Tumble Stirrers

*US Patent # 6,176,609

VP 710C5-7A

VP 710E5X

VP 710P5X

VP 710HVX-13CC

VP 710U5

VP 710C5-7AZ

VP 710T5-12LH-CC

VP 708C5-7A

VP 708C5-7B

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NOTE
PLEASE INSPECT ALL SHIPPING BOXES/ITEMS FOR DAMAGE PRIOR TO SETUP. IF ANY ITEMS APPEAR TO HAVE SUSTAINED DAMAGE DURING SHIPMENT, PLEASE STOP SETUP AND CONTACT US.

Applicable Models

Model No.	Description
VP 710C5-7A	STIRRER, Vertical or Lateral Tumble, Servo Motor, High Speed and High Torque, Low Profile, 16.5cm Long Usable Stirring Deck, Stirs 2 Deep Well Microplates or 6 Standard Microplates (stacked), Space for Gripper Access Between Plates, RPM readout on Control Unit LCD, 120/220 Volts, 60/50 Hz, CE Compliant
VP 710C5-7AZ	STIRRER, Vertical Tumble, Servo Motor, High Speed and High Torque, Low Profile, 16.5cm Long Usable Stirring Deck, Stirs 2 Deep Well Microplates or 6 Standard Microplates (stacked), Space for Gripper Access Between Plates, RPM readout on Control Unit LCD, 120/220 Volts, 60/50 Hz, CE Compliant
VP 710E5X	STIRRER, Vertical Tumble, NEMA 34 Servo Motor, High Speed and High Torque, 48 MGO NdFeB Magnetic Drive Cylinder, 54cm Long Usable Stirring Deck, Stirs 5 Deep Well Microplates, Includes Adjustable Feet (minimum 12.7mm, maximum 76.2mm), Low Profile Deck made from ABS, with RPM meter on LCD, IPC-5 75 Volt Power Supply, 120/220 Volts, 50/60 Hz, CE Compliant
VP 710E5XL	STIRRER, Vertical Tumble, NEMA 34 Quad Stack Servo Motor, High Speed And High Torque, 48 MGO NdFeB Magnetic Drive Cylinder, 54cm Long Usable Stirring Deck, Stirs 5 Deep Well Microplates, includes Adjustable Feet (Minimum 12.7mm, Maximum 76.2mm), Low Profile Deck made from ABS, with RPM meter on LCD, IPC-5 75 Volt Power Supply, 120/220 Volts, 50/60 Hz, CE Compliant
VP 710HVX-13CC	STIRRER, Vertical Tumble, NEMA 34 Servo Motor, High Speed and High Torque, 48 MGO NdFeB Magnetic Drive Cylinder, 33cm Long Usable Stirring Deck, Stirs 4 Deep Well Microplates, or 16, 15mL or 50mL Tubes with SLAS feature recessed into Deck of Stirrer, Bottom Registration Features for Hamilton Vantage and Star Plus Decks, IPC-5 75 Volt Power Supply, Computer Controlled via ASCII Commands, API and Drivers on USB, 115/230 Volts, 50/60 Hz, CE Compliant
VP 710P5X	STIRRER, Vertical Tumble, Large NEMA 34 Servo Motor and IPC-5 75 Volt Power Supply, for High Speed and High Torque, Low Profile 28.5 cm Long usable Stirring Deck, with new Design Plate Holder, Stirs 3 Deep Well Microplates or 9 Standard Microplates (stacked), Space for Gripper access between Plates, RPM readout on Control Unit LCD, 115/230 Volts, 60/50 Hz, CE Compliant
VP 710T5-12LH-CC	STIRRER, Vertical Tumble, NEMA 34 Servo Motor, 48 MGO NdFeB Magnetic Drive Cylinder, Designed to Mount to a Profile Table (not Included), powered by Belt-Driven High Speed, High Torque Servo Motor 12" Magnetic Cylinder, Computer Controlled via ASCII Commands, API and Drivers on USB, 115/230 Volts, 50/60 Hz, CE Compliant
VP 710U5	STIRRER, Vertical Tumble, NEMA 34 Servo Motor, High Speed and High Torque, 48 MGO NdFeB Phased Magnetic Drive Cylinder, with RPM meter on LCD, IPC-5 75 Volt Power Supply, 120/220 Volts, 50/60 Hz, CE Compliant
VP 708C5-7A	STIRRER, Vortex Lateral Tumble, Servo Motor, High Speed and High Torque, Low Profile, Stand With Three Shelves To Hold Microplates and SLAS Racks On All Four Sides, Manual Control, RPM Readout on Control Unit LCD, 120/220 Volts, 60/50 Hz, CE Compliant
VP 708C5-7B	STIRRER, Vortex Lateral Tumble, Servo Motor, High Speed and High Torque, Stand With Grip Mat For Tubes, Vials, and Bottles, Manual Control, RPM Readout on Control Unit LCD, 120/220 Volts, 60/50 Hz, CE Compliant

