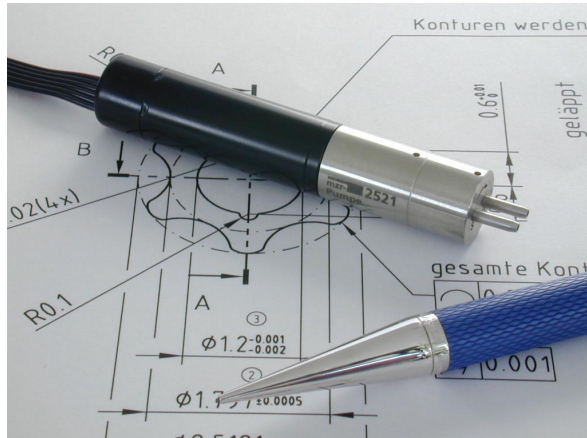


Low pressure series

Micro annular gear pumps m zr[®]-2521

Pump for dosage in analytical instrumentation



- **compact measurements**
diameter 13 mm, length 75 mm
- **small dosage volumes – high flow rates**
smallest volume 0.25 µl – flow up to 9 ml/min
- **high dosage precision**
precision CV 1 %
- **high service life**
wear resistant tungsten carbide
- **pulseless delivery – low shear stress**
rotary micro annular gear technology

The compact micro annular gear pump m zr-2521 out of the low pressure series is an attractive and innovative pump option in analytical instrumentation. The m zr-pump generates a pulseless,

highly precise but also dynamic flow with low shear stress. It is capable of dispensing smallest volumes in the micro liter range at high precision. With its compact design smallest measurements can

be achieved. The pumps are suitable for dosage of low viscous liquids such as deionized water, watery solutions, methanol, solvents, oil and lubricants.

Applications

- Analysis technology
- Fuel cells
- Biotechnology
- Laboratory automation
- Micro reaction technology

Technical data

| | |
|-----------------------------|--|
| Flow rate | 0.0015 * – 9 ml/min (min. 10 µl/h *) |
| Smallest dosage volume | 0.25 µl |
| Displacement volume | 1.5 µl |
| Differential pressure range | 0 – 1.5 bar (22 psi) |
| Max. inlet pressure | 1 bar (15 psi) |
| Pulsation | 1.5 % |
| Operating temperature range | -20 ... +60°C |
| Viscosity range | 0.5 ... 100 mPas (max. 1000 mPas *) |
| Precision | 1 % Coefficient of Variation CV |
| Speed range | 1 * – 6000 rpm |
| Fluid connections | slip fittings with outside diameter 2 mm optional: manifold assembly |
| Wetted parts | nickel-silver/ stainless steel 316L, ceramics, tungsten carbide Ni-based, epoxy resin shaft seal: graphite reinforced Teflon [®] , 316L static seals: FPM Viton [®] , optional: EPDM, FFPM |
| Motor | DC-motor with graphite brushes, assigned power rating 3 W, nominal voltage 18 V, digital magnet encoder 16 counts per turn |
| Electrical connection | 10-pole connector |
| Measurements | diameter 13 mm, length 75 mm |
| Weight | approx. 56 g |

Customized solutions on request. * with accessories

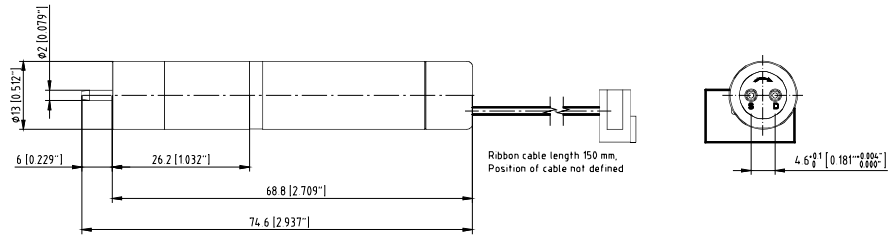
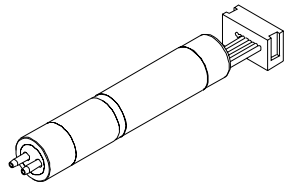
Contact

