Web Scientific

*In Association With*

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

# Stir Any Material In Any Vessel Type

## Choose From Our Massive Range Of Magnetic Stir Elements

**Available In Various Types Of Base Metal:**

- Neodymium Iron Boron
- Alnico
- Samarium Cobalt
- Stainless Steel

## We supply the following designs:

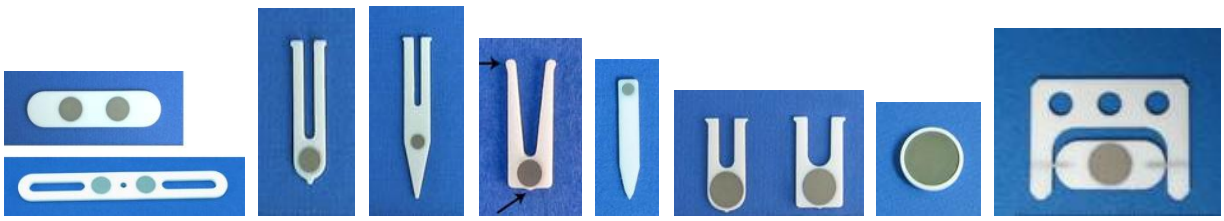
### Neodymium iron boron (NdFeB) – based magnetic cores

Neodymium is the strongest of the permanent magnetic materials but has never been offered before in the form of a magnetic stir element. A new "Sandwich" technique for encasing the neodymium in protective layers of PTFE and Parylene allows us to offer **very powerful** neodymium stir bars and other shapes that are capable of greater coupling to the stirrer drive magnet, thereby achieving higher stirring speeds for a more rapid mixing action as well as the **stirring of extremely viscous solutions**.

#### 1) Sandwich style Elements

**A New Concept In Magnetic Stirrers You Won't Find Anywhere Else**

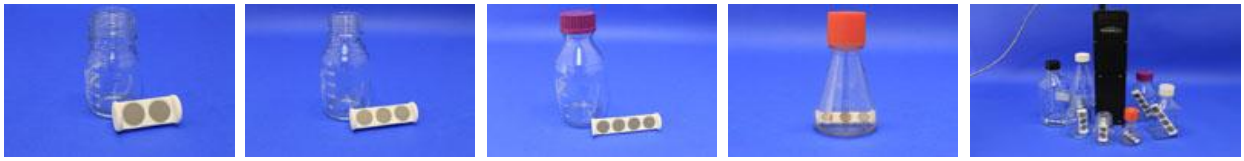
PTFE encased neodymium iron boron (NdFeB) & samarium cobalt (SmCo) magnetic discs for vigorous stirring, supplied in a huge variety of shapes. Custom shapes also available in less than 2 weeks. Designs are available for both Vortex Lateral Tumble and conventional horizontal stirrers. **Break With Convention** – Many of our flattened designs stand upright when used with our Vortex Lateral stirrers allowing mixing in the vertical as opposed to the horizontal plane. **NdFeB-based elements are suitable for temperatures up to 150°C. SmCo-based elements are suitable for temperatures up to 200°C (max temp. tolerated by parylene).**



**VP 772F series**

#### 2) Multi-Bottle Stir Paddles

Also using sandwiched NdFeB our paddles allow stirring in any bottle size or shape. Paired with our VP710C series stirrers you can stir in multiple bottles saving on expenditure and valuable bench space. Paddles are constructed out of Nylon, but other materials are also available. **Suitable for temperatures up to 150°C.**



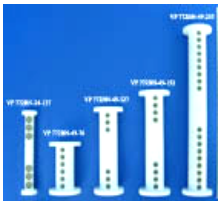
**VP 772M series**

## 3) Stir Bars

Use neodymium iron boron (NdFeB) magnetic cores encased in either PTFE, PVDF (Polyvinylidene Fluoride), or Polyether ether ketone (PEEK). These stir bars provide vastly improved magnetic coupling to the drive magnet on conventional horizontal stirrers which confers faster stirring speeds and the ability to stir material previously considered too thick to stir (e.g., honey, tooth paste and even bread dough) in any size or shape of vessel. **PVDF encapsulated NdFeB Stir Bars are suitable for temperatures up to 150°C.** PEEK is a thermoplastic with excellent mechanical and chemical resistance properties that are retained at higher temperatures. It is ideal in applications where high mechanical stress, abrasion or chemical attack are a concern. **PEEK protected NdFeB stir bars are suitable for temperatures 150°C.**

**VP 772BK series**
PEEK

**VP 772T series**
PTFE w/ Parylene caps



**VP 772BN series**
PFTE w/ Parylene Magnets

**VP 772PT series**
PEEK

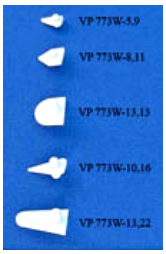
**VP 772BP series**
PVDF

# Conventional Alnico and Samarium Cobalt - based

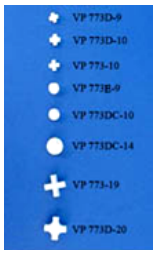
These stir elements can be used for both Tumble Stirring and Vortex Tumble Stirring applications as well as conventional horizontal spinning and present one of the largest collections at the best prices. Alnico and Samarium Cobalt magnets are encapsulated in PTFE helping them to resist harsh chemicals, scratching and high temperatures. They also meet FDA approval.

