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

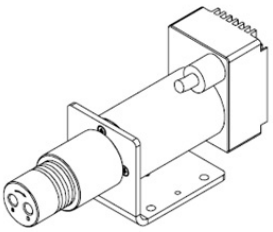
Flow rate	0.012 - 72 ml/min (min. 10 µl/h *)
Smallest dosage volume	2 µl
Displacement volume	12 µl
Differential pressure range	0 – 50 bar (725 psi)
Maximum inlet pressure	5 bar (73 psi)
Viscosity range	0.3 - 50,000 mPas
Liquid temperature range	-5 ... +60 °C (-20 ... +150 °C *) +23 ... +140 °F (-4 ... +302 °F *)
Precision CV	< 1% (Coefficient of variation CV)
Fluid connection	1/4"–28 UNF, frontal; optional: inlet 1/8" NPT internal thread, lateral; G1/8" 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, 316 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. 800 g
Remarks	* depending on accessories, Customized solutions on request.

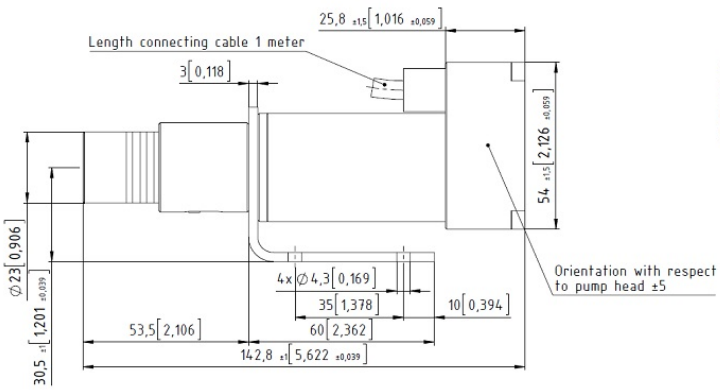
Notice
Even if single parameters are within the indicated performance range of technical data, certain parameter combinations may not be achievable. Single parameters may exceed their indicated performance range under adequate circumstances. For detailed evaluation please contact HNP Mikrosysteme. Actual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

Accessories

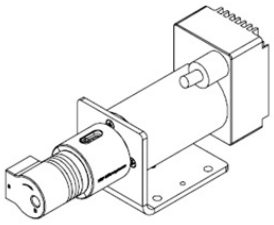
- Reduction gear
- Reservoir Plastic
- Double shell heating module
- mzr-Touch Control
- Heat insulation module
- Electrical heating module
- Terminal box S-G05

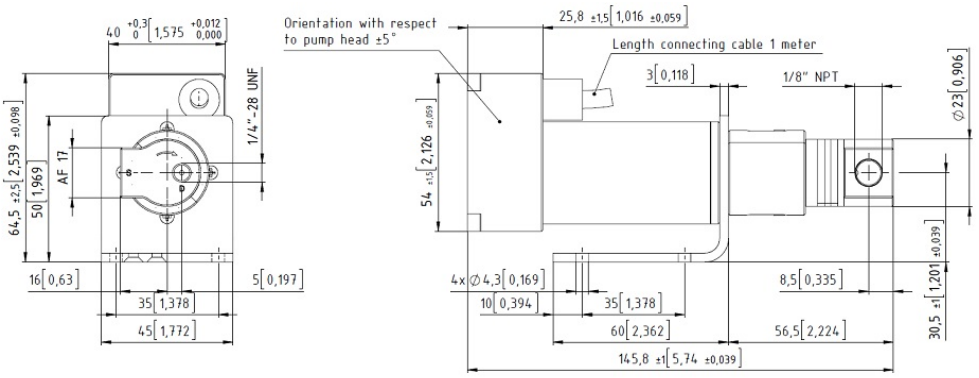
Dimensions mzr-4605 F (Fluid connection 1/4"–28 UNF, frontal)



