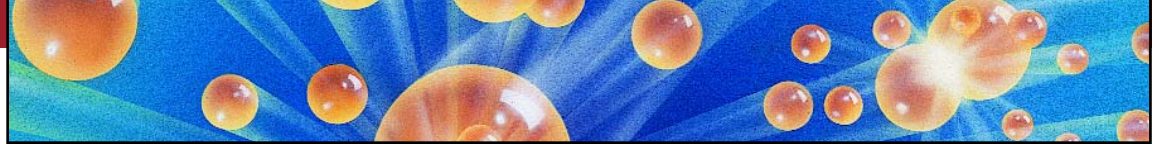
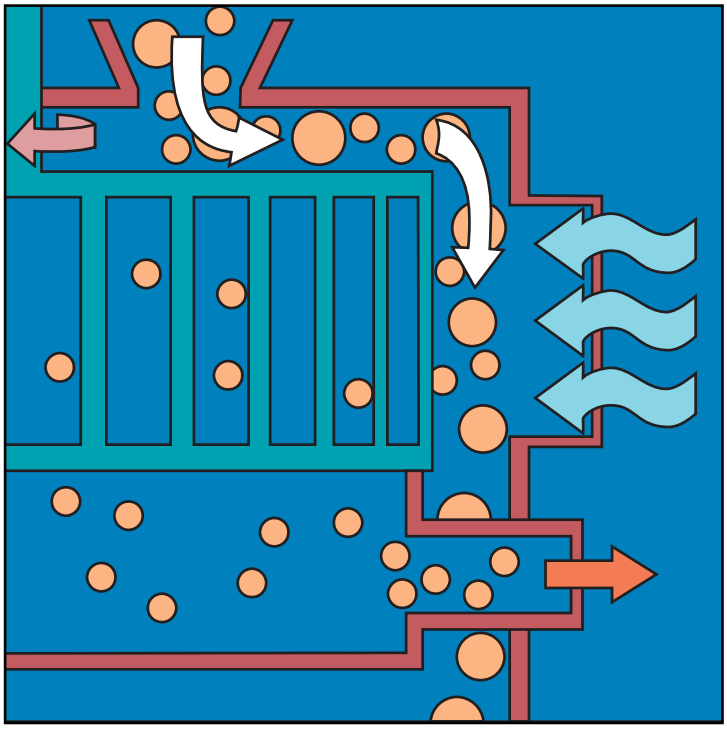


AIR CLASSIFIERS

Whirlwind© SuperFine® and Side Draft™ (SD™)



STURTEVANT Inc.®

POWDER PROCESSING TECHNOLOGY: THE STURTEVANT SOLUTION.

THE SUPERFINE CLASSIFIER

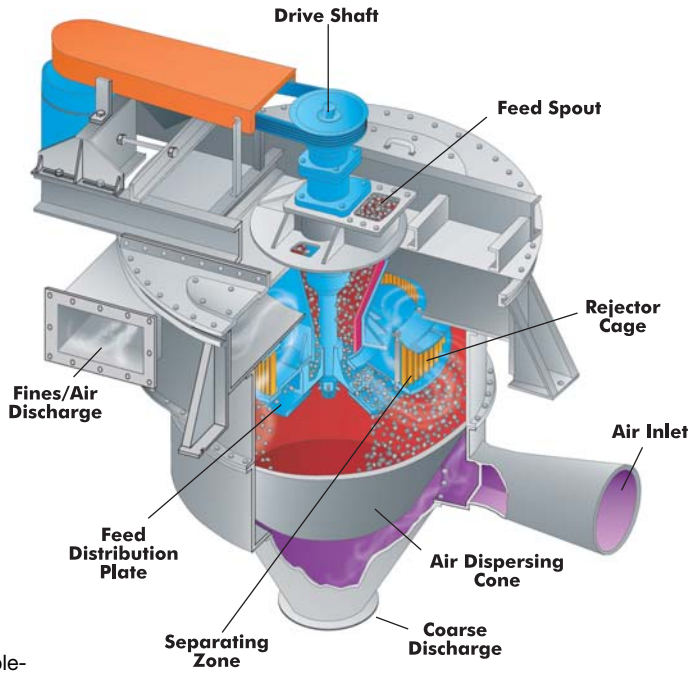
The **SuperFine Classifier** achieves the high degree of accuracy demanded in the separation of particles 44 microns and smaller while delivering benefits including:

- Ideal for separation of high-value materials, 44-5 microns
- Tight particle size control
- Compact design allows easy retrofit into existing facilities
- Consistent, high-quality product, despite variations in feed material, through easy-to-make changes in air flow and variable-speed rejector cage
- Processes abrasive materials; ceramic liners and/or inexpensive, steel replaceable liners available
- Effective product cooling
- Fines collected in cyclone or process collector

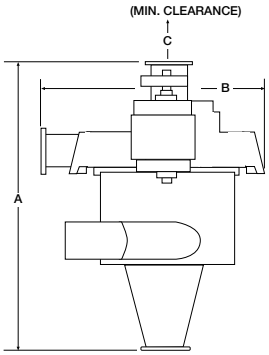
36" SuperFine, fully assembled for shipment

APPLICATIONS

- Ceramics
- Chemicals
- Diatomaceous earth
- Food products
- Minerals
- Plastics
- Shredded fibers
- Tobacco



Material entering through the feed spout is subjected to centrifugal force, causing uniform distribution of the material into the upward-moving air stream. The unique design of the SuperFine's variable-speed, multi-blade rejector cage allows only the selected particles to pass into the fines chamber and exhaust into the system collector. Oversized particles settle into the coarse discharge. The SuperFine system delivers maximum selection efficiency and productivity.



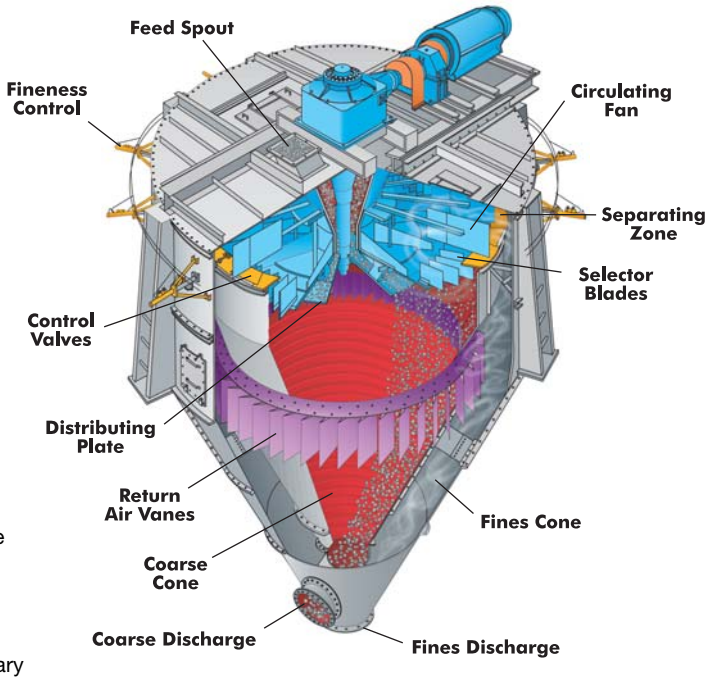
SUPERFINE AIR CLASSIFIERS							
SIZE	A	B	C	WEIGHT (lbs.)	H.P.	AIR FLOW (CFM)	FEED RATE (lbs./hr.)
36"	5' 6"	3' 9"	3' 6"	2,100	10-20	3,000	1,000-10,000
72"	9' 6"	7' 4"	4' 8"	4,800	25-50	9,000	10,000-30,000