## 1) Alnico Stir Elements

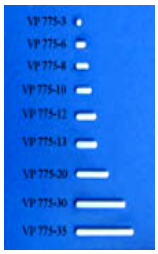
Alnico magnetic cores are one of the most powerful permanent magnet alloys available. They are available in many shapes: wings, crosses, spheres, octagonal, square and bars. Our stir bars range in diameter from 1.5 mm to 8 mm and from 2mm to 87mm in length.



**VP 773W series**



**VP 773 series**



**VP 775 series**

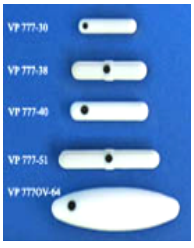
**VP 774 series**

**VP 776 series**

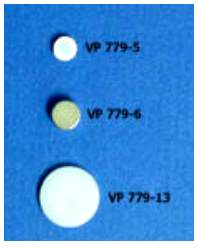

**VP 776 Giant series**

## 2) Samarium Cobalt Stir Elements

**VP 777** series Stir Bars and the **VP 779** series Stir Discs with their extra magnetic energy can be used for stirring very viscous solutions. Used in conjunction with our Alligator Tumble Stirrers they can be used to stir even the most viscous solutions. The disc design of the **VP 779** series makes them significantly more efficient at moving liquid and therefore mixing solution in the tumble mode. Selecting a disc that is slightly smaller than the inside diameter of the vessel to be stirred results in the most efficient stirring. **Suitable for temperatures up to 200°C so can be autoclaved or heat sterilized with no loss of magnetic strength.**



**VP 777 series**



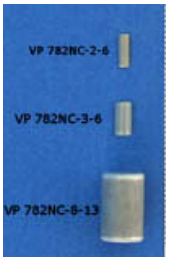

**VP 779 series**

## 3) Parylene Encapsulated SmCo & NdFeB Magnetic Discs & Cylinders

Parylene encapsulated **VP 782S** series samarium cobalt, **VP 782N** series Neodymium Iron Boron stir discs and **VP 782NC** series stir cylinders can be used without a protective PTFE shell in one time stirring applications that require an economical disposable stirrer. **VP 782N discs & VP 782NC bars are available in two different heat resistant versions – one that is heat resistant to only 80°C and another which is heat resistant to 150°C which can be sterilised by autoclaving.**

VP 782S series

VP 782N series




VP 782NC series

***Please note: Parylene coated magnets and other inert polymer products are not intended for any clinical or medical use. V&P Scientific is not responsible for any damage or injury which results from misuse of our products.***

**WebTip: There are several measures that should be used to increase the life span of magnetic stir bars. First, Stir Bars should be stored in pairs to maintain magnetic strength. Stir bars should not be stored in a random mass or dropped on a hard surface especially steel.**

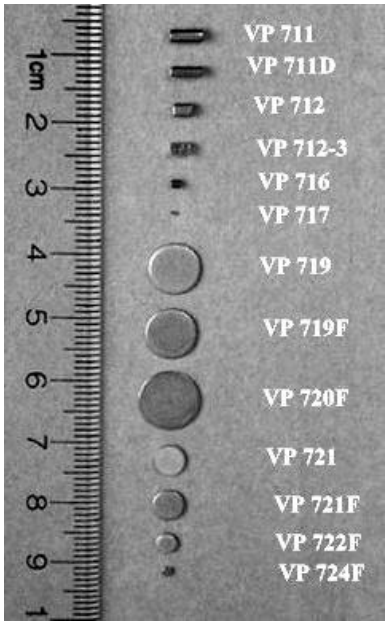
# Stainless Steel Tumble Stir Elements for stirring in microwells

TUMBLE STIR ELEMENTS (TSEs) are very efficient at stirring the contents of microwells. They do not corrode in the presence of sodium chloride, acetic acid, citric acid, ammonia, hydrogen peroxide or sodium hypochlorite and are not affected by organic solvents such as dimethyl sulfoxide, ethanol or isopropyl alcohol. These stir elements have been tested and found to be non-toxic to microorganisms.

TSEs are priced low enough to be disposable, but they can be reclaimed, cleaned, demagnetized, autoclaved and then reused if desired. TSEs are supplied demagnetized and become magnetic and begin tumbling when placed in a moving magnetic field. These same stir elements can be coated with Parylene or PTFE to shield reactions that are sensitive to iron ions or to prevent a caustic solution from attacking the stainless steel. TSEs are available in a variety of sizes designed for maximum stirring efficiency in various microplate well diameters, shapes, and liquid depths.

