

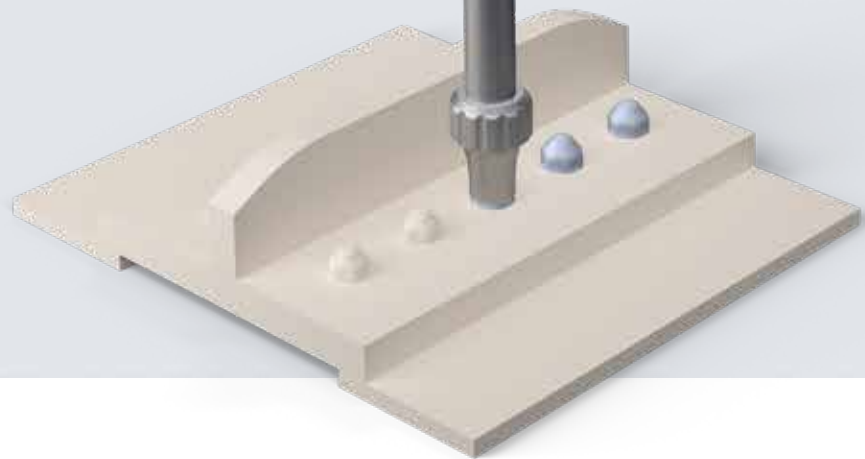


# 航空航天工业中的精密点胶

## PRECISION DISPENSING IN THE AEROSPACE INDUSTRY

在使用粘合剂、密封剂、核心填料等物料的自动化应用中，实现最大的工艺可靠性。

Maximum process reliability in automated applications with adhesives, sealants, core fillers and much more.





## 技术: 我们能实现最高的精度

TECHNOLOGY – MAXIMUM PRECISION IS OUR CLAIM

ViscoTec维世科代表着能在工艺上安全地处理从低粘度到高粘度的、研磨性的、对压力和结构敏感的、对剪切敏感的并且含固体颗粒的流体物料。这种与粘度无关的点胶方式，能够实现高度安全性的点胶。ViscoTec维世科总是按照客户的规范设计系统。

### 核心竞争力

对我们的产品质量起决定性作用的因素是：定子和转子之间几何结构的完美匹配，以及为定子选择合适的合成橡胶。每种合成橡胶都具有专利配方。它们能够确保最佳的并且持久的运行。

### 德国制造

所有的流程都是在ViscoTec维世科位于德国Toeging的总部制定和实施的。它们遵循“德国制造”的品质和“全球思考，本地行动”的独特方法。

ViscoTec stands for process-safe handling of low to highly viscous, abrasive, pressure and structure-sensitive, shear-sensitive and solids-laden fluids. This viscosity-independent dispensing makes it possible to dose with a high degree of safety. Systems are always designed to customer specifications.

### CORE COMPETENCE

Decisive for the quality of our products: A perfectly matched geometry between stator and rotor, and the selection of a suitable elastomer for the stator. The various elastomers are proprietary formulations. They enable optimal and long-lasting operation.

### MADE IN GERMANY

All processes are developed and implemented at ViscoTec's headquarters in Töging. They follow the distinctive quality feature 'Made in Germany' and the 'think global, act local' approach.



### 我们的技术

容积式计量和填充系统基于无限循环活塞原理，适用于从低粘度到高粘度的液体。

每个应用的核心都是基于容积输送的计量泵。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。因此可以输送任何体积的物料，在泵出口处可达到±1%的点胶精度（也取决于材料自身的特性）。

### OUR TECHNOLOGY

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

At the centre of each application there is a purely volumetric dispensing pump. The interaction of rotor and stator results in a delivery and metering characteristic that resembles an endlessly moving piston.

The resulting pressure-stable, linear pump characteristic curve provides a clear correlation between the ratio of rotation, time and flow rate. Any volume can be dispensed and a dosing accuracy of ± 1% (depending on the material) can be achieved at the pump outlet.



