

# PIPETMAN *Neo*<sup>®</sup>

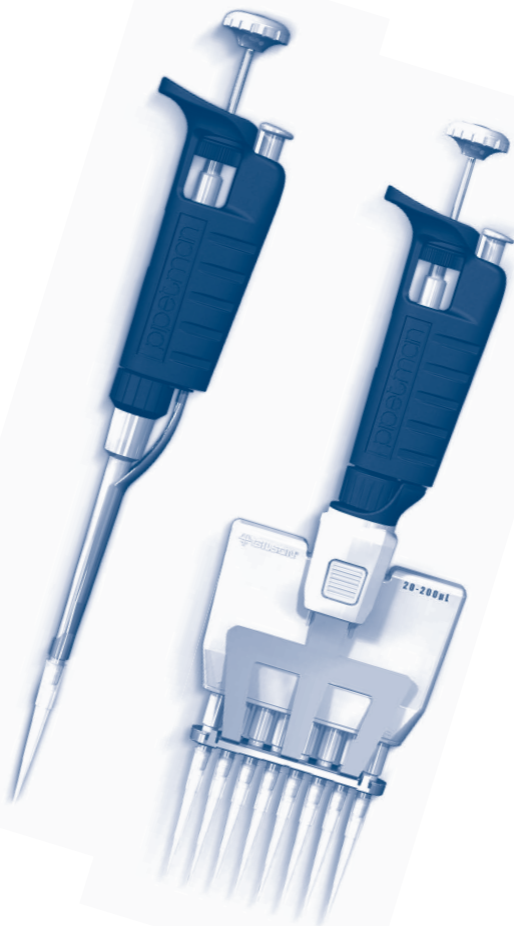
## EN ENGLISH User's Guide

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# PIPETMAN Neo®

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## **1 - INTRODUCTION**

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PIPETMAN Neo is a fully adjustable air displacement pipette and is used with disposable tips.

PIPETMAN Neo is an evolution of the classic PIPETMAN P to address the growing susceptibility of pipette users to repetitive strain injuries. The implementation of new features to improve pipetting comfort has no impact on the legendary robustness, accuracy and precision of PIPETMAN P.

- ▶ Six single channel models cover a volume range from 0.2  $\mu$ L to 1000  $\mu$ L.
- ▶ Two 8 and two 12 multichannel models cover a volume range from 2  $\mu$ L to 200  $\mu$ L.

## 2 - PARTS CHECK LIST

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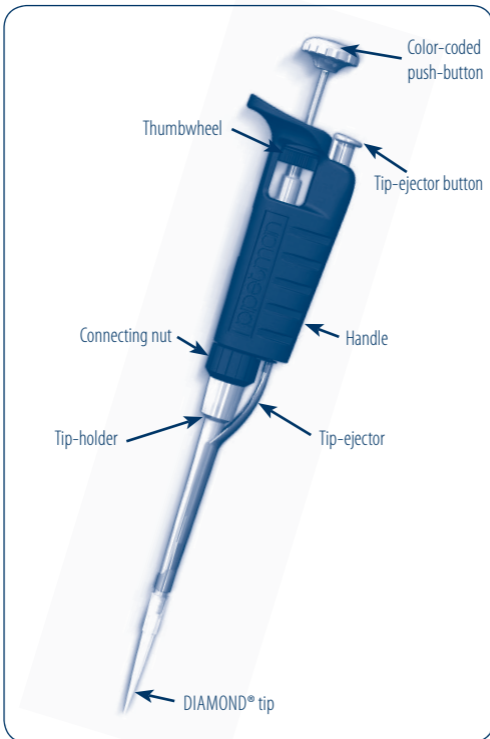
Just take a moment to verify that the following items are present:

- PIPETMAN Neo,
- User's Guide,
- Safety bag,
- Certificate of conformity (including bar-code sticker).

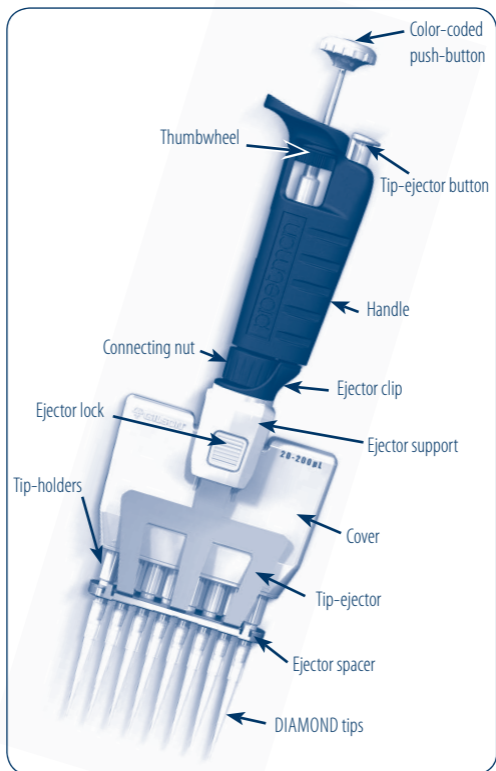
## 3 - DESCRIPTION

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 Please refer to the following chapters for a full description of the different parts and functions of the pipette.



