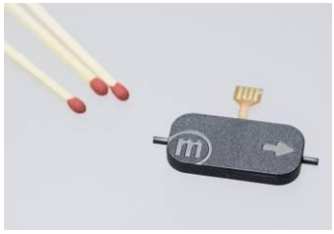
Bartels Micropump mp6

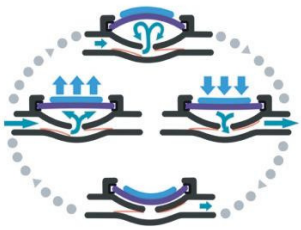
Micropumps transporting the tiniest amounts of gases or liquids can be considered the heart of microfluidics.



mp6 – the small power pack.

In many sectors they have become indispensable. Dosing lubricants, feeding sensors with sample gas or mixing starch into the steam of flat irons are only a few of the manifold tasks they can fulfill. Many further fields of application for example are located in medical technologies and analytics.

Extremely small in size and low in weight, with good particle tolerance and temperature resistance, Bartels micropumps are well prepared to be used in any of these sectors. As they are almost completely made of plastics, large quantities of these pumps can be produced at low cost and may well be used as disposables.



Functional principle.

The functional principle of the Bartels micropumps is based on a piezoelectric diaphragm in combination with passive check valves. A piezo ceramic mounted on a coated brass membrane is deformed when voltage is applied. By the resulting down stroke, the medium is being displaced out of the pump chamber below. The check valves on both sides of the pump chamber define the flow direction. When the voltage decreases, the piezos correspondent deformation causes an upstroke of the membrane. The medium is sucked in and the chamber is filled again. In every second, the pump can do several hundreds of such pumping cycles. The pumping performance can be influenced by adjustment of the parameters.

Important advantages for all users result from the radically simple pump design: Injection molded parts for housing and pump chamber, piezo actuators and passive valves constitute the key components. Thus any adaptation to specific requirements concerning flow rate or back pressure is easy to realize. This customization of micropumps and the correspondent electronic controllers is part of the services offered by Bartels microComponents. If requested, the pumps can be fully integrated into complex system designs as well.

Once the perfect pump for your application has been found, you may purchase an exclusive production license for this version to include the component into your own production processes. Of course Bartels microComponents can also realize a high quality serial production for you at low cost.

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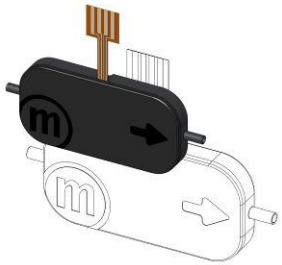
mp6 Micropump

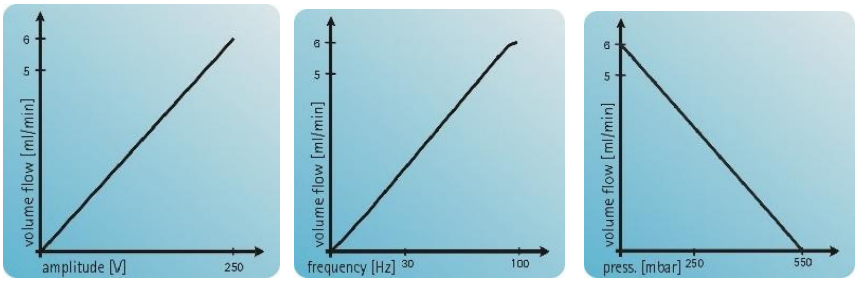


The Bartels micropump mp6 combines two piezo actuators inside a single housing. The new pump joins the established functional principle and central advantages of its parent generation mp5 with its own specific innovative features.

The small power pack can handle twice the back pressure the mp5 can cope with, has an increased priming capability and is of higher bubble tolerance, so that even gas-liquid-mixtures can be pumped without problems.

In the entire pump only one material gets into contact with the medium: all relevant parts are made of PPSU. Low prices in large quantities due to an automated assembly and low power consumption are further advantages of the mp6.

Typical characteristics of the mp6:



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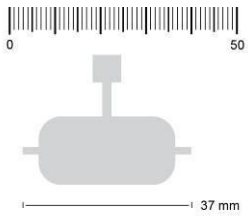
Technical Data of the mp6 [1]

mp6			Order code: mp6
Pump type			Piezoelectric diaphragm pump
Number of actuators			2
Dimensions without connectors			30 x 15 x 3.8 mm³
Weight			2 g
Fluidic connectors			Tube clip (outer diameter 1,6 mm, length 3,5 mm)
Electric connector			Flex connector / Molex FCC 1,25 mm pitch
Power consumption			< 200 mW
Self-priming			yes [2]
Pumping media			Liquids, gases and mixtures
Operating temperature			0 – 70°C [3]
Life time			5000 h [3]
IP code			IP33 [4]
Materials in contact with media			Poly Phenylene Sulphone (PPSU)
Suitable evaluation controller			mp-x and mp6-OEM
Typical values of flow and back pressure for selected media (values defined with mp-x: 250 V, SRS):			
Gases		Max. flow	18 ml/min (300 Hz)
		Max. back pressure	100 mbar (300 Hz)
Liquids	Water	Max. flow	6 ml/min +/- 15% (100 Hz)
		Max. back pressure	550 mbar +/- 15% (100 Hz)



[1] Typical values. Values can vary under application conditions. Content is subject to changes without notice.
[2] Conditions: suction pressure < 10 mbar, DI water, settings mp-x: 100 Hz, 250 V, SRS, the max. flow rate will be reached after a few minutes of operation time.
[3] Value of previous version
[4] Can be changed to IP44

Please find more information concerning the controller and the equipment in the corresponding data sheets.

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