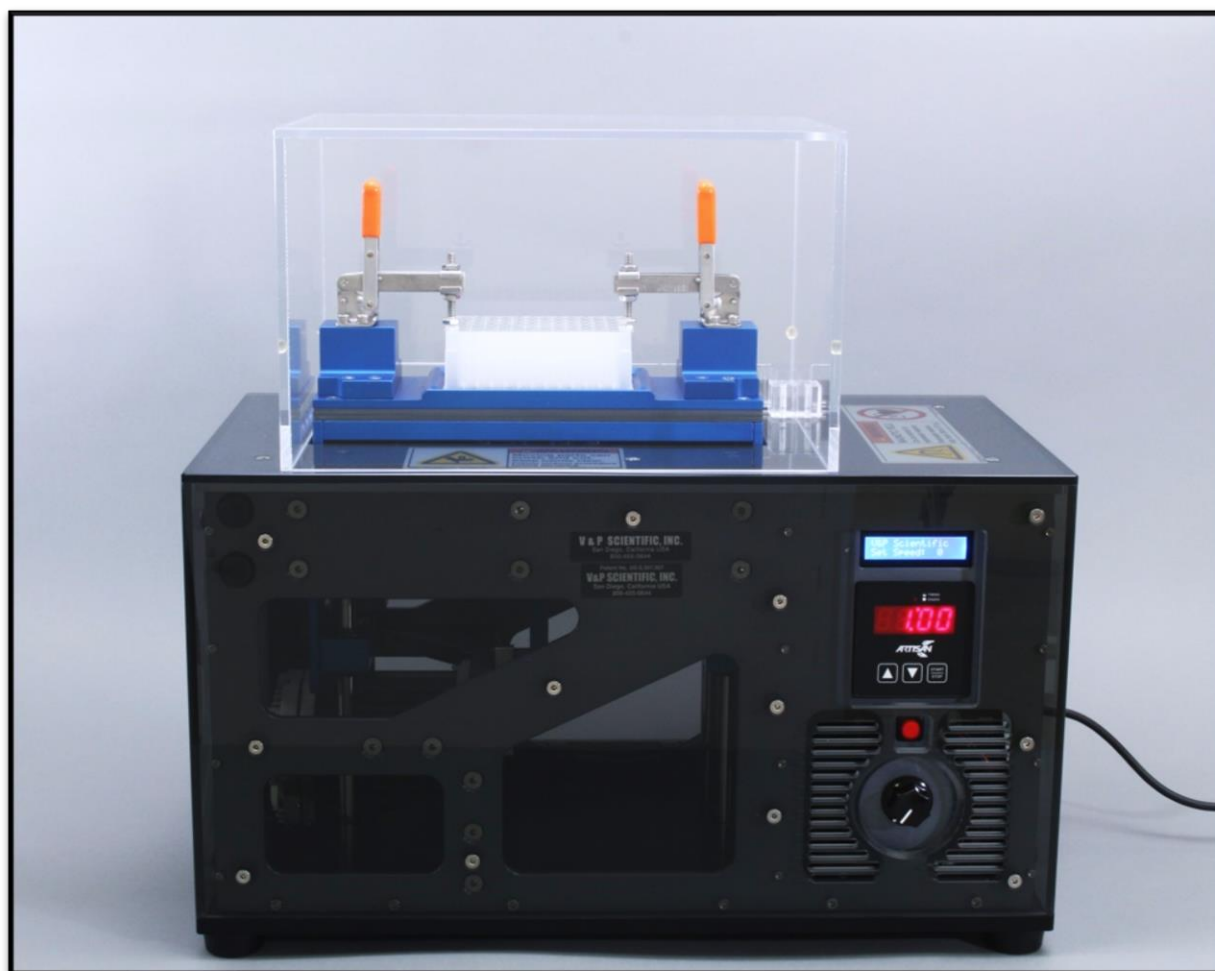


**OPERATION MANUAL FOR THE VP 707ED  
MAGNETIC LEVITATION STIRRER**

**\*US Patent 6,357,907**

**\*EU patent 1064988**

**VP 707ED Magnetic Levitation Stirrer**



## **WARNINGS!!!!**

### ***Strong Magnetic Fields***

- Be advised that the Magnetic Levitation Stirrer has very strong magnetic fields coming from the two Levitation Magnets.
- People with pacemakers should not get closer than 12 inches.
- Remove all magnetic influenced tools and objects from the immediate area to prevent them from being pulled onto the magnet or from striking anyone as the objects are pulled towards the magnet.
- Keep credit cards, watches and other magnetic sensitive items at least 24 inches from the Magnetic Levitation Stirrer's magnetic fields.

