

# **KOMAX**

MIXING BY DESIGN

## ***WAFER STATIC MIXER***



# KOMAX Wafer Mixer for limited pipeline space, rapid, energy-efficient in-line static mixing

Komax Wafer Static Mixer offers advantages over traditional mixers:

- Designed to clamp between existing pipe flanges
- Allows up to three injection ports
- Uses patented vortex-generating element technology
- Clog-resistant counter-flow injection
- Sizes available from 4" to 60" nominal diameter
- Available in standard materials of construction: Carbon Steel, Stainless Steel, PVC, FRP, and can also be made out of Titanium or specialty alloys as required
- Low capital cost, no moving parts, maintenance free, low head loss and long service life

When pipe line space is limited for installing a traditional static mixer, the patented Komax Wafer Type Static Mixer solves space and mixing problems. The Wafer mixer can be installed between the two pipe flanges in the main water stream.

KOMAX WAFER MIXER technology employs a unique vortex generating element group<sup>1</sup> that helps achieve a desirable mixing quality by creating three-way counter-rotating vortex pairs as compared to typical energy inefficient two-way mixers in the market. Extensive studies were carried out to determine optimal design parameters of the element such as height and inclination angle, which offers short mixing length with low-pressure loss in various flow conditions.

The additive chemical is introduced in the center line of the mixer on the upstream side. A discharge cone<sup>2</sup> enables the injected chemical to be distributed evenly through the three vortex-inducing passages. The pressure difference between front and rear side of each element produces reversed flow that carries the chemical back toward the rear side of the mixer where intensive mixing occurs by the resulting vortical structure from the distinctive three-way counter rotating vortex pairs.

