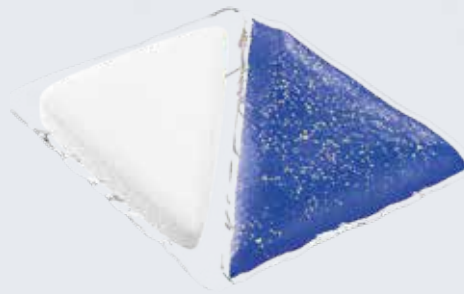




DOSING & FILLING TECHNOLOGY IN HYGIENIC DESIGN

Reliable filling and pulsation-free dosing of highly viscous, solid containing or semi-solid materials.



ViscoTec



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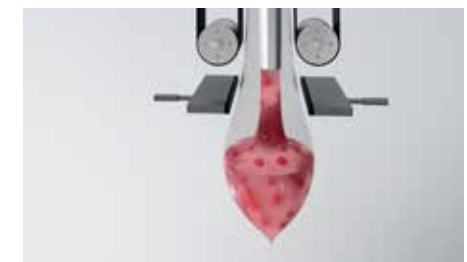
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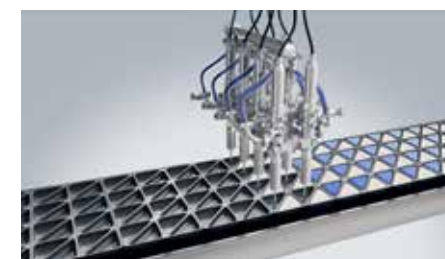
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HYGIENIC DOSING SOLUTIONS

PHARMACEUTICAL INDUSTRY:

ViscoTec offers ideal solutions for highly accurate and shear-sensitive filling, conveying, and dosing of fluid to highly viscous pharmaceutical products.

Different parameters are decisive depending on the application concerned, for example the absence of pulsation during continuous dosing, process reliability when filling materials which are especially high in viscosity or abrasive, or gentle handling of fluids and pastes which contain solids.

The pharmaceutical industry's requirements in regards to hygienic design and documentation are consistently implemented in the pharmaceutical dispenser series.

MEDICAL TECHNOLOGY:

Medical technology places stringent requirements on the production process in terms of reliability and process security. Regulations and standards must be adhered to and ensured in a traceable manner.

ViscoTec dosing systems and dosing components enable you to manufacture medical devices and parts with a high degree of process reliability, under even the most stringent requirements.

Whether you are bonding pacemakers, filling highly viscous materials for the dental industry with a high degree of process reliability, or handling blood-separating gels in diagnostics – ViscoTec sets itself apart globally in a wide range of applications from this challenging industry.

CONSUMER GOODS:

ViscoTec has made a global name for itself in the sector of fast moving consumer goods (FMCG) since its establishment.

Foods:

Our strengths in food filling become particularly evident when it comes to materials which contain solids; the shape, colour and consistency of the solids are not affected.

Cosmetics:

Just one dispenser can be used to dose a wide range of materials, which meets the trend for small batches, short set-up times and production which is more flexible.

Home care products:

Dosing with a high degree of process reliability is ensured even when it comes to suspensions. Sedimentation of the fillers is prevented through the use of comparatively low pressures and a uniform volume flow.





PHARMACEUTICAL INDUSTRY

EXAMPLE MATERIALS

The versatile dosing technology allows both highly viscous pharmaceuticals such as gels and salves as well as very compact suspensions or abrasive pastes to be dosed easily and perfectly.