### ***Pinching Hazard***

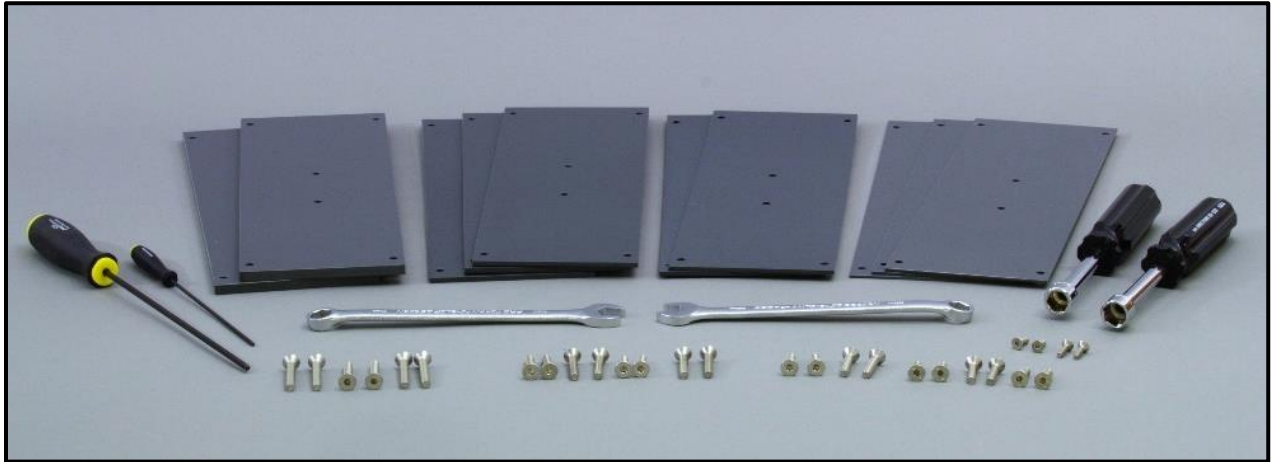
- Always make sure the Microplate Clamps are closed before running. The Safety Cover will not close unless the Clamps are closed. Stirrer will not operate unless the Safety Cover is closed.
- Keep hands and fingers away from the moving Microplate Lift Stage while the machine is operating to avoid body parts from being crushed and/or pinched.
- Be sure all hands and objects are clear of the Microplate Lift Stage while the stage is moving. The Magnetic Levitation Stirrer uses a powerful motor that can cause serious harm.

### ***Heavy Instrument***

- Select a sturdy table or bench for use with the Magnetic Levitation Stirrer.
- To avoid muscle strain or back injury, lift with 2 people and proper lifting techniques when moving the Magnetic Levitation Stirrer.
- Lift the Instrument from bottom with hands placed near the rubber feet at each corner.

## SETUP

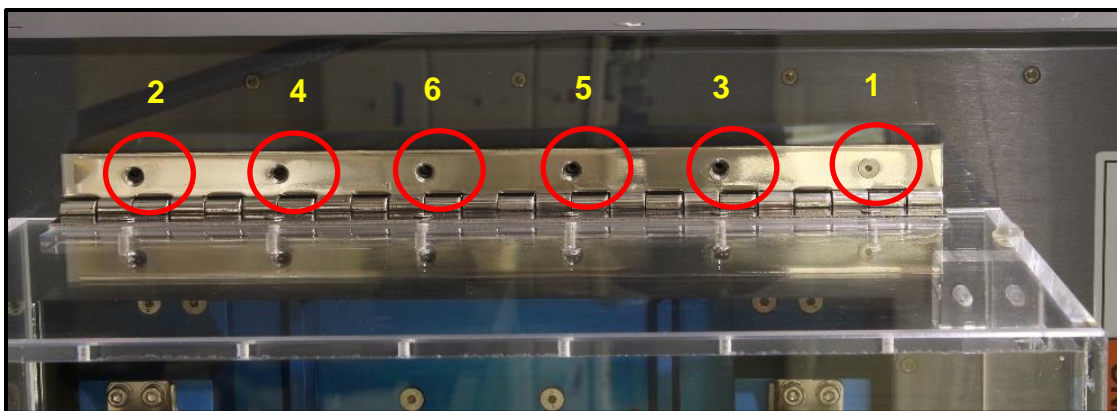
### Included Accessories



1. One 1/8" Hex Key Driver
2. One 5/64" Hex Key Driver
3. Several sets of Socket Head Screws of various lengths
4. Two 11mm Hex Nut Drivers
5. Two 11mm Wrenches
6. Shims for ball height adjustment

