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Macrosonix Inc. Acoustic Powder Processing

Key Goals and Accomplishments

Mixing Effectiveness: wide range of powder sizes (5 -750 μm) and densities, excellent mixing with spike levels down to 0.1%., mix times 2:00 minutes or less, and chamber fill levels from less than 5% to greater than 75%.

Mixing Control: microcontroller based, menu driven blend intensity selection with automatic blend timer, linear power control and customizable mix recipes.

Ease of Use Benefits: gentle bladeless mixing without damaging product; efficient with low heat generation, secure removable chambers provide easy storage, filling and emptying; and easy to clean bladeless chamber saves time and money.

Reliability: non-contact, long life, bearing-free linear motor design and no rotary bearings or seals to contaminate or wear-out.

Approach and Key Tools

User Analysis and Experience Design

User Concept Generation: Acoustic fluidization creates a bubbling, high intensity mixing zone while chamber shape focuses energy and produces circulation.

Lumped Parameter Non-Linear Simulation and Experimental DOE Optimization.

Process Optimization and Reliability Growth

Results and Recognition

Cover story for Powder and Bulk Trade Journal on Launch. Many other publications.

Customized product business for Macrosonix funding development of 2, 20 and 200 liter sizes.

Exit strategy licensing to established power processing manufacturer and distributor.