# Perfect Liquid Handling

PIPETTING WITH PRECISION AND COMFORT





## Efficiency in variable pipetting

## Microliter pipettes with variable volumes VITLAB<sup>®</sup> micropipette

VITLAB specialises in accurate dispensing, titration and pipetting, and offers a variety of highly developed precision instruments for Liquid Handling applications.

The VITLAB<sup>®</sup> -8 and -12 multichannel pipettes complete the line of VITLAB<sup>®</sup> piston-operated pipettes. They are characterized by their especially user-friendly operation while pipetting long series and are suitable for beginners as well as advanced users. Our single- and multichannel pipettes include all features requested by the user: robustness, simple operation, complete autoclavability and ergonomic design, as well as highest accuracy and easy calibration for long lasting reliability.



#### **Calibration function**

The integrated calibration function allows an adjustment without tools. A change to the factory settings is indicated by the red adjustment slider which becomes visible.



#### Volume setting

The desired volume can be set exactly by rotating the volume-setting wheel. The 4-digit volume display with zoom function ensures optimal readability.



#### Tip cone

The streamlined shaft allows the pipette to be used in narrow vessels. The fit of the tip cone is optimal for use with VITLAB<sup>®</sup> pipette tips.



### Air-interface and positive displacement principle



There are two different types of pipettes: air interface and positive displacement. Air-interface pipettes are usually used for the exact pipetting of aqueous solutions in the ml and µl range. For media with high vapor pressure or high viscosity, positive displacement pipettes are used. The

positive displacement piston is in direct contact with the pipette liquid. In contrast, the piston (1) of air-interface pipettes has no direct contact with the pipetted liquid (2). Instead, an air-interface (3) keeps the liquid separated from the piston.

### Advantages of air-interface pipettes

In contamination-free environments or applications where sterile conditions are required, it is of major importance that the device not be in contact with the pipetted liquid. Only the pipette tips come in contact with the aspirated liquid and are for single-use only; therefore, cross-contamination can be prevented. The pipette tips can be rapidly replaced making the airinterface pipettes ideally suited for the fast pipetting required in longer test series.

### **Fields of application**

Due to their great versatility and broad volume range, variable airinterface pipettes have become an essential tool for routine labwork. Regardless of whether your work involves analytical chemistry, biochemistry or microbiology, the VITLAB<sup>®</sup> micropipette is suitable for a variety of

different applications. Multichannel pipettes can be used for 8 or 12 pipetting operations at the same time. They are designed for work with microtiter plates that have standardized 8x12 cavities and are used, for example, for cell culture dilution techniques, enzyme or radio immunoassays.







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for smooth movement of the piston

for left- and right-handers

for rapid replacement of the tips

for easy calibration without the need for tools

that allows comfortable handling

with integrated zoom function for optimal readability

for easy tip selection

through the use of innovative plastic materials

as per DIN EN 285

according to IVD-directive 98/79 EG

for extended durability

Manifold with 360° free rotation in either direction to offer optimal working positions

P O O

VITIAB .

Especially service-friendly: Single shafts and seals can be easily removed, and thus can be directly cleaned or replaced in the laboratory

The combination of the stepped design of the ejector and special rings made of FKM reduces the effort needed for ejecting the tips



Disassemble

20 - 200 <sub>H</sub>I

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## Efficiency in variable pipetting

Handling of air-interface pipettes



#### Aspirate sample

- Adjust volume
- Use the correct tip(s) according to the volume range (Color-Code)
- Press the pipetting button to the first stop and keep the button pressed
- Immerse the pipette tip(s) 2 to 6 mm into the liquid (depending on volume)
- Let the pipetting button slide back slowly while holding the pipette in an upright position (the liquid will be aspirated)



#### Discharge sample

- Place the pipette tip(s) against the wall of the receiving vessel
- Press the pipetting button slowly and evenly down to the second stop (overstroke) to empty the tip(s) completely
- Ensure while discharging the sample that the tip(s) are not immersed into the liquid that might be in the receiving vessel
- Wipe the pipette tip(s) against the receiving vessel wall over a distance of approx.
  10 mm



#### Ejecting the tip(s)

- Keep the pipetting button pressed while removing the pipette from the receiving vessel
- Let the pipetting button slide back slowly
- Press the tip ejection key to remove the tip(s)
- Correctly dispose of pipette tip(s)
- Store the pipette in an upright position when not in use (VITLAB<sup>®</sup> bench top rack/ shelf mount)









## **Optimal pipetting**

For exact and precise analytical results, the following points should be considered, independent of the pipetting technique:

- The best results are obtained with pipette tips that are recommended by the manufacturer, since only they have been checked for an optimal fit with the pipette.
- A second important factor that can influence the analytical result is the quality of the tip material. VITLAB<sup>®</sup> pipette tips are manufactured from high quality polypropylene.
- Pipette tips are intended for single-use only. Reuse and cleaning of used pipette tips should be

avoided because it can influence accuracy and lead to cross-contamination of samples.

- The pipette should be held vertically while aspirating the sample because an increase in the angle of inclination can result in volume errors.
- To obtain optimal results, the immersion depth of the tip should only be a few millimetres (depending on volume).
- The air-interface between piston and sample should be kept as small as possible. The smaller the air-interface the higher is the accuracy of the result. The color-code helps with the selection of the fitting pipette tip.





## Forward pipetting

Starting position	1	2	3	4
First stop				
Second stop				

Press the pipetting button	Let the pipetting button	Press the pipetting button
to the first stop and keep	slide back slowly. The liquid	slowly to the first stop; then
the button pressed.	is aspirated.	press to the second stop to
Immerse the tip 2 - 6 mm		empty the tip completely.
into the liquid.		