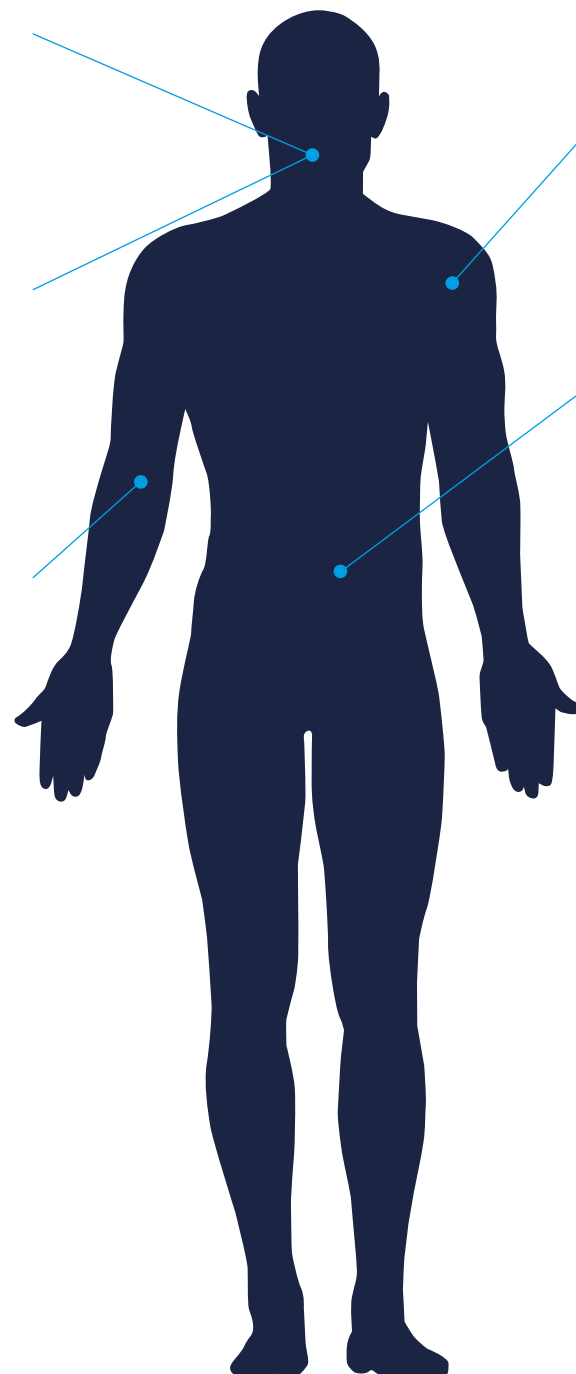
Dissolving tablets



Cannabis products



Salves and creams



Transdermal patches



Subcutaneous depot injections



SIMPLE SOLUTIONS FOR HIGHLY VISCOUS & ABRASIVE FLUIDS



VISCOTEC IMPRESSES IN APPLICATIONS FOR THE PHARMACEUTICAL INDUSTRY:

- Up to 5,000,000 mPas regardless of viscosity
- Dosing accuracy $\pm 1\%$ even from small quantities of 0.1 ml
- Gentle filling for materials with sensitive structures or for abrasive materials
- Programmable suck-back for defined thread break and drip-free dosing
- Components in contact with the material can be autoclaved



Thanks to high-performance materials, even very compact and abrasive materials can be dosed with absolute shear sensitivity.



