷填充物。当使用这种类型的物料时，对点胶设备的挑战很大。

ViscoTec维世科点胶系统非常适合于单组分和双组分的、含填充物和研磨性物料的高精度应用，例如导热膏。通过为点胶设备部件选择适合的原材料，例如使用陶瓷转子。即使是对于具有高研磨性的物料，也可以达到最长的使用寿命。

通过一个集成的搅拌器，ViscoTreat系列的物料处理系统确保导热胶无气泡，并防止填料在物料中沉降。为了实现物料更好的流动性能，ViscoTec维世科点胶系统可以选择性地加热。

即使具有很大的混合比例，输送双组分导热物料也没有任何问题。经过验证的无限循环活塞技术，可以实现连续、均匀和无脉动的点胶。

The heart of an electric vehicle is the high-voltage battery. Heat influences in particular can impair the performance and safety of the HV battery and the connected components. In order for electronics and energy storage systems to operate at a high level of efficiency in the long term, reliable heat management is necessary.

So-called gap fillers or thermal interface materials (TIM) with typically loaded filler content ensure heat dissipation, for example between battery modules or cells and housings. The application in liquid form ensures optimum wetting and therefore thermal connections to the heat source and reaches the heatsink.

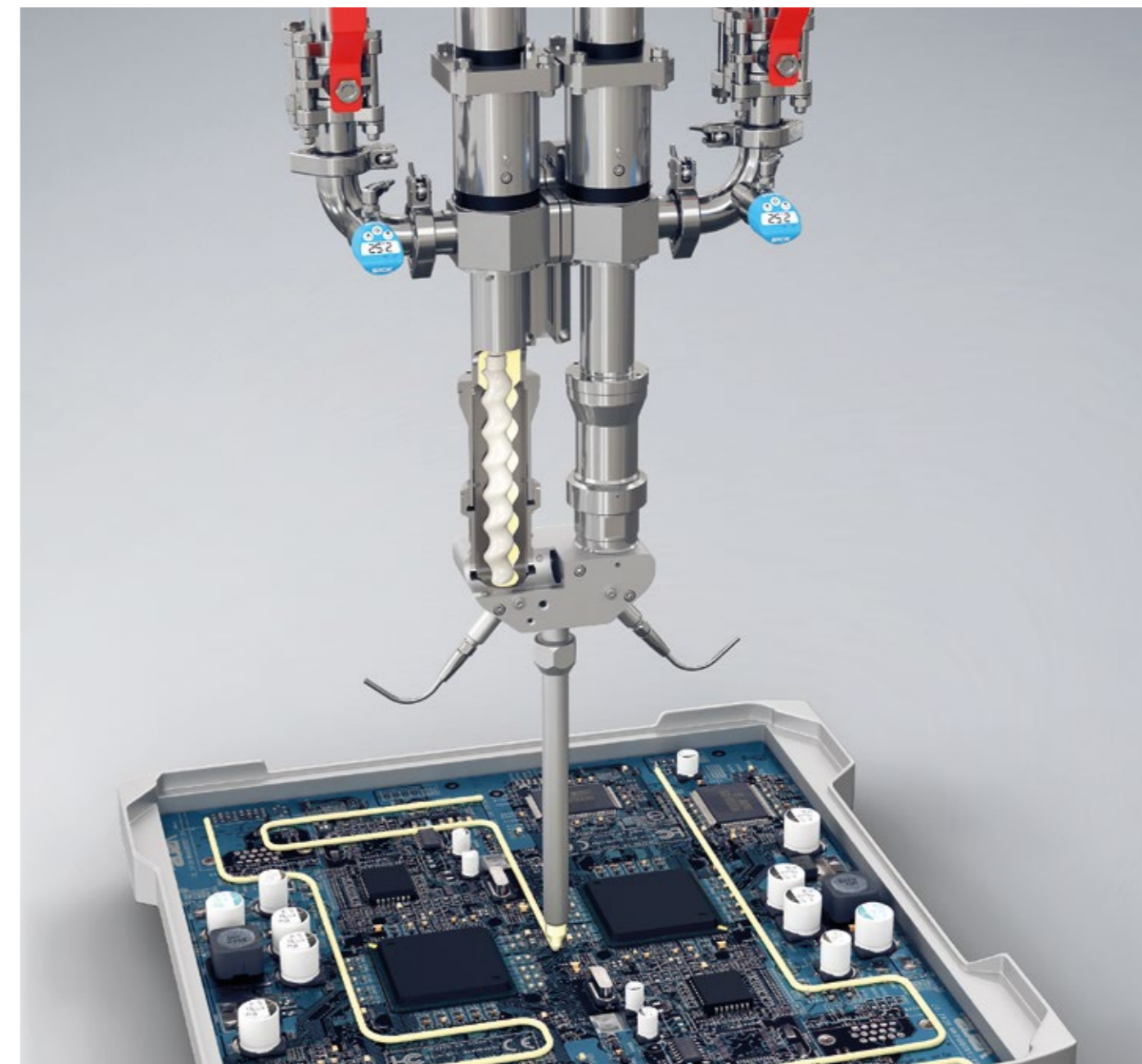
Gap fillers or TIM must be applied precisely and without air pockets. Only then effective heat transfer is guaranteed and the electronics or battery systems can work safely and durably within an optimum temperature range.

Since gap fillers and TIM contain a high proportion of abrasive ceramic filler, the dispensing equipment is particularly stressed when using this type of material.

ViscoTec dispensing systems are perfectly suited for high precision applications of one and two components, filled and abrasive materials, such as thermal conductive pastes. By selecting the appropriate raw material for the dispensing components, e.g. ceramic for the rotor, the highest service lives are achieved. Even with highly abrasive materials.

By means of an integrated agitator, the material treatment systems from the ViscoTreat series enable an air-free distribution of the gap filler and prevent fillers from settling in the material. In order to achieve a better flow behaviour of the material, ViscoTec dispensing systems can be optionally heated.

Two component thermal conductive pastes can be dispensed without any problems, even in extreme mixing ratios. With the proven endless piston technology, continuous, uniform and pulsation-free dispensing is achieved.



任务

通过使用高研磨填料且无气泡的导热膏，确保有效的热管理。

由于部件耐用，降低运行成本。

TASK

Ensuring effective heat management by applying highly abrasive thermal conductive paste without air pockets.

Low operating costs due to durable components.

解决方案

ViscoTreat维世科物料处理装置具有脱泡功能，并集成有搅拌器。ViscoTec维世科能最优地处理导热胶和热界面材料。

即使使用高研磨性的物料，陶瓷转子的点胶阀也能确保长的使用寿命。

SOLUTION

With degassing built into the ViscoTreat series and the integrated agitator, ViscoTec creates an optimal treatment of the gap fillers or TIM.

