High performance series

Micro annular gear pumps mzr®-4605

Pump for applications in production and process technology

- **high dosage precision**
  precision CV better 1 %
- **high differential pressures**
  achievable even with low viscous liquids
- **compact measurements**
  length 143 mm, controller inclusive
- **broad viscosity range**
  methanol, water, solvents, adhesives, grease, gel
- **pulseless delivery – low shear stress**
  rotary micro annular gear technology
- **high service life**
  wear resistant tungsten carbide
- **precision motor and sophisticated control**
  DC-servomotor with integrated microcontroller

The micro annular gear pump mzr-4605 covers the flow range 0.012-72 ml/min. The highly precise, pulseless low volume dosage even with non-lubricating liquids or at high pressure, the compact design of the pump, the integrated microcontroller, the broad viscosity range and the small measurements are the unique features of this pump series. The pump is applied in the field of production and process technology.

The pump is suitable for the continuous and discrete dosage of water, watery solutions, solvents, methanol, oil, lubricants, adhesives, ink and paints as well as other high viscous liquids.

Applications

- Chemical processing
- Industrial and plant engineering
- Packaging technology
- Medical and pharmaceutical
- Miniplant technology
- Spray technology
- Dispensing of adhesives
- Inks and paints dosage
- Vacuum applications

Technical data

Flow rate	0.012 – 72 ml/min
Smallest dosage volume	2 µl
Displacement volume	12 µl
Differential pressure range	0–10 bar (145 psi) for water, 0–50 bar (725 psi) for oil
Max. inlet pressure	5 bar (73 psi)
Operating temperature range	-5 … +60 °C (-20 … +150 °C *)
Viscosity range	0.5 – 50 000 mPas
Precision	< 1 % Coefficient of Variation CV
Pulsation	< 6 %
Speed range	1 – 6000 rpm
Fluid connections	1/4"–28 UNF
Wetted parts	stainless steel 316L (1.4404), tungsten carbide Ni-based shaft seal: graphite reinforced Teflon®, 316L static seals: FPM Viton®, optional: EPDM, TFE/P, FFPM
Motor	DC-servomotor, 24 V DC, 44 W
Controller	integrated 16-bit microcontroller
Interface	0–10 V, RS-232, 1 digital input/output
Measurements (L x W x H)	143 x 45 x 65 mm
Weight	approx. 800 g

Customized solutions on request. * with accessories

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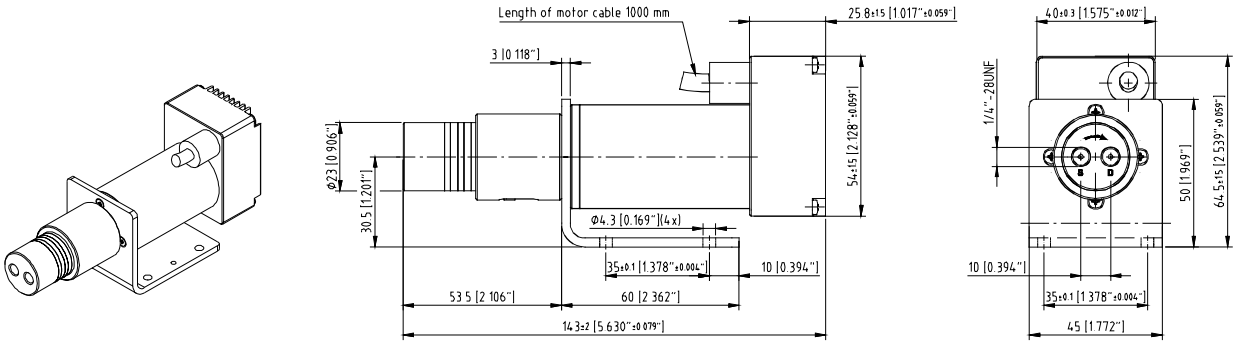
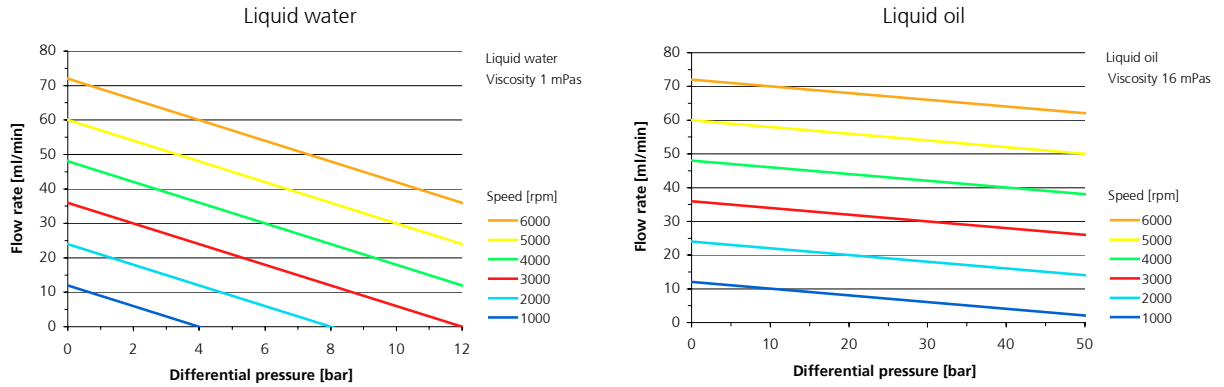
Measurements

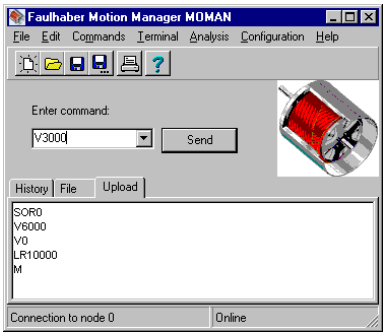


Subject to technical changes.

Flow charts



Control and software



- speed and position control for continuous and discrete dispensing tasks
- connection board with potentiometer for speed control
- RS-232 9-pole SUB-D connector to connect directly to a PC or a SPC
- analog input with terminal screw
- power supply with DIN 45323 socket, pin plug or terminal screw
- EEPROM program memory
- simple ASCII command language for the parameter setting (velocity profiles) and programming of the motor
- programming with Windows® software »Motion Manager«
- temperature and current limiting
- online dynamic drive analysis
- simultaneous operation of up to 255 pumps with additional multiplexer modules

Item number

10 02 01 05	pump mzr-4605, connection board, zero-modem cable and software »Motion Manager«

Accessories

Fluidic accessories	threaded fluidic connectors, tubes, filters etc.
Fluidic seal module	use of air- and water-sensitive fluids or for vacuum applications
Heat isolation module	use for increased fluid temperature up to 150 °C
Heating module	active heating of the pump head up to 150 °C operating temperature
Reduction gear	gear 3.7:1 reduces speed for the metering of high viscous fluid
Console drive module	diecast aluminum chassis mzr-S05 with control elements and display
Multiplexer module	operation of up to 255 pumps with a single RS-232 interface