



# SPIN FLASH DRYER



NSI EQUIPMENTS PVT LTD

# SPIN FLASH DRYER



Spin Flash drier Dryer is used for effective and efficient method of removal of surface or on bound moisture from a feed product. Spin Flash Dryers are designed for continuous drying of cohesive and non-cohesive pastes, filter cakes and high viscosity liquids. Under the action of hot air and mechanical dispersion, the wet cake appears granular and gets fluidized. Instantaneous exchange of heat and mass takes place. The dried materials are taken in the collector as powder products.

## PRINCIPLE OF SPIN FLASH DRYING

The Spin Flash Drying is more often in the line of an agitated fluidized bed system. The drying agitator works as rotor to break the lumps and the hot air enters at reasonably high velocities to give dynamic action to dry and disintegrate the product.

Fresh air is sucked through hot air generator, which can be direct or indirect in nature. The entry to the drying chamber is tangential to give whirling air suction across the dryer. The hot air generator can be Liquid, Solid or Gaseous Fuel fired. The feed screw pushes the material to the drying chamber. The drying chamber has a rotor driven from the bottom. The rotor has specially designed scrapper blades and disintegrator for breaking the lumpy mass into smaller fragments.

The lumps, which are broken by the rotor, start drying and simultaneously disintegrating in the stream of hot air.

The airborne fine powder particles get carried to the top of the drying chamber and a classifier classifies them to the

required size. The particles with larger diameter go back to the chamber, while the fine travel through with the air for final collection through Reverse Pulse Bag Filters, wherein almost 100% powder recovery is achieved.

## ADVANTAGES OF SPIN FLASH DRYING SYSTEM :

1. Energy consumption is much less than spray dryers, fluidized bed dryers, flash dryers, rotary driers, tray driers etc.
2. Space requirement for installing this dryer is much less than spray dryer, pneumatic dryer, fluidized bed dryer, rotary driers etc.
3. It is a completely automatic plant with temperature controllers etc.
4. Dry product discharge section of the dryer can be installed in your product packing section, hence cost of transport of dry product to the finished product section can be eliminated.
5. Pulverizing after drying will not be required. The unit will dry, classify and convey all in a single operation.
6. Wet cake can be directly fed from Filter/Centrifuge to lump breaker bin, which feeds the cake in to the dryer and hence all intermediate handling of material can be eliminated. The entire system is closed and hence any chance of contamination is eliminated.
7. Since it is a closed system, wastage and dusting etc. are totally eliminated resulting in clean environment, zero wastage and total recovery of product and pollution free atmosphere.
8. It is possible to vary the bulk densities also by minor changes in the classifier situated near the top of the dryer.

## COMPONENTS OF SPIN FLASH DRIER

### a) HOT AIR GENERATOR SYSTEM :

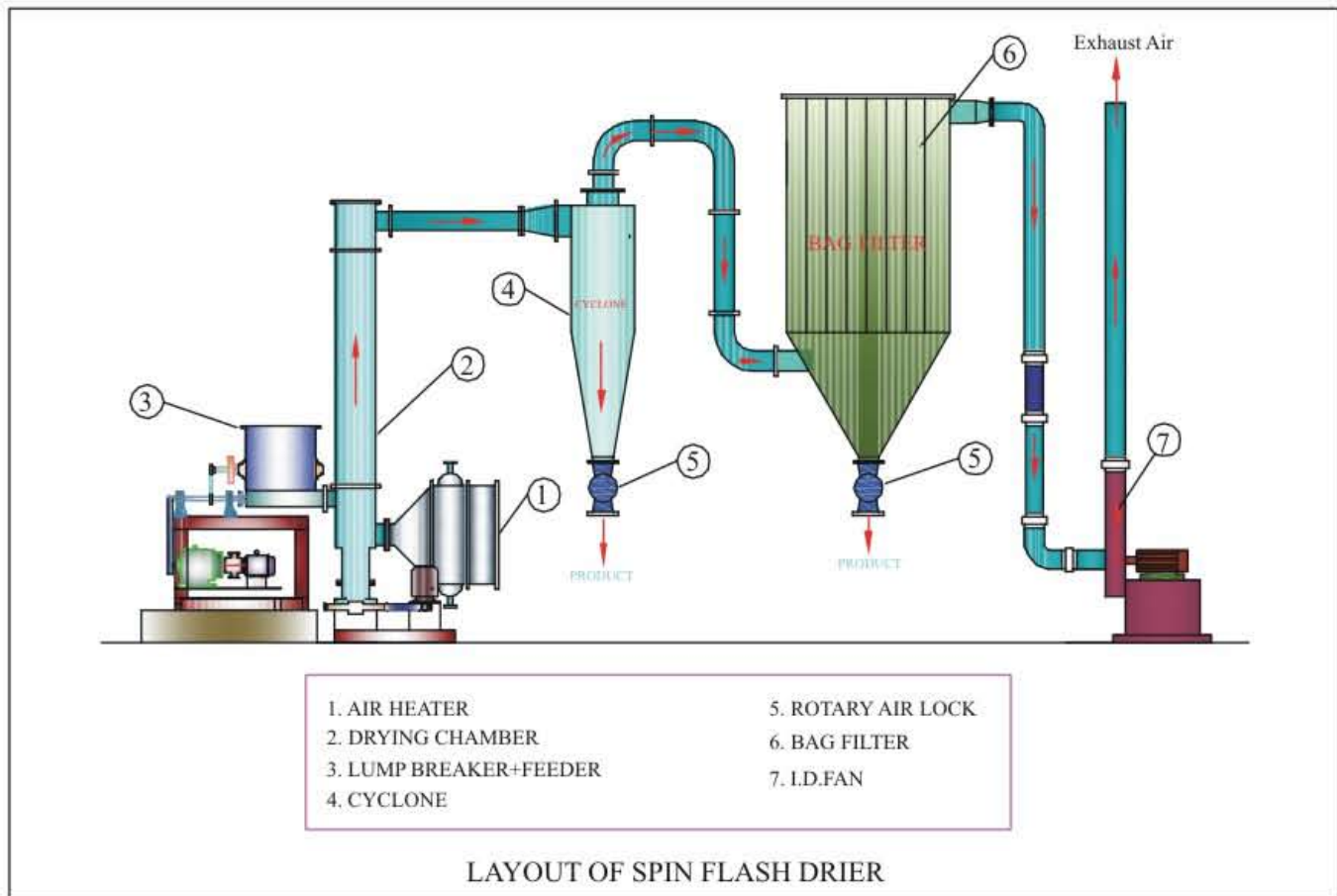
This will consist of a hot air generator - direct / indirect / Finned Tube Heat Exchanger type .The unit would have to be connected to the Dryer by means of a Hot Air Duct which will have to be insulated.