A dispenser design with ceramic rotor ensures a long service life – even when using highly abrasive materials.



电池模组&电池组的组装

BATTERY MODULE & BATTERY PACK ASSEMBLY

在电池模组和电池组的组装中，需要极其可靠地应用单组分或双组份的物料。为了产生所需的功率，电池单元连接在一起形成一个模组，然后以串联或并联的方式进行电连接：圆形电池的一个处理步骤是在电池支架上应用单组分或双组份的粘合剂。另一方面，方形铝壳电池单元是堆叠的，可以粘合在一起或固定在组件载体上。在出现缺陷的情况下，粘合剂起到隔绝电气和隔热的双重作用。另外还避免了电池单元之间的振动，从而防止了对触点的损坏。使用ViscoTec维世科点胶技术对这种胶进行全自动点胶，确保短的应用时间和高的工艺可靠性。

热界面材料TIM是电池系统生产中不可缺少的材料。从电子控制模块到电池单元，再到模组和电池组，大量填充单组分或双组份的导热胶是驱散各级电池系统产生的热量所必需的。导热胶通常以高比例的研磨性固体为特征，用来达到所需的导热系数，有时超过3.0W/mK。由于要输送的物料的高研磨性，使得点胶设备的磨损特别大。

针对这种应用，ViscoTec维世科提供的组件能够保证最长的使用寿命。由于特殊设计的部件和集成的无限循环活塞技术，ViscoTec维世科点胶系统非常适合单组分或者双组分导热膏的高精度应用，并且适合对填充有研磨性物料的精确和可重复的点胶。

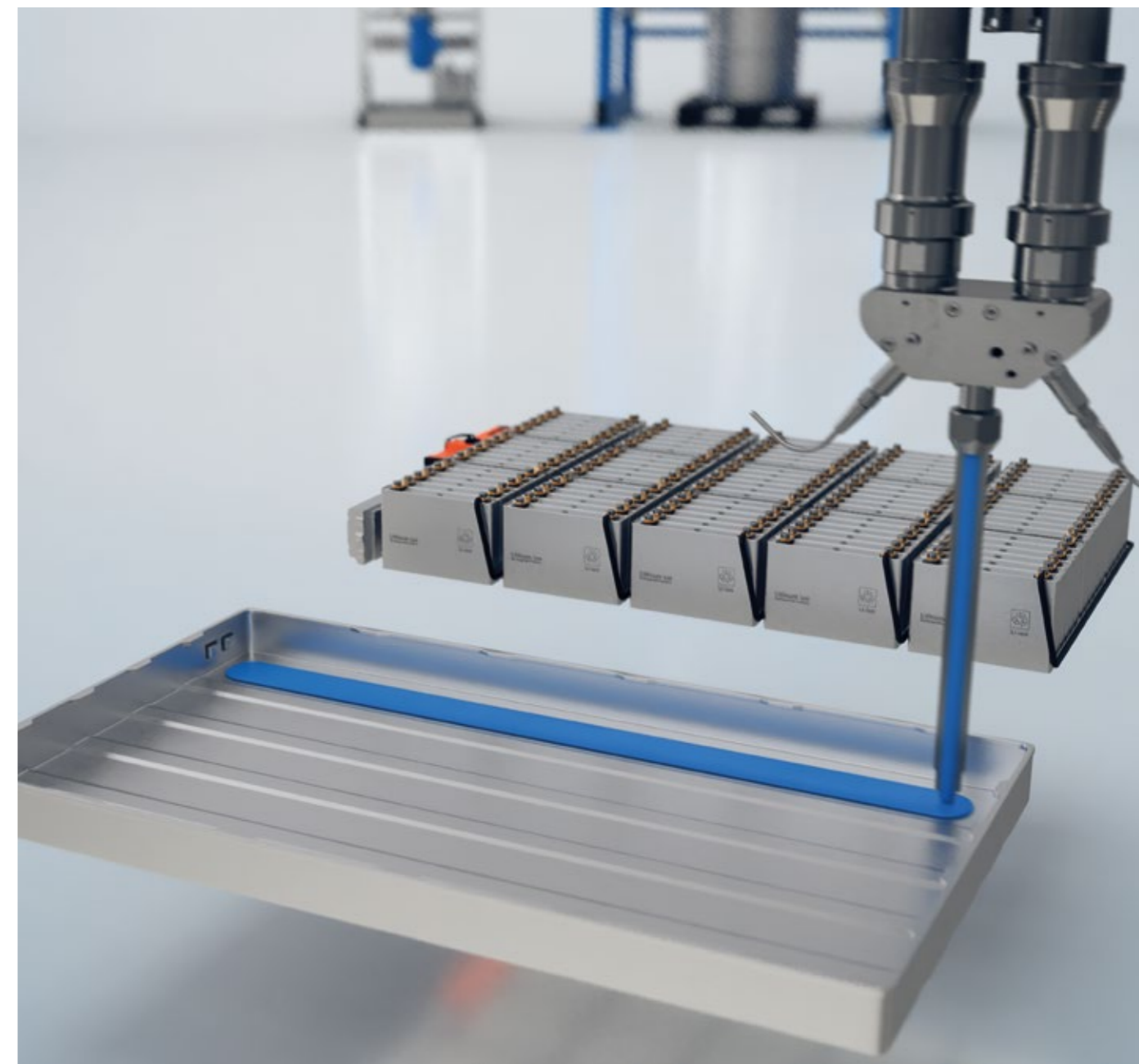
点胶技术的另一种应用是电池系统外壳的粘接，即密封粘接。电池系统内的湿气可以产生腐蚀造成损坏，显著降低性能，甚至通过短路完全破坏系统。因此，可靠的密封是至关重要的：ViscoTec维世科在众多的行业中拥有多年的密封应用经验，可以依靠从中获得的技术能力。由于具有多样的输送技术，即使是最难应用的物料也可以安全可靠地输送。

In the assembly of battery modules and battery packs an extremely reliable application of one or two component materials is required. To generate the necessary power, individual cells are joined together to form a module and then connected electrically in either a series or parallel: One process step for round cells is the application of one or two component adhesive onto the cell holder. Prismatic cells, on the other hand, are stacked and can be glued together or fixed onto component carriers. The adhesive serves – in case of a defect – as both electrical and thermal insulation. Vibrations between the cells are additionally avoided, thereby preventing damage to the contacts. Fully automatic dispensing of this adhesive with ViscoTec dispensing technology enables short process times with maximum process reliability.

