

## Product information

### mzr-4605 · High performance pump series



#### Description

The micro annular gear pump mzr-4605 covers the flow rate range 0.012-72 ml/min. To the main assets of the device belong high precision, low pulsation, low volume dosage even of non-lubricating liquids or at high pressures, compact design and an integrated microcontroller. The pump allows dosage in a broad viscosity range and shows small, economic dimensions. The mzr-4605 targets applications in industrial production and process technology. The pump has been designed for continuous delivery and discrete dosage of water, watery solutions, solvents, methanol, oil, lubricants, adhesives, inks and paints as well as other high viscosity liquids.

#### Advantages

- High dosage precision  
precision CV < 1 % at low volumes
- High differential pressures  
achievable also for low viscosity liquids
- Compact dimensions  
length 143 mm, including controller
- Broad viscosity range  
methanol, water, solvents, adhesives, grease, gel
- Low pulsation delivery, low shear stress  
rotary micro annular gear technology
- Long service life  
wear-resistant tungsten carbide
- Precision motor and sophisticated control  
DC-servomotor with integrated microcontroller

#### Applications

- Chemical processing
- Industrial and plant engineering
- Packaging
- Medical and pharmaceutical industry
- Mini plant technology
- Spray technology
- Dispensing of adhesives
- Ink and paint dosage
- Vacuum applications

## Technical data

Flow rate	0.012 - 72 ml/min (min. 10 µl/h *)
Smallest dosage volume	2µl
Displacement volume	12µl
Differential pressure range	0 – 50 bar (725 psi)
Maximum inlet pressure	5 bar (73 psi)
Viscosity range	0.3 - 50,000 mPas
Liquid temperature range	-5 ... +60 °C (-20 ... +150 °C *) +23 ... +140 °F (-4 ... +302 °F *)
Precision CV	< 1% (Coefficient of variation CV)
Fluid connection	1/4"–28 UNF, frontal; optional: inlet 1/8" NPT internal thread, lateral
Velocity range	1 - 6,000 rpm
Wetted parts	stainless steel 316L (1.4404, 1.4435), tungsten carbide Ni-based; shaft seal: graphite-reinforced PTFE, 316L static seals: FPM, optional: EPDM, FFPM
Motor	DC-servomotor 24 V DC, 44 W
Controller	integrated 16-bit microcontroller
Interface	0–10 V, RS-232, 1 digital input/output
Dimensions (L x W x H)	143 x 45 x 65 mm
Weight	approx. 800g
Remarks	* depending on accessories, Customized solutions on request.

