RAYMOND®
FLASH DRYING SYSTEM

Proven Equipment for Your Drying Needs
Raymond Flash Drying Systems: Simple to operate and well known for their high on-line availability for tough applications involving fine, non-metallic, low to medium abrasive, sticky and heat sensitive materials. They have been successfully providing solutions for the chemical, petrochemical, ceramic, pharmaceutical, food, fertilizer, and plastic industries worldwide.

Flash Drying Process
Flash Drying is the rapid removal of moisture from mesh and micron sized solids which give off moisture easily, primarily as surface water. The wet material is dried by conveying it in a high velocity hot air stream. The short retention time in a flash drying system provides for maximum control of product quality.

There are four factors that influence the evaporation of moisture during flash drying:

1. Moisture dispersion - filter cakes and feed with sticky consistencies can be conditioned for more effective drying by back mixing with dried product.
2. Particle size - moisture dispersion is a function of particle size and shape. The smaller the particle the more rapid the moisture removal. Applications requiring simultaneous grinding and drying are particularly adaptable to the flash drying process.
3. Temperature differential - high inlet temperatures can be utilized in a flash dryer since the drying occurs quickly and the material is removed from the hot gas stream before it reaches the wet bulb temperature of the conveying gas.
4. Agitation - rapid drying also results from the agitation and turbulence of the particles. High gas velocities in the flash dryer accomplish this. In a system incorporating disintegrations, the mill contributes to the agitation. The vapor film is continuously swept away from the moist particles making drying practically instantaneous.

With more than 125 years of experience, Raymond Bartlett Snow thermal products have successfully provided solutions in heat transfer applications for industries worldwide.

TYPICAL MATERIAL PROCESSED
- Alumina
- Bentonite
- Catalysts
- Calcium Phosphate
- Calcium Citrate
- Chlorine Bleach
- Coal
- Corn Gluten
- Flourspar
- Gypsum
- Iron Oxide
- Kaolin
- Limestone
- Phosphate Rock
- Potato Granules
- Synthetic Resins
- Sodium Chloride
- Sewage Sludge
- Wheat Flour
- Wood Flour

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The essential components of a basic flash drying system are an air heater, feeder to introduce the wet material into the system at a controlled rate, cyclone, collector, secondary dust collector, vent fan and necessary connective duct work.

The heating medium is typically products of combustion from a gas or oil burner, mixed with tempering air to achieve an inlet temperature of up to 1300°F (750°C). Designs using other indirect heat transfer mediums such as thermal fluids and electrical heating elements are also available.

Airstream flash dryers are designed to bring wet scatterable products into contact with a high velocity hot air stream. The patented dispersing feeder is particularly well suited for use on airstream flash drying systems which process heat-sensitive products. This high speed rotary feeder is designed in such a way that wet, even sticky material is deagglomerated and evenly dispersed into the hot air stream at high velocity and parallel to the flow of gas.

In addition, flash drying can be simultaneously combined with other functions such as pulverizing, separation, classification and conveying for utilization in additional process applications.

Cage Mill Flash Dryers: Designed to bring wet, lumpy and dispersible products into contact with a high velocity hot gas stream. The agitation and turbulence created by the cage mill assists in drying of the surface moisture.

Imp Mill Flash Dryers: Selected when size reduction of the process material is required.

Twin Cyclone Systems: Solves the problem of uneven drying, produces material having uniform characteristics. Heavier particles that may contain excess moisture are directed into the lower cyclone to be reintroduced to the hot gas stream.

<table>
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<th>Cyclone Size</th>
<th>Airflow ft³/min</th>
<th>Approx. Heat Input MBtu/hr.</th>
<th>Approx. Pwr. Req. kW</th>
<th>Max H₂O Evap. lb/hr.</th>
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