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## 4 - SETTING THE VOLUME

The volume of liquid to be aspirated is set using the volumeter. The dials are colored either black or red to indicate the position of the decimal point, depending on the model (see examples).

|   |  |  |
|---|--|--|
| <b>P2N</b><br>1<br>2<br>5<br>1.25 $\mu$ L | <b>P10N</b><br>0<br>7<br>5<br>7.5 $\mu$ L  | <b>P20N</b><br>1<br>2<br>5<br>12.5 $\mu$ L |
| <b>P100N</b><br>0<br>7<br>5<br>75 $\mu$ L | <b>P200N</b><br>1<br>2<br>5<br>125 $\mu$ L | <b>P1000N</b><br>0<br>7<br>5<br>0.75 mL    |

| Model        | Color of volumeter numbers |                    |                     |
|--------------|----------------------------|--------------------|---------------------|
|              | Black                      | Red                | Increment           |
| P2N          | $\mu\text{L}$              | 0.01 $\mu\text{L}$ | 0.002 $\mu\text{L}$ |
| P10N to P20N | $\mu\text{L}$              | 0.1 $\mu\text{L}$  | 0.02 $\mu\text{L}$  |
| P100N-P200N  | $\mu\text{L}$              | -                  | 0.2 $\mu\text{L}$   |
| P1000N       | 0.01 mL                    | mL                 | 0.002 mL            |

The volume is set by turning the thumbwheel or the push-button. The push-button makes it easier and quicker to set volumes, especially when wearing gloves. The thumbwheel may be turned using only one hand to slowly 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 overshoot the mark.
- ▶ when **increasing** the volume setting, pass the required value by 1/3 of a turn and then slowly decrease to reach the volume, making sure not to overshoot the mark.

## 5 - PIPETTING

For optimum performance, use of Gilson's DIAMOND Tips with your PIPETMAN Neo is strongly recommended. DIAMOND Tips, made from pure polypropylene have the Gilson logo engraved on their collar, ensuring that you have a genuine Gilson product. Plastic tips are for a single application – they must not be cleaned for reuse.


PIPETMAN Neo can also be used with the main tip brands.

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## Fitting the tips

### *Single channel models:*

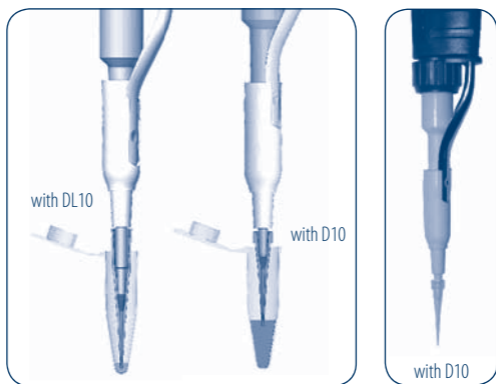
To fit a new Gilson DIAMOND Tip, push the tip-holder into the tip using a slight twisting motion to ensure a firm, airtight seal.

 For the P2N and P10N models, a dual-position adapter (plastic) is required to fit DL10 tips (long tips) or D10 tips (short tips). The metallic rod of the tip-ejector is shaped so that the adapter may be clipped to it in either of two positions.

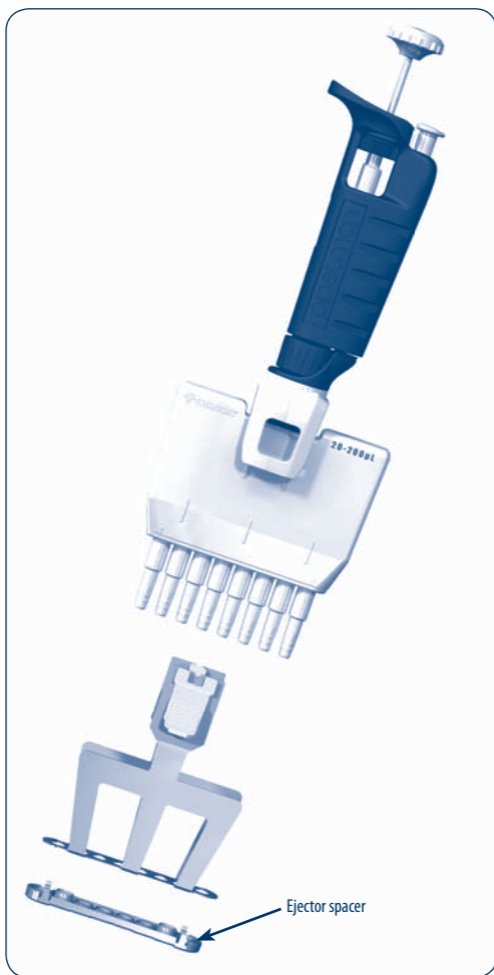
P2N and P10N models are delivered with the adapter in place, positioned in the longer slot, ready to use DL10 tips. When D10 tips (which are shorter) are used, the adapter must be repositioned in the shorter slot as follows:

- 1 Pull the adapter down from the metallic rod.
- 2 Turn the adapter through 180°.
- 3 Refit the adapter so that the end of the metallic rod engages the shorter slot of the adapter.
- 4 Finally, check that the “dimple” on the metallic rod is engaged in the corresponding hole on the adapter.

### Dual-position adapter for P2N and P10N



### **Multichannel models:**



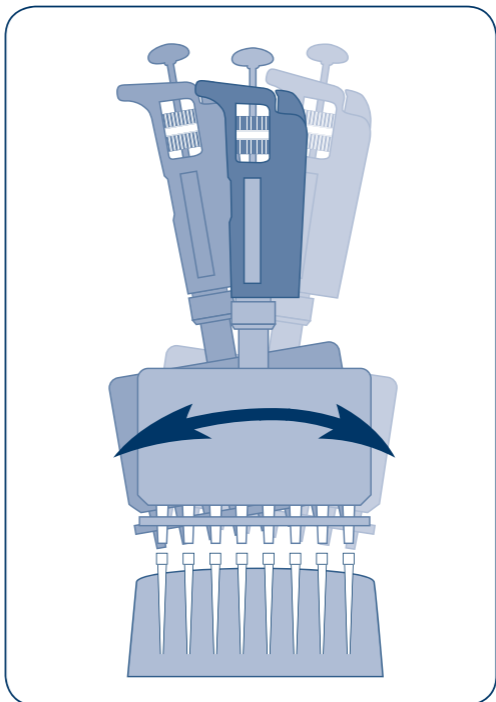
| <b>DIAMOND® Tip compatibility</b> |                                 |
|-----------------------------------|---------------------------------|
| <b>8x20, 12x20</b>                | DL10, DFL10, DF30, D200,        |
| <b>8x200, 12x200</b>              | D200, D300, DF100, DF200, DF300 |

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## *Gilson DIAMOND Tip: Tipack and Towerpack – Rocky Rack*

DIAMOND Tips are best fitted from the patented Rocky Rack available only in our Tipacks and Tower packs.

