

The Agitator - September 2019

Static Mixers

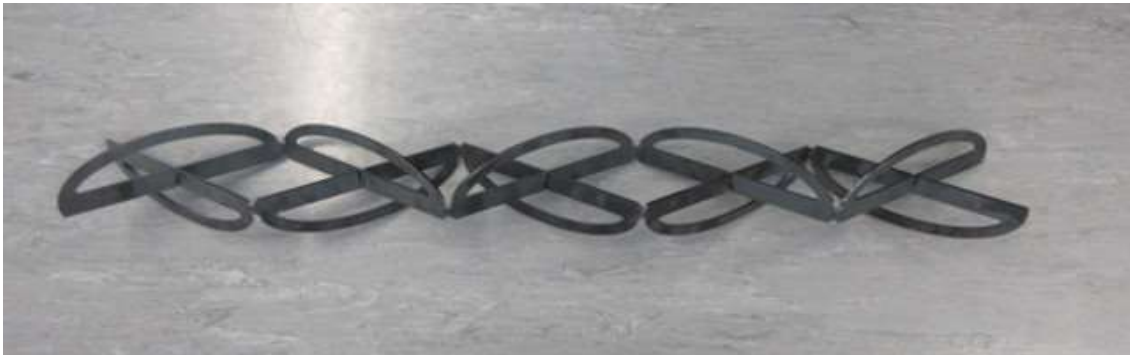
Static Mixers are used across a multitude of industries for various applications such as chemical dosing, flavouring, thermal homogenisation and blending 2 product streams to name a few. They are designed for inline mixing in a pipeline and are well proven in the field offering a number of benefits. As the name implies, static mixers have no moving parts, the energy to mix, or blend, is provided by the pressure in the pipeline. There are 2 main types of static mixer, those with internal elements which divide, divert and re-combine the flow of the fluids multiple times through a short length of pipeline, and those which impart turbulence within a pipeline that continues the mixing process for some distance downstream of the static mixer.



Static Mixers, traditional 'D' element on left, wafer type on right

Benefits of static mixers:

- Static mixers provide a high level of mixing efficiency, thus keeping the consumption of dosed chemicals and additives to a minimum.
- They can eliminate the need for tanks, agitators, moving parts and drives.
- The installation is very easy, no special skills are required other than normal engineering skills.
- Mixers have no moving parts which makes them virtually maintenance free.
- Static Mixers are available in standard pipe sizes, specials available on request.
- Each Static Mixer is carefully designed to meet the specific requirements of each application.



'D' element static mixer insert prior to being welded into static mixer body

Static Mixer Options:

- Static mixers can be manufactured from various materials including stainless steel, PVC, HDPE, PTFE lined steel, Hastaloy, etc.
 - The mixing elements can be fixed or removable for cleaning purposes.
 - They are available in a range of diameters from under 10mm up to 750mm NB and beyond.
 - They can be supplied with single, multiple, or no injection and sampling ports.
 - Different connections for main line and side streams available, flanged, threaded, plain, etc.
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PVC static mixer with steel backing flanges and one side stream injector

Typical Applications for Static Mixers

- Water and wastewater treatment;
 - chemical dosing
 - pH control
 - Diluting flocculants and mixing with water, wastewater or sludge
 - Coagulation processes, e.g. for phosphorous removal from wastewater
 - Food and pharmaceutical industries;
 - Mixing carbon dioxide in fruit juices, wine, etc.
 - Diluting concentrates and mixing flavours.
 - Diluting molasses with water.
 - Pulp & paper industry;
 - Acid and caustic dilution.
 - PH control.
 - Blending.
 - Low consistency bleaching.
 - Oil, gas and petrochemical industries
 - Measurement of water content of crude oil in pipelines.
 - Desalting crude oil with water.
 - Diluting polyacrylamide for enhanced recovery.
 - Mixing additives into gasoline or fuel oil.
 - Adjusting the viscosity of heavy fuel oil with gas oil.
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PFTE Lined Static Mixer for Corrosive Chemical Processing

Mixtec Static Mixers

Contact Western Engineering / Mixtec with your static mixer requirements. We will design a static mixer specific for your application out of the most appropriate materials and advise the calculated CoV and pressure drop.

Dynamic Mixers for Coagulation and Flocculation

Please see our latest Technical Article regarding coagulation and flocculation mixers for water clarification

<https://www.westernengineering.co.nz/index.php/downloads/articles>



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