

Precise dosing and metering of liquids

Dr. Ralf Ehret, HNP Mikrosysteme GmbH, Schwerin, Germany

Precise dosing and metering of liquids is an important aspect in many fluid handling applications. Control of flow parameters in combination with an open and flexible design allows for a successful implementation of various processes.

Modular Dosing System (MoDoS®)

The current development of Flow Chemistry opens new possibilities for fine chemical and pharmaceutical production.

Optimally controlled material flows are the foundation of a successful production. The adjustment of the stoichiometric ratios, different from batch processes, results from the sensoric control of as uniform as possible flow volumes in the correct ratio to each other. These result in the need for pumping systems that provide precise, low-pulsating handling of aggressive liquids with low flow rates in the range of 0.003 - 1,152 ml/min.

The Modular Dosing System (MoDoS®) from HNP Mikrosysteme is a tailor-made pump system for continuous delivery in fine chemical and pharmaceutical production. MoDoS® expands the system boundary from pump towards pumping system. Actuators are supplemented by measurement and control technology, and offered as a complete solution for process-reliable pumping in the low flow range.

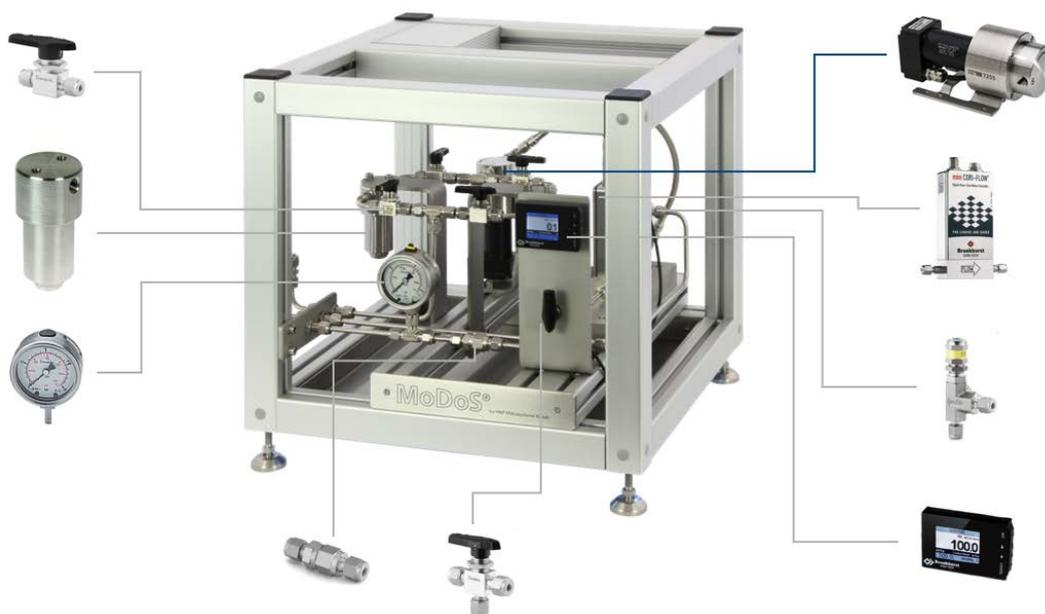


Fig. 1: Realization of a Modular Dosing System (MoDoS®)

Micro Dispense Module (μ Dispense)

The Micro Dispense Module realizes the precise dosing and metering of liquids in the microliter to milliliter range. The system is executed in a modular design with connectible fluid in- and outlet, optional actuators and sensors for measuring flow rates. The central element is a micro annular gear pump, a robust and highly precise device with an extremely long service life and low pulsation.

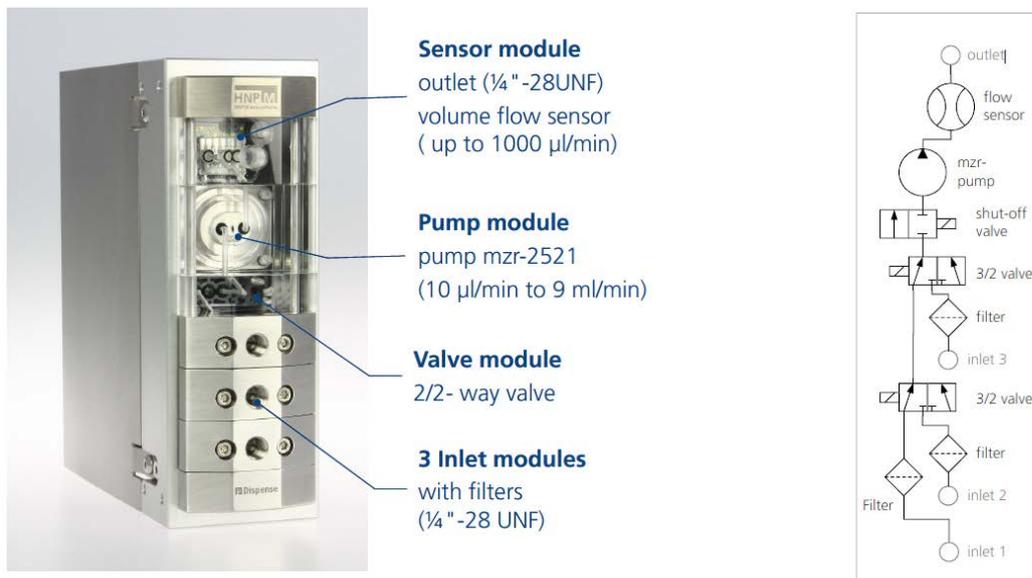


Fig. 2: Realization of a Micro Dispense Module

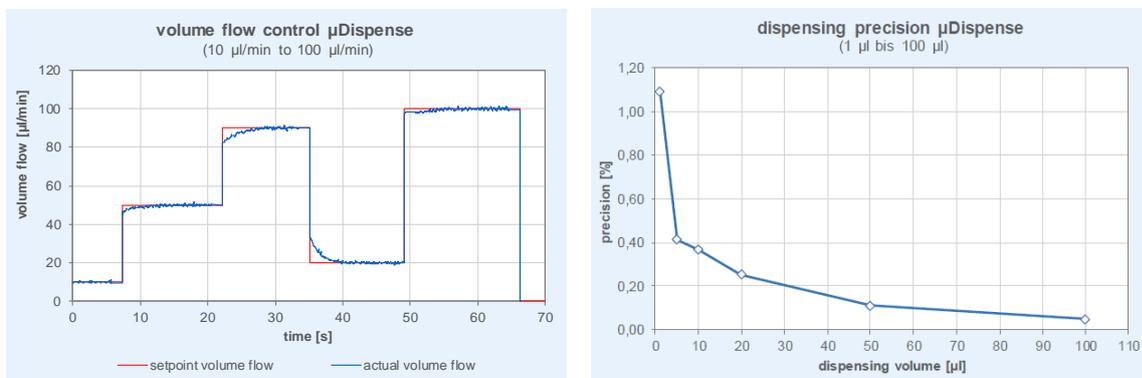


Fig. 3: Results achievable for metering and dosing liquids with a μ Dispense