### Attaching Safety Cover

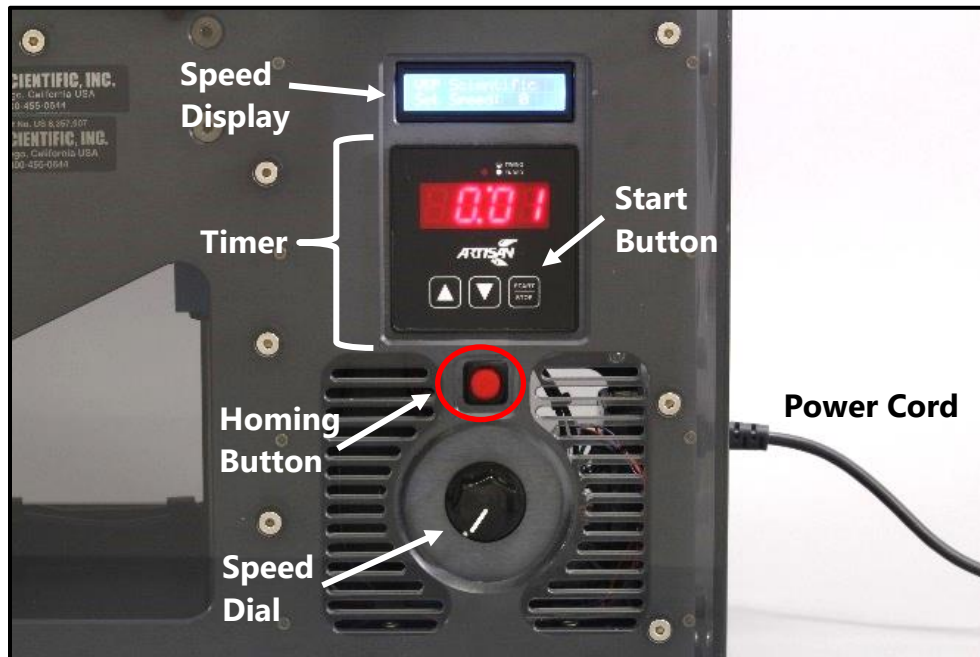
The VP 707ED is shipped without the safety cover attached. Six screws are provided, and a 5/64" Hex Key driver are included to attach the cover.



It is recommended to start with attaching the outside screws and work inward, in an alternating fashion, as shown in the above photo. Make sure the screws are hand-tightened only. Overtightening may crack the polycarbonate enclosure.

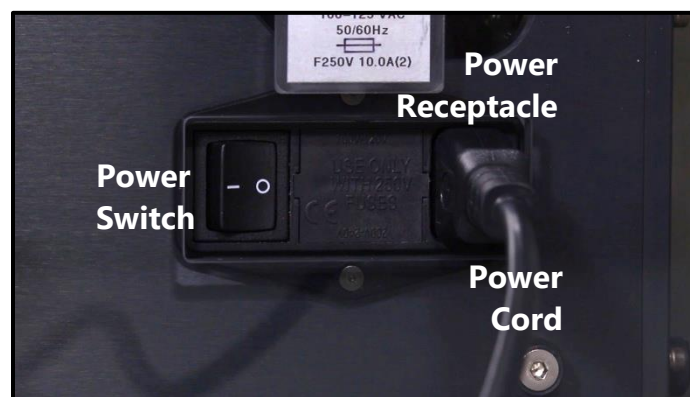
## OPERATING THE VP 707ED LEVITATION MAGNETIC STIRRER

The VP 707ED Levitation Magnetic Stirrer can only be operated manually using the front panel. See features of the front panel in the photo below: Speed Display, Timer, Homing Button, Speed Dial and Start Button.

