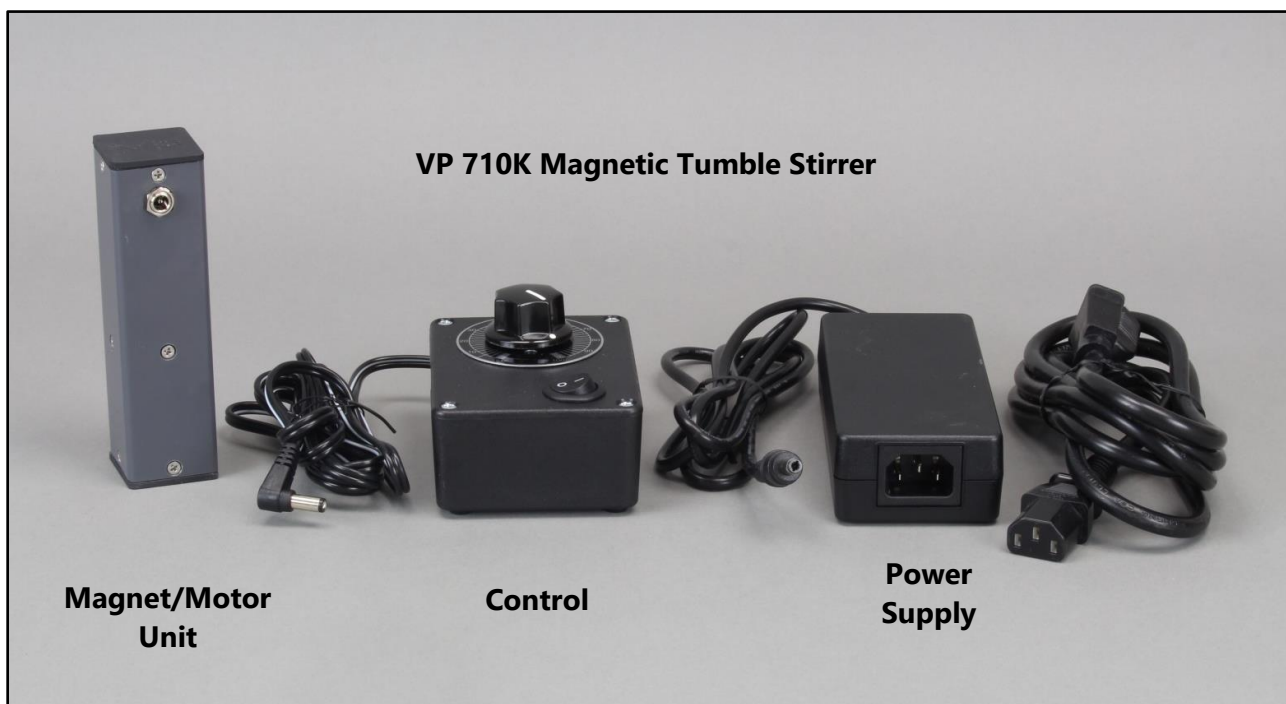


OPERATING INSTRUCTIONS FOR  
MAGNETIC TUMBLE STIRRER FOR MULTIPLE USES

*MicroStirrus* VP 710K

\*US Patent # 6,176,609



*MicroStirrus* VP 710K Magnetic Tumble Stirrer, for bottles, tubes, and syringes, is composed of Magnet/Motor Unit, Control and Power Supply.

**WARNING!!!!!!**

- Be advised that the Magnetic Tumble Stirrer has very strong magnetic fields coming from a very strong Neodymium Iron Boron drive magnet.
- **People with pacemakers should not get closer than 24 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 Tumble Stirrer's magnetic fields.
- Do not operate the magnetic Magnetic Tumble Stirrer in the close proximity to thick pieces of aluminum or ferromagnetic material. For more information see **MAGNETIC TUMBLE STIRRER INSTALLATION** section.

## SET-UP

### MAGNETIC TUMBLE STIRRER INSTALLATION

#### CAUTION

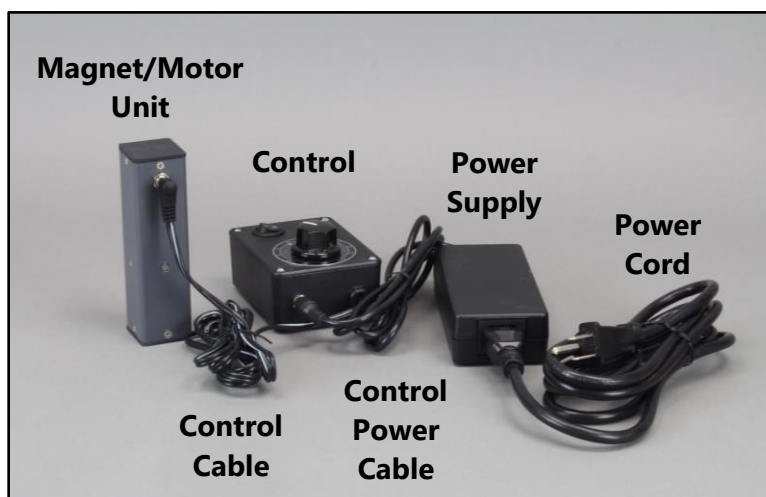
**Operating the Magnetic Tumble Stirrer in close proximity (within 25 mm) of 3 mm or thicker pieces of ferromagnetic deck materials or 12 mm or thicker pieces of aluminum deck materials, or both, is not recommended.**

We recommend that the Magnetic Tumble Stirrer be used and installed as far away from ferromagnetic material as possible. The closer and larger the magnetic material is to the Magnetic Tumble Stirrer, the greater the torque that is required and the slower the maximum speed will be.

