

Indirectly-heated flash dryer system

Features

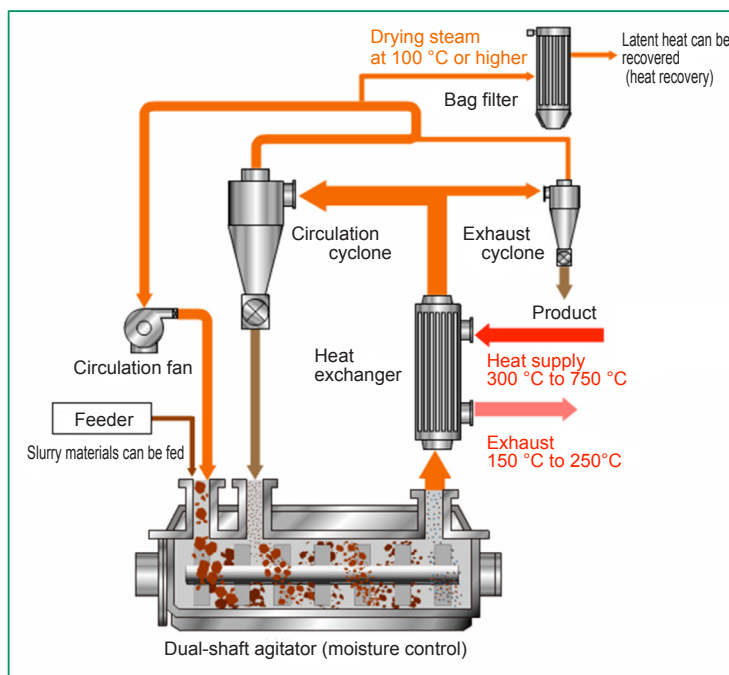
- The low exhaust-gas emission substantially saves energy and downsizes the exhaust gas treatment system at the same time.
- Flash drying in the superheated steam atmosphere eliminates the risks of combustion, dust explosion or the oxidation of the materials.
- The incorporated moisture control function allows the feeding of slurry-like materials into the dryer.

Overview

(Technical principles, actions, etc.)

The system incorporates an indirectly-heated flash dryer unit, the type of dryer which had only been feasible by direct heating. The dryer system combines an energy-efficient indirect heating mechanism and low-cost flash drying, and can be applied to drying of a wide range of materials ranging from powders to slurry.

The system consists of a dual-shaft agitator that controls the moisture, and a heat exchanger that flash-dries the materials. After the material moisture is controlled by the dual-shaft agitator, the material is blown by the circulating superheated steam flow through the heat exchanger, during which the material is indirectly heated and dried. The superheated steam atmosphere in the dryer enables discharging only the steam generated in the drying process out of the system.



Treatment flow

Introductory Track Record

- One system has been installed in Japan. A large-scale experimental facility with a water removal capacity of 150 kg/h is installed in the plant for testing under the near-commercial scale conditions.



External view of the system

Effects

The only exhaust gas generated during drying by the system is the steam generated in the drying process. This minimizes the exhaust gas and substantially saves energy for drying materials that require deodorizing, such as sludge. The exhaust gas, with a steam content of nearly 100%, facilitates latent heat recovery and can be thermally recycled for material preheating.

Exhaust gas from kilns or incinerators can also be directly used as a heat source without the need to install a waste heat boiler or other devices. Because the exhaust gas doesn't come into contact with the materials, the gas does not affect dried materials.

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