

WESTFALL

Model 3050 Series Mixer

● US PATENT PENDING

The Perfect Mixer for Pressure-Limited Operation

The Westfall 3050 Mixer consists of a pipe fitted with one, two or three sets of strategically placed vanes, each occupying one diameter of length. The vanes create vortices and multiple zones of turbulence that intersect to produce optimal mixing when there is very low available head. Its unique geometry makes the mixer resistant to fouling. In addition, "Since the device was originally designed as a flow conditioner, it is also very effective at mitigating any swirling flow that is created upstream, and creating a fully developed flow profile," according to Kimbal Hall at Alden Research Laboratory.

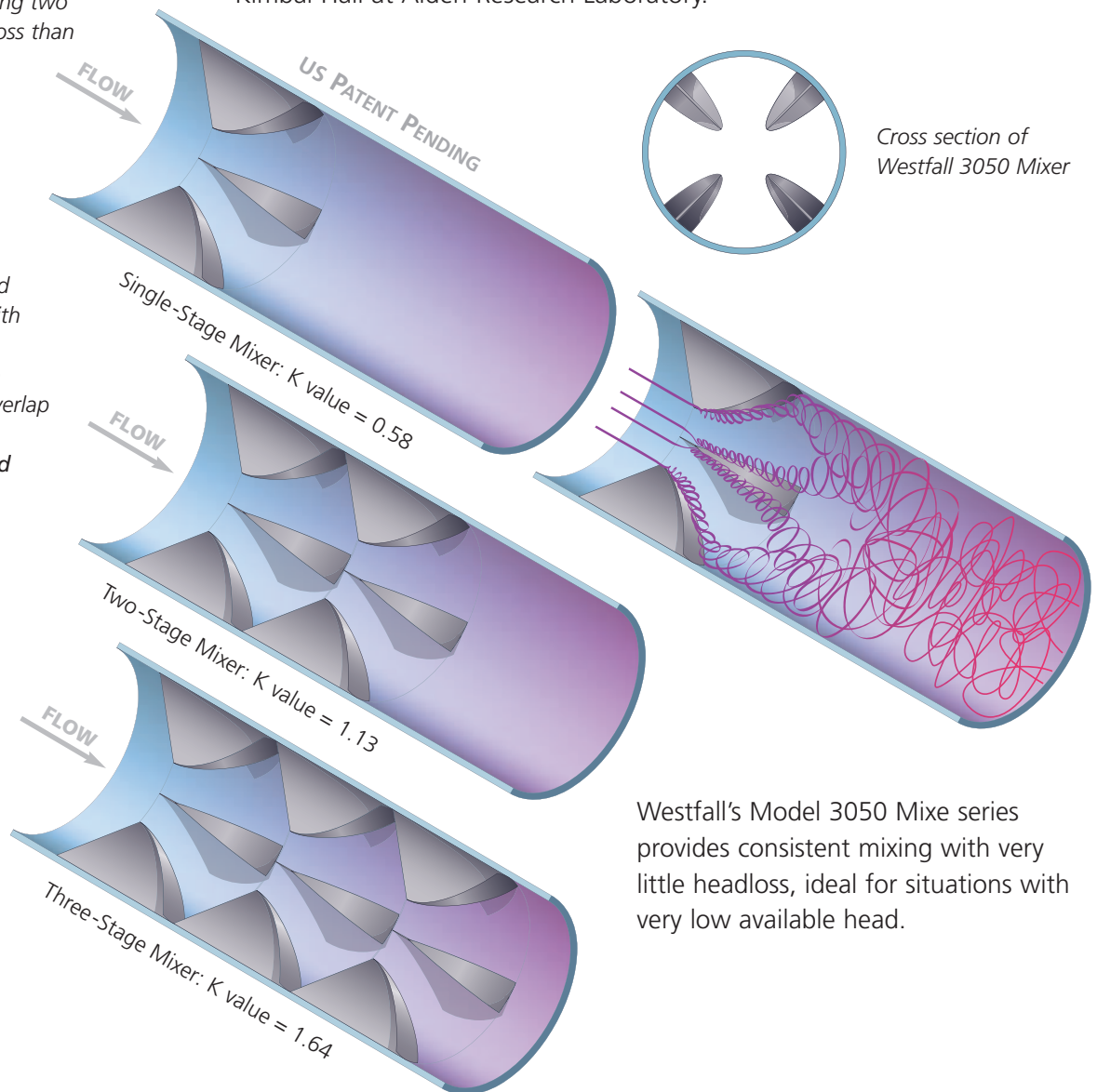
Four tapered and curved vanes with precisely designed geometry turn flow inside out to mix fluids or gases, while generating two to four times less headloss than other mixers.

