Carrier Fluid Bed Dryers & Coolers

For over 65 years, Carrier Vibrating Equipment has worked with customers worldwide to solve complicated challenges from many different industries. Whether it is conveying, drying, cooling, classifying, calcining or crystallizing, Carrier has an extensive product line of both vibrating and non-vibrating equipment unequaled in the bulk material processing industry.

Fluid Bed processing passes a gas directly through a bed of solid material via a perforated plate, nozzles, ceramic grid or other fluidizing media, lifting and mixing the solids. At the fluidizing velocity, solid particles are dispersed and surrounded by gas. The material bed expands and attains fluid-like properties gently boiling and flowing much like a liquid.

Features and Options

**Electronic Delta-Phase Drive** - Optional drive permits instantaneous changes to the angle of vibration during operation to control retention times. Alternative methods of control, such as reducing vibration amplitude or frequency, can cause loss of fluidization, reductions in efficiency or product agglomeration.

**Fluidized Decks** - Carrier selects the most appropriate fluidizing deck for each application with over 100 different designs.

**Special Coatings & Materials of Construction** - Material contact surfaces can be fabricated from carbon steel, stainless steel, titanium, Inconel® or a number of other alloys.

**Clean-In-Place Systems** - Ideal for applications requiring frequent cleanouts, such as food and dairy.

**Safety Features** - All dryer system components can be designed with fire and explosion prevention, detection and suppression systems.

**Solvent Recovery** - Remove or recover solvents evaporated during drying.

**Access Manways** - A range of accessibility options and designs are available.

**Mechanical Dispensers** - Provide consistent feed to the fluid bed when processing difficult materials.

**Iso-Max™ Dynamic Reaction Reducer** - Significantly reduces the already low dynamic reaction transmitted through the fluid bed isolation springs. Standard isolation springs can reduce the total dynamic reaction up to 96%.

Fluid Flow System Designs Often Include:

- Temperature Controls
- Charging Feeder
- Blowers
- Ductwork
- Air Controls
- Heating Source
- Cooling Source
- Dust Collection

Advantages of Vibrating Fluid Bed Processors

- Process material with wide particle size distribution
- Available in either low or high “G” designs to accommodate all types of material characteristics
- Superior energy efficiency
- Custom engineered process parameters specific to each application.
- Process sluggish or sticky material
- Process temperature-sensitive materials
- Vibration helps to discharge oversize product
- Easy to clean and maintain

Three-Shaft Fluid Bed

Conveyor Style Fluid Bed

Twin Motor Fluid Bed

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The Once-Through System is the most common application of a fluid bed processor. The process gas travels across the product a single time and is then exhausted to atmosphere.

The systems provide for a highly-efficient process, as the process gas is in complete contact with the product at all times. These systems also offer the most cost effective and operations-friendly service.

Like the Once-Through System, the process gas travels across the product in a highly efficient manner. As the process gas passes over the product, a heat load is retained while traveling to the exhaust. On a partially recirculated system, a portion of that heat load is returned to the front side of the process via direct air or through an indirect heat exchanger. This additional heat reduces the overall energy necessary to be provided by the process gas heater. As a result, an increase in process efficiency is achieved.

As with the Partially Recirculated System, the exhaust gas heat load is transferred to the front of the process. In this process the exhaust air is filtered and returned to the process gas supply fan. This offers a larger increase in process efficiency over the Partially Recirculated System.

It allows the system to be self-inerting, eliminating the need for costly nitrogen purge systems when running explosive or combustible products.