MILLING FLASH DRYER

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Drying of Powders, Filter & Centrifuge Cakes, and Slurries Where a Discrete and Fine End Product is Desired

FEATURES & ADVANTAGES

- Dry and de-agglomerate in a single step
- Particle-to particle collisions achieve fine products without moving parts
- Extremely short residence times for temperature-sensitive products
- Small footprint minimizes building space requirements
- Jet milling principles preserve particle distribution present in wet feed
- Static classifier minimizes product topsize
- Energy efficient complete Custom Engineered Drying Systems

PROCESS DESCRIPTION

Heated low pressure air is injected into the lower drying chamber via a series of nozzles that enter the dryer on the tangent, setting up a high velocity recirculating flow of gas. The nozzles are also angled so the exhaust of each nozzle impacts upon the exhaust of the previous nozzle. High velocity collisions between particles occur as a result of the colliding gas streams as well as the eddy currents generated by the natural expansion of the jet of gas.

Materials are delivered to the system as a cake, powder, or backmized slurry and enter the dryer via a rotary valve, venturi, or feeder. Slurries can also be atomizes directly in the dryer when desired. The feed material enters the recirculating hot air upstream of the first nozzle, with the centrifugal forces generated by the air concentrating the material in the area above the nozzles. Particle-to-particle collisions begin immediately, de-agglomerating the material before hard agglomerates can form. A tremendous amount of surface area is created allowing evaporation to occur quickly, thereby depressing air temperature in a very short period of time.

Centrifugal forces are generated by the recirculating gases within the dryer, forcing the larger particles to the peripheral walls. Finer material is displaced towards the inside radius of the dryer where the classifer outlet is located. Fine product exits the dryer along with the exhaust gas vapor. Larger particles or agglomerates are recycled to the nozzle area dryer for further de-agglomeration and drying.

Drying Process:	Continuous direct contact
Drying Media:	Air, nitrogen, superheated steam
Inlet Temperature Range:	180 to 1800 F
Outlet Temperature Range:	130 to 1600 F
Material Residence Time:	0.5 to 2 seconds
Milling Action:	Jet milling principles, using low pressure jets of gas

Abbreviated Application List:

Alginates	Metallic Stearates
Amorphous Silica	Metallic Oxides
Brewer's Yeast	Mica
Calcium Carbonate	Organic Pigments
Copper Sulfate	Pharmaceutical Lakes
Food Grade Fibers	Polymers
Herbicides	Starches
Kaolin	Talc
Metallic Hydroxides	Titanium Dioxide



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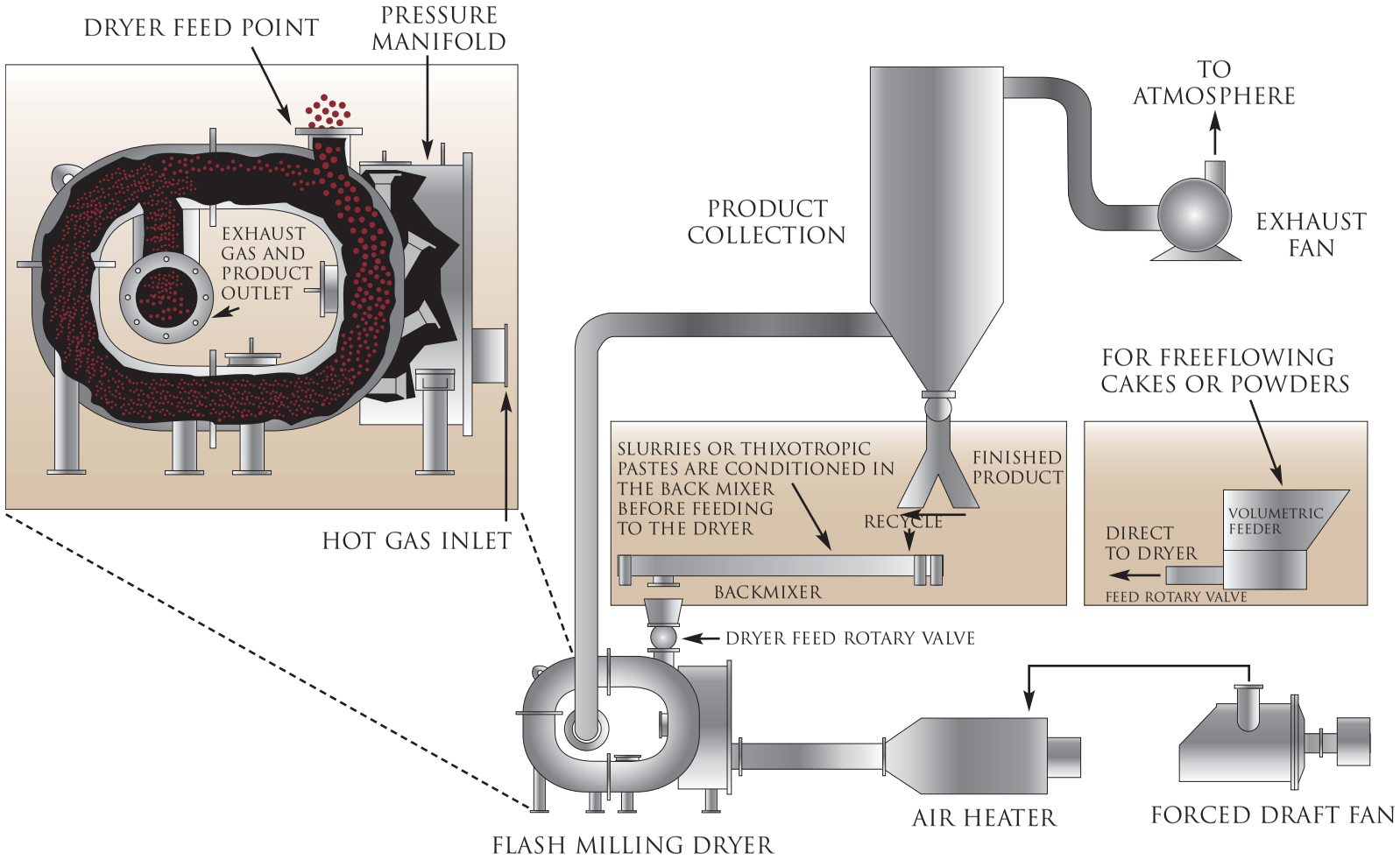
CROWN MILLING FLASH DRYER



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