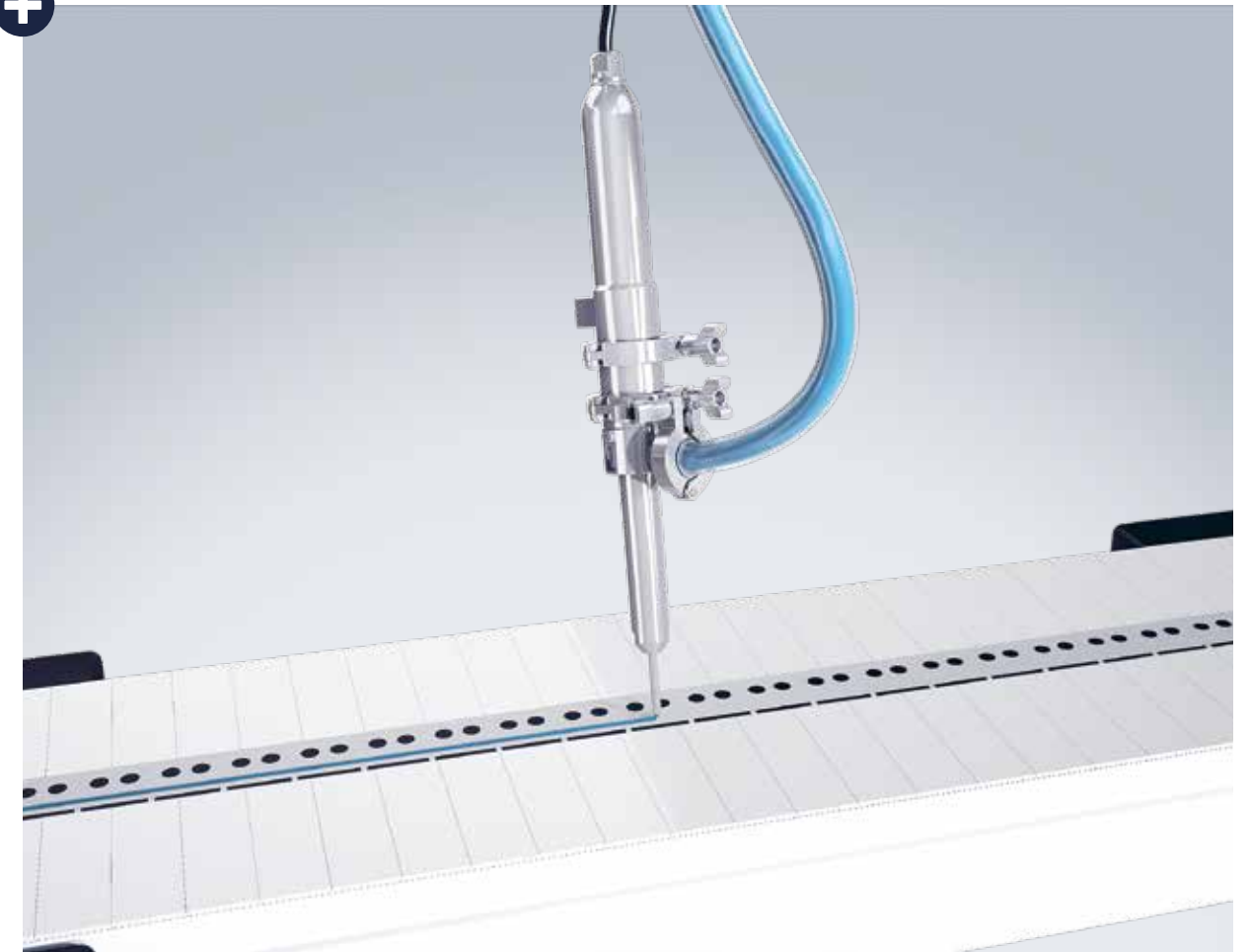
MEDICAL TECHNOLOGY

EXAMPLE MATERIALS

Precise dosing technology is vital for medical technology. Low to high viscosity materials from this sector pose high demands on the systems being used – the reliable ViscoTec technology is perfectly suited for this challenge.

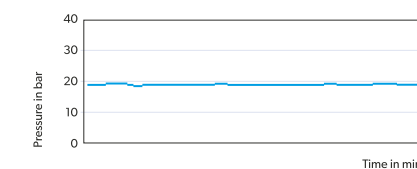


PERFECT FOR CONTINUOUS DOSING PROCESSES



VISCOTEC IMPRESSES IN APPLICATIONS FOR MEDICAL TECHNOLOGY:

- Pressure-resistant up to 20 bar of dosing pressure
- Constant feeding of the material from 0.18 ml per minute
- Precise adherence to the mixing ratio for two-component materials via special dosing heads
- Precise dosing of thread-pulling materials
- Pulsation-free





FOOD

EXAMPLE MATERIALS

Whether it's chunky sauces, abrasive pastes or materials which are especially high in viscosity – ViscoTec is a specialist in difficult applications for the trending sector of convenience food. The filling systems are ideally suited to filling into tubular bags or stick packs, for example.

