

Achieving Sales by Knowledge

Quick Guide on FagronLab
Products



FagronLab Pro-DMS Digital Magnetic Stirrer



Short Product Description and Use/Applications

Being on Top of Knowledge

A magnetic stirrer or magnetic mixer is a laboratory device that employs a rotating magnetic field to cause a stir bar (also called "flea") immersed in a liquid to spin very quickly, thus stirring it. The rotating field may be created either by a rotating magnet or a set of stationary electromagnets, placed beneath the vessel with the liquid.

Magnetic stirrers are often used in compounding for the dilution of a solid raw material to a solvent or the mixing of 2 or more liquids on cold process or by applying heat. **The advantage in compounding is that users can achieve reproducibility of dilutions by applying same stirring and heating parameters.** They can also be used inside hermetically closed vessels or systems, without the need for complicated rotary seals. They are preferred over gear-driven motorized stirrers because they are quieter, more efficient, and have no moving external parts to break or wear out (other than the simple bar magnet itself). Magnetic stir bars work well in glass vessels commonly used for compounding preparations, as glass does not appreciably affect a magnetic field. The limited size of the bar means that magnetic stirrers can only be used for relatively small experiments. Stir bars also have difficulty in dealing with viscous liquids or thick suspensions. For larger volumes or more viscous liquids, some sort of mechanical stirring is typically needed.

Because of its small size, a stirring bar is more easily cleaned and sterilized than other stirring devices. They do not require lubricants which could contaminate the reaction vessel and the product. Magnetic stirrers may also include a hot plate or some other means for heating the liquid.

A stir bar is the magnetic bar placed within the liquid which provides the stirring action. The stir bar's motion is driven by another rotating magnet or assembly of electromagnets in the stirrer

device, beneath the vessel containing the liquid. Stir bars are typically coated in Teflon, or less often in glass.

They are bar shaped and often octagonal in cross-section (sometimes circular), although a variety of special shapes exist for more efficient stirring. Most stir bars have a ridge around the centre (called a pivot ring) on which they rotate. The smallest are only a few millimetres long and the largest a few centimetres. A *stir bar retriever* is a separate magnet on the end of a long stick (usually coated with Teflon) which can be used to remove stir bars from a vessel.

The right choice of magnetic bar used depends on the diameter of the glass vessel.

Bar size < of ½ of the vessel's diameter



Product Benefits

Communicating the Right Info to the Right Prospect

- Metal body of thick metal for easy cleaning, durability and to avoid stains
- Powder coated colour on body to avoid rust and scratches
- Ceramic coated surface on hot plate to avoid discoloration and signs of deterioration. Stainless still hot plates become brownish after many uses in high temperature.
- Elevated control panel for protection of spillage.
- Special design for compounding pharmacies to protect mechanism from spillage
- 3 modes of operation (with heat sensor, without heat sensor, standard programme)
- External heat sensor with metal stand included in price. Competitive products do not have a stand or a sensor included in price.
- Electronic control and display of stirring speed and temperature.
- Dual display mode for checking both target values and reached values. So if you regulate temperature at 60 degrees one display will show the target value and the other will show the reached temperature so far.
- Display of temperature even when machine is turned off to protect user.
- Sensor can be used as independent instrument for immediate control of temperature of surface or preparation anywhere in the lab as the cable connecting it to the machine is big and expandable.
- Maximum mixing capacity 10.000ml for optimum results. More can be mixed but with no optimum results. The more the volume the less the viscosity of the mixing should be. It is proportionate
- By using a 5000ml or more vessel on top and applying heat without stirring you can transform the magnetic stirrer to a waterbath!!!! So you have 2 devices in one!
- **Buying the PRODMS you have in fact 4 machines in 1. One digital magnetic stirrer with heating, one heating device, one digital thermometer of high accuracy, a waterbath!!!**
- Silent usage with zero noise technology of polarisation change. (Competitive more price favourable machines may use magnetic motors that are easily broken after some months of usage)
- Maximum speed 1.500 rpm
- Maximal temperature 340°C
- Warranty 2 years with replacement strategy if no fault of user.



Hits & Tips to Communicate

Showing Profound Knowledge of the Products to Prospects

- For optimum reading of temperature the sensor should be positioned one cm higher than the bottom of the glass vessel. Only then temperature is accurate. So this is why it is important to have the metal stand. Otherwise the reading of the temperature would be the one at the bottom of the glass vessel which is the temperature of the hot ceramic plate.
- The temperature of the hot ceramic plate is climbing higher than the temperature of the set value to reach quick results. When the sensor senses that the liquid's temperature reaches the set value it turns off the thermostat and the thermal plate stops to heat anymore. But still we might see the temperature rising by 10% since it is normal that plate is still hot.
- So it is advisable that we set the input value temperature 10% lower than the desired temperature in order to make sure that the temperature will reach the desired levels and not more than that.
- Always put the vessel on o the centre of the plate for optimum and soundless mixing
- The vortex created by the magnetic bar should not be too big as spillage might occur or the vessel might move away from the centre and eventually drop off. The optimum vortex is the one starting from the surface and barely touching the magnetic bar. So mixing turns should be set on those levels
- **ALWAYS INFORM CLIENTS AFTER CONCLUDING THE SALE THAT THE SENSOR SHOULD BE CONNECTED AND DISCONNECTED WITH THE MACHINE TURNED OFF. NEVER ON!!!! OTHERWISE POWER BOARD MIGHT BE AFFECTED.**



Questions to Ask

Asking Prospects before Promoting is 50% of Success in Sales.

