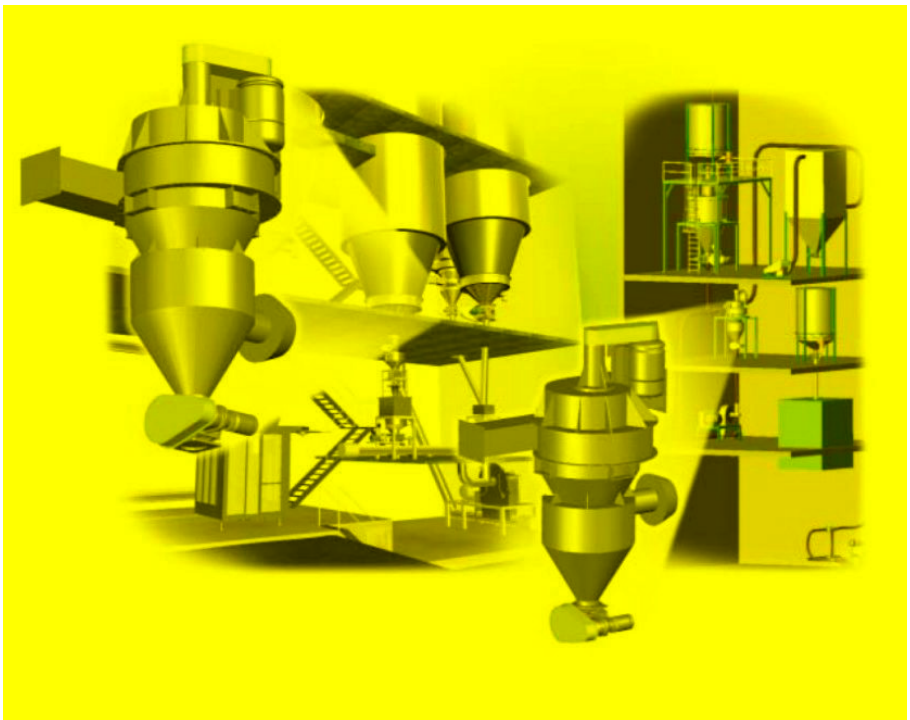
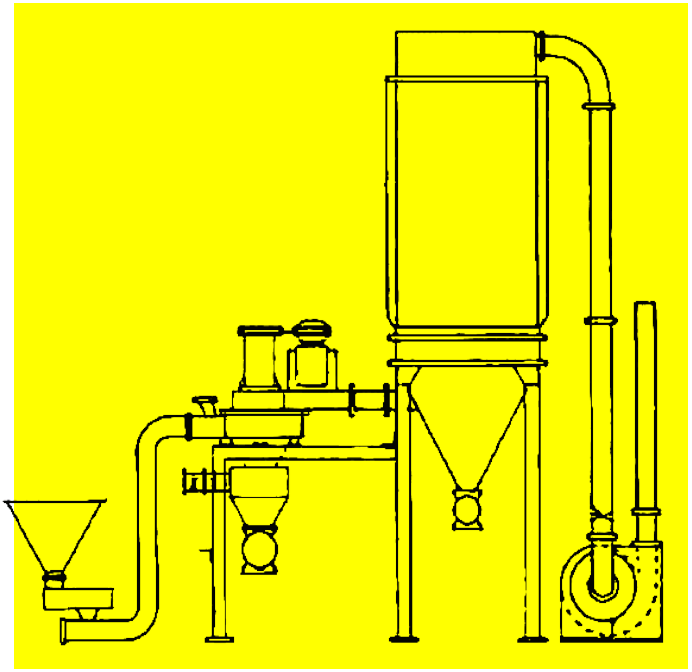
PRATER®
AIRLOCKS • MILLS • SEPARATORS

Air Classifiers

KEY FEATURES

- Durable, heavy-duty fabrication in either carbon or stainless steel
- State-of-the-art, precision manufactured, constant diameter rotors for the most efficient separation possible
- Precise control of the cut point by varying rotor speed
- Adjustable secondary air system for greater capture of near-size particles
- Low airflow resistance (pressure drop) designed for low-power usage
- Optional ceramic, tungsten, polyurethane, or rubber lining for abrasive service





