

Fluid Bed Dryer/Cooler for Sand and Aggregate

North America's leading supplier of fluid bed processors for minerals and aggregates since 1950.

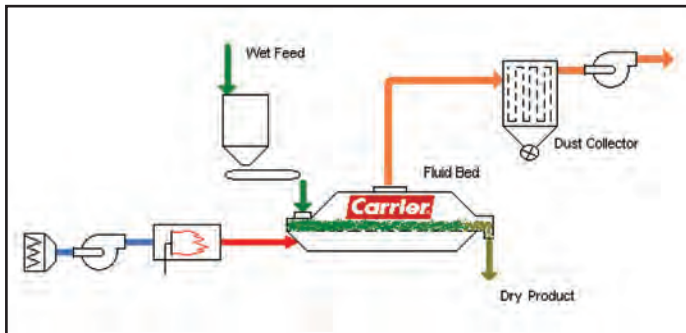


- Reduce energy costs—Guaranteed!
- Easy to operate
- Custom designed for your needs—efficient and cost effective
- Reduce greenhouse gas (CO, NOx) and dust emissions
- Designed and fabricated in the USA

Carrier Gives You Processing Options

Carrier understands that each processing plant is unique, which is why we don't force a single solution to fit every application. We'll work with you to develop the most cost-effective solution based on your specifications, considering various options for reducing both capital and operating costs.

Process options include:



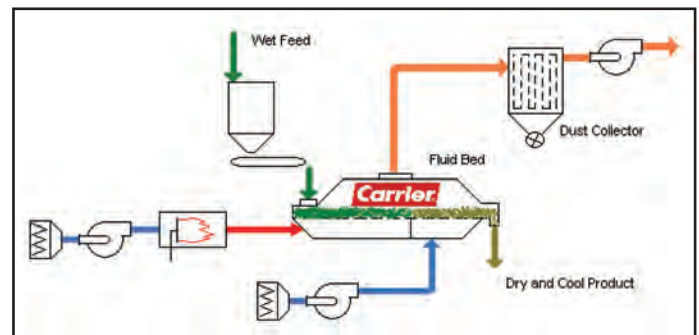
Dryer Only

Standard Fluid bed dryers typically use 30-40% less energy than a rotary dryer.

Dryer/Cooler

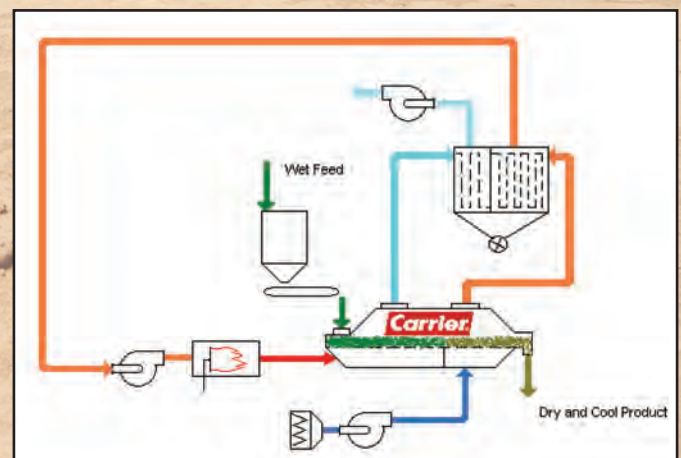
A cooling zone is added to the drying zone to reduce the temperature to as low as 115°F. Sand and other aggregates can be slightly under-dried in the drying zone, leaving enough moisture in the hot product to take

advantage of an evaporative cooling effect. This reduces the energy required for drying and the amount of air required for cooling. The net result is a dryer/cooler that discharges cool product and uses 50-60% less energy than a rotary dryer.



Dryer/Cooler with Partial Recirculation

Warm exhaust air from the cooling zone can be cleaned and recirculated to the hot air heater, providing additional energy savings of up to 10-15%. This also substantially reduces the amount of exhaust air discharged to the atmosphere.