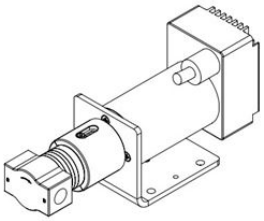


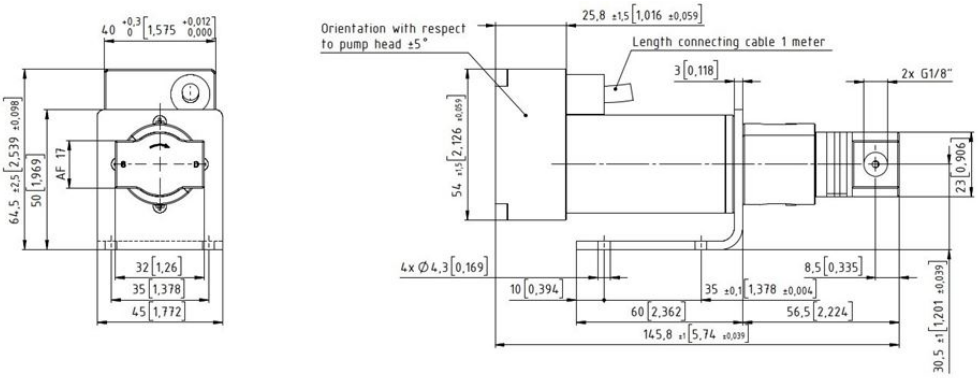
Dimensions mzr-4605 S/F (Fluid connection 1/4"–28 UNF, frontal; inlet 1/8" NPT internal thread, lateral)



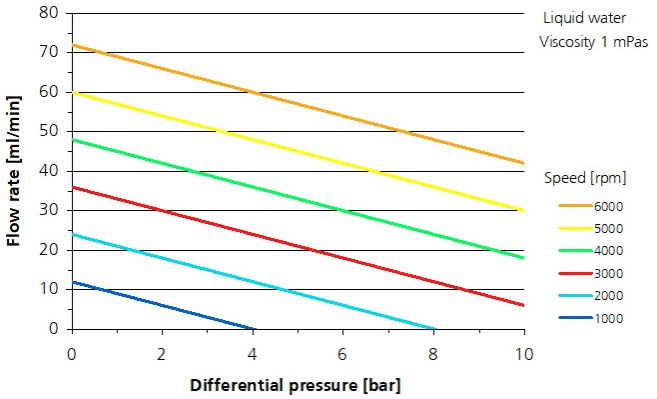


Dimensions mzr-4605 S (Fluid connection G1/8" lateral)

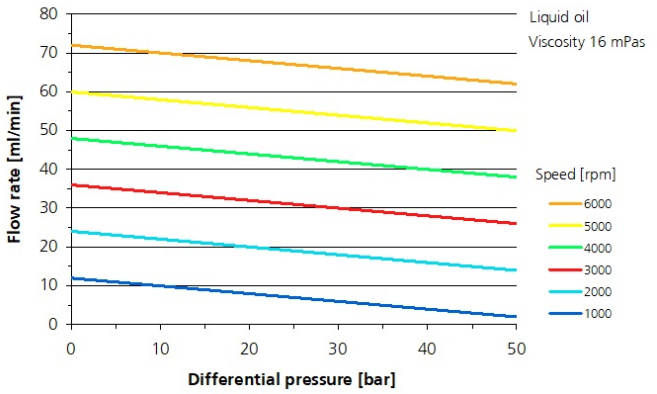




Liquid water



Liquid oil



Patents and trademarks

Our products are protected by the following national and international patents: DE 10 2018 129 631.2 B3; EP 3 884 162; CN 113 302 399 B; DE 10 2018 129 633.9 B3; EP 3 884 160; CN 113 272 553 B; DE 10 2018 129 634.7 B3; EP 3 884 527; DE 10 2018 129 635.5 B3; EP 3 762 165; DE 10146 793.1; EP 1 354 135 B1; US 7,698,818 B2; DE 10 2011 051 486 B4; EP 2 726 740 B1; US 9,404,492 B2; CN 103 732 921B; EP 2 640 977 B1; US 10,012,220 B2; CN 103 348 141 B; HK 1 185 648 B.
HNPM®, mzr®, MoDoS®, µ-Clamp®, µDispense®, LiquiDoS®, smartDoS®, colorDoS®, MSM®, are registered German trademarks of HNP Mikrosysteme GmbH.

Contact

HNP Mikrosysteme GmbH
Bleicherufer 25
19053 Schwerin
Germany

T +49 385 52190-300
F +49 385 52190-333
sales@hnp-mikrosysteme.de

Last update 2026/09