TIM (Thermal Interface Materials) are indispensable in the production of battery systems. The heavily filled one or two component fluids are essential to dissipate the heat generated at all levels of the battery system: From the electronic control module to the battery cells, to the module and pack. The so-called gap fillers are usually characterized by a high proportion of abrasive solids and used to achieve the required thermal conductivity, sometimes over 3.0 W/mK. Due to the abrasiveness of the material to be dispensed, the dispensing equipment is subject to particularly high loads.

ViscoTec offers components for this application to guarantee the longest possible service life. Thanks to the specially designed components and the integrated endless piston technology, ViscoTec dispensing systems are perfectly suited for the application of high precision one and two component thermal pastes, as well as for the precise and repeatable dispensing of filled and abrasive materials.

Another application for dispensing technology is the bonding of the housings in the battery system, the so-called sealing. Moisture within the battery system can cause damage through corrosion and significantly reduce performance or even completely destroy the system through short circuits. Reliable sealing is therefore essential: ViscoTec has many years of experience in sealing applications in a wide range of industries and can rely on know-how already acquired from this. Even the most difficult material profiles can be dispensed safely and reliably thanks to the variable dispensing technology.



任务

单组分或双组分物料在电池模组和电池组的组装中的安全应用。

TASK

Process-safe application of one or two component materials in the assembly of battery modules and battery packs.

解决方案

精确、全自动、易于控制和不间断的点胶：与粘度无关，ViscoTec维世科点胶系统能够连续、重复和温和地处理热界面材料(TIM)、密封材料和粘合剂。即使使用研磨性的物料，陶瓷转子也能确保长寿命。

SOLUTION

Precise, fully automated, easily controllable and endless dispensing: ViscoTec dispensing systems enable a continuous, repeatable and gentle dispensing of TIM, sealing materials and adhesives - regardless of viscosity. The ceramic rotor ensures long service life even when abrasive materials are used.



树脂浸渍

RESIN IMPREGNATION

除了电池生产，电动机和发电机的生产在电动汽车制造中也扮演着重要角色。ViscoTec维世科为使用滴流工艺的转子和定子的树脂浸渍提供高效、精确的输送解决方案。

在转子和定子的树脂浸渍过程中，树脂被输送到导线绕组中。这一工艺提高了电动旋转设备的耐久性，并改善了其性能。机械性能增加，并使产生噪音的振动最小化。此外，通过填充空腔来改善热耦合，从而使运行过程中产生的热量能够最佳地消散。浸渍树脂也有助于进一步的电气绝缘。

在滴注过程中，电机的定子或转子绕着自己的轴连续旋转。该部件通过感应加热或循环空气加热。在旋转过程中，树脂被滴在表面。树脂通过毛细管作用和旋转进入绕卷。由于转动，树脂被均匀分布在定子内。

在这一过程中，高质量的先决条件是均匀、无脉动的输送。ViscoTec维世科点胶系统保证了最大的点胶精度和高的重复性精度。无限循环活塞中的给料腔具有一个确定的体积。由于输送量和转动速度之间的比例关系，可以很容易地调节体积流量。在点胶工艺结束时，通过回吸功能，防止不必要的滴胶，实现一个干净的点胶结果。

使用ViscoTreat系列的脱气系统对树脂进行脱气。确保无空气。

单组分或双组分环氧树脂和聚酯树脂常用作树脂浸渍物料。这些物料通常是低粘度和热固化。ViscoTec维世科输送系统是理想的选择。即使是对于双组分的大的混合比例。

In addition to battery production, the production of electric motors and generators also plays a major role in e-mobility manufacturing. ViscoTec offers efficient and precise dispensing solutions for the resin impregnation of rotors and stators using the trickle process.

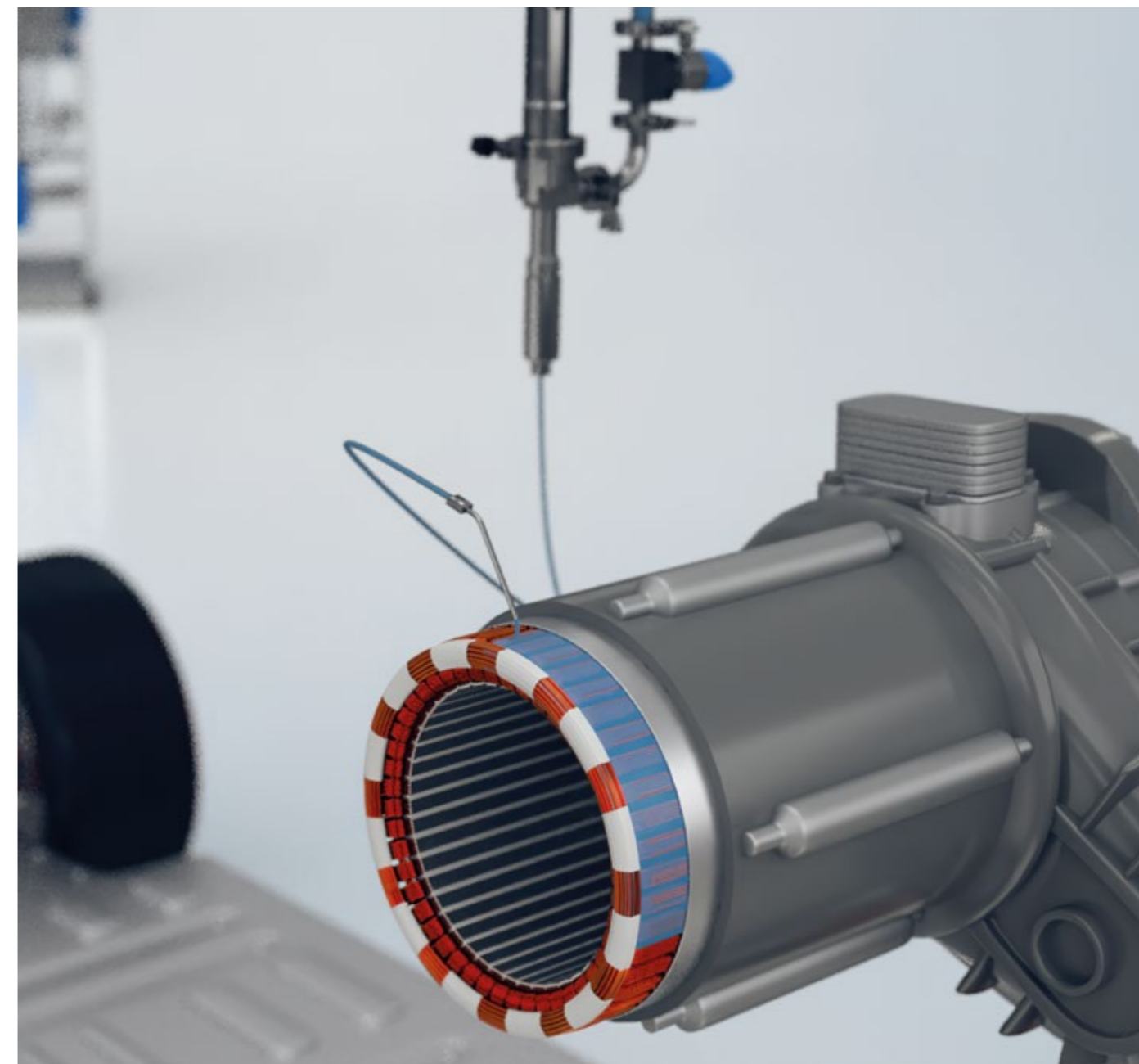
During the resin impregnation of rotors and stators, resin is dispensed into wire windings. This process increases the durability and improves the performance of electrical rotating machines. Mechanical resistance is increased, and noise-generating vibrations are minimized. In addition, thermal coupling is improved by replacing the air in the cavities so that the heat generated during operation can be optimally dissipated. The impregnating resin also contributes to further electrical insulation.