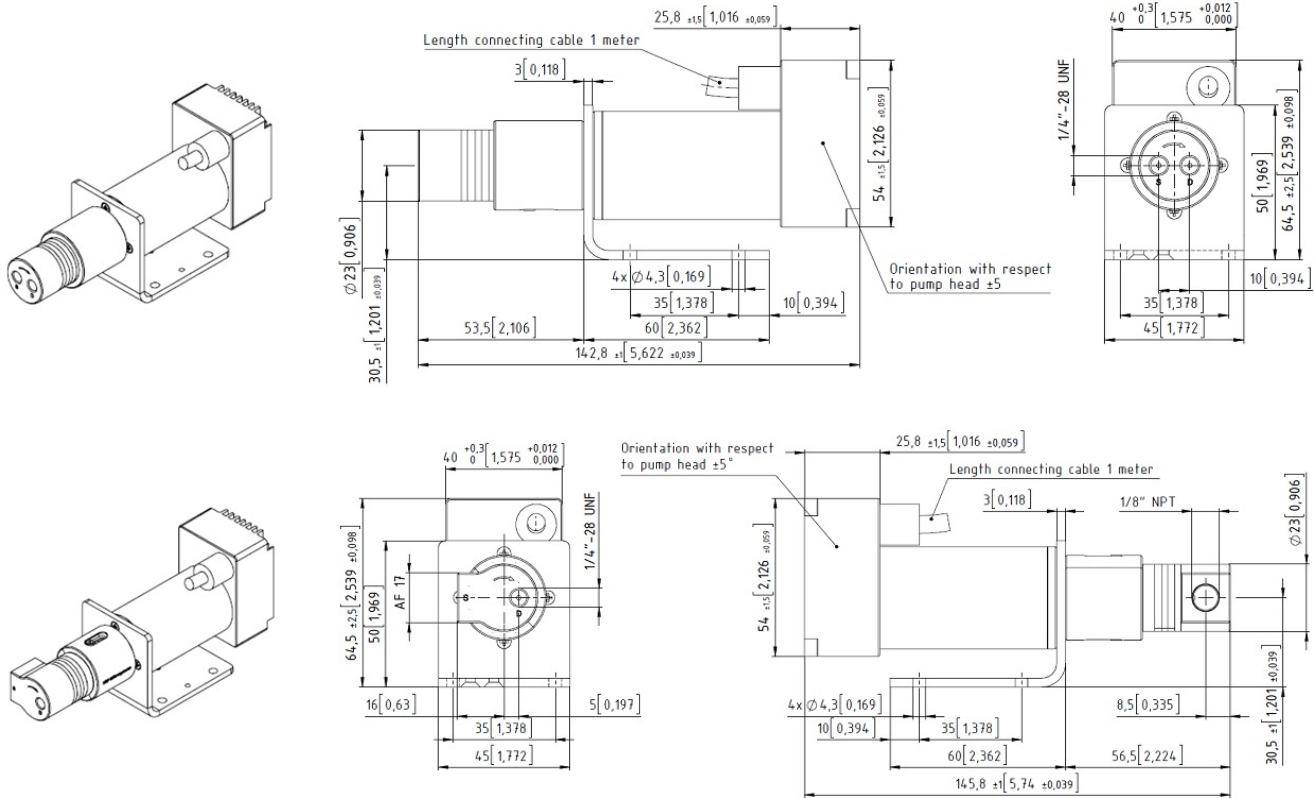
### Notice

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.

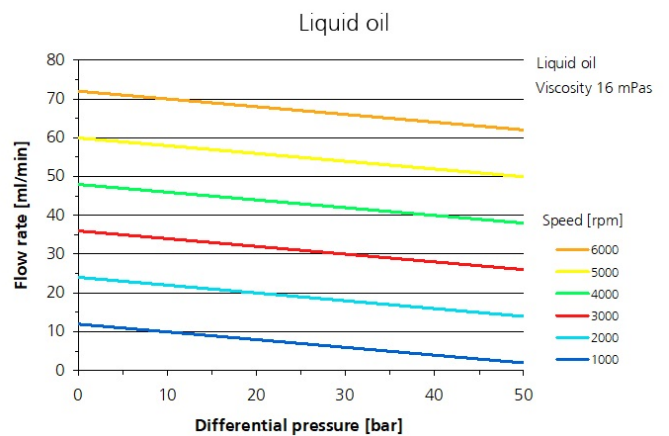
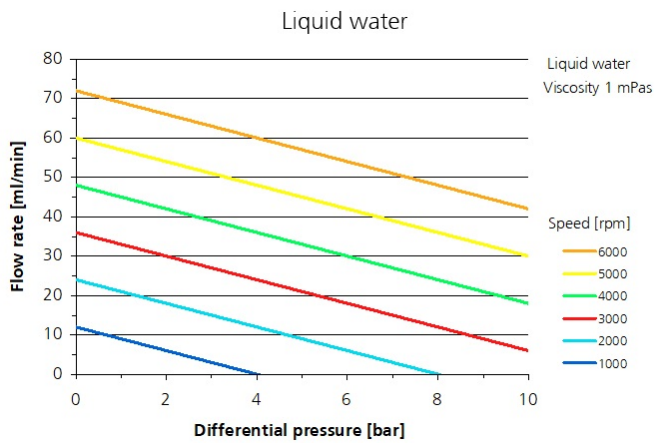
## Accessories

- Reduction gear
- Reservoir Plastic
- Double shell heating module
- Heat insulation module
- Electrical heating module
- mZr-Touch Control

## Dimensions



## Flow charts



## Patents and trademarks

Micro annular gear pumps (and housings) are protected by assigned patents: EP 1 354 135 B1; US 7,698,818 B2; DE 10 2011 001 041 B4; CN 103 348 141 B; US 10,012,220 B2; CN 103 732 921 B; US 9,404,492 B2; US 6,520,757 B1.  
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