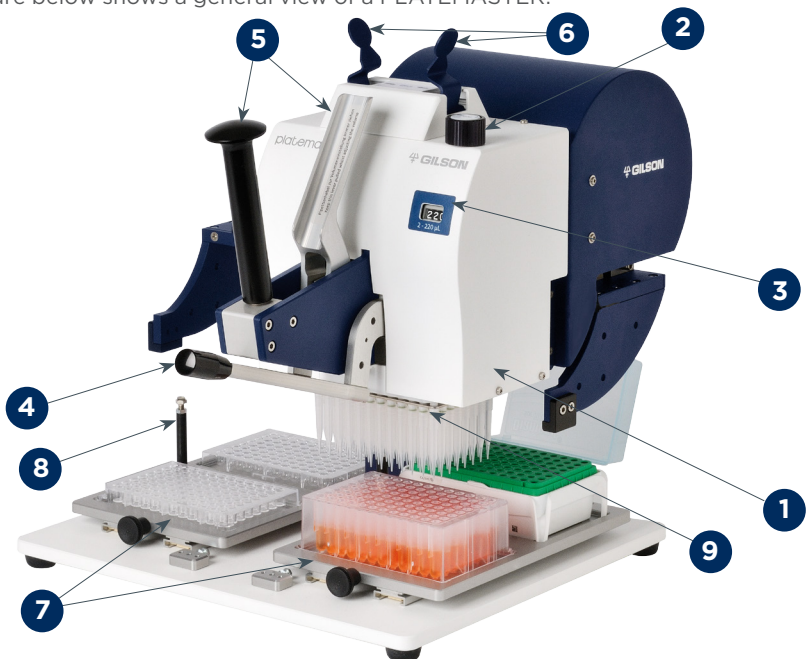


General View

The figure below shows a general view of a PLATEMASTER.



- 1

Pipetting head
- 2

Volume adjustment wheel
- 3

Volume display
- 4

Tip fitting handle
- 5

Pipetting handle
- 6

Tip ejector
- 7

Movable drawers
- 8

Pipetting head height adjuster
- 9

Pin-plate

Figure 7  
PLATEMASTER® parts

Technical Data

MODEL	PLATEMASTER P20	PLATEMASTER P220
Part Number	F110761	F110762
Volume Range	0.5 to 20 µL Volume can be adjusted in 0.1 µL increments	2 to 220 µL Volume can be adjusted in 1 µL increments
Temperature Range	Recommended working temperature: 20°C to 25°C / 68°F to 77°F	
Dimensions	300 x 450 x 400 mm / 12 x 18 x 16 Inch (W x L x H)	
Weight	approx. 16 kg / approx. 35 lbs.	

## Chapter 3

# OPERATION



### Description

The pipetting head moves both vertically and horizontally. Vertical movements are made to fit tips and pipette liquid. Horizontal movements are made to transfer liquids. This movement is possible only when the head is fully raised.

Two drawers can hold up to three different microplates and can be used at the same time.

### Moving PLATEMASTER

Whether placed on the lab bench, under a fume hood, in a cold room, or used in the field, the PLATEMASTER is completely portable. The PLATEMASTER includes a locking device to lock the head when the instrument is being moved.

After each use of the PLATEMASTER, remember to lock the pipetting head to prepare for transport.

To lock the pipetting head, pull the black part on the left side of the PLATEMASTER, lower the head, and turn the black part until the notch is in the slot. Let the head slowly ride up and be locked.

To unlock the pipetting head, pull the black part and turn it. Once the pipetting head is released, check proper movement of the device.



**Figure 8**  
PLATEMASTER® lock

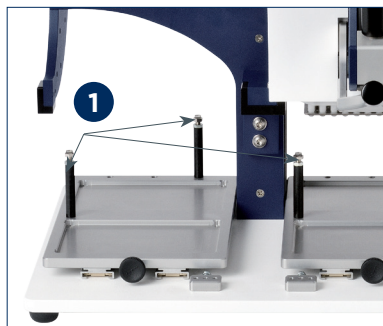
#### NOTICE

**Never move the device without locking the pipetting head.**  
Damages caused by movement without locking the device will not be covered by the warranty.

### Height Adjuster

The descent of the pipetting head and the position of the tips can be adjusted by means of three height adjusters **1**.

This will prevent the tips from touching the bottom of the microplate and can be adjusted for use with shallow- or deep-well microplates.



**Figure 9**  
Three height adjusters positions

## Volume Setting

Do not adjust the volume without squeezing both parts of the pipetting handle ①.

The volume of liquid to be aspirated is set using the volume adjustment wheel ②.

With the pipetting handle fully squeezed, the volume is set by slowly turning the volume adjustment wheel to reach the required setting.

