

MICRO-PUMP WITH PIEZO – STAINLESS STEEL

For aspirating, conveying and metering gaseous media or liquids in the milliliter range

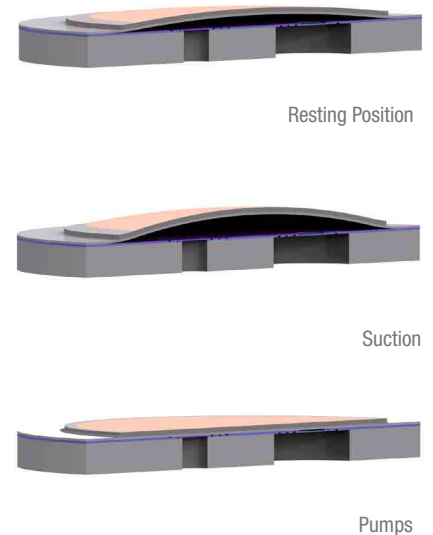
The piezoelectric driven micropump is a highlight of the RAPA product range. A layered structure of very thin stainless steel foils, an adjustable flow and a high bubble tolerance are just some of the many features of this customized micropump. A patented process is used to form the pumping chamber of the micropump when the piezo is assembled. This allows the dead volume to be kept minimally small, ensuring high pressures and good self-priming capabilities. A custom-designed housing ensures optimal compatibility for your target application. Combinations with a flow sensor in a control loop are conceivable.

POSSIBLE APPLICATIONS

Microdosing system with a wide range of applications in medical, laboratory and analytical technology, such as drug dosing, analytics, infusion systems, cell handling and supply in bioreactor systems.



OPERATING PRINCIPLE



TECHNICAL DATA			
Size	Ø 15 mm (concept)	Ø 20 mm	Ø 30 mm (concept)
Material	Stainless steel (alternative metals possible on request)		
Fluid Connections	according to customer requirements		
Pump Media	Liquids and Gases		
Service Life	~10.000 h (Air, 100 Hz, sin)		
Self-priming	< -20 kPa < -2,9 psi		
Bubble-tolerance	Yes		
Operating Temperature	0 - 70 °C 32 - 158 °F		
Electrical Parameters			
Electrical Connection	I ² C / USB		
Control Pulse	Sine		
Power Supply Voltage	5 V _{DC}		
Power Input	max. 1,4 W		
Piezo Voltage	430 V _{pp}		
Flow Rates and Back Pressure Fluids (with viscosity 1 mPas)			
Displaced Volume	1,5 µl	5 µl	25 µl
Flow Rates @ 0 kPa	5 ml/min	20 ml/min*	20 ml/min
Flow Rates @ 20 kPa	4 ml/min	13 ml/min*	8 ml/min
Max. Back Pressure @ 50 Hz, sin	> 125 kPa > 18,1 psi	> 70 kPa > 10,1 psi	> 35 kPa > 5,1 psi
SPL @ 100 Hz, sin, dist. 50 mm	~ 42 dB(A)		
Frequency Range	1 to 100 Hz		
Flow Rates and Back Pressure Air Gases			
Flow Rates @ 0 kPa	13 ml/min	44 ml/min**	150 ml/min
Flow Rates @ 20 kPa	3 ml/min	10 ml/min**	2 ml/min
Back Pressure	> 25 kPa > 3,6 psi	> 25 kPa > 3,6 psi	> 20 kPa > 2,9 psi
SPL @ 100 Hz, sin, dist. 50 mm	~ 62 dB(A)		
Frequency Range	1 to 200 Hz		

* 100 Hz, sin | ** 200 Hz, sin

FEATURES

- Long service life
- Self-priming
- Low energy consumption
- Bubble tolerant
- Wide range of applications
- High dosing accuracy
- Autoclavable
- Flexible design for customized solution

APPLICATION AREAS

- Pharma
- Medical
- Analysis
- Chemical industry
- Automotive