Placement on a sturdy bench top or table is also recommended. However, thick (12 mm) aluminum table tops or robot decks, as well as racks or holders, should be avoided. Although aluminum is not magnetic, it will cause a drag on a magnetic field due to eddy currents formed when magnetic flux lines pass through the aluminum. A large mass of aluminum will cause a significant drag and result in undue strain on the motor. This strain causes the motor to overheat which could burn out the motor. This is not covered under V&P Scientific, Inc.'s warranty for this product (see page 4).

### MAGNETIC TUMBLE STIRRER ELECTRICAL CONNECTION

Refer to photo below for connecting the electrical cables. Attach the control cable that transfers power between the Tumble Stirrer's Magnet/Motor Unit and the Control into the connection port on the motor end of the Tumble Stirrer. Attach the control power cord from the Power Supply to the Control. Do not connect the Power Supply directly to the Tumble Stirrer as this may damage the motor. Connect the power cord to the Power Supply then plug into appropriate power outlet.



**Connecting the *MicroStirrus* VP 710K Magnetic Tumble Stirrer to Unit Control and Power Supply.**

## OPERATION

### OPERATING THE CONTROL

The control for the Tumble Stirrer has an ON/OFF switch and a speed control knob (see photo below). Place the power switch in the ON position (press down on "I") and adjust the speed control knob to change the operating speed of the Tumble Stirrer. The speed control for the Tumble Stirrer is designed to control the speed and to gradually take the unit from the OFF position to the set speed in a gradual acceleration. The speed control knob should **not** be used to stop the motion of the Magnetic Tumble Stirrers. To stop the Magnetic Tumble Stirrer, always press the power switch to the OFF position ("O").



**VP 710K Magnetic Tumble Stirrer Control.**

The maximum speed is 1000 RPM with no load and the speed control knob set to 100. Because the load (magnetic resistance) will directly affect speed, it is not possible to accurately relate the dial setting to speed (RPM) in every situation. In general, the speed control knob has to be set to at least 20 to overcome inertia. If the Stirrer is placed near a ferromagnetic object, a higher dial setting is required to overcome inertia. Once the optimal stirring speed has been determined, note the position and leave the speed control knob set to that position. If needed, the actual RPM can be determined by using the [VP 710-RPM-1](#), a hand-held device available from V&P.

### USING THE MAGNETIC TUMBLE STIRRER

**The optimal operating speed of the Magnetic Tumble Stirrers is dependent upon the particular application to be used and needs to be empirically determined.** Factors to consider in determining optimal stir speed are the fragility of the objects being stirred and volume and viscosity of the liquid.

The optional stirring rack VP 710K-1 is designed to convert the stirrer into a conventional vortex stirrer to hold one bottle. Additional stir elements will be required. For a full line of V&P stir elements, please visit: <http://vp-sci.com/products/stir-bars-stir-elements.html>

### **CAUTION**

**Operating the Magnetic Tumble Stirrer for extended periods of time or with challenging loads or both is not recommended.**

It is recommended that the Magnetic Tumble Stirrer not be run at a speed setting of 100 for more than a few minutes at a time. Long term operation at 100 will cause damage to the motor.

During first time use for a given procedure, monitor the temperature of the Magnetic Tumble Stirrer to make certain that overheating does not occur. If overheating occurs, turn off Magnetic Tumble Stirrer immediately! Once it has been determined that a set of run parameters (load, speed and duration) does not cause overheating (i.e. the motor temperature stays less than 60°C), the unit can be operated without monitoring.

The VP 710K Magnetic Tumble Stirrer is designed to be used with bottles up to 1000ml, tubes, vials and syringes. If the VP 710K Magnetic Tumble Stirrer does not appear to be appropriate for the intended application, please contact V&P Scientific for assistance in selecting a different model of Magnetic Tumble Stirrer.

## **PRODUCT MAINTENANCE**

### **GENERAL PRODUCT CARE**

- When not in use, turn the power switch off.
- Do not place the control unit in chambers with temperatures above 40°C.
- The stand and case of the Magnetic Tumble Stirrer is made of a photopolymer resin. To clean the stirrer, wipe down with a cloth and mild detergent followed by a water wipe. **Do not immerse Magnetic Tumble Stirrer or Control in liquid.**
- The motor of the VP 710K Series Magnetic Tumble Stirrer is a brushed DC motor, 100-240 Volts, 50/60 Hz, CE compliant.

### **SAFETY PRECAUTIONS**

The use of motor controls, like that of all utilization of concentrated power, is potentially hazardous. The degree of hazard can be greatly reduced by proper design, selection, installation, and use, but all hazards cannot be completely eliminated.

The following safety precautions must be observed during all phases of installation and operation of this motor control product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture and intended use of the products. V&P Scientific assumes no liability for the customer's failure to comply with safety requirements and practices.

**WARNING**

**To avoid personnel injury caused by electrical shock, do not remove the cover of the controller when the power is ON.**

**CAUTION**

**Do not disconnect motor during operation. Otherwise, over-current breakdown may result.**

**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.

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.

If assistance is required, contact V&P Scientific, Inc. at 858-455-0643 or [sales@vp-sci.com](mailto:sales@vp-sci.com).