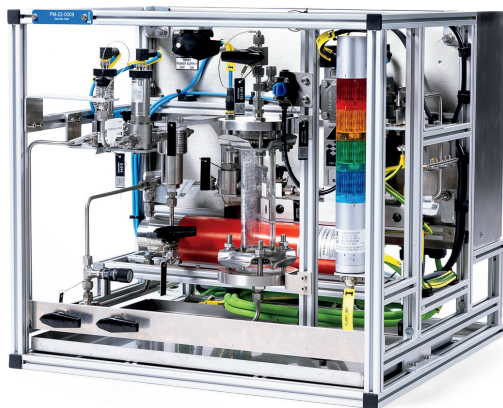


# Technical Specifications

## Low Flow Pump Module



Zeton has partnered with HNP Mikrosysteme to integrate their precision micro annular gear pump technology into the ContiUnity® ecosystem, delivering a powerful solution for precise low pulsation dosing, even with highly corrosive substances.

The ContiUnity® low flow rate pump module is built around an HNPM annular gear pump, featuring a flat pump curve, integrated ATEX speed controller, and robust instrumentation. Designed for accurate dosing of low viscosity fluids, this module ensures stable flow even at ultra-low rates, ideal for continuous processing and GMP environments.

Implement with ContiUnity® for:

- Integrated continuous Flow Chemistry
- Hybrid Batch-continuous processing
- High flexibility throughout early development & commercial production
- Accurate ratio control with other pump and flow control modules

## Key advantages of HNP Mikrosysteme's micro annular gear pump



### Precision Pumping Technology

- Flat pump curve for stable flow across a wide range
- Low pulsation and high repeatability
- Integrated ATEX speed controller

### Integrated Flow Control

- Manual needle valve for fine-tuning flow rate
- Enables high RPM operation at low flow with minimal fluctuation
- Pressure transmitters at inlet and outlet for real-time monitoring

### Smart Instrumentation

- Built-in filter and manual ball valves for safe operation

- Flowmeter and on/off valve for accurate dosing and control
- Zeroing valve for calibration and maintenance

### Compact & Modular

- Small footprint, easy to integrate
- Seamless connection with other ContiUnity® modules
- Suitable for lab, pilot, and production environments

### GMP-Ready

- Designed for pharmaceutical and fine chemical applications
- Reliable, low-maintenance operation
- Integrated flush inlet



# Technical data and product features

## Module

Module Model number	PM-A1 HNPM
Module Options:	Flush Connection / Graduated bottle / Pressure measurement outlet

## Process

Pump type	Micro annular gear pump
Pump Series	HNPM MZR Ex-version
Motor coupling	Magnetic
Speed controller	Integrated in motor
Flow range	0 ÷ 192 ml/min <sup>1</sup>
Flow meter type	Coriolis
Flow meter series	Bronckhorst mini CORI-FLOW
Flow meter calibration range	0.5 ÷ 500 g/min <sup>1</sup>
Operating temperature	15 ÷ 40 °C
Operating pressure	0 ÷ 28 bar(g)
Operating pressure differential	0 ÷ 20 bar(d)

## Mechanical

Process Design pressure	-1 ÷ 34 bar(g)
Process Design temperature	10 ÷ 50 °C
Module process wetted material of construction	C276/C22   SS316L
Module process wetted surface roughness	0.8 µm Ra
Pump internals material of construction	Tungsten carbide Ni-based   TAZ composite ceramics   Al2O3 / SSiC
Process wetted seals and gaskets	White FFKM / PTFE / Chemraz® SD517 / KALREZ® KLR6221
Main process connectors	Staubli Quick couplings   VCO
Frame material of construction	Aluminium ITEM® profiles   SS316L box profile welded   SS304 ITEM® profiles
Frame dimensions w x d x h	550 x 630 x 500 mm
Frame features	Drip tray
Module weight	50 kg with aluminium frame

## Electrical properties & interfaces

Control platform	ContiUnity®   MTP   Remote input/output
PLC	Beckhoff with TwinCAT 3 runtime
Power connector	Stahl miniCON
Control connector	Stahl miniCON
Communication protocol	OPC-UA
HMI	Emerson DeltaV / Web interface for stand-alone use e.g. maintenance / TwinCAT 3 HMI
Rated voltage	24 VDC
Rated current	6 A

## Marking, approval & standard

Marking	CE
ATEX rating	I 3G Ex h IIC T4 Gc
Material certification	3.1 material certification, FDA approved soft goods & lubricants, TSE declaration

Symbol legend: | = OR, / = and, ÷ = range

<sup>1</sup>: reference operation condition water at 20÷30 °C

