

# DISTRIMAN®

ENGLISH



 **GILSON®**  
SOLUTIONS AT WORK FOR YOU



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## **1 - INTRODUCTION**

Distriman® is a continuously adjustable repeater pipette, designed to dispense precise aliquots of liquid safely. You can use your Distriman to quickly transfer volumes from 1 µL to 1.25 mL, depending on the capacity of the DistriTip® (positive displacement syringe) fitted to it. The number of aliquots that may be dispensed depends on the volume of liquid aspirated, up to the maximum for a given size of syringe, and the aliquot volume that you select.

This ergonomically designed product is easy to use; it is suitable for transferring most kinds of liquid (aqueous, volatile, viscous, or dense) into many kinds of vial (tubes, microplates, etc.). Distriman ensures reliable results in any domain and in all kinds of laboratory, for a wide variety of applications.

The positive displacement mechanism permits precise pipetting of viscous materials (e.g. blood, plasma, oils); including those used in molecular biology (glycerol, enzymes, and amplified DNA), without contaminating the pipette.

Distriman is fitted with a Coloris™ tag; which can identify the user or application. You may replace the one fitted with a Coloris of a different color (as supplied, see 'Maintenance').

Distriman is equipped with a direct reading volumeter that allows precise and continuous volume setting. The aliquots are dispensed by pressing the push-button the required number of times (you may also change the volume between aliquots). A small red flag warns you when you are near to dispensing the final aliquot.

Because your Distriman is permanently calibrated when manufactured, there is no need for re-adjustment. It is virtually maintenance free. However, a few spare parts have been made available in case they are damaged as the result of extensive use.

## 2 - OPERATION

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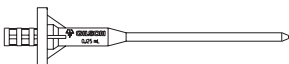
You should perform the following sequence of steps.

- 1 - Select a DistriTip of suitable capacity.
- 2 - Fit the DistriTip to the Distriman.
- 3 - Select the volume range on the Distriman.
- 4 - Set the aliquot volume.
- 5 - Lock in the selected volume.
- 6 - Fill the DistriTip.
- 7 - Dispense the aliquots.
- 8 - Eject the DistriTips.

### Select the DistriTip

Besides the standard DistriTip, individually wrapped sterilized versions are available. DistriTips are available in the sizes specified below.

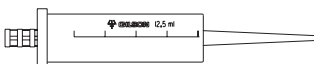
DistriTip Micro  
125  $\mu$ L  
1  $\mu$ L to 12.5  $\mu$ L



DistriTip Mini  
1250  $\mu$ L  
10  $\mu$ L to 125  $\mu$ L




DistriTip Maxi  
12.5 mL  
100  $\mu$ L to 1250  $\mu$ L



Capacity refers to the maximum usable volume of a DistriTip; the range refers to the maximum and minimum aliquot volumes that may be dispensed. Because Distriman is continuously adjustable you can also select any aliquot volume within the range for the size of DistriTip fitted.

Select the capacity of the DistriTip according to the volume and number of aliquots that you want to dispense.

$$\text{Number of aliquots}^* = \frac{\text{Volume in Syringe}}{\text{Volume of Aliquot}}$$

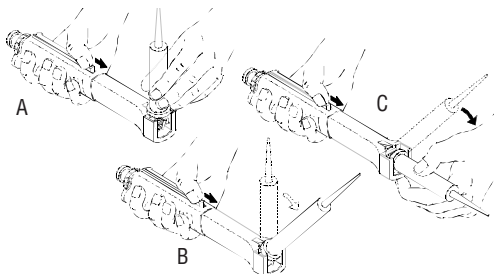
 \* *Taking into account the systematic error, the maximum number of aliquots varies from 118 to 121, according to the type of DistriTip used.*

For example, the DistriTip Micro is ideal for filling a 96 well-microplate. The syringe capacity is 125 µL, so the Distriman can dispense at least 96 aliquots of 1 µL.

## Fitting the DistriTip

Take the following steps to ensure the DistriTip is correctly fitted.

- 1- Push the filling-knob downwards to its lowest possible position, using your thumb (A). **Hold the filling-knob firmly in place with your thumb.**
- 2- Take the DistriTip in your other hand, place the end of the piston into the body of the Distriman **at right-angles to the main axis** (A).
- 3- Gently rotate the DistriTip downwards with the other hand (B). Then snap the syringe into place with your thumb, using moderate pressure (C).



