**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 (Polytetrafluoroethylene)
- 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:

<table>
<thead>
<tr>
<th>inner nozzle diameter</th>
<th>droplet size in flight *</th>
<th>droplet volume *</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 μm</td>
<td>35 μm</td>
<td>20 pl</td>
</tr>
<tr>
<td>50 μm</td>
<td>55 μm</td>
<td>90 pl</td>
</tr>
<tr>
<td>70 μm</td>
<td>70 μm</td>
<td>180 pl</td>
</tr>
<tr>
<td>100 μm</td>
<td>90 μm</td>
<td>380 pl</td>
</tr>
</tbody>
</table>

* 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!
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 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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