PipeJet™ Nanodispensers P4.5 / P9

Non-contact liquid handling for OEM applications

The PipeJet™ technology enables the contact-free dosage of small amounts of liquids in the range from a few nanoliters up to some microliter. Key element of the technology is an elastic pipe with a well-defined inner diameter that is squeezed with high dynamics by a piezo stack actuator. By this displacement the liquid is driven out through the end of the pipe as a free jet. The dosed volume is independent of the viscosity or the surface tension over a wide range.

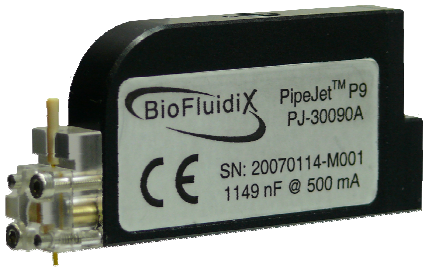
Different pipe diameters can be used with the PipeJet™ technology. A larger pipe leads to a larger volume of a single droplet. Using a fixed pipe diameter, the dosage volume can be varied over a factor of 6 (e.g. 5 nl to 30 nl) by the driving stroke. Pipes are available in different lengths and diameters to optimize performance for any given purpose. Each dispenser type is capable of clamping different pipe lengths. Thus, pipetting as well as dispensing systems can easily be set-up and reconfigured.

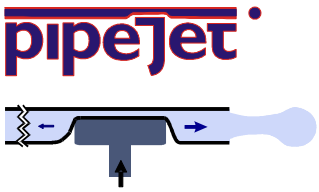
Due to the simple working principle and the robust material PipeJet™ allows for the dispensing of a wide variety of even difficult fluids such as PEG, DMSO, Methanol or solutions filled with beads or cells. The high dynamics generated by the actuator enables dispensing of higher viscous liquids like protein solutions, filled adhesives or living cells. The simple fluidic geometry prevents clogging of the dispenser caused by particles or cells. And even if one line fails for any reason: Replacing the low cost dispensing pipe is as easy as exchanging a pipette tip.

The dispensing pipe is mounted by a simple mechanical clamping or screwing mechanism; therefore the pipes can be replaced very quickly. Multiple modules can be arrayed to build highly parallel pipetting or dispensing units. The P4.5 modules are designed for life science and lab automation applications. The more rugged PipeJet™ P9 modules are optimized for industrial machines.

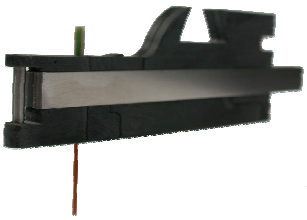
PipeJet™ - Specifications	
Dosage range:	P4.5 5 nl - 60 nl adjustable P9 5 nl - 100 nl adjustable (single shot volume, range depends on tube type)
Dosage frequency:	Typically 50 Hz (at 50 nl)
Pitch	4.5 mm (type P4.5) or 9 mm (type P9)
Viscosity range:	1 – 1000 mPas (dependent on tube dimensions)
Surface tension range:	30 mN/m – 76 mN/m
Precision / Accuracy:	< 5 nl / < 10 nl (including tip to tip variation)
Tested Media:	Aqueous solutions, solvents, DMSO, beads, cells, PEG, THF, Acetonitryl, Ethanol, Methanol ...

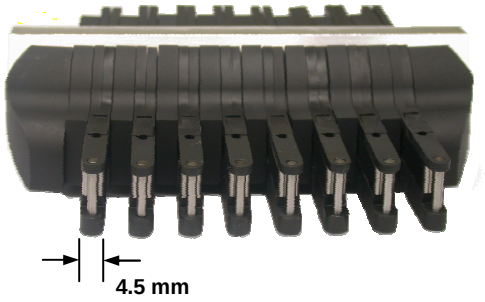
P9 module





P4.5 module





Applications
Aliquoting & distributing precious samples (Enzymes, Proteins etc.)
Dispensing of cells
Dispensing of aggressive media which degrades tubing and valves of conventional system
Aspiration from and pipetting into 1536 well MTP & 3456 well MTP

Materials
All liquid contaminated materials: • are low cost disposables • can be sterilized • are USP class VI compliant
Customized materials and dispenser modules are possible

Contact	BioFluidix GmbH		2008 / 01
	Georges-Koehler-Allee 106	phone: + 49 761 203 7282	web: http://www.biofluidix.com
	79110 Freiburg; Germany	fax: + 49 761 203 7284	e-mail: info@biofluidix.com