

Electronic Pipettes

MPA/MPB

Series



MPA-200



MPB-1200-8



*Outperforming Manual Pipettes
with Comfort, Ease & Accuracy!*

AND
A&D Company, Ltd.

Discover Precision
www.aandd.jp

If you still think manual pipettes are good enough, it's time to THINK AGAIN

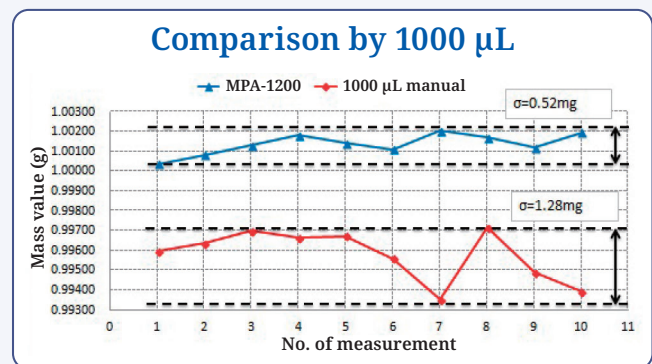
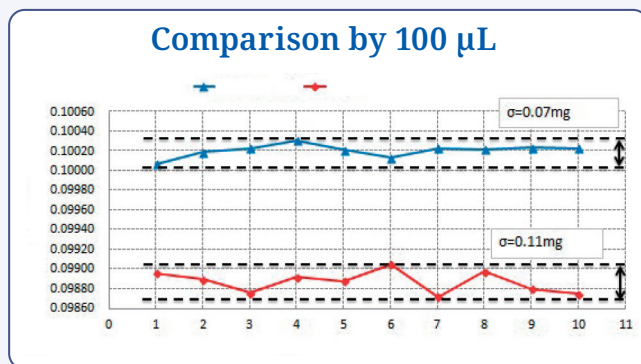
Chances are you are making many sacrifices continuing to use manual pipettes, which are fraught with various problems including variation in accuracy among individuals, troublesome and time-consuming operation, risk of causing repetitive strain injuries (RSI), etc.

With A&D's MPA/MPB series, you can free yourself and your staff from all these problems—at minimum cost!

Accuracy/repeatability not dependent on human factors

Automatic, electronically-controlled aspirating and dispensing ensure uniform and accurate pipetting for both novices and experts alike. The MPA/MPB series makes all assays consistently reliable.

In practice, it is extremely difficult for even proficient users to maintain a consistent pipetting motion (e.g. aspirating speed) every time with a manual pipette. The graphs below show actual repeatability comparisons made by one of A&D's customers—a highly experienced manual pipette user—between the MPA series and her favorite, name-brand manual pipettes.



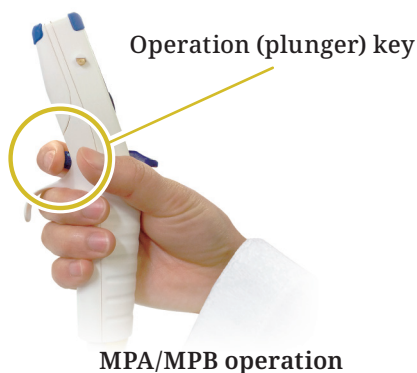
Unlike manual pipettes, there is no risk of contamination inside the cylinder(s) from accidentally releasing the plunger, resulting in excessive suctioning.

Stress-minimized, pain-free operation

Operating a manual pipette imposes irregular movement on the thumb (i.e. holding it out perpendicular to the hand and then pushing the plunger all the way down with a force of a few kilograms). The repetition of this movement can lead to a decrease in work efficiency due to fatigue, stiff shoulders and eventually RSI at the base of the thumb.



Manual pipette operation



The uniquely located operation key of the MPA/MPB series enables you to control the plunger by lightly pulling the forefinger (like a trigger), while maintaining all fingers in a natural, effortless grip. No longer will hours or days of pipetting make you feel any pain in your thumb.*1

*1 Our experiment verified that near zero fatigue is generated after more than 3,000 repeated pipettings over a 5 hour period.

