



VERDERMIX

VERDERMIX

Delivery Program

VERDERMIX

Verdermix Static and Dynamic Mixers

The Verdermix series static and dynamic mixers is a well-balanced program for almost all types of industry. With more than 30 years of experience we have a broad knowledge of fluids and gases in mixing processes.



Verdermix has developed a standard modular system for both static and dynamic mixers. These modules can easily be adjusted to meet specific process requirements. Consequently, our customers can count on expertise, advice and excellent service. Verdermix only uses first class materials, components and accessories, which are proven to ensure a long service life, even in severe applications.

Verdermix Static Mixers

Benefits

- Quick and intense reaction between the mixed liquids and/or gases
- High level of mixing efficiency
- Tanks and agitators are not needed because of inline production process
- Low energy consumption, the energy required for mixing is efficiently extracted as pressure drop from the fluid over the elements
- Low investment costs
- No moving parts thus robust and maintenance free
- Easy and simple to install in your piping system, no special knowledge needed
- Minimum space requirement
- Available in a wide range of metallic and non-metallic materials
- Almost every type of connection is applicable
- Prompt delivery time

Verdermix static mixers are used for mixing of

Liquid - Liquid (with or without solids)
Liquid - Gas
Gas - Gas

Working principle

The static mixer uses a small part of the pump energy that is readily available in your process line. Mixing is accomplished in three ways:

- 1 Flow Division** Each time a product stream passes over an element, it is split in half, separated, creating layers. The number of separations, $N_s = 2^n$ (n = number of elements). This means that with 20 elements in line more than 1 million layers are created.
 - 2 Flow Conversion** The product is pushed over the elements, spiral walls, causing the liquid in the center to move radial to the outer diameter and the product on the outside to move vice versa. This leads to a difference in speed between the product molecules causing shearing of the product.
 - 3 Flow Inversion** The product direction of rotation changes in each element, receiving rapid inversion of inertial force, which agitates the product.
- For products with Reynolds < 2000 the main mixing mechanism is flow division. For products with Reynolds > 2000 the main mixing mechanism is the combination of flow conversion and inversion.



1 Flow Division



2 & 3 Flow Conversion & Inversion





OVERVIEW VERDERMIX STATIC MIXERS

VERDERMIX VMV Series

The standard series of Verdermix static mixers. The elements are fixed inside the tube. Almost all material options are possible. Also available with jacket (double piping) for heating or cooling.

VERDERMIX VML Series

Similar to the VMV series, apart from the elements; they are mounted within the piping providing easy removal for thorough and easy cleaning or unclogging. Also available with jacket (double piping) for heating or cooling.

VERDERMIX VMS Series

Static mixer for the food and pharmaceutical industries. All wetted parts meet the hygienic standards according to FDA. The element is also retractable for thorough cleaning. All known hygienic connections such as Tri-Clamp DIN 32676, Screwed connection DIN 11851, Flanges DIN 11864 are possible. Also available with jacket (double piping) for heating or cooling.

VERDERMIX VMD Series

The mixing element has been soldered through to the whole mixer piping. All the gaps between the individual elements and the piping are filled. This series is recommended for extreme viscosity varieties between the main and the injected product. Internal leakage is prevented. Soldering of the mixing elements into the piping will also increase the heat transfer coefficient, making the VMD series extremely suitable as a heat exchanger.

SPECIFIC APPLICATIONS OF STATIC MIXERS

Applications

- Blending of different media
- Mixing catalyst
- Polyelectrolyte in waste water
- Aromas
- Paint & Lacquer/Dyes
- Media with high solids concentration
- Food
- Pharmaceutical
- Hygienic applications
- Sterile applications
- CIP or SIP
- Extremely high viscous media

Water treatment

- Diluting polymers and blending diluted polymers into the (waste) water stream
- Mixing water with chemicals, eg acids and/or caustics, for neutralization processes
- Blending water streams of different natures into one homogeneous stream
- A sizeable number of large mixers (750 mm diameter) have been supplied for city heating lubes. In this application, water streams of differing temperatures are blended into one stream of consistent temperature for accurate measurement

(Petro) Chemical industry

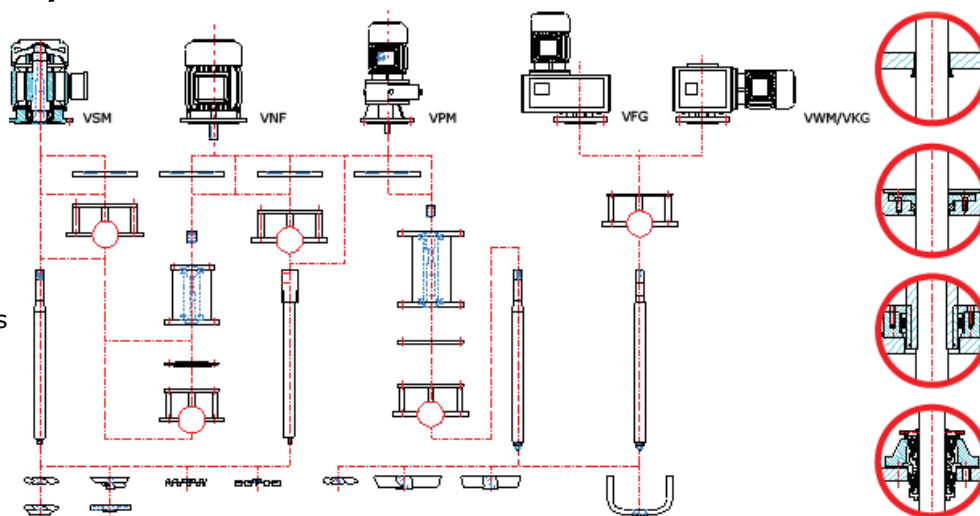
Verdermix supplies metallic mixers with chemical resistant coating or with (conductive) PTFE lining. Suitable for aggressive media, still withstanding high pressures and high temperatures.



