PRODUCT DATA SHEET

Tall Form Spray Dryer

Overview

The RELCO Tall Form Spray Dryer is engineered to produce premium-quality powders with consistent properties across a wide range of products. It is ideal for applications that require gentle drying, high bulk density, and precise moisture control, particularly for heat-sensitive materials.

The system features a single-direction vertical airflow with a vertical hot air distributor, ensuring uniform air distribution while minimizing fan pressure drop. This design prevents powder recirculation, resulting in stable operation, higher bulk densities, and non-caking, nonhygroscopic powders.

Drying occurs through nozzle atomization in a co-current flow within a large cylindrical chamber, providing sufficient residence time for controlled moisture removal and gentle drying of larger particles. Integrated options such as fines return, directional fluid bed screens, and customizable heat and CIP configurations further enhance product consistency, efficiency, and system flexibility to meet specific customer and process requirements.

Product Capabilities

- Up to 30,000 lb/hr of powder output, depending on product characteristics, nozzle configuration, and air-neck design.

Key Features

- Continuous system utilizing single-direction vertical airflow to prevent powder recirculation, supporting high bulk density and gentle drying of heat-sensitive products.
- Generates premium-quality powders that are non-caking and non-hygroscopic.
- Customizable to meet specific product requirements, offering flexibility in product variety and powder functionalities.
- Optional timing belt for post-crystallization of high lactose products.
- User-friendly operation, easy inspection.
- Full integration with RELCO evaporation, crystallization, and powder handling.

Components & Options

- Feed Tank(s)
- Feed Pump
- Concentrate Heater
- Air Supply & Exhaust Systems
- Instrumentation & Automation
- Timing Belt
- External Fluid Bed
- Bustle-air Outlet
- High Efficiency Cyclone
- E-Spray
- Baghouse
- Baghouse Fines Retention Bin
- CIP-able Baghouse
- Wet Scrubber
- Lecithin Unit
- Agglomeration
- Dual Feed Lines Set to Operate 24/7
- Humidity Monitoring and Control System for Dryer Optimization
- Multi-fuel Indirect Fired Heater
- Retractable CIP Nozzles
- Spray Nozzle Cameras

Applications

This product is suitable for a diverse array of applications, including but not limited to:

- Non-Fat Dry Milk (NFDM)
- Skim Milk Powder (SMP)
- Whole Milk Powder
- Buttermilk
- Dairy and vegetable protein concentrates
- Cheese Powders
- Whey Permeate
- Yeast Extracts
- Infant Milk Formula (IMF)
- Maltodextrin
- Blood Products
- Encapsulated Powders
- Active Pharmaceutical Ingredients (API)
- Nutritional Powders

Powder Components

- Sifter
- Mixer
- Complete powder handling solutions

Safety Systems

- Explosion suppression
- Explosion rupture panels
- Fire deluge
- CO detection
- CO_2 suppression systems

Utilities

- Desiccator
- Air-to-liquid heat recovery
- Air-to-air heat recovery

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