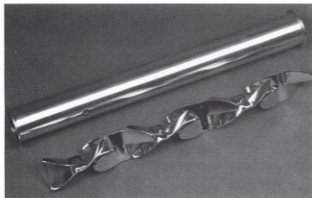
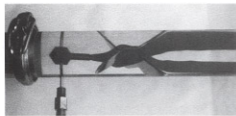


## SANITARY MOTIONLESS MIXERS



Komax in-line static mixers convert a multiple component input stream into a uniformly blended output. They find application in mixing a wide range of food products. These include "solids" such as margarines, tomato paste, viscous liquids like syrups, and light fluids similar to soft drink products.

No moving parts are involved, and elements may be removed for ease of cleaning or cleaned in place. Mixers are supplied with clamp type sanitary ferrules and are available in sanitary tube sizes from one inch through twelve inch.



The photograph shows how a single Komax element divides a colored input stream within a clear heavy syrup. Note the complete transfer of the center colored material to the tubing wall. At the same time the displaced clear wall material moves to the center of the tube. This radial transfer and stream division occurs at each element. In this fashion, multiple divisions and recombinations occur. This is shown by the table below for a single input stream.

Number of elements	1	2	3	4	5	6.....10.....20
Number of streams	2	4	8	16	32	64.....1,024.....1,048,576

Lighter viscosity products such as fruit juices are usually mixing under turbulent flow conditions, and require only six to eight elements for complete blending.

Komax sanitary mixers are made from 316 stainless steel and housed in 316 stainless steel sanitary tubing. Flow direction arrows assure proper installation.

Komax mixers are powered only by the proportioning pumps in the tube or pipe line system. Substantial power savings are achieved over conventional batch mixing techniques. Results are highly predictable and product quality and uniformity is assured.

# SANITARY MOTIONLESS MIXERS

## TYPICAL APPLICATIONS

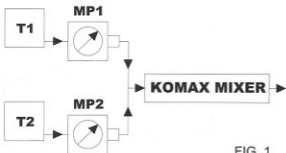


FIG. 1

### PRODUCT BLENDING

Typical applications in the food industry involve blending of heavy syrups or paste type products with light viscosity material such as water. In Fig. 1 the storage tanks T1 and T2 supply material to the metering pumps MP1 and MP2. These pumps provide a proper product ratio that is delivered via a sanitary tee to a Komax motionless mixer. This allows a high standard of product quality and consistency to be achieved on a *continuous flow* basis as opposed to batch mixing.

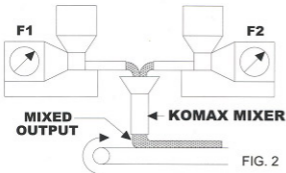


FIG. 2

### PARTICULATE SOLIDS MIXING

Most particulate materials or powders may be handled by this method. Examples are sugar, grain, salt or flour type products. In Fig. 2 volumetric feeders F1 and F2 supply powder or particulate materials to the input of a Komax mixer. Gravity supplies the power for mixing of materials through the vertically mounted Komax mixer. A uniformly blended output is delivered to the conveyor belt. Liquids and powders may be combined in a highly reliable and consistent fashion.

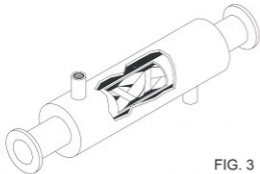


FIG. 3

### IN-LINE HEATING & COOLING

Komax heat exchangers are not like conventional exchangers. Products often suffer in conventional heat exchangers from spot heating or cooling at the walls. Komax elements eliminate this effect through the radial mixing action shown earlier in the second photograph. This radial mixing produces what is called plug flow to eliminate spot heating or cooling. All product spends the same amount of heating or cooling time in the exchanger. A constant temperature profile is established resulting in uniform heating or cooling.

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MIXING BY DESIGN

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