



Eccentric screw technology in bioprinting

One of the most commonly used materials in bioprinting is Alginat as a hydrogel, as it has relatively low material costs and good biocompatibility in addition to its mechanical properties as well as good printability. However, bioprinting technology is still battling against the challenge of irregularities in the print models caused by process fluctuations in pneumatic pressing or tip extrusion.

A new technology for printing alginat is the Puredyne kit b, which is based on eccentric screw technology. This is a volumetric process that eliminates the disadvantages of extrusion systems and enables a constant printing result.

The new system differs from conventional extrusion-based bioprinting, especially in the print head. Higher precision, repeatability, process reliability and user-friendliness are promised by the Puredyne kit b process.

The compact print button, which already has an integrated compressed air supply, is attached to a bioprinter or 3D printer as a multi-use component. The print head also has a patented Single-Use Cap, which has a volume reservoir of 5ml and can be easily replaced after each dispensing process. The cap also contains the origin of the high precision accuracy - the eccentric screw technology. At the lower end of the cartridge there is a Luer-Lock connection, which guarantees the use of different dispensing needles. Since only one material is used per cartridge, the risk of cross-contamination is eliminated. The control is done with the help of a stepper motor, which does not require any additional control.

By integrating the eccentric screw technology, the volumetric dosing system can be dosed almost pulsation-free and with low shear force and can be optimally adapted to the application.

INNOVATIVE TECHNOLOGICAL APPROACH

- ◆ **Company:**
ViscoTec Pumpen- und
Dosiertechnik GmbH
- ◆ **Product:**
Puredyne kit b
- ◆ **Technological basis:**
Eccentric screw technology
- ◆ **Process:**
volumetric dosing
process
- ◆ **Advantages:**
Process flexibility

All-in-One solution
through single-use com-
ponents

no cross contamination

continuous & precise
printing process
- ◆ **Website**
<https://www.viscotec.de/>

Advantages of volumetric dosing systems with eccentric screw technology:

- ◆ Reduction of wear parts & increase of precision
- ◆ Absolute process reliability and repeatable production
 - ◆ Increase the dosing accuracy to 99 %
- ◆ Perfect contours, fine lines, and clean start and end points by reversing the conveying direction

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