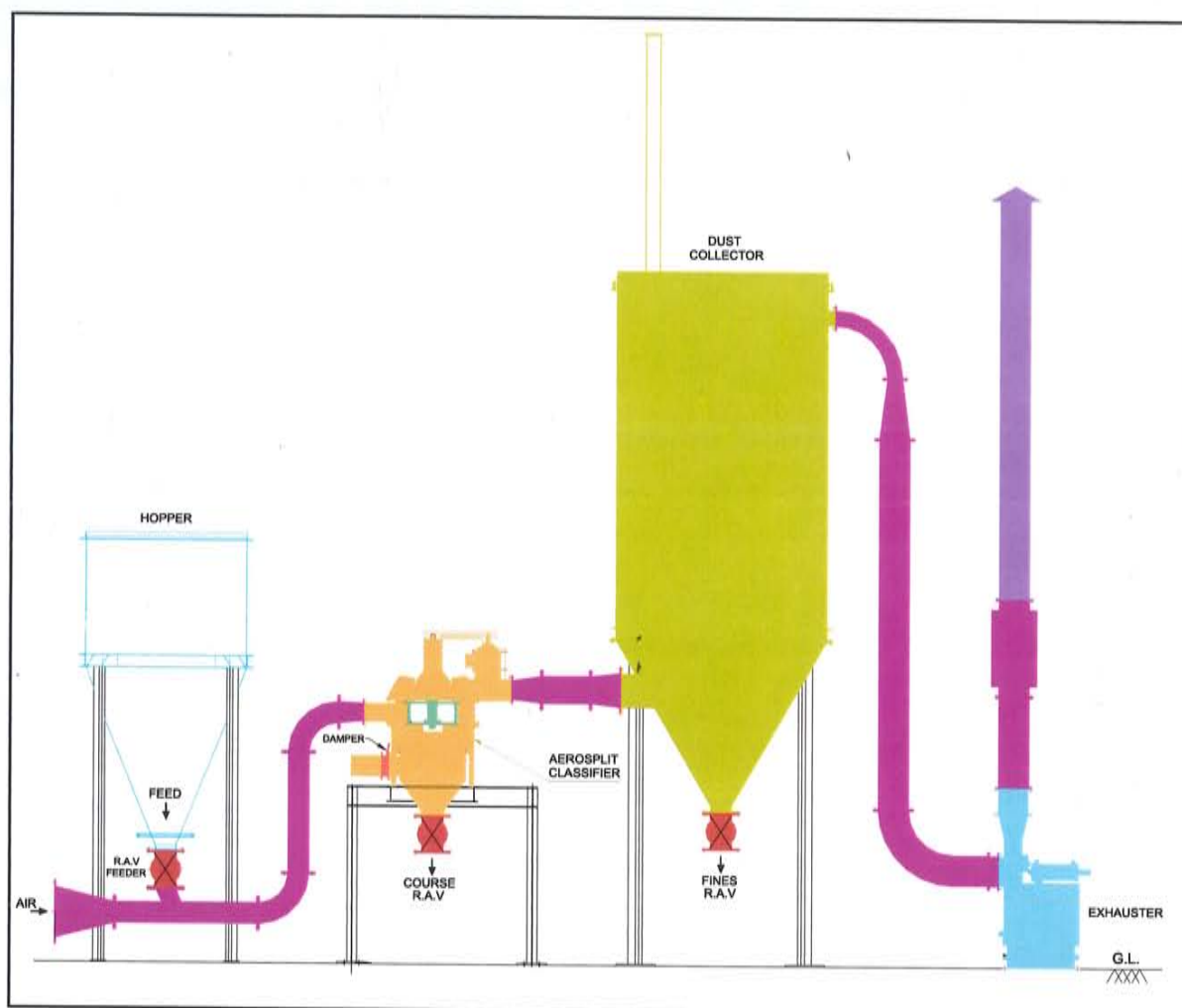




Air Classification System



SINCE 1985

CHEMFILT

If separation/classification of fine dry power within narrow Particle Size Distribution (PSD), with precise top cut is your problem, then CHEMFILT's Air Classification System offer cost effective solution for the same with consistent sharp top cut.