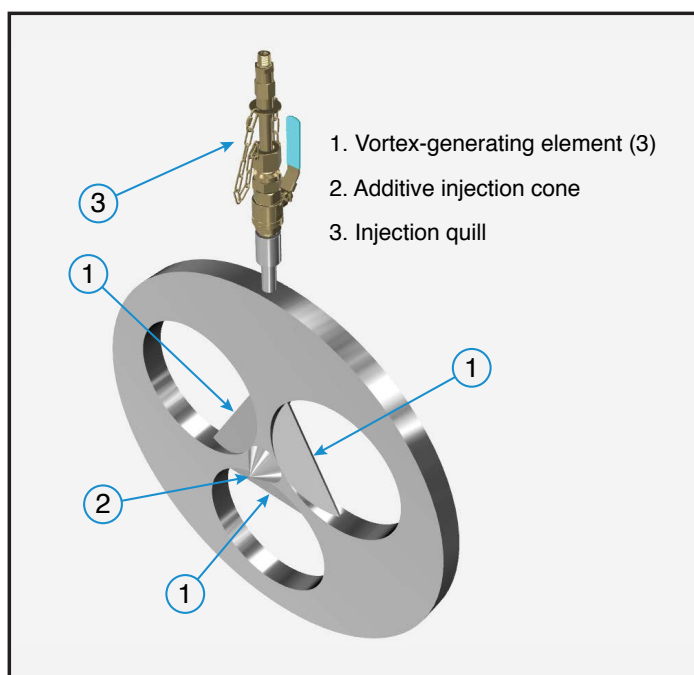


Fig. 1 - Wafer mixer component detail

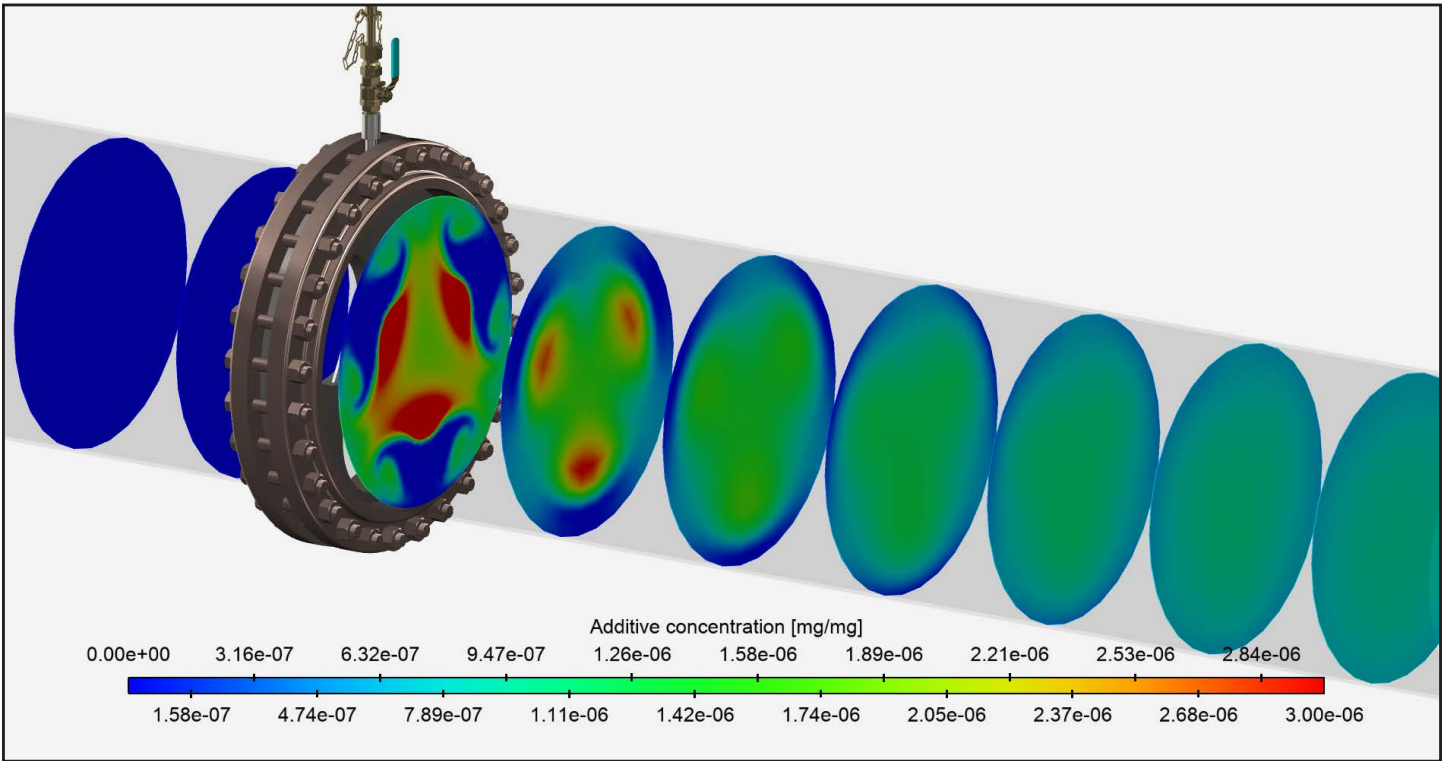


Fig. 2 - CFD analysis of 30" wafer mixer installed in Riverside, CA. Proven to achieve a CoV of 0.05 or lower