During trickling, the stator or rotor is continuously rotated around its own axis. The component is heated by induction or circulating air heat. During the rotation the resin is trickled on. The resin is drawn into the winding by capillary action and rotation. Due to the rotation, the resin is evenly distributed in the stator.

The prerequisite for high quality during this process is a uniform, pulsation-free dispensing. ViscoTec dispensing systems guarantee maximum dispensing accuracy and complete repeatability. The feed cavities within the proven endless piston principle create a defined volume. Due to the proportionality between the drive speed and the discharge volume, the volume flow can be easily regulated. And a programmable retraction at the end of the dispensing process, the so-called suck-back function, prevents unwanted dripping – for clean dispensing results.

The resin is degassed using the ViscoTreat series of treatment systems. This ensures an air-free process.

One or two component epoxy resin and polyester resin systems are frequently used as resin impregnation materials. These materials are usually low viscosity and thermally curing. ViscoTec dispensing systems are ideal for dispensing them. Even with extreme mixing ratios of the two component variants.



任务

通过对电机的转子和定子进行完全的树脂浸渍，提高电机的耐久性和使用寿命。

TASK

Increasing the resistance and service life of an electric motor by complete resin impregnation of rotor and stator.

解决方案

基于螺杆泵的点胶系统允许连续、无脉动和无空气地输送树脂，达到最佳树脂浸渍结果。

SOLUTION

Dispensing systems based on the progressive cavity pump technology allow a continuous, pulsation-free and above all air-free dispensing of the resin for an optimal resin impregnation result.



磁铁粘接

MAGNET BONDING

在电机的生产中，使用自动点胶技术变得越来越重要。特别是磁铁的机械固定是该工艺自动化中的一大挑战。特别是当这个工艺会产生高昂的成本时。

将磁铁粘接到金属薄板组件中的具有很多优点：

- 防止振动引起的噪音（在没有机械紧固件时）
- 避免接触腐蚀
- 增加强度
- 快速处理

常用的是单组分或双组分的丙烯酸或环氧胶粘剂。底漆可以提高结构丙烯酸酯的固化速度。

根据电机的大小，粘合剂的量会有相当大的变化。ViscoTec维世科的输送技术为这些应用提供最佳的解决方案：用于单组分和双组分粘合剂。针对不同的部件尺寸，点胶参数可以很容易地灵活调整。

点胶单元是基于无限循环活塞原理，精确点胶，具有高重复性精度。以特别低的剪切力输送含填充物的粘合剂。粘合剂不会在泵中固化。

通过一个一体化的搅拌器，ViscoTreat系列的物料处理系统可以防止填料在物料中沉淀。为了实现物料更好的流动性能，可以对ViscoTec维世科点胶系统进行加热。

双组分粘合剂的输送完全没有问题，即使具有很大混合比。

In the production of electric motors, the use of automated dispensing technology is becoming increasingly important. Especially the mechanical fixing of magnets is a big challenge in connection with the automation of this process. Especially as the process incurs high costs.

The bonding of magnets in sheet metal packs offers numerous advantages:

- Prevention of noise caused by vibration (without mechanical fasteners)
- Contact corrosion is avoided
- Increased strength
- Fast processing

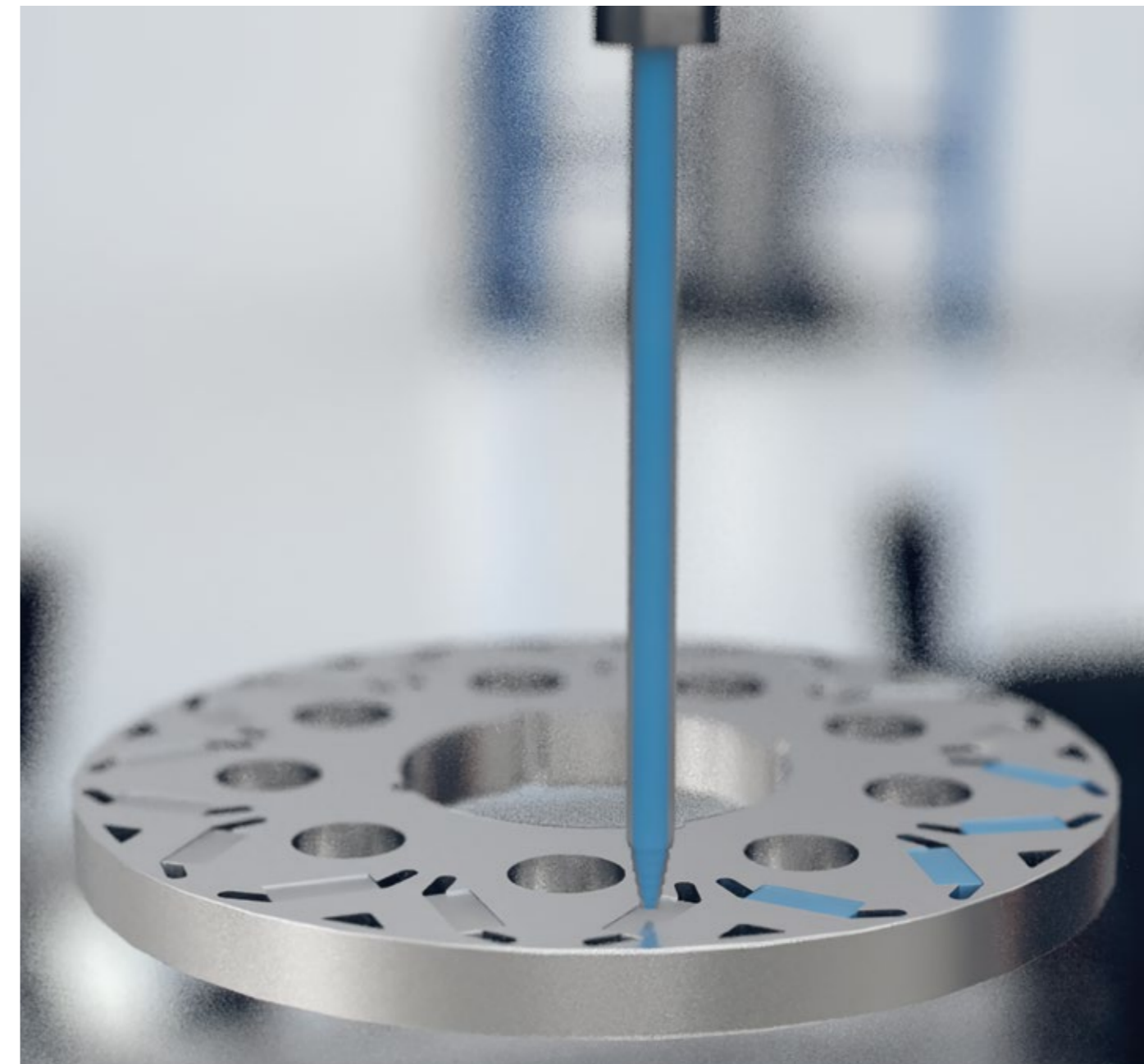
One or two component acrylic or epoxy adhesives are commonly used. Primers can be used to increase the curing speed of structural acrylates.

