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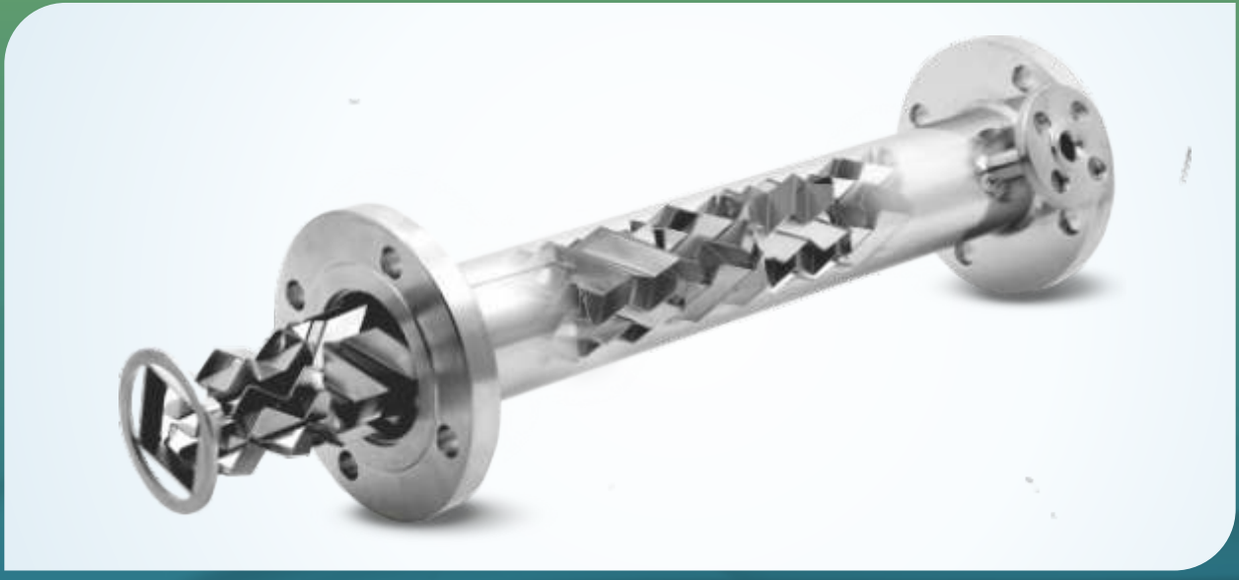
STATIC MIXERS

FINEPAC® STRUCTURES PVT. LTD.