The system comprises of below listed major equipment Assembled, Ducted and Electrically connected to form "ASystem":

[A] Feeding System:

Rotary Air Lock Valve (RAV)/Screw type, Speed Regulated, Feeder, Pick-Up Nozzle & Ducting.

[B] Classifier

Classifier, Rotary Air Lock Valve (RAV) type Discharger.

[C] Collection System

Bag Filter with Rotary Air Lock Valve (RAV) type Dischargers, Exhauster and Set of Ducting.

[D] Control System

Power and Control Panel and Set of Field Instruments for smooth & efficient operation of the system

[A] Feeding System:

The Feeding comprises of Rotary Airlock Valve type feeders, Speed regulated feeders, Pick up nozzles & Ducting, receives feed material to be classified mechanically for feeding to Classifier at desired controlled rate through a Variable Frequency driven Feeder.

[B] Classifier

Air Classification is a technique by which dry powders of mixed particle size are separated into two distinct fractions, one above and the other below a definite cut point. It may normally be considered applicable to the production of powders within the range from approximately 1 micron to 300 microns

Operating Principles:

All CHEMFILT Air Classifiers separate particles based on the opposing principles of centrifugal force and aerodynamic drag force. As product enters the primary air inlet, individual particles are subjected to aerodynamic drag forces by the

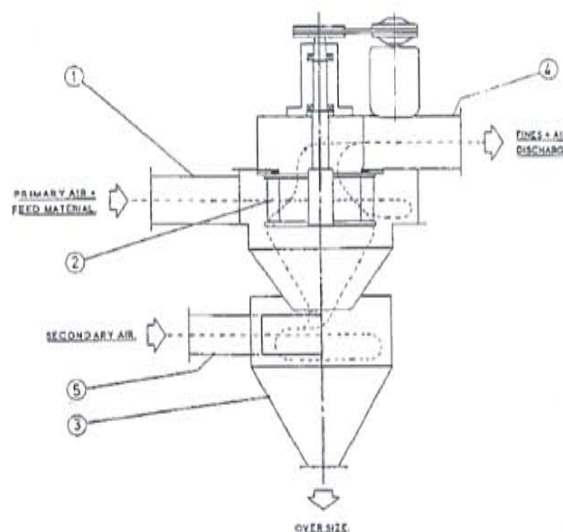
conveying air. This drag force varies with the size and density of the individual particles.

As particles spiral toward the classifier rotor, one of two things occurs:

1. Drag force exceeds the centrifugal force exerted by the rotor and particles pass through the machine as fines; or
2. Centrifugal force overcomes the drag force, causing particles to accelerate away from the rotor, where a cyclonic chamber collects the coarse particles and discharges them.

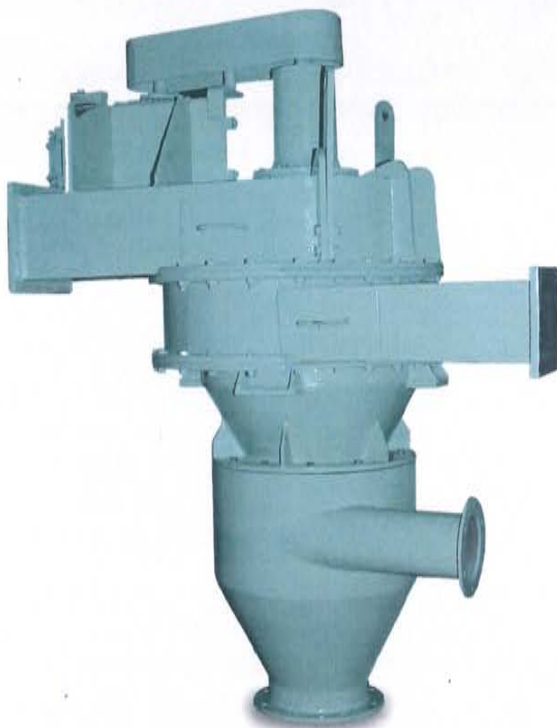
Cut-point is determined when the forces are equal, in which case particles have a 50/50 chance of passing as fines.

