# microman®

The pipette of Choice for Problem Liquids!

EN USER'S GUIDE

GILSON®

*Before use, please read carefully the Warranty page 16 of this User's Guide!*

## 1 - INTRODUCTION

Congratulations on acquiring your new MICROMAN® pipette. MICROMAN is suitable for many different types of application, including pipetting volatile, viscous, dense, or high surface tension liquids. It is a quality product from Gilson, which is fully ISO8655 compliant, CE labeled (conforms to the EC directive on *in vitro* diagnostic medical devices).

The six models permit precise and accurate pipetting of viscous, dense and vaporous liquids. They also allow contamination free pipetting, avoiding vapor contamination and cross-contamination. M25, M50 and M250, with thin and long CPs are especially suited for use with long or narrow vessels. M10 and M100 autoclavable models are especially suited for 100 % contamination free pipetting.

Enjoy the following features:

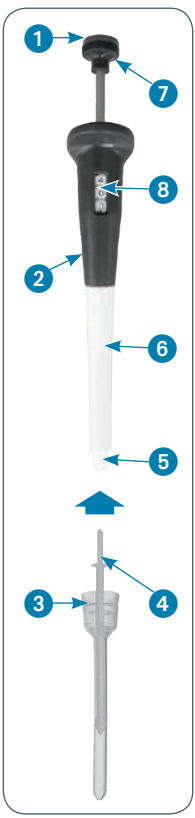
- MICROMAN pipettes are equipped with a positive displacement mechanism that isolates the aspirated liquid from the body of the pipette. The positive displacement mechanism prevents the sample-to-sample contamination that can result from the aerosol effect.
- MICROMAN uses disposable capillaries and pistons. Changing these parts, which must be the only ones to make contact with the aspirated liquids, can provide absolute protection against the contamination caused by carry-over from one sample or reagent to another. You simply have to change the capillary and piston between each assay; they are automatically and simultaneously ejected, thus avoiding any risk to the operator.
- MICROMAN is equipped with a direct reading volumeter that allows precise and continuous adjustment of the required volume. MICROMAN is permanently calibrated at the manufacturing stage, the capillary and piston are positioned automatically, therefore it requires no further calibration.

- MICROMAN requires no lubrication or maintenance, because of the nature and quality of the materials used in its construction.

## 2 - PARTS CHECK LIST

Just take a moment to verify that the following items are present:

- MICROMAN,
- User's Guide,
- Safety bag,
- Adhesive id-tags (strip of 6),
- Capillary-pistons (10),
- Certificate of conformity (including bar-code sticker).




## 3 - DESCRIPTION

1. Color coded push-button (red for autoclavable MICROMAN), and magnifier with volume range for aspirating, and dispensing.
2. Body or handle.
3. Capillary. } CP
4. Piston. } CP
5. Capillary-piston holder.
6. Shaft.
7. Thumbwheel for setting the volume.
8. Volumeter.

## 4 - OPERATING RANGES AND MATERIAL

### **Available Models** (Table 1)

| Model | Volume Range | Autoclavable |
|---|---|---|
| M10 | 1 µL to 10 µL | Yes |
| M25 | 3 µL to 25 µL | No |
| M50 | 20 µL to 50 µL | No |
| M100 | 10 µL to 100 µL | Yes |
| M250 | 50 µL to 250 µL | No |
| M1000 | 100 µL to 1000 µL | No |


### **Materials** (Table 2)

| Model | Spring | Clamp | Shaft CP Holder | Body (B) | Capillary (C) | Piston (P) | C-P |
|---|---|---|---|---|---|---|---|
| **M10** | SS | Be Alloy | Polyester | PVDF | Polypropylene | Polyester | **CP10** |
| **M25** | SS | Be Alloy | Polyester | PVDF | Polypropylene | Polyester | **CP25** |
| **M50** | SS | Be Alloy | Polyester | PVDF | Polypropylene | Polyester | **CP50** |
| **M100** | SS | Be Alloy | Polyester | PVDF | Polypropylene | Polyethylene | **CP100** |
| **M250** | SS | Be Alloy | Polyester | PVDF | Polypropylene | Polyethylene | **CP250** |
| **M1000** | SS | Be Alloy | Polyester | PVDF | Polypropylene | Polyacetal | **CP1000** |

☞ *SS = Stainless Steel*
*Be = Beryllium*
*PVDF = Polyvinylidene Fluoride*

## 5 - USING MICROMAN

Three simple steps are necessary:

1) Mount the capillary-piston.