Useful pipetting modes

Apart from standard automatic aspirating and dispensing (AUTO mode), the following functions help to greatly reduce time, stress and error associated with some pipetting tasks:

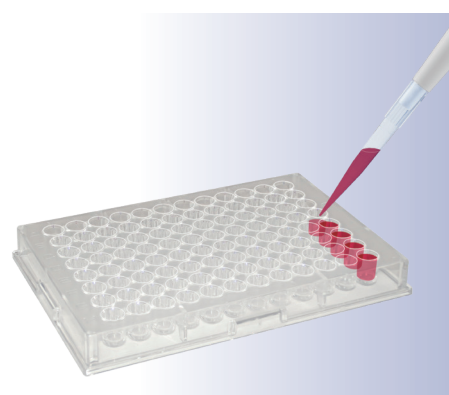
Multiple dispensing (MD) mode

The MD mode lets you divide one aspirated volume (e.g. 1200 μL) into multiple dispensings of a smaller volume (e.g. 100 μL \times 12 times). This mode dramatically increases efficiency when you need to deliver the same amount of sample repeatedly into microplate wells, etc.

■ Pre-dispensing function

The MPA/MPB series automatically prevents error due to backlash of moving parts*2 by discharging a small amount of sample to set the piston in the descending position immediately after aspiration. No need to discard and waste the first dispensing volume, unlike with conventional electronic pipettes.

*2 This effect presents itself when the operation switches from aspirating to dispensing



Multiple dispensing into a microplate

Mixing (MIX) mode

In MIX mode the pipette executes with one key press a set number of aspirating-dispensing motions to mix and homogenize different kinds of liquids in the same receiving vessel. With a manual pipette, mixing exerts an especially heavy strain on the thumb and is also difficult to perform correctly when the mixing volume is small (prone to mix air and produce bubbles).

Reverse operation

A viscous, sticky liquid tends to linger in the tip and is difficult to dispense accurately. For such samples, the reverse operation is recommended by first aspirating a volume larger than the set dispensing volume, then delivering the correct amount and discarding the excess.

In addition to the above, the MPA/MPB series is equipped with three advanced modes when higher-order pipetting operations are required:

- (1) In dispensing and mixing (AUTO + MIX) mode, the pipette proceeds to mix immediately after performing the standard aspirating-dispensing operation.
- (2) In sequential aspirating (SA) mode, different liquids can each be aspirated at individually set volumes, then dispensed together.
- (3) In sequential dispensing (SD) mode, aspirated liquid is dispensed sequentially at individually set volumes.

Single channel

MPA Series



MPA-10
0.3 to 10.0 µL



MPA-20
0.3 to 20.0 µL



MPA-200
3.0 to 200 µL



MPA-1200
15 to 1200 µL



MPA-10000
0.1 to 10.0 mL

The MPA series of single channel electronic pipettes is highly versatile and offers an ideal replacement for standard manual pipettes. The large-volume MPA-10000 can also be used in place of pipette controllers in many applications.

Multiple channels

MPB Series



MPB-200-8
3.0 to 200 µL



MPB-1200-8
15 to 1200 µL

The MPB series of multiple channel electronic pipettes makes dispensing into microplate wells extremely quick, especially when used in multiple dispensing (MD) mode.

5 aspirating/dispensing speeds

The aspirating and dispensing speeds can be set to five different levels each to suit the sample characteristics and ensure accuracy. In general, slowing aspirating/dispensing leads to greater accuracy, albeit less efficient.

Battery indicator

Battery level is indicated to inform the user of the remaining amount of charge.

Buzzer function

When activated, a buzzer lets you know the execution of each operation audibly and thereby prevents errors in operation.

Operation mode display

It is quick and easy to change the pipetting mode and settings.

Blowout function

The blowout is one final push in dispensing that expels the liquid remaining in the end of the tip by temporarily lowering the piston below its starting position. It can be either enabled or disabled as required (disabled to select the reverse operation).