Never try to force the volume outside of the volume range permitted by the device.

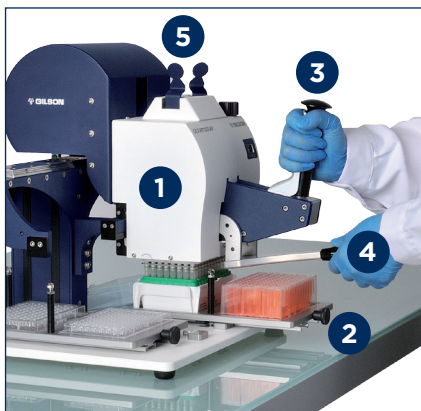


## Tip Fitting

For optimum performance, use of PIPETMAN® DIAMOND Tips with PLATEMASTER is strongly recommended. Plastic tips are for a single use and should not be cleaned for reuse.

To fit PIPETMAN® DIAMOND Tips on PLATEMASTER:

- Raise the pipetting head vertically using the pipetting handle. Move the pipetting head ① to the left side.
- Slide the right drawer out ② and place a new tip rack on the back position. The four locations have been specially designed for PIPETMAN DIAMOND Tips TIPACK™. **Slots embedded in the drawers ensure that tip racks securely fit into all locations.**
- Use the pipetting handle ③ to position the pipetting head ① to the right and lower it far enough so that a contact is made with the tips in the rack.
- Press down on the tip fitting handle ④ with moderate pressure. The tip ejector must be fully expanded to ensure that the tips are fully attached ⑤.
- Move the pipetting head ① up and the right drawer ② back.



The device is now ready to pipette liquid.

# Pipetting

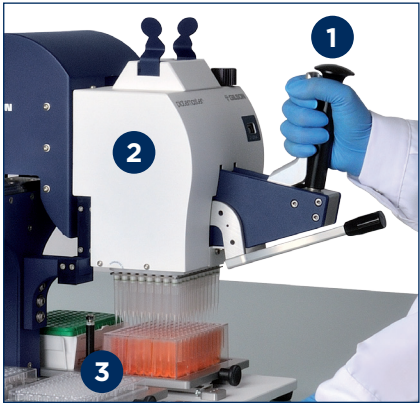


Place a vessel containing the solution to be pipetted in the front location of the right drawer. The solution should be under the pipetting head.

Liquids containing protein 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 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 pipetted will have levels of accuracy and precision within specifications. As recommended by the ISO 8655 standard, pre-rinse to stabilize dead volume inside the pipetting head.

## ASPIRATION

- Gently squeeze the pipetting handle **1** to the first stop (this corresponds to the set volume of liquid).
- Use the pipetting handle **1** to lower the pipetting head **2** to immerse the tips in the liquid (see immersion depth table below). **It is important that the tips do not touch the bottoms of the wells.**
- Slowly retract the pipetting handle to aspirate the liquid into the tips.
- Move the pipetting head fully up.



To simplify this operation, the height adjuster **3** can be set by turning the upper screw so that the pipetting head may only be moved down to a position slightly above the bottom.

### NOTE

Check the tip ejector when fitting tips. If the tips have shifted this implies that they have not been fitted correctly.

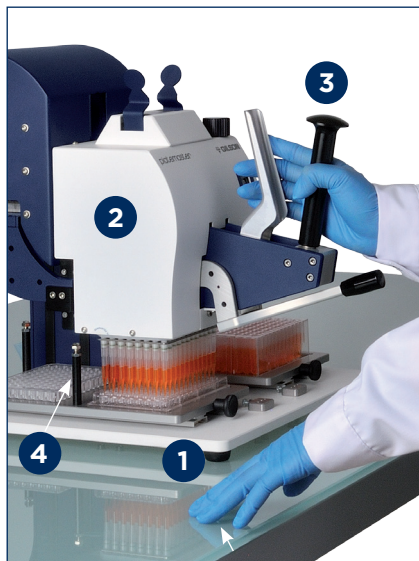
MODEL	IMMERSION DEPTH (MILLIMETERS)	WAIT TIME (SECONDS)
P20	2-3	1
P220	2-4	1

### NOTE

The maximum immersion depth of the tips can be adjusted using a height adjuster.

## DISPENSING

- Place a 96-well microplate at the front location of the left drawer **1** and keep it fully retracted in the rear position.
- Move the pipetting head **2** to the left and align the tips with the microplate.
- Pull the pipetting head slowly down into the wells, but do not touch the bottom of the wells.
- Squeeze the pipetting handle **3** slowly to dispense all the solution.
- Pull the pipetting head slowly up with the pipetting handle fully squeezed.
- Gently retract the pipetting handle.
- To simplify this operation, a height adjuster **4** can be set by turning the upper screw so that the pipetting head may only be moved down to a position slightly above the bottom.