2) Set the volume.

3) Aspirate and Dispense.

☞ *MICROMAN is automatically calibrated, by correctly fitting a capillary-piston. After setting the volume, the volume measured will be accurate and precise.*

## 6 - FITTING THE CAPILLARY AND PISTON

*Never lubricate the capillary-holder, capillary, or any other part of the pipette. If the capillary tends to slip off the capillary-holder, clean the capillary-holder with ethanol, using a medical wipe or similar soft tissue.*

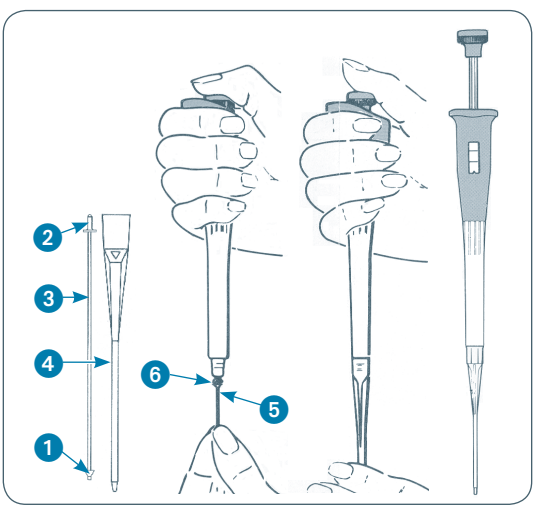
Verify that the model of capillary-piston (CP) corresponds to the MICROMAN you are preparing for use:

| CP | MICROMAN model |
|---|---|
| CP10 | M10 |
| CP25 | M25 |
| CP50 | M50 |
| CP100 | M100 |
| CP250 | M250 |
| CP1000 | M1000 |

### CP25, CP50 and CP250 Bulk

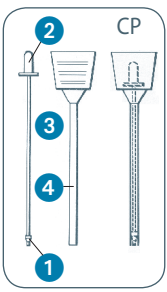
Capillaries and pistons are delivered in two separate boxes. To fit a capillary-piston, follow this procedure:

1) Take care not to damage the sealing tip 1 when you handle the piston 3.
2) Press the push-button to the second stop to open the clamp 5.



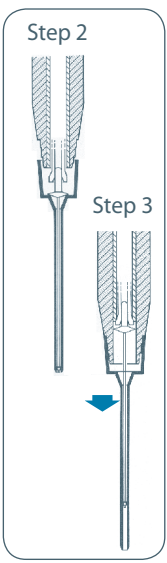
3) Select a piston and slide the stem ❷ fully into the clamp.
4) Slide the mounted piston into the capillary ❹.
5) Gently push the capillary until it snaps onto the capillary-holder ❻.

### CP10, CP25, CP50, CP100, CP250 and CP1000 Tipack



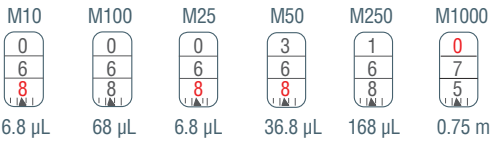

The capillary-pistons (CP) are delivered already assembled. To fit a capillary-piston, follow this procedure:

1) Press the push-button on the MICROMAN past the first stop position to the second stop position. The piston clamp should now be open and protruding from the capillary-holder.
2) Slide the MICROMAN piston clamp inside the top of the capillary tube until the piston clamp is halfway down the piston mounting stem.
3) Slowly release the push-button, while pushing the body of the MICROMAN into the capillary-piston until it is firmly seated on the MICROMAN.
4) Continue releasing the push-button to ensure that the piston is secured by the piston clamp.
5) To ensure that the piston is correctly seated, and therefore calibrated, slowly press the push-button until you feel and hear a slight click.



## 7- SETTING THE VOLUME

The volume of liquid to be aspirated is set using the volumeter. The volumeter consists of three number-dials, which are read from top (most significant digit) to bottom (least significant digit). A marker is used to set exact or intermediate volumes using the scale on the bottom dial. The dials are colored either black or red to indicate the position of the decimal point, according to the model (see examples).