FINEPAC STATIC MIXERS

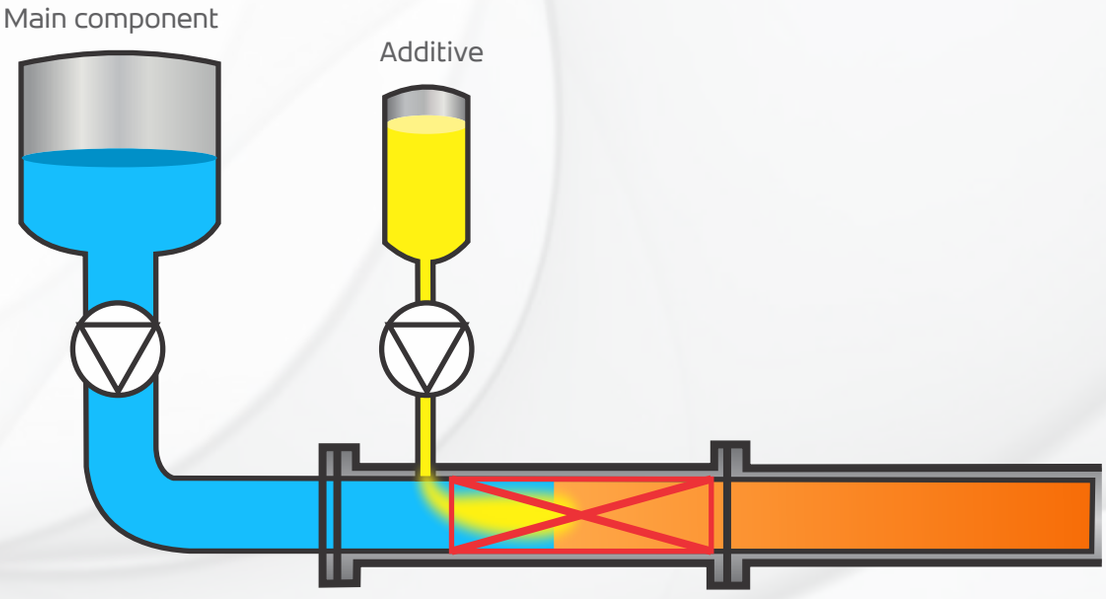


Finepac has excelled in the business of static mixers for more than 20 years and has built up a reputation as an international supplier of top quality static mixers. Over the years we have achieved comprehensive technical expertise in the field of static mixing to provide mixers that enable perfect homogenization and dispersion of liquids and gases without using moving parts. Our mixers are developed keeping the customer requirements under consideration so as to ensure that what we deliver is exactly according to the customer requirements.

PERFORMANCE BY DESIGN

At Finepac we have a strong belief that maximum performance in a process can only be achieved with the right design. Owing to our vast experience and technical expertise in the field of mixing technology we carefully consider the parameters and pre-conditions before developing the best mixer to suit your application. As a result we deliver highly efficient static mixers that link 100% to the process with an energy saving, sustainable and maintenance free technology.

WHAT IS STATIC MIXING?



A static mixer is a precision engineered device for continuous mixing of fluids. They consist of an arrangement of mixing elements installed in a pipe or duct. They function without moving parts and are used to achieve specific dispersion and mixing in a continuous process. They are capable of mixing materials with equal or different viscosities and volume flow rates. The fluid flow is provided by pumping.

Mixing for every volume flow, density, viscosity and substance specific properties.

- **Liquid – liquid mixing**
  Miscible liquids
  Non miscible liquid
- **Liquid – gas mixing**
- **Gas-gas mixing**

Parameters for mixer design

- Flow rate of components to be mixed
- Component viscosities
- Surface tension and specific gravity

FINEPAC STATIC MIXERS

Finepac Static mixers are designed to create a homogenously distributed mixtures between liquids and / or gases in a continuous process. They function without any moving parts and are capable of mixing materials with equal or different viscosities and volume flow rates. This makes the Finepac static mixers very low maintenance components and extremely safe from a process – technical point of view.

Finepac Static mixers are used to deliver effective performance for a number of mixing tasks. They can be used in a blending operation when two soluble components are mixed together to achieve the required droplet size and mass transfer. They are typically used in a number of heat exchange operations where temperature homogenization is achieved or in gas-liquid, liquid-liquid or gas-gas contacting operation.

Mixing of Liquids & Gases

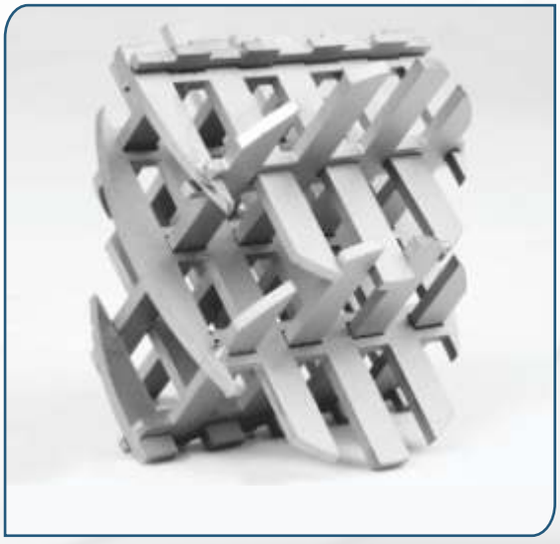
Laminar Flow

In a static mixer based on the laminar principle, the flow is repeatedly split into sub-flow which are merged again. The correct pitch creates a balanced flow from outside to inside and vice versa. The medium to be mixed is thus mixed in a large number of thin layers.

