Mixing Technology

EIRICH MACHINES
AMERICAN PROCESS SYSTEMS

OptimaBlend®
Fluidizing Blenders

- Fluidized Mixing Action
- Mix in 30-60 Seconds
- Lowest CV Values
- Wide Particle Size Range
- Fast, Even Coating and Liquid Dispersion

NSF-ISR
Registered to ISO 9001
OptimaBlend® Mixing Technology

OptimaBlend® by American Process Systems® is the newest and most innovative addition to the industry’s most comprehensive line of mixing equipment, offering a balance of mixing speed and efficiency with low equipment cost and consumed power.

OptimaBlend® eliminates roll apart segregation caused by gravity when mixing ingredients of greatly varying density, shape and size by fluidizing. Fluidization is achieved by a combination of a defined geometry lifting action with a triple paddle, multi-zoned rotor turning about 80% faster than a traditional ribbon blender.

Incredibly precise low CV blends are achieved in less than 60 seconds for most powdered ingredients.

Design Features and Process Benefits

Innovative technology:
- Ideal for manual and automated systems

High efficiency design:
- Fluidization assures homogeneous mixes independent of large range of particle size, shape or density
- 30-60 second mix times typical
- Low CV—Coefficient of Variation values
- Low consumed power and HP/Ton

Increased production capacity:
- Up to 10 times the throughput versus ribbon blenders

Low shear design:
- Extremely gentle with fragile ingredients
- Minimal heat generated due to internal friction

High particle movement:
- Fast, even liquid addition and coating
- Ideal for agglomerating

No over mixing

Turning Mixing Art into Mixing Science in our Test Lab!
# To Increase Your Profits

## Out with the Old – In with the NEW!

<table>
<thead>
<tr>
<th>Ribbon Blenders over 100 years old</th>
<th>Technology</th>
<th>OptimaBlend® “State of the Art”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double or triple action with blending occurring in the small voided areas immediately behind the blending ribbons.</td>
<td>Methodology</td>
<td>Inner &amp; outer paddles on the triple action, multi-zone rotor.</td>
</tr>
<tr>
<td>Low tip speed.</td>
<td>RPM</td>
<td>Higher tip speed – more than twice that of comparably sized Ribbon Blenders – creating the optimum fluidized bed mixing environment.</td>
</tr>
<tr>
<td>Approximately 5-6 minutes for dry applications.</td>
<td>Mix Time</td>
<td>30-60 seconds for dry applications.</td>
</tr>
<tr>
<td>Extended mixing times are required to blend powders with various particle size and density. Potential segregation may occur in the mixer.</td>
<td>Product Characteristics</td>
<td>The OptimaBlend® mixing technology provides the ideal environment for effectively mixing a wide distribution of particle size and bulk densities without segregation.</td>
</tr>
<tr>
<td>5% standard deviation with 10% coefficient of variation is common with 0.5 lb sample.</td>
<td>Mix Quality</td>
<td>≤ 0.5% standard deviation and ≤ 5% coefficient of variation with 0.25 lb sample.</td>
</tr>
<tr>
<td>Could be substantial dependent upon materials.</td>
<td>Product Degradation</td>
<td>None</td>
</tr>
<tr>
<td>1 HP for every 100 - 150 lbs - product dependent.</td>
<td>HP / Energy Consumption</td>
<td>By virtue of the OptimaBlend® Mixer’s ability to mix in approximately 30-60 seconds, the consumed energy is potentially 80% less for any given batch.</td>
</tr>
<tr>
<td>Slight - Moderate.</td>
<td>Shear / Heat</td>
<td>None</td>
</tr>
<tr>
<td>Recommended as close to center as possible.</td>
<td>Filling / Loading</td>
<td>Random location.</td>
</tr>
<tr>
<td>Suitable for jacketing / pressure / vacuum and with countless options “tailoring” the unit to engineered solution based on individual process requirements.</td>
<td>Flexibility</td>
<td>Suitable for jacketing / pressure / vacuum and with countless options “tailoring” the unit to engineered solution based on individual process requirements.</td>
</tr>
<tr>
<td>Industry accepted.</td>
<td>Price Competitiveness</td>
<td>Comparable to ribbon or paddle blenders – product and feature dependent.</td>
</tr>
</tbody>
</table>

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- OptimaBlend®: “State of the Art” mixer technology.
- Double or triple action mixing.
- Low tip speed for optimal mixing.
- Extended mixing times for complex materials.
- Product characterization and quality metrics.
- Energy consumption and efficiency improvements.
- Flexibility in application and customization.
- Industry accepted for broad use cases.