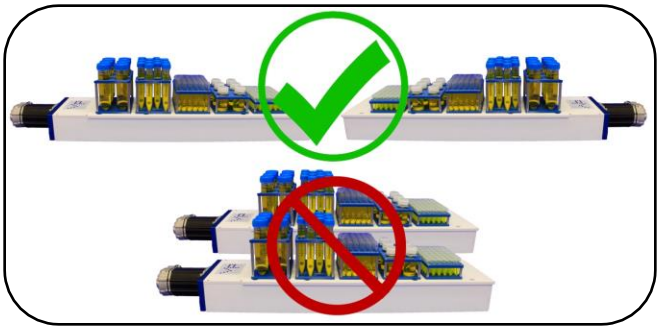
* Includes Computer-Controlled analogs for listed models

WARNING

Tumble stirrers contain extremely strong magnets that produce magnet fields at a great distance from the unit.

- Persons with Pacemakers should maintain a 24" distance from the device
- Remove all magnetically sensitive items away from the immediate area. This may include:
  - ✓ Large, Unsecured Metal Items (such as Tools)
  - ✓ Electronic Devices
    - ❑ Watches
    - ❑ Cell Phones
    - ❑ Credit Cards

- Do not operate the stirrer next to large, ferro-magnetic objects or other magnetic stirrers. If necessary, position multiple stirrers as shown below:



- Large/thick aluminum structures should be avoided. Although aluminum is not magnetic, it will cause a drag on the magnetic field due to eddy currents forming when magnetic flux lines pass through it. The eddy current effect will also cause the aluminum block to heat up. A large mass of aluminum will cause significant drag and result in greater strain on the motor. This strain can shorten the motor life. This product is not covered under V&P Scientific, Inc.'s warranty. If installing away from these materials is unavoidable, test run parameters before operating instrument without supervision for long periods. The Tumble Stirrer will turn itself off when temperature of the motor exceeds its safety limit of 135° Celsius. If this happens, turn off power supply and allow motor to cool before re-starting. Modify operating speed parameters to prevent overheating. Repeated over-heating could reduce product longevity.

1. Motor + Magnetic Cylinder

VP 710C5-7A (enclosed cylinder)

VP 710U5 (bare cylinder, integrate into other instrument)

2. Control Box

C5-7 models (48V)

P5X & E5X models (75V)

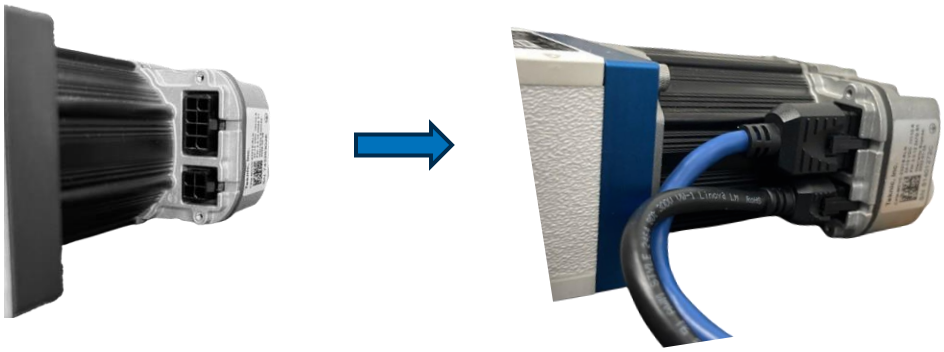
CC models (48V or 75V)