Rocky Rack is the dome-shaped part of the pack that contains the tips. Rocky Rack makes it easy to securely fit the tips to a multichannel pipette, ensuring an airtight seal on all channels without the need to use undue pressure or to touch the tips.



### **Pre-rinse the tips**

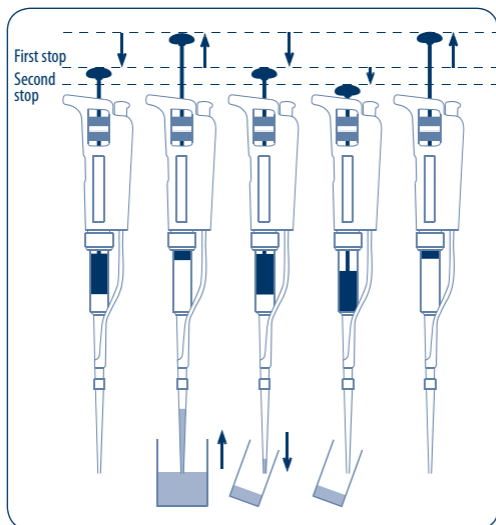
Some liquids (e.g. protein-containing solutions and organic solvents) can leave a film of liquid on the inside wall of the tip; pre-rinse the tip to minimize any errors that may be related to this phenomenon.



Pre-rinsing consists of aspirating the first volume of liquid and then dispensing it back into the same vessel (or to waste). Subsequent volumes that you pipette will have levels of accuracy and precision within specifications.

## Aspirate

- 1 Press the push-button to the **first stop** (this corresponds to the set volume of liquid).
- 2 Hold the pipette vertically and immerse the tip in the liquid (see immersion depth table, page 10). Release the push-button slowly and smoothly (to **top** position) to aspirate the set volume of liquid. Wait one second (time depends on model, see table) ; then withdraw the pipette-tip from the liquid. You may wipe any droplets away from the outside of the tip using a medical wipe, however if you do so take care to avoid touching the tip's orifice.



## Dispense

- 1 Place the end of the tip against the inside wall of the recipient vessel (at an angle of  $10^{\circ}$  to  $40^{\circ}$ ).

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- 2 Press the push-button slowly and smoothly to the **first stop**.
- 3 Wait for at least a second, then press the push-button to the **second stop** to expel any residual liquid from the tip. Keep the push-button pressed fully down and (while removing the pipette) draw the tip along the inside surface of the vessel.
- 4 Release the push-button, smoothly. Eject the tip by pressing firmly on the tip-ejector button.

## 6 - GENERAL GUIDELINES FOR GOOD PIPETTING

- 1 Make sure that you operate the push-button slowly and smoothly.
- 2 When aspirating, keep the tip at a constant depth below the surface of the liquid (refer to the table).

Table - Immersion Depth and Wait Time

| Model         | Immersion Depth (mm) | Wait Time (seconds) |
|---------------|----------------------|---------------------|
| P2N           | 1                    | 1                   |
| P10N          | 1                    | 1                   |
| P20N          | 2-3                  | 1                   |
| P100N         | 2-4                  | 1                   |
| P200N         | 2-4                  | 1                   |
| P1000N        | 2-4                  | 2-3                 |
| 8x20, 12x20   | 2-3                  | 1                   |
| 8x200, 12x200 | 2-3                  | 1                   |

- 3 Change the tip before aspirating a different liquid, sample, or reagent.
- 4 Change the tip if a droplet remains at the end of the tip from the previous pipetting operation.
- 5 Each new tip should be pre-rinsed with the liquid to be pipetted.
- 6 Liquid should never enter the tip-holder; to prevent this:
  - press and release the push-button slowly and smoothly,
  - never turn the pipette upside down,
  - never lay the pipette on its side when there is liquid in the tip.
- 7 If you use the same tip with a higher volume, pre-rinse the tip.

- 8 For volatile solvents you should saturate the air-cushion of your pipette by aspirating and dispensing the solvent repeatedly before aspirating the sample.
- 9 When pipetting liquids with temperatures different to the ambient temperature, pre-rinse the tip several times before use.
- 10 You may remove the tip-ejector (see Chapter 11 - Maintenance) to aspirate from very narrow tubes.
- 11 After pipetting acids or other corrosive liquids that emit vapors, remove the tip-holder, rinse the piston, O-ring and seal with distilled water. For the model P1000N, by using a specific tip holder equipped with a filter, you can increase the lifetime of the piston (see Chapter 7 - Accessories).
- 12 Do not pipette liquids having temperatures above 70°C or below 4°C. The pipette can be used between +4°C and +40°C but the specifications may vary according to the temperature (refer to the ISO 8655-2 standard for conditions of use).