The k-value is 0.58 and the CoV is .057

The addition of a second row of vanes aligned with the first row provides additional mixing as the vortices intersect and overlap in a braiding effect.

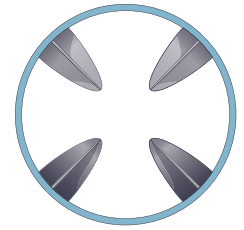
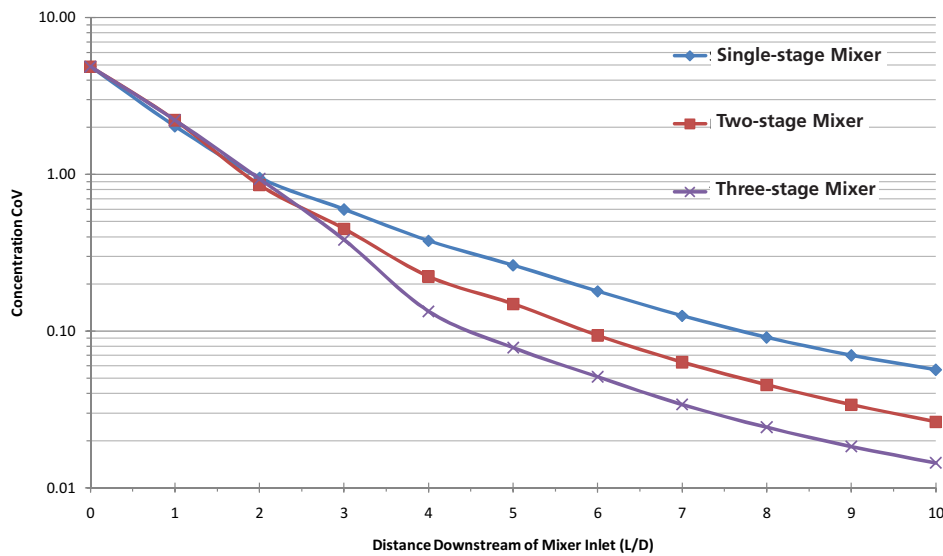
The k-value is 1.13 and the CoV is .026.

Three sets of vanes in alignment produce a k-value of 1.64 and a CoV of .014.



Westfall's Model 3050 Mixer series provides consistent mixing with very little headloss, ideal for situations with very low available head.

Westfall 3050 Staged Mixer CFD Results



Cross section of
Westfall 3050

The CoV values for Model 3050 Low Headloss Static Mixer were determined for:

- single-stage
- two-stage
- three-stage

Alden Research Laboratory, Inc. performed numerical simulations using the CFD software package FLUENT V6.3.26, a state-of-the-art, finite volume-based fluid flow simulation package, to calculate the three-dimensional, incompressible, turbulent flow through the pipe and around the mixer.

The model geometry was developed using the commercially available three-dimensional CAD and mesh generation software, GAMBIT V2.4.6 and the computational domain generated for the model consisted of approximately 2 million hexahedral and tetrahedral cells.

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APPLICATIONS

- ◆ Municipal and Industrial Water Treatment
- ◆ Potable Water
- ◆ Waste Water
- ◆ Chlorination/De-Chlorination
- ◆ Chemical Blending
- ◆ Dissolving Gases
- ◆ Contact Chambers
- ◆ Flocculant Blending
- ◆ Anaerobic Digestion
- ◆ Dewatering
- ◆ pH Control
- ◆ Contacting
- ◆ Product Blending

ADVANTAGES

- Mixes well in situations with low head and is resistant to fouling
- Creates minimal headloss – two to four times less than other mixers
- Saves space with laying length – just one diameter per stage
- Can be fabricated from PVC, FRP, 316 Stainless Steel, with or without Teflon coating
- Is available in pipe diameters from 1/2" to 120"
- Low cost, easy installation
- Long service life and low maintenance requirements

WESTFALL

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