



# 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.





# TECHNOLOGY USING THE ENDLESS PISTON PRINCIPLE

## 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.

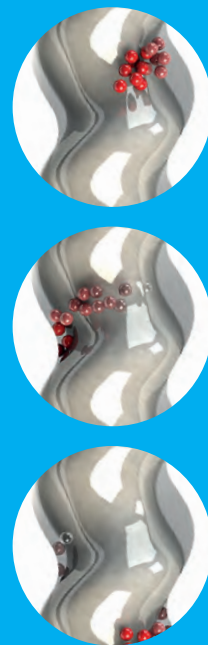
In addition, the endless piston principle is a technology for a wide range of product materials. Not to be disregarded is the fact that a wide range of material properties can be covered.

## 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 give 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: 0.3 - 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. 1,100 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

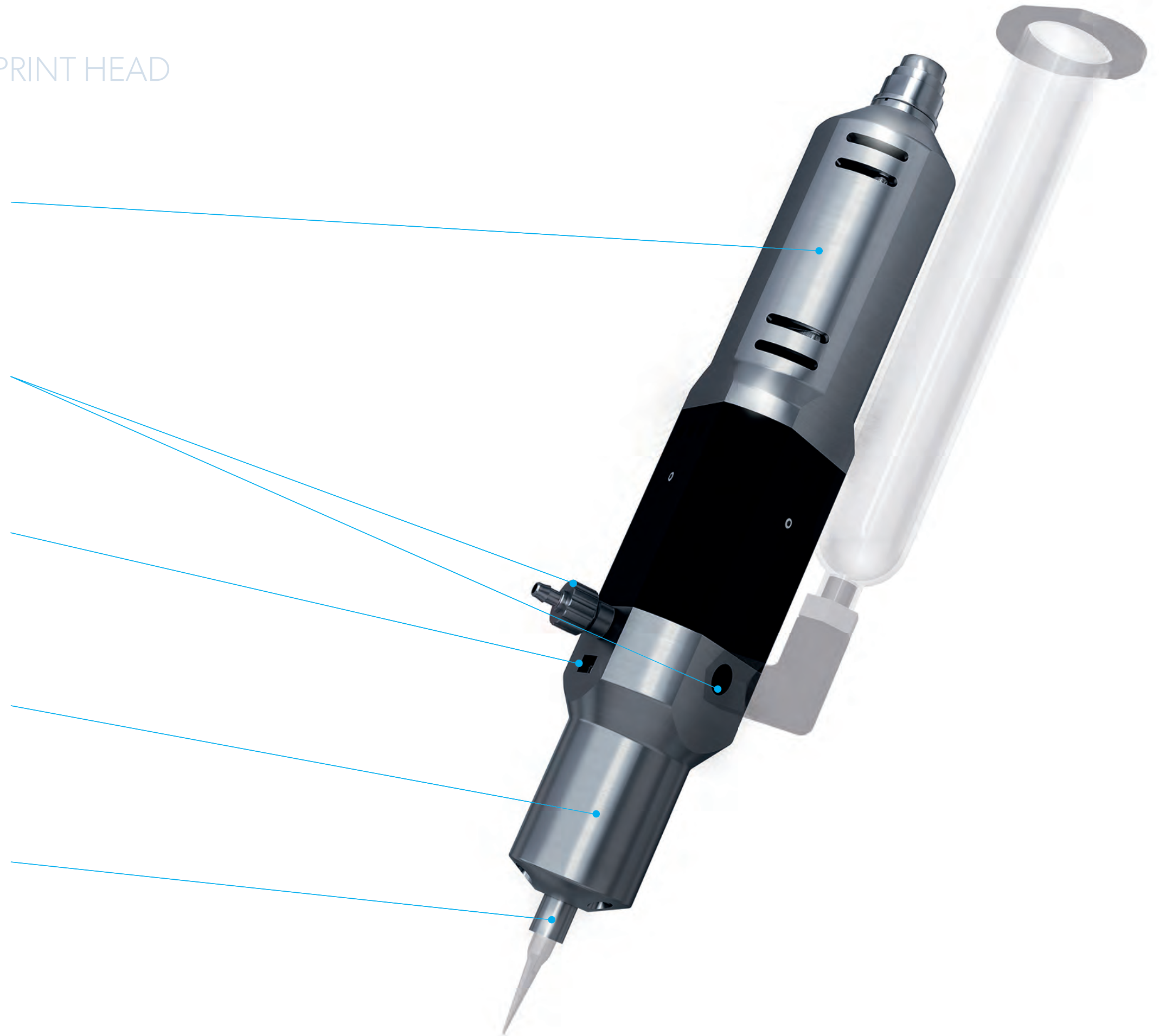
- Heating of viscous fluids and pastes
- Optimal heat distribution of parts in contact with medium

### 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

## 2-COMPONENT MATERIALS

A selection of possible materials:

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

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

## 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

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