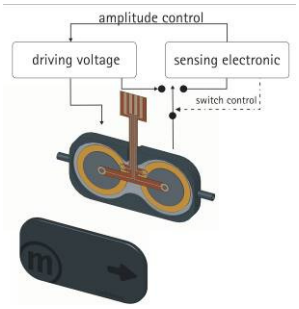
Intrinsic flow controlled micro pump

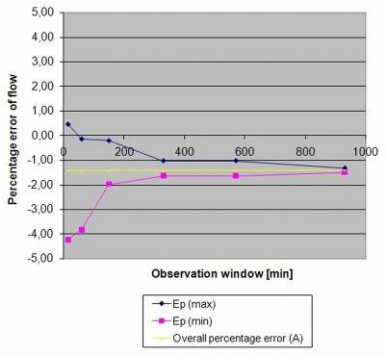
The piezo membrane pump mp6 with its double actuator configuration exhibits the possibility of an intrinsic flow control. For the first time presented at BioTechnica 2010 (hall 9, booth E16), this product offers a low cost sensing solution for applications requesting safety and accuracy under varying environmental conditions.

The reversibility of the piezo effect allows both the use for actuation to achieve flow performance and also sensing. Therefore the flow control in the micropump mp6 can be carried out by continuous switching between pumping and sensing mode. The sensor feedback is processed by the control circuit keeping a constant flow rate in correspondence to the pre-settings. A flow accuracy of 10 % for a flow range from 0,5 – 5 ml/min is achievable.

The actuation and flow control electronics can be realized as small battery driven unit, enabling operation also in portable applications.



Picture: Flow-sensing schematics of mp6 intrinsic sensor pump



Picture: Trumpet Curve

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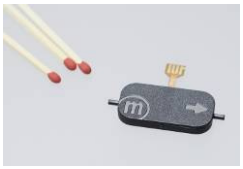
Micropumps– Active fluid handling in bio technology

Based on the piezo membrane principle Bartels Mikrotechnik GmbH offers two types of micropumps, the mp5 and mp6. The small power packs exhibit a flow performance of 5 respectively 6 ml/minute and can deal with a back pressures of 250 respectively 550 mbar, offering universal capabilities for liquids and gases. The pumps are ingeniously simple and their advantages are besides the small size and low weight its robustness, long lifetime and high reliability.

The pumps are driven via frequency and amplitude allowing flexible adjustment of flow at low energy consumption. Different control units are offered, also battery powered versions for use in portable devices.

Build from plastics, with only one material (PPSU) in contact with the pump medium, the automated serial production offers attractive cost effectiveness.



Micropump mp6

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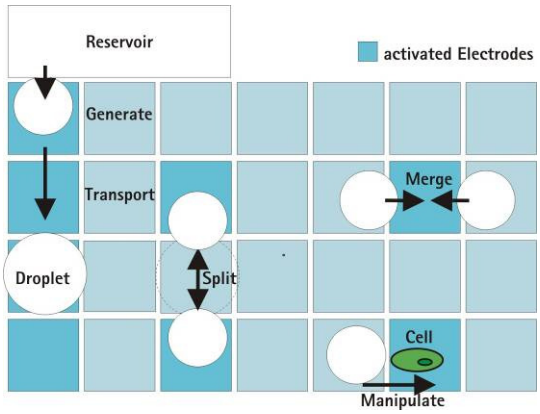
Digital Microfluidics

At the BioTechnica 2010 (hall 9, booth E15) Bartels Mikrotechnik presents digital microfluidics for flexible handling of liquids.

Lab-on-a-Chip systems are based on the reliable handling of micro to nanoliter reaction volumes and parallel sample processing. In digital microfluidics small droplets can be flexibly manipulated electrically under software control to perform even the most complex liquid handling routines. Next to pure transportation routines merging, mixing and splitting of droplets as well as droplet generation is possible. Therefore the routines required in lab-on-a-chip operation can be realized in a flexible way. It is even possible to configure assay routines according to the requirements via programmable electrodes. The direct control of fluid handling offered by digital microfluidics is a key driver for the future development of microfluidic diagnostic systems.



Picture: Creating, transporting, splitting and merging liquid droplets by electrowetting-based actuation for digital microfluidic circuits

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About Bartels Mikrotechnik

Ever since its foundation in 1996 Bartels Mikrotechnik GmbH has been a synonym for great innovative power and microtechnological know-how.

Bartels specializes in innovative applications of micro systems technology (MST) in the branches of classical consumer goods, mechanical engineering and medical technology. Microfluidics, microactuation and micromechanics constitute the company's technological focus. The international activities of Bartels Mikrotechnik subdivide into two business segments: Bartels microEngineering and Bartels microComponents.

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BioTechnica

Hall 9, booth E16 (Bio.NRW joint pavilion)

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