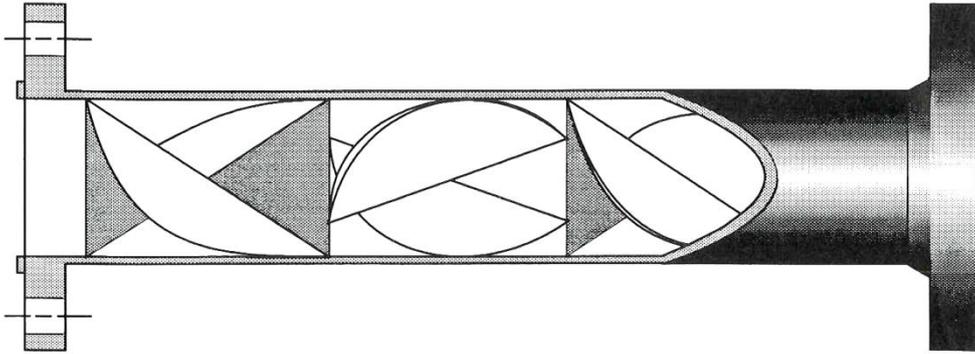




CHEMPLANT STATIC MIXERS



The Chemplant Static Mixer is an inline mixing device with no moving parts. This makes it a unique piece of processing equipment as it requires no external power source and is completely maintenance free. The Chemplant Static Mixer produces a homogeneous blend or dispersion in a laminar, transitional or turbulent flow regime within a very short length of pipe.

OPERATION

Chemplant Static Mixers have elements which rotate the fluid around a hydraulic centre. This directs flow radially to the walls and back to the element regardless of the velocity or Reynolds number. The elements are combined with alternating offsets to maximize mixing efficiency by utilizing the action of momentum reversal and flow division.

Turbulent Flow:

Mixing occurs mainly as a result of momentum reversal. This means that the fluid is forced to change the direction of rotation by the twist of the following element.

Laminar Flow:

Mixing occurs as a result of flow splitting and rotation. This causes build up of increasing numbers of layers of material and these layers split each time the fluid passes between two elements thus causing mixing.





CHEMPLANT STATIC MIXERS

PROCESS APPLICATIONS

MIXING AND BLENDING

Chemplant Static Mixer can process any combination of miscible fluids in all flow regimes. A Static Mixer in a turbulent flow regime removes any risk of stratification which regularly occurs if mixing is left to natural turbulence. The static mixer provides a mix equivalent of 80-100 pipe diameters.



Cross-section of Static Mixer demonstrating mixing progress.

DISPERSIONS

The uniform shear characteristics of the Chemplant Static Mixer results in accurate drop size prediction when processing immiscible fluids. This allows the designer to predict mass transfer very accurately. Dispersion of both gases and liquids are all achievable with this mixer.

CHEMICAL REACTION

By causing the fluid to rotate as it passes through a Chemplant Static Mixer, the velocity in the centre of the mixer is reduced and increased at the wall.

APPLICATIONS

HYDROCARBON & CHEMICAL PROCESS

- Blending additives to process streams
- Gas and liquid scrubbing
- Direct steam heating
- Laminar flow heat exchange
- Oil / Water sampling
- Dispersion

WATER AND WASTEWATER TREATMENT

- pH samples and control
- Flash mixing of flocculation and coagulation aids
- Disinfection
- In-line aeration
- Polymer addition

FOOD AND PHARMACEUTICAL PRODUCTION

- In-line gas sparging
- Mixing fragile, shear sensitive materials
- Flavouring and coloration addition
- Syrup dilution
- Marbleizing, creating "layer effect"

PULP AND PAPER PRODUCTION

- Stock bleaching and blending
- Consistency control
- Chemical preparation
- Pulp and board production
- Direct steam heating
- pH control

STANDARD PRODUCTS

SIZES

Range from 12mm Ø to 1500mm Ø

MATERIALS

- | | |
|-----------------|------|
| Mild steel | PVC |
| Stainless steel | CPVC |
| Hastelloys | PTFE |
| Monel | |

END CONFIGURATIONS

- Plain
- Screwed
- Flanged

CUSTOM DESIGN OPTIONS

Chemical Plant & Engineering is willing to undertake custom designs including such options as injection ports, jackets, special materials and coded manufacturer.

Static Mixer elements can also enhance heat transfer coefficients when inserted into heat exchanger tubes.

CHEMICAL PLANT & ENGINEERING

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