



OPERATION AND CARE MANUAL FOR V&P SCIENTIFIC'S ELEVATOR MAGNETIC LEVITATION STIRRER (patent pending)

Caution! Be advised that the Elevator Levitation Stirrer has very strong magnetic fields. People with pacemakers should not get closer than 12 inches to the elevator. Remove all magnetic influenced tools and objects from the immediate area to prevent them from being pulled onto the magnets or from striking people as they are pulled onto the magnets. Keep credit cards, watches and other magnetic sensitive items at least 1 foot from the elevators's magnetic fields.

Initial Set Up:

1. Remove the bolts that hold the top of the crate than remove the hold down bolts (they attach the elevator base and the transformer base to the crate bottom).
2. Carefully remove internal packing and plastic wrapping material.
3. Have 2 men grasp under the aluminum base of the elevator and lift it from the crate to the counter top where you want to place it. The elevator weighs ~ 76 lbs.
4. Connect the controller electrical plug to the motor plug (carefully align the two plugs, twist the controller plug until it "snaps" into place, then screw to tighten).

Operation:

Flip the toggle switch to the "on" position. Adjust the speed potentiometer to obtain whatever speed you wish between 1 and 83 lifts per minute. After you do experiments to determine the optimal stirring speed, mark that position on the potentiometer.

Loading and Unloading Microplates:

To load and unload microplates, operate the elevator at low speed and stop the elevator car at the top of the cycle using the brake. Then press the spring loaded button on the side to hold the elevator car in position. To load a microplate into a "hold down shoe" simply hold the plate at a 10° angle and slide the leading edge under the spring loaded clip and then into the "toe" of the hold down shoe. The trailing edge of the microplate should then snap down into the "heel" of the shoe and will be held in place by the spring loaded clip. Check each plate to make sure it is properly seated.

To unload a microplate, just lift up on the trailing edge of the microplate until it clears the heel and pull it towards you until it disengages. After the microplate is loaded close the plastic box over the top. This is a safety fixture to keep you from putting your fingers in the mechanism.

Adjusting Levitation Height:

Adjusting levitation height of balls in the microplate is easily accomplished by changing the shims under the hold down shoe. We have provided 1/8" shims, 3/16" shims and 1/4" shims. The current shim height in the Elevator is 3/8" (1/8" + 1/4") and appears to be the perfect height for stirring aqueous solutions. Depending upon the viscosity and surface tension of your liquid, you may want to adjust the levitation height up or down. To change the shims use the Beryllium Copper (non-magnetizeable) Allen wrench to remove the bolts from the hold down shoe and shim. When placing shims on the wheel, always have the numbered side up. To increase the levitation height use a shorter shim (1/8" or no shim). **(Note: if you use a 1/8" shim or no shim, the balls will come out of the wells.)**

You can safely decrease the levitation height by increasing the shim thickness. The following combinations are possible: no shim, 1/8" shim, 3/16" shim, 1/4" shim, 1/8" + 3/16" shims, 1/8" + 1/4" shims and 1/8" + 3/16" + 1/4" shims.

To stir with balls hitting the lid of the micro plate do not use any shims and lock the micro plate lid into place using the hold down bolts and latch system provided.

Care:

The hold down shoes are polycarbonate. They can be cleaned with mild detergents. Avoid exposure to UV light. When not in use, turn the power switch off. Do not place control unit in a humid chamber with elevated temperature. Do not place stirrer in chamber with temperatures above 50°C. Periodically check Levitation magnets for a build up of magnetic debris on the surface. Remove any magnetic debris with a dry cloth. We have included spare fuses for the controller. The elevator motor is "brushless" and requires no maintenance.

Warranty:

There is a one year warranty against defective parts. We will replace or repair the defective part and not charge a labor fee. Damage to the machine caused by user is not covered.