# 物料及其要求

## MATERIALS & THEIR REQUIREMENTS



例如：用于密封  
eg. sealant applications



例如：用于密封和填充  
eg. seals, fillings



例如：用于粘合  
eg. adhesive applications



例如：用于灌封  
eg. potting applications

属性 PROPERTIES	详情 MORE SPECIFICALLY	点胶特性 DISPENSING PROPERTIES
料 Fillers	阻燃剂, 空心玻璃微珠 Flame retardants, glass hollow spheres	剪切敏感的材料点胶 Shear sensitive processing
压缩性 Compressibility	聚合物空心微球 Polymer hollow spheres	低压力点胶 Low pressure dispensing
流变特性 Rheological particularities	触变性 Thixotropy	点胶与粘度无关 Viscosity independent dispensing
混合比 Mixing ratio	高达100:1, 短时固化物料 Up to 100:1 with short pot lives	混合比可调 Adjustable mixing ratio
粘度 Viscosities	高达数百万mPas Up to several million mPas	适用于高粘性流体 Suitable for highly viscous fluids



# 产品组合

## PRODUCT PORTFOLIO

单组份和双组份材料的清空、处理和输送过程中的高效产品处理: 包括直观的控制技术。我们的产品特别适用于“需要被处理并被集成到客户生产过程中”的物料。

Efficient product handling for the emptying, supplying and dispensing of 1-component and 2-component materials – including intuitive control technology. Our products are specially adapted to the material to be processed and integrated into your production process.

### 物料排空系统

为无缝、不间断生产提供持续稳定的物料供应。

容器尺寸: 180 毫升~1000 升  
排空能力: 最大4升/分  
粘度: 高达7,000,000 mPas

### MATERIAL EMPTYING SYSTEMS

Continuous and constant product supply for seamless, uninterrupted production.

Container size: 180 ml – 1,000 l  
Emptying capacity: up to max. 4 l/min  
Viscosities: up to 7,000,000 mPas

### 物料处理系统

对点胶材料的特别处理 (缓冲、脱气): 对膏料和液体进行均质和脱气, 实现可靠的点胶。

容器尺寸: 2.5升/3.5升/15升/25升  
排空能力: 最大1 升/分  
粘度: 高达2,000,000 mPas

### MATERIAL TREATMENT SYSTEMS

Individual treatment of the dispensing material (buffering, degassing): Homogeneous and air-free or bubble-free fluids and pastes for a reliable dispensing process.

Container size: 2.5 l / 3.5 l / 15 l / 25 l  
Emptying capacity: up to max. 1 l/min  
Viscosities: up to 2,000,000 mPas



ViscoMT-CM



ViscoMT-D



ViscoMT-XS



ViscoTreat-Im



ViscoTreat-R



ViscoTreat-I

### 用于点胶、涂层、喷涂和填充应用的点胶阀和泵

可靠、准确、自动化和可重复性：用于精密地处理物料，精准地遵循混合比。

体积流量： 0.1毫升/分~20升/分  
最小点胶量： 0.001毫升  
混合比： 1:1至100:1  
应用领域： 应用&实施，涂层、  
填充、双组份点胶、  
灌封、喷涂

### DISPENSERS AND PUMPS FOR DISPENSING, COATING, SPRAYING AND FILLING APPLICATIONS

Reliable, accurate, automatic and repeatable: For precise material handling and maintaining an accurate mixing ratio.

Volume flow: 0.1 ml/min – 20 l/min  
Min. dispensing quantity: 0.001 ml  
Mixing ratio: 1:1 to 100:1  
Areas of application: coating, filling, 2-component dispensing, potting, spraying



RD-EC Spray



ViscoDuo-VM



vipro-DUOMIX

### 模块化系统

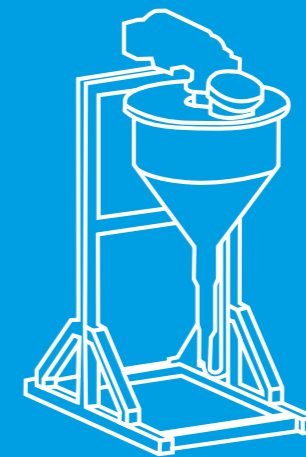
基于我们的工艺技术专长，我们根据您的流程调整系统，并为您提供额外的工程和咨询服务。

### MODULAR SYSTEM

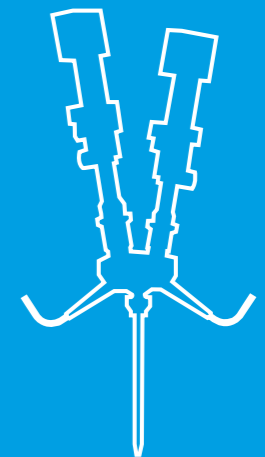
Based on our process know-how, your system will be individually adapted to your process – including engineering and consulting.



