V&P SCIENTIFIC, INC.
Innovators in Liquid Handling, Arraying and Mixing

TECHNICAL NOTE 106

OPERATING INSTRUCTIONS FOR VP 710MXL7T ROTARY TUMBLE STIRRER WITH DIGITAL TACHOMETER

CAUTION!!!!!

Be advised that the Tumble Stirrer has a very strong magnetic field. People with pacemakers should not get closer than 20 inches. 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 Tumble Stirrer's magnetic fields.

The proper operating speed of the Tumble Stirrer is dependant upon your particular application and needs to be empirically determined for your application. The Maximum speed set at the factory is 89 RPM when the knob is set to 100 and there is no load. The lowest operating speed we recommend is 10 RPM In most cases the 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. Factors to consider in determining optimal stirring speed are the fragility of the objects being stirred, size, shape, composition of the well (polypropylene or polystyrene), depth of the micro-wells, volume and viscosity of the liquid, and the type of stir element (disc, bar, dowel or Stir StiX used) and how magnetic the stir element is (Stainless steel, ALNICO, Sm2Co17 or NdFeB).

In general, stirring viscous material works best at low speeds and thus the VP 710MXL7T Rotary Tumble Stirrer is well suited for this type of application since it can function at minimum RPMs. The control unit for the stirrer has an on/off power switch, a digital readout for the digital tachometer and a speed control knob. Place the power switch in the on position (toggle up), adjust the speed control knob to change the operating speed of the Tumble Stirrer. The speed control for the stirrer is designed to control the speed and to gradually take the unit from the off position to the set speed in a gradual ramp up. The speed control knob should <u>not</u> be used to stop the motion of the Tumble Stirrers. To stop the Tumble Stirrer always flip the power switch to the stop position (toggle down).

These Tumble Stirrers are constructed of ABS plastic and will accommodate heat block applications up to 60C.

The VP 710MXL7T Tumble Stirrers are powered by a powerful Maxon brush type DC motor with a 74 to 1 gearhead. Brushes will last the life of the motor. When not in use, turn the power switch off. Do not place the control unit in chambers with temperatures above 40^{o}C. We have provided extra fuses in the rare event that they blow. Each Magnetic Tumble Stirrer is covered by a one year factory warranty for parts and labor.

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