Finally, check that the piston of the syringe is correctly fitted by pushing the filling-knob upwards.

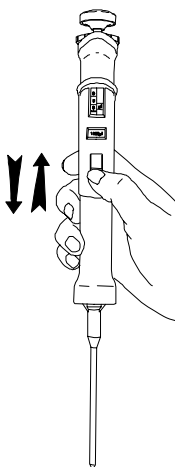
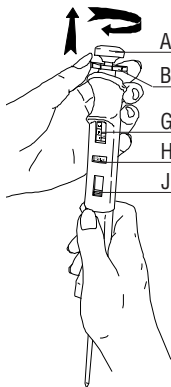
Before using DistriMan, check the selected volume range matches the volume of the DistriTip.

## Select the volume range

Each volume range corresponds to the capacity of a specific size of DistriTip. The selected volume range is shown clearly on an indicator, located between the volumeter and the selector switch. You select the volume range using the selector switch.

1- Check that the selected volume range corresponds to the capacity of DistriTip fitted. The capacity of a DistriTip is marked on its barrel.

2- Set the volume range, by sliding the selector switch with your thumb, to match the capacity of DistriTip fitted. The volume range indicator, volume units ( $\mu\text{L}$  are in black and mL are in red) and decimal point indicator of the volumeter, are all switched by this action.



## Set the aliquot volume

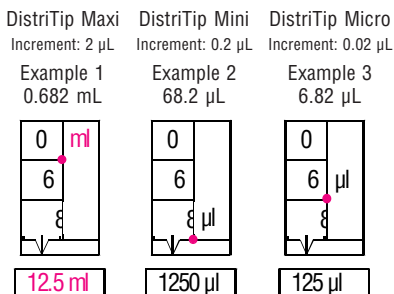
### Volumeter

You set the volume of liquid to be dispensed in each aliquot using the black adjustment ring and the parallax-limiting digital volumeter. The volume is continuously adjustable in all of the ranges.

# DISTRIMAN®

The volumeter consists of three number dials, a parallax-limiting marker, plus a range and decimal point indicator. The three number dials, used to set the aliquot volume, are read from top (most significant digit) to bottom (least significant digit). The marker is used to set exact or intermediate volumes using the scale on the bottom dial. The volume units (mL or  $\mu\text{L}$ ) and position of the decimal point change automatically when you change the volume range using the selector switch.

The volumeter makes it easy to set and read any volume from 1  $\mu\text{L}$  to 1.25 mL with accurate incremental settings, as shown below.



## Setting the volume

- 1-Pull up the black adjustment ring (page 5, B).
- 2-With your Distriman in one hand, turn the adjustment ring with the other hand until the volumeter shows the required value, taking care that the marker is correctly aligned with the scale on the bottom dial.


Take the following precautions in order to obtain maximum accuracy when changing the volumeter setting.

- When **decreasing** the volume setting, turn the adjustment ring slowly to reach the required setting, taking care not to overshoot the mark.
- When **increasing** the volume setting, turn the adjustment ring past the mark to 1/3 of a turn above the required setting. Then turn the adjustment ring slowly to decrease the volume setting to the required value, taking care not to overshoot the mark.

## Lock the selected volume

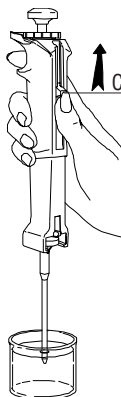
So that the volume cannot be changed accidentally, **you must push the black adjustment ring down firmly** to lock the selected volume. You hear a click when you lock the volume.

When you want to change the volume, you should unlock the adjustment ring by pulling it upwards.


 *If you forget to unlock it, the action of turning the adjustment ring will not harm the mechanism.*

## Filling the syringe

You only need one hand to fill the DistriTip. By simply pushing the filling-knob with your thumb, you may completely or partially fill the DistriTip, which is clearly marked with graduations according to its size.



