

EvenMix™

A Revolution in Advanced Mixing Technology

It IS Rocket Science!

EvenMix™

- Began as a manufacturer of advanced precision pneumatic motors and tools used in many industries requiring robust repeat applications that wear out common tools. The steel drum industry, for example closes thousands of rings on Open Head drums daily.
- Through relationships in the drum industry, EvenMix™ began research to design a mixing blade capable of resolving the many performance issues in outdated agitators create.
- EvenMix™ hired an ex-NASA aerospace engineer to design a 3D mixing blade with specific features to meet and exceed all needs that incumbent products could not provide.

EvenMix™ Blade Design Challenges

(how to remedy all of the pains caused by antiquated mixers and agitators)

- Ability to mix with no air entrainment avoiding bubbles and frothing
- Ability to completely mix all contents including ingredients in every nook and cranny
- Allow for elimination of pin on drum bottom that can weaken and lead to leakage, reduce manufacturing costs, and benefit the drum reconditioning industry.
- Provide quicker and complete mixing at lower speeds
- Be Compatible to Existing Drives Robust to be able to attend a wide range of viscosities
- Remain cost competitive or better lower cost

What is 3D Mixing

- 3D MIXING occurs when we equalize the 3 velocity vectors (radial, circular, and vertical) eliminating air inducing vortexes and evenly mixing and blending the total volume of materials in a container.

Existing Ineffective Blades



- **Fixed Pitch Blades** created strong vertical velocity vectors drawing in air and leaving materials on the bottom of the container rather than mixing and blending with all contents



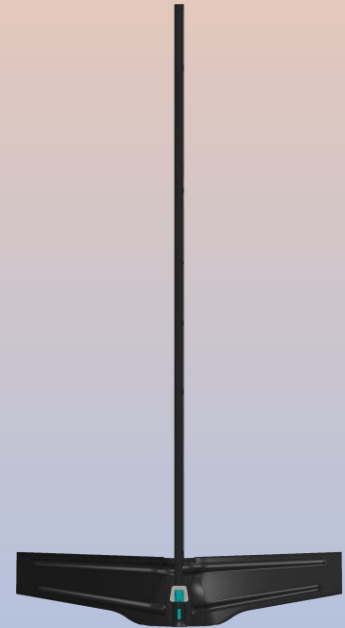
- **Impeller Style Mixing Blades** promote strong vertical movement but lack radial (horizontal) and circular motion. This movement draws all material down causing poor margin circulation and draws large volumes of unwanted air into the mix.



- **Radial Mixing Blades** create mostly horizontal and almost no vertical or circular motion. Although they don't draw unwanted air, they provide the least effective mixing of materials in a container since there is little vertical or circular mixing.

EvenMix™ Blade Designs – Achieve 3D Mixing

- Axial, Radial, and Circumferential Flow
 - Blade attends entire container diameter
 - Variable Pitch - 90 Degree to 30 degrees creates 3D Flow
 - Bottom Pump - eliminates dead zones
- Mixer Design
 - Designed for strength and low-weight
 - Low Drag - efficient power transfer from EvenMix™ motor
 - Round shaft with square or hex drive end

