Micro Annular Gear Pumps
For precise dosage of liquids

Due to careful material selection and advanced microtechnology design as well as high manufacturing precision, micro annular gear pumps open a new dimension in pump technology. Four series of rotary positive displacement pumps allow precise and nearly pulsation-free dispensing of smallest quantities of liquids. The dosage volumes cover the sub-micro litre to litre range for both non-lubricating and highly viscous liquids. HNP Mikrosysteme offers also comprehensive micro-dosing systems. The most significant characteristics of the pumps are their small dimensions, high operating lives as well as high dosage precision even for the smallest amounts of non-lubricating liquids. Thanks to DC drives and comfortable control, the pumps offer high functionality and are easy to operate. The High Performance as well as the Hermetic and Chemically Inert mzm® Pump Series are employed in application fields such as chemical process technology, assembly as well as dosage and filling techniques. The Low Pressure Pump Series corresponds to the requirements of instrumental analytics, fuel cells and OEM applications as far as dosage of low viscosity liquids is concerned. The Modular Series allows customized material selection for each component of the pump depending on chemical compatibility with the manipulated liquid.

- High dosage precision
  precision CV < 1 % at low volumes
- Min. dosage volume 0,25 μl
- Low flow rates
  1,5 μl/min...1152 ml/min
- Compact dimensions
- High differential pressures
  achievable even for low viscosity liquids
- Long service life
  wear-resistant tungsten carbide and ceramics
- Broad viscosity range
  0,3 – 1.000.000 mPas
  solvents, water, adhesives, paints, grease, gel
- Pulseless delivery, low shear stress
  rotary micro annular gear technology
Range of products

Low pressure series
- compact dimensions
- low pressure range
- tungsten carbide Ni-based, stainless steel 316L
- seals: PTFE, FPM, optional: EPDM, FPM
- low viscosity liquids
- DC-motor with graphite brushes

High performance series
- Ex-Pumps: for pump heads of high performance series and the hermetic inert series
- Ex-certification ATEX, EU directive 94/9/EEC
- CE Ex IIC T4 Gc
- tungsten carbide Ni-based, stainless steel 316L
- seals: PTFE, FPM, optional: EPDM, FPM
- differential pressure range 40 bar (max. 150 bar)
- low and high viscosity liquids
- DC-motor with integrated controller
- modular system: plastic seal module, electrical heating, double shell heating and cooling module, reduction gear, high-power motors

Ex-Pumps
- for pump heads of high performance series and the hermetic inert series
- Ex-certification ATEX, EU directive 94/9/EEC
- CE Ex IIC T4 Gc
- tungsten carbide Ni-based, stainless steel 316L
- seals: PTFE, FPM, optional: EPDM, FPM
- DC-motor with graphite brushes

Modular pump series
- chemically inert, compact dimensions
- configurable materials: ceramics, opt. tungsten carbide, alloy C22, optional PEEK®, seals: PTFE, FPM, optional: EPDM, FPM
- DC-motor with graphite brushes

Hermetic inert pump series
- chemically inert materials
- industrial equipment
- AlCu2, ZrO2 ceramics, alloy C22, SIC, Kalrez®
- modular magnetic coupling
- DC-motor with integrated controller

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Applications fields

- Robotic sample processor
- Analytical instrumentation
- Sampling
- Micro reaction technology
- Fuel cells
- Minimum quantity lubricating systems
- Aromatizing, flavoring
- Particle analysis
- Buoy water analysis
- PCB cooling
- Ink-jet printing technology
- Biological cell handling
- DNA analysis
- Medicine filling

HNP Mikrosysteme GmbH
Juri-Gagarin-Ring 4
D-19370 Parchim
Telephone +49 3871|451-301
Fax +49 3871|451-333
E-mail info@hnp-mikrosysteme.de
www.hnp-mikrosysteme.de

Contact details for different application fields

Process Engineering and International Sales
Jana Hertel, Phone +49 3871|451-305
Chemical Engineering and Process Engineering
Carsten Damerau, Phone +49 3871|451-347
Philipp Adryan, Phone +49 3871|451-351
Biotechnology and Analytical Instrumentation
Dorothée M. Runge, Phone +49 3871|451-318
Mechanical Engineering, Engineering Industry
Frank Kurze, Phone +49 3871|451-310
Fuel Cell and Automotive
Thomas Kiegel, Phone +49 3871|451-303

Vg: Displacement volume
* with accessories, e.g.: high resolution encoder, gear box, etc.