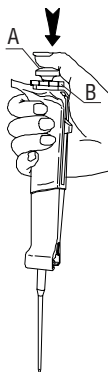
- 1- Push the filling-knob downwards to its lowest possible position, using your thumb.
- 2- Immerse the end of the DistriTip into the liquid to be aspirated. When aspirating, ensure that the tip remains below the surface of the liquid (about 2 mm).
- 3- Move the filling-knob slowly upwards to its highest position to completely fill the syringe, or with reference to the graduations on the DistriTip, to an intermediate position.
- 4- Withdraw the DistriTip from the liquid and carefully wipe any excess liquid from the outside, using a medical wipe, **taking care not to touch the orifice of the syringe.**


 *After fitting a new DistriTip, you are advised to 'wet' the interior with the liquid to be aspirated. Then purge and refill the syringe.*

## Dispensing the aliquots

- 1- Put the end of the DistriTip into a suitable recipient vessel (according to the nature and volume of liquid to be dispensed).

- 2-Press the push-button until it can go no farther, to dispense the first aliquot. This action also locks the adjustment ring, if it was left unlocked after setting the volume.
- 3-Release the push-button.
- 4-Repeat steps 1 to 3 for all but the last aliquot, which normally would not contain a complete aliquot. The red plastic flag (E, page 10), when completely visible, warns that it is time to purge and eject the syringe (or refill it).
- 5-You may purge the syringe at any time by placing the tip into a suitable recipient vessel and then pushing filling-knob downwards to its lowest possible position.



 *Operator error is minimized by applying axial pressure on the dampened push-button, ensuring that each aliquot is completely dispensed, and that the repeatability is maximized (see 'Recommendations').*

## Ejecting the Distritip

You must change the syringe before aspirating from a different sample or from a different liquid. DistriTips may be discarded without having to touch them, thus avoiding any risk to the operator. To remove a DistriTip, perform the following steps.

- 1-If required, purge the DistriTip by placing the tip into a suitable recipient vessel, and then pushing filling-knob downwards to its lowest possible position.
- 2-Hold the filling-knob at its lowest possible position with one hand and rotate the DistriTip through about 90° with the other (as if snapping-off the syringe).
- 3-When fitting a new DistriTip, remember to check that its capacity matches the volume range setting of your Distriman.



### 3 - RECOMMENDATIONS



***The pipette can be used between + 4 °C and + 40 °C but the specifications may vary according to the temperature (see Chapter 4 for controlled conditions of use).***

When the **red flag** appears, **be prepared to refill the DistriTip before you reach the last aliquot.**

For the complete distribution of an aliquot, you must press the push-button until it reaches the adjustment ring. If after distributing an aliquot, a drop of liquids forms on the end of the DistriTip, do not discard this drop, which is part of the next aliquot.


Accuracy could be affected by capillary action; when dispensing, do not 'wipe' the DistriTip against the side of the recipient vessel. After changing the DistriTip or resetting the volume, you may want to discard the first aliquot.


Never try to force the volumeter beyond the recommended volume ranges.

### 4 - SPECIFICATIONS

Gilson Maximum Permissible Errors

Capacity	Volume Range	Aliquot (volume tested) μL	Accuracy (systematic error)		Precision (random error)	
			Absolute μL	Relative %	Absolute μL	Relative %
125 μL	1 μL	2	± 0.10	± 5.0	≤ 0.08	≤ 4.0
	to	5	± 0.125	± 2.5	≤ 0.075	≤ 1.5
	12.5 μL	10	± 0.20	± 2.0	≤ 0.10	≤ 1.0
1250 μL	10 μL	20	± 0.80	± 4.0	≤ 0.2	≤ 1.0
	to	50	± 1.00	± 2.0	≤ 0.4	≤ 0.8
	125 μL	100	± 1.00	± 1.0	≤ 0.6	≤ 0.6
12,5 mL	100 μL	200	± 6	± 3.0	≤ 1.0	≤ 0.5
	to	500	± 7.5	± 1.5	≤ 1.5	≤ 0.3
	1.25 mL	1000	± 10	± 1.0	≤ 2.5	≤ 0.25

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

 *The accuracy and precision figures, given in the table, are only guaranteed when you fit your Distriman with genuine Gilson DistriTips, of which the fine points results from high quality molding.*


Each Distriman is engraved with its unique serial number, allowing you to keep track of individual pipettes, in accordance with GLP. The serial number is also printed on the warranty card.

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

Gilson certifies 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.