Turbulent Flow

In a static mixer based on the turbulent mixing principle the mixing effect is mainly achieved by internal rotation and the shearing of the layers of fluid at the point.

MIXER PORTFOLIO



Finepac FMX Mixer

The Finepac FMX mixer has been the benchmark in static mixing applications for more than 3 decades. It consists of a grid of inclined bars available in a vareity of sizes. This construction repeatedly divides the components to be mixed into layers and spreads them over the entire cross section of the pipe.

Finepac FMV Mixer

The FMV mixer is made from corrugated plates that form open, intersecting channels in which flow is divided into many substreams. These mixers are generally used in transitional and turbulent flow regimes generally to intensify the mass transfer between immiscible liquids. These mixers are most suitable for gas mixing applications.

Finepac Static Mixer benefits

- Low pressure drop
- No moving parts
- Available in compact sizes
- Low energy dissipation
- In line processing
- Easy scale up

SPECIAL PURPOSE MIXERS

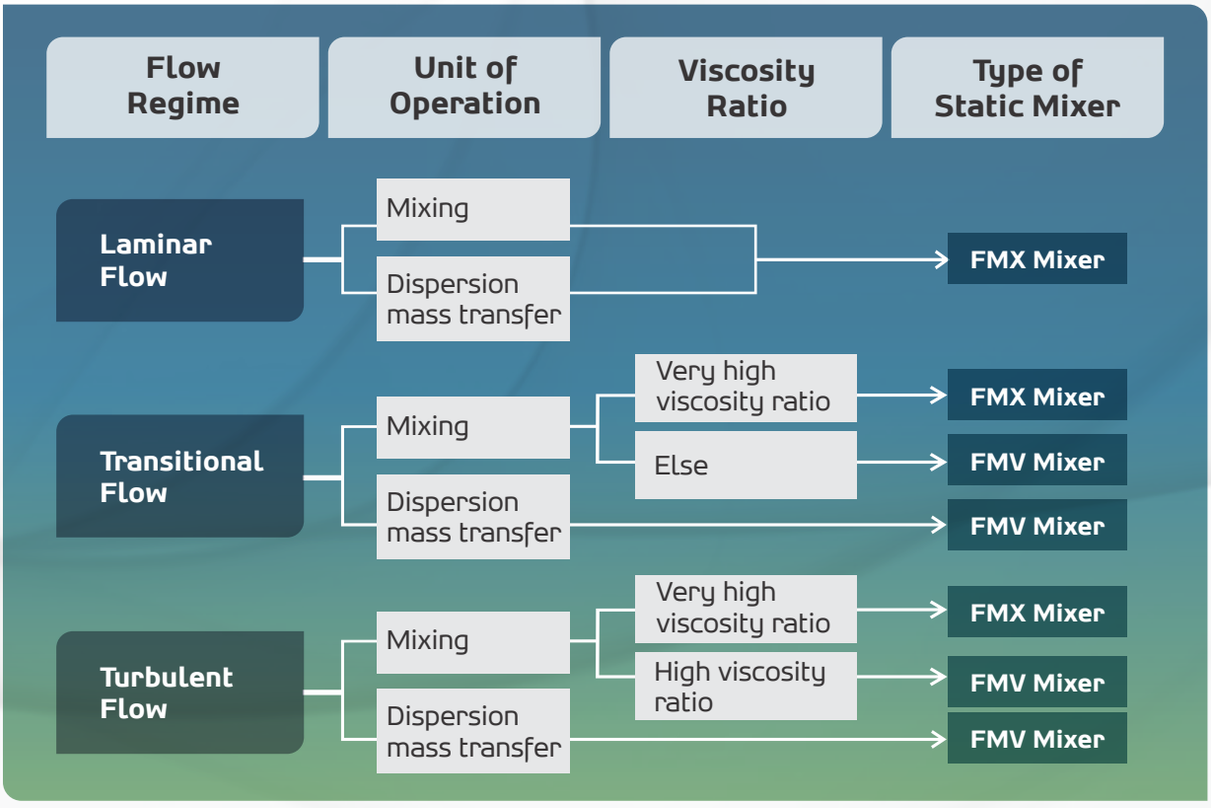
Jacketed Static Mixers

The jacketed static mixer is a special type of a mixer which is provided with a heating or a cooling jacket. These mixers are used in applications where heat is required to be provided or taken away during the mixing operation.

