microdrop
TECHNOLOGIES

# Autodrop Pipettes

## ADVANTAGES

- Fast liquid change
- Contactless dispensing
- Single droplet volumes from 20 pl to 180 pl *
- Variation of dispensed volume approx. 1% *
- Very small storage volume, depending on pipette type: 25 µl up to 37 µl
- Very small dead volume of 12 µl - 14 µl
- Droplet rate 1 ... 2000 Hz * (provided by a standard driver electronics)
- Droplet velocity approx. 2 m/s *
- It is possible to dispense fluids with a viscosity up to about 20 mPas *

## Technology

Autodrop Pipettes are based on piezo-driven inkjet printing technology. The fluid is aspirated through the nozzle tip into the glass capillary.

The integrated piezo actuator induces a shock-wave into the fluid contained in the pipette, which causes a droplet to be emitted from the nozzle.

## Criteria to find the best Autodrop Pipette

- 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 pipettes 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 inner nozzle diameter of the Autodrop Pipettes 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 |

* 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!

By using up to 8x pipettes on one of our Autodrop positioning systems it will be possible to aspire liquids from microtiterplates of up to 9 mm depth due to the arrangement of the parallel holders and the long designed glass capillary. The nozzle tip diameter of 1mm even enables a dipping in 384-well plates.

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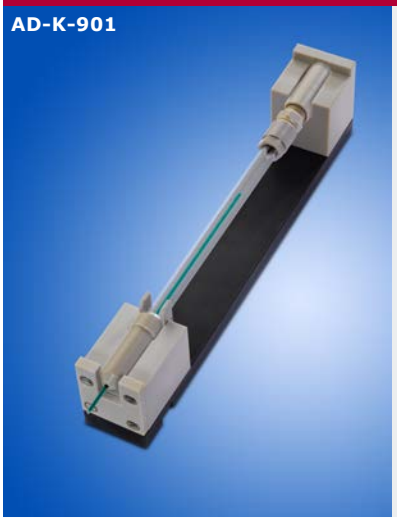
# Autodrop Pipettes

**AD-K-901**



## Autodrop Pipette, storage volume 37 µl

| | |
|---|---|
| Viscosity range: | 0.4 ... 20 mPas * |
| Standard inner nozzle diameter: | 30 µm, 50 µm, 70 µm |
| Droplet volume: | 20 ... 180 pl * |
| Variation of dispensed volume: | < 1% * |
| Droplet velocity: | 2 m/s * |
| Standard drop rate: | 1 ... 2000 Hz * |
| Life time: | > 100 billion cycles |
| Storage volume: | approx. 37 µl |
| Dead volume: | approx. 14 µl |
| Materials in contact with fluid: | glass (PEEK, FEP, ETFE, PTFE)** |

Dimensions:

- Pipette AD-K-901: ø 8.5 mm / l 140 mm
- Holder with electrical contacts AD-H-901: w 20 mm / h 138 mm / d 31 mm
- Pipette with holder: w 20 mm / h 148 mm / d 31 mm

**AD-KH-501-L6**


## Autodrop Pipette, storage volume 25 µl

| | |
|---|---|
| Viscosity range: | 0.4 ... 20 mPas * |
| Standard inner nozzle diameter: | 30 µm, 50 µm, 70 µm |
| Droplet volume: | 20 ... 180 pl * |
| Variation of dispensed volume: | < 1% * |
| Droplet velocity: | 2 m/s * |
| Standard drop rate: | 1 ... 2000 Hz * |
| Life time: | > 100 billion cycles |
| Storage volume: | approx. 25 µl |
| Dead volume: | approx. 12 µl |
| Materials in contact with fluid: | glass |

Dimensions:

- Pipette AD-KH-501-L6: ø 7 mm / l 71.9 mm
- Holder with electrical contacts AD-KH-501-L6: w 8.5 mm / h 45 mm / d 29 mm
- Pipette with holder: w 8.5 mm / h 97 mm / d 29 mm

**AD-KH-501**


## SPECIAL Autodrop Pipette as replacement tips for Perkin Elmer Piezorray™, storage volume 25 µl

| | |
|---|---|
| Viscosity range: | 0.4 ... 20 mPas * |
| Standard inner nozzle diameter: | 70 µm |
| Droplet volume: | 180 pl * |
| Variation of dispensed volume: | < 1% * |
| Droplet velocity: | 2 m/s * |
| Standard drop rate: | 1 ... 2000 Hz * |
| Life time: | > 100 billion cycles |
| Storage volume: | approx. 25 µl |
| Dead volume: | approx. 12 µl |
| Materials in contact with fluid: | glass |

Dimensions:

- Pipette AD-KH-501: ø 7 mm / l 71.9 mm
- Holder with electrical contacts AD-KH-501: w 8.5 mm / h 45 mm / d 29 mm
- Pipette with holder: w 8.5 mm / h 97 mm / d 29 mm

*** depending on the fluid used**

**** only by using the tube as reservoir or for filling**



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