## Tumble Stir Elements are available for:

**24 and 48 Well Plates**
**Standard 96 Well Plates**
**96 Deep Well Plates**
**384 Well Plates**
**1536 Well Microplates**
**Vials and Tubes**
**V Bottom Plates and Micro Centrifuge Tubes**



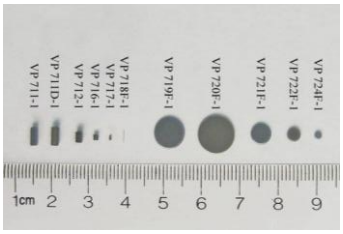

## Selecting which stir element to use is based on the following considerations:

- **Required Efficiency** - disc stirrers are the most efficient at moving liquid
- **Size** - chose a stir element for which the longest dimension is just slightly smaller than the well diameter.
- **Magnetic Strength** - bar and dowel type stirrers have the most magnetic energy and will stir wells at greater distances than the disc type stirrers. Of the two types of disc stirrers, the NEW "F" series stainless steel based on a more magnetic form of stainless steel have the most magnetic energy. Magnetic energy is important if you want to stack microplates on top of each other, or if you place the microplates on a heating block on top of the Tumble Stirrer Deck or if the material you are stirring is very viscous
- **Cost** - bar and dowel type stirrers are the least expensive
- **Coating** - most biological stirring can be done with the stainless steel stir discs, bars and dowels. Coated stirrers, such as Parylene coated or PTFE encapsulated are recommended for combinatorial chemistry.

## 1) Parylene coated Stainless Steel Stir Elements

Stirrers coated with an inert parylene (Di-Para-Xylylene) film are suitable for those applications (chemical) where otherwise eroded Fe molecules may cause interference, or where stirrers may be attacked by strong acids, bases or organic solvents.

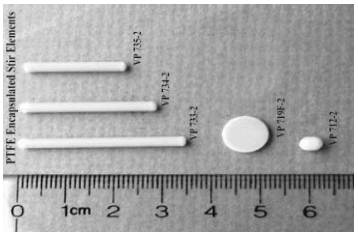
Parylene is stable from -200ºC to 200ºC. However, because the parylene coating is thin it can be worn off after prolonged usage. Parylene coated stirrers can be autoclaved or sterilized in hot air ovens heated to 200°C without harming the coating. Parylene is also bio-compatible as it is completely non-toxic to tissues.




## 2) PTFE Encapsulated Stainless Steel Stir Elements

PTFE is the ultimate inert polymer for encapsulating stainless steel stir elements. This thick layer can't be worn away with normal usage. The durability of PTFE coupled with its corrosive resistant properties make it a good choice for many applications, particularly those in which chemical erosion might be a problem.

We offer PTFE coatings for our most popular sizes of stainless steel stir elements. Whether you are mixing in 96 well plates or vials we have the right PTFE coated stir element for you.




# A Selection Of Our Related Stirrers

## Stirrus Series - Conventional Horizontal Stirrers


**VP 706**
**Mega Stirrus**

**VP 706F**
**Midi Stirrus**

**VP 706G**
**Midi Stirrus 2**

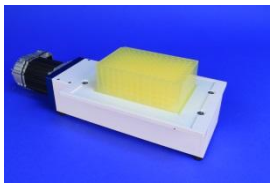
**The Stirrus series** was designed to meet demanding stirring applications where viscous material needs to be mixed. Various models are available, including: **Mega Stirrus VP 706** for mixing large volumes of viscous liquids at speeds ranging from 100 to 450 rpm; **Midi Stirrus VP 706F and the Midi Stirrus 2**, best suited to applications requiring greater mixing speeds, up to 1500 rpm;

**Advantages of the Stirrus Product Line:**

- Ability to stir viscous material in vessels of all sizes
- Complete line of Stirrus stirrers to fit any specific application
- Stirrus base units and corresponding stir elements contain powerful NdFeB Rare Earth magnets, providing an extremely strong magnetic coupling which enables the stirring of viscous material at high speed

## Alligator & Vortex Lateral Tumble Stirrers

**VP 710D2**



**VP 710C5**

**VP 710C5-7**

**VP 7105-7 (with stand)**

**VP 710E5**

The **Alligator Tumble Stirrer** is a world first in magnetic stirring technology. Alligator Stirrers cause stir elements to tumble vertically end-over-end rather than spinning on a horizontal axis. This technology makes possible the efficient stirring in microplates of all shapes and sizes as well as other small tubes and vials. Mix in any shape or size of vessel, in microplates hooked up to a robotic workstation, in stacked microplates with heating, in Tumble or Lateral Vortex stir mode with the same interchangeable device or in several different vessels at once. **Lateral Tumble Stirrers,** instead of creating an end-over-end motion, spin the stir element laterally, creating a vortex cone within the stir vessel. Unlike conventional horizontal stir systems, the Lateral Tumble Stirrer does not require one drive magnet per vessel or well – one drive magnet can stir in many different vessels simultaneously, even in microplates stacked on top of one another with no loss of magnetic power.

**For further information visit: http://webscientific.co.uk/liquid-handling/automated-liquid-handling-products/mixing-and-stirring-technologies/**

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