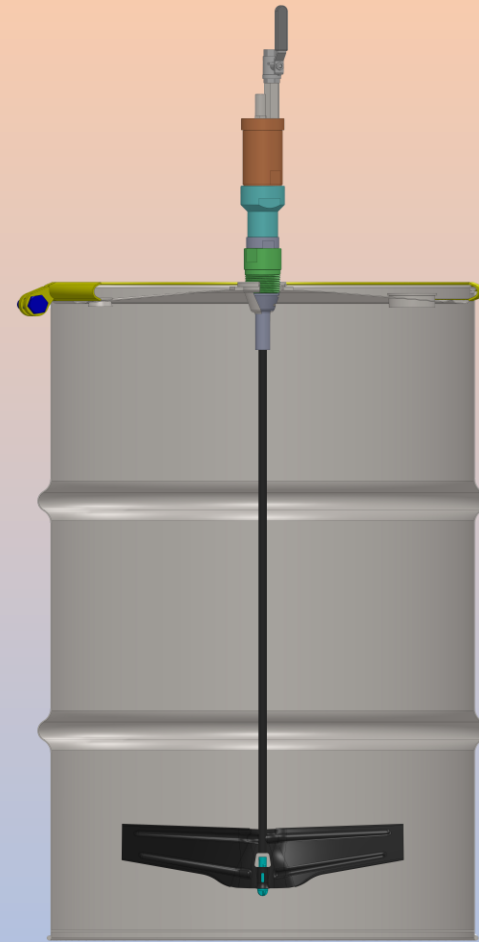


Physical features add strength with lighter materials

- Ribs stiffen and add strength to the blade
- Leading and trailing edge bend: provide velocity direction and strength to the blade
- Ancillary blending contour: Provides mixing and blending all the way to the center line of the shaft eliminating dead zones.
- Variable pitch angle:
 - Develops equal velocity vectors (horizontal, circular and vertical)
 - Creates low drag allowing mixing at lower torque using less horsepower for effective mixing
 - Slices easily through thick materials that potentially could bend the shafts of inferior designs.
- Standard hex shaft: lowers the stress when transferring the drive torque compared to square shafts with more points of contact at the motor connection.

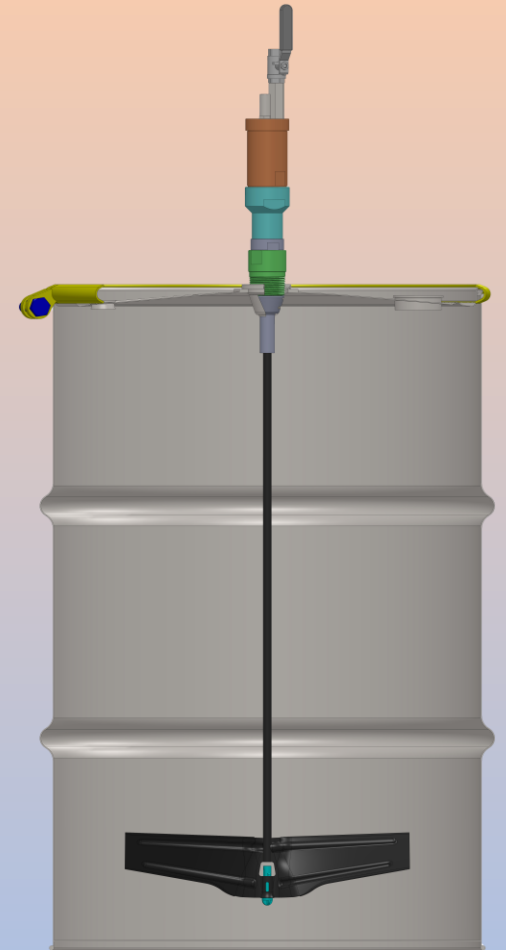
EvenMix™ - Benefits

- No Air Entrainment
- Mixes evenly throughout the container and at lower speeds
- Faster Mixing (Low Cycle Time)
- Will not bend in cases of drum collapse
- No need for welded pin on drum bottom
- Compatible with existing drives (square drives)
- Robust mixing in a wide range of viscosities
- Cost Competitive



Pinless Design - 55 Gallon

- Click <https://youtu.be/RC1oBvOUNeo> to see it in action
- Drum Fittings Supports EvenMix™
 - (same fitting used with common agitators)
 - No need for a welded pin in the drum bottom
- EvenMix™ Inserted Fitting - Nylon
 - Holds Mixing Shaft
 - Prevents Contamination
 - Capable of 5G Side Impact 20G Vertical



Test Results - 55 Gallon Drum & IBC

• Click https://youtu.be/altz83c_bPQ to see a side by side comparison

Even Mix™

- Comprehensive Mixing - Top to bottom and all other directions
- No Dead Zone - No material left on the bottom or near the blade shaft
- Quick Mixing – shorter time for a uniform mix

Competitor

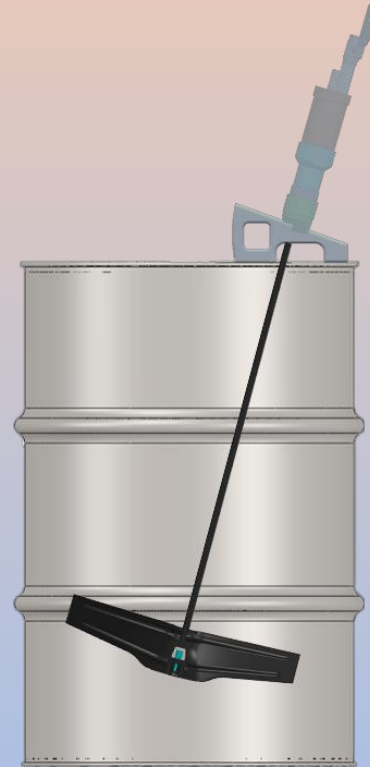
- Poor Mixing - Concentrated on bottom
- Significant Dead Zone - Material accumulated on bottom and not blended
- Questionable Mixing - Even after several minutes
- Air Intrusion – Causes bubbles and foam in mixture