## 7 - ACCESSORIES

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To make pipetting more comfortable and more secure, Gilson has developed several accessories:

- 1 To avoid the possibility of liquid running back into the pipette, store the pipette vertically.

|                                       |         |
|---------------------------------------|---------|
| CARROUSEL™ Pipette stand (7 pipettes) | F161401 |
| TRIO™ stand (3 pipettes)              | F161405 |
| SINGLE™ pipette holder                | F161406 |

- 2 To identify or personalize your pipette, COLORIS™ clips are available:

|   |         |
|---|---------|
| COLORIS™ clips (mixed colors set of 10) | F161301 |
| COLORIS™ clips (red, set of 10)         | F161302 |
| COLORIS™ clips (yellow, set of 10)      | F161303 |
| COLORIS™ clips (green, set of 10)       | F161304 |
| COLORIS™ clips (blue, set of 10)        | F161305 |
| COLORIS™ clips (white, set of 10)       | F161306 |

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- 3 With THE JIMMY™, hands free microtube opener, you can open both snap-cap and screw-cap microtubes.

THE JIMMY™ (set of 3)

F144983

- 4 To protect the piston when pipetting corrosive liquids, you can use a specific tip holder and filter for the model P1000N:

Corrosion protection kit (tip holder + a bag of 10 filters)

F144570

## 8 - GLP FEATURES

The **Serial Number** is engraved on the body of the pipette. It provides unique identification of your pipette and the date of manufacture.


Ex : CG 12326



The **Bar Code** on the box and the certificate of conformity provide traceability of your pipette.

## 9 - TROUBLESHOOTING

A quick inspection of the pipette may help you to detect a problem.

-  You may download from the Gilson website ([www.gilson.com](http://www.gilson.com)) the "2 minute inspection", which shows how to perform a quick diagnosis of your pipette.



**Before returning any pipette, ensure that it is completely free of chemical, biological, or radioactive contamination. Refer to Chapter 12 - Cleaning and Decontamination. After decontamination, use the safety bag provided with the pipette to return it to your local Gilson authorized Service Center.**

The following table may help you to identify and correct the problem you might encounter.

| Symptom                               | Possible Cause                | Action                              |
|---------------------------------------|-------------------------------|-------------------------------------|
| Pipette is leaking sample             | Damaged tip-holder            | Replace the tip-holder*             |
|                                       | Worn O-ring or seal           | Replace both parts*                 |
| Pipette won't aspirate                | Worn O-ring                   | Replace both parts*                 |
|                                       | Damaged tip-holder            | Replace the tip-holder*             |
|                                       | Connecting nut is loose       | Tighten connecting nut              |
|                                       | Damaged or corroded piston    | Return pipette to supplier          |
|                                       | Improper repair or assembly   | See Chapter 11 - Maintenance        |
| Pipette is inaccurate                 | Improper repair or assembly   | See Chapter 11 - Maintenance        |
|                                       | Unscrewed tip-holder          | Tighten connecting nut*             |
|                                       | Connecting nut is loose       | Tighten connecting nut              |
| Pipette is not precise                | Tip-holder is loose           | Tighten connecting nut*             |
|                                       | Connecting nut is loose       | Tighten connecting nut              |
|                                       | Incorrect operator technique  | Operator training                   |
|                                       | Damaged or corroded piston(s) | Return pipette to supplier          |
|                                       | Damaged tip-holder(s)         | Replace the tip-holder*             |
|                                       | Worn O-ring or seal           | Replace both parts*                 |
| Tips fall off or do not fit correctly | Low quality tips              | Use Gilson Diamond tips             |
|                                       | Damaged tip-holder(s)         | Replace the tip-holder*             |
|                                       | Damaged tip-ejector           | Replace tip-ejector                 |
|                                       | Ejector spacer is missing     | Mount the spacer on the tip-ejector |
|                                       | The ejector spacer is damaged | Replace the ejector spacer          |
|                                       | The tip-ejector is loose      | Assemble the tip-ejector properly   |
|                                       |                               | Align the ejector lock              |
|                                       |                               |                                     |

\* Not applicable for multichannel models

However, if you can't solve the problem, contact your Gilson representative.

## 10 - LEAK TEST

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This test may be performed at any time to check that the pipette does not leak, especially after performing a maintenance or decontamination procedure. If a pipette fails this test, replace the O-ring and seal. After making sure that the pipette is correctly reassembled, repeat this test (not applicable to multichannel pipettes).

### **For the P2N to P200N, 8x20, 12x20, 8x200 and 12x200 models:**

- 1 Fit a Gilson DIAMOND Tip.
- 2 Set the pipette to the maximum volume given in the specifications, and pre-rinse.
- 3 Aspirate the set volume from a beaker of distilled water.
- 4 Maintain the pipette in the vertical position and wait for 20 seconds.
- 5 If a water droplet appears at the end of the tip there is a leak.
- 6 If you see no droplet, re-immers the tip below the surface of water.
- 7 The water level inside the tip should remain constant; if the level goes down there is a leak.

### **For the P1000N model:**

- 1 Fit a Gilson DIAMOND tip.
- 2 Set the pipette to the maximum volume given in the specifications.
- 3 Aspirate the set volume from a beaker of distilled water.
- 4 Maintain the pipette in the vertical position and wait for 20 seconds.
- 5 If a water droplet appears at the end of the tip, there is a leak.

## 11 - MAINTENANCE

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Routine maintenance will help keep your pipette in good condition, ensuring a continued high level of performance. Maintenance is limited to cleaning or autoclaving the parts specified under Chapter 12 - Cleaning and Decontamination or to replacing the push-button, connecting nut, tip-ejector, tip-holder, seal and O-ring.

**PIPETMAN Neo P2N and P10N should not be disassembled**, so you may only replace the push-button, tip-ejector, dual position tip-ejector and its adapter. With these pipettes if the tip-holder is damaged, the piston may also be damaged.