Operation (plunger) key

With just one key, you can aspirate, dispense and blow out the sample.

Extended finger hook

The finger hook that rests on the middle finger is long and curved in such a way that the pipette will remain in the hand even when the grip is loosened.

Adjustable tip ejector reach

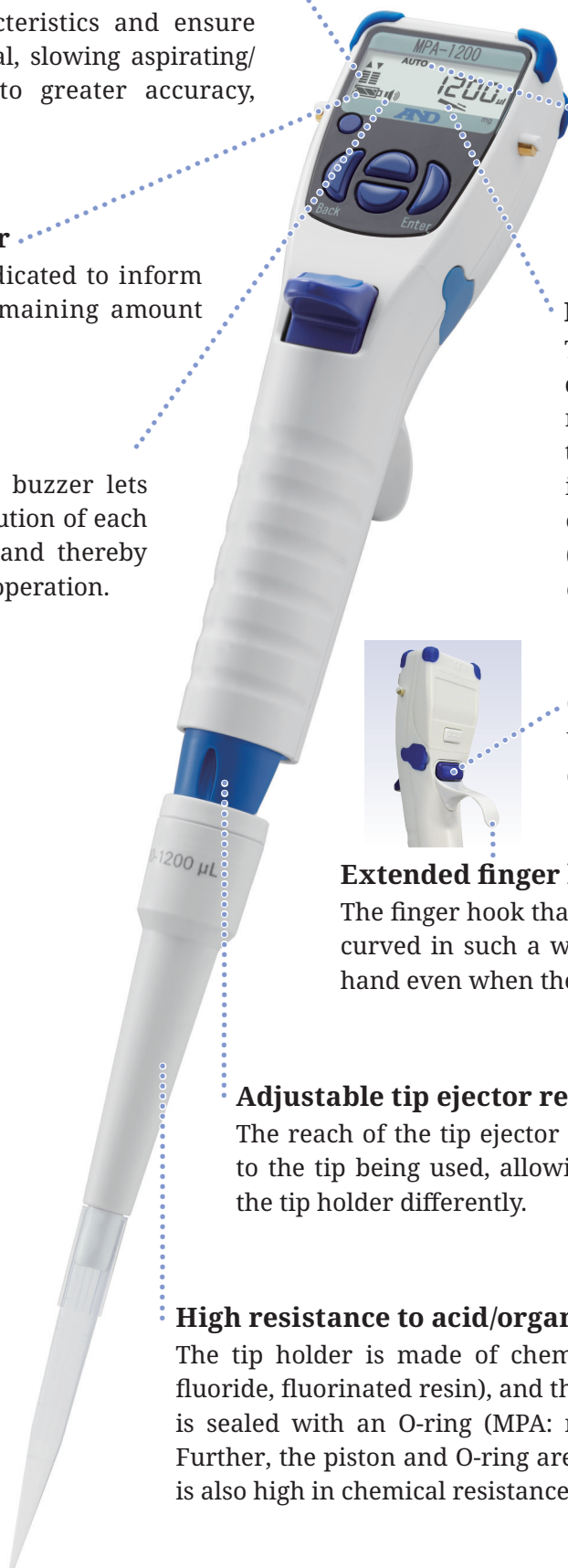
The reach of the tip ejector can be adjusted to match the distance to the tip being used, allowing use of various sizes of tips that fit the tip holder differently.

High resistance to acid/organic solvents

The tip holder is made of chemically-resistant PVDF (Polyvinylidene fluoride, fluorinated resin), and the gap between the cylinder and piston is sealed with an O-ring (MPA: nitrile rubber / MPB: silicon rubber). Further, the piston and O-ring are coated in a fluorinated grease, which is also high in chemical resistance.

Storage for 9 programs

Up to nine combinations of settings (operation mode, dispensing volume, etc.) can be saved into the pipette so that you can call up your preferred settings to start your work right away. The pipette retains the most recent settings when the power is turned off.