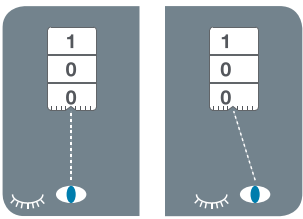

| Model | Color of volumeter numbers | |
|---|---|---|
| | Black | Red |
| M10, M25, M50 | µL | 0.1 µL |
| M100, M250 | µL | none |
| M1000 | 0.1 and 0.01 mL | mL |

The volume is set by turning the thumbwheel slowly to reach the required setting.

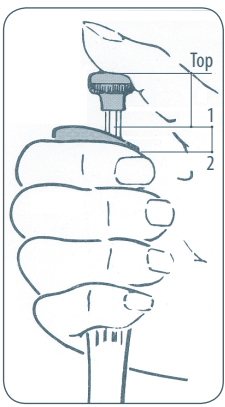
To obtain maximum accuracy when setting the volume, proceed as follows:

- when **decreasing** the volume setting, slowly reach the required setting, making sure not to over-shoot the mark.
- when **increasing the volume setting, pass the required value by 1/3 of a turn and then slowly decrease the volume to reach the required setting, making sure not to overshoot the mark.**

To avoid parallax errors, make sure that the volume indicator and the selected volume marking are in your direct line of vision. At close range you may find it helps to close one eye.




## 8 - PIPETTING




### Aspirating

- press the push-button to the first stop (1),
- immerse the capillary 2 mm into the liquid,
- **slowly, release the push-button to draw up the liquid (top position),**
- wipe any liquid from the outside of the capillary, taking care not to touch the orifice.

### Dispensing

- place the end of the capillary against the inside wall of the recipient vessel,
- press the push-button slowly to the first stop,
- keeping the push-button depressed, move the capillary away from the side wall,
- withdraw MICROMAN from the vessel and release the push-button.

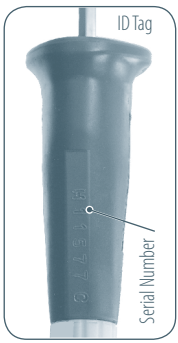
### Ejecting the Piston-capillary:

Press the push-button to the first stop (1), then press harder to the second stop (2); at this point the piston and capillary are ejected simultaneously.

## 9 - GLP FEATURES

These are as follows:

- No-need-to-touch disposables (capillary-piston).
- Serial Number: engraved on body of the pipette.
- Bar Code: on the box and with the certificate (can be transferred).
- ID Tag (Application or User).
- Colour coded push-button blue for standard MICROMAN, red for autoclavable MICROMAN.
- Colour-coded magnifier with volume range.
- Gilson certificate of conformity according to ISO8655.
- MICROMAN and CP are CE IVD labeled.




## 10 - TROUBLESHOOTING

You may be able to identify and to correct the problem by reference to the following table. If you can't solve the problem, contact your Gilson representative.

*Before returning any pipette, ensure that it is completely free of chemical, biological, or radioactive contamination. Use the safety bag provided by Gilson.*

**Leaks**:

Change the capillary and piston.

**No stroke**:

The piston is not properly fitted into the clamp; check that the piston is seated correctly (refer to pages 6-7).

**Difficult to fit a capillary**:

Clean the capillary-holder with ethanol.

**Inaccuracy**:

You should check the capillary is correctly mounted on the capillary-holder (refer to pages 6-7).

**Imprecision:**

Change the capillary and piston.

**Difficult to set the volume:**

This suggests that the pipette is damaged internally; in which case you should contact your Gilson representative.

**If the problem persists...**

Contact your Gilson representative.

## 11 - CLEANING AND DECONTAMINATION

MICROMAN is designed so that the parts normally in contact with liquid contaminants, can easily be cleaned and decontaminated.

### Cleaning

The pipette must be cleaned with soap solution before it is decontaminated.

***External***

1) Wipe the entire pipette with a soft-cloth or lint-free tissue impregnated with soap solution, to remove all dirty marks. If the pipette is very dirty, a brush with soft plastic bristles may be used.
2) Wipe the entire pipette with a soft-cloth or lint-free tissue impregnated with distilled water.
3) Leave the parts to dry by evaporation or wipe them with a clean soft-cloth or lint-free tissue.

***Internal***

The following components **only** can be immersed in a decontaminant solution: clamp assembly, return spring and capillary-holder (shaft).