3. Power Cord + *USB Cable & Drive

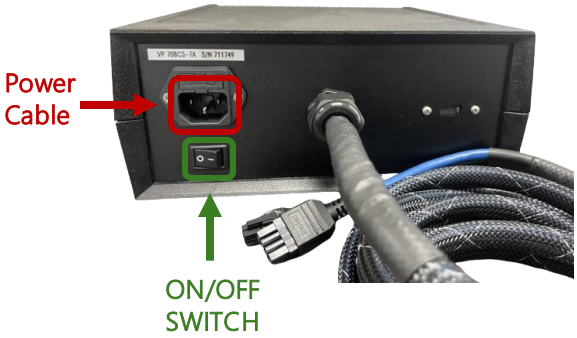
Power Cord sold separately;
country-specific cords available

**Included with CC models*

1. Connect the Tumble Stirrer to the control box by plugging in both the BLUE & BLACK cables from the back of the control box into their respective ports on the Tumble Stirrer Motor as shown below.



2. Plug the power cable into the port on the rear side of the Control Box. Plug the pronged end of the power cable into a trusted power source. Flip the ON/OFF switch to the "I" position.



***For manual models, be sure the RPM dial is set to 0 prior to powering on the unit

2A. If working with a computer-controlled model, plug one end of the provided USB cable into the rear side of the control box and the other end into the computer. USB Port on manual Control Box is for factory use only.

1. Upon powering on the manual units, the display should read the model number followed by the current set RPM

2. Adjust the knob to the desired RPM. Adjusting the RPM slowly is recommended for better stir element coupling, especially in heavy, viscous fluids.

Stirrer	Motor Size (NEMA)	Control	Max RPM No Load	Max RPM Heavy Load
VP 710C5-7	23ds	48V	1500	750
VP 710C5-7AZ	23qs	75V	1000	1000
VP 710E5X	34ds	75V	1031	550
VP 710E5XL	34qs	75V	800	800
VP 710U5	34qs	75V	800	800
VP 710T5	34ds	75V	1000	1000
VP 710HVX-13CC	34qs	75V	1000	1000
VP 710H5	23qs	48V	500	500
VP 710P5X	34ss	75V	1031	550

*VP 708C5-7A/B are the same as VP 710C5-7A

The optimal operating speed of the Tumble Stirrer depends on the particular application and needs to be empirically determined.

Factors to consider in determining optimal stir speed are the application, fragility of the objects (such as cells or beads) being stirred, size, shape, and composition of the test tube, vial, bottle or microplate well (glass, polypropylene or polystyrene), depth of the liquid in the container, volume and viscosity of the liquid, and the type of magnetic stir element (shape and magnetic strength) used.

Typically, run speeds are 300-500 RPM. The maximum speed is set at the factory to the settings shown in the table above with no load. The RPM shown on the display is a true RPM reading. Adding a load (magnetic resistance), such as aluminum, around the magnetic end of the Tumble Stirrer will directly affect speed. The controller is programmed to compensate by adding more power to maintain the set RPM. If substantial magnetic resistance exists, such as aluminum, keep the stirrer speed at no more than the max RPM listed in the table above.

SETUP -

"CC" modeled Tumble Stirrers are controlled via computer (not included). The Tumble Stirrer Control Box uses an internal CH340G USB to Serial Converter set to 9600, 8, N, 1. This will require driver software.

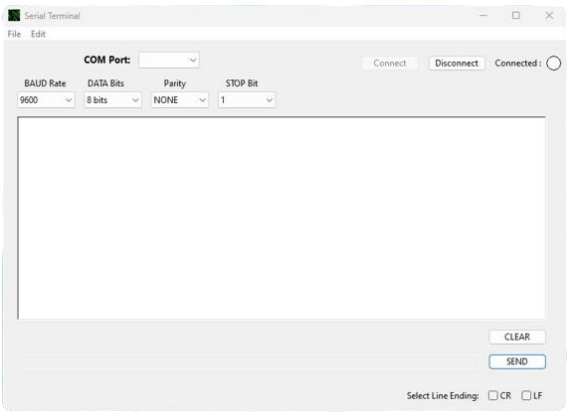
Often, Windows already has the needed driver installed. If not:

- **Download** the driver from the provided USB stick CH340 USB DRIVER
- **Run** CHASER341SER.EXE

The Tumble Stirrer will be recognized automatically by the driver, once installed.