Easy calibration (adjustment) with the User CAL function[♦]

You may utilize a third-party calibration service once a year (or even twice a year, depending on your workplace policies). However, imagine what would happen to a year's worth of data if an annual calibration revealed that you might have been using inaccurate pipettes all along. With the MPA/MPB series, you can easily perform calibration and make necessary corrections for dispensing volumes at your own location whenever needed.*3*4

♦Patented

This function also corrects for possible errors arising from differences in tip characteristics so that you can use your preferred manufacturer's tips without worry.*5

*3 For verification of dispensed volumes necessary for calibration, A&D's pipette accuracy testers are useful (see below).

*4 A calibration report is provided for each unit at the time of shipping as well.

*5 A list of compatible tips is available from the A&D website. Most provide accuracy within $\pm 1.5\%$ (at the maximum volume) of the levels of A&D's standard tips.

A&D's Pipette Management Solutions

The following tools let you manage the quality and performance of your pipettes readily in-house (allowing documentation and compliance with ISO8655).

For quick checking of pipette airtightness
Leak Tester: AD-1690



For verification of pipette accuracy and repeatability
Pipette Accuracy Testers: BM Series + BM-014

AD-4212B-PT

AD-4212A-PT

FX-300i-PT

Calibration and display in a unit of weight (mg)[♦]

Alternatively, it is possible to calibrate and display the pipetting amount based on the weight (mg) of the sample instead of volume ($\mu\text{L}/\text{mL}$).

♦Patented

This will make it much easier for you to handle liquids that need to be managed by weight, such as a diluted solution of a solid or powder, and eliminate troublesome density calculations.

Preventing damage from falls

Did you know that one of the most common repairs of electronic pipettes is for a broken LCD or electronic component due to dropping? With padding set on the four corners of the head*, the MPA/MPB series is designed to be protected from drop impacts to the highest degree.

◆Patented

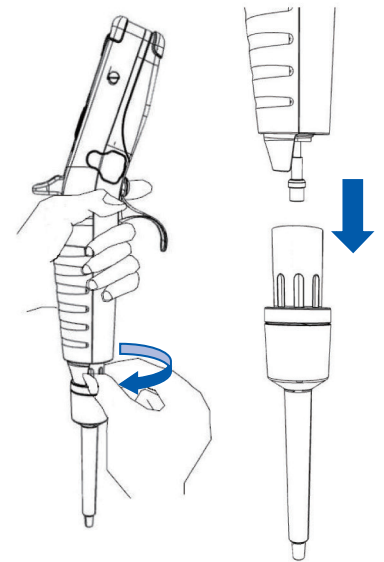


Impact-absorbing pads

Easily replaceable lower part

When damaged or contaminated, the lower part of the MPA/MPB series—including the tip holder(s) and piston(s)—can be quickly removed and swapped to a new one. Further, the lower part of the MPA series can also be autoclaved (121 °C, 2 atm, 20 min) as necessary.*6

*6 The MPA series only

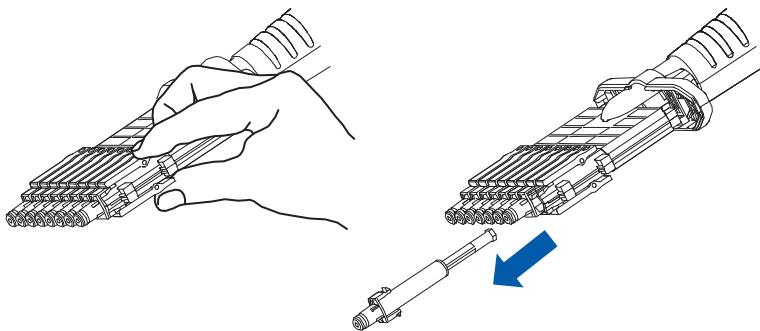


Separating the lower part

Individually detachable cylinders (MPB series)◆

Each cylinder (tip holder) is readily removable with a unique clip device so that you can configure the pipette to your preferred number of channels (maximum eight channels). It also allows easy replacement if one of the cylinders fails.