Depending on the size of the motor, the quantities of adhesives to be dispensed can vary considerably. ViscoTec Dosiertechnik offers optimal solutions for these applications – for both one and two component adhesives. The dispensing parameters can be easily adjusted for variable component sizes and flexibility.

Dispensing units, based on the endless piston principle, dispense accurately and with complete repeatability. Filled adhesives are delivered with particularly low shear. And curing of adhesives in the pump is conceptually impossible.

By means of an integrated agitator, the material treatment systems from the ViscoTreat series prevent the fillers from settling in the material. In order to achieve a better flow behaviour of the material, ViscoTec dispensing systems can be optionally heated.

Two component adhesives can be dispensed without any problems even with extreme mixing ratios.



任务

用粘接代替机械连接的方法优化生产工艺。
提高电机的效率和性能。

TASK

Optimization of the production process by bonding instead of mechanical joining methods.

Increasing the efficiency and performance of electric motors.

解决方案

ViscoTec维世科的点胶系统能够连续、可重复和物料友好地输送粘合剂 - 完全与粘度无关。

实现单组分和双组分胶粘剂在金属薄板组件的磁性凹口中的可重复和精密点胶。

SOLUTION

ViscoTec dispensing systems enable a continuous, repeatable and material-friendly dispensing of adhesives – completely independent of viscosity.

Repeatable and precise dispensing of one and two component adhesives in magnetic pockets of sheet metal packs is achieved.



密封

SEALING

容积式点胶系统已被证明是一种可靠的、经济的、灵活的且应用广泛的密封技术。

另外，对于电动交通的电池管理系统的外壳密封，粘接和密封应用是最先进的。

电池系统内的水分会显著降低性能，甚至通过腐蚀造成损坏。高质量的密封能够有效避免这样的情况。

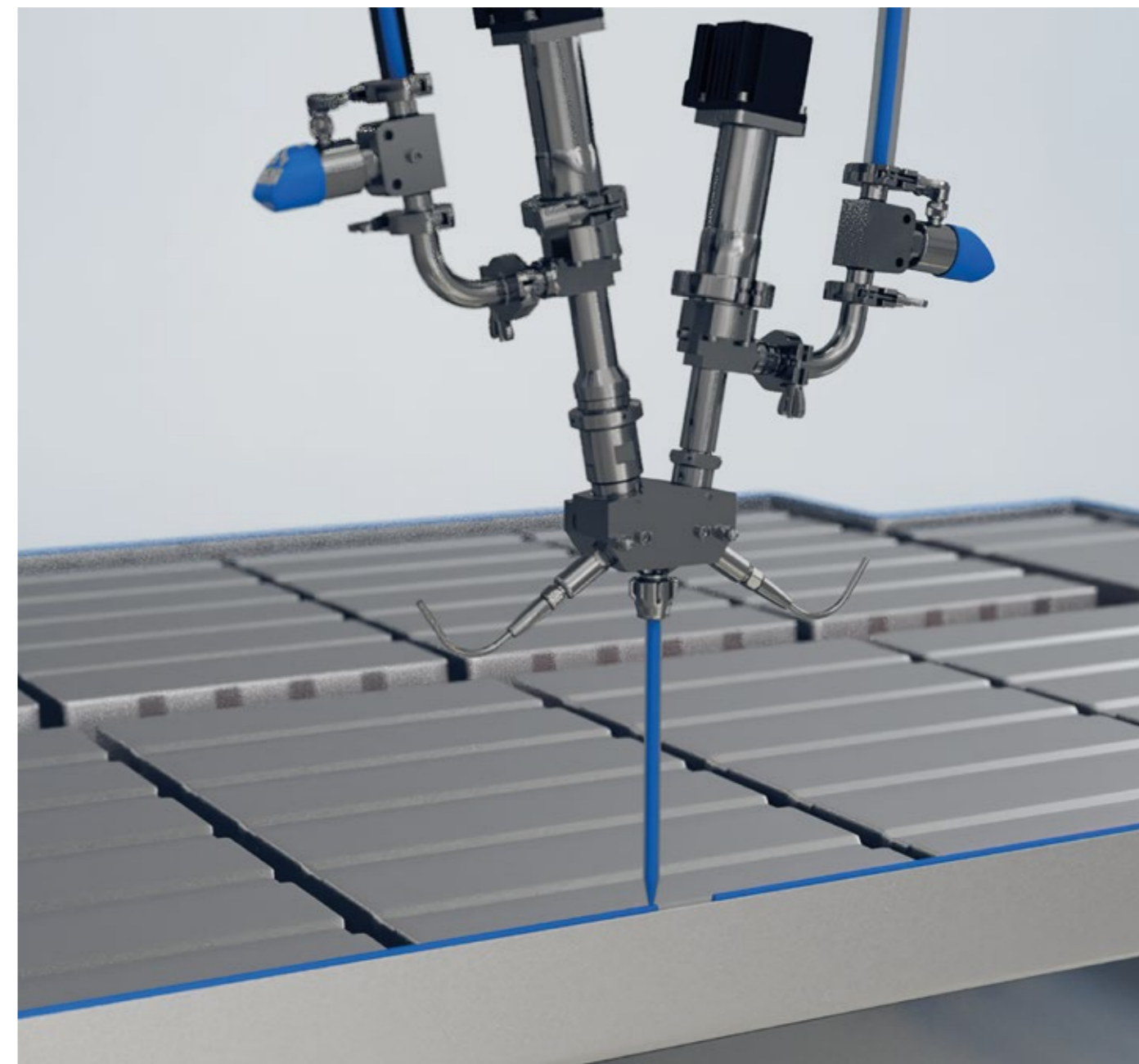
ViscoTec维世科在各个行业的密封应用领域拥有数十年的经验。全自动化点胶结合ViscoTec维世科点胶技术，以很短的时间完成工艺，具有高的工艺可靠性。由于流量的设置可变，即使是对于最复杂的外形轮廓也可以安全可靠地点胶。

Volumetric dispensing systems have already proven to be a reliable, cost-effective, flexible and suitable sealing technology in a wide range of applications.