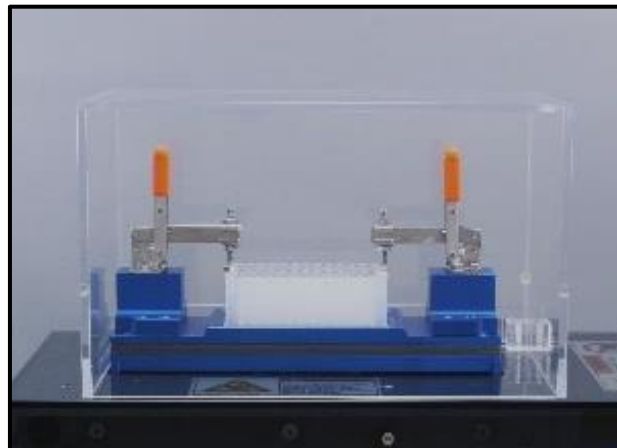


### Loading and Unloading Microplates

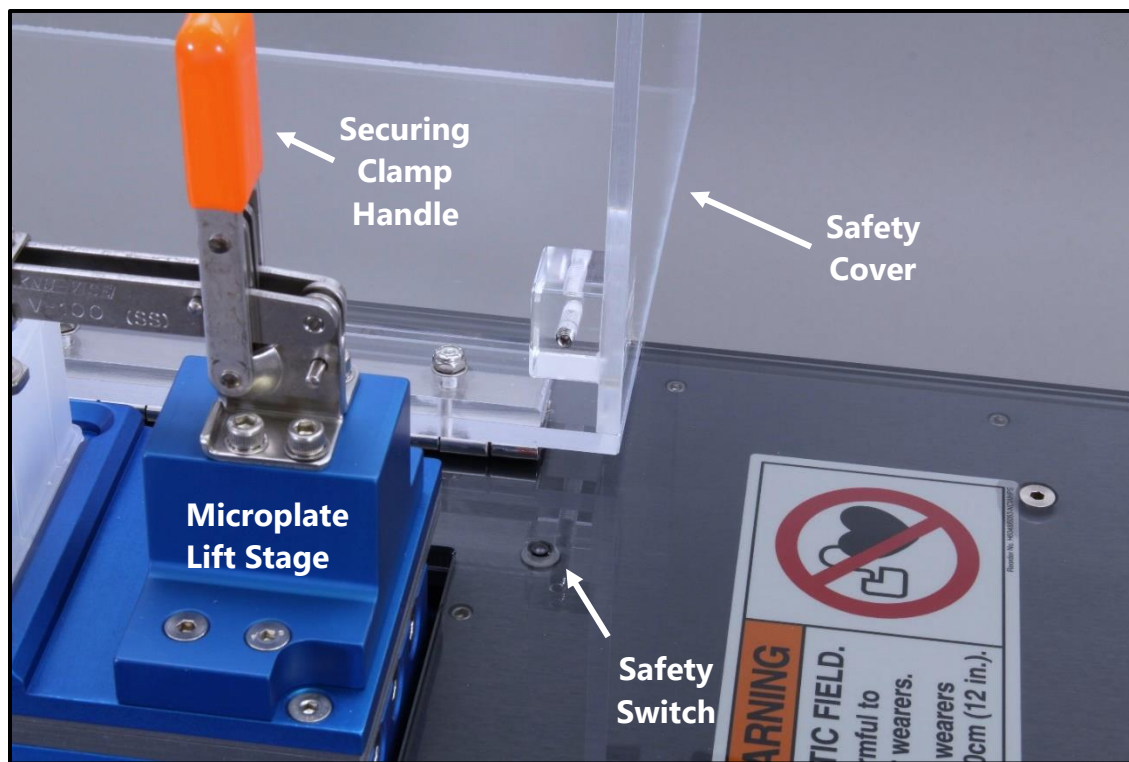
1. Power on the unit by plugging into Power Cord into power outlet (a surge protector is highly recommended) and the Power Receptacle on the back of the instrument and flipping the Power Switch. When the Stirrer is powered on, and the Safety Cover is closed, the Microplate Lift Stage will "home" itself to the very top. This can be done manually by pressing the Homing Button (red circle in photo above)



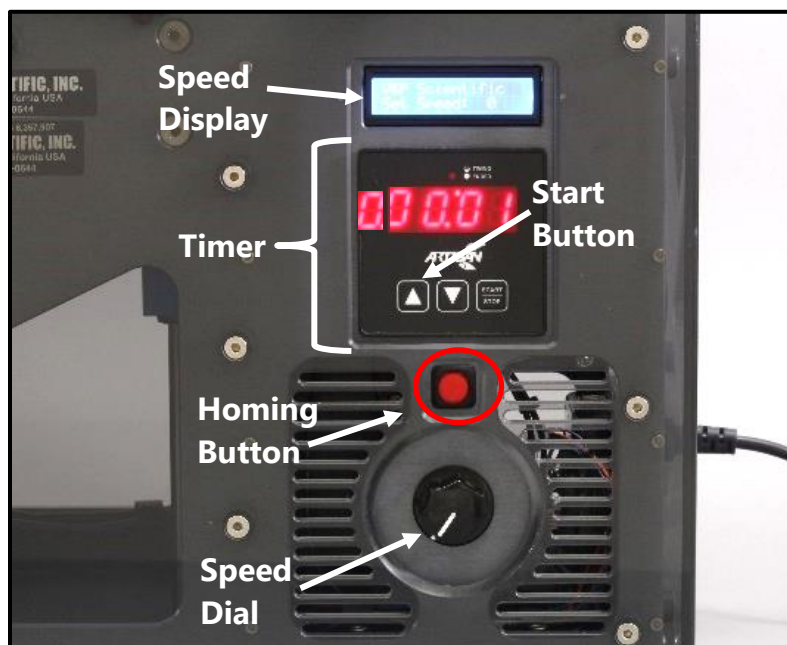
2. Open the Safety Cover, pull back the orange levers to release the Securing Clamps and load the microplate. Close the levers once the microplate has been loaded.



3. Close the Safety Cover which depresses the safety switch and "homes" the Microplate Stage to the top. The Stirrer is ready to operate.