Verdermix Dynamic Mixers

Benefits

- Robust
- Stable
- Prompt delivery time
- Modular system
- Easy assembly
- Simply modified for custom-made applications
- Suitable for almost all industrial applications



OVERVIEW VERDERMIX DYNAMIC MIXERS

Verdermix Dynamic mixers series consists of two ranges, direct and indirect driven agitators.

Direct driven dynamic mixers

VERDERMIX VNF Series

All IEC motors have upgraded bearings for a longer life time.



Options	Bearing lantern, sealing lantern with a mechanical seal lip seal or stuffing box, chemical resistant coating.
Additional	Fixed or portable stands can be constructed to meet customer specifications and requirements.
Shaft speeds	Between 750 and 3000 rpm

VERDERMIX VSM Series

This type of agitator uses a special electric motor with a hollow shaft. The robust mixer shaft is fixed with both a conical and a cylindrical fit. Due to the hollow shaft construction the bearings are over dimensioned. A robust and stable design; a perfect construction for heavy duty applications.

Options	Sealing lantern with a mechanical seal, lip seal or stuffing box, chemical resistant coating.
Additional	Fixed or portable stands can be constructed to meet customers specifications and requirements.
Shaft speeds	Between 750 and 1800 rpm





Indirect driven dynamic mixers

The indirect driven mixer is equipped with an electric motor driven gearbox.

VERDERMIX VFG-VKG-VWM-Serie

These types of mixers are an excellent choice when mixable products require blending with great care and intensity. A perfect combination of shaft speed and mixing blade size is of the utmost importance in processes of this nature.

Options	Bearing lantern, sealing lantern with a mechanical seal, lip seal or stuffing box, chemical resistant coating.
Gearbox options	Parallel shaft gearbox (VFG), Helical bevel gearbox (VKG), worm gearbox (VWM)
Shaft speeds	Between 15 and 300 rpm

VERDERMIX VPM Series

This type of mixer is driven through a helical gear unit. When the optimum tip speed can not be achieved with the above mentioned mixers, the Verdermix VPM is the right choice for the transition between direct driven and our standard indirect driven agitators.

Shaft speeds	Between 125 and 750 rpm
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SPECIFIC APPLICATIONS OF DYNAMIC MIXERS

Applications

- Neutralisation in wastewater plants
- Coagulation in wastewater plants
- Homogenisation of low viscous fluids
- Wastewater treatment
- Confectionery industry for continuous operation at high speeds in hot and viscous cacao mixtures
- Mixing fluids of higher viscosities
- Heavy duty applications
- Flocculation treatment
- Reactor vessels
- Homogenisation of solids in liquids

Neutralisation of wastewater

In many wastewater treatment plants the water is neutralised by adding caustics and/or acids. By using high speed agitators, eg VNF or VSM, this process will be completed effectively and efficiently. Because the shaft coupling is omitted, type VSM can easily be protected from chemical attack by using a non-ferrous- lining or chemical resistant coating over the shaft and mixing elements.

The motor bearings can be protected by a non-metallic flange in combination with a sealing ring.

Optimisation of surface contact area in flocculants

In flocculation tanks, it is desirable to optimize the surface contact area of flocs and the particles in the treated liquid. However, the floc must not be damaged due to high tip speed. Type Verdermix VFG is ideal for such applications.

Blending of different media in large tanks

Verdermix can easily adjust its direct or indirect driven agitators to side entry mixers. You do not need a heavy mixer with a long mixing shaft with this design. The side entry mixer is mounted sideways on the tank wall. A sealing lantern with mechanical seal is of course needed to prevent any leakage.



The Verder Group

Passion for pumps & mixers

Liquids handling is the original passion of the Verder Group. Its liquids handling companies supply a wide range of first-class pumping solutions for a variety of industrial purposes. Mixers are a newly added product range to Verder Liquids.

Verder Liquids is active in many industrial sectors including: chemical and process industry, food, pharmaceutical, water treatment, and environmental industries.

Within these industries requirements vary enormously and applications and customer needs change frequently. In order to ensure we provide the best solutions, we analyse and monitor industrial trends as well as maintaining close relationships with our consumers.

International presence

The Verder Group Liquids division has affiliates in:
Austria - Belgium - Bulgaria - China - Czech Republic - France - Germany - Great Britain - Hungary - The Netherlands - Poland - Romania - Slovakia - South Africa - Switzerland - USA.

Your advantages

The advantages of working with us are clear, we can offer you:

- A single-source solution: Verder's wide and complementary range of pumps and mixers allows you to source your entire pumping & mixing needs from one company, reducing your costs and lead time;
- Expertise: Years of providing pumping solutions to industry, have given us valuable experience and knowledge which we are able to use to supply the most appropriate and reliable products;
- International affiliated company: Our size gives you the confidence that you are dealing with a powerful international pump company and if your project involves overseas work then you can profit from our international network of companies by using our local affiliates.

Contact Verder

If you would like to know more about our passionate dedication to pumps and mixers then please visit our website;

www.verder.com/liquidshandling.

You will find the full range of products as well as application stories, latest news and the contact details of your local specialist.

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