pipetman®

Quick Guide

EN

GILSON®

Introduction

PIPETMAN®, recognized as the pipetting standard, is a fully adjustable, air-displacement pipette that uses disposable tips. PIPETMAN combines its legendary accuracy, precision, and durability with easy pipetting and handling.

PIPETMAN offers a large range of accurate and precise pipettes with optimized pipetting and purge forces for hours of pipetting.

Eight single channel models cover a volume range from 0.2 µL to 10 mL.

Eight multichannel models cover a volume range from 1 µL to 300 µL.

Parts Checklist

After unpacking the pipette, verify that the following items were included and are undamaged:

Single models

- PIPETMAN®
- Quick Guide
- Safety bag
- Certificate of Conformity (including barcode sticker)
- Dual-position adapter (for P2 and P10 models only)

Multichannel models

- PIPETMAN®
- Quick Guide
- Safety bag
- Certificate of Conformity (including barcode sticker)
- Ejector spacers for D10 tips (for Px10 models only)

Good Laboratory Practice (GLP) Compliance

The **serial number** is engraved on the body of the pipette. It provides unique identification of your pipette and the manufacturing date.

Ex: A A 50001

Year | Month | Production number

The **barcode** on the box and the Certificate of Conformity provides traceability of your pipette.

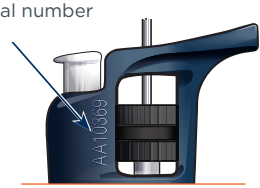

Figure 1
Serial number and identification

Description

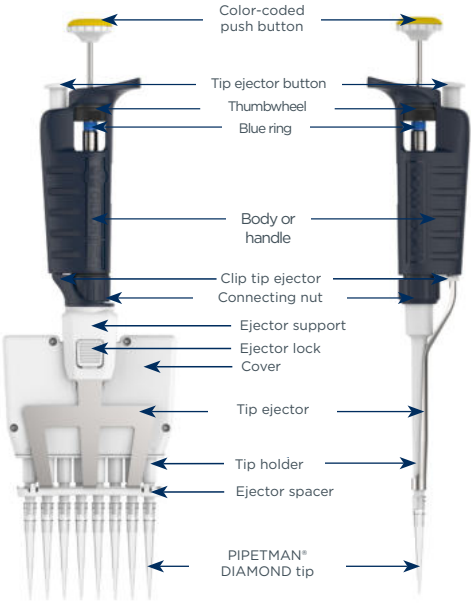

Figure 2

PIPETMAN® multichannel and single channel model components

Specifications

PIPETMAN® is a high-quality pipette that offers excellent accuracy and precision. The data provided in the **Maximum Permissible Errors** table on page 4 was obtained using PIPETMAN® DIAMOND Tips. These values are guaranteed only when genuine PIPETMAN DIAMOND Tips are used.

NOTICE	With a precise pipetting technique the P2 model may be used to aspirate volumes as low as 0.1 µL and the P10 model as low as 0.5 µL.

Maximum Permissible Errors

The data in the following table conforms to the ISO 8655-2 standard.