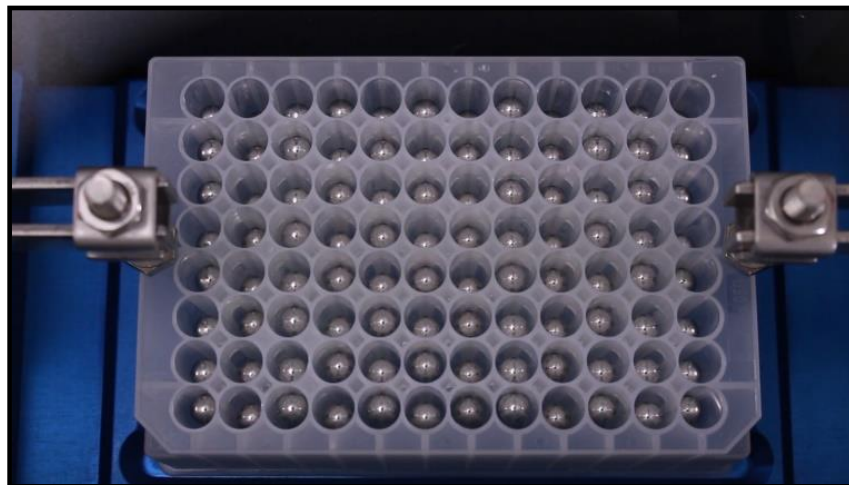
4. Set the Timer (see below) for the desired time (displayed in seconds) using the up and down arrows and push the Start Button. NOTE: The Timer will continue to countdown even if the Safety Cover is opened and the Stirrer is not moving.



5. The Stirrer will start at the speed set at the Speed Dial. This speed can be changed to the desired speed at any time during the cycle. NOTE: the viscosity of the fluid being mixed will determine the best speed setting.
6. Once the Timer reaches zero, the Stirrer will stop.
7. The Microplate Lift Stage will not always stop at the same position in the cycle. So, if needed, the Stage can be "homed" to the top by hitting the Homing Button (red circle).

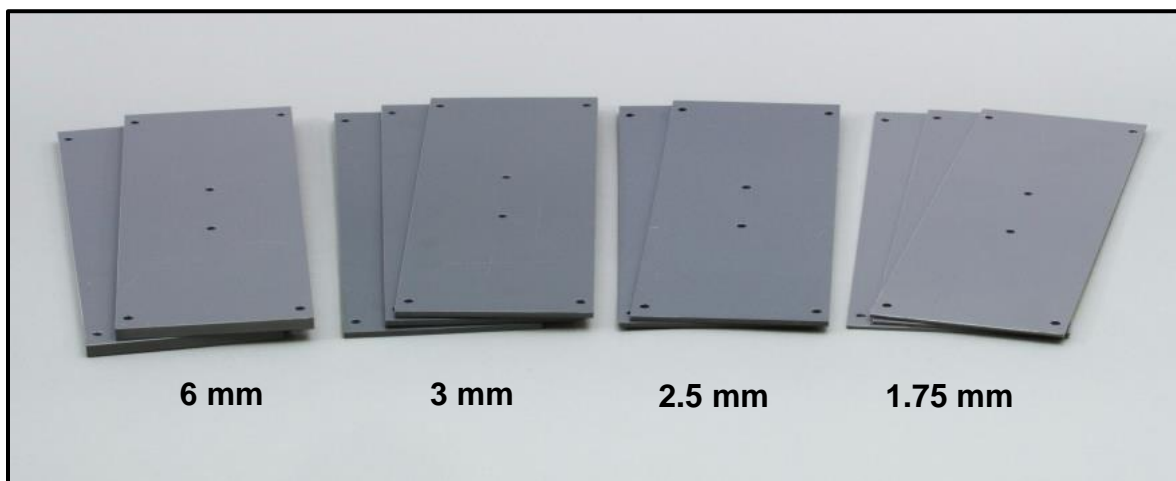
## ADJUSTING BALL HEIGHT

The ideal ball height is determined by the volume of sample in the wells. For optimal mixing, allow the balls to come out of the sample at the low point in a cycle of stirring as seen in photo below.



Shims of varying thicknesses are provided to adjust Levitation Stir Ball height in the microplate when necessary.

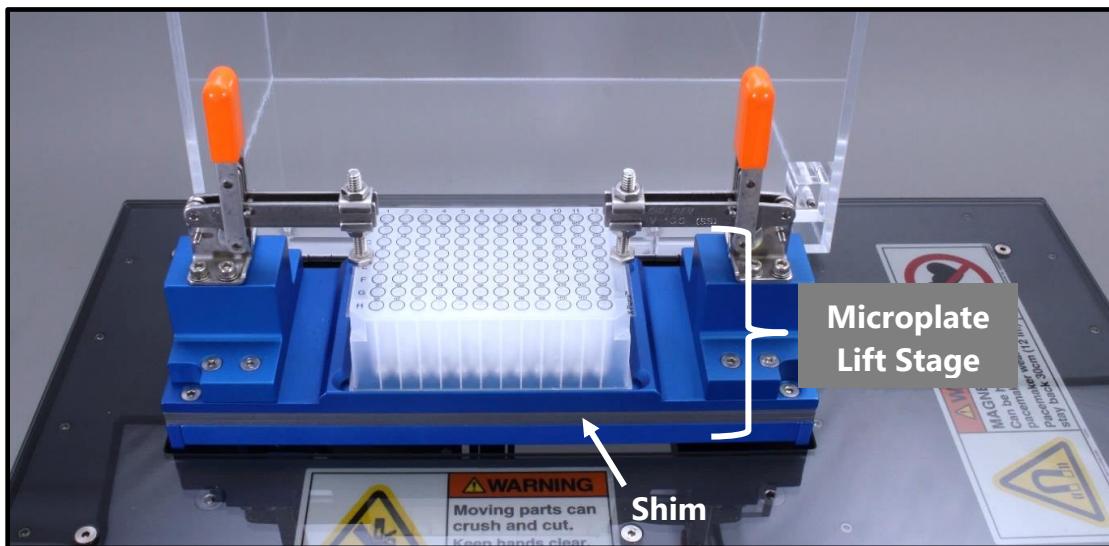
- To raise the height of the Levitation Stir Balls in the microplate remove shims.
- To lower the height of the Levitation Stir Balls in the microplate add shims.
- Multiples can be stacked to achieve the appropriate height.



