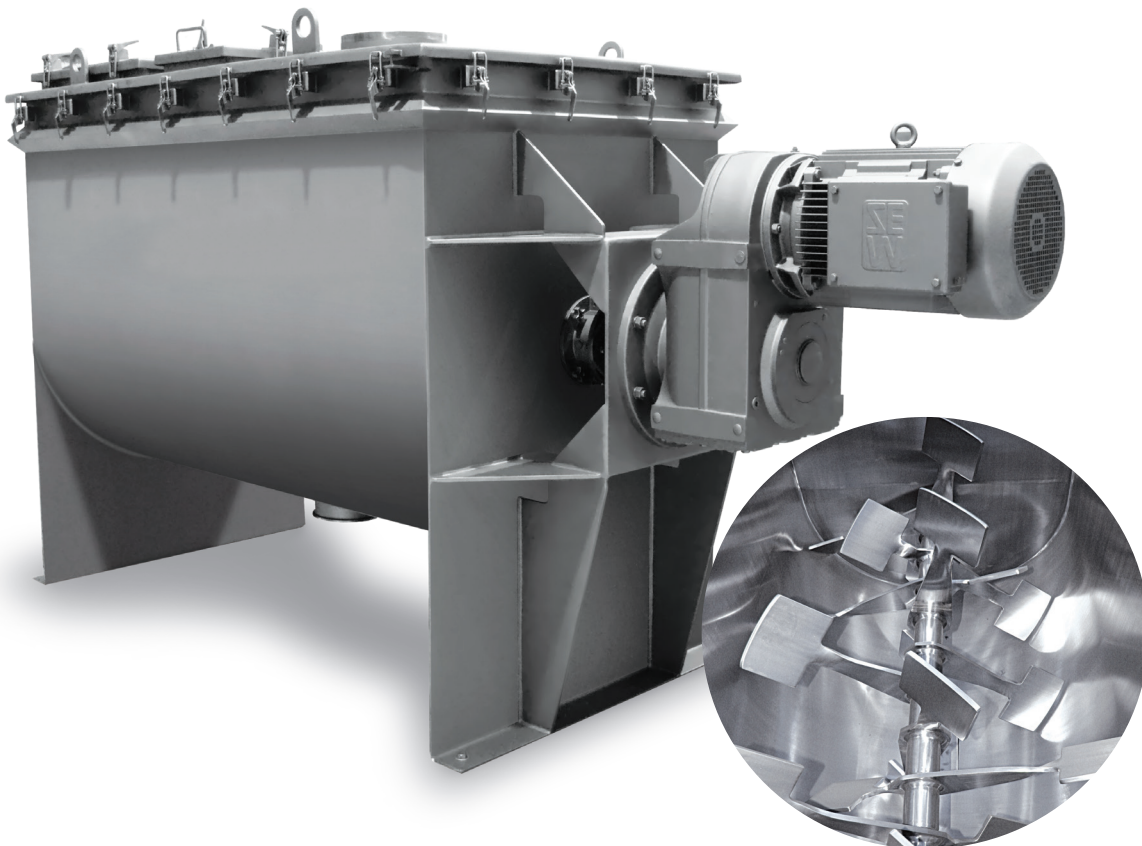
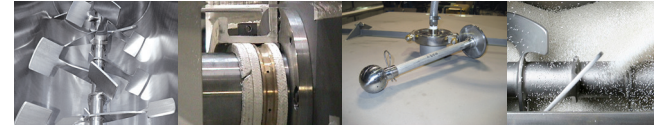


OptimaBlend[®]

