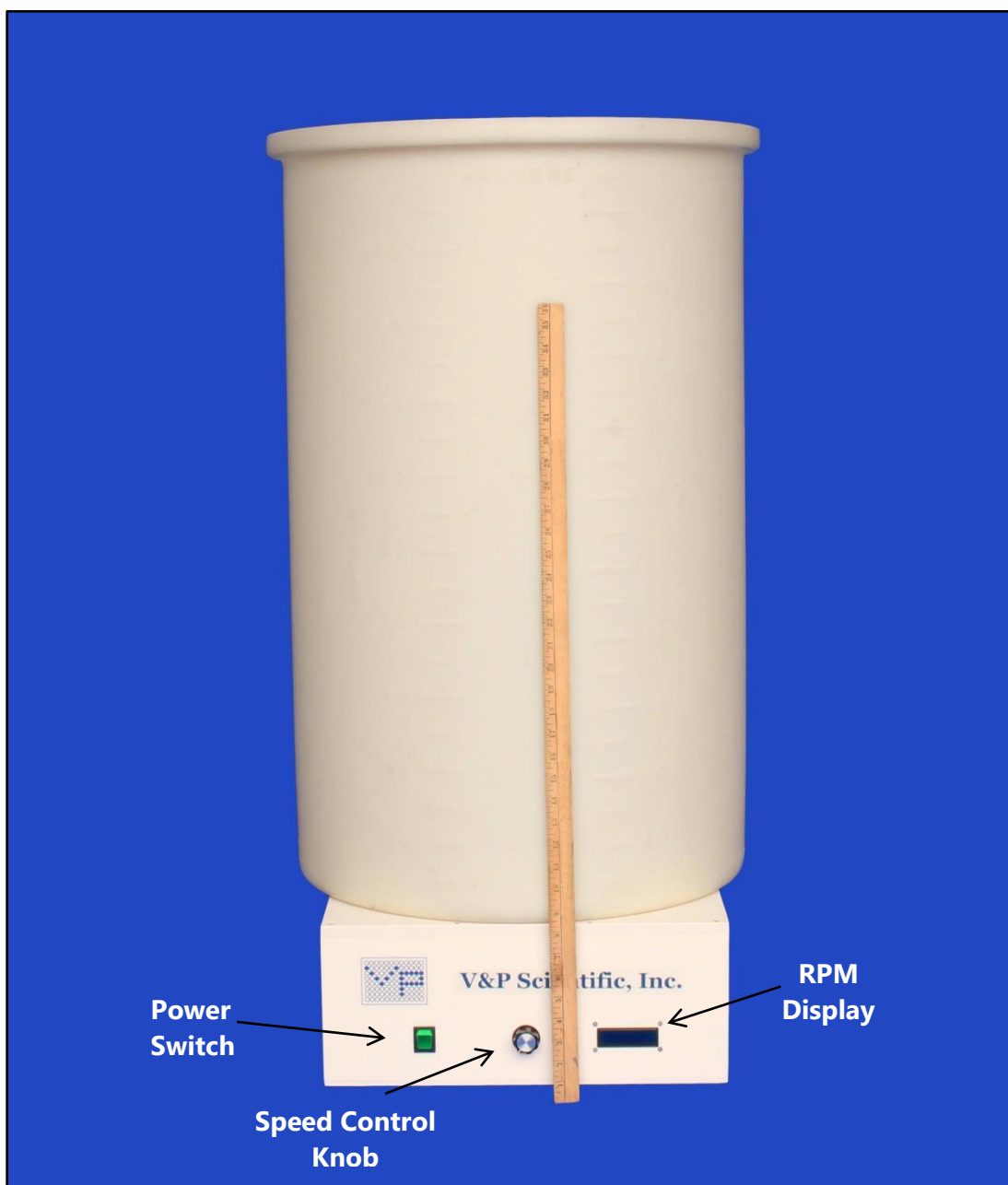


OPERATION MANUAL
KILOSTIRRUS VP 706G Series Magnetic Stirrer



VP 706G-4 KiloStirrus Magnetic Stirrer shown with a 60-gallon tank.

WARNING!!!!

- Be advised that the VP 706G series *KiloStirrus* Magnetic Stirrer has very strong magnetic fields coming from a 48 MGO Neodymium Iron Boron magnetic 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 Stirrer's magnetic fields.

OPERATION

We recommend that the *KiloStirrus* Magnetic Stirrer be installed as far away from ferromagnetic material as possible. The closer and larger the magnetic material is to the *KiloStirrus*, 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. Thick aluminum table tops, as well as racks or holders, should be avoided. Although aluminum is not magnetic it will cause a drag on the magnetic field due to eddy currents being formed when magnetic flux lines pass through it.

POWERING ON

The *KiloStirrus* is driven by a powerful servo motor for high load and/or long term stirring applications. The top speed is set to 1500 RPM without a load. The actual top speed will depend on the load such as the volume and/or the viscosity of the liquid being stirred and the magnetic coupling between the stir bar and drive magnet. Use the following procedures to start the motor and adjust speed.

