microdrop
TECHNOLOGIES

Microdrop Dispenser Heads

ADVANTAGES

- Contactless dispensing
- Single droplet volumes from 30 pl to 380 pl *
- Variation of dispensed volume approx. 1% *
- Droplet rate 1 ... 2000 Hz (provided by standard driver electronics) *
- Droplet velocity approx. 2 m/s *
- Only highly inert materials have contact with the fluid - glass and PTFE (Polytetrafluorethylene)
- It is possible to dispense fluids with a room temperature viscosity up to 20 mPas *
- Materials, such as waxes, with a viscosity up to 10000 mPas are dispensable if their viscosity is reduced by heating to 20 mPas or lower.

Technology

Microdrop Dispenser Heads are based on piezo-driven inkjet printing technology. The integrated piezo actuator induces a shock-wave into the fluid contained in the head, which causes a droplet to be emitted from the nozzle.

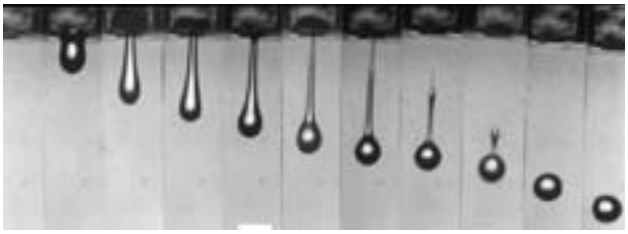
Criteria to find the best Microdrop Dispenser Head

- What kind of fluid is to be dispensed (Viscosity, concentration of additives etc.)?
- What kind of solvent is used?
- Are there particles in the liquid: Size and concentration of particles?
- Desired diameter of the droplets
- Desired droplet emission frequency
- Dispensing volume:
  a) single droplet b) throughput of droplets per second
- How many dispenser heads are necessary for the application?
- Is there an interest to upgrade the system to more than one dispenser head later?
- Is an xyz-positioning system required?

Need help? Please send us a short description of the application and a datasheet of the fluid.

Features

- The Microdrop Dispenser Heads MD-K-... can be driven by the Microdrop Driver electronics (MD-E-...) or in combination with the Autodrop system (AD-E-...).



- The High Temperature Dispenser Head MD-K-801 can only be driven by the Autodrop System.
- The inner nozzle diameter of the Microdrop Dispenser Head strongly influences the droplet size.
- The relation between inner nozzle diameter, droplet size and droplet volume is:

inner nozzle diameter	droplet size in flight *	droplet volume *
30 µm	35 µm	20 pl
50 µm	55 µm	90 pl
70 µm	70 µm	180 pl
100 µm	90 µm	380 pl

* depending on the fluid used

- The spot size on the substrate depends on the wetting behaviour between the fluid and the surface material.
- microdrop Technologies GmbH are specialized in customized solutions. Please ask for application-optimized dispenser heads!

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Microdrop Dispenser Heads

MD-K-130-...

Microdrop Dispenser Head, non heated

Viscosity range:	0.4 ... 20 mPas *
Standard inner nozzle diameter:	30 µm, 50 µm, 70 µm
Droplet volume:	20 ... 180 pl *
Life time:	> 100 billion cycles

MD-K-140-...

Microdrop Dispenser Head, nozzle tip heated

Viscosity range:	0.4 ... 100 mPas *
Heating range of the nozzle tip:	25 ... 100 °C *
Standard inner nozzle diameter:	50 µm, 70 µm, 100 µm
Droplet volume:	90 ... 380 pl *
Life time:	> 100 billion cycles

MD-K-140-... with MD-H-712-... or MD-H-714-...

Microdrop Dispenser Head, nozzle tip, hose and storage bin heated up to 100°C

Viscosity range:	0.4 ... 10000 mPas *
Heating range of the nozzle tip:	25 ... 100 °C
Heating range of hose and storage bin:	25 ... 100 °C
Standard inner nozzle diameter:	70 µm, 100 µm
Droplet volume:	180 ... 380 pl *
Life time:	> 100 billion cycles

MD-K-801-...

Microdrop High Temperature Dispenser Head, nozzle tip, hose and storage bin heated up to 160°C

Viscosity range:	0.4 ... 10000 mPas *
Heating range of the nozzle tip:	25 ... 100 °C
Heating range of hose and storage bin:	25 ... 160 °C
Standard inner nozzle diameter:	70 µm, 100 µm
Droplet volume:	180 ... 380 pl *
Life time:	> 100 billion cycles
Driver electronics:	Autodrop System

* depending on the fluid used

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