HNP Mikrosysteme GmbH
Juri-Gagarin-Ring 4 · D-19370 Parchim

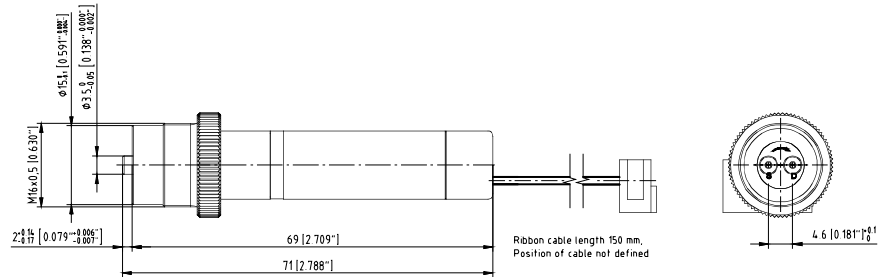
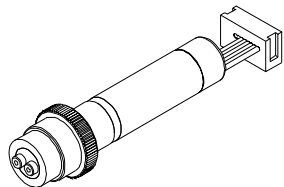
phone +49| 3871| 451-301
fax +49| 3871| 451-333

e-mail info@hnp-mikrosysteme.de
http://www.hnp-mikrosysteme.de

Measurements



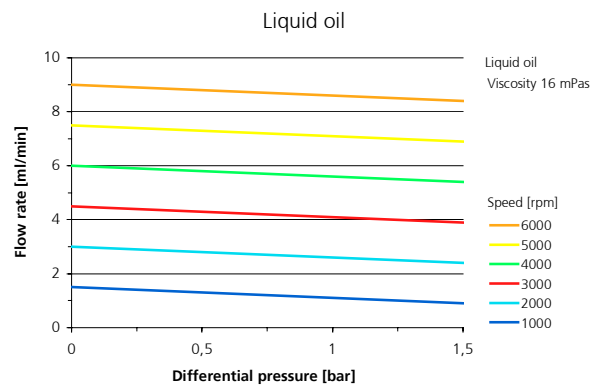
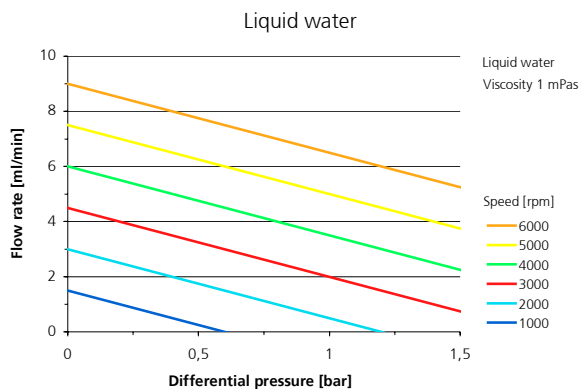
Configuration slip fittings OD 2 mm



Configuration manifold assembly

Subject to technical changes.

Flow charts



Item number

11 01 01 01

low pressure series pump mzs-2521, with DC-motor, encoder 16 counts per turn, fluid connections slip fittings OD 2 mm

11 01 02 01

low pressure series pump mzs-2521, with DC-motor, encoder 16 counts per turn, fluid connections manifold assembly

Accessories

Fluidic accessories

tubes, filters etc.

Reduction gear

gears 4.1:1, 17:1, 67:1 reduce speed for small volume dispensing and the metering of more viscous liquid

Alternative drives

motor with digital encoder with 256 impulses/turn for higher uniformity and precision at low rotational speeds

Control

S-KD-21: control for continuous dosage

Console drive module

S-ND: programmable microcontroller based control for continuous and discrete dosage

Multiplexer module

diecast aluminum chassis mzs-S06 for laboratory and testing

operation of up to 255 pumps with a single RS-232 interface

Micro annular gear pumps (and housings) are protected by assigned patents: EP 852 674 B1, US 6,179,596, US 6,520,757 B1, DE 198 43 161. In the US, Europe and Japan are additional patents pending. mzs® is a registered German trademark of HNP Mikrosysteme GmbH. Teflon® is a registered trademark of DuPont. Viton® is a registered trademark of DuPont Dow Elastomers.