Fluidizing Blenders



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



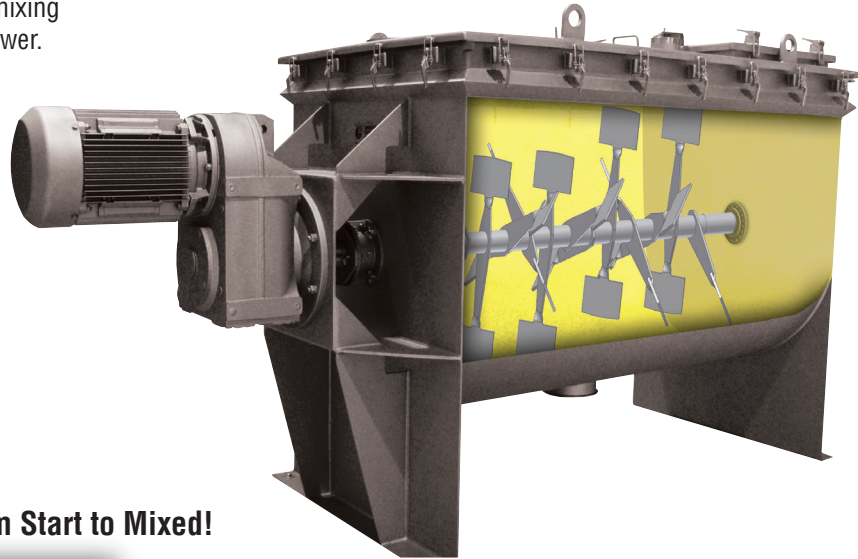
Technology and Innovation...

OptimaBlend® Mixing Technology

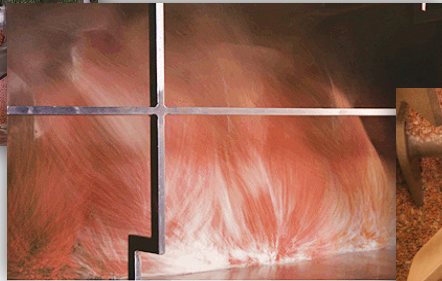
OptimaBlend® is the newest and most innovative addition to the industry's most comprehensive line of mixing equipment, offering a balance of mixing speed and efficiency with low equipment cost and consumed power.

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.



30 Seconds from Start to Mixed!



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



Lab size OptimaBlend® Model FPB1P5 Fluidizing Paddle Blender

Turning Mixing Art into Mixing Science in our Test Lab!

...To Increase Your Profits

Out with the Old – In with the NEW!

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

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 suppliments
- Super absorbant for diapers
- Trail mix
- Whey protein powders

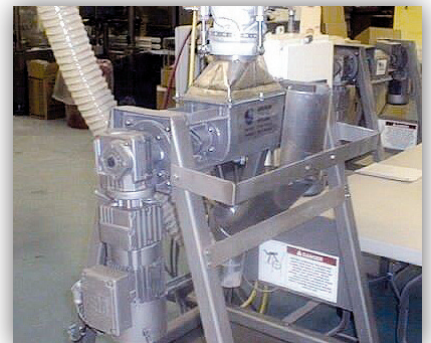
OptimaBlend® Installations



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



OptimaBlend® production blender for preparing flour mixtures.



OptimaBlend® for the preparation of dietary supplements

System Design Solutions



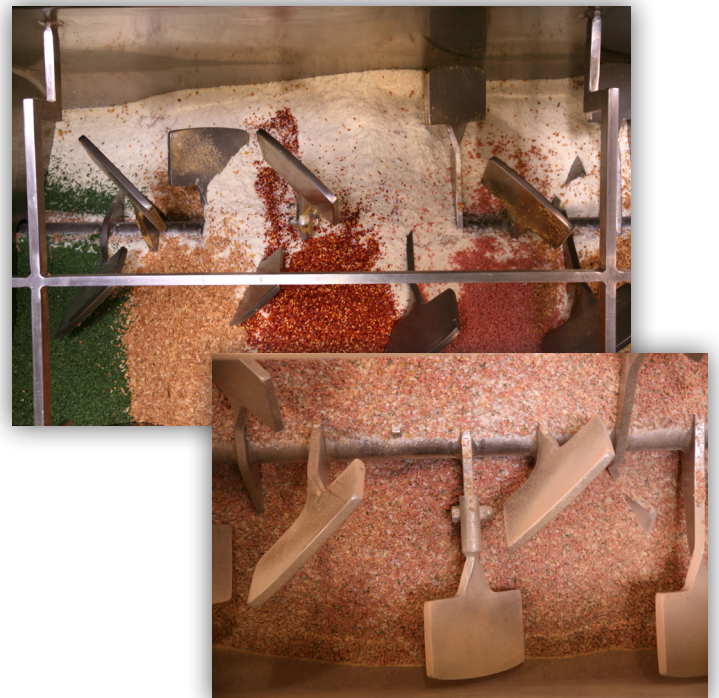
CbY' Yl Ua d'Y' cZ U' gngfYa ']bgtU'UHjcb']b' h.Y' bi hfUWi h]W']bXi ghfm' 7 A H' cZYfg' hi fb_Ym gngfYa g']bVl X]b[' d'Ubi XYg][bž gcZk UfYž Vēbhf' dUbY'gž]bgtU'UHjcb' UbX' Wgrca Yf' gi ddcfh' h.Y' Cdhja U6'YbX'ž k]h' 'UbV]'UfmYei]da Ybž'VWb'VY']bHY[fUHfX']bhc'U'Uf[Y' cf'ga U' gngfYa 'XVdYbX]b['cb'h.Y'fYei]fYa Ybht''

