



Product Information Pipette

Product information for BP10/BP20/BP200/BP1000:

1. Introduction

The BBI brand continuously adjustable pipette is an adjustable volume pipette with a nominal capacity ranging from 0.2 μ l ~ 1,000 μ l. It is a precision measuring pipette, utilizing a precision self-locking micro-counting mechanism which can be continuously adjusted within the volume range. The digital indication can be read directly and all parts are safe for high-temperature sterilization (121° C). The pipette is made of materials that are resistant to chemicals and corrosion. The pipette suction tip ejector system allows for quick and easy replacement of the pipette tip, making the suction process safe and reliable.



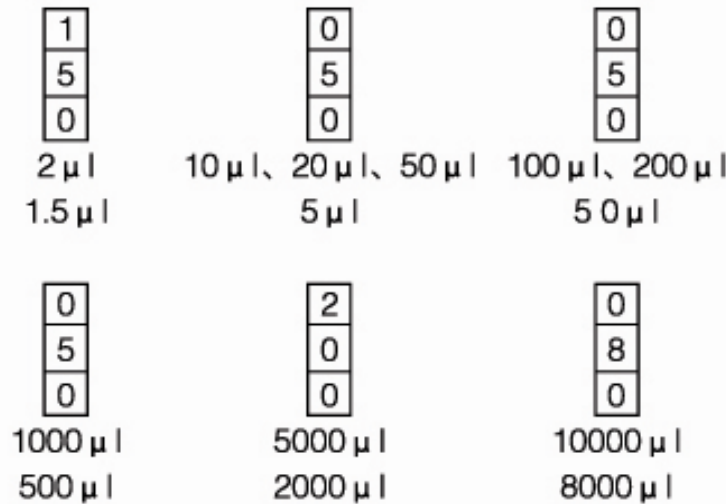


2. Method of Use

1. Readings:

The fluid volumes are displayed in the digital reading window on the handle and are shown as on the chart below where:

- for 2 μ l the highest number is a single digit number (1-10) followed by 2 decimal places;
- for 10 μ l, 20 μ l, and 50 μ l the lowest number is a decimal and the upper numbers are 1's and 10's places;
- for 100 μ l and 200 μ l the lowest number is a single digit place with the higher numbers in the 10's and 100's places respectively;
- for 1000 μ l, 5000 μ l the lowest number in the tens place, with the higher numbers in the 100's and 1,000's places.



Note: The pipette is designed to allow in a volume fluid only within the range of adjustment. Any forced adjustment or any use outside the range settings may damage the pipette and affect its accuracy.

2. In order to obtain the best results from the pipette, please note the following points:

- Pressing or releasing the plunger button must be done gradually, in a slow and even manner. Do not allow the plunger button to recoil too quickly.
- Select the required capacity and gently pull up the red molybdenum locking ring at the top of the pipette until a clicking sound is heard. The volume adjustment locking ring may then be rotated until the proper value for the desired volume is seen in the reading window and it is confirmed when the point of the indicator arrow is at the center of the number. Then press the locking ring back to its original position. At this point the value for the required capacity is securely locked in place.

- c. Attach the suction shaft to the fitting on the pipette base and twist the cap nut until it is secure, with no gaps, ensuring that there is no leakage.
- d. Suctioning fluid. As shown in Figure (2), Apply gentle pressure to push down the plunger button, so that it moves from the "0" position to the "1", or first stop position. Holding the pipette vertical insert the tip 2 ~ 4mm into the solution and then slowly release the plunger button so that it returns to the "0" position. When the liquid is absorbed into the nozzle, apply gentle pressure again to push the button, keeping the nozzle in the liquid. Repeat this action 2 ~ 3 times, to complete the transfer of the fluid.

