

RAYMOND® CAGE MILL FLASH DRYING SYSTEM

With 130 years of experience, Raymond is a single source provider of equipment and systems for processing natural and synthetic gypsum and waste wallboard.

ADVANTAGES

- Disintegrates and agitates material.
- Improves drying by increasing turbulence and retention time.
- Accepts a wide range of material size and moisture conditions.
- Heavy-duty design for nonstop 24-hour operation, minimum maintenance.
- Rotor mounts on retractable carriage and includes replaceable blades.
- Available with flash drying/calcining.

For Gypsum Processing

The Raymond Cage Mill Flash Drying System: Designed for drying agglomerated materials that do not require size reduction. The cage mill is a low energy consumption device that increases drying performance resulting in improved product quality.

Raymond Cage Mill

The cage mill design consists of an agitator type rotor enclosed in a welded steel housing with carbon steel liners and a tangential outlet. A rotor and blade assembly with sets of variable length carbon steel bars are arranged and welded concentrically on a steel spider.

The cage mill housing is provided with bolted, machined, gas and dust tight flanged joints. The v-belt driven mill is supplied with heavy-duty roller bearings that allow for trouble free, smooth operation under the high temperature conditions the mill experiences.

Raymond Cage Mill Flash Drying System

The cage mill flash drying system design consists principally of a feed conveyor, cage mill, air heater, dust collector and system fan along with the connective ductwork to incorporate these components into a complete system.



RAYMOND® CAGE MILL FLASH DRYING SYSTEM

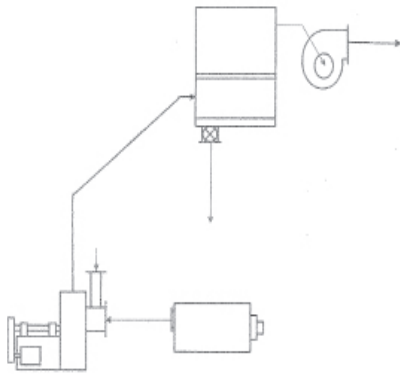
Principle of Operation

The processed material is discharged from the silo into the feeder then to the inlet of the cage mill flash dryer. After the material enters the mill, it is vigorously agitated while being combined with hot gas from the air heater creating turbulence and retention time for more efficient drying. The system's high thermal efficiency occurs from a high temperature differential between the inlet and vent temperatures. The short retention

time in the hot zone results in lower product temperatures compared to other dryer methods, reducing the heat losses to the product, and lowers the risk of calcining during the drying phase. The circular motion of the rotor helps direct the feed into the drying column then into the primary collector where the drying process is completed.

Cage Mill Flash Drying

Feed stock metering from the silo results in a more consistent feed to the flash calcining system. It improves control of the calcining process by smoothing out temperature swings which can occur with the variable feed moistures these types of materials can experience. The improved feed consistency prevents sudden swings in feed moisture from causing fluctuations in stucco combined water which can cause problems on the boardline.



A primary cyclone and/or baghouse collects the product while a system fan serves as the primary air mover. The dried synthetic gypsum is discharged into a material handling system for transport into a feed silo located ahead of the calcining system.

Typical Capacities Raymond Cage Mill Flash Drying System

Cyclone Size	Airflow ft ³ /min	Approx. Heat Input MBtu/hr	Approx. Power Req. kW	Max H ₂ O Evaporation lb/hr
3	1700	1085	12	700
4	3000	1860	18	1200
5	4700	2945	28	1900
6	6800	4185	38	2700
7	9200	5735	52	3700
8	12000	7440	66	4800
9	15000	9300	81	6000
10	19000	11025	99	7500
12	27000	17050	143	11000
14	37000	23250	198	15000
16	48000	29450	237	19000
18	61000	37200	294	24000
20	75000	46500	367	30000
22	90000	55800	432	36000