- Cut-point is variable and can be controlled by adjusting the rotor speed.
- A secondary air inlet introduces a controllable amount of air that moves upward into the classification zone, increasing the residence time of agglomerated particles. This air helps to increase efficiency for smaller cut-points.



- Entrained feed material enters through primary air duct (1)
- Particles are introduced into a forced vortex generated within the machine by a rotor (2)
- Particles are classifier within the vortex as a result of the interaction between centripetal and air drag forces.
- Cut point determined by control of rotor speed (and air flow).
- Particles below cut size pass through the rotor and exit with the entraining air duct for collection in the external system.

Depending upon the application, fine product collection or de-dusting the product, the oversize thus separated is collected is either returned to the regrinding (in case when fine is the product) or collected and bagged, if coarse is the product (in case of de-dusting application).



"Aerosplit" high efficiency classifiers

The Aerosplit range is suitable for processing dry particulate materials and is capable of handling quantities from a few kilos/hours up to many tonnes per hour.

The Aerosplit forced vortex units process dry materials to exceptional fineness and uniformity over a wide range of feed variations, are designed to operate either in closed circuit with a conventional milling system or as independent "stand-alone" system incorporating feeder, fan and product collection equipment.

The superior performance is due, in part, to a design that ensures that feed material entering the classifying vortex is unimpeded by re-circulating coarse fractions.

The Aerosplit can be installed in existing air system with a minimum of modification and will separate products of exceptional fineness and uniformity over a wide range of feed variations.

Features:

- Operating range of 3 to 150 microns
- Available in a range of sizes with capacities from a few Kgs/hour to many tonnes/hour.
- Excellent sharpness of cut.
- Precise on-stream control of cut point by variation of rotor speed.
- Reduced power consumption due to low system resistance Low system resistance Low power consumption.
- Adjustable secondary air system for optimization of classification efficiency.
- Design configuration ensures feed material immediately enters the classifying vortex unimpeded by re-circulating coarse fraction giving superior performance.
- Optional lining abrasion-resistant steel and rubber, polyurethane or ceramic lining.
- Ceramic rotors may be fitted where necessary
- Operates under suction promoting dust-free environment.
- Robust construction and build quality for long service life.
- Mild steel or stainless steel construction available.





[C] Collection System comprises of:

Bag House:

Bag Filter for separation of powder from the air is reverse pulse self-cleaning air filter with no moving components. The bag house is in M.S. construction and the filter has adequate filtration cloth area for lower pressure drop. A programmable sequential timer controller is provided for continuous cleaning of bags online.

For hazardous materials such as Organic and Pharma products explosion barrier valves are provided on request. The exhaust air can be re-circulated to recover heat through heat recovery system in order to reduce drying cost.

Exhauster:

A centrifugal exhaust fan will be provided. This will be in M.S. Construction and will have a self-cleaning type impeller which will be statically and dynamically balanced. Fan will be coupled with a suitable totally enclosed fan cooled motor by belt drive. Capacity of the fan will be designed for having the dust collection system just adjacent to the dryer.

Rotary Airlock Valve:

MS rotary air lock valve for discharging material from the hopper is provided. This will be operated by means of 1 HP motor with suitable gearbox.

Ducting:

All the interconnecting ducting from Feed to Classifier, Classifier to Bag House, Bag House to Exhauster will be made up of MS plates.

[D] Control System Comprising of:

Control Panel:

Control Panel to house contactors, starters, relays for the motors, variable speed a.c. drives, voltmeter, A-Meter, on-off switches with lamps will be provided. Material of construction of the housing cabinet will be powder coated C.S.