Chunky sauces & dressings



Convenience foods



Additives such as aromas



E-liquids



Pet food



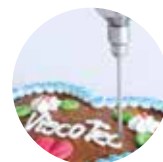
Fruit and vegetable purées with solids



Different pastes



Sugar decorations



EASY TO INTEGRATE INTO FILLING MACHINES



VISCOTEC IMPRESSES IN APPLICATIONS FOR FOOD PRODUCTION:

- Easy integration into existing packaging systems
- Gentle filling of sauces containing solids
- Clean dosing without dripping
- Continuous dosing process without interruptions or gaps
- Resistant when it comes to abrasive materials such as salt or ground seeds
- Very reliable technical components
- High degree of repeatability (>99 %)



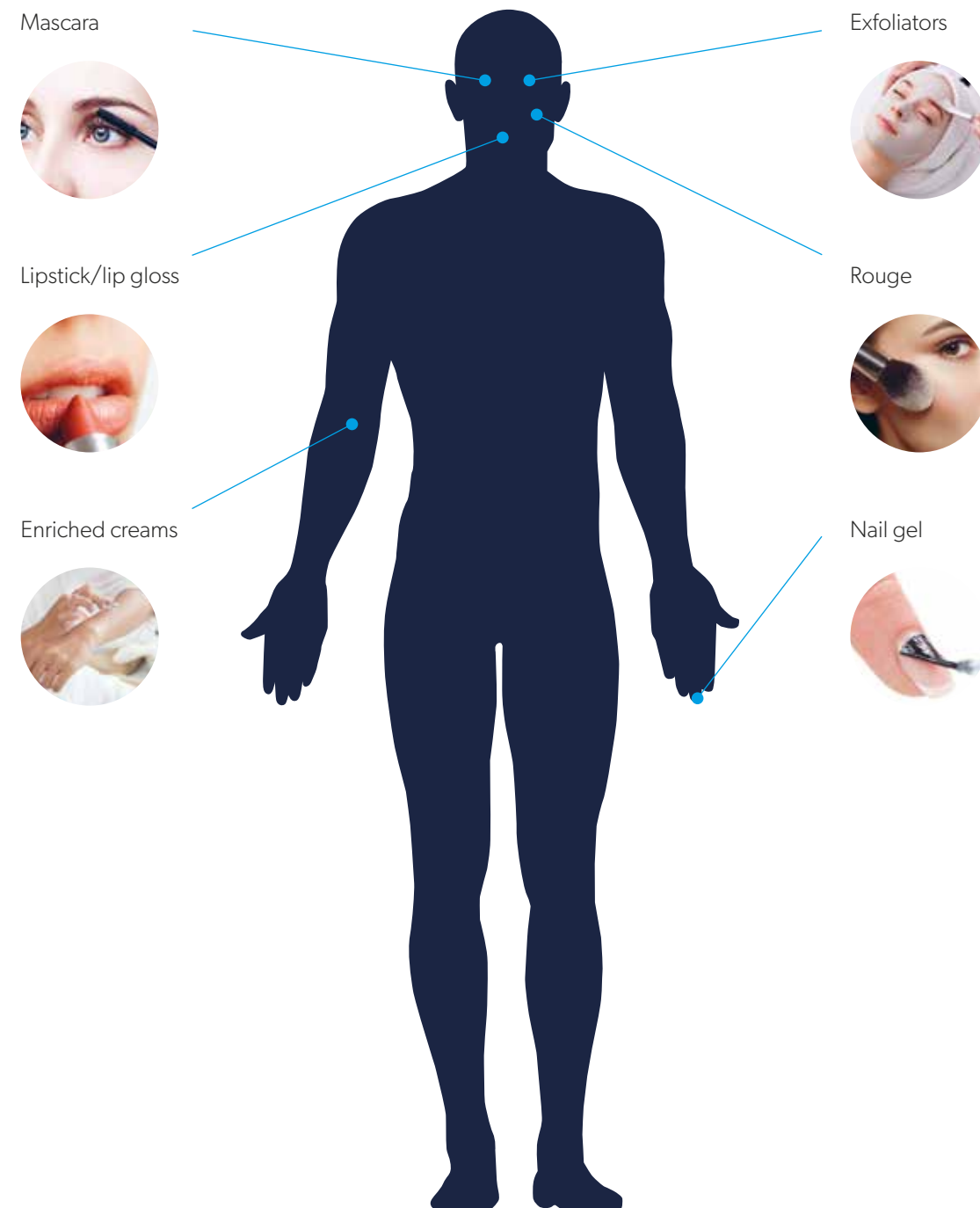
The gentle dosing technology allows for solids of up to 25 mm to be dosed without being damaged.