**For multichannel models, the lower part should not be disassembled:** only the push-button, the connecting nut and the tip ejector can be replaced.



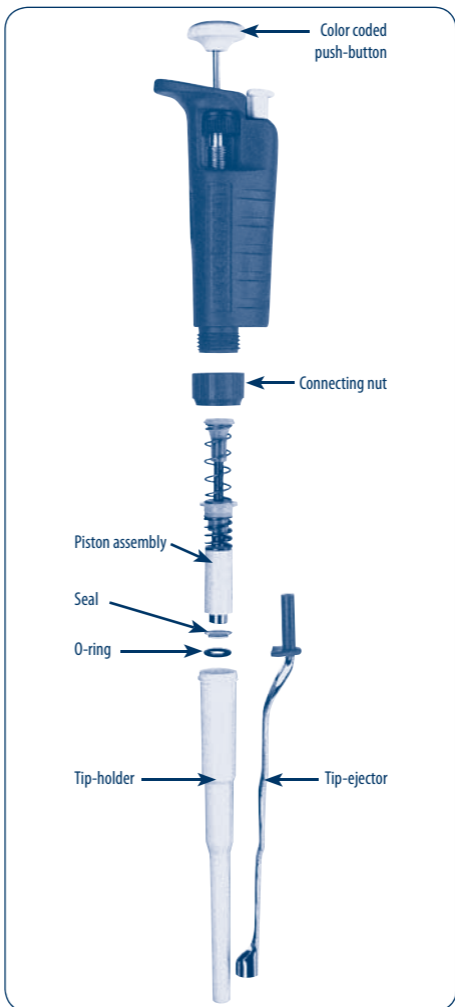
*After replacing any parts you should verify the performance of your pipette following the verification procedure available on the Gilson website ([www.gilson.com](http://www.gilson.com)). If the pipette needs to be readjusted, please contact your local Gilson authorized Service Center.*

### Single channel models

#### *Changing the Tip-ejector*

- 1 To remove the tip-ejector, keep the tip-ejector button depressed and pull down on the flanged upper part of the tip-ejector with the other hand.
- 2 To refit the tip-ejector, keep the tip-ejector button depressed, slide the end of the tip-ejector over the end of the tip-holder and push the plastic end of the tip-ejector back into the body of the pipette until it is gripped firmly by the metal tip-ejector rod.

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## ***Changing the Tip-holder – no tools required***

- ➊ Remove the tip-ejector (see above).
- ➋ Unscrew the connecting nut by turning it counter-clockwise.
- ➌ Carefully separate the lower and upper parts.



- 4 Remove the piston assembly, O-ring and seal.
- 5 Clean, autoclave, or replace the tip-holder.
- 6 Reassemble the pipette (refer to the figure, p 16).
- 7 Tighten the connecting nut (turn clockwise).
- 8 Refit the tip-ejector (see above).

### ***Servicing the Piston Assembly***

You may remove the piston assembly for cleaning purposes only. If the piston assembly is changed, the pipette must be adjusted and calibrated in a Gilson authorized Service Center.



***The piston assembly must not be autoclaved.***

- 1 Remove the tip-ejector (see above).
- 2 Unscrew the connecting nut by turning it counter-clockwise.
- 3 Carefully separate the lower and upper parts.
- 4 Remove the piston assembly, O-ring and seal.
- 5 Clean and decontaminate the piston assembly.
- 6 Reassemble the pipette (refer to the figure, p 16).
- 7 Tighten the connecting nut (turn clockwise).
- 8 Refit the tip-ejector (see above).

### ***Changing the O-ring***

The O-ring and seal are on the piston; **they must not be autoclaved**, if worn or damaged in any way (chemical or mechanical), they must be replaced.

The dimensions of the O-ring vary depending on the model of pipette.

- 1 Remove the tip-ejector (see above).
- 2 Unscrew the connecting nut by turning it counter-clockwise.
- 3 Carefully separate the lower and upper parts.
- 4 Remove the piston assembly, O-ring and seal.

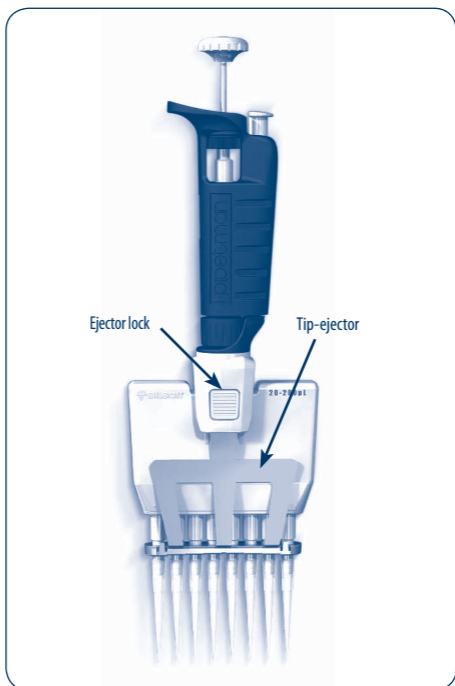
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- 5 Clean or replace the seal then the O-ring.
- 6 Reassemble the pipette (refer to the figure, p 16).
- 7 Tighten the connecting nut (turn clockwise).
- 8 Refit the tip-ejector (see above).

## Multichannel models


### *Changing the Tip-ejector*

- 1 To remove the tip-ejector, keep both ejector locks depressed.
- 2 Pull the tip-ejector down.
- 3 To refit the tip-ejector, gently re-insert the tip-ejector vertically into the rails of the ejector support.
- 4 Pull lightly on the tip-ejector to check the position.