◆Patent pending



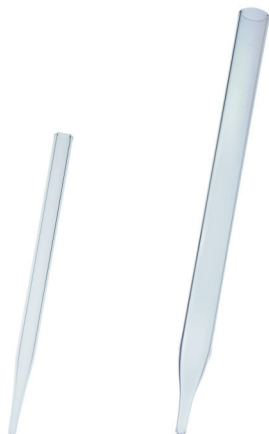
Pinch the clip to pull out the cylinder



MPB-1200 with four cylinders

AX-GL glass tips and AX-ADP silicon adapters (optional for the MPA-200/1200 and MPA-10000)

For certain kinds of research (such as the analysis of endocrine disruptors), standard pipette tips made of polypropylene are inadequate since chemical substances may be eluted from them. In such cases, glass tips (made of borosilicate glass type 1 and resistant to organic solvents and acidic liquids*7) are available for use with the MPA-200/1200 and MPA-10000.



For 200/1200 µL For 10 mL
AX-GL glass tips

These tips combined with electronic pipettes make aspiration much quicker, safer and more precise than volumetric/graduated pipettes. They are also more easily washable and can be, if necessary, put in an ultrasonic bath. Both the tips and the silicon adapters that connect the tips to the pipettes*8 are autoclavable as well (121 °C, 2 atm, 20 minutes). Further, the silicon adapter for 200/1200 µL can hold off-the-shelf Pasteur pipettes (of Ø7 mm outer diameter) to aspirate samples in test tubes or bottles with narrow mouths such as Ampoule pots.

*7 Not suitable for strong alkalis

*8 Patent pending for the silicon adapter design



For 200/1200 µL

AX-ADP silicon adapters

For 10 mL

Silicon adapter holding a Pasteur pipette

Available sets

AX-GL-200/1200 ----- 10 glass tips + 2 silicon adapters (gray) for the MPA-200/1200

AX-GL-10ML ----- 10 glass tips + 2 silicon adapters (blue) for the MPA-10000

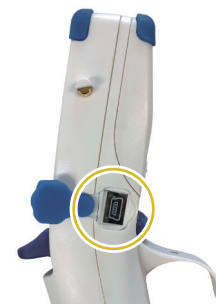
AX-ADP-200/1200 --- 10 silicon adapters (gray) for the MPA-200/1200

AX-ADP-10ML ----- 10 silicon adapters (blue) for the MPA-10000

| Glass tip | | AX-GL-200/1200 | | | | AX-GL-10ML | | |
|-------------|--------------------|--|--------|----------|---------|---|-------|-------|
| Pipette | | MPA-200 | | MPA-1200 | | MPA-10000 | | |
| Performance | Volume | 50 µL | 200 µL | 100 µL | 1200 µL | 1 mL | 5 mL | 10 mL |
| | Accuracy | ±5.0% | ±3.0% | ±5.0% | ±1.0% | ±5.0% | ±2.0% | ±1.0% |
| | Repeatability (CV) | 2.0% | 0.3% | 3.0% | 0.3% | 3.0% | 1.5% | 0.3% |
| Dimensions | Glass tip | Length: 112 mm Outer diameter: 7 mm | | | | Length: 168 mm Outer diameter: 13 mm | | |
| | Silicon adapter | Length: 30 mm | | | | Length: 36 mm | | |

Long-lasting, lithium-ion rechargeable battery

The MPA/MPB series receives power supply from either the provided AC adapter or lithium-ion rechargeable battery. In standard (AUTO) mode with maximum aspirating and dispensing speeds, 1,800 pipettings is guaranteed on a full charge for the MPA series and 800 for the MPB series. The total charging time is approx. 5 hours, but you can also use the pipette while charging the battery at the same time via USB connection.



USB power connector

Charger hanger/stands (sold separately)

Besides the USB power connector, the MPA/MPB series is equipped with electrode terminals to be hooked onto the following charger devices:

AX-HA-CHG ----- Charging hanger

A space-saving charger that can be freely mounted to a wall, rack, or anywhere convenient. Using the provided linking cable, one AC adapter can supply power to a maximum of three hangers.