COSMETICS

EXAMPLE MATERIALS

The cosmetics industry places particularly stringent requirements on dosing systems. ViscoTec can provide one technology to handle a range of different materials. This meets the trend for small batches, short set-up times and production which is absolutely flexible.

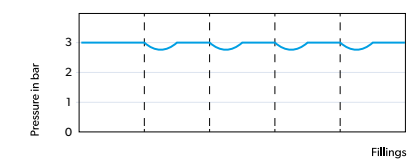


HIGH DEGREE OF FLEXIBILITY – ONE DISPENSER FOR A VARIETY OF MATERIALS



WITHDRAWAL OF HIGHLY VISCOUS MATERIALS:

- Filling systems suitable for viscosities up to 5,000,000 mPas
- Suitable for containers with inliners
- Residual amounts of <1 %
- Consistent input pressure at the filling device through the use of two-point pressure regulation



VISCOTEC IMPRESSES IN APPLICATIONS FOR THE COSMETICS INDUSTRY:

Improved process reliability and efficiency

- One single type of dosing technology for filling a wide range of fluids and pastes
- Easy cleaning process allows for quick product change
- Suck-back for defined thread break and drip-free dosing
- High degree of process reliability through the use of valve-free technology
- Dosing accuracy $\pm 1\%$



HOME CARE PRODUCTS

EXAMPLE MATERIALS

Home care products are purchased frequently and usually used daily. Here too, the precise and gentle dosing technology by ViscoTec impresses in numerous packaging lines, e.g. when filling cleaning products into pods or tabs.