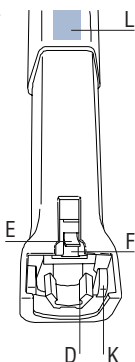
## 5 - MAINTENANCE

 *Neither Distriman nor DistriTips may be autoclaved.*

From time to time it may be necessary to replace one of the following parts:

- the Push-button Assembly,
- the DistriTip Retaining Spring (K),
- the Piston Retaining Assembly (D),
- the Red Flag (E).

Should a persistent problem arise, send the Distriman to your Gilson representative.





***Before returning a pipette, please ensure that it is completely free of any chemical, biological, or radioactive contamination.***

### **Replacing the push-button assembly**

Perform the following steps to replace the push-button assembly.

- 1-Hold the DistriMan in one hand and pull the push-button assembly gently in the axial direction, to remove it.
- 2-Fit the new push-button assembly by placing the core of the push-button into the hollow shaft and then pressing on the push-button with your thumb until it clicks back into place.

### **Replacing the DistriTip retaining spring**

To replace the retaining spring, perform the following steps.

- 1-Remove the DistriTip.
- 2-Pull the filling-knob fully upwards.
- 3-Make a note of the position and orientation of the spring (K, page 10).
- 3-Pull on the retaining spring at an angle of 90° to the body of the DistriMan. This can be done by inserting a small screwdriver under the spring, or by pulling on it with a small pair of pliers.
- 4-The new spring can be fitted by simply pushing it back into the slot from which it came. However, make sure that spring goes all the way back into the DistriMan's body. You may need to apply moderate lateral force to the ends of the spring to make sure that they are located in their retaining slots.

### **Replacing the piston retaining assembly**

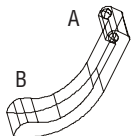
The DistriTip retaining collar is fixed to a steel shaft to form the piston retaining assembly. The piston retaining assembly, which connects to the filling-knob, must be replaced as a unit. To replace the retaining collar (D, page 10), perform the following steps.

- 1-Hold your Distriman in the horizontal position with the red flag visible.
- 2-Hold the filling-knob at its lower position using the thumb of one hand.
- 3-Press lightly on the white locking tab (F, page 10) with a screwdriver.
- 4-Move the filling-knob towards the upper position to separate it from the assembly.
- 5-Pull the assembly out of the Distriman's neck, taking care not to lose the small red flag.
- 6-Return the filling-knob to the upper position.
- 7-Push the new piston retaining assembly into the body of the Distriman; at the same time, push the filling-knob in the opposite direction until they click together.

## Replacing the red flag

You cannot remove the red flag (E, page 10) until you have separated the filling-knob from the piston retaining assembly. In fact, the act of separating these two components will free the flag.

To replace the red flag, the piston retaining assembly and filling-knob should be reconnected first. Then, with reference to the figure, hold the flag with end 'A' between the thumb and index finger of one hand. With end 'B' pointing downwards, insert it into the access slot. Next, push end 'A' as far as it will go into the slot using a small screwdriver.



## Replacing the Coloris

Do not try to pry the Coloris away from the Distriman's body.

- 1-Push the filler-knob to the top (closest to the push-button).
- 2-Use your thumb to push the Coloris to the top. Moderate pressure may be required.
- 3-Remove the old Coloris and insert the new one into the filler-knob slot.

4-Push the Coloris (as far as it will go downwards) into position.

## 6 - DECONTAMINATION

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You are advised to take the following steps to decontaminate Distriman. You can use the following disinfectants:

- a) a solution of 10% sodium hypochloride,
- b) CIDEX (Johnson & Johnson).

- 1-Disassemble the piston retaining assembly.
- 2-Put all the parts into an ultrasonic bath for 15 minutes.
- 3-Rinse the parts thoroughly with clean tap water.
- 4-Immerse all of the parts in a disinfectant bath for 15 minutes.
- 5-Rinse the parts thoroughly with clean tap water.
- 6-Dry the parts using hot air (40°C to 60°C max.).

## 7 - SPARE PARTS

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 *Contact your Gilson representative to order spare parts.*

Description		Reference
Push-button assembly	A, page 5	F164040
Piston retaining assembly	D, page 10	F164070
Red flag (pack of 5)	E, page 10	F164042
Retaining spring	K, page 10	F1864052

## **NOTES**

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English

May 2003  
Printed in France



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