Nutraceuticals



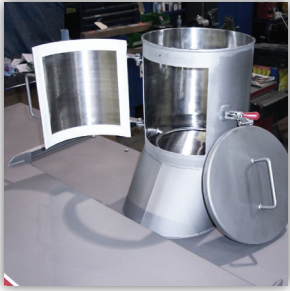
The OptimaBlend® mechanically fluidizes the product, eliminating roll apart segregation caused by gravity and ensuring an efficient and gentle mixing process regardless of particle size, shape, or density.

Food



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...



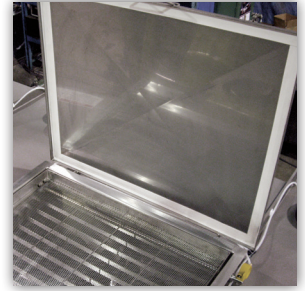
Bulk bag inlet ports with screens and magnetic grating



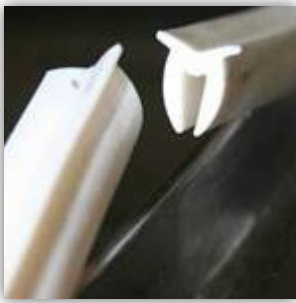
Dust controlled, easy clean, tailored blender cover



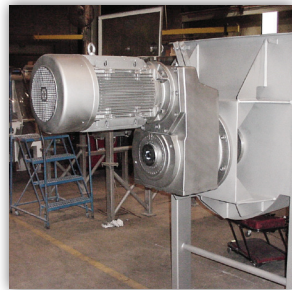
Tailored blender covers for hand dumping and easy cleanability



Removable pneumatically vibrated screen with hinged cover



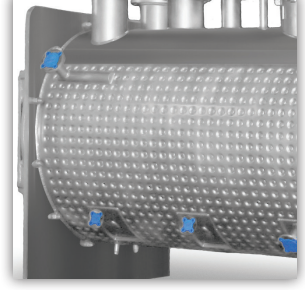
A-gasketing



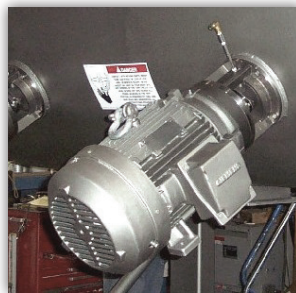
Direct drive, in-line shaft mount



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



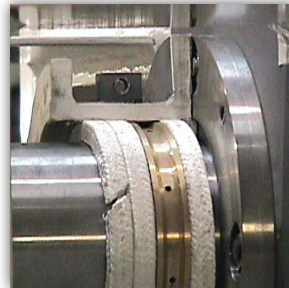
CO2 tangentially mounted injection nozzles and manifold



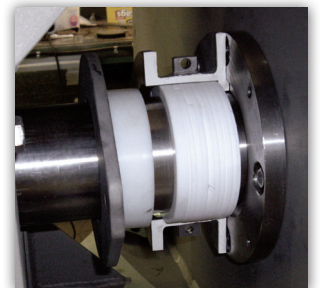
Air purged seals with flow meters



Meco shaft seal and F/R/G



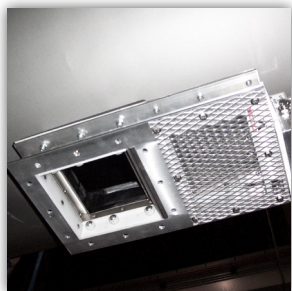
Air purged packing gland seal with split housing



Split, removable packing gland seals with Teflon V-Rings, suitable for USDA dairy applications



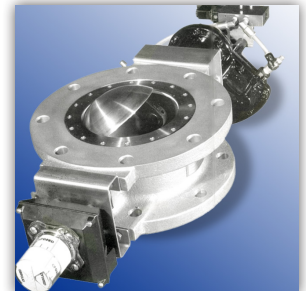
Salina Vortex Quick Clean orifice gate valve



