

CARE AND USE OF FLEXIBLE DRIVE TUMBLE STIRRER

Assembly:

Place the flexible drive head into the tumble stirrer receptacle bracket and slip over magnetic cylinder drive shaft. Spin the drive shaft until the 3/32" set screw aligns with the hole in the top of the mounting bracket. The set screw has been painted white to assist in viewing the hole/set screw alignment. Tighten the set screw.* **Do not** tighten the two 3/32" set screws that couple the bracket to the sheath of the flexible drive at this time. Stretch the flexible drive out straight. Place the other end of the flexible drive through the bracket and into the motor compartment. Slip the flexible drive shaft over the motor shaft. Spin the flexible drive shaft until the 3/32" set screw (painted white) is aligned with the hole in the top of the mounting bracket. Tighten the white set screw. Tighten the two 3/32" set screws in the motor bracket to the drive shaft sleeve. Place the Tumble Stirrer and the motor into working positions then tighten the two 3/32" set screws that couple the drive shaft sleeve to the Tumble Stirrer bracket.

There are 4 tapped (8/32) holes in the bottom of the Tumble Stirrer that may be used to attach it to a surface. As an alternative, an acrylic base plate has been attached to the bottom of the tumble stirrer and will provide additional stability for the plate. This acrylic base plate can be removed and not used if so desired.

Operating the Stirrer

The operating speed of the Tumble Stirrers is dependent upon your particular application and needs to be empirically determined for your application. You can determine the optimal speed for your application quite simply. The Bodine AC Inverter Motor is controlled by changing the Hertz frequency. The higher the Hertz frequency the faster the speed. The attached table converts the Hertz frequency in the digital read out to speed in RPM.

Once you have determined the optimal stirring speed, note that number for future reference. Factors to consider in determining optimal stir speed are the fragility of the objects being stirred, size, shape, composition of the well (polypropylene or polystyrene), depth of the microwells, volume and viscosity of the liquid, and the type of stir disc or bar used.

In general, stirring microbial cultures works best at low speeds. Stirring to resolubilize extracts or to stir in deep well microplates requires high speeds. Again the speed of stirring needs to be determined empirically for your particular application.

Care:

This is a brushless motor so there is no need to change brushes and no maintenance functions to be performed on the motor or the gear head. We have provided a spare MDL 1/4 Amp motor fuse. We have also provided 3/32" Allen wrench to use for the flexible drive set screws. **We strongly recommend that you fasten the stir head to a deck or use the acrylic base plate.**

The flexible drive shaft can be damaged if it is coiled too tight. It should not be coiled tighter than an 8 inch radius.

* When you reverse this process to remove the flexible drive from the Tumble Stirrer, do not unscrew the set screw too far. If you do, the raised set screw will prevent you from removing the flexible drive from the Tumble Stirrer Bracket.

CONVERSION TABLE RPM/HERTZ

VP 710F	RPM	Hz
	0	0.0
	10	1.6
	20	3.3
	30	4.9
	40	6.6
	50	8.2
	60	9.8
	70	11.5
	80	13.1
	90	14.8
	100	16.4
	150	24.6
	200	32.8
	250	41.0
	300	49.2
	350	57.4
	400	65.6
	450	73.8
	500	82.0
	550	90.2
	600	98.4
	650	107
	700	115
	750	123
	800	131
	850	139
	900	148
	950	156
	1000	164
	1050	172
	1100	180
	1150	189
	1200	197