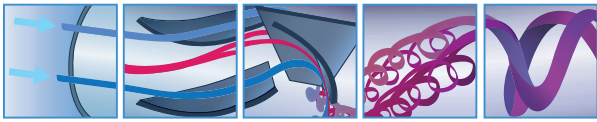


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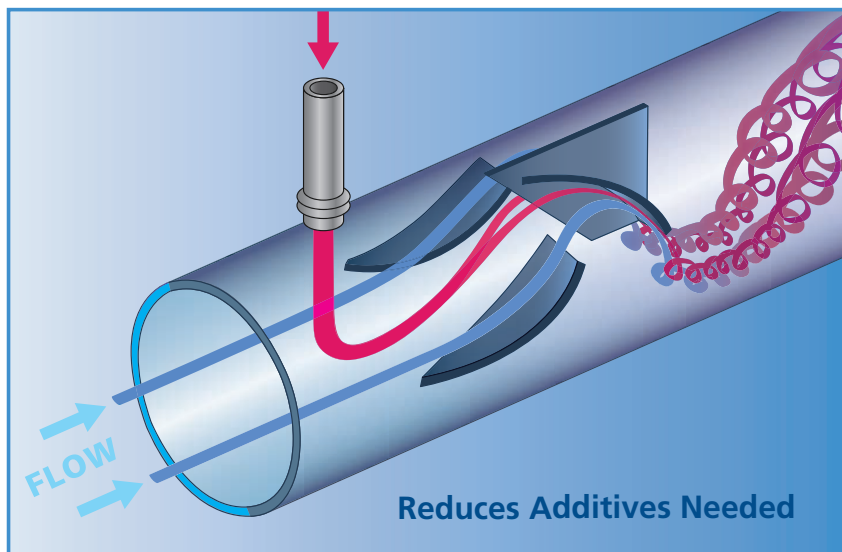
Model 6000

Counter-Swirl Static Mixer

U.S. PATENT 11,097,232



Complete Mixing in Three Pipe Diameters



The Model 6000 Mixer features three curved fins welded to a pipe interior.

The two lateral fins are inverted ½ pipe diameter upstream of the center fin. This configuration aggressively braids the flow to thoroughly mix fluids or gases within three pipe diameters. As the additive is introduced, flow is divided by the first two fins and directed to opposite sides of the pipe. It rebounds in counter-rotating swirls, which hit the third fin to finish the blending process.



What makes the Westfall Model 6000 so special?

The Model 6000 meets a long list of crucial specifications for static mixers.

The effectiveness of this mixer's performance – complete mixing in 3 diameters – allows an extremely short laying length, making it a game-changer for facilities with compact designs. One customer was able to decrease the interior length of the required chemical feed vault by five feet, greatly reducing construction costs.

This efficiency means that less additive chemicals are needed, further reducing operational costs. The Model 6000 mixer only needs one injection port per chemical instead of two, though it can accommodate multiples in a series or row.

Even at a maximum flow rate, headloss is minimal. The Model 6000 is non-clog thanks to the leading 45-degree edge on the center fin, meeting another typical customer specification.

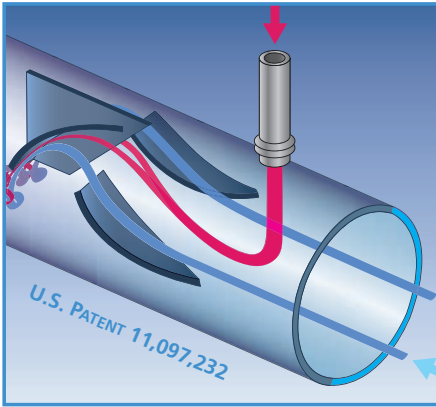
NSF-Certified when made of 316 Stainless Steel. Save material costs on larger size mixers (24 inches plus) by using carbon steel and an NSF-61 coating.



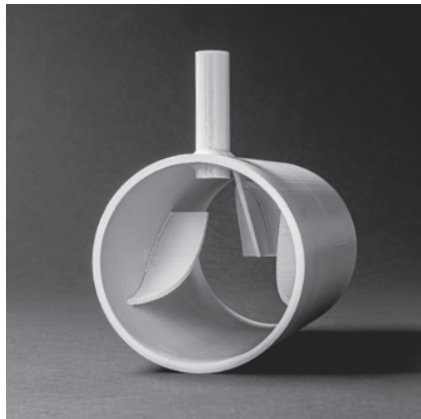
Model 6000

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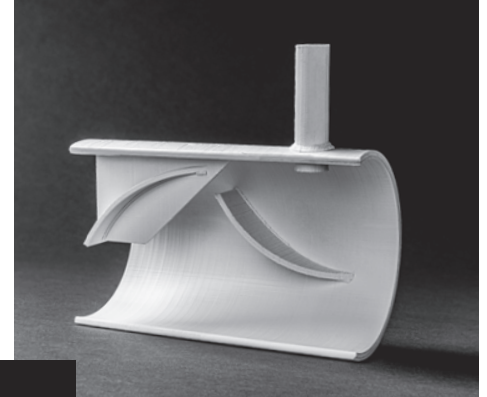
Efficient Mixing, Low Headloss