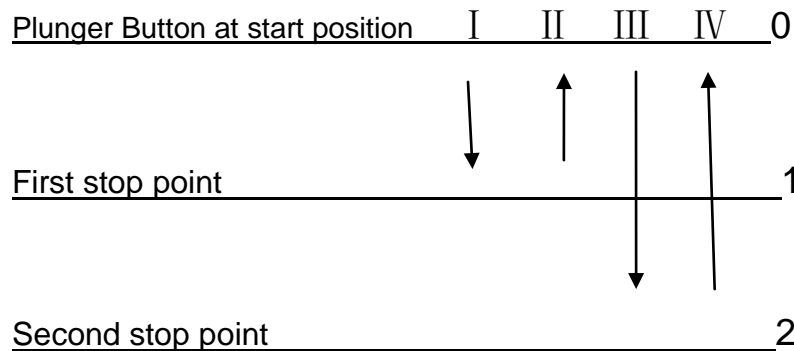


Figure (2) indicates the use of the plunger button to draw fluid into the pipette. The arrows on the diagram indicate the points at which the plunger button should be pushed.



3. Forward Pipetting Technique: (complete displacement)

- a. Press the plunger button to the first stop position as shown in picture (2) above.
- b. While holding the pipette vertical, insert the tip 2~3mm into the solution then slowly release the plunger button so that it returns to the "0" position. Wait for the liquid to fully enter the tip, then withdraw the tip from the liquid and move the pipette to the selected discharge vessel.
- c. To discharge the pipette, hold it at a 45 degree angle with the suction tip gently resting against the inside wall of the discharge container and gently depress the plunger button from the "0" position to the first stop position. After the liquid begins to discharge from the tip press the plunger again to the second stop position. The liquid inside the suction tip will continue to discharge onto the container wall. Gently and repeatedly rub the suction tip against the container wall so that the liquid at the very end of the tip enters the container.
- d. After the discharge process is finished, press the plunger button to allow it to return to the starting position. If necessary replace the suction tip and continue the operation to transfer fluid.

4. Reverse Pipetting Technique: (full absorption)

The reverse technique is used for pipetting solutions with a high viscosity or a tendency to foam. This method is also recommended for dispensing small volumes. (Figure 3)

- a. Press the operating button to the second stop position.
- b. Dip the tip into the solution to a depth of 2~3mm, and slowly release the plunger button. This action will fill the suction tip with liquid. Once the suction tip is full, remove it from the liquid and transfer the liquid in the suction tip to the selected container.
- c. Dispense the liquid into the receiving vessel by pressing the operating button gently and steadily to the first stop. The volume dispensed is equal to the set volume. Some liquid will remain in the suction tip.

Note: The liquid remaining in the suction tip should not be dispensed.

- d. The liquid remaining in the tip can be aspirated back into the original solution or disposed together with the tip.

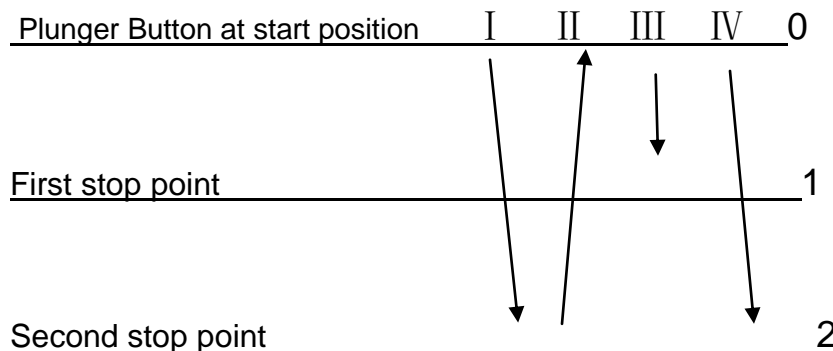


Figure (3) Reverse Pipetting Method Diagram



5. When using the Pipette, it must be held by hand in a vertical position with the suction tip immersed into the solution. The depth of immersion of the suction tip varies according to the rated capacity of the pipette. To absorb liquid volumes of less than 20 μ l the pipette suction tip should be immersed into the water to a depth of 1 ~ 2mm, for fluid volumes up to 1000 μ l the pipette suction tip should be immersed to a depth of 2 ~ 3 mm, and for fluid volumes from 5000 μ l ~ 10000 μ l immerse the suction tip to a depth of 3 ~ 4mm. Following full absorption of the liquid, leave the suction tip in the fluid for 2 ~ 3 seconds all the liquid enters the pipette, then hold the pipette suction tip above the surface of the liquid for 1 ~ 2 seconds.

