ForuMix™

Featuring modulated in-line mixing technology, the ForuMix multiphase mixer simplifies and enhances crude-water mixing and separation operations. By evenly dispersing uniform drops of injection fluid into the main process flow, it supports high-efficiency mixing and flow homogeneity that dramatically improves mass transfer between flows while assisting downstream flow separation. Flexible, compact, low-pressure drop and low-maintenance, ForuMix reduces chemical, energy and water consumption to provide a high return on investment.

ForuMix™ offers the oil and gas industry's most advanced and adjustable multiphase mixer, specifically designed for dual-fluid mixing.

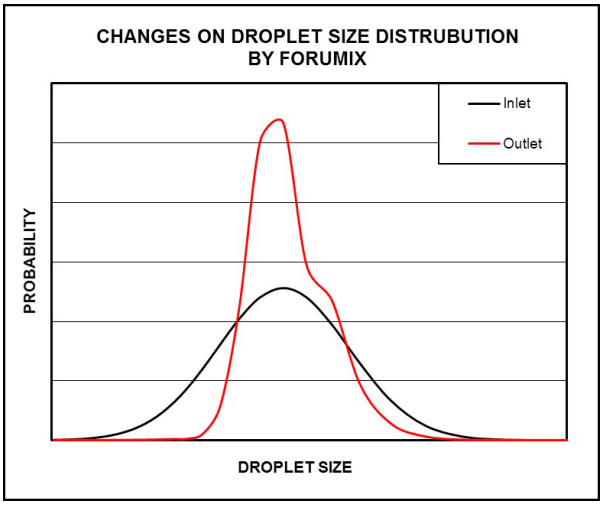
What makes ForuMix unique?

The unique design of ForuMix, creates homogeneous, adjustable shear force over the entire cross section of process flow. Holes arranged on the mixer's inlet and outlet generate even droplets that significantly increase interfacial contact area, enhancing mass transfer between different flows. It also generates moderate, efficient turbulence inside the internal mixing sphere that improves mixing efficiency and flow homogeneity with low-pressure drop.

The highly adjustable internal sphere can be automatically or manually rotated to open/close the holes. This accommodates flow fluctuations and regulates mixing/pressure changes while producing an optimal droplet size range – maximizing mixing and separation to produce uniform mixing and better downstream separation.

How does ForuMix compare with traditional mixing technologies?

Traditional inline mixing technologies inherently produce extreme, non-homogeneous local shear forces. Unlike traditional inline mixing technologies, such as static mixers, and mixing valves, or dynamic mixers, ForuMix utilizes process flow momentum along with its unique structure of internal mixing element to produce evenly sized droplets and symmetrical turbulent eddies inside the internal mixing sphere to achieve homogeneous flow condition with no dead mixing space. Traditional mixing technologies yield higher pressure drops combined with non-homogeneous shear forces, which generate undesired stable emulsions and inefficient mixing.



ForuMix™

Benefits

- Adjustable degree of mixing
- High-efficiency mixing throughout the whole operation range (high turndown)
- High-efficiency multiphase mixing
- Low emulsion formation and high-efficiency separation
- Reduced pressure drop (2~5 psi vs 7~20 psi)
- No dead mixing space
- Reduced chemical/water consumption
- Orientation-free installation
- Compact design with small foot print
- Low installation cost and high return on investment
- Low maintenance

Applications

ForuMix adds value to any process that needs homogenous mixing or increased contact surface area between two or multiple mixing fluids (e.g. absorption, extraction, dispersion and drying).

Crude Desalting and Dehydration

Wash water injection/mixing into crude oil is at the core of the desalting/dehydration process. ForuMix efficiently utilizes wash water and chemicals, enhances salt content removal and improves crude water separation. During the desalting process, it maximizes salt mass transfer between the oil-water phases and improves separation, leading to less carryover of basic sediment and water, oil-in-water and salts.

Liquid-Liquid Mixing

ForuMix provides moderate but effective mixing of two liquid streams, such as oil-oil, oil-water or water-water, to produce a homogeneous mix at any phase of the process.

Chemical Injection

By providing high fluid exposure among different flows, ForuMix improves the performance of production chemicals – emulsion breakers, scavengers, inhibitors, others – typically found in the crude oil treatment train. It also greatly mitigates overdosing, thus lowering operating expenses and improving the overall downstream process.

Multiphase Mixing

In addition to one-phase (oil-oil, water-water) or two-phase (liquid-liquid, oil-water) flows, ForuMix also efficiently mixes multiphase flows (oil, water, gas). Homogeneous multiphase mixing is essential for accurate sampling in quality control and production monitoring activities. It can also enhance the performance of gas injection into the liquid flow, such as induced-gas flotation units in the produced water treatment chain where gas is injected and mixed with water flowing into a flotation tank. The homogeneous mixing between gas and water produces the even bubble distribution and surface areas required to collect water-suspended matter.

Standard Features

- Carbon steel (A105N) body
- Stainless steel (A182-F316) internals
- Easytork® vane actuator (EVA)
- Size range: 6-24 inches
- Process flow range: 20,000-400,000 BPD
- Pressure rating: 150#-600#

Custom Features

- Size range: 4-36 inches
- Pressure rating: 150#-4500#
- Extensive range of materials: stainless steels including austenitic, Alloy 20, Alloy 990, duplex/superduplex; MONEL®, INCONEL®, INCOLOY®, nickel, titanium, HASTELLOY® B/C, zirconium

Forum Energy Technologies is a global provider of manufactured technologies and applied products for the energy industry. Our production and infrastructure offerings include engineered process and production systems, measurement and monitoring systems, construction and field services, an extended range of valve and desalting products and a full lifecycle of produced water treatment equipment.

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