1) Unscrew the capillary-holder (shaft).
2) Remove the clamp assembly and return spring from the shaft.
3) Set aside the body (handle) in a dry and secure location.
4) Clean the individual components using an ultrasonic bath (for 20 minutes at 50 °C) or with a soft-cloth and brushes. Small round brushes with soft plastic bristles may be used to clean the interior of the shaft.
5) Rinse the individual components with distilled water.
6) Leave the parts to dry by evaporation or wipe them with a clean soft-cloth or lint-free tissue.
7) Reassemble the pipette.

## Decontamination

You may refer to the Decontamination Procedure LT802288 available at www.gilson.com.

***Chemical Decontamination***

The pipette should be cleaned before it is decontaminated. Full details of recommended decontamination procedures for Gilson pipettes are available from your supplier. Whatever other decontaminant you use, check with the supplier of the decontaminant that it is compatible with the materials used in the construction of the pipette, and does not attack either of the following plastics: Polyester or PVDF (Polyvinylidene Fluoride).

***Non-immersible Parts***

1) Wipe the body (handle) of the pipette with a soft-cloth or lint-free tissue impregnated with the chosen decontaminant.
2) Wipe the body (handle) of the pipette with a soft-cloth or lint-free tissue impregnated with distilled water or sterilized water.

***Immersible Parts***

The following components **only** can be immersed in a decontaminant solution: clamp assembly, return spring and capillary-holder (shaft).

1) Unscrew the capillary-holder (shaft).
2) Remove the clamp assembly and return spring from the shaft.
3) Set aside the body (handle) in a dry and secure location.
4) Immerse the components in the decontaminant solution or wipe them according the instructions given by the manufacturer or supplier of the decontaminant.
5) Rinse the individual components with distilled or sterilized water.
6) Leave the parts to dry by evaporation or wipe them with a clean lint-free tissue or a soft-cloth.
7) Reassemble the pipette.

## Autoclaving

**Only** MICROMAN M10 and M100 are autoclavable. The four other models (MICROMAN M25, M50, M250, and M1000) are not autoclavable.

1) Unscrew the capillary-holder (shaft).
2) Remove the clamp assembly and return spring from the shaft.
3) Clean the parts to be autoclaved, especially the shaft.
4) Put the parts in an autoclaving sack.
5) Autoclave for 20 minutes at 121 °C, 0.1 MPa.
6) Check that the parts are dry before reassembling the pipette.
7) Set the pipette aside to stabilize at room temperature.

## 12 - SPECIFICATIONS

MICROMAN is a high quality pipette that offers excellent accuracy and precision. The figures given in the "Gilson Maximum Permissible Errors" table were obtained using Gilson CPs. These figures are only guaranteed by using genuine Gilson CPs.

Each pipette is inspected and validated by qualified technicians according to the Gilson Quality System.

Gilson declares that its manufactured pipettes comply with the requirements of the ISO 8655 Standard, by type testing. The adjustment is carried out under strictly defined and monitored conditions (ISO 8655-6):

- Basis of adjustment, Ex.
- Reference temperature, 20 °C
- Relative humidity, 50%
- Barometric pressure, 101 kPa
- Use of distilled water grade 3 (ISO 3696)
- Ten measurements for each test volume, which are Nominal Volume, 50% of Nominal Volume, and the minimum or 10% of Nominal Volume.

### Performance Tests

Each pipette is inspected and validated according to the Gilson Quality Assurance System. Based on extensive historical data, manufacturing conditions and expertise, and in compliance with ISO standards relative to statistical process control, the assurance level of this instrument performing to specifications is 99.8%. Specifications rely on the quality and consistency for the whole pipetting system; they are guaranteed only when the pipette is used with Gilson capillary-pistons.