## Pipetting 384 wells

PLATEMASTER is able to load 384-well plates through four movements using the 384-well plate adapter.

### STEP 1:

- Place a 384-well microplate on the accessory and make sure that it is located at the first step by checking the position on the blue wheel.
- Aspirate the solution.
- Move the pipetting head over the microplate and dispense the first 96 wells.

### STEP 2:

- Move the microplate on to the second position of the 384-well plate adapter using the blue wheel.
- Aspirate the solution. Move the pipetting head over the microplate and dispense the next 96 wells.

### STEP 3:

- Move the microplate on to the third position of the 384-well plate adapter using the blue wheel.
- Aspirate the solution. Move the pipetting head over the microplate and dispense 96 wells.

### STEP 4:

- Move the microplate on to the fourth position of the 384-well plates adapter using the blue wheel.
- Aspirate the solution. Move the pipetting head over the microplate and dispense the last 96 wells.

The 384-well microplate is loaded in less than one minute requiring only four liquid aspiration steps.



**Figure 10**  
384-well adapter system

## Tip Ejection

- Move the pipetting head over the empty rack on the right drawer.
- Pull the pipetting head down to put the used tips into the original rack (tip rack will be reused as a receptacle for tip waste).
- Squeeze the tip ejector **1** at the top of the pipetting head to eject the tips into the rack.



**Figure 11**  
Tip ejection system



## General Guidelines for Good Pipetting

Place the PLATEMASTER in a dry and clean environment at the recommended ambient temperature of 20°C to 25°C. These conditions should stay constant, as significant variations in temperature or humidity may affect precision.

PLATEMASTER is completely portable and requires no electricity; it can be operated everywhere in the lab. When the device has been moved, allow some equilibration time for the instrument to adjust to the new ambient conditions.

Make sure that you operate the pipetting handle slowly and smoothly. Aspirating too quickly may cause drops to form inside the tips. Dispensing too quickly can cause carryover. Pipetting speed will depend on the type of liquid used.

Never allow any liquid to enter the pin-plate (see Figure 14, page 15). This phenomenon can be prevented by squeezing and retracting the pipetting handle slowly and gently.

Change the tips before aspirating a different liquid, sample, or reagent.

Each new tip should be pre-rinsed with the liquid to be pipetted.

Do not pipette liquids having temperatures above 70°C or below 4°C. PLATEMASTER can be used between + 4°C and + 40°C, but specifications may vary according to temperature (refer to the ISO 8655-6 standard for conditions of use).

### NOTE

Pipetting aggressive liquids may damage PLATEMASTER parts that contact the solution. In case of contact, immediately clean up aggressive liquids. Pipetting of extremely viscous or highly evaporating liquids is at your own risk. The same applies to aggressive and corrosive reagents.

Avoid aspiration of any liquid into the pin-plate.

## Chapter 6

# SERVICE



### GLP Features

The **serial number** is engraved on the back of the pipetting head. It provides unique identification of your PLATEMASTER and the date of manufacture.

The **certificate of conformity** provides traceability of your PLATEMASTER.

### Cleaning and Decontamination

Do not use corrosive and acid reagents to clean or decontaminate PLATEMASTER.

PLATEMASTER must be cleaned before it is decontaminated. Wipe the surface of the instrument with alcohol or laboratory disinfectant.

The PLATEMASTER surface can be cleaned with a soft tissue moistened with water or laboratory disinfectant.

**Do not expose PLATEMASTER to excessive UV radiation and never overnight.**

**Do not autoclave any part of PLATEMASTER.**

### Material in Contact with Liquids or Vapors

FKM (Fluoroelastomers), EPDM (ethylene propylene diene monomer), PP (Polypropylene), POM (Polyoxymethylene), PET (Polyethylene terephthalate), Silicone, Stainless steel, Anodized aluminium.

### Use of the Lubrication Box

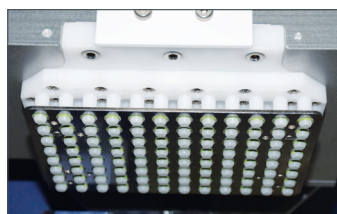
In case of intensive use between each maintenance interval and to avoid bad tip fitting, it is recommended to lightly lubricate the external O-ring using the lubrication box (part number F1077606).

Proceed as follow :

- Open the box lid.
- Follow the “Tip Fitting” instructions (refer to [Tip Fitting](#) on page 8).
- Eject the tips.

The O-ring lubrication is complete.

Using a no-fiber wipe, remove any excess lubricant on the pin-plate.



**Figure 14**  
Pin-plate