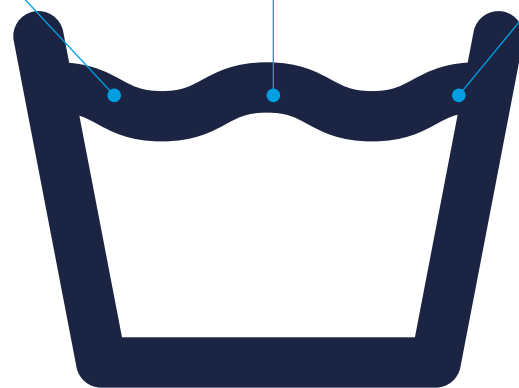
Dishwasher tabs



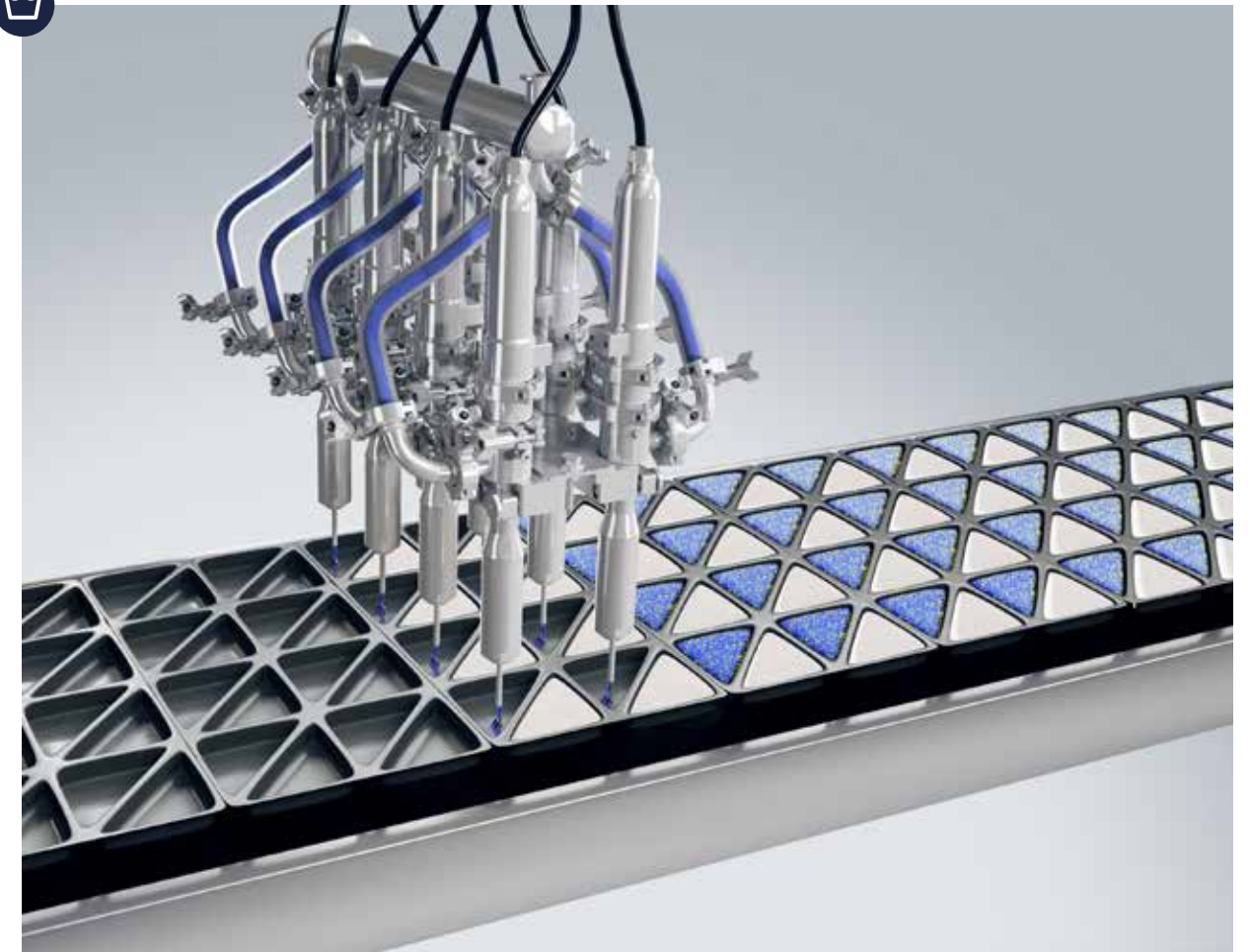
Detergent pods



Insect repellent

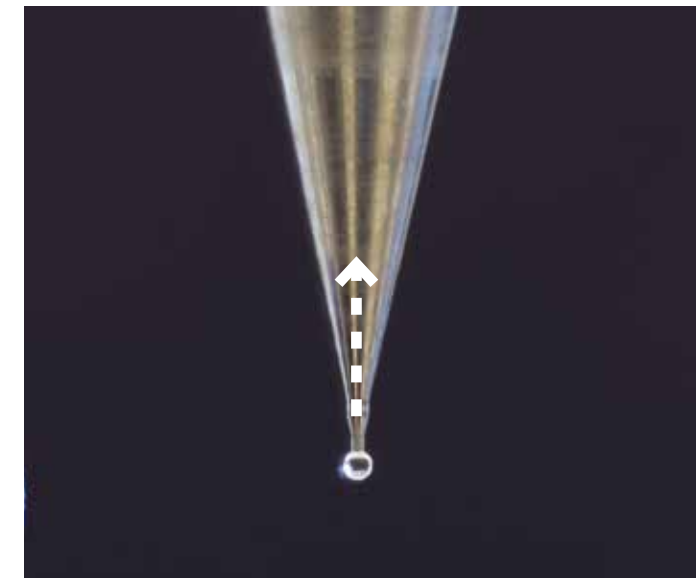


FULLY AUTOMATED DOSING TECHNOLOGY



VISCOTEC IMPRESSES IN APPLICATIONS FOR HOME CARE PRODUCTS:

- Implementation of customer-specific filling lines
- Quick product change through the use of automated purge processes
- Implementation of sedimentation-free dosing processes
- Long product life in 24/7 production facilities
- Smallest dosing quantities from 0.1 ml
- Programmable suck-back for clean dosing results without dripping





TECHNOLOGY

Our systems use the principle of rotating positive displacement pumps. Here, the stainless steel rotor moves eccentrically in an elastomer stator.

The rotor and stator create chambers. The chambers open alternately and their size is consistent even during rotation, meaning the conveyed material is not compromised.

This geometry allows for a precise, gentle and pulsation-free flow of material.

- Hygienic design/GMP-compliant design
- Also in CIP-compatible design
- Quick and tool-free assembly
- Regardless of viscosity
- FDA-compliant elastomers that can be autoclaved (resistant to chemically aggressive products and cleaners)
- Corrosion-resistant stainless steel 316 L, $Ra \leq 0.8 \mu m$

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

At the heart of each application is a purely volumetric conveying dosing pump. The interplay between the rotor and stator creates feeding and dosing characteristics similar to an endlessly moving piston.

The resulting pressure-resistant, linear pump characteristic curve enables clear conclusions to be drawn regarding the ratio of rotation, time and delivery rate. This allows for volumes of any amount to be dosed, and for a dosing accuracy at the pump outlet of $\pm 1 \%$ (depending on the material) to be achieved.



DOSING SYSTEMS