Commands can now be sent from the computer using a Windows-based terminal program like HyperTerminal or RealTerm. We also provide the program "**Serial Terminal**" on the USB for this: Serial Terminal

The Serial Terminal program consists of the following window and features:



- **COM Port**

  User must select which computer port the control box USB is connected to

- **Connect & Disconnect Buttons**

  Creates and breaks the connection to the control box

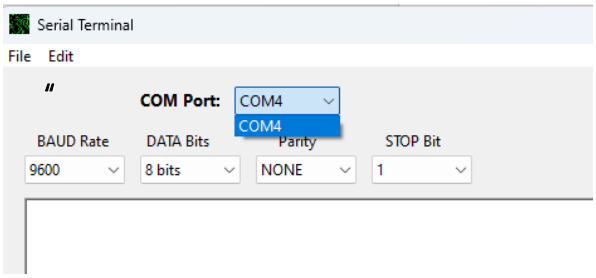
- **Clear & Send Buttons**

  CLEAR button erases all information present in the Feedback Window

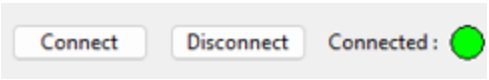
  SEND button is used to issue commands from the adjacent command line

OPERATION -

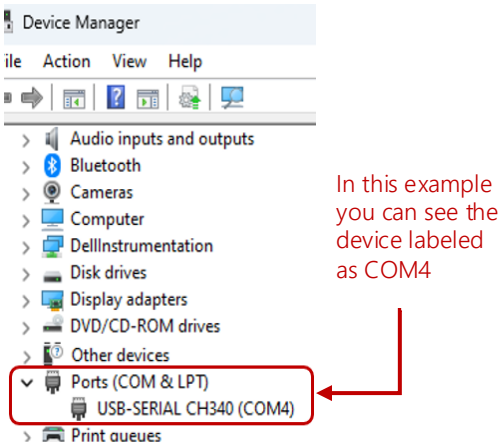
1. **Select the correct COM port from the dropdown menu. Click Connect.**



- The "Connected" bubble should turn green, indicating a successful connection



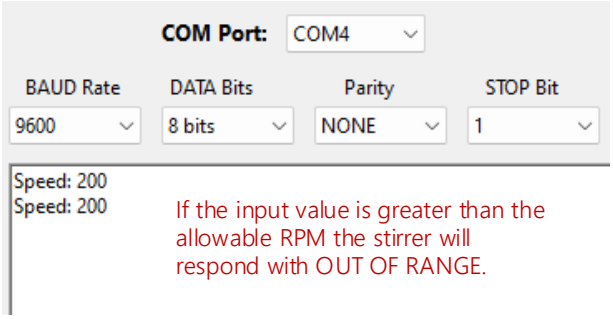
- The correct COM port can be found by accessing the PORTS list in the Device Manager. It will be listed as "**USB-SERIAL CH340 (COM#)**"



2. To enter commands, type a lower-case "s" followed by the desired RPM into the field adjacent to the SEND button, just below the large open feedback window.

EXAMPLE: Send: "s200"

After clicking "SEND," the Feedback Window will show your command followed by an echo response, indicating that the input was successful



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3. To stop the unit, issue the command: s0

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Maintenance

- When not in use, turn power toggle to the OFF position "0"
- Motor can handle ambient humidity of 0-95%; non-condensing. Motor will tolerate ambient temperature of 0-70° C
- For enclosed models, the deck of the Tumble Stirrer is made of ABS. To clean the deck, use a mild detergent followed by wiping dry. Do not submerge any part of the Tumble Stirrer into liquids
- The motor of the VP 710 Series Tumble Stirrers is a powerful servo motor designed for high torque and long-term stirring applications

Equipment Rating - 115/230V~, 1.6A, 60/50 Hz
Not to be used with power above this rating

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.

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.

Please keep the special shipping carton in case the unit needs to be shipped back to V&P Scientific. Contact V&P Scientific for return authorization and shipping instructions or for any other assistance at 858-455-0643 or sales@vp-sci.com.