Also, in the housing seals of battery management systems for e-mobility, bonding and sealing applications are state of the art.

Moisture within the battery system, for example, can significantly reduce performance or even cause damage through corrosion. This can be counteracted with a high-quality sealing bead.

ViscoTec has decades of experience in the field of sealing applications in the most diverse industries. Fully automated dispensing with ViscoTec dispensing technology allows short process times with the highest process reliability. Thanks to the variable setting of the flow rate, even the most difficult contours can be dispensed safely and reliably.



任务

为了保护电池不受潮，电池必须完全密封。

TASK

To protect the battery from moisture, the battery must be perfectly and completely sealed.

解决方案

使用ViscoTec维世科点胶技术，即使是对于复杂几何形状的组件，也能够可靠、全自动和易于控制地实现各种单组分或双组分密封胶的应用。

SOLUTION

Reliable, fully automated and easily controlled application of viscous one or two component sealants, even on complex component geometries – with ViscoTec dispensing technology.



动力电子

POWER ELECTRONICS

越来越多的流体输送点胶应用于控制单元、逆变器或转换器等电子元件的制造中，通过精确应用粘合剂和导热材料来保证这些组件的性能和较长的使用寿命。

在电子元器件外壳上涂上一层均匀的密封胶，可以保护它们免受湿气、水和灰尘等外部影响。例如，使用双组分环氧树脂进行灌封可以使电子设备免受外部环境影响。在汽车行业，振动和冲击是不可避免的。使用弹性粘合剂粘合单个组件可以缓解这些外部因素，从而防止出现缺陷。

由于动力电子的高能量需求，热负荷非常高。具有高导热性的磨损性热界面材料的应用有助于散发产生的热量并保护组件。我们推荐使用我们的陶瓷转子，这能使高磨损性材料的使用寿命更长。

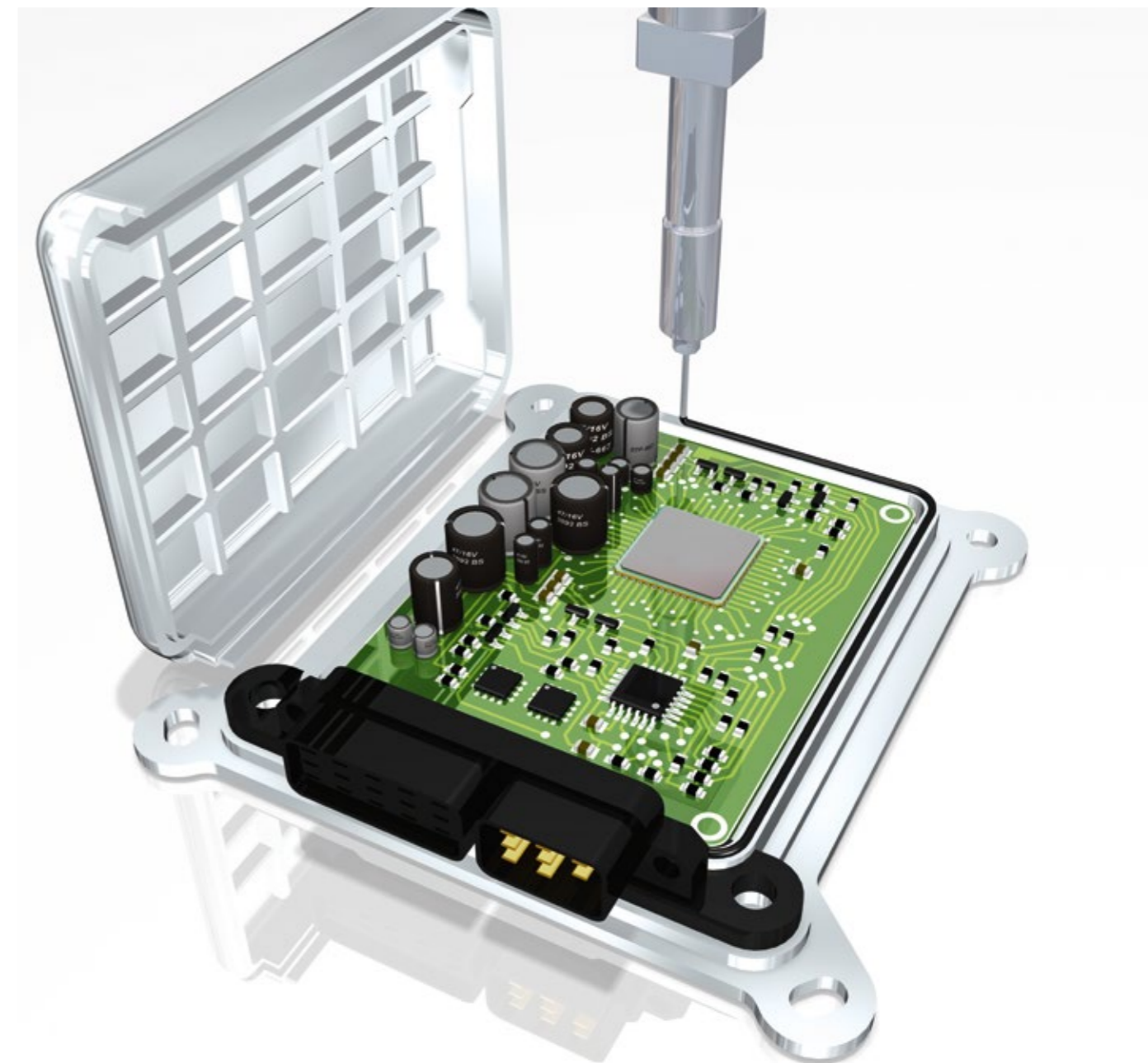
ViscoTec 维世科为您提供适用于所有流体输送应用的完美解决方案，包括从胶水应用到点胶针头的选型。安全、高效和可靠的过程始终是重中之重。

Numerous dispensing applications are found in the manufacture of electronic components such as control units, inverters or converters. The aim is to guarantee the performance and a long service life of these components through the precise application of adhesives and thermally conductive materials.

