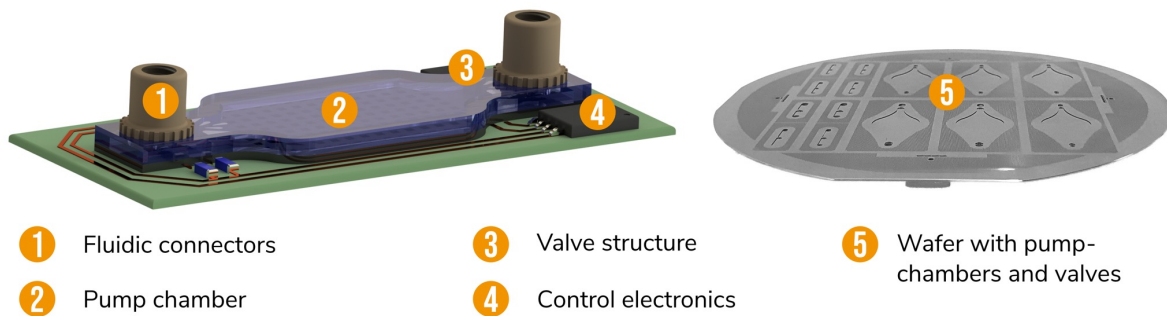


E-PUNCH

EWOD-DRIVEN MICROPUMP

With E-PunCh, 5microns GmbH has designed and patented a chip-integrated, energy-efficient and cost-effective micropump without mechanical components. This robust micropump features high tolerance to particles, is resistant to vibration, and enables gentle handling of biological fluids. The wear-resistant system enables precise metering

in the nanolitre range and can be configured as required with regard to the maximum operating pressure and the achievable volume flow rates. The control voltages of E-PunCh are lower than those of piezoelectrically operated pumps. As a result, the chip-integrated micropump is characterized by low energy requirements.



TECHNICAL SPECIFICATIONS

Hardware Version A1

Maximum operating pressure	10 kPa to 50 kPa Determined by the geometry of the microcavities
Flow rate	Max. 0.5 $\mu\text{l/s}$ per square centimeter of chip area Depending on design and actuation frequency
System dimensions	Reasonable chip area approx. 20 mm x 20 mm; height less than 2 mm Width and length are determined by the desired flow rate
Control	Sinusoidal voltage signal Amplitude or frequency controlled
Operating voltages	e.g. 100 V Adjustable by selection and dimensioning of dielectric insulation layers
Limits	The generation of static pressure differences is not possible by system design due to the absence of moving components.

-  **Without flaps & membranes**
-  **Chip-integrated or OEM**
-  **Energy-efficient**
-  **Cost-efficient**