

Application Note

Mobile Disinfectant Dispenser with Micropumps

In medical practices and hospitals, disinfectant dispensers provide the hygienically indispensable sterility of all hands treating patients. In order to reduce surface contamination, sensor-driven non-contact systems increasingly are in use. Outside these protected places however, for instance in the contexts of disaster relief, equally capable systems are seldom available.

The non-contact disinfectant dispenser developed by Bartels microComponents can bridge that gap. The device is compact, cost-efficient in production, energy saving and low-maintenance. Its decisive advantage however is its mobility: The battery-operated dispenser provides the required hygiene at any place.

The functional core of the dispenser is the mp6 micropump. Activated by an optical sensor, the mp5² delivers a predefined amount of liquid out of the reservoir. As Bartels micropumps are made of highly inert polymers, they are resistant even to numerous ingredients of disinfectants.

The power consumption of mp6 is lower than 200 mW so that the micropump inside the dispenser can be driven by a pair of AA-batteries for up to 60 hours. Also taking the energy required for the sensor into consideration, the batteries last for more than 3.000 dispensaries.

This advantage of low-maintenance is additionally backed up by the miniaturization of all functional elements. The mp6 micropump with its dimensions of only 30 x 15 x 3,8 mm³ and the small control chips leave a lot of place in the dispenser's compact housing to integrate a large reservoir. The replacement of the reservoir therefore is necessary only after long intervals of time.

Once a reservoir is empty, it can easily be displaced together with the micropump and the tubing attached to it. The cost-saving production of the polymer pump with piezo actuators allows for this use as a disposable and spares time-consuming, inconvenient handling during maintenance. The reservoirs can be stored with the micropump already attached and be replaced quickly whenever necessary.



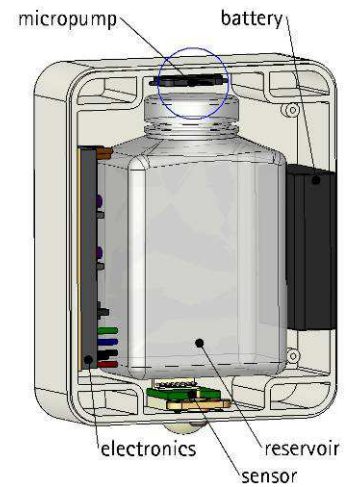
The disinfectant dispenser with Bartels micropumps is extremely efficient and low-maintenance.



Leaving behind the strictly medical technologies as "the" traditional branch for MST-applications, Bartels microComponents with this example once more demonstrates the high potential of micropumps for well-conceived, space- and power-saving solutions.

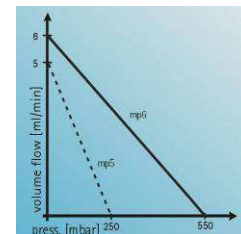
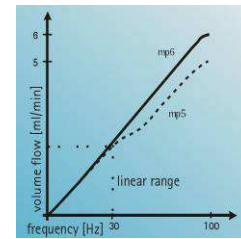
By now, the assortment of standard micropumps offered includes the mp5 and double actuator pump mp6. Apart from the powerful performance of two actuators inside a single housing, the mp6 features two more advantages that make it even more versatile in use: As PPSU is the material in contact with the pumped fluid, media compatibility is hardly a critical factor at all for the mp6. Its increased bubble tolerance at the same time allows for the trouble-free pumping of any gas-liquid-mixtures.

As the different requirements of all imaginable applications can not be met by one and the same micropump, no matter how versatile it is, Bartels microComponents also offers the development of customer specific micropumps and control units for predefined applications.



Despite its compact design, the dispenser housing includes a large reservoir and all functional parts.

Typical Characteristics:



General Specifications	mp5*	mp6*
type	piezoelectric diaphragm pump	
pump medium	liquids or gases	liquids, gases and mixtures
outer dimensions (without fluidic connectors)	14 x 14 x 3.5 mm ³	30 x 15 x 3.8 mm ³
fluidic connectors	tube clips, 2 mm outer diameter	tube clips, 1.6 mm outer diameter
operating temperature	0 - 70 °C	
life time	> 5000 h ²	
materials in contact with media	PPSU/PI/NBR	PPSU
max. flow, water ¹	5 ml/min (100 Hz)	6 ml/min (100 Hz)
max. pressure, water ¹	250 mbar (100Hz)	550 mbar (100 Hz)
max. flow, air ¹	15 ml/min (300 Hz)	On request.
max. pressure, air ¹	30 mbar (300 Hz)	On request.

* Typical values. Values can vary under application conditions. Content is subject to changes without notice.

¹ Values taken with electronic controller mp-x set to 250 V amplitude, SRS signal

² Conditions: DI water, room temperature, settings mp-x: 100 Hz, 250 V, SRS.