The application of a uniform bead of sealant to housings of electronic components protects them from external influences such as moisture, water and dust. Potting with, for example, two-component epoxy resins enables the electronics to be encapsulated from external environmental influences. Vibrations and shocks are unavoidable in a car. Bonding individual components with an elastic adhesive can absorb these and thus prevent defects.

Due to the high energy requirements of power electronics, the thermal load is very high. The application of abrasive thermal interface materials with high thermal conductivity helps to dissipate the heat generated and protect the component. For long service life with highly abrasive material we recommend our ceramic rotor.

ViscoTec offers you a perfect solution for all applications, from material removal to dispensing needles. The top priority is always a safe, efficient and reliable process.



任务

使用密封胶、粘合剂、灌封材料和导热膏多种物料应用流体输送，保护电子产品免受热量和外部影响。

TASK

Protect electronics from thermal and external influences through process-safe dispensing of sealants, adhesives, potting materials & thermally conductive pastes.

解决方案

用于单组分或双组份物料的全自动安全可靠的流体输送解决方案——从物料清空系统到计量供给系统。选择合适的物料可以降低磨损的速度并降低运行成本。我们为每种应用提供合适的解决方案。

SOLUTION

A fully automated and process-safe dispensing solution for one- or two-component materials – from material emptying systems to dispensers. Selecting the right materials protects against rapid wear and reduces running costs. We offer the right solution for every application.



燃料电池

FUEL CELL

燃料电池技术在提升发电量的诸多应用中有着巨大的潜力。在燃料电池制造中处理粘性物料ViscoTec 维世科可以提供多种应用，例如双极板上的粘合剂和密封条的流体处理应用。

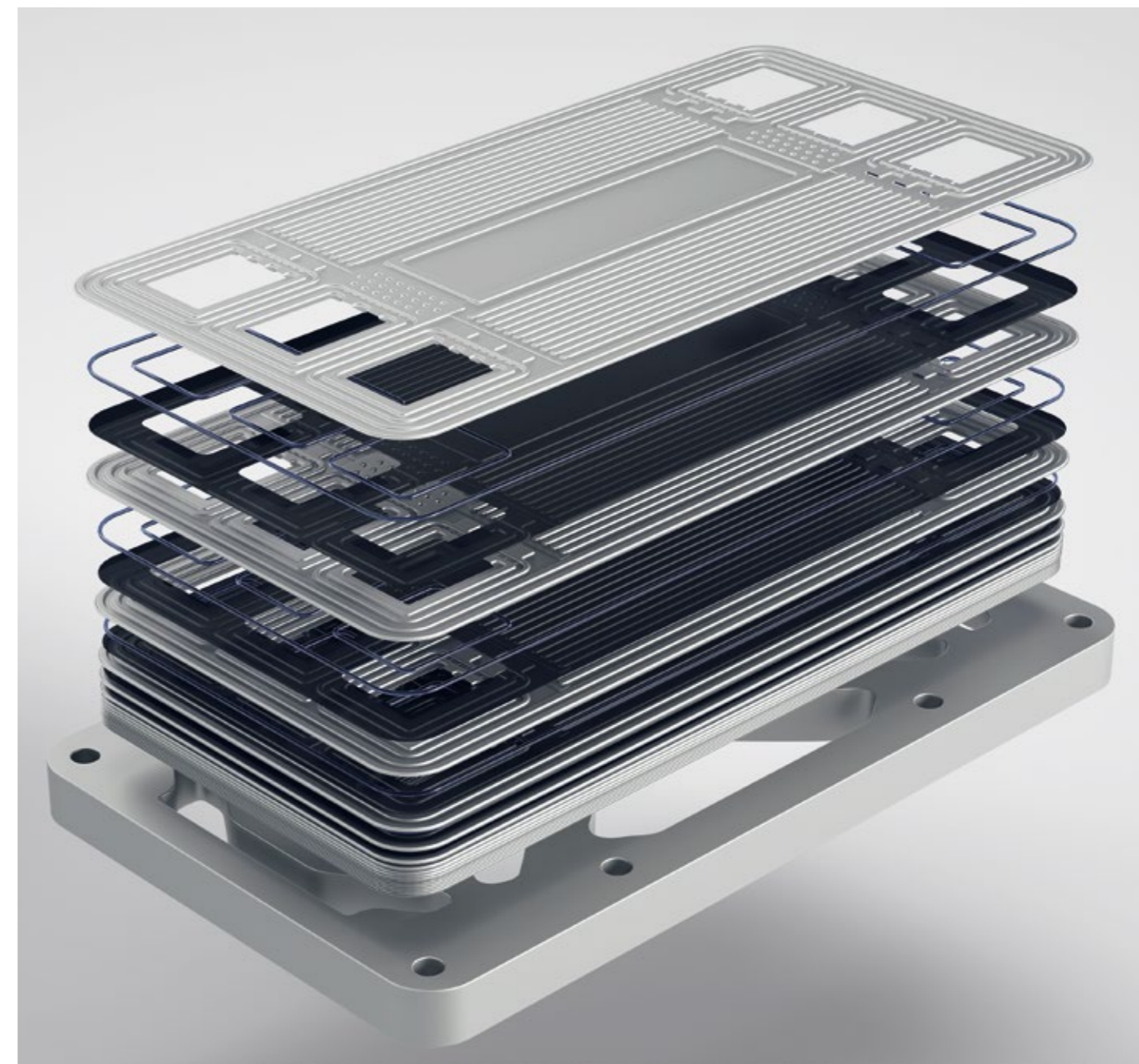
密封条适用于不同的几何形状，比如矩形或环形，具体取决于组件部分。例如，应用的目标是将厚度均匀的胶条点胶到互连器上。为确保物料密封了燃料电池并提供安全功能，此计量输送过程的首要任务是保证不间断的应用过程和稳定的可重复性。

ViscoTec 维世科并不局限于燃料电池生产中的粘合剂和密封应用。譬如膜电极组件制造步骤也是另一种有趣的应用。它包含质子交换膜 (PEM) 和活性催化剂。阳极和阴极的相应含催化剂糊剂通过计量供给不间断地输送到半透膜上。

Fuel cell technology has the potential to improve power generation in numerous applications. ViscoTec deals with different applications of viscous materials in fuel cell manufacturing, such as adhesive and sealing beads on bipolar plates.