## Gilson Maximum Permissible Errors

| Model (Reference) | Volume | (µL) | Maximum Permissible Errors Gilson Systematic error (µL) | Gilson Random error (µL) | ISO 8655 Systematic error (µL) | ISO 8655 Random error (µL) |
|---|---|---|---|---|---|---|
| **M10** (F148501) | Min | 1 | ± 0.09 | ⩽ 0.03 | ± 0.2 | ⩽ 0.1 |
| | | 5 | ± 0.10 | ⩽ 0.03 | ± 0.2 | ⩽ 0.1 |
| | Max. | 10 | ± 0.15 | ⩽ 0.06 | ± 0.2 | ⩽ 0.1 |
| **M25** (F148502) | Min. | 3 | ± 0.25 | ⩽ 0.08 | ± 0.12 | ⩽ 0.3 |
| | | 10 | ± 0.27 | ⩽ 0.08 | ± 0.12 | ⩽ 0.3 |
| | Max | 25 | ± 0.30 | ⩽ 0.10 | ± 0.12 | ⩽ 0.3 |
| **M50** (F148503) | Min. | 20 | ± 0.34 | ⩽ 0.20 | ± 0.20 | ⩽ 0.3 |
| | Max. | 50 | ± 0.70 | ⩽ 0.30 | ± 0.20 | ⩽ 0.3 |
| **M100** (F148504) | Min. | 10 | ± 0.50 | ⩽ 0.20 | ± 0.80 | ⩽ 0.6 |
| | | 50 | ± 0.75 | ⩽ 0.30 | ± 0.80 | ⩽ 0.6 |
| | Max. | 100 | ± 1.00 | ⩽ 0.40 | ± 0.80 | ⩽ 0.6 |
| **M250** (F148505) | Min. | 50 | ± 1.50 | ⩽ 0.30 | ± 8 | ⩽ 3.0 |
| | | 100 | ± 1.70 | ⩽ 0.30 | ± 8 | ⩽ 3.0 |
| | Max. | 250 | ± 2.50 | ⩽ 0.50 | ± 8 | ⩽ 3.0 |
| **M1000** (F148506) | Min. | 100 | ± 3.0 | ⩽ 1.6 | ± 12 | ⩽ 4.0 |
| | | 500 | ± 5.0 | ⩽ 2.5 | ± 12 | ⩽ 4.0 |
| | Max. | 1000 | ± 8.0 | ⩽ 4.0 | ± 12 | ⩽ 4.0 |

*The data given in the table conform to the ISO 8655-2 Standard.*

## WARRANTY

Gilson warrants this pipette against defects in material under normal use and service for a period of 12 months from the date of purchase.

This warranty shall not apply to pipettes which are subject to abnormal use and/or improper or inadequate maintenance (contrary to the recommendations given in the User's guide), including, but not limited to pipettes which have been subjected to physical damage, improper handling, or spillage or exposure to any corrosive environment. This warranty shall also be void in the event pipettes are altered or modified by any party other than Gilson or its designates. Gilson's sole liability under this warranty shall be limited to, at Gilson's sole option, repair or replacement of any defective components of pipettes or refund of the purchase price paid for such pipettes.

**THE FOREGOING WARRANTY IS EXCLUSIVE AND GILSON HEREBY DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTIES OF MERCHANTABILITY AND ANY WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, UNDER NO CIRCUMSTANCES SHALL GILSON BE LIABLE FOR ANY CONSEQUENTIAL, PUNITIVE, INDIRECT OR INCIDENTAL DAMAGES ARISING OUT OF ANY BREACH OF ANY EXPRESS OR IMPLIED WARRANTY.**

## EC DECLARATION OF CONFORMITY

*The company,*

**GILSON S.A.S.**
19, avenue des Entrepreneurs
BP. 145 - 95400 Villiers-le-Bel (France)
Tel.: +33(0) 1 34 29 50 00
Fax: +33(0) 1 34 29 50 20
www.gilson.com

*Hereby certifies on its sole responsibility that the products listed below:*

**MICROMAN®**
M10, M25, M50, M100, M250, M1000
Positive displacement **Capillaries/Pistons**

*comply with the requirements of the following European Directives:*

**98/79/EC***
on In Vitro Diagnostic Medical Devices

** Annex III, self-declared*

*Villiers-le-Bel, November 18th, 2011*

**A. El Sayed**
*General Manager*

**H. Ledorze**
*Quality Manager*

CE

GILSON®

## NOTES

December 2011
English
Printed in France
*Specifications subject to change without notifications - errors omitted.*

**www.gilson.com**
sales@gilson.com
service@gilson.com
training@gilson.com

**Gilson, Inc. World Headquarters**
3000 Parmenter Street | P.O. Box 620027 | Middleton, WI 53562-0027, USA
Tel: (1) 800-445-7661 or (1) 608-836-1551 | Fax: (1) 608-831-4451

**Gilson S.A.S.**
19, avenue des Entrepreneurs | BP 145, F-95400 Villiers-le-Bel, France
Tel: +33 (0) 1 34 29 50 00 | Fax: +33 (0) 1 34 29 50 20

GILSON®