1. Turn the Power Switch **ON**. The LED RPM display will illuminate and display "V&P Scientific ID#: VP 706G" then the RPM readout will appear.
2. To increase the speed, turn the Speed Control Knob clockwise. The Magnetic Drive Magnet will begin to rotate. Speed in RPM is registered on the digital display.
3. Turn Speed Control Knob counter-clockwise to decrease the speed.
4. When the Speed Control Knob is completely turned counter clockwise, the drive magnet will come to a stop.
5. Before turning off power, ALWAYS bring Magnetic Drive Magnet to a complete stop first.

CONTAINER PLACEMENT ON TOP OF KILOSTIRRUS

The VP 706G was designed to accommodate a variety of large size containers including beakers, bottles, carboys, tanks and drums.

MAGNETIC STIR BARS

Warning

Take care when putting magnetic stir bars into glass containers, as the strength of the drive magnet, along with the strength and size of a large magnetic stir bar can break the glass. It is recommended that the stir bar be placed into the container before placement on top of the *KiloStirrus*.

Use of V&P Scientific magnetic stir bars is recommended due to the strength of coupling between these stir bars and the strong drive magnet in the *MidiStirrus*.

The following are a few recommended stir bars available from V&P Scientific for use with the VP 706F series stir devices:

VP772BK-N52-11-61/ VP772BP-N52-11-61

Magnetic Stir Bar - 11.5mm diameter, 60.9mm long. PEEK(BK) or PVDF(BP) encapsulated NdFeB (52 MGO) magnet, 80C maximum operating temperature.

VP772BK-N42-11-61/ VP772BP-N42-11-61

Magnetic Stir Bar - 11.5mm diameter, 60.9mm long. PEEK(BK) or PVDF(BP) encapsulated NdFeB (42 MGO) magnet, 150C maximum operating temperature.

VP772BK-S29-11-61/ VP772BP-S29-11-61

Magnetic Stir Bar - 11.5mm diameter, 60.9mm long. PEEK(BK) or PVDF(BP) encapsulated SmCo (29 MGO) magnet, 250C maximum operating temperature.

VP 777TB-80

Magnetic Stir Element, H-Style with twin stir bars, 90mm X 80mm X30mm, PTFE Encapsulated SmCo(29 MGO) Magnets, 260C Maximum Operating Temperature.

VP 777OV-28-70

Magnetic Stir Bar, oval style, 70mm x 28mm, PTFE Encapsulated SmCo (29 MGO) Magnet, 260C Maximum Operating Temperature.

VP 776-24-108R

Giant Magnetic Stir Bar, cylindrical style with permanent pivot ring, 108mm x 24mm, PTFE Encapsulated Alnico Magnet, 260C Maximum Operating Temperature.

VP 776-24-159R

Giant Magnetic Stir Bar, cylindrical style with permanent pivot ring, 159mm x 24mm, PTFE Encapsulated Alnico Magnet, 260C Maximum Operating Temperature.

VP 772M-N52-27-60

Stir Paddle- This paddle is 60.3mm long, 25.4mm wide. The wheel is 27.4mm. The paddle is powered by stir discs. These stir discs are either made with NdFeB (42 MGO), NdFeB (52 MGO), or SmCo (29 MGO) Magnets.

OPERATING SPEED

Note: The *KiloStirrus* VP 706G series Magnetic Stirrer are designed for large volumes and viscous liquids and can operate continuously at speeds from 10 to 1500 RPM.

The operating speed of the *KiloStirrus* is application dependent and needs to be determined empirically. Once the optimal stirring speed has been determined, note the speed (RPM) on the digital display.

Factors to consider in determining optimal stir speed:

- Durability of particulates being stirred
- Size and shape of the container
- Volume and viscosity of the liquid
- Magnetic strength of the Stir Element: stainless steel, Alnico, Samarium Cobalt or Neodymium.
- Shape and size of the Stir Element: standard cylindrical shape(+/-pivot ring), twin bar-H style, oval, triangular

To stir very viscous solutions, start at a low speed, and then ramp up slowly to the desired RPM.

PRODUCT MAINTENANCE

GENERAL PRODUCT CARE

- When not in use, turn the power switch off.
- Do not place the control unit in chambers with high humidity or temperatures above 40°C.
- The deck of the Magnetic Stirrer is made of ABS. To clean the deck use a mild detergent followed by wiping dry. For chemical compatibility of ABS please see the following link for more information: <http://www.coleparmer.com/techinfo/chemcomp.asp>
- The motor of the Magnetic Stirrer is a powerful servo motor. This motor is designed for high torque and long-term stirring applications. It is brushless and requires no maintenance.
- Extra fuses (2.0A 250V) have been provided in the rare event that they blow. The fuse receptacle is in the back near the outlet connector.

ADDITIONAL SPECIFICATIONS

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| Equipment Rating | 120V~, 1.6A, 60 Hz |
| Not to be used with power above this rating | |
| Ambient Environment: | Indoor use |
| Safety Approval: | UL Listed |

SAFETY PRECAUTIONS

The use of the Magnetic Stirrer, 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.

V&P Scientific assumes no liability for the customer's failure to comply with safety requirements and practices.

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 above address 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.

TECHNICAL ASSISTANCE

If technical assistance is required, contact V&P Scientific, Inc. at 858-455-0643 or sales@vp-sci.com.