FLUIDIZED BED
DRYERS AND COOLERS

We Make Your Work Flow
Carrier
Vibrating Equipment, Inc.
WE MAKE YOUR WORK FLOW

Since our origin in 1950, Carrier has been recognized as the industry leader in designing and building bulk handling and processing equipment. Our engineering expertise serves major industries around the world to provide the most efficient systems for moving and processing their products.

Carrier's capabilities in the design and manufacture of processing equipment are based on our on-going commitment to best serve the needs of industrial productivity.

In our SOLUTIONS approach to serving those needs, our awareness of diversified operations led us to seek an addition to our vibrating fluid bed processing line.

To fulfill this objective and continue our tradition of supplying quality equipment, Carrier has teamed up with a world-class leader in Fluidized Bed technology; NARA MACHINERY CO., LTD., Japan.

Through our license agreement with Nara, Carrier's line of vibrating fluid bed processors combines with Nara's expertise and in-depth knowledge of stationary fluidized beds to furnish a complete product line.

These systems, patented by Nara, represent over 30 years of application experience and advanced fluidization techniques for high thermal efficiencies, proven successful in constant operation.

Our experience in supplying total system design has met with overwhelming success. This comprehensive SOLUTIONS package places Carrier in an unparalleled position to engineer and supply this line of FLUIDIZED BED DRYERS AND COOLERS.
Stationary Fluidized Bed Dryers and Coolers

Fluidized bed techniques are most effectively utilized in applications for:

- Drying
- Cooling
- Calcining
- Sterilizing

Pilot tests are conducted to set parameters for the type of unit suitable for specific materials.

Practical experience and patented design features assure our customers operational advantages.

Materials Processed Include:

- Synthetic resins, PVC, polyethylene, various chemicals, flour, sugar crystals, grains, sand, soybeans, corn germ.

Features

- Simple Construction
- Complete System arrangement
- Intimate process gas contact with material bed
- Uniform supply air distribution
- Simple controls for retention time and temperature
- Gentle handling of particles
- Absence of moving parts in processing vessel

Benefits

- Low Capital cost
- Built-in components for proper air-flow rates
- High heat transfer coefficient
- Maximum operating temperatures possible for rapid drying rates
- No overheating of sensitive materials
- Quality finished product
- Stable operation and minimum maintenance
The Continuous Fluidized Bed uniformly supplies process gas into the plenum chamber through the conical section under the bed. The material is in intimate contact with the process gas and becomes fluidized.

Fluidization assures uniform mixing of the process gas and material to dry and cool without hot or wet spots. Processed product is continuously discharged at the overflow and underflow weirs.

Immersed heat exchanger tubes can be added to the fluidized bed area to promote additional heat transfer. Air quantity required for drying is 50% to 70% of that necessary with air as the only heat source. Maximum heat transfer coefficients are achieved with lower power consumption. Multi-stage units are available for cost-effective drying and cooling.

**Advantages of Continuous Fluidized Bed Systems include:**

- Ability to mix wet and dry feed provides a uniform drying operation of highly moisturized products without the need for a preliminary drying process
- Very high thermal efficiencies
- Easy Clean-out
- Minimal Maintenance

**Components:**

1) Feed System
2) Distributor Plate
3) Plenum Chamber
4) Drying Chamber
5) Hot Air System
6) Dust Collection System
7) Product Discharge
Continuous Fluidized Bed Systems provide for quick manual clean-out between product runs or can be equipped with a Clean-In-Place system for automatic clean-out.

Heat transfer tubes are flow-through type to prevent dead zones and insure an even thermal profile throughout the bed. Tubes are treated to eliminate corrosion.
Batch Type Fluidized Bed Processors
Multi-Stage/Reverse Turning Bed

Batch Type Fluidized Beds are comprised of a cylindrical vessel fitted with a distributor plate that can be rotated 90° by a control motor. Process air is supplied from below through a conical chamber. Wet material is fed from above the vessel and dried product is discharged downward by rotating the plate. Multiple stages allow for semi-continuous operation.

Applications include drying, heating, cooling, sterilization or curing processes for polymers and various chemicals.

The Multi-Stage system maximizes use of the supply air heat capacity for high heat transfer coefficients. Accurate control of retention time and uniform drying is achieved, even with large particle sizes. Product attrition is negligible and the unit is applicable for drying at low temperatures.

Simple operation of the Reverse Turning Bed is automatically controlled by timer and/or temperature signals.

Components:

1) Feed System
2) Distributor Plate
3) Plenum Chamber
4) Drying Chamber
5) Hot Air System
6) Dust Collection System
7) Product Discharge

TI  Temperature Indicator
TC  Timer Control
TIC Temperature Indicator and Control
Multi-Stage Reverse Turning Beds are especially suitable for synthetic resins, large grains, crystals, and flour.

Experimental tests are performed daily to assist our customers in making the proper equipment selection.

Look for the Carrier Advantages

Find out how our cost-effective SOLUTIONS are improving powder/bulk solids processing and handling everywhere!
THE STANDARD OF EXCELLENCE IN BULK MATERIAL HANDLING AND PROCESSING EQUIPMENT

Fluid Bed Dryer/Cooler Systems, Conveyors, Spiral Elevators, Feeders, Shakeouts
Screens, Bin Activators, Pile Dischargers

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