物料清空  
Material emptying



物料处理  
Material treatment



点胶  
Dispensing





# 工程&咨询服务

## ENGINEERING & CONSULTING SERVICES



### 1, 咨询

经过方案咨询和工艺开发的解决方案，可以获得最佳结果。我们倾听您的需求和要求，并提供丰富的行业经验。作为我们的客户，这将为您节省宝贵的时间和资源。

### 1. CONSULTING

Solutions with conceptual consulting and process development lead to optimal results. We listen to your requirements and requests and offer our extensive experience. As our customer, this saves you time and resources.

### 2, 选择合适的点胶设备

每个应用和每个工艺都有自身的规范。满足这些规范并响应客户的个性化需求，是我们系统设计中的一个重要里程碑。

### 2. CHOICE OF SUITABLE DISPENSING EQUIPMENT

Every application and every process has a binding specification. Fulfilling these specifications and responding to the individual requirements of the customer is an important milestone in the design of our systems.

### 3, 选择合适的点胶嘴

只有与正确的点胶嘴相结合才能实现最大的精度。我们在点胶嘴开发领域不断积累经验，使我们能够满足最高的要求。

### 3. DETERMINATION OF THE APPROPRIATE NOZZLE

Maximum precision can only be achieved in combination with the correct nozzle. Our increasing experience in the field of nozzle development enables us to meet even the highest requirements.

### 4, 验证正确的应用参数

我们支持客户定义正确的工艺参数。实验室的试验和我们几十年来获得的知识，能帮助我们找到正确的解决方案。

### 4. VALIDATION OF THE CORRECT APPLICATION PARAMETERS

We support our customers in defining the right process parameters. Trials in our laboratories and the knowledge we have acquired over decades, help us find solutions.

### 5, 集成到整个工艺流程中

为了能够为客户提供一个功能全面的系统，我们将重点放在通信接口上。只有这样，我们的产品才能完美地集成到客户现有的工艺流程中。

### 5. INTEGRATION INTO THE COMPLETE PROCESS

To be able to offer the customer a functioning overall system, we focus on the interfaces. Only in this way can our products be perfectly integrated into the existing process.

### 6, 售后服务

为了在系统实施后支持我们的客户，我们提供广泛的售后服务贯穿系统的整个生命周期。

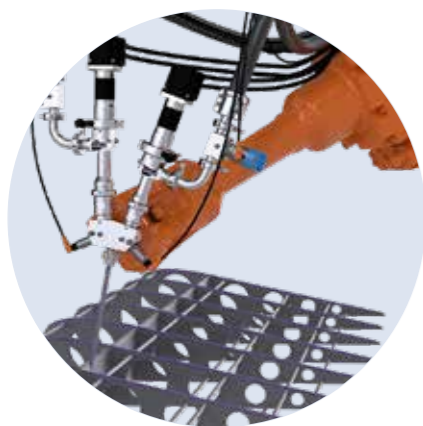
### 6. AFTER SALES

In order to support our customers after the implementation of a system, we offer a wide range of after sales services – suited to the life cycle of the systems.



# 应用概述

## AN OVERVIEW OF THE APPLICATIONS



### 碳纤维增强合成材料结构的密封与粘合

- 可从任何容器中清空物料
- 确保正确的混合比
- 最大的过程稳定性

#### SEALING & BONDING OF CFK STRUCTURES

- Material emptying from any container
- Correct mixing ratio
- Maximum process stability



### 密封翼壳

- 适用任何接缝轮廓的密封
- 满足高的公差要求
- 适用可压缩材料

#### SEALING THE WING SHELL

- For any sealing seam contours
- Fulfilment of narrow tolerance windows
- Suitable for compressible materials