PIPETMAN® SINGLE CHANNEL — VARIABLE VOLUME										
Nominal Volume (µL)	Vol. (µL)	Vol. (%)	Maximum Permissible Errors							
			Gilson				ISO 8655-2 (Table 1)			
			Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
P2 (P/N F144054M) WITH D10 AND DL10 TIPS										
2	0.2 0.5 1 2	10 25 50 100	± 0.024 ± 0.025 ± 0.025 ± 0.030	≤ 0.012 ≤ 0.012 ≤ 0.012 ≤ 0.014	± 12.0 ± 5.0 ± 2.5 ± 1.5	≤ 6.0 ≤ 2.4 ≤ 1.2 ≤ 0.7	± 0.050 ± 0.050 ± 0.050 ± 0.050	≤ 0.040 ≤ 0.040 ≤ 0.040 ≤ 0.040	± 25 ± 10 ± 5.0 ± 2.5	≤ 20 ≤ 8 ≤ 4.0 ≤ 2.0
P10 (P/N F144055M) WITH D10 AND DL10 TIPS**										
10	1 5 10	10 50 100	± 0.025 ± 0.075 ± 0.100	≤ 0.012 ≤ 0.030 ≤ 0.040	± 2.5 ± 1.5 ± 1.0	≤ 1.2 ≤ 0.6 ≤ 0.4	± 0.120 ± 0.120 ± 0.120	≤ 0.080 ≤ 0.080 ≤ 0.080	± 12 ± 2.4 ± 1.2	≤ 8.0 ≤ 1.6 ≤ 0.8
P20 (P/N F144056M) WITH D200 TIPS										
20	2 5 10 20	10 25 50 100	± 0.10 ± 0.10 ± 0.10 ± 0.20	≤ 0.030 ≤ 0.040 ≤ 0.050 ≤ 0.060	± 5.0 ± 2.0 ± 1.0 ± 1.0	≤ 1.5 ≤ 0.8 ≤ 0.5 ≤ 0.3	± 0.20 ± 0.20 ± 0.20 ± 0.20	≤ 0.100 ≤ 0.100 ≤ 0.100 ≤ 0.100	± 10 ± 4.0 ± 2.0 ± 1.0	≤ 5.0 ≤ 2.0 ≤ 1.0 ≤ 0.5
P100 (P/N F144057M) WITH D200 TIPS										
100	10 50 100	10 50 100	± 0.35 ± 0.40 ± 0.80	≤ 0.10 ≤ 0.12 ≤ 0.15	± 3.5 ± 0.8 ± 0.8	≤ 1.0 ≤ 0.24 ≤ 0.15	± 0.80 ± 0.80 ± 0.80	≤ 0.300 ≤ 0.300 ≤ 0.300	± 8.0 ± 1.6 ± 0.80	≤ 3.0 ≤ 0.60 ≤ 0.30
P200 (P/N F144058M) WITH D200 TIPS										
200	20 100 200	10 50 100	± 0.50 ± 0.80 ± 1.60	≤ 0.20 ≤ 0.25 ≤ 0.30	± 2.5 ± 0.8 ± 0.8	≤ 1.0 ≤ 0.25 ≤ 0.15	± 1.60 ± 1.60 ± 1.60	≤ 0.600 ≤ 0.600 ≤ 0.600	± 8.0 ± 1.6 ± 0.80	≤ 3.0 ≤ 0.60 ≤ 0.30
P1000 (P/N F144059M) WITH D1000 TIPS										
1000	100 500 1000	10 50 100	± 3.0 ± 4.0 ± 8.0	≤ 0.6 ≤ 1.0 ≤ 1.5	± 3.0 ± 0.8 ± 0.8	≤ 0.6 ≤ 0.2 ≤ 0.15	± 8.0 ± 8.0 ± 8.0	≤ 3.0 ≤ 3.0 ≤ 3.0	± 8.0 ± 1.6 ± 0.80	≤ 3.0 ≤ 0.60 ≤ 0.30
P5000* (P/N F144066) WITH D5000 TIPS**										
5000	500 2500 5000	10 50 100	± 12 ± 15 ± 30	≤ 3 ≤ 5 ≤ 8	± 2.4 ± 0.6 ± 0.6	≤ 0.6 ≤ 0.2 ≤ 0.16	± 40.0 ± 40.0 ± 40.0	≤ 15.0 ≤ 15.0 ≤ 15.0	± 8.0 ± 1.6 ± 0.80	≤ 3.0 ≤ 0.60 ≤ 0.30
P10mL* (P/N F144067) WITH D10mL TIPS**										
10000	1000 5000 10000	10 50 100	± 30 ± 40 ± 60	≤ 6 ≤ 10 ≤ 16	± 3.0 ± 0.8 ± 0.6	≤ 0.6 ≤ 0.2 ≤ 0.16	± 60.0 ± 60.0 ± 60.0	≤ 30.0 ≤ 30.0 ≤ 30.0	± 6.0 ± 1.2 ± 0.60	≤ 3.0 ≤ 0.60 ≤ 0.30

*CV means Coefficient of Variation
**P10 model can be used up to 0.5 µL with a precise pipetting technique.
***P5000 and P10mL do not have tip ejectors.

Gilson maximum permissible errors are only guaranteed when PIPETMAN® pipettes are used with the recommended PIPETMAN® DIAMOND Tips.

