

## Magnetic Hermetic Series

### Micro annular gear pump mzr®-2965

Compact hermetic pump for discrete dosage



- **Hermetic pump design**  
pump without shaft seal
- **Magnetic drive**  
inner magnet system driven by rotating magnetic field
- **Integrated motion controller**  
programmable motion controller for speed and position control with RS-232 interface
- **Compact dimensions**  
diameter 22 mm, length 69 mm
- **Long service life**  
wear-resistant, ultra-hard materials

The micro annular gear pump mzr-2965 is suitable for handling crystallizing, oxygen or moisture sensitive liquids, because the pump has no shaft seal. This functionality is made possible thanks to a liquid-separating cup surrounding the magnetic drive. The compact dimension of this magnetic hermetic pump is

achieved by a completely new product design and optimal matching with an integrated motion controller. This controller allow speed and position control for highly accurate dosage. With a diameter of 22 mm and 69 mm in length, the pump weighs 120 g. The pump handles flow rates from 0.03 to 18 ml/min with a high

precision and low pulsation. The pump is suitable for applications where an avoidance of leakage and a long service life as well as low energy consumption are important requirements. The pump is supplied with a terminal box for speed control and LED status indicator.

#### Applications

- Fuel cells
- Dosing of AdBlue
- Biotechnology
- Marine technology
- Metering of liquefied gases
- Aerospace industry
- Mobile analytics

Even if single parameters are within the indicated performance range of technical data, certain parameter combinations may not be achievable. Single parameters may exceed their indicated performance range under adequate circumstances. For detailed evaluation please contact HNP Mikrosysteme. Actual performance may vary. Specifications are subject to change without notice.

#### Technical data

Flow rate	0.03 – 18 ml/min
Smallest dosage volume	10 µl
Displacement volume	3 µl
Max. system pressure	6 bar (87 psi) (60 bar (870 psi) *) (inlet pressure + differential pressure)
Differential pressure range	0 – 3 bar (44 psi)
Liquid temperature range	-15 ... +60 °C
Viscosity range	0.3 – 500 mPas
Velocity range	10 – 6000 rpm
Fluid connection	slip fittings with outside diameter 2 mm optional: manifold assembly M2.1
Wetted parts	stainless steel 316L, 318LN, ceramics, tungsten carbide Ni-based, epoxy resin; static seals: FPM, optional: EPDM, FFPM
Motor	canned BLDC-motor, 24 V DC, 6.4 W
Controller	integrated motion controller
Interface	1x analog input 0 – 10 V, 1x digital input 24 V, 1x digitally programmable output, RS-232, CANopen *
Electrical connection	8-pole connector, Wago, cable length 1 m
Dimensions	diameter 22 mm, length 69 mm
Weight	approx. 120 g (manifold assembly approx. 145 g)

\*Customized solution on request.

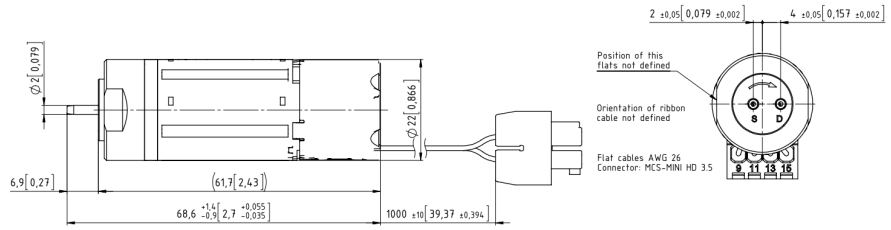
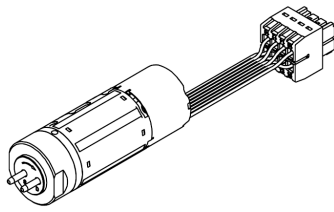
#### Contact