## **Reverse pipetting**

The reverse pipetting technique should be used to pipet viscous solutions, wetting solvents or media with high vapour pressure with air-interface pipettes. In contrast to forward pipetting, the reverse pipetting technique is as follows:

Starting position	1	2	2	3	4
First stop					1
Second stop					

Press the pipetting button	Let the pipetting button	Press the pipetting button
to the second stop and keep	slide back slowly. The liquid	slowly to the first stop;
the button pressed.	is aspirated.	some liquid will remain in
Immerse the tip 2 - 6 mm		the tip.
into the liquid.		





### VITLAB<sup>®</sup> micropipette Starter Sets

Our VITLAB<sup>®</sup> micropipette Starter Sets offer you the possibility to get to know our singlechannel pipettes and are solid basic equipment for beginners – You can choose between 3 Starter Sets with different volume ranges, depending on your application.

Each VITLAB<sup>®</sup> Starter Set includes 3 variable VITLAB<sup>®</sup> micropipettes with different volumes and associated, color-coded tip boxes, as well as 3 rack mounts for appropriate storage of your new VITLAB<sup>®</sup> micropipettes.

Our micropipettes are conformity certified to DIN 12600, are CE-IVD compliant and are completely autoclavable at 121 °C (2 bar) acc. DIN EN 285.

Let yourself be convinced by the quality and comfort of our pipettes at an attractive introductory price.

#### Starter Set "Mini"

#### Starter Set "Classic"

Scope of delivery:

- VITLAB<sup>®</sup> micropipette 2 20 µl
- VITLAB<sup>®</sup> micropipette 20 200 µl
- VITLAB<sup>®</sup> micropipette 100 1000 µl
- Tip-Box 2 200 µl (2x)
- Tip-Box 50 1000 µl
- Rack mount (3x)
- Product & application brochure

Cat. No.: 33332

#### Starter Set "Maxi"

Scope of delivery:

- VITLAB<sup>®</sup> micropipette 100 1000 µl
- VITLAB<sup>®</sup> micropipette 500 5000 µl
- VITLAB<sup>®</sup> micropipette 1000 10000 μl
- Tip-Box 50 1000 µl
- Tip-Box 0.5 5 ml
- Tip-Box 1 10 ml
- Rack mount (3x)
- Product & application brochure

Cat. No.: 33333



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Scope of delivery:

- VITLAB<sup>®</sup> micropipette 0.5 10 µl
- VITLAB<sup>®</sup> micropipette 10 100 µl
- VITLAB<sup>®</sup> micropipette 100 1000 µl
- Tip-Box 0.5 20 µl
- Tip-Box 2 200 µl
- Tip-Box 50 1000 µl
- Rack mount (3x)
- Product & application brochure

Cat. No.: 33331

## VITLAB<sup>®</sup> micropipette



## VITLAB<sup>®</sup> micropipette

The micropipettes are conformity certified to DIN 12600, are CE-IVD compliant and are completely autoclavable at 121 °C (2 bar) acc. DIN EN 285.

Scope of delivery: VITLAB<sup>®</sup> micropipette, quality certificate, and instruction manual.

Volume	A*	CV*	Тір	PU	Cat. No.
μl	$\leq$ ± %	$\leq$ %	μl		
0.5 - 10	1.0	0.5	20	1	1641000
2 - 20	0.8	0.4	200	1	1641002
10 - 100	0.6	0.2	200/300	1	1641004
20 - 200	0.6	0.2	200/300	1	1641006
100 - 1000	0.6	0.2	1000	1	1641008
500 - 5000	0.6	0.2	5000	1	1641010
1000 - 10000	0.6	0.2	10000	1	1641012

\* Calibrated to deliver ,Ex'. \* Accuracy and coefficient of variation based on the nominal volume (= maximum volume) printed on the instrument at the same temperature (20 °C) of instrument, environment, and distilled water, as well as uniform, jerk-free handling. The error limits in DIN EN ISO 8655-2 are satisfied.

## VITLAB<sup>®</sup> micropipette -8/-12

The multichannel pipettes are conformity certified to DIN 12600, are CE-IVD compliant and are completely autoclavable at 121 °C (2 bar) acc. DIN EN 285.

Scope of delivery: VITLAB<sup>®</sup> micropipette -8 or -12, mounting tool for nose cones, silicone grease, 8 or 12 V-rings including instructions and mounting plus demounting tool, quality certificate and instruction manual.

Volume	A*	CV*	Tip	PU	Cat. No.
μΙ	$\leq$ ± %	≤ <b>%</b>	μl		
micropipette -8					
0.5 - 10	1.6	1.0	20	1	1608000
5 - 50	0.8	0.4	200	1	1608002
10 - 100	0.8	0.3	200/300	1	1608004
20 - 200	0.8	0.3	200/300	1	1608006
30 - 300	0.6	0.3	300	1	1608008
micropipette -12					
0.5 - 10	1.6	1.0	20	1	1612000
5 - 50	0.8	0.4	200	1	1612002
10 - 100	0.8	0.3	200/300	1	1612004
20 - 200	0.8	0.3	200/300	1	1612006
30 - 300	0.6	0.3	300	1	1612008

\* Calibrated to deliver ,Ex'. \* Accuracy and coefficient of variation based on the nominal volume (= maximum volume) printed on the instrument at the same temperature (20 °C) of instrument, environment, and distilled water, as well as uniform, jerk-free handling. The error limits in DIN EN ISO 8655-2 are satisfied.



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