The sealing bead is applied in different geometries, e.g. as rectangle or ring, depending on the component section. The goal in another application, for example, is to dispense a uniformly thick dispensing bead onto interconnectors. The top priority in this dispensing process is uninterrupted application and absolute repeatability. This is because this material seals the fuel cell and provides a safety function.

ViscoTec does not limit itself to adhesive and sealing applications in fuel cell production, however. The membrane electrode assembly manufacturing step, for example, is also an interesting application. It contains the proton exchange membrane (PEM) and the active catalysts. The corresponding catalyst-containing pastes of the anode and cathode are applied to the semipermeable membrane in a continuous process via the dispenser.



任务

燃料电池领域的出料系统必须是可扩展的，根据客户规格进行设计从而实现高水平的工艺可靠性。

TASK

Dosing systems for the fuel cell sector must be scalable, demonstrate a high level of process reliability and be designed to customer specifications.

解决方案

ViscoTec 维世科的模块化系统可提供精确定制的解决方案，并具有始终如一的高精度计量。

SOLUTION

ViscoTec's modular system enables a precisely custom-fit solution with consistently high dosing quality.



用于电动交通的特殊方案

SPECIAL SOLUTIONS FOR E-MOBILITY



陶瓷转子

对ViscoTec维世科不锈钢转子的进一步发展：用于工艺可靠地输送含研磨性填料的流体，例如导热用的单组分和双组分导热胶、单组分导热膏或高填料的双组分粘合剂。

陶瓷转子实现了更长的使用寿命。它与ViscoTec维世科RD系列的输送系统和混合系统完全兼容。用于单组分和双组分的点胶系统。

陶瓷转子的表面比不锈钢转子更硬。当处理高研磨性的物料时，磨损很小，因此具有很长的使用寿命。延长维护周期，并减少生产线的停机时间。

CERAMIC ROTOR

A further development of the proven stainless steel rotor from ViscoTec: For the process-reliable dispensing of abrasive fluids such as thermally conductive one and two component gap fillers, one component thermal conductive pastes or heavily loaded two component adhesives.

The ceramic rotor provides significantly longer service life. It is fully compatible with the dispensing and mixing systems of the RD-Dispenser series from ViscoTec. And can be used in both one, and two component systems.

The surface of the ceramic rotors is harder than that of the stainless steel rotors. When working with highly abrasive materials, this results in less wear and tear and therefore longer service life. For longer maintenance intervals and subsequently less downtime of the production line.



百分之百不含金属的VIPRO泵*

适用于许多高标准的制造工艺：在电池生产中需要特殊处理的高活性物料，如硫酸、厌氧固化丙烯酸酯和金属敏感的电解质。可以使用ViscoTec维世科VIPRO泵完美地输送，具有完美的可重复精度和精确性。

为了防止化学反应，例如固化或结晶，在输送装置内与物料接触的区域完全不含金属。

*与物料接触的区域完全不含金属

VIPRO-PUMP 100 % METAL-FREE*

Perfect for the high standards in many manufacturing processes: Highly reactive materials such as sulfuric acids, anaerobic curing acrylates and metal-sensitive electrolytes, which require special treatment in battery production, can be perfectly dispensed with the ViscoTec vipro-PUMP. Perfectly repeatable and precise.

In order to prevent chemical reactions, such as curing or crystallization, the area within the dispenser that comes into contact with the product is completely free of metal.

*Metal-free in the area in contact with the product.

独特的解决方案

ViscoTec维世科是一家系统供应商，用于高效地处理物料。其产品组合适合被处理的物料和生产要求。最后，它能简单地集成到您的生产工艺中。

ViscoTec维世科设有技术中心，在那里可以对输送应用进行验证。在技术中心，工程师和技术人员随时为客户提供建议和应用支持。

多年的行业经验、系统知识、物料知识和新的有潜力的想法的完美结合推动着公司的发展，并为找到每个应用的最佳解决方案创造了基础。作为一个一站式的方案提供商，ViscoTec维世科能够简单并快速地实施整个点胶过程。

INDIVIDUAL SOLUTIONS

ViscoTec is a system provider for totally efficient product handling. The portfolio is adapted to the material to be processed and to the production requirements. And finally, it is simply integrated into your production process.

ViscoTec has the benefit of its in-house technical center where dispensing applications can be validated together. Engineers and technicians are on hand to provide customers with advice and practical support in the technical center.

The perfect combination of many years of experience in the industry, system know-how, material knowledge and new, promising ideas drives the company and creates the basis for finding the optimum solution for each application. As a one-stop-shop, ViscoTec enables simple and fast implementation of an entire dispensing process.



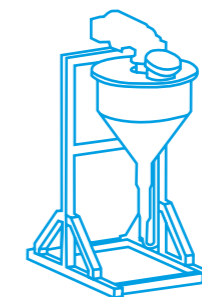
模块化系统 MODULAR SYSTEM

基于我们的工艺经验，给您提供的系统可以根据您的工艺进行单独调整 - 包括工程和咨询。

Based upon our process know-how, your system is individually adapted to your process - including engineering and consulting.



物料清空
Material emptying



物料处理
Material treatment



点胶
Dispensing

维世科(上海)贸易有限公司
大中华地区办事处
VISCOTEC SHANGHAI LIMITED
GREATER CHINA OFFICE

BLK 16, City of Elite
No. 1000 Jin Hai Road, Pudong
Shanghai, 201206, P.R. China
上海市浦东新区金海路1000号
金领之都16号楼
邮编: 201206
电话Phone: +86 21 6165 9002
电邮Mail: sales@viscotec-china.com
网站Web: www.viscotec.com.cn

总部:
VISCOTEC PUMPEN- U. DOSIERTECHNIK GMBH

地址Address: Amperstraße 13
84513 Töging a. Inn
电话Phone: +49 8631 9274 0
电邮Mail: mail@viscotec.de
网站Web: www.viscotec.de

美国: VISCOTEC AMERICA INC.

电话Phone: +1 770 422 4281
电邮Mail: sales@viscotec-america.com
网站Web: www.viscotec-america.com

新加坡: VISCOTEC ASIA PTE. LTD.

电话Phone: +65 656 93 629
电邮Mail: sales@viscotec-asia.com
网站Web: www.viscotec-asia.com

印度: VISCOTEC INDIA PVT. LTD.

电话Phone: +91 20 4104 7135
电邮Mail: sales@viscotec-india.com
网站Web: www.viscotec-india.com

法国: VISCOTEC FRANCE SASU

电话Phone: + 33 5 56 17 64 36
电邮Mail: sales@viscotec.fr
网站Web: www.viscotec.fr

中国香港
VISCOTEC HONG KONG

电话Phone: +852 2593 1235
电邮Mail: sales@viscotec-hongkong.com
网站Web: www.viscotec.com/hk



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