Features and Benefits

Vibration

Sand can be fluidized with air alone—no vibration is required. However, the addition of a small amount of vibration improves process control and reduces energy consumption. Carrier fluid bed dryers are designed with process flexibility in mind. Vibration amplitude and frequency can be easily adjusted to optimize the drying process. Through extensive testing, Carrier has developed a vibration amplitude/frequency combination designed specifically for processing sand and aggregate. This combination provides just enough vibration to efficiently process surges of wet sand, rocks, and frozen lumps, and can be easily adjusted to handle changes in the process specifications. Competing fluid beds—mounted on slow-running vibrating conveyors—are subject to spilling caused by wet surges, experience more abrasive wear, and lack the ability to control important vibration parameters.

Flexible Connectors

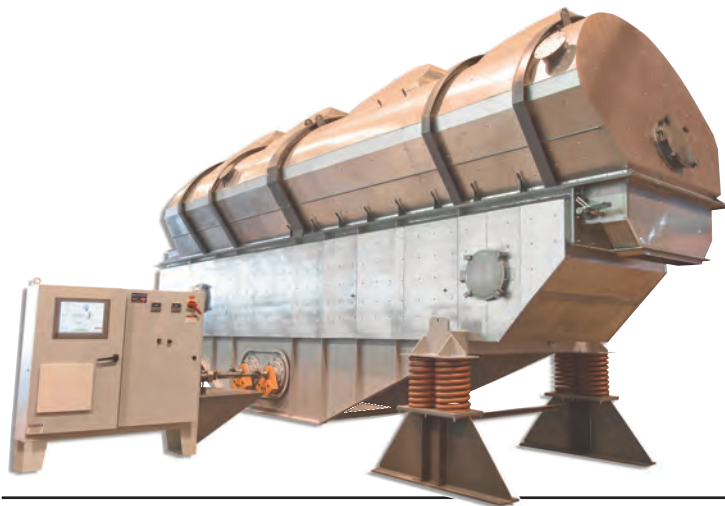
Carrier uses a single, stainless steel flexible connector to supply hot air to the fluid bed. This flexible “bellow” is specially designed for high temperatures and easily bolted to the fluid bed. Competing designs use less expensive fabric socks which burn easily and require additional cooling.

Reliable Design

Carrier’s fluid bed plenum is fabricated from 304 stainless steel, specially drilled for processing both sand and gravel without weepage or sticking. Hot air is distributed below the deck in a plenum fabricated from A-386 alloy steel specified for high temperature fabrication. The hood is bolted to the plenum and deck and expanded to minimize entrainment of fine particles in the exhaust gas.

System Design

Carrier provides highly flexible drying plants. In addition to supplying the dryer, Carrier can also specify components and even install an entire drying plant, including insulation, dust collectors, instrumentation, MCC, and ductwork. Customers are able to incorporate existing equipment and/or supply select components.



Parts and Service

Carrier fluid bed dryers are designed and fabricated in the United States and serviced by a full-time staff of mechanical, electrical, and process technicians just a few hours from your plant. Parts for the more than 30,000 pieces of equipment we have supplied world-wide are stocked in our Louisville, KY, warehouse and are available for overnight delivery.

For more information call 502-969-3171 or visit www.carriervibrating.com

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Dryer/Cooler Process Controls

Sand and aggregate dryers typically control the drying process with feedback from temperature sensors at the product discharge or in the exhaust duct. Carrier's base control package consists of cascaded programmable controllers connected to high-speed temperature transmitters, which control the output of the hot air heater by reacting to temperature changes caused by varying in-feed conditions. For installations that see dramatic swings in the inlet moisture content, the set point to the control system is set a few degrees higher than normal to account for the "lag" that occurs while the control system changes the firing rate of the air heater. This prevents the dryer from discharging wet sand during upset conditions.

Multi-Point Predictive Control System

For the highest energy efficiency available, Carrier offers an optional PLC-based control system with logic written specifically for sand and aggregate drying. This system uses high-speed temperature transmitters to detect temperature changes at up to nine points in the drying zone, cooling zone, and in the exhaust hood. The sophisticated control system reacts to small temperature changes in the product before it reaches the end of the machine, and controls both the feed rate and hot air temperature to ensure the product is discharged dry without over-drying. The sophisticated control system comes with an easy-to-use touch screen control panel which can be modified to include other operations in the drying plant.