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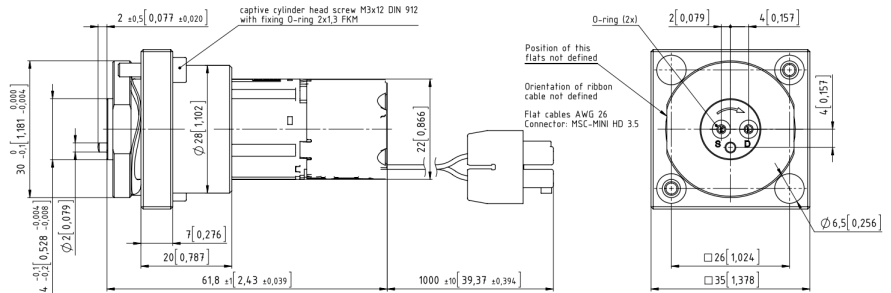
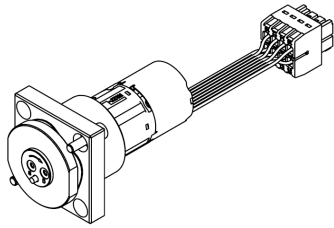
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## Dimensions



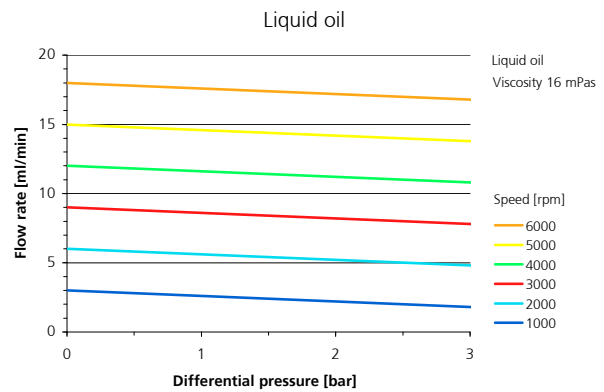
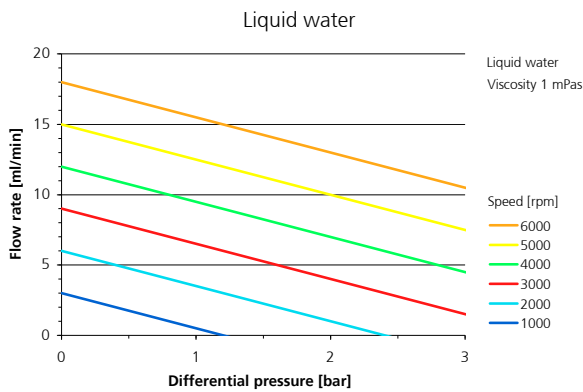
Configuration with slip fittings OD 2 mm



Configuration with manifold assembly M2.1

Subject to technical changes.

## Flow charts



## Terminal box S-G05



- compact plastic case
- is included the micro annular gear pump mzr-2965
- connector for supply voltage 24 V (5 – 30 V DC)
- integrated EMC module
- potentiometer for speed setting
- standard interfaces 0 – 10 V, 0(4) – 20 mA for speed setting
- RS-232, SUB-D plug, 9-pole
- two colored LED status indicator

## Item number

- |                                       |   |
|---------------------------------------|---|
| <p>14 01 10 03</p> <p>14 01 10 02</p> | <p>magnetic hermetic series pump mzr-2965 with canned BLDC-motor, fluid connection slip fittings OD 2 mm, terminal box S-G05</p> <p>magnetic hermetic series pump mzr-2965 M2.1 with canned BLDC-motor, fluid connection manifold assembly M2.1, terminal box S-G05</p> |
|---------------------------------------|---|

## Accessories

- Liquid supply accessories*      tubes, filters etc.

Micro annular gear pumps (and housings) are protected by assigned patents: EP 1115979 B1, US 6,520,757 B1, EP 852674 B1, US 6,179,596 B1, EP 1354135, US 7,698,818 B2. Patents pending DE 10 2011 001 041.6, PCT/JP2011/055108, EP 11 81 3388.3, US 13/884,088, CN 2011 8006 5051.7, HK 13 11 2934.9, DE 10 2011 051 486.4, PCT/EP2012/061514, EP 12 728264.8, US 9,404,492 B2, CN 2012 8003 8326.2. In the US, Europe and China additional patents are pending. mzr®, MoDoS®, µ-Clamp®, HNPm® are registered German trademarks of HNP Mikrosysteme GmbH.