PIPETMAN® MULTICHANNEL										
Nominal Volume (µL)	Vol. (µL)	Vol. (%)	Maximum Permissible Errors							
			Gilson				ISO 8655-2 (Table 2)			
			Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
P8X10 (P/N F144068) AND P12X10 (P/N F144069) WITH D10 AND DL10 TIPS										
10	1 5 10	10 50 100	± 0.08 ± 0.20 ± 0.20	≤ 0.05 ≤ 0.10 ≤ 0.10	± 8.0 ± 4.0 ± 2.0	≤ 5.0 ≤ 2.0 ≤ 1.0	± 0.24 ± 0.24 ± 0.24	≤ 0.16 ≤ 0.16 ≤ 0.16	± 24 ± 4.8 ± 2.4	≤ 16 ≤ 3.2 ≤ 1.6
P8X20 (P/N F144070) AND P12X20 (P/N F144071) WITH DL10 AND D200 TIPS										
20	2 10 20	10 50 100	± 0.10 ± 0.20 ± 0.40	≤ 0.08 ≤ 0.10 ≤ 0.20	± 5.0 ± 2.0 ± 2.0	≤ 4.0 ≤ 1.0 ≤ 1.0	± 0.40 ± 0.40 ± 0.40	≤ 0.20 ≤ 0.20 ≤ 0.20	± 20 ± 4.0 ± 2.0	≤ 10 ≤ 2.0 ≤ 1.0
P8X200 (P/N F144072) AND P12X200 (P/N F144073) WITH D200 TIPS										
200	20 100 200	10 50 100	± 0.50 ± 1.00 ± 2.00	≤ 0.25 ≤ 0.40 ≤ 0.50	± 2.5 ± 1.0 ± 1.0	≤ 1.25 ≤ 0.40 ≤ 0.25	± 3.20 ± 3.20 ± 3.20	≤ 1.20 ≤ 1.20 ≤ 1.20	± 16 ± 3.2 ± 1.6	≤ 6.0 ≤ 1.2 ≤ 0.60
P8X300 (P/N F144074) AND P12X300 (P/N F144075) WITH D300 TIPS										
300	30 150 300	10 50 100	± 1.00 ± 1.50 ± 3.00	≤ 0.35 ≤ 0.60 ≤ 1.00	± 3.33 ± 1.0 ± 1.0	≤ 1.17 ≤ 0.4 ≤ 0.33	± 4.8 ± 4.8 ± 4.8	≤ 1.8 ≤ 1.8 ≤ 1.8	± 16 ± 3.2 ± 1.6	≤ 6.0 ≤ 1.2 ≤ 0.60

Setting the Volume

The volume of liquid to be aspirated is set using the volume display. The dial colors are either black or red to indicate the position of the decimal point, depending on the model (refer to Figure 3).

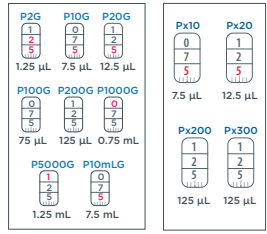

Figure 3
Dial colors by model

The volume is set by turning the thumbwheel or the push button (refer to Figure 4). The push button makes it easier and faster to set volumes, especially when wearing gloves. The thumbwheel may be turned using only one hand to slowly reach the required setting.

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

- When **decreasing** the volume setting, slowly reach the required setting, making sure to not 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 to not overshoot the mark.

Figure 4
Location of push button and thumbwheel

MODEL	COLOR OF VOLUMETER NUMBERS		
	BLACK	RED	INCREMENT
P2	µL	0.01 µL	0.002 µL
P10 - P20 - Px10 - Px20	µL	0.1 µL	0.02 µL
P100 - P200 - Px200 - Px300	µL	-	0.2 µL
P1000	0.01 mL	mL	0.002 mL
P5000	0.01 mL	mL	0.002 mL
P10mL	mL	0.1 mL	0.02 mL

Fitting the Tips

Single Channel Models

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

PIPETMAN® DIAMOND Tip Compatibility for Single Channel Variable Volume Models	
P2, P10	D10, DL10, DF10ST, DFL10ST
P20	D200, DF30ST
P100	D200, DF100ST
P200	D200, D300, DF200ST, DF300ST
P1000	D1000, D1200, DF1000ST, DF1200ST
P5000	D5000
P10mL	D10mL

Figure 5
PIPETMAN® DIAMOND Tip compatibility chart for single channel models

NOTICE

D5000 and D10mL PIPETMAN DIAMOND tips do not have any filter. P5000 and P10mL models are sold with a bag of 10 filters. For more details, refer to PIPETMAN User's Guide LT801122.

Fitting the Tips on P2 and P10 Models

NOTE

For the P2 and P10 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 the adapter may be clipped to it in either position.

P2 and P10 models are delivered with the adapter in place, ready-to-use DL10 tips. If D10 tips 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 180°.
3. Refit the adapter so the end of the metallic rod engages the shorter slot of the adapter.

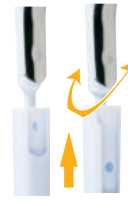

Figure 6
Dual-position adapter for P2 and P10 with stainless steel tip ejector

NOTE **The dual position is autoclavable.**

Multichannel models

PIPETMAN® DIAMOND Tips are best fitted with the ROCKY RACK technique, invented by Gilson, available only in our TIPACK and TOWERPACK.