**NOTE:** Due to the nature of the magnetic field and lines of flux, the balls in each well do not all rise to the same level and will vary by a few millimeters. When adjusting ball height, ensure that the lowest ball rises above the meniscus to ensure proper mixing in all wells. But it is also important that the balls do not come out of the microplate!

## Removing and Adding Shims

1. Press the red Start Button to move the Microplate Lift Stage to top of Stirrer. Release the Microplate Clamps and remove the microplate from the Stage.

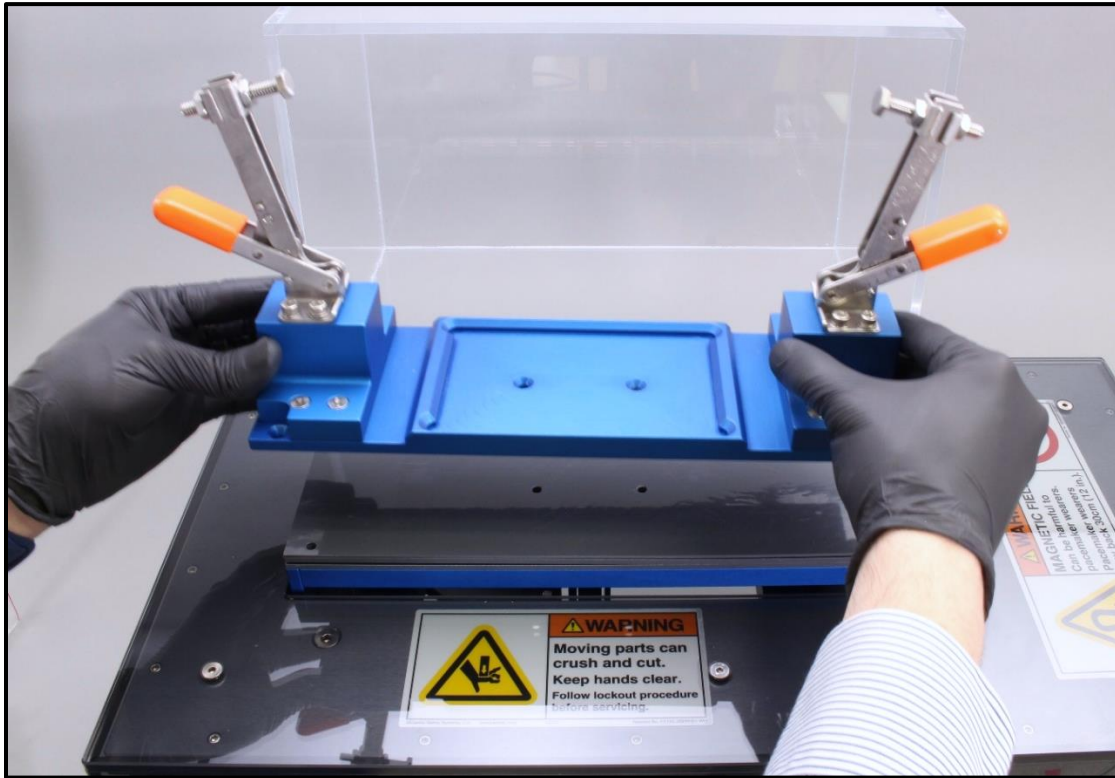


2. Use the hex key provided to remove the six screws on the top face plate of the Microplate Lift Stage. (Marked with white arrows below).





3. Raise the top blue anodized aluminum plate to slide shims in and/or out.



4. Replace the top plate and the six screws of the Microplate Lift Stage as indicated by the arrows in photo below. Make sure the screws go through the shim and engage in the blue bottom plate of the Microplate Lift Stage.