AX-ST-CH-A1 ---- Charging stand for single pipette

A stand that allows charging of an individual MPA/MPB pipette. It is also possible to combine up to three units to charge multiple pipettes with one AC adapter. The size of one unit is 60 (W)*⁹ × 335 (H) × 154 (D) mm.

*⁹ Or 95 mm including the stand feet

AX-ST-CH-M4 --- Charging stand for four pipettes

A stand that can receive and charge up to four MPA/MPB pipettes simultaneously. Its size is 195 (W) × 350 (H) × 195 (D) mm.



AX-HA-CHG



AX-ST-CH-A1



AX-ST-CH-M4

Normal hanger/stands (sold separately)

The following non-charging hanger and stands are also available:

AX-HA-STD ----- Pipette hanger

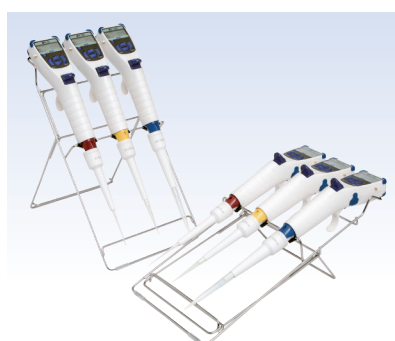
AX-ST-SUS ----- Stainless steel stand for up to three MPAs*¹⁰

AX-ST-ACR ----- Acrylic stand for up to two MPAs*¹⁰

*¹⁰ Not suitable for the MPB series



AX-HA-STD



AX-ST-SUS



AX-ST-ACR

Other accessories/disposables (sold separately)

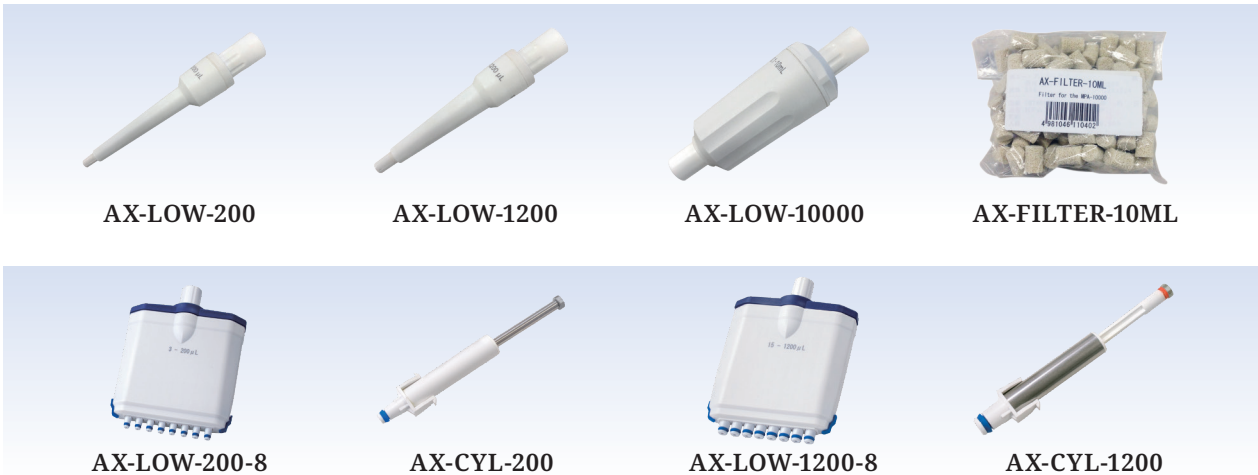
- AX-BOX-200A** ----- Tip box for the MPA-10/20/200 and MPB-200-8*11
- AX-BOX-1200A** ----- Tip box for the MPA-1200 and MPB-1200-8*11
- AX-BOX-200B** ----- Tip box (no latch) for the MPA-10/20/200 and MPB-200-8*11
- AX-BOX-1200B** ----- Tip box (no latch) for the MPA-1200 and MPB-1200-8*11
- AX-CART-10/20** ----- Tip cartridge (96 sterile tips × 10 sets) for the MPA-10/20
- AX-CART-200** ----- Tip cartridge (96 sterile tips × 10 sets) for the MPA-200 and MPB-200-8
- AX-CART-1200** ----- Tip cartridge (96 sterile tips × 10 sets) for the MPA-1200*12
- AX-CART-1200-8** ----- Tip cartridge (96 sterile tips × 10 sets) for the MPB-1200-8
- AX-BULK-10ML-B** ----- Bagged tips (200 tips × 1 bag) for the MPA-10000
- AX-BOXT-10ML-B** ----- Racked tips (25 tips × 1 rack) for the MPA-10000
- AX-BOXT-10ML-BS** --- Racked sterile tips (25 sterile tips × 1 rack) for the MPA-10000