- ~ Revolutionary new mixer developed with CFD analysis throughout the design process to achieve optimal performance
- ~ Delivers complete mixing (CoV 0.025 and K-Value of 1.26) within three pipe diameters
- ~ Saves customers on the cost of additive because of its speed and effectiveness
- ~ Reduces space requirements.



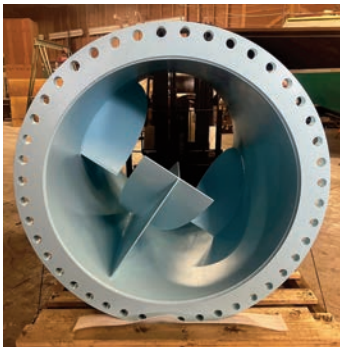
The 6000 Mixer seen from the front, where the liquid or gas would enter the pipeline.



Two cut-away views of the mixer interior show how first set of fins interact with the center component.



54" Model 6000 Mixer



We shipped this 54" Model 6000 Counter-Swirl static mixer to the Pittsburgh, PA area to treat drinking water with sodium hypochlorite (chlorine). At the time it was the largest Model 6000 we had sold, chosen because of its excellent mixing — in only 3 diameters — with minimal headloss even at maximum flow rate. The flow rate through the mixer will vary from 20 to 91 millions of gallons of water a day. The mixer does all this while staying under 1 psi of headloss, meeting the customer's specification.

Fabrication was carbon steel with a NSF-61 approved Tnemec Pota Pox Plus Series 140 epoxy paint, specified because this is a drinking water application.



Both photos were taken from the downstream portion of this 54" Model 6000 – the man in the photo reveals just how large this mixer really is!



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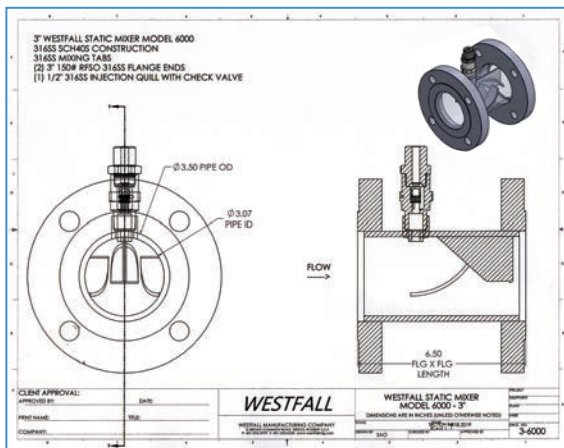
Innovative
DESIGN
 Custom
ENGINEERING

Two Mixers: One Coated SS and One Fiberglass Resin

A California drinking water plant recently ordered two Westfall Counter-Swirl Model 6000 static mixers.

One 12" mixer was fabricated in stainless steel with NSF approved fusion bonded epoxy coating on the inside and every part that touches water. It will mix hydrogen peroxide with the water. The 16" mixer was manufactured from NSF 61 approved fiberglass resin (FRP). It will be responsible for mixing water with sodium hypochlorite.

Both materials offer resistance to the caustic chemicals that are used to purify the water.



Mixer and Flow Conditioner partner up.

A customer in California needed to thoroughly mix sodium hypochlorite in one line and sodium bisulfite in another. They not only had a short run of pipe in each run to complete mixing, they also needed to revert back to fully developed flow so their flow meters could accurately measure the amount of fully mixed water passing through the pipeline.

Due to the fact that they had a small amount of room to work with, the Model 6000 static mixer made sense because it only requires 3 pipe diameters downstream to complete mixing.

The next issue was that all static mixers become nightmares for flow meters because their job is to create swirl and/or turbulence to properly mix chemicals, making life difficult for flow meters.

To combat this problem the customer installed a Westfall Model 3000 flow conditioner 3 pipe diameters downstream of each of the Model 6000 static mixers to create the perfect fully developed flows required for flow meters to provide accurate results.

Both the Model 6000 static mixers and the Model 3000 flow conditioners were built from carbon steel and coated with 3M Skotchkote 134 fusion bonded.

British Paper Mill could not have clogs.

