

Product information

By-pass module · Supplementary Modules



Description

With the by-pass module constant small flow rates reaching the nanoliter range can be obtained. The technology bases on the partitioning of flow according to the relationship of the fluidic resistance of two capillaries. The flow is generated by a micro annular gear pump and shows a very good constancy and little pressure dependence. This technology creates an almost pulsation-free master circulation, from which a side current is derived. Smallest flow rates starting at 1 $\mu\text{l/h}$ can be achieved. Depending on the differential pressure and flow rate range an adjusting range of 1:100 may be obtained. The lower limit of flow rate is defined by tuning of the two capillary tubes and can be adjusted according to customer's needs from 1 to 10,000 $\mu\text{l/h}$.

Advantages

- Flow rate in Nanoliter range
flow rate from 1 $\mu\text{l/h}$ to 10 ml/h
- Wide flow rate range
small-volume dispensing with a adjusting range
maximum 1:100
- Low-pulsation delivery
damped flow
- Pressure resistance
generation of pressure up to 3 bar
- Customized system
for use with micro annular gear pumps m zr-2521 M2.1,
m zr-2921 M2.1, m zr-2542 M2.1, m zr-2942 M2.1 or
m zr-4622 M2.1

Technical data

Flow rate	1 - 10,000 µl/h
Remarks	subject to technical changes
Liquid temperature range	-20 ... +60 °C
Maximum inlet pressure	1 bar
Differential pressure range	0 – 3 bar
Adjustment range	1 : 100
Weight	approx. 160 g (version 316L without pump) approx. 50 g (version PEEK™ without pump)
Dimensions (L x W x H)	32 x 25 x 25 mm (By-pass block without pump)
Wetted parts	by-pass manifold adapter stainless steel 316L, optional: PEEK™; fittings and tubings: ETFE, PEEK™
Fluid connection	capillary fittings 1/4"-28 UNF; feed line: tubing, OD 1/8"; master capillary: tubing, OD 1/8"; secondary capillary: tubing, OD 1/16"
Viscosity range	0.3 - 100 mPas
Pulsation	< 1%

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.

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.

HNP[®], m_zr[®], MoDoS[®], µ-Clamp[®], µDispense[®], Centrifluidic Technologies[®] 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
 info@hnp-mikrosysteme.de

Last update 2019/07