PIPETMAN® DIAMOND Tip Compatibility for Multichannel Models	
P8x10, P12x10	D10*, DL10, DF10, DFL10
P8x20, P12x20	DL10, DFL10, DF30, D200
P8x200, P12x200	D200, D300, DF200, DF300
P8x300, P12x300	D200, D300, DF200, DF300

* Using the broad ejector spacer D10, you can adapt a D10 tip (see above).

Figure 7
ROCKY RACK technique

Ejector Spacer for PIPETMAN® 10 µL Multichannel Models

According to the tip used, D10 or DL10, you may have to exchange the ejector spacer. The broadly spaced one is for D10, and the narrowly spaced one is for DL10.

1. Remove the tip ejector, keeping both ejector locks depressed. Pull the tip ejector down.
2. Gently press the tabs from the ejector spacer and remove it from the tip ejector.
3. Insert the alternative ejector spacer and click it to the tip ejector.
4. To refit the tip ejector, gently re-insert the tip ejector vertically into the rails of the ejector support.

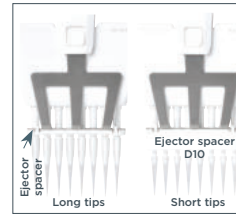

Figure 8
Ejector spacer location

Pre-Wetting the Tips

Pre-wetting the tips before pipetting helps prepare the tips for the best pipetting performance. Ideally, the pre-wet includes both immersing the tip in the liquid and performing one pipetting step.

Pre-wetting the tips helps ensure that volumes your pipette's volume will achieve accuracy and precision within specifications.

Aspirating

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 (refer to *PIPETMAN® User's Guide LT801122 available on **gilson.com***).
3. Release the push button slowly and smoothly (to the **top** position) to aspirate the set volume of liquid.
4. Wait one second, and 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.

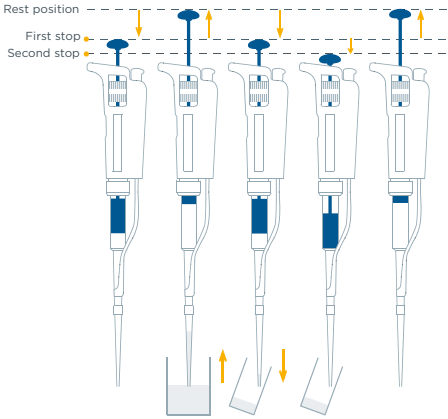

Figure 9
Pipetting motion - aspirate and dispense

Dispensing

1. Place the end of the tip against the inside wall of the recipient vessel (at an angle of 10° to 40°).
2. Press the push button slowly and smoothly to the **first stop**.
3. Wait for at least one 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.

NOTICE	**It is recommended to regularly verify the volume displayed on the dial while pipetting.**

Maintenance

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 in the *PIPETMAN® User's Guide LT801122*, or replacing the push button, connecting nut, tip ejector, tip holder, seal, and O-ring.

NOTICE	**Gilson recommends maintenance and calibration at least annually, more frequently as needed, depending on use.**
NOTICE	**PIPETMAN® P2 and P10 should not be disassembled. You may only replace the push button, tip ejector, and its dual-position adapter. With these pipettes, if the tip holder is damaged, the piston may also be damaged. After replacing any parts, you should verify the performance of your pipette following the verification procedure available on the Gilson website (www.gilson.com). If the pipette needs to be readjusted, please contact your local authorized Gilson Service Center.**
NOTICE	**Decreased pipetting forces are due to the design of the piston assembly, which includes a very high-quality lubricant (part number 5440011070). The use of any other lubricant voids the warranty of this pipette.**

Cleaning and Decontamination

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

For further information, please refer to PIPETMAN User's Guide LT801122 available on **gilson.com**.

Warranty

Gilson warrants this pipette against defects in material under normal use and service for a period of **three years for both single channel and multichannel models** 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 that 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. **Routine cleaning, control and recalibration are not covered under the warranty. The replacement of wearing parts such as seals, O-rings, broken pistons assembly, and broken tip holders are not covered under the warranty.**

NOTICE	**Yearly routine maintenance is highly recommended to keep your pipette in good condition, ensuring a continued high level of performance.**

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.

Web Resources

Visit Gilson's website at **www.gilson.com** for:

- Service contact information
- PIPETMAN® User's Guide LT801122 pdf
- Information about accessories, spare parts, and related products
- Additional product information and special offers

NOTES

gilson.com/contactus