Westfall supplied a mixer some time ago for adding pigment to paper pulp in the UK. The customer was skeptical as paper pulp is notorious for blocking. However, after 6 months of use, the mixer was found to be completely clean and functioning well, to their great pleasure. Since the paper mill is back to full capacity and expanding, they ordered more mixers, "now that the original has proven to work well."

They were looking to mix dye into a 3% paper solution in a stainless steel 80 mm pipe. Fiber length ranges from 0.8 - 1.4 mm. We recommended a 3" Model 6000 static mixer made of 316 Stainless Steel SCH40 construction, with 316 Stainless Steel mixing fins, with a 1/2" 316 Stainless Steel quill with check valve. Flange ends are 150# RFSO.

In-House CFD for Design & Testing

Westfall now offers in-house **Computational Fluid Dynamics** (CFD) engineering studies, typically within 24 hours, at an affordable cost. Using our CFD program, we create digital 3-D models and generate data that takes into account physical properties such as velocity, pressure, temperature, density and viscosity.

- ~ Capacity to run dedicated 6-hour simulation at any given time
- ~ Accurate performance measurement predictions and graphics
- ~ Can demonstrate flow variations, mixing effectiveness and headloss for Westfall mixers in your exact site configurations.

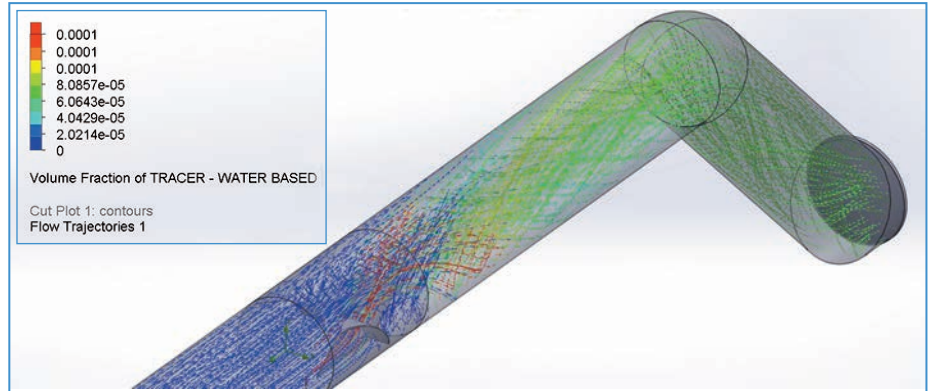
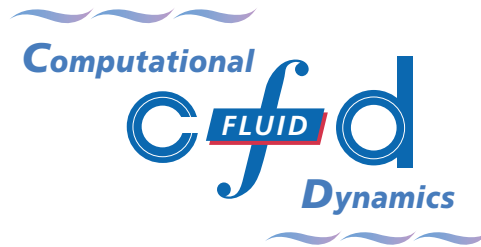


Illustration from CFD testing demonstrates the pattern of flow for the Model 6000 Mixer. Flow is divided and directed to the sides of the pipe where it rebounds in a counter-swirling pattern to braid ingredients into a homogenous mixture within three pipe diameters.



The Model 6000 Counter-Swirl Static Mixer can be NSF certified in 316 Stainless Steel

WESTFALL MATERIALS

Westfall mixers are available in any engineering materials to meet industry needs. We offer approved coatings that can be added to cost-effective materials to meet requirements.

STEEL/METAL ALLOYS

- ~ Carbon Steel
- ~ 304 Stainless Steel
- ~ 316 Stainless Steel
- ~ Duplex 2205 Stainless Steel
- ~ Super Duplex 2507 Stainless Steel
- ~ Hastelloy® C-276
- ~ Inconel®
- ~ Alloy 20
- ~ Monel®
- ~ Titanium

PLASTICS

- ~ PVC
- ~ CPVC
- ~ Solid Kynar®
- ~ Solid Teflon® PFA
- ~ PVDF
- ~ HDPE
- ~ PTFE

OTHER

- ~ Hybrid Mixer for Ductile Iron Lines
- ~ Fiberglass

Common Applications for The Westfall Model 6000 Mixer

- ~ Desalination Plants
- ~ Wastewater Utilities
- ~ Oil & Gas providers
- ~ Food & Beverage Processors
- ~ Pulp & Paper Manufacturers

WESTFALL

Westfall Manufacturing Company
15 Broad Common Rd., Bristol, RI 02809-2733

Application Engineers: Scott Olson & Matthew Peters
Toll Free: 888.923.3747 or 401.253.3799
Fax: 401.253.6530 • E-mail: info@westfallmfg.net

www.westfallstaticmixers.com

