Typical Turbulent Flow Applications	No. of KOMAX Elements
Waste Water Flocculation	2-4
Waste Water pH Control	2-6
Water Chlorination	2-4
Oil or Gasoline Blending	2-4
Gas to Gas Dispersion	2-3
Contacting	2-4
	2-8

Typical Laminar Flow Applications	No. of KOMAX Elements
Explosives	3-8
Food Blending	6-12
1:1 Ratio Epoxies	18-24
Urethane Elastomers	21-27
Paint Coloration	27-42

Mixing Problems

- Liquids
- Gases
- Gas-into-Liquid
- Reaction Chemicals
- Reactive Resins
- Slurries
- Particulate Solids
- Dry Powders
- Thermoplastic Pellets
- Emulsification
- Emulsion Breaking

KOMAX Installations

- Waste Water Treatment
- Pulp and Paper
- Chemical Processing
- Petrochemicals
- Potable Water Treatment
- Pollution Control
- Power Plants
- Agriculture
- Food Processing
- Plastic Foams & Coatings
- Crude Oil Sampling

Materials of Construction

KOMAX mixers are available in the following materials:

Stainless Steel	Teflon*
Carbon Steel	Kynar†
Polyvinyl Chloride (PVC)	Titanium
Fiberglass (FRP)	Special Alloys

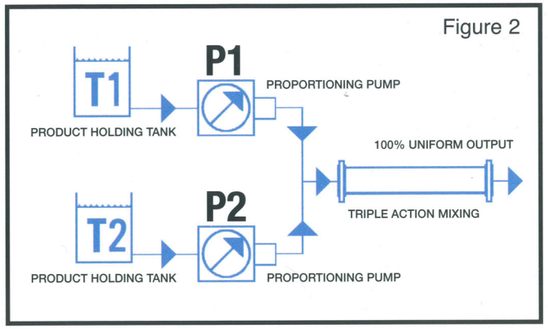
**Dupont trademark †Pennwall trademark*

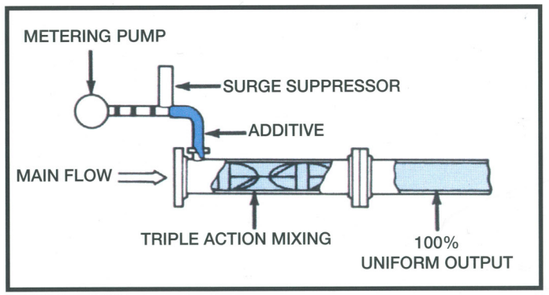
OTHER KOMAX PRODUCTS AND SERVICES

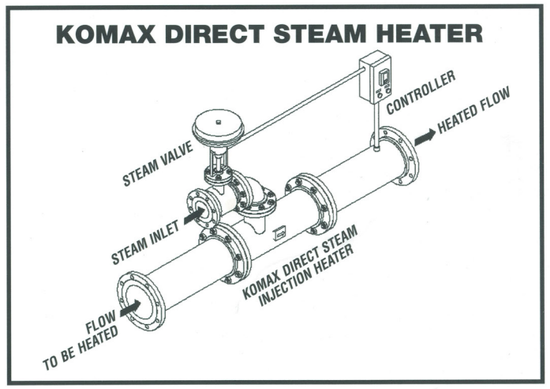
KOMAX will design a complete Static Mixer system for your application. Company engineers are experienced in the design and fabrication of additive input ports, spargers and diffusers that can enhance the mixing action and reduce the number of elements required. A phone call, fax or e-mail will bring you the benefit of this expert knowledge.

Typical Arrangements

Figure 2







KOMAX SYSTEMS·INC
MIXING BY DESIGN

15301 Graham St., Huntington Beach, CA 92649
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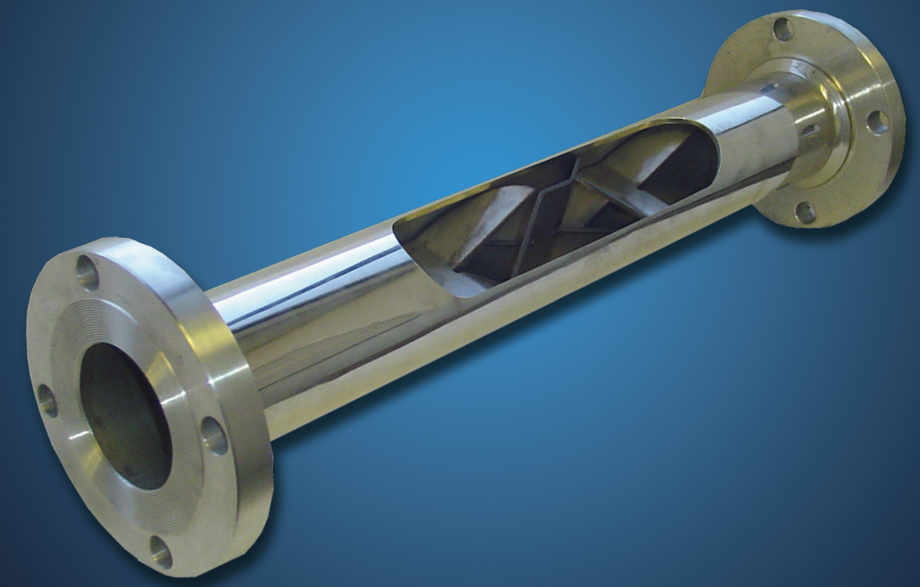
KOMAX

MIXING BY DESIGN

TRIPLE-ACTION STATIC MIXERS



•LIQUIDS • GASES • SLURRIES • PARTICULATES

KOMAX Static Mixers for fast, efficient, low energy in-line mixing.

