

Hermetic, chemically inert pump series

Micro annular gear pump mzr®-11557

For microreaction technology and flow chemistry



- **High resistance to corrosion**
oxidizing and reducing media, acids and bases
- **Hermetically sealed**
magnetic coupling (NdFeB)
- **Long service life**
wear-resistant ceramic components
- **Thermal heating**
optional double shell technology
- **Chemically inert pump head**
alloy C22, SiC, Al₂O₃ and ZrO₂ ceramics
- **High-power motor**
AC-motor for use with external frequency inverter
- **Precise dosage, low pulsation**
rotary micro annular gear technology, no valves

The mzr-11557 micro annular gear pump of the hermetic and chemically inert series is, considering its almost universal suitability for aggressive and corrosive media, a revolution in the pump

technology. Its rotors and functional elements being made of ceramics, the pump shows the highest chemical resistance and an outstanding resistance to wear. Thanks to the use of ceramics as

bearing and shaft material, a magnetic coupling, and case components made out of alloy C22 (DIN 2.4602), this pump will take up any challenge in the chemical industry applications.

Application fields

- Flow chemistry
- Microreaction technology
- Mini plant technology

Technical data

Flow rate	29 – 1152 ml/min
Smallest dosage volume	100 µl
Displacement volume	192 µl
Differential pressure range	0 – 30 bar (1 mPas); 0 – 60 bar (> 16 mPas)
Max. system pressure	60 bar (870 psi) 200 bar * (2900 psi *) (inlet pressure+differential pressure)
Liquid temperature range	-5 ... +60 °C (-20 ... +100 °C *)
Viscosity range	0.3 – 1000 mPas
Dosage precision	< 1 % Coefficient of variation CV
Pulsation	< 6 %
Speed	150 – 6000 rpm
Fluid connection	3/8" NPT internal thread, lateral
Wetted parts	Pump case alloy C22 (2.4602), optional: stainless steel 316L; seals FPM (Kalrez® Spectrum™ 6375), optional: FPM, EPDM; shaft sintered silicon carbide (SiC); bearing and wetted functional parts Al ₂ O ₃ ceramics; rotors partially stabilized ZrO ₂ , optional: tungsten carbide Ni-based
Coupling	6-pole NdFeB magnetic coupling
Motor	AC motor, IEC-Size 056, 4 poles, IP 55, rated voltage 240/400 V, rated frequency 100 Hz, 240 W
Temperature protection	Thermal contact (NC)
Dimensions (L x W x H)	291 x 130 x 171 mm
Weight	approx. 12 kg

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.

* depending on accessories, customized solutions on request

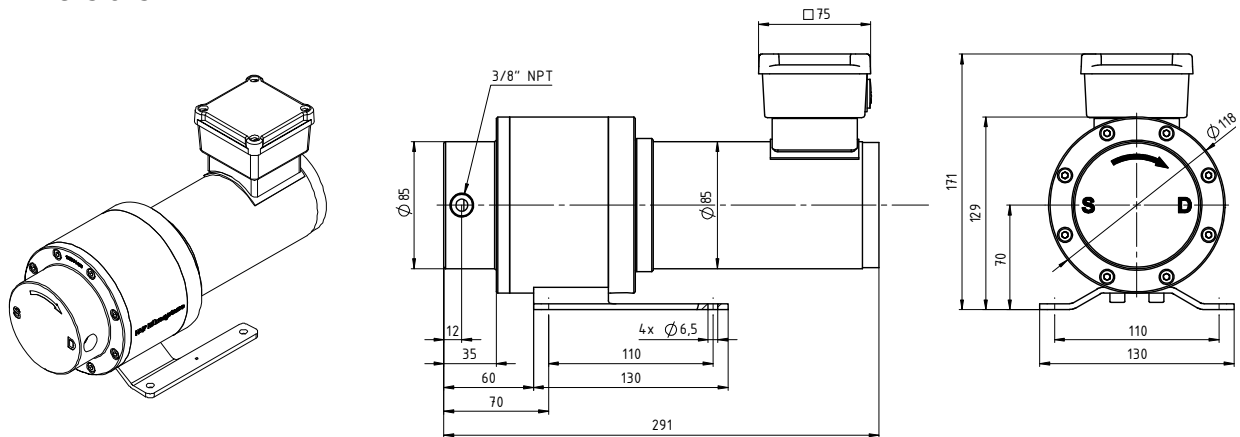
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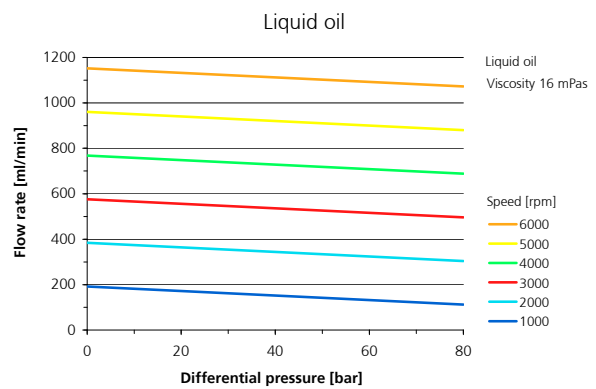
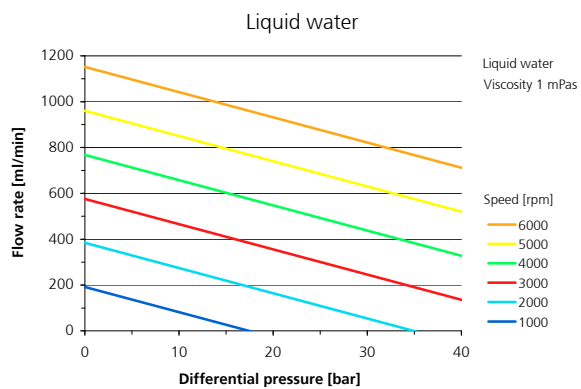
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Dimensions



Subject to technical changes..

Flow charts



Control (optional)



- frequency inverter S-FI-L1 for speed control for continuous dosage tasks
- nominal voltage 230 V AC
- power 250 W
- speed range 150 – 6000 rpm
- output frequency 0 – 240 Hz
- frequency resolution 1 Hz
- programmable analog input for speed set: 0-5 V, 0-10 V, 0-20 mA, 4-20 mA
- protective class IP 20
- internal radio interference suppression filter
- dimensions (H x W x D): 146 x 93 x 83 mm

Item number

13 01 01 02
13 01 04 02
66 04 01 04

pump mzr-11557-hs S with three-phase AC-motor, lateral fluid connection 3/8" NPT
pump mzr-11557-hy S with three-phase AC-motor, lateral fluid connection 3/8" NPT
frequency inverter S-FI-L1, 230 V AC, 250 W, IP 20, programmable analog input for speed set (0-5 V, 0-10 V, 0-20 mA, 4-20 mA)

Accessories

Liquid supply accessories

threaded fluid connectors, 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/IB2011/055108, 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. Kalrez® Spectrum™ is a registered trademark of DuPont.