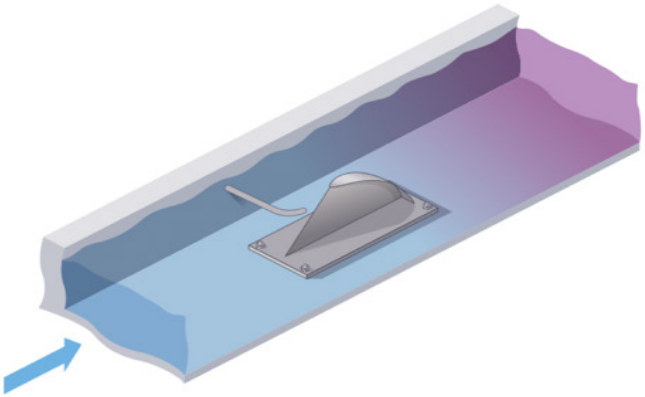
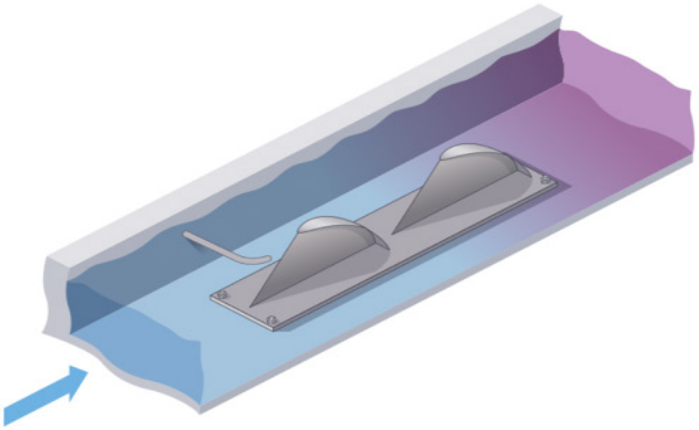
WESTFALL

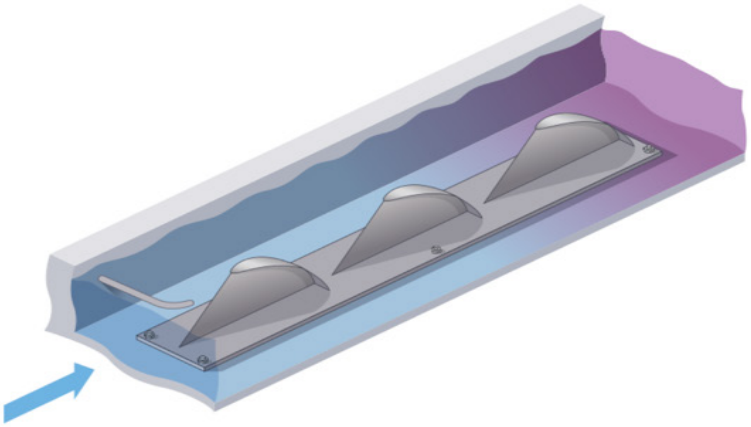
Open Channel Low Headloss Static Mixer 5000



Single Stage Model



2-Stage Model



3-Stage Model

A NEW OPEN CHANNEL MIXING SOLUTION

The Westfall Open Channel Static Mixer 5000 is destined to become a new global standard in open channel mixers. The mixing device offers an innovative infrastructure solution that is affordable, durable, easy to install and applicable worldwide.

While open channel systems are popular and inexpensive, they are susceptible to fouling, pollution from runoff, reduced flow caused by drought and flooding from excessive headloss or storms. Often these channels flow through remote areas where there is little power available for mixing. In war torn countries there is a desperate need for improved water treatment systems but little money to pay for them.

Westfall's Open Channel Static Mixer 5000 solves a number of these problems.

Open Channel Low Headloss Static Mixer 5000

+ A GLOBAL SOLUTION

Open channels are an inexpensive way to transport both potable and wastewater to treatment and delivery plants without constructing pipelines. However, many open channel systems---canals, aqua ducts, ditches---in use around the world today are aging and inefficient. Problems arise from environmental stresses and man-made issues.