Conclusions

- EvenMix™ will Produce a Homogenous Mixture with no air intrusion causing foaming and bubbles

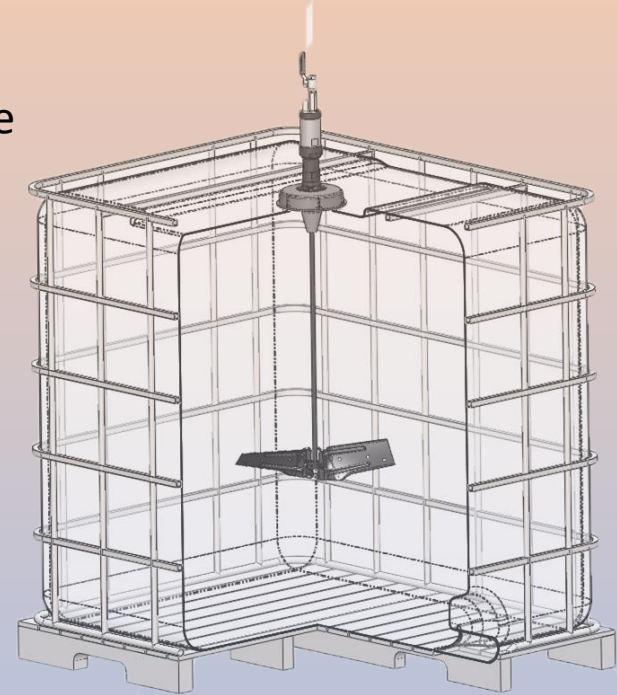
Latest & Greatest allowing in drum agitation on Standard Tight Head and Open Head Drums

- Revolutionary Design allows the insertion of a collapsible full width EvenMix™ 3D mixing blade into a standard 2" bung
- Performs as well as a vertical blade with the following advantages:
 - Converts any drum into a mixing drum
 - Reduced cost (No added labor, extra or special center bung)
 - No issues with a blade submersed in product for extended time
 - Can come with reusable blade or low-cost single use blades



3D IBC Mixers


- Blade Design
 - Can be installed prior to shipping IBC or inserted at the mixing location
 - 16" 3D mixing blade provides superior mixing performance
 - Advanced folding blade fits through 6" center bung
- Pinless Shaft Guide System
 - Modified to easily fit IBC center cap
 - Passed UN certification testing
 - Seals lid to avoid contamination



Lightweight and more powerful
than giant units requiring a
forklift or hoist to install



EvenMix™ Testing and Field Results

- Tested with Various Liquids
 - Water (1 Centipoise) 
 - Glycerin (1,100 Centipoise) 
 - Corn Syrup (2,500 Centipoise) 
 - Corn Gluten (50,000 Centipoise) 
- Robust & Flexible
 - Capable of 5G Side Impact and 20G Drop
 - Every Drum and IBC Container can be a Mixing Drum - No Pin Required
 - Tested with Drum Liners
- Mixing Performance
 - No Air Entrainment
 - Homogeneous Mixing
 - No Contamination

Click <https://youtu.be/8QIHAOZRbqs> to see it perform in highly viscous materials

EvenMix™ Mixer Motors

- Air or Electric Drives
- Designed for Use with EvenMix™ and Others
- Lightweight precision engineered for longer life and durability
- Easy to Couple and Drive Mixers
- 160 RPM with Only 13 CFM (Air) or 4 Watts (Electric)
- Oil Free for Use with Paints and other sensitive materials
- Comprehensively Field Tested
- Designed and manufactured in USA by EvenMix™



EvenMix™ is the superior choice

- **Blades:**

- Designed to outperform all other blades in the market with true 3D mixing
- Work in a wide variety of viscosities
- Compatible with existing mix drivers

- **Mixer Motors**

- Designed and built in the USA for rugged precision performance
- Requires less CFM and consume less energy than competitors
- Lightweight and user friendly