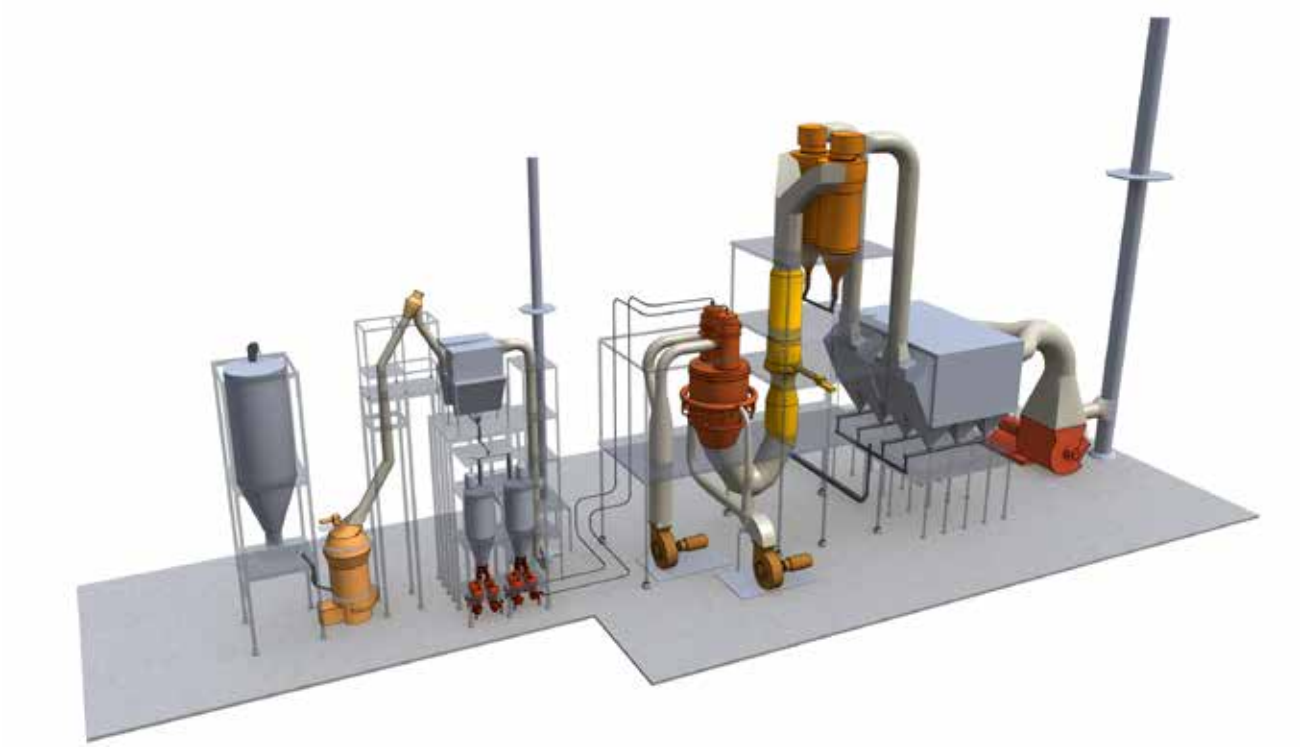
One Source

Minerals Flash Dryer Systems

FLSmidth

Flash Drying for Fine Ores



Flash dryer advantages

- **Lower capital cost**
- **No moving components**
- **No grid plate or nozzles**
- **Smaller foot print**
- **Extremely fast response to process changes**
- **Lower power consumption**
- **Higher thermal efficiency**
- **Multiple fuels**

Flash drying for fine ores

Flash drying is an economical method for processing fine materials such as potash, phosphate, limestone fines, alumina, trona, clays, talc and other mineral products. Drying takes place in a stationary vertical column - no rotating parts or grid plates with simple PID control of the fuel.

FLSmidth is the world leader in gas suspension technology supplying flash dryer systems since the 1970s. We have designed units from 1 ton per hour up to 800 tons per hour.

How the FLSmidth flash dryer works

The FLSmidth flash dryer is a vertical cylindrical design in which fuel is combusted in an external air heater. Preheated combustion air is introduced into the bottom of the dryer where it is mixed with fuel and preheated feed material. The turbulent swirling mixture of combustion gases, fuel and material produces a highly uniform temperature profile throughout the dryer.

Fine ore is introduced above the flash dryer venturi where it contacts hot gases from an air heater. The ore is immediately entrained in the hot gases and dried in seconds. Dry ore and spent gas are separated in a cyclone. Spent gas and dust are vented through a gas treatment system (baghouse, ESP) and then to atmosphere. Cyclone underflow and baghouse dust are transported as dried product.

The drying temperature and atmosphere can be closely controlled for uniform product quality and emission control. Because the flash dryer has minimal material in process at any one time, the system can rapidly adjust to changes in feed.

Your choice of fuel

Many types of fuels are being used successfully in commercial operations including natural gas, fuel oil, coal, petroleum coke, low heating value gases and alternate fuels.

FLSmidth offers a complete line of solid fuel preparation and alternate fuel delivery systems.

Operating Characteristics

- High-efficiency cyclone with low pressure drop resulting in low fuel and power consumption
- Simple PID fuel control and fast start-up and shut down
- Limited maintenance – Very limited moving parts
- Suitable for firing both traditional and alternate fuels

One Source Supplier

FLSmidth is your One Source Supplier for complete systems. We can design supply and operate complete Flash Dryer systems. FLSmidth has expertise and equipment for ore and fuel preparation, ore storage and reclaim, calcining, product cooling, finished product storage with load out, and off gas treatment. We also maintain an extensive network of Customer Service engineers and designers to maintain peak operation long after initial startup.

Comparison of drying technologies

	Flash Dryer	Fluid Bed Dryer	Rotary Dryer
Capex	0.6	0.75	1.0
Opex	0.95	1.1	1.0

Dryer feed intake

Burner vortex

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www.flsmidth.com

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