THE WHIRLWIND CLASSIFIER

Whirlwind installation requires no process dust collector

The **Whirlwind Classifier** offers an exceptional ability to achieve a wide range of separations. Its features allow precise definition and delivery of the desired size product while delivering the following benefits:

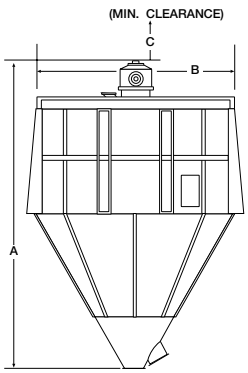
- Fine classification of 100 to 400 mesh materials
- Lowest capital cost: no auxiliary equipment, such as cyclones, process dust collectors, air locks, and system fans, are needed
- Consistent, high-quality product: external adjustment for variation in feed material
- Saves on operating expenses:
  - Low energy consumption
  - Reduced maintenance; durable, wear-resistant liners
- Processes abrasive materials; long-wearing, ceramic liners and inexpensive, steel replaceable liners



APPLICATIONS

- Aggregates, crushed stone
- Cement
- Ceramics
- Chemicals
- Coal
- Diatomaceous earth
- Fly ash
- Food products
- Gypsum
- Hydrated lime
- Minerals
- Plastics
- Silica sand
- Soda ash, bicarbonate

Material entering through the feed spout is subjected to centrifugal force, throwing coarse particles away from the distributing plate and into the air flow. Due to gravity, large particles settle into the coarse cone. Finer particles are swept upward where selector blades generate further classification. During this secondary separation, oversized particles are spun out of the air flow and drop down into the coarse cone. The selected fines continue through the circulating fan and into the fines cone. Fines drop out of the recirculated air flow at the fixed return air vanes.



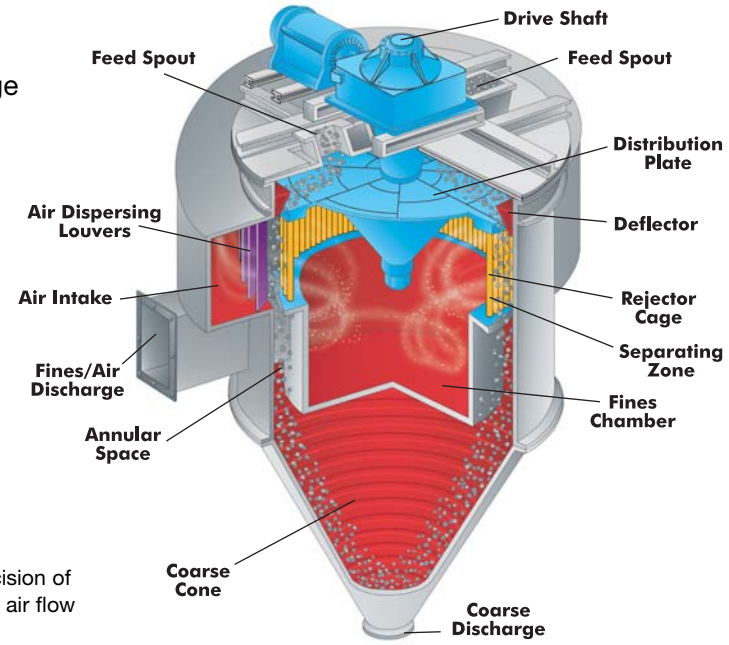
WHIRLWIND AIR CLASSIFIERS							
SIZE	A	B	C	WEIGHT (lbs.)	H.P.	AIR FLOW Vent (CFM)	FEED RATE (tons/hr.)
20"	3' 9"	2' 5"	1' 9"	650	5-7.5	25-50	1
3'	6' 7"	3' 3"	3' 0"	1,500	7.5-10	65-125	3
4.5'	8' 8"	4' 10"	3' 0"	2,400	10-15	75-150	8
6'	10' 9"	6' 4"	3' 8"	6,800	15-25	90-175	14
8'	13' 0"	8' 4"	4' 8"	9,500	20-30	150-300	25
10'	15' 8"	10' 4"	4' 8"	13,000	30-40	190-375	40
12'	19' 1"	12' 4"	5' 6"	18,500	40-50	275-550	56
14'	21' 1"	14' 5"	5' 6"	21,500	50-75	400-800	77
16'	24' 5"	16' 5"	6' 3"	31,000	100-150	675-1,350	125
18'	27' 7"	18' 5"	8' 9"	50,000	250-300	1,000-2,000	200
20'	30' 9"	20' 5"	9' 0"	68,000	350-400	1,500-3,000	300
22'	33' 0"	22' 5"	9' 0"	87,000	450-500	2,000-4,000	450
24'	35' 10"	24'5"	10' 9"	117,000	600-700	2,500-5,000	600
26'	38' 9"	26' 5"	10' 9"	125,000	600-800	3,000-6,000	800

THE SIDE DRAFT CLASSIFIER

The **SD Classifier** represents a highly versatile, energy-efficient system for the consistent separation of particles in the 100 to 400 mesh range.

- Compact design allows easy retrofit into existing facilities
- Saves on operating expenses:
  - Low energy consumption
  - Durable, wear-resistant design minimizes maintenance
- Effective product cooling
- Consistent, high-quality product, regardless of variations in feed material, through easy-to-make changes in air flow and variable-speed rejector cage
- Processes abrasive materials: ceramic liners and/or inexpensive, wear area replaceable liners available
- Fines collected in cyclone or process collector

Illustrates ceramic lining in fully-assembled SD



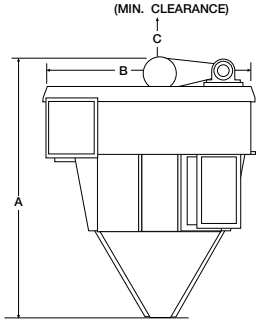
APPLICATIONS

- Aggregates, crushed stone
- Cement
- Ceramics
- Chemicals
- Coal
- Diatomaceous earth
- Fly ash
- Food products
- Gypsum
- Hydrated lime
- Minerals
- Plastics
- Shredded fibers
- Silica sand
- Soda ash, bicarbonate

Material enters through the feed spout, is evenly conveyed across the top of the distribution plate and drops into the separating zone, creating a uniformly dispersed curtain of material. Forces generated by the rejector cage and process air subject the curtain of material to particle size classification.

High separation efficiencies and precision of classification are obtained by controlling air flow and rejector cage speed.

The multi-pin, variable-speed rejector cage allows only the selected fines to pass into the fines chamber and exhaust into the system collector. The coarse particles, after passing through the separating zone, fall into the coarse outlet.



SD AIR CLASSIFIERS							
SIZE	A	B	C	WEIGHT (lbs.)	H.P. (min.-max.)	AIR FLOW (CFM)	FEED RATE (tons/hr:min.-max.)
20	7' 2"	3' 5"	2' 6"	2,100	5-7.5	3,000	4-12
30	13' 3"	5' 2"	3' 4"	2,800	7.5-10	9,400	10-40
40	14' 0"	6' 1"	3' 4"	3,500	20-30	15,300	20-65
50	15' 6"	8' 1"	3' 4"	7,000	30-40	23,500	30-100
60	16' 0"	9' 6"	4' 3"	14,000	40-50	35,300	45-150
70	17' 0"	13' 5"	4' 3"	14,600	50-60	38,000	60-190
80	22' 1"	13' 6"	4' 3"	15,000	60-75	56,000	75-240
90	24' 0"	14' 3"	4' 11"	29,000	75-100	64,000	95-300
100	24' 7"	17' 3"	4' 11"	30,500	100-125	88,300	110-370
110	28' 3"	18' 0"	5' 2"	36,300	125-150	94,200	140-450
120	25' 11"	15' 6"	5' 2"	37,300	150	117,700	160-500
130	31' 2"	19' 3"	5' 2"	45,400	150-200	141,200	190-600
140	34' 0"	21' 10"	8' 4"	62,500	200-250	159,000	220-670
150	29' 7"	20' 10"	8' 4"	63,000	250-300	165,000	250-770
160	31' 8"	23' 1"	9' 11"	87,300	300-400	180,400	280-900
170	35' 2"	23' 6"	9' 11"	109,000	400-500	212,000	320-1,020
180	35' 0"	23' 4"	9' 11"	88,500	500-600	242,000	360-1,150

STURTEVANT: QUALITY FOR GENERATIONS.

For over a century, Sturtevant has been a leader in the powder processing industry. In the 1920s we pioneered much of the air classification technology that is still in use. Today, with more than 3,100 installations and over 70 years of proven performance in separating dry powders into fine and coarse fractions, our experience is unsurpassed.

In response to the variety of applications requiring particle classification through air separation, Sturtevant now offers three separators, providing high-performance equipment that delivers efficiency, accuracy and dependability all over the world in the food, chemical and minerals industries:

- **The Whirlwind**© - Completely self-contained, requires no process dust collection equipment.
- **The SuperFine**® - Ideal for separations at 44-5 microns.
- **The Side Draft**™ **(SD**™**)** - High-efficiency separations. Versatile, variable-speed control to change fineness online.

Each provides unique benefits, backed by maximum performance and Sturtevant durability, to deliver customized solutions for your most exacting needs.

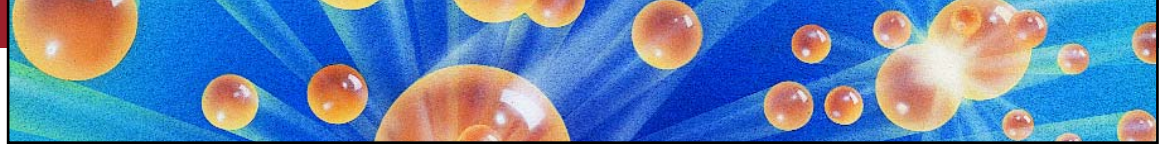
SD fit being checked prior to shipment

16-foot Whirlwind installed in grinding circuit producing 325 mesh product

SUPERIOR PERFORMANCE FROM STURTEVANT.

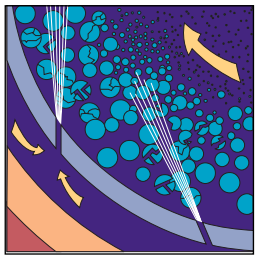
Sturtevant air separators balance the physical principles of centrifugal force, drag force and gravity to generate a high-precision method of classifying particles according to size or density. For dry materials of 100 mesh and smaller, air classification provides the most effective and efficient means for separating a product from a feed stream, for dedusting, or, when used in conjunction with grinding equipment, for increasing productivity. All three Sturtevant air classifiers offer durable construction and other time- and energy-saving advantages, including:

- Capability to process an extensive range of dry materials
- Higher capacity and finer separations than screeners
- Simple construction, low maintenance, easy-to-use controls
- Dial-in, external fineness controls; no system shutdown to change products
- Maximized wear-resistance for abrasive materials in special applications
- Easily modified for water cooling, air cooling or drying of product
- Safe classification for heat-sensitive materials

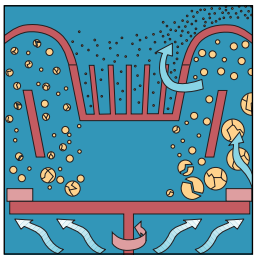


PROVEN PERFORMERS

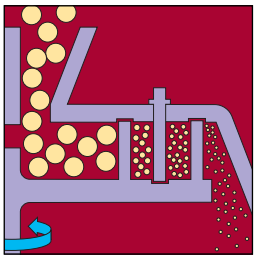
For most dry material size reduction or separation needs,
Sturtevant's extensive line of products can meet your requirements.