*11 Tips are not included.

*12 The spacing between tips is not suitable for the MPB-1200-8.



- AX-LOW-10** ----- Lower part of the MPA-10
- AX-LOW-20** ----- Lower part of the MPA-20
- AX-LOW-200** ----- Lower part of the MPA-200
- AX-LOW-1200** ----- Lower part of the MPA-1200
- AX-LOW-10000** ----- Lower part of the MPA-10000
- AX-FILTER-10ML** ----- Filter for the MPA-10000 (100 pcs)
- AX-LOW-200-8** ----- Lower part of the MPB-200-8
- AX-CYL-200** ----- Cylinder unit for the MPB-200-8 (8 pcs)
- AX-LOW-1200-8** ----- Lower part of the MPB-1200-8
- AX-CYL-1200** ----- Cylinder unit for the MPB-1200-8 (8 pcs)



AX-LOW-200

AX-LOW-1200

AX-LOW-10000

AX-FILTER-10ML

AX-LOW-200-8

AX-CYL-200

AX-LOW-1200-8

AX-CYL-1200

AX-PAD-MPA ----- Pipette elbow cushion (NBR & polyurethane, 4 sheets × 1 set)

AX-HOLDER-SET --- Sample cup holder set (Silicon rubber with anti-static treatment, large/medium/small × 1 set)

AX-BAT-MPA ----- Lithium-ion rechargeable battery



AX-PAD-MPA

AX-HOLDER-SET

AX-BAT-MPA



Specifications

| Model | MPA-10 | | | MPA-20 | | | MPA-200 | | | MPA-1200 | | | |
|---|--|-------------|-------------|-------------------------------|-------------|--------------|-----------------------------|------------|-------------|------------------------------|-------------|-------------|--------------|
| Capacity range | 0.3 to 10.0 μ L | | | 0.3 to 20.0 μ L | | | 3.0 to 200 μ L | | | 15 to 1200 μ L | | | |
| Increment | 0.1 μ L | | | | | | 1 μ L | | | | | | |
| Performance* ⁱ | Volume | 1.0 μ L | 5.0 μ L | 10.0 μ L | 2.0 μ L | 10.0 μ L | 20.0 μ L | 10 μ L | 100 μ L | 200 μ L | 100 μ L | 600 μ L | 1200 μ L |
| | Accuracy (\pm) | 4.0% | 2.0% | 1.0% | 4.0% | 2.0% | 1.0% | 2.5% | 1.2% | 0.6% | 2.5% | 1.0% | 0.5% |
| | Repeatability (CV) | 2.5% | 0.8% | 0.4% | 2.5% | 0.8% | 0.4% | 1.0% | 0.3% | 0.15% | 0.6% | 0.3% | 0.15% |
| Operation mode | Standard (AUTO) mode, Multiple dispensing (MD) mode, Mixing (MIX) mode, Dispensing and mixing (AUTO + MIX) mode, Sequential aspirating (SA) mode, Sequential dispensing (SD) mode, System setting (SYS) mode | | | | | | | | | | | | |
| Maximum number of multiple dispensings | 0.3 μ L \times 33 times | | | 0.3 μ L \times 66 times | | | 3 μ L \times 66 times | | | 15 μ L \times 80 times | | | |
| Program memory | 9 programs | | | | | | | | | | | | |
| Aspirating/dispensing speed | 5 speeds | | | | | | | | | | | | |
| Maximum number of pipettings on a full charge | Approx. 1,800 times* ⁱ | | | | | | | | | | | | |
| Charging time | Approx. 5 hours / 100% | | | | | | | | | | | | |
| Pipette drive method | High precision stepping motor | | | | | | | | | | | | |
| Power saving function | Automatic power off after 10 minutes of inactivity | | | | | | | | | | | | |
| AC adapter | Input: AC 100 to 240V, Output: DC 5V / 1A, Plug shape: selectable | | | | | | | | | | | | |
| Autoclave treatment | Possible (121°C, 2 atm, 20 minutes)* ⁱⁱ | | | | | | | | | | | | |
| Operating environment | 15 to 30°C (59 to 86°F), 85%RH or less | | | | | | | | | | | | |
| Battery | Lithium-ion battery 3.7V / 920 mAh | | | | | | | | | | | | |
| Length | Approx. 280 mm | | | | | | | | | | | | |
| Weight (including the battery) | Approx. 150 g | | | | | | Approx. 160 g | | | Approx. 170 g | | | |