A Static Mixer is a fixed arrangement of baffles enclosed in a tube or pipe. Process-stream flow provides all of the energy required for complete mixing with NO MOVING PARTS.

KOMAX Static Mixers offer big advantages over motor driven designs and competitive in-line mixers:

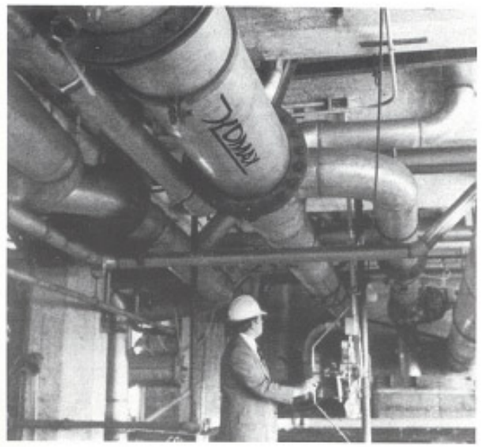
- Continuous, in-line processing of liquids, gases and solids.
- Predictable blending, dispersing, and reaction time.
- Uniform temperature and velocity profiles from centerline to outside wall.
- Efficient use of energy-gravity alone is often sufficient.
- Low capital cost, zero maintenance, and long service life.

Static Mixers are available in a variety of styles. But only KOMAX mixers deliver on all of these promises. The KOMAX mixer is the first and only triple-action motionless mixer.

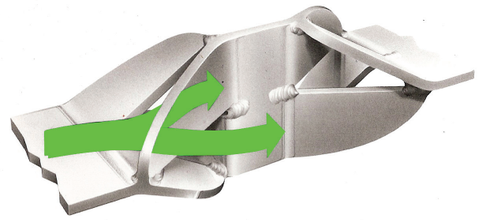
KOMAX triple-action mixers are applied to problems that range from the blending of heavy slurries and pastes to the mixing of low viscosity materials such as petroleum distillates or water additives.

KOMAX triple-action mixers achieve turbulent flow at a Reynolds number of 500 - compared to the 2000 value required in conventional static systems. This means that turbulent mixing occurs with only one-fourth the flow normally required.

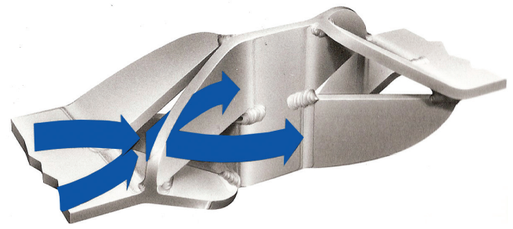
KOMAX Motionless Mixers are available in a range of pipe sizes from 3/4-inch to over 6 feet and in a variety of materials (see back page).



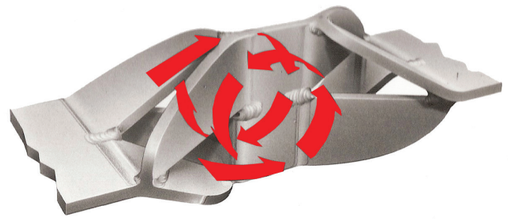
1. Two-by-Two Division
KOMAX mixers divide and re-divide the process stream with a series of elements set at right angles to each other. Each element doubles the number or previous divisions. Twenty elements produce over a million divisions and recombinations.



2. Cross-Current Mixing
Special cavities randomize the distribution of material by DIRECT STREAM IMPINGEMENT. This enhances and optimizes the two-by-two division process to make it truly effective.



3. Counter-Rotating Vortices & BACK-MIXING
Under the turbulent flow, both sides of each KOMAX element produce elliptical vortices rotating in opposite directions. This eliminates the streaming or tunneling effects associated with early static mixer designs. In addition, an optimum degree of BACK-MIXING occurs as material is orbited in the vortex from the front to the back of an element before continuing downstream. This produces a substantial improvement in mixing efficiency - fewer elements are required resulting in a lower pressure drop for a given mixing task.



Static Mixer Selection Guide

Use the following three simple steps to solve most turbulent flow mixing problems:

1. Calculate the Reynolds number Re from Re = 3157QS/μD, and velocity from V=.408Q/D2 feet/sec. where Q = flow rate in US gpm, S = specific gravity, μ = viscosity in cp, and D = pipe inside diameter in inches.

2. Enter the first graph at the calculated velocity and move up to the calculated Reynolds number region. No move horizontally to the left and read the required number of elements. Round to the nearest upper number.

3. Enter the next graph at the velocity value and move up to the line corresponding to the number of elements. Move horizontally left to read the basic pressure drop. Correct for specific gravity and viscosity.