In addition to dispensers, ViscoTec GmbH also offers complete material handling solutions for dosing and filling applications. Conveying and treatment systems and the corresponding control technology safeguard the dispenser supply and guarantee that the process can be validated.

Highly viscous, shear-sensitive and solid containing materials are fed and dosed without pressure surges or pulsations. All systems and filling units have been developed following established guidelines.

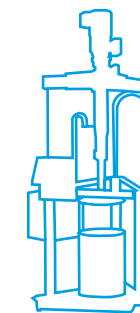
The overall systems have been specially adapted to suit the individual application and are easy to integrate – even into an existing process.

The focus is always on the requirements set by the industry concerned.

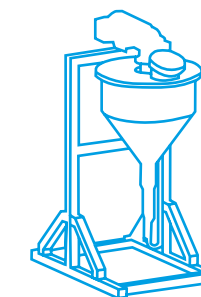


MODULAR SYSTEM

We individually adapt your system to suit your process and can offer you additional engineering and consulting services.



Material emptying



Material treatment



Dosing



CUSTOMER SERVICES

ENGINEERING



Strictly regulated production processes pose stringent challenges in terms of reliability and process security for the systems being used. Regulations and standards must be adhered to and documented in a traceable manner.

Each application requires individual support. ViscoTec regards itself as a consultant and supports its customers from their initial idea all the way to joint dosing tests and far beyond. Projects are best carried out when all process steps and individuals involved in the process are perfectly coordinated, making sure to always place the customer's requirements in the foreground.

TECHNICAL CENTER



Each sector that ViscoTec supplies has its own technical centre at the ViscoTec Customer & Innovation Center (CIC). There, customers can perform tests. This allows for challenging developments as well as individual customer consultations to be carried out on-site for a perfect dosing result.

Comprehensive support is available for every application. If necessary – in close collaboration with the customer – comprehensive trials & tests are carried out.

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