## **12 - CLEANING AND DECONTAMINATION**

PIPETMAN Neo is designed so that the parts normally in contact with liquid contaminants, can easily be cleaned and decontaminated. However, because the models P2N and P10N contain miniaturized parts, it is best not to disassemble these pipettes yourself; please contact your local Gilson authorized Service Center.

 You may refer to the decontamination procedure available on the Gilson website ([www.gilson.com](http://www.gilson.com)). **Liquid must never enter the upper part (handle) of any pipette.**

### **Cleaning**

The pipette must be cleaned, as described below, before it is decontaminated. Soap solution is recommended for cleaning PIPETMAN Neo.

#### ***Single channel models***

##### ***External***

- 1 Remove the tip-ejector.
- 2 Wipe the tip-ejector with a soft-cloth or lint-free tissue impregnated with soap solution.
- 3 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.
- 4 Wipe the entire pipette and the tip-ejector with a soft cloth or lint-free tissue soaked with distilled water.
- 5 Refit the tip-ejector and allow the pipette to dry.

##### ***Internal***

The following components **only** can be immersed in a cleaning solution: connecting nut, tip-ejector, tip-holder, piston assembly, seal and O-ring.

- 1 Disassemble the pipette as described in the Chapter 11 - Maintenance.
- 2 Set aside the upper part in a clean, dry place.

- 3 Clean the individual components of the lower part of the pipette using an ultrasonic bath (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 tip-holder.
- 4 Rinse the individual components with distilled water.
- 5 Leave the parts to dry by evaporation or wipe them with a clean soft-cloth or lint-free tissue.
- 6 Reassemble the pipette as described in the Chapter 11 - Maintenance.

### ***Multichannel models***

The following components **only** can be immersed in a cleaning solution: tip-ejector, ejector locks and ejector spacer.

- 1 Remove the tip-ejector and the ejector spacer.
- 2 Immerse the tip-ejector, ejector locks and ejector spacer in the cleaning solution or wipe them with a soft-cloth or lint-free tissue impregnated with the cleaning solution.
- 3 Rinse the components with distilled water.
- 4 Wipe the entire pipette with a soft cloth or lint-free tissue impregnated with the cleaning solution.
- 5 Wipe it with distilled water.
- 6 Leave the parts to dry by evaporation or wipe them with a clean soft-cloth or lint-free tissue.
- 7 Refit the tip-ejector as described in page 18 (Changing the tip-ejector).

### **Autoclaving**

#### ***Single channel models***

The upper part (body) and the piston assembly of the pipette are **not** autoclavable. **Only** the following parts may be autoclaved: tip-ejector, tip-holder and connecting nut. The O-ring and seal are **not** autoclavable; they may be cleaned or replaced with the one specified in Chapter 14 - Spare Parts.

- 1 Clean the parts to be autoclaved, especially the tip-holder.
- 2 Put the parts in an autoclaving sack.
- 3 Autoclave for 20 minutes at 121°C, 0.1 MPa.
- 4 Check that the parts are dry before re-assembling the pipette.
- 5 Set the pipette aside to stabilize at room temperature.

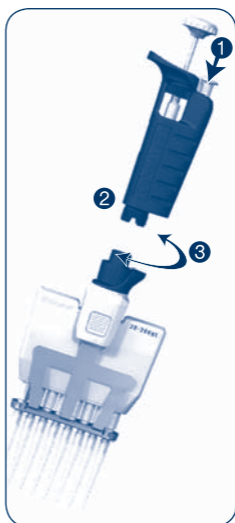
### ***Multichannel models***

The complete lower part can be autoclaved (20 minutes at 121°C, 0.1 MPa).

The lower part has to be removed from the body.

***To remove the lower part from the body,***

- 1 Keep the tip-ejector button depressed,
- 2 Turn the ejector clip counter-clockwise and separate it from the handle.
- 3 Unscrew the connecting nut turning counter-clockwise. Press push-button to extract the head.



***To autoclave:***

- 1 Clean the parts to be autoclaved, especially the tip-holders and the ejector spacer.
- 2 Put the lower part in an autoclaving sack.
- 3 Autoclave for 20 minutes at 121°C, 0.1 MPa.
- 4 Check that the autoclaved part is dry before re-assembling the pipette.
- 5 Set the pipette aside to stabilize at room temperature.

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*To fit the lower part on the body,*

- 1 Press on the push-button.
- 2 Insert the lower part into the ejection rod. Release the push-button.
- 3 Screw the connecting nut turning clockwise.
- 4 Press on the tip-ejector button
- 5 Insert the ejector clip and release the tip-ejector button.



## **Chemical Decontamination**

You may choose to decontaminate your pipette chemically, in accordance with your own procedures. Whatever decontaminant you use, check with the supplier of the decontaminant that it is compatible with stainless steel and the plastics used in the construction of the pipette: PA (Polyamide), PBT (Polybutylene Terephthalate), PC (Polycarbonate), PC/PBT (Polycarbonate/Polybutylene Terephthalate), POM (Polyoxymethylene), or PVDF (Polyvinylidene Fluoride).

### ***Upper Part (handle)***

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

## ***Lower Part (Volumetric module)***

### ***Single channel***

The following components **only** can be immersed in a decontaminant solution: connecting nut, tip-ejector, tip-holder, piston assembly, seal and O-ring.

### ***Multichannel***

The following components **only** can be immersed in a cleaning solution: tip-ejector, ejector locks and ejector spacer.