6. Disinfection: The pipette may be disinfected by being autoclaved (steam sterilized) at 121°C (248°F) for 20 minutes. Note: For disinfection, the pipette should be tightly wrapped in a sterile cloth and placed flat inside the autoclave.

After autoclaving, the pipette must be cooled at room temperature for at least two hours before re-use. Never allow the pipette to stay overnight inside the autoclave without releasing the pressure inside the autoclave and ensuring that the pipette is dry.

It is recommended to check the calibration of the pipette according to the frequency of use, and after every autoclave treatment.

3. Maintenance and repair

1. The type of pipette should be matched to the normal type of usage so that the reading numbers correspond to the normal usage capacity range. Any capacity within the range of the pipette may be selected, but the nominal capacity of the pipette should not be exceeded.

2. When aspirating different types of solutions the suction nozzle should be replaced between samples to prevent cross-contamination.

3. Before using a suction nozzle for the first time, pre-rinse the suction tip by dipping it several times into the solution to be aspirated. Pre-rinsing prevents liquid from hanging on the tip, which may result in inaccurate measurements.

4. Avoid turning the pipette on its side when there is liquid in the tip. Liquid could go inside the pipette body and damage it.

5. When not in use the pipette must be stored in a dedicated bracket. Do not leave the pipette lying on its side.

6. Prior to using a new pipette (first use), or a pipette that has been stored and unused for a lengthy period of time, gently press the plunger button up and down several times. The pipette can then be used normally.



4. Calibration:

New pipettes are factory calibrated, and may be used without any re-calibration. After repeated use, pipettes may require calibration, which is easily accomplished in a laboratory. For calibration, the room temperature should be 20 ± 5 ° C. Calibrate the pipette using distilled water at a temperature within ± 2 ° C of the room temperature. The temperature of the pipette, the room, and the water should remain constant with an acceptable variation of ± 0.5 ° C / h. The calibration should use a precision analytical scale with units of 1/10,000 gram or 1/1,000,000 gram, a precision measuring tube or cup, and other calibration tools.

Calibration steps:

1. Use the pipette to transfer several test samples, using a scaled container to measure the fluid volume and making note of any changes, then check the test sample to determine if it is greater than or less than the set volume on the pipette.
2. If the test samples are not accurate, adjust the pipette by using the service tool to fine tune the adjustment by turning the calibration nut at the top of the pipette body. If the volume dispersed is greater than the set volume, rotate the tool in a clockwise manner, if the volume is too low, rotate counterclockwise.
3. After the adjustment continue to transfer the fluid as before, repeatedly fine tuning as necessary until the correct setting is verified.



5. Warranty Coverage

The pipette has a three year manufacturer's warranty covering defects in materials and workmanship under normal usage.

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The following conditions are not covered by the warranty:

1. Damage to internal parts caused by reflux of corrosive agents.
2. Damage caused by using excessive force on the plunger button or by exceeding the adjustment rating
3. Breakage caused by mishandling or rough usage.
4. Self-disassembly of the pipette during the warranty period.

6. Spare Parts:

1. Suction Nozzle 10 pieces.
2. Sealing ring 1 piece.
3. Sealing rubber ring 1 piece.
4. Pipette adjustment wrench 1 piece.

Note: A total of four (4) 5,000µl suction nozzles are provided
A total of one (1) 10,000µl suction nozzle is provided

1. Body
2. Piston
3. Large Spring
4. Small Spring
5. Suction shaft
6. First O-ring
7. Second O-ring
8. Seal
9. Tip ejector
10. Plunger button
11. Cap Nut