| Model | MPA-10000 | | | MPB-200-8 | | | MPB-1200-8 | | | |
|---|--|--------|--------|---------------------------------|------------|-------------|------------------------------|-------------|-------------|--------------|
| Capacity range | 0.1 to 10.0 mL | | | 3.0 to 200 μ L | | | 15 to 1200 μ L | | | |
| Increment | 0.01 mL | | | | | | 1 μ L | | | |
| Performance* ⁱ | Volume | 1.0 mL | 5.0 mL | 10.0 mL | 10 μ L | 100 μ L | 200 μ L | 100 μ L | 600 μ L | 1200 μ L |
| | Accuracy (\pm) | 2.5% | 1.0% | 0.5% | 5.0% | 2.4% | 1.2% | 5.0% | 2.0% | 1.0% |
| | Repeatability (CV) | 0.6% | 0.15% | 0.15% | 2.0% | 0.6% | 0.3% | 1.2% | 0.6% | 0.3% |
| Operation mode | Standard (AUTO) mode, Multiple dispensing (MD) mode, Mixing (MIX) mode, Dispensing and mixing (AUTO + MIX) mode, Sequential aspirating (SA) mode, Sequential dispensing (SD) mode, System setting (SYS) mode | | | | | | | | | |
| Maximum number of multiple dispensings | 0.1 mL \times 99 times | | | 5 μ L \times 40 times | | | 15 μ L \times 80 times | | | |
| Program memory | 9 programs | | | | | | | | | |
| Aspirating/dispensing speed | 5 speeds | | | | | | | | | |
| Maximum number of pipettings on a full charge | Approx. 1,800 times* ⁱ | | | Approx. 800 times* ⁱ | | | | | | |
| Charging time | Approx. 5 hours / 100% | | | | | | | | | |
| Pipette drive method | High precision stepping motor | | | | | | | | | |
| Power saving function | Automatic power off after 10 minutes of inactivity | | | | | | | | | |
| AC adapter | Input: AC 100 to 240V, Output: DC 5V / 1A, Plug shape: selectable | | | | | | | | | |
| Autoclave treatment | Possible (121°C, 2 atm, 20 minutes)* ⁱⁱ | | | Not possible | | | | | | |
| Operating environment | 15 to 30°C (59 to 86°F), 85%RH or less | | | | | | | | | |
| Battery | Lithium-ion battery 3.7V / 920 mAh | | | | | | | | | |
| Length | Approx. 280 mm | | | Approx. 290 mm | | | | | | |
| Weight (including the battery) | Approx. 190 g | | | Approx. 290 g | | | Approx. 280 g | | | |

*i In standard (AUTO) mode with maximum aspirating and dispensing speeds

*ii For the lower part only



Discover Precision

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