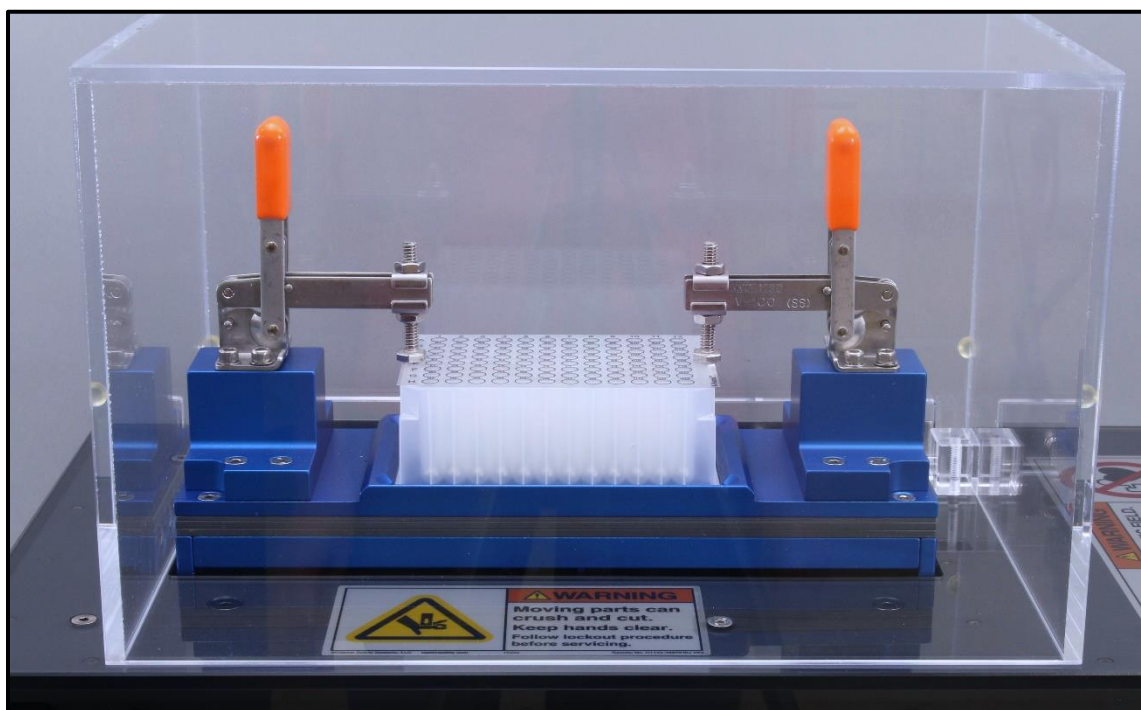


## ADJUSTING THE MICROPLATE CLAMPS

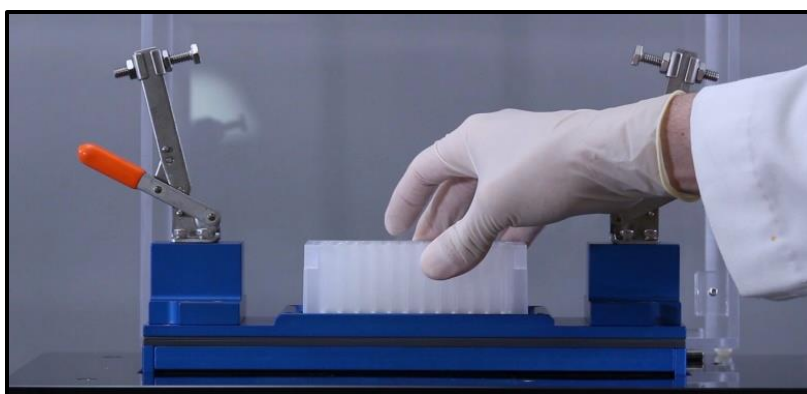
The clamping mechanism is held down with 2 over-center clamps. This needs to be adjusted only once if the same microplate is used. If a different microplate type or manufacturer is used, the Microplate Clamps may need to be adjusted. The plate clamps are adjusted by using the provided 11mm drive wrench and the 11mm open end wrench.

### WARNING

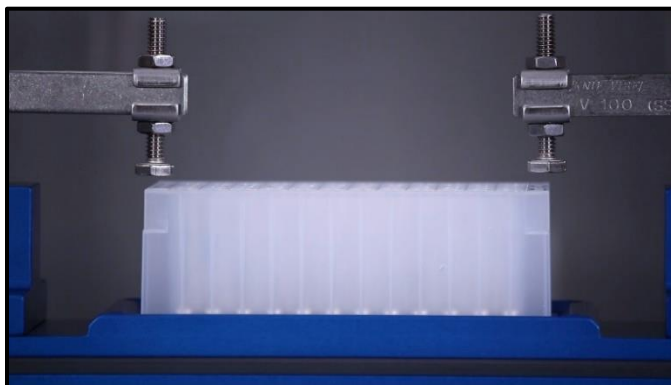
**Always ensure that the power is on, but the Stirrer is not running, prior to working with the Microplate Lift Stage. Failure to do so can cause the Lift Stage to fall unexpectedly as the motor is not locking it in place.**



