PRINT HEADS FOR VISCOUS FLUIDS IN 3D PRINTING

We focus on the delivery of the print heads and their supply for industrial and professional 3D applications of viscous fluids.
ADDED VALUE FOR THE CUSTOMER

Our tried and tested endless piston principle offers numerous advantages to the customer. Apart from the feasibility of non-component-dependent sizes, the precision of the technology is a high priority. In addition, the endless piston principle is a technology for a wide range of product materials. Not to be disregarded is the fact that a wide range of material properties can be covered.

OUR TECHNOLOGY

Volumetric dosing and filling systems are based on the ENDLESS PISTON PRINCIPLE and are used in low to high viscosity fluids. At the heart of each application is a dosing pump which is purely volumetrically fed. The interaction between the rotor and the stator results in a feeding and dosing characteristic which is the same as an endlessly moving piston. This results in a pressure-stable linear pump characteristic curve. This allows a clear statement about the ratio of revolution, time and dosed volume. Therefore, a constant volume can be dosed either via the time function or via the number of revolutions function, and gives a dosing accuracy at the pump outlet of 1% (depending on the material), which in practice falls below this.

PRODUCT OVERVIEW

1-COMPONENT PRINT HEAD – vipro-HEAD3
The print head impresses with its unique precision and is suitable for nearly all one-component fluids.
Volume flow: 0.28 - 3.3 ml/min
Weight: ca. 750 g

1-COMPONENT PRINT HEAD – vipro-HEAD5
The print head creates new possibilities in a wide range of applications. A consistent and accurate print result – coupled with a high printing speed – is guaranteed.
Volume flow: 0.5 - 6.0 ml/min
Weight: ca. 750 g

2-COMPONENT PRINT HEAD – ViscoDUO-FDD 4/4
The print head allows a wide range of applications for viscous two-component fluids. The desired mixing ratio can be adjusted via the speed ratio of the drive units.
Volume flow: 0.2 - 12 ml/min
Weight: ca. 1100 g

MATERIAL SUPPLY

Everything from one source – that is the guiding principle of ViscoTec. Therefore, the end customer not only has the possibility to purchase print heads from ViscoTec, but also the appropriate emptying and degassing systems are the customer’s choice.
NEW 1-COMPONENT PRINT HEAD

STEP MOTOR
• Control via 3D print signals
• Intelligent removal of motor heat through targeted design

MATERIAL SUPPLY & BLEED
• Easy product handling
• Uncomplicated bleeding process

HEATING FUNCTION
• Heating of viscous fluids and pastes
• Optimal heat distribution of parts in contact with medium

ENDLESS PISTON PRINCIPLE
• Non-stop-dosing
• For almost all viscous fluids and pastes

LUER-LOCK / THREAD
• A wide range of dosing needles
• Optimal heat distribution through metal thread needle
MATERIALS

1-COMPONENT MATERIALS

A selection of possible materials:

- UV adhesives
- Epoxy resins
- Acrylate
- Silicone
- Grease
- Inks
- Waxes
- Ceramics
- Bio-technical suspensions
- Abrasive pastes

The viscous fluids are cross-linked and give the component the properties that they need for production.

2-COMPONENT MATERIALS

A selection of possible materials:

- Epoxy resins
- Acrylate
- Silicone
- Polyurethane
- Polyester resins

CURING METHODS

UV, humidity, heat and a combination of these.

AN EXAMPLE OF POSSIBLE APPLICATIONS

GENERAL INDUSTRY

Game-Changer: Use of individual solutions in rapidly changing ambient conditions
Example: Attachments for robot grippers

AUTOMOTIVE

Game-Changer: Mechanical material properties increase the component strength of relevant components
Example: Sealing lip

ELECTRONICS

Game-Changer: Creation of prototypes and small series of complex electronic components
Example: Ultrasonic transducers

AEROSPACE

Game-Changer: Targeted weight reduction of components reduces energy and resources
Example: Electromagnets

MEDICAL TECHNOLOGY

Game-Changer: Personalized medical products provide a targeted treatment process
Example: Ventilation units

RESEARCH & DEVELOPMENT

Game-Changer: A variety of viscous fluids and pastes providing a competitive edge
Example: Printing of textiles