Westfall recognized the need for a simple drop-in mixer that would solve some of these worldwide problems. A static mixer designed to be affordable, durable, require no outside source of power and be easy to retrofit. A mixer that would efficiently treat potable and wastewater. A motionless mixer designed to resist fouling.

+ OPEN CHANNEL STATIC MIXER MODEL 5000

The Westfall Open Channel Static Mixer 5000 offers a simple infrastructure solution that is applicable worldwide. A series of hydrodynamic vanes are anchored linearly along the centerline of the open channel. The patented vanes are designed and custom made to resolve the major problems engineer's face when moving water along open channels.

+ BENEFITS

Typical installations include irrigation channels, wastewater treatment channels, potable water treatment ponds and aquaducts carrying rainwater/ snowmelt from mountain rivers to flat lands.

The mixing requirements and amount of headloss tolerated determine the number and size of vanes. The mixer is engineered to accommodate changing water levels so flooding is avoided and the mixing cap remains effective at lowest predicted levels.

The Model 5000 includes an injection nozzle positioned upstream of the first vane member and constructed so additives are transported into the zone of bulk circulation for full mixing within 10 diameters.

+ EASE OF INSTALLATION

The mixing device easily drops in to both new construction and retrofits. Vanes are welded to baseplates that are in turn anchored to the channel bottom at precisely determined locations.

Once manufactured to size, this static mixer can be installed in an existing empty channel. With the use of commercial divers, it can also be installed in a full channel, usually in one day.

In open channels problems include flooding, fouling, unpredictable flows and inadequate mixing. These problems cause the loss of water at a time and in places where the lack of water (or lack of potable water) is an increasing economic, environmental and human health concern.

+ COMPUTATIONAL FLUID DYNAMICS (CFD)

Westfall partners with Alden Laboratories to conduct CFD analyses on all its products as a standard part of their research and development protocol. Alden is an internationally acclaimed leader in solving flow-related engineering and environmental problems. They operate the oldest continuously operating hydraulic laboratory in the United States. A CFD analysis conducted by Alden Laboratory can be provided with any order, so the exact size, shape and spacing of the mixing vanes is achieved for optimal CoV and K values. CFD Reports can be downloaded at www.westfallmixers.com.

+ FEATURES

- 45 degree angled upstream edge promotes easy passage of debris.
- Triangular shaped flare at the front and top, or mixing cap, induces counter-rotating vortex swirl for rapid and efficient mixing.
- Linear placement of curved vanes reduces headloss.
- Choice of 1, 2, 3 or more vanes aligned along a centerline provides the required amount of mixing.
- Materials include: Stainless steel, FRP or coated carbon steel for durability.
- Effective in open channels up to 20' wide and 20' deep.
- FEA tests prove that Westfall vane mixers will last more than 40 years with little to no maintenance.

Data and Chart from the CFD Analysis

Mixer Headloss	Units	Minimum Flow	Maximum Flow	**k-Value**
No Mixer	(mm)	0.0	0.0	
Mixer 1 Only	(mm)	0.3	4.3	**0.89**
Mixer 1 and 2 Only	(mm)	0.6	8.6	**1.78**
Mixer 1 and 3 Only	(mm)	0.6	8.8	**2.69**
Mixer 1,2 and 3	(mm)	0.9	13.0	**1.82**