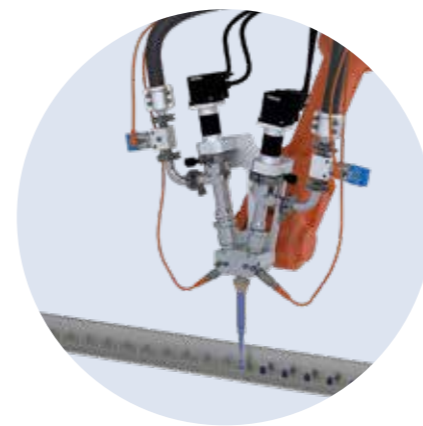


### 表面涂层应用

- 在微米范围内的喷涂应用
- 喷涂底漆、助剂、清漆和面漆
- 温和处理物料

#### APPLICATION OF SURFACE COATINGS

- Spray application in the  $\mu$ -range
- Spraying of primers, promoters, lacquers and top coats
- Gentle material handling



### 铆钉和螺钉的密封

- 适用于各种密封盖
- 工艺安全的点胶
- 无需预成型或模制密封盖

#### SEALING OF RIVETS & SCREWS

- For various sealing caps
- Process-safe dispensing
- No pre-forming or moulding of seal caps is necessary



### 夹层结构的填充

- 用于嵌件、边缘与结构紧固件
- 可以从大型容器供料
- 消除物料浪费

#### FILLING OF SANDWICH STRUCTURES

- For inserts, edges & structural reinforcements
- Processing from large containers
- No material waste



# 在一段时间内密封

## SEALING OVER THE COURSE OF TIME

无论是边缘密封、倒角密封、盖密封还是接口密封:通常是使用预混合冷冻或双组份物料筒(阻透注射筒)来手动密封。

它们含有一定量的树脂和固化剂。然而,在大多数情况下,这一数量是不够的,并导致物料损耗增加。

通过ViscoTec维世科的自动化解决方案,将要点胶的两种成分可以单独存放在更大的容器中,并根据需要进行混合。

Whether Edge Sealing, Fillet Sealing, Cap Sealing or Interface Sealing – mostly premixed-frozen or 2-component cartridges (injection barrier cartridges) are used for the manual activity of sealing.

They contain a specified amount of resin and hardener. In most cases, however, this quantity is not sufficient and causes increased material wastage.

With ViscoTec's automated solution, the two components to be dosed can be purchased separately in larger containers and mixed as required.

### 行业现状 CURRENT SITUATION IN THE INDUSTRY



- ✓ 不投资  
No investment
- ✓ 工艺没有变化  
No change to the process
- ✗ 大量的后勤工作  
Massive logistical effort
- ✗ 由于使用小包装,物料成本较高  
High material costs due to smaller containers
- ✗ 由于消耗量与需求量不一致,导致物料浪费多  
High material waste due to the consumption not being in line with demand
- ✗ 由于手动应用(给部件贴胶带、应用后的清洁、返工),导致加工速度慢  
Slow process speed due to manual application (taping of the component, cleaning after application, reworking)
- ✗ 混合质量差的风险  
Risk of poor mixing quality

# VISCOTEC 维世科带来的新的可能性和机遇

## OPPORTUNITIES WITH VISCOTEC

### 简单优化: 根据需要填充料筒 SIMPLE OPTIMIZATION: FILL CARTRIDGES AS REQUIRED



- ✓ 最佳的采购条件  
Optimal purchasing conditions
- ✓ 按需配料,物料浪费最小化(不需要丢弃混合料筒)  
Minimal material waste due to demand-oriented dispensing (no throwing away of mixed cartridges)
- ✓ 减少后勤工作量  
Reduced logistical effort
- ✓ 能够简单加入到整个工艺流程中  
Simple implementation into the overall process
- ✓ 混合均匀  
Homogeneous mixing
- ✗ 仍然是手工操作,因此在人为错误和返工方面没有改进  
Still manual application, therefore no improvement regarding human error and reworking

### 效率最大化: 最高质量的全自动化方案 MAXIMUM EFFICIENCY: FULLY AUTOMATED IN HIGHEST QUALITY



- ✓ 最佳的采购条件  
Optimal purchasing conditions
- ✓ 100%与需求量一致的物料消耗  
100 % material consumption in line with demand
- ✓ 可以实现全自动化  
Complete automation is possible
- ✓ 符合精确的规范要求  
Compliance with precise specifications
- ✓ 无人错误  
No human error
- ✓ 循环时间较之前显著提升  
Significant increase in the previous cycle time is possible
- ✗ 一次性投资成本较高  
Higher one-off investment costs



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