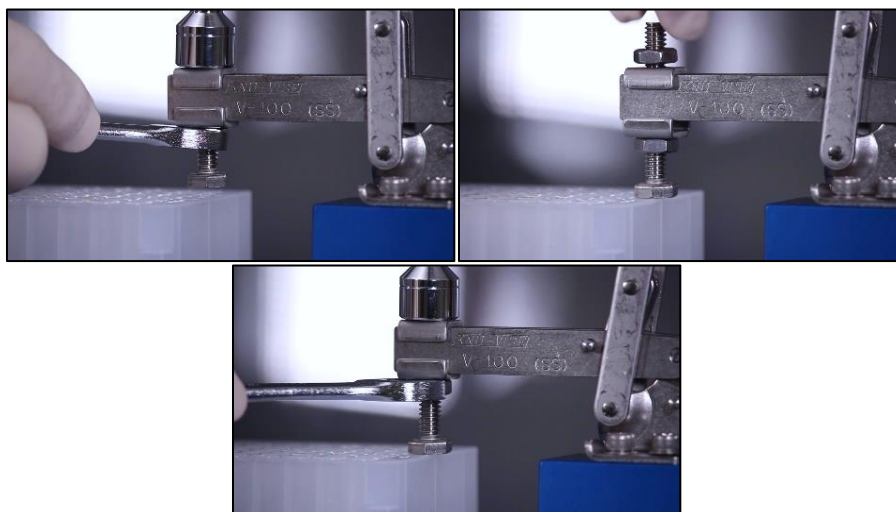
1. Set the Microplate Lift Stage to the top, open the Safety Cover, open the Microplate Clamps and insert the microplate.



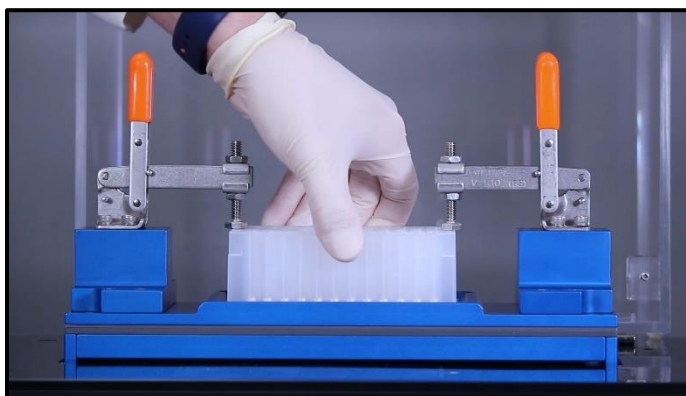
2. Close the Microplate Clamps over the microplate. If the Microplate Clamps are too loose (as shown below), or too tight, you will need to adjust the bolts.



3. While the Clamps are shut, use the provided tools, loosen the top and bottom nuts. This will allow you to move the bolt up and down respectively. This will also allow you to move the bolt from side to side. Ensure the bolt will secure the microplate properly and tighten the nuts.



4. After the Microplate Clamps have been adjusted, grab the microplate and ensure it is secure.



## IMPORTANT NOTES

- Stirrer will not operate unless the Safety Cover is closed. If the Cover is opened at any time, the motor will stop and will not start up again until the Cover is closed.
- The Timer will continue to countdown even if the Safety Cover is opened and the Stirrer isn't moving.
- The red button is a homing button. This will only be used in case there is an error in the motor and the stirrer stops working. If you experience any issues, turn the entire stirrer off on the power switch, and then switch back on.
- When the stirrer is powered on, the motor will make a noise. This is normal.
- **If at any time power to the motor is cut off, the stage will fall to the bottom. This is intentional. If you are adjusting the shims, or plate clamp, DO NOT UNPLUG OR CUT POWER TO THE STIRRER.**

## CARE

- The machine is encased in clear scratch-resistant polycarbonate. Clean with mild detergents, commercial cleaner Brilliance®, or Novus Plastic Polish NO. 1. Avoid exposure to UV light.
- Do not place stirrer in chamber with temperatures above 50°C.
- Periodically check the Levitation magnets for a buildup of magnetic debris on the surface. Remove any magnetic debris with a dry cloth or the adhesive surface of tape.

## WARRANTY

V&P Scientific, Inc. warrants this product to be free from defects in material and workmanship when used under normal laboratory conditions for one year. This warranty begins from the date of delivery by V&P Scientific.

In the event this product fails under normal laboratory conditions within the specified period of time because of a defect in material or workmanship, V&P Scientific will, at its option, repair or replace the product. Damage to the product caused by user negligence is not covered.

**Please keep the special shipping carton in case the unit needs to be shipped back to V&P Scientific.** Please contact V&P Scientific at the address below for return authorization and shipping instructions. Please photograph any damage to the shipping crate or the stirrer.

This warranty is made in lieu of other warranties expressed or implied including the warranties of merchantability and fitness for a particular purpose. V&P Scientific shall not be liable for loss or damages arising from the use of these products nor for consequential damages of any kind.

V&P Scientific does not accept returns on custom items. As long as the custom item is used as it was designed to be used, then we will make every attempt to make sure that it is functioning for that purpose. Our products are under warranty for materials and workmanship for one year after purchase. If assistance is required please contact V&P Scientific, Inc. at 858-455-0643 or [sales@vp-sci.com](mailto:sales@vp-sci.com).