Teflon Lined Mixers

The teflon static mixers are pre-dominantly used for applications involving aggressive chemicals and high temperature mixing. Finepac offers teflon static mixers with a variety of options and configurations to suit nearly any application.

STATIC MIXER SELECTION GUIDE



Features of Finepac Static Mixers

Narrow residence time distribution

Radial mixing in static mixers equalizes not only concentrations and temparatures but also velocity distribution. The equal velocity ensures uniform residence time.

Intense heat transfer

Radial mixing in static mixers evens out deviations in concentration as well as in temperature. Fluid at the core of the pipe is continuously exchanged with that of the wall. The removal of thermal boundary ensures higher heat transfer coefficients compared to pipes and tubes.

Uniform drop size

Finepac mixers are capable of generating a dispersion with a specified mean drop or bubble size and a narrow size distribution if immiscible liquids or gases and liquids are involved.

PERFORMANCE FOR YOUR APPLICATION

Petrochemical Industry

- Crude oil blending and desalting with water
- Dilution of strong acids and bases
- Gas liquid contacting
- Gas stream mixing
- Alkali dispersion in hydrocarbons

Chemical Industry

- Tube reactors
- Evaporation
- Production of monomers
- Alkylation reactions
- Production of organic acids
- Gas liquid contacting

Oil and Gas Industry

- Crude oil desalting
- Gas treatment
- LNG desuperheating
- Gas dehyderation using TEG

Pharmaceutical Industry

- Pasteurisation
- Mixing additives to soap
- Cosmetics
- Penecillin production
- Production of detergents

Water and Wastewater Treatment Plants

- Water aeration
- Seawater desalination
- Water ionization
- Mixing of flocculants into waste water
- Ozonisation of water

Polymers and Fibres

- Polymer melt homogenisation
- Injection moulding
- Cooling of fibres
- Removal of volatile components
- Ad-Mixing of additives

APPLICATION EXPERTISE

Finepac static mixers have proven themselves highly reliable in a wide variety of applications. From conventional bulk processes to processes involving corrosive media, temperature sensitive applications and critical processes, Finepac mixer systems offer huge benefits.

Finepac static mixers have been performing successfully in the chemical process and the oil & gas industry for a number of years. Our solutions in static mixing are backed by a number of reputable references and the latest methods in development, engineering and fabrication to meet the processing challenges of our customers and create long term benefits for them.

Some processes where Finepac static mixers are regularly used are as follows:

- Gas liquid contacting
- Sea water deoxygenation
- Homogenization of products
- Aeration of water
- Contacting multipurpose mixers
- Mixing of bitumen or heavy crude oils
- Pasteurization
- Sea water desalination
- Natural gas blending with other gases
- Production of organic acids
- Dilution of heavy oil with gas oil

APPLICATION CAPABILITIES

Many years of experience and continuous development in static mixing technology have enabled Finepac to offer economic, process congruent and practical solutions to a wide range of mixing problems.

Development Technology

At Finepac we take every effort to ensure that we support our customers the best way possible. We do this by continuing to develop our products which meet the stringent requirements of the dynamic process industry.

The research & development engineers and the process experts at Finepac constantly work on developing our products for improved performances.

Manufacturing capabilities

Finepac has a long-standing tradition in manufacturing excellence. Finepac owns dedicated factories with excellent infrastructure to produce mixers, columns and heat exchangers. For some special cases we have associated ourselves with proven and well known subcontractors who are bound by Finepac manufacturing policies and quality standards.

Packaging and Delivery

Finepac applies rigorous standards when it comes to transport conditions and packaging. At Finepac this is already considered at the design phase to ensure that your process equipment arrives on site in perfect condition. We can also deliver a number of variants of quality mixers from stock. These mixers are put together from components in stock and provide for the same engineering expertise as in case of custom made Finepac mixers.

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