- 1 Remove the tip-ejector and the ejector spacer.
- 2 Immerse the tip-ejector, ejector locks and ejector spacer in the cleaning solution or wipe them with a soft-cloth or lint-free tissue impregnated with the cleaning solution.
- 3 Rinse the components with distilled water.
- 4 Wipe the entire pipette with a soft cloth or lint-free tissue impregnated with the cleaning solution.
- 5 Wipe it with distilled water.
- 6 Leave the parts to dry by evaporation or wipe them with a clean soft-cloth or lint-free tissue.
- 7 Refit the tip-ejector as described in page 18 (Changing the tip-ejector).

## **13 - SPECIFICATIONS**

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PIPETMAN Neo is a high quality pipette that offers excellent accuracy and precision. The figures given in the "Gilson Maximum Permissible Errors" table (page 24) were obtained using Gilson DIAMOND Tips. These figures are guaranteed only when genuine Gilson DIAMOND Tips are used.


Each pipette is inspected and validated by qualified technicians in accordance with the Gilson Quality System. Gilson declares that its manufactured pipettes comply with the requirements of the ISO 8655 standard, by type testing.

# PIPETMAN Neo®

The adjustment is carried out under strictly defined and monitored conditions (ISO 8655-6).

## Gilson Maximum Permissible Errors

| Single channel             |                   | Maximum Permissible Errors         |                                |                                    |                                |             |
|----------------------------|-------------------|------------------------------------|--------------------------------|------------------------------------|--------------------------------|-------------|
| Model                      | Volume            | Gilson                             |                                | ISO 8655                           |                                |             |
| (Reference)                | ( $\mu\text{L}$ ) | Systematic error ( $\mu\text{L}$ ) | Random error ( $\mu\text{L}$ ) | Systematic error ( $\mu\text{L}$ ) | Random error ( $\mu\text{L}$ ) |             |
| <b>P2N</b><br>(F144561)    | Min.              | 0.2                                | $\pm 0.024$                    | $\leq 0.012$                       | $\pm 0.08$                     | $\leq 0.04$ |
|                            |                   | 0.5                                | $\pm 0.025$                    | $\leq 0.012$                       | $\pm 0.08$                     | $\leq 0.04$ |
|                            | Max.              | 2                                  | $\pm 0.030$                    | $\leq 0.014$                       | $\pm 0.08$                     | $\leq 0.04$ |
| <b>P10N</b><br>(F144562)   | Min.              | 1                                  | $\pm 0.025$                    | $\leq 0.012$                       | $\pm 0.12$                     | $\leq 0.08$ |
|                            |                   | 5                                  | $\pm 0.075$                    | $\leq 0.030$                       | $\pm 0.12$                     | $\leq 0.08$ |
|                            | Max.              | 10                                 | $\pm 0.100$                    | $\leq 0.040$                       | $\pm 0.12$                     | $\leq 0.08$ |
| <b>P20N</b><br>(F144563)   | Min.              | 2                                  | $\pm 0.10$                     | $\leq 0.03$                        | $\pm 0.20$                     | $\leq 0.10$ |
|                            |                   | 10                                 | $\pm 0.10$                     | $\leq 0.05$                        | $\pm 0.20$                     | $\leq 0.10$ |
|                            | Max.              | 20                                 | $\pm 0.20$                     | $\leq 0.06$                        | $\pm 0.20$                     | $\leq 0.10$ |
| <b>P100N</b><br>(F144564)  | Min.              | 10                                 | $\pm 0.35$                     | $\leq 0.10$                        | $\pm 0.80$                     | $\leq 0.30$ |
|                            |                   | 50                                 | $\pm 0.40$                     | $\leq 0.12$                        | $\pm 0.80$                     | $\leq 0.30$ |
|                            | Max.              | 100                                | $\pm 0.80$                     | $\leq 0.15$                        | $\pm 0.80$                     | $\leq 0.30$ |
| <b>P200N</b><br>(F144565)  | Min.              | 20                                 | $\pm 0.50$                     | $\leq 0.20$                        | $\pm 1.60$                     | $\leq 0.60$ |
|                            |                   | 100                                | $\pm 0.80$                     | $\leq 0.25$                        | $\pm 1.60$                     | $\leq 0.60$ |
|                            | Max.              | 200                                | $\pm 1.60$                     | $\leq 0.30$                        | $\pm 1.60$                     | $\leq 0.60$ |
| <b>P1000N</b><br>(F144566) | Min.              | 100                                | $\pm 3$                        | $\leq 0.6$                         | $\pm 8$                        | $\leq 3.0$  |
|                            |                   | 500                                | $\pm 4$                        | $\leq 1.0$                         | $\pm 8$                        | $\leq 3.0$  |
|                            | Max.              | 1000                               | $\pm 8$                        | $\leq 1.5$                         | $\pm 8$                        | $\leq 3.0$  |

 With a precise pipetting technique (see Chapter 6 - General guidelines for good pipetting) the P2N model may be used to aspirate volumes as low as 0.1  $\mu\text{L}$  and the P10N model as low as 0.5  $\mu\text{L}$ .