### b) LUMP BREAKER CUM SCREW CONVEYOR :

This unit would be connected to the bottom of suitable wet product storage and consists of two shafts mounted with special lump breakers meshing with each other, below a



# SPIN FLASH DRYER



dual screw conveyor will feed material in to the dryer. The lump breaker shafts and the screw conveyors will run by a single motor with gear box through a system of meshing gears, bearings, housings, stuffing box etc. This unit is of a special design for the type of cake and is very robust and sturdy.

## c) MAIN DRYER :

it is a cylindrical vertical chamber, at the bottom shell is mounted a shaft with a high speed disperser and above mounted on it a high speed scraper. At the top of this section is a nozzle in to which the screw conveyor feed the material. A tangential nozzle is provided at the bottom to allow inlet hot air. The drive is through suitable motor through V-belts and Pulleys.

## d) BAG FILTER :

Bag Filter for separation of powder from the air will be provided. The Bag Filter is fully automatic and self cleaning with no internal moving parts. The filter will consist of SS housing with manhole, hopper for dry product, air inlet and outlet flange, air nozzle, venturi pipes, solenoid valves and all internal compressed air piping, filter bags and adjustable timer.

## e) ROTARY VALVE :

A rotary air lock valve for discharging material from the filter will be provided. This will be operated by means of suitable motor with suitable gear box.

## f) EXHAUST BLOWER :

A centrifugal exhaust blower will be provided. Fan will be coupled with suitable totally enclosed fan-cooled motor by belt drive.

## g) PIPING :

All components comprising the plant are interconnected with suitable ducting.

## h) CONTROL PANEL :

A control panel mounted with necessary starters, switches, push buttons etc. and pre-wired for all motors comprising the system.

## i) INSTRUMENTATION :

All necessary instrumentation necessary for the safe and simple operation of the plant, like temperature controller, local temperature indicators etc.

# SPIN FLASH DRYER

## FEATURES :

- High drying efficiency and low energy costs. The energy efficiency of such systems are up to eighty percent, which is very high for such types of drying systems.
- Direct drying and no initial diluting.
- Continuous processing with short drying time.
- Ideal for replacing conventional drying systems such as Fluid Bed Dryers, Pneumatic Flash Dryers, Spray Dryers etc.
- Pulverizing, conveying, classifying etc. can be done on the same system
- Space utilization is most economical and operations are totally automatic. Most of the time, the product can be directly bagged or sent for further processing.
- Self regulating, self adjusting system, which involves minimal attention even while operating at capacity.
- The system being under negative pressure, there is no dusting and therefore no wastage. The area is free from environmental hazards. Clean operation with minimal manual handling is an important feature of the system.

## Application :

Direct contact dryers for bulk drying of various products such as inorganic chemicals, bulk drugs, dyestuffs, insecticides foodstuffs etc.

Chemical industry products like Zinc carbonates, Calcium

carbonate, Magnesium carbonate. Manganese carbonate, Cobalt carbonate, Zirconium, Red ferric oxide, Aluminum hydroxide, Lead sulphate, Zinc sulphate, Fire retardant Super-fine Calcium carbonate, Zinc oxide, Barium sulphate, Kaolin, Pigment, Dyestuff, Pesticide, Mancozeb etc.

Other drying systems manufactured by us are -

**ROTARY DRIER**

**ROTARY VACUUM DRIER**

**SPRAY DRIER**



## NSI EQUIPMENTS PVT LTD

### OFFICE & WORKS :

Opp. Block Development Office, Delhi Road, Meerut-250002 (U.P.)  
Tel.: +91-121-2519225, 4030530 • Facsimile : +91-121-2521154  
Mobile : 09897700681  
E-mail : info@nsiequipment.com, nsiequipment@yahoo.co.in  
Website : www.nsiequipments.com

### REGIONAL OFFICE :

734, Mount Road, Chennai - 600 006, Tamil Nadu, India.  
TeleFax : +91-44-28297539, Mob.: 09840327957  
E-mail : kannan@nsiequipment.com