- How many dilutions are you making per day?
- What do you currently use for dilutions? By hand or agitator?
- If by hand, how much time does it take normally and how do you achieve reproducibility?
- In how many dilutions you need normally to apply temperature?
- In those cases how do you control temperature will not pass the desired levels and may destroy/change the chemical characteristics of the raw material diluted due to overheat?
- How much time does it take you to dilute with your current method of application?
- If prospect has already a magnetic stirrer we ask which brand. With heat or without? With digital display or not?






- Do you experience discoloration of the heating plate after too much time?
- Can your front panel be affected if over-spillage happens?
- What are the main benefits that you would ask for a new magnetic stirrer? Price, quality, durability in time, service, support, easy use?
- Do you experience discoloration of the heating plate after too much time?
- Can your front panel be affected if over-spillage happens?
- What are the main benefits that you would ask for a new magnetic stirrer? Price, quality, durability in time, service, support, easy use?








Additional Items to Promote

Promote/Communicate/Sell of Additional Items in our Portfolio

- Magnetic Bars (a must have) : There are different kind of magnetic bars. Most of them are made by Teflon, some from glass and other from Samarium Cobalt (very rare strong magnetic material). It is important to know all kinds of magnetic bars and communicate this knowledge with customers if needed.
- Those are all the kinds of magnetic bars:

	Circulus magnetic stirring bars provide strong turbulence at relatively low speeds, offer reduced surface contact and have excellent centering characteristics, particularly in vessels with convex bottoms.
	Cylindrical magnetic stirring bars offer excellent centering and smooth running characteristics. A small removable pivot ring in the center adds to their versatility. The pivot ring minimizes the contact area of the bar to the vessel, reduces friction and lessens marring of plastic containers
	Elliptical (egg shaped) magnetic stirring bars are particularly well suited for round bottom flasks. Their shape mimics that of a flask and ensures complete mixing. They also offer minimal contact when used in plastic containers.
	Octagon – Rare earth magnet: The superior magnetic energy of Rare Earth (Samarium Cobalt) magnets provides strong coupling with drive magnets reducing frequency of spinout in viscous solutions or high speed stirring. The bright green Teflon® PTFE coating makes them easy to identify in the laboratory.
	Octagon magnetic stirring bars with integral pivot ring are the most commonly used shape. Their interrupted profile provides greater surface area and added turbulence when compared to the smooth surface of cylindrical bars. Pivot ring aids in reducing friction and chattering. Octagon magnetic stirring bars with integral pivot ring are the most commonly used shape. Their interrupted profile provides greater surface area and added turbulence when compared to the smooth surface of cylindrical bars. Pivot ring aids in reducing friction and chattering.

	Polygon/Giant Polygon multifaceted surfaces add turbulence relative to similar smooth size cylindrical bars. Giant Polygon bars can be used for stirring substantial volumes in large vessels such as drums and tanks. Available with or without a molded pivot ring, this ring minimizes the contact area between the bar and the vessel, thus reducing friction and chattering.
	Pyrex® glass stirring bars are completely encapsulated in Pyrex® glass. Glass stirring bars are useful for high temperature applications in excess of 225°C (437°F) where Teflon® PTFE is not stable. Glass bars also offer “zero absorption” of the stirred solution.
	Round magnetic stirring bars with tapered ends have a naturally centred pivot point, eliminating the need for a separate pivot ring. Smooth surface and the slightly raised ends on these bars facilitate efficient movement through solutions
	Saturn magnetic stirring bars easily stir powders into solutions without getting stalled. A prominent sphere in the middle of the bar elevates the stirring bar arms during rotation and consequently diminishes the surface contact area, permitting the magnet to spin freely without stalling. For use in round or flat bottom vessels.
	Cross magnetic stirring bars add speed and efficiency to mixing operations. The “+” shape creates a deep vortex and provides stable, quiet operation

- Magnetic retrievers: They are used to collect magnets from a vessel. Most users put the retriever in the dilution to retrieve the magnetic bar. The correct way is to do it outside the vessel and collect by hand when it reaches the top. By that we do not need to wash the magnetic retriever.
- Glass vessels, bakers, erlenmeyer, flasks, volumetric flasks etc.
- Brushes for cleaning the vessels after use



Frequently Asked Questions

Having the Answers on Prospects' Questions is an Indication of our Expertise

- Q: How do I clean the surface of the ceramic plate?
- A: With simple cleaning liquid for ceramic surfaces (same as used in kitchens)
- Q: What do I need to do for maintenance?
- A: Clean regularly surfaces and do not allow spillage to stay on the body colour. Powder coating colour is not absorbent but some raw materials are aggressive.
- Q: Can I mix high viscosity products?
- A: No but you can use it as waterbath to melt products like Vaseline or lanoline or use directly to melt wax etc in the glass vessel.



Accessories and Extras

Additional Modules, Accessories, Equipment
Related to the Device to communicate

- No accessories extra are needed with the product. If temperature sensor breaks it can be replaced.



Ordering Information

Useful Information to Handle Orders
Internally

According to product number. **To be updated**



Box Contains

All Items Included in the Original
Packaging

To be updated



Dimensions and Pictures

Technical Information and Product Pictures

Product Size: (HxWxL) 50x16x27cm,

Gross Weight: 3kg



Other Useful Information

Additional Information for Sales People

To be updated



Engineering Sales