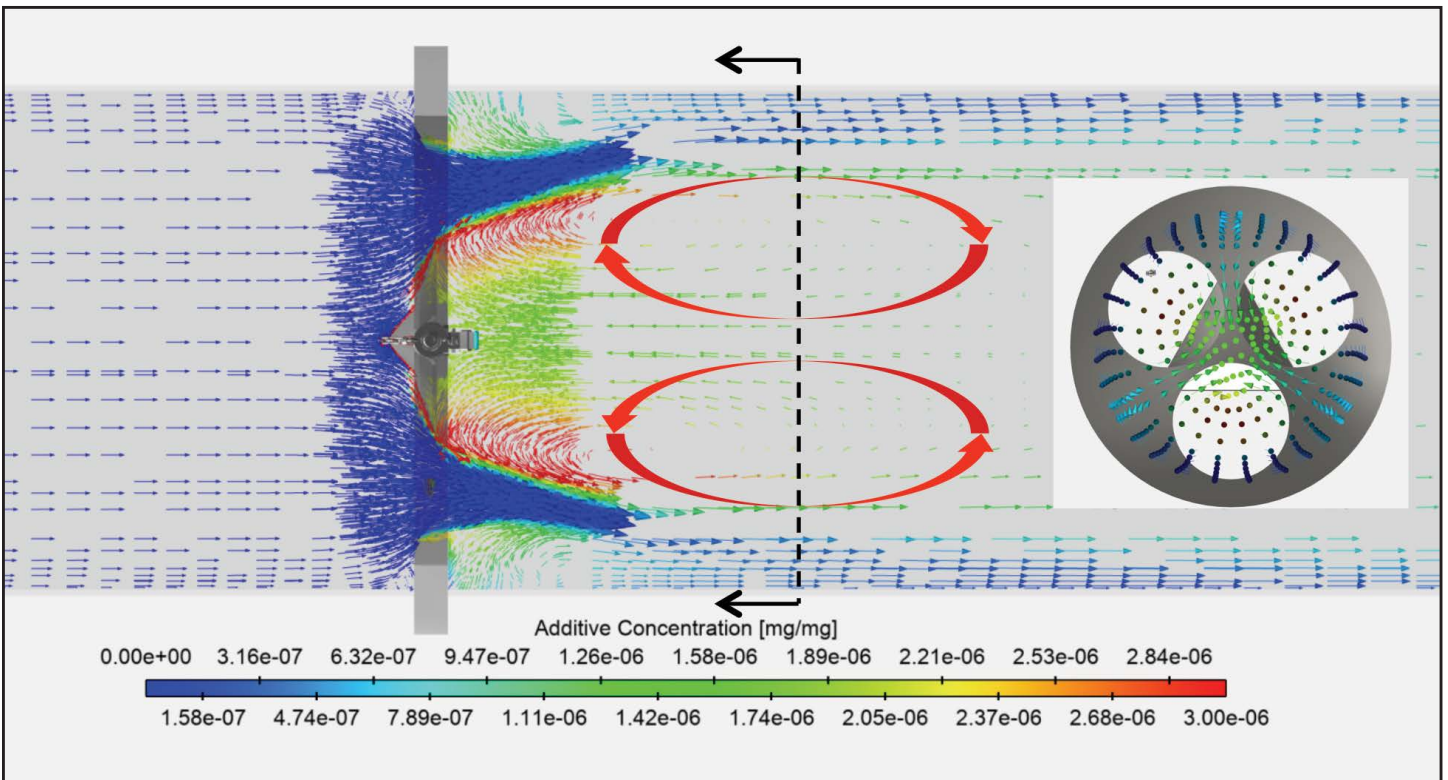


Fig 3. - Velocity vector profile colored in an additive chemical concentration

# Typical Assembly Schematic

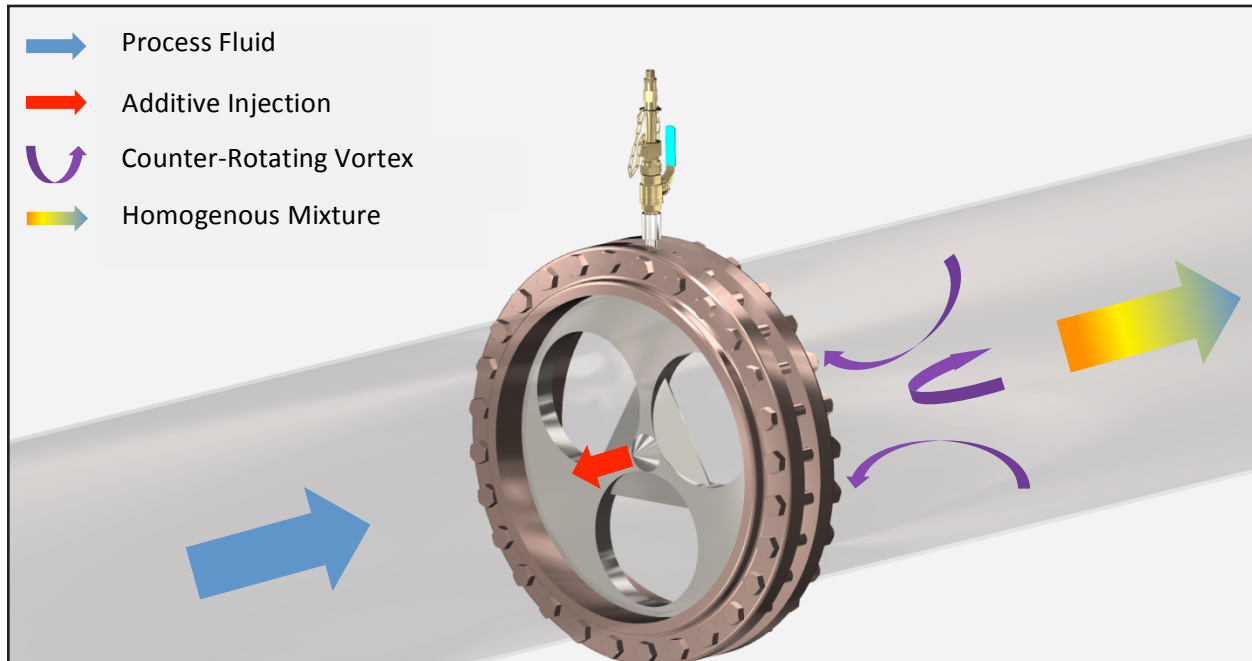


Fig. 4 - Wafer mixer sandwiched between two flanges. OD of the wafer mixer is equal to the raised face of the flange. Typical Wafer Mixer plate thickness is 2"



Fig. 5 - 30" wafer mixer installed between flanges

## TYPICAL WAFER MIXER APPLICATIONS

- Waste Water Flocculation
- Water/ Waste Water pH control
- Water/ Waste Water Dechlorination
- Water Chloramination
- Mixing any other additives into water

## OTHER KOMAX PRODUCTS AND SERVICES

KOMAX will design a complete Static Mixer system for your application. Our engineers are experienced in the design and fabrication of additive input ports, spargers, and diffusers that can enhance the mixing action. Call or email Komax Systems for a custom mixing design to achieve and exceed your process requirements.



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