| Multichannel           |                   | Maximum Permissible Errors         |                                |                                    |                                |             |
|------------------------|-------------------|------------------------------------|--------------------------------|------------------------------------|--------------------------------|-------------|
| Model                  | Volume            | Gilson                             |                                | ISO 8655                           |                                |             |
| (Reference)            | ( $\mu\text{L}$ ) | Systematic error ( $\mu\text{L}$ ) | Random error ( $\mu\text{L}$ ) | Systematic error ( $\mu\text{L}$ ) | Random error ( $\mu\text{L}$ ) |             |
| <b>8x20</b> (F14401)   | Min.              | 2                                  | $\pm 0.10$                     | $\leq 0.08$                        | $\pm 0.40$                     | $\leq 0.20$ |
|                        | and               | 10                                 | $\pm 0.20$                     | $\leq 0.10$                        | $\pm 0.40$                     | $\leq 0.20$ |
| <b>12x20</b> (F14402)  | Max.              | 20                                 | $\pm 0.40$                     | $\leq 0.20$                        | $\pm 0.40$                     | $\leq 0.20$ |
| <b>8x200</b> (F14403)  | Min.              | 20                                 | $\pm 0.50$                     | $\leq 0.25$                        | $\pm 3.2$                      | $\leq 1.2$  |
|                        | and               | 100                                | $\pm 1.0$                      | $\leq 0.40$                        | $\pm 3.2$                      | $\leq 1.2$  |
| <b>12x200</b> (F14404) | Max.              | 200                                | $\pm 2.00$                     | $\leq 0.60$                        | $\pm 3.2$                      | $\leq 1.2$  |

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



## 14 - SPARE PARTS

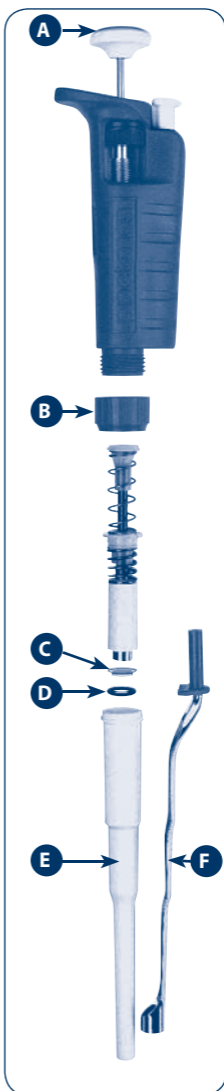
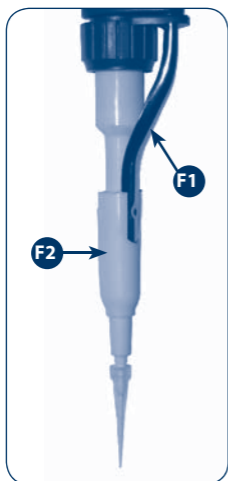
### Single channel models

Service Kit 1st level includes:

- 3 piston seals **C**
- 3 O-rings **D**
- 1 tip-holder **E**

Service Kit 2nd level includes:

- 1 push-button **A**
- 1 connecting nut **B**
- 1 tip-ejector **F**  
*or only for the P2N and P10N models*
- 1 tip-ejector **F1**  
and 1 adapter **F2**



# PIPETMAN Neo®

## P2N (F144561) and P10N (F144562)

|           | Description            | P2N     | P10N    |
|-----------|------------------------|---------|---------|
| C+D+E     | Service Kit 1st level  | F144501 | F144502 |
| A+B+F1+F2 | Service Kit 2nd level  | F161970 | F161971 |
| C+D       | Seal + O-ring (5 sets) | F144861 | F144862 |
| F2        | Tip-ejector Adapter    | F144879 | F144879 |

## P20N (F144563) and P100N (F144564)

|       | Description            | P20N    | P100N   |
|-------|------------------------|---------|---------|
| C+D+E | Service Kit 1st level  | F144495 | F144496 |
| A+B+F | Service Kit 2nd level  | F161972 | F161973 |
| C+D   | Seal + O-ring (5 sets) | F144863 | F144864 |

## P200N (F144565) and P1000N (F144566)

|       | Description            | P200N   | P1000N  |
|-------|------------------------|---------|---------|
| C+D+E | Service Kit 1st level  | F144497 | F144498 |
| A+B+F | Service Kit 2nd level  | F161974 | F161978 |
| C+D   | Seal + O-ring (5 sets) | F144865 | F144866 |

## 8x20 (F14401) and 12x20 (F14402)

|         | Description    | 8x20     | 12x20    |
|---------|----------------|----------|----------|
| F3 - F4 | Tip-ejector    | F507005  | F507006  |
| G       | Ejector lock   | F507008  | F507008  |
| H1 - H2 | Ejector spacer | F1507001 | F1507003 |

## 8x200 (F14403) and 12x200 (F14404)

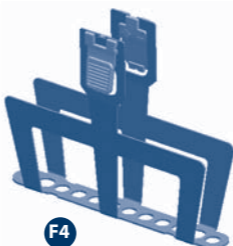
|         | Description    | 8x20     | 12x20    |
|---------|----------------|----------|----------|
| F3 - F4 | Tip-ejector    | F507005  | F507006  |
| G       | Ejector lock   | F507008  | F507008  |
| H1 - H2 | Ejector spacer | F1507001 | F1507003 |

## Multichannel models



**F3**

Tip-ejector (8 channels)



**F4**

Tip-ejector (12 channels)



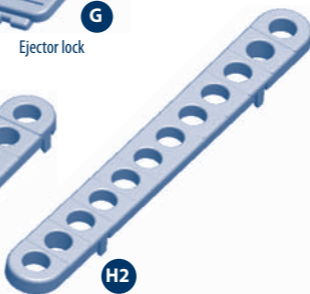
**G**

Ejector lock



**H1**

Ejector spacer (8 channels)



**H2**

Ejector spacer (12 channels)

# PIPETMAN *Neo*<sup>®</sup>

## EC DECLARATION OF CONFORMITY

The company,

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

**Pipetman Neo® Single channel**  
P2N, P10N, P20N, P100N, P200N, P1000N  
**Pipetman Neo® Multichannel**  
8x20, 12x20, 8x200, 12x200

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, September 14<sup>th</sup>, 2005



**A. El Sayed**  
General Manager



**H. Ledorze**  
Quality Manager



## NOTES

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## NOTES

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*Specifications subject to change without notifications - errors omitted.*

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