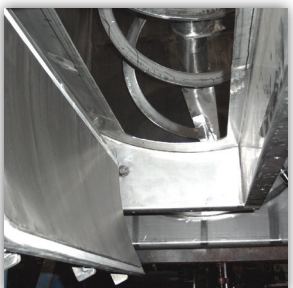
Salina Vortex USDA ultra-sanitary orifice gate valve



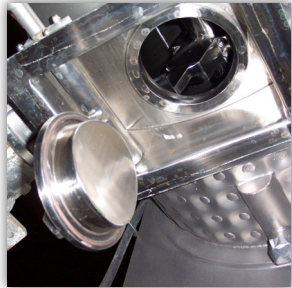
Manually actuated paddle gate



Rotary disc valve

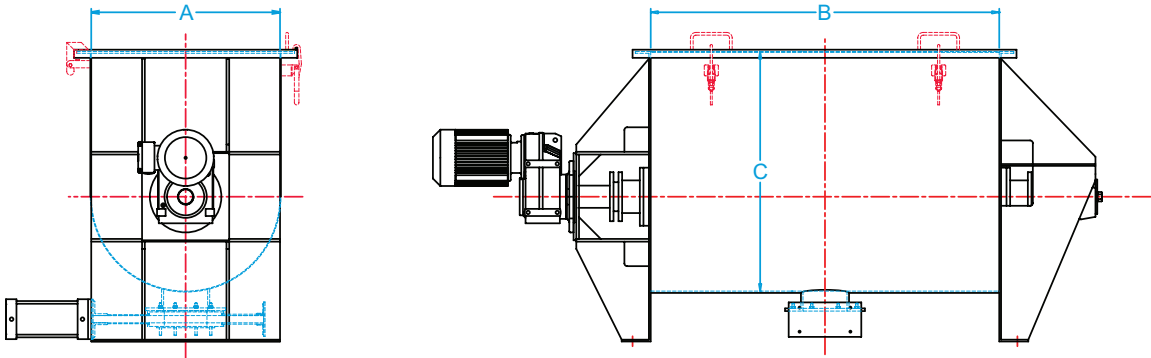


Flush bottom drop gate valve



Contoured flush plug valve

Dimensions and Drawings



| Model | Capacity (ft ³) | HP* | Dimensions (inches) | | |
|---------|-----------------------------|---------------------------|---------------------|-----|----|
| | Working Volume | *dependent on application | A | B | C |
| FPB-1P5 | 1.5 | 3 | 14 | 24 | 21 |
| FPB-005 | 5 | 7.5 / 10 | 21 | 36 | 28 |
| FPB-010 | 10 | 10 / 20 | 26 | 48 | 33 |
| FPB-020 | 20 | 20 / 30 | 32 | 54 | 39 |
| FPB-030 | 30 | 25 / 40 | 37 | 66 | 44 |
| FPB-050 | 50 | 40 / 60 | 45 | 78 | 52 |
| FPB-075 | 75 | 50 / 100 | 50 | 90 | 57 |
| FPB-100 | 100 | 60 / 125 | 54 | 96 | 61 |
| FPB125 | 125 | 75 / 125 | 60 | 108 | 67 |
| FPB150 | 150 | 100 / 150 | 66 | 107 | 73 |
| FPB-200 | 200 | 125 / 200 | 72 | 120 | 79 |
| FPB-300 | 300 | 125 / 200 | 80 | 144 | 87 |
| FPB-400 | 400 | 150 / 200 | 88 | 156 | 95 |



CAROLINA MATERIAL TECHNOLOGIES
Material Handling Experts

CMT, Inc.

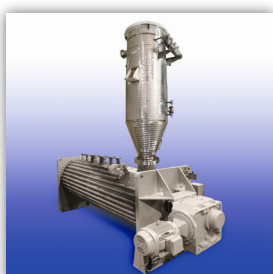
220 Crompton St, Charlotte, NC

Phone: 704-846-3737

Email: info@cmtnc.com

Web: www.cmtnc.com

Ask about other equipment in the Carolina Material Technologies product line:



Dryer Reactors



Ribbon Blenders



OptimallBlend™
Fluidized Zone Mixer



Product Conditioners