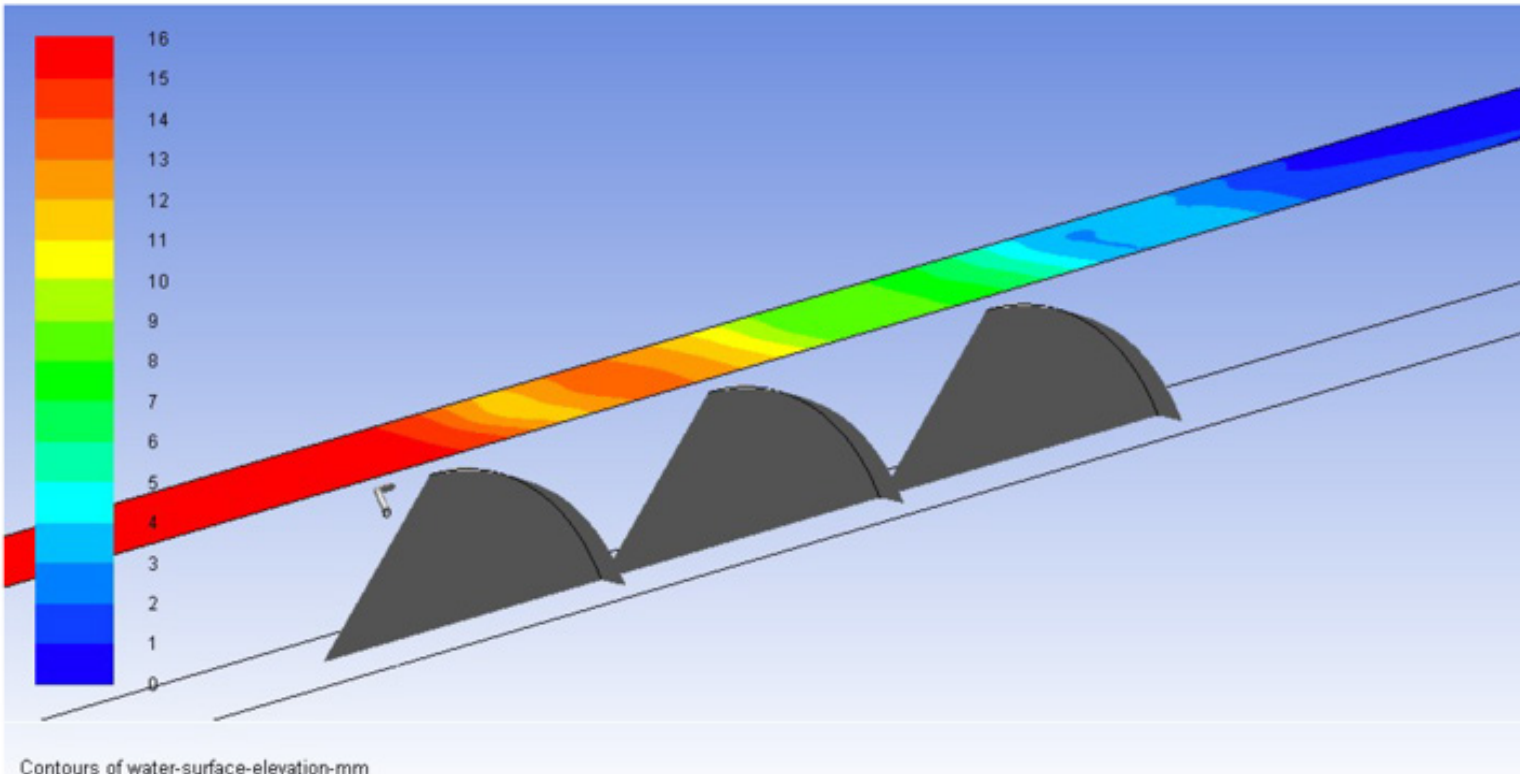


Figure 4 Contour of Liquid Surface Elevation with Maximum Flow and All 3 Mixers

WESTFALL

About Westfall Manufacturing

Westfall designs and manufactures custom-engineered drop-in motionless mixers used in pipeline systems for water treatment, wastewater treatment, petrochemical, pharmaceutical, chemical, food and beverage industries.

Both independent research and customer history prove that our products are more efficient and long-lasting than those of our competitors, and can deliver predictable and repeatable mixing for more than 40 years with little to no maintenance. All Westfall products are made to order.

15 Broad Common Road
Bristol, RI 02809-2733

888.928.3747 p
401-253-6530 f