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By selecting OptimaBlend®, you are choosing a technology that is not only advanced but also adaptable to various process requirements, ensuring efficient and effective mixing solutions.
Mixing Applications and Installations

Examples of OptimaBlend® Applications

- Air bag propellant
- Animal feeds
- Aquarium salts
- Bakery pre-mix
- Clay based herbicide with sprayed on liquid
- Coating lawn fertilizer
- Coating whole bean coffee with flavors
- Cocoa powder
- Flavored instant coffee blends
- Infant formula
- IQF (Individually Quick Frozen) vegetables
- Mortar mix with pigments
- Nutraceuticals / Pharmaceuticals
- Pigments
- Powder and granular spice mixes
- Salad croutons
- Silica based highway striping
- Space shuttle solid rocket booster core
- Sport / Nutritional supplements
- Super absorbant for diapers
- Trail mix
- Whey protein powders

OptimaBlend® Installations

Typical semi-automatic system set up with bag dump and blender into intermediate bulk container (IBC). Later, the IBC to be moved above packaging operation.

OptimaBlend® FPB-75 for the preparation of building materials.

OptimaBlend® production blender for preparing flour mixtures.

OptimaBlend® for health and nutritional supplements produces customized product for individual consumer size container.

OptimaBlend® for the preparation of dietary supplements.
One example of a system installation in the nutraceutical industry. EIRICH Machines offers turnkey systems including plant design, software, control panels, installation and customer support. The OptimaBlend®, with ancillary equipment, can be integrated into a large or small system depending on the requirements.

The OptimaBlend® mechanically fluidizes the product, eliminating roll apart segregation caused by gravity and ensuring an efficient and gentle mixing process regardless of particle size, shape, or density.

The OptimaBlend® is extremely gentle with fragile ingredients and the effective fluidization assures homogeneous mixes without degradation in as little as 30 seconds!
Combination of Options...

Bulk bag inlet ports with screens and magnetic grating

Dust controlled, easy clean, tailored blender cover

Tailored blender covers for hand dumping and easy cleanability

Removable pneumatically vibrated screen with hinged cover

A-gasketing

Direct drive, in-line shaft mount

Direct drive, right angle shaft mount

ASME dimple jacketing for heating or cooling

Chopper motors

Solid clover chopper head

X-mas tree style choppers for greater milling

Tulip style chopper head designed to be externally removable

Engineered Solutions...

We take great pride in our engineering and manufacturing skill sets, customizing and tailoring our mixing equipment to clients' specific operating requirements.
...Tailored for Your Application

- Side access doors
- Compressed air header to seals and discharge valve and NEMA 4x SS J-Box for single phase components
- Tri-clamped liquid addition port
- CO2 tangentially mounted injection nozzles and manifold

- Air purged seals with flow meters
- Meco shaft seal and F/R/G
- Air purged packing gland seal with split housing
- Split, removable packing gland seals with Teflon V-Rings, suitable for USDA dairy applications

- Salina Vortex Quick Clean orifice gate valve
- Salina Vortex USDA ultra-sanitary orifice gate valve
- Manually actuated paddle gate
- Rotary disc valve

- Flush bottom drop gate valve
- Contoured flush plug valve
## Dimensions and Drawings

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity (ft³)</th>
<th>HP*</th>
<th>Dimensions (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Working Volume</td>
<td>*dependent on application</td>
<td>A</td>
</tr>
<tr>
<td>FPB-1P5</td>
<td>1.5</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>FPB-005</td>
<td>5</td>
<td>7.5 / 10</td>
<td>21</td>
</tr>
<tr>
<td>FPB-010</td>
<td>10</td>
<td>10 / 20</td>
<td>26</td>
</tr>
<tr>
<td>FPB-020</td>
<td>20</td>
<td>20 / 30</td>
<td>32</td>
</tr>
<tr>
<td>FPB-030</td>
<td>30</td>
<td>25 / 40</td>
<td>37</td>
</tr>
<tr>
<td>FPB-050</td>
<td>50</td>
<td>40 / 60</td>
<td>45</td>
</tr>
<tr>
<td>FPB-075</td>
<td>75</td>
<td>50 / 100</td>
<td>50</td>
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<tr>
<td>FPB-100</td>
<td>100</td>
<td>60 / 125</td>
<td>54</td>
</tr>
<tr>
<td>FPB125</td>
<td>125</td>
<td>75 / 125</td>
<td>60</td>
</tr>
<tr>
<td>FPB150</td>
<td>150</td>
<td>100 / 150</td>
<td>66</td>
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<tr>
<td>FPB-200</td>
<td>200</td>
<td>125 / 200</td>
<td>72</td>
</tr>
<tr>
<td>FPB-300</td>
<td>300</td>
<td>125 / 200</td>
<td>80</td>
</tr>
<tr>
<td>FPB-400</td>
<td>400</td>
<td>150 / 200</td>
<td>88</td>
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</tbody>
</table>

*Ask about other equipment in the American Process Systems® product line:*