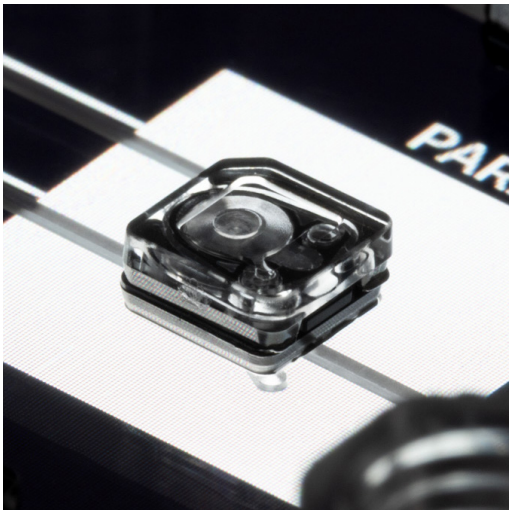


MV-1

EMBEDDED MICROVALVE

The MV-1 is an embedded on/off valve used to automate microfluidic functions such as priming, mixing, and timing of fluidic events. The valve is actuated using externally supplied air pressure via a channel on the microfluidic chip. Performance benefits of the MV-1 include optical clarity, solvent resistance, fast switching times, reliable sealing, and the ability to traffic small particles without fouling. Multiple valves can be attached to a single microfluidic chip for either simultaneous or independent control.

Product information

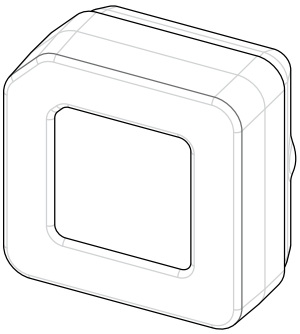
Model ID	MV-1
Overall dimensions	4.40 × 4.40 × 2.23 mm
Body material	PMMA, PC, or COP
Wetted material	COC elastomer
Default position	Normally open
Total internal volume *	1.5 µL
Actuation displacement volume	~ .5 µL
Actuation method	Externally applied air pressure
Actuation pressure	1750 mbar for liquid pressures up to 700 mbar 3500 mbar for liquid pressures between 700-2000 mbar
Compatible media	Aqueous solutions, polar organic solvents, acids and bases, fluorinated oils and surfactants
Device assembly method	Laser welded

* Reported internal volume includes all wetted features including the fluidic inlet and outlet

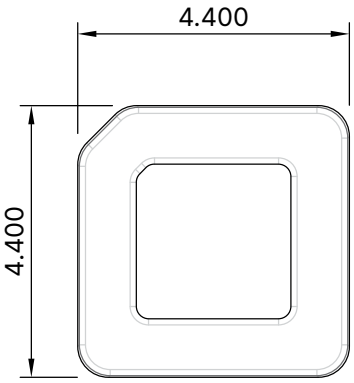
Performance specifications

Response time **	< 50 ms
Maximum compatible particle size	40 µm
Maximum operating temperature	45 °C
Expected lifetime	> 1 × 10⁶ cycles

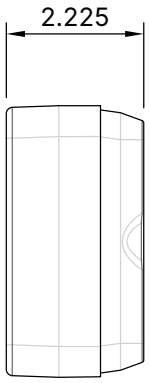
Product dimensions



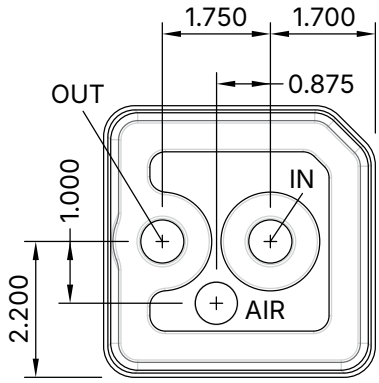
Dimensions in millimeters
CAD available upon request



TOP

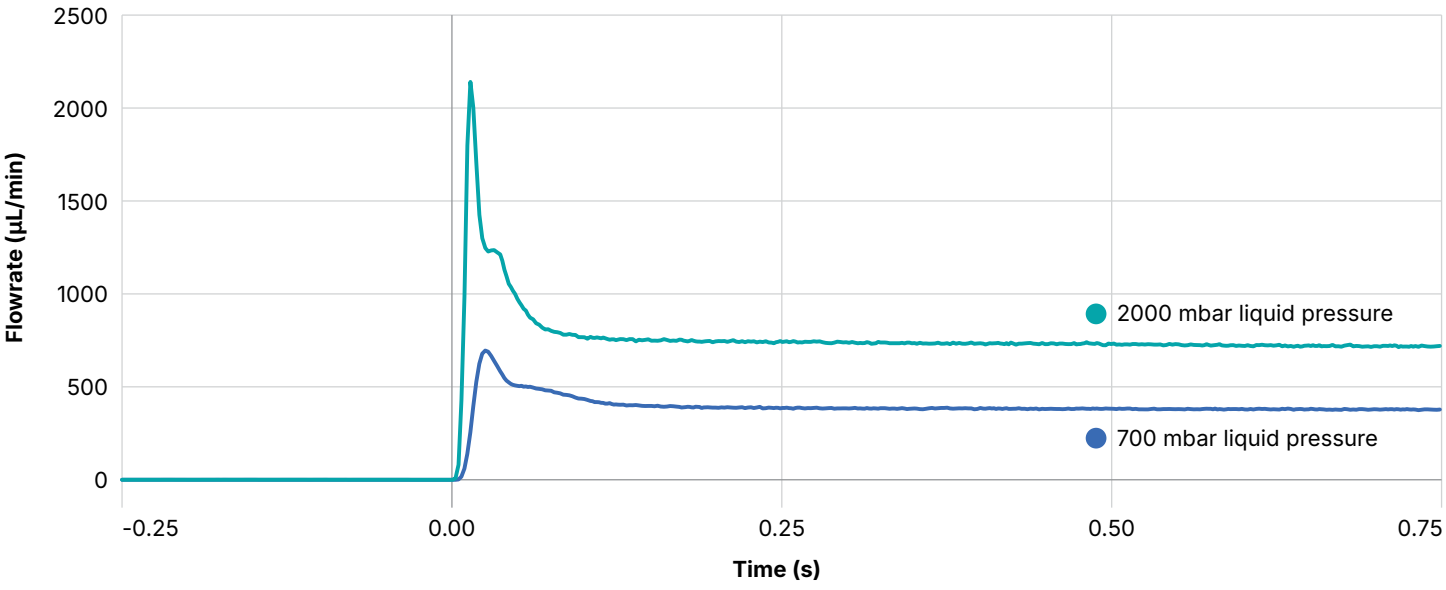


SIDE



BOTTOM

Opening response with 3500 mbar air pressure



** Response time may vary based on the solenoid valve, air pressure source, and actuation pressure used

Closing response with 3500 mbar air pressure