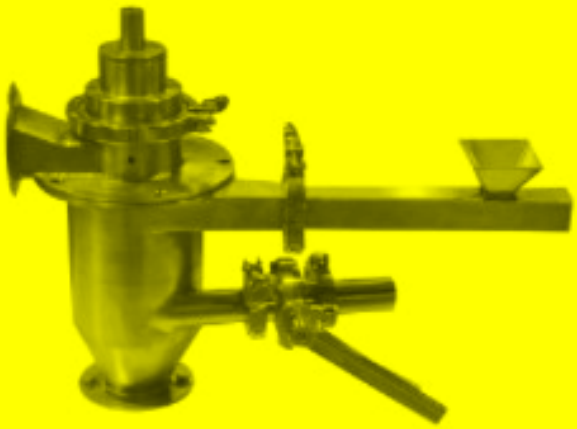
Mini-Split

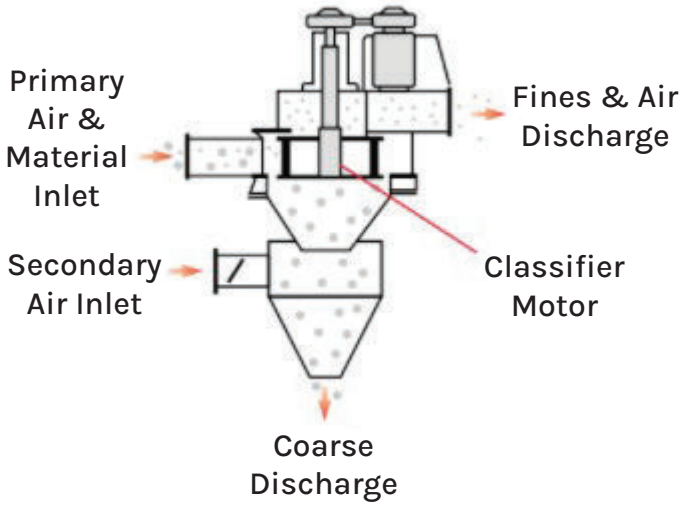
- Operating range of 1 to 75 microns
- Feed rate for 1 to 75 kilograms/hr
- Narrow size distributions
- Stainless steel contact parts

The Mini-Split Classifier was developed specifically for research, “semi-tech” and small-scale production applications. Its low operating noise makes ita preferable option for smaller working spaces and its compact size allows for portability

With interchangeable components, the Mini-Split can be converted into an opposed jet fluid energy micronizing system, complete with integral classifier, for the size reduction of a wide range of materials.

The Mini-Split’s capacities are adjustable to suit individual customer requirements and can be easily incorporated with a feeder, classifier and/or product collection system.





KEY BENEFITS

Prater air classifiers are ideal as a stand-alone process that includes a feeder and dedicated dust collection system.They are equally suited to “closed-circuit” grinding when coupled to a conventional milling system.

Prater Air Classifiers are designed and built for superior performance and long life. Our proprietary design ensures that feed material entering the classifying vortex is unimpeded by any re-circulating coarse fractions. Additionally, an adjustable secondary air stream improves particle collection. Prater Air Classifiers can quickly be installed in existing air systems with minimal modification.

THEORY OF OPERATION

Prater Air Classifiers utilize adjustable centrifugal force to separate particles of different sizes within a pneumatic circuit. The raw product is conveyed through a primary air inlet. Once in the classifier, aerodynamic drag forces pneumatically act upon the particles. The force varies depending on the diameter and density of the particles in the classifier.

Spiraling particles are directed toward the classifier rotor, where one of two things occur, depending on particle size:

- Drag force on smaller, more aerodynamical particles exceeds the centrifugal force exerted by the rotor, and they pass through the machine as fines; or
- Centrifugal force overcomes the drag force, causing larger, less aerodynamical particles to accelerate away from the rotor. A cyclonic chamber collects this coarse fraction and enables discharge through a rotary airlock fitted to the bottom of the machine.

The balance between the drag force and the centrifugal force determines the cut-point. When the forces are equal, particles have a 50/50 chance of passing out of the system as fines. The cut-point is variable and can be controlled by adjusting the rotor speed.

Collection efficiency is enhanced by using a secondary air inlet, an adjustable air stream that moves upward into the classification zone. This airstream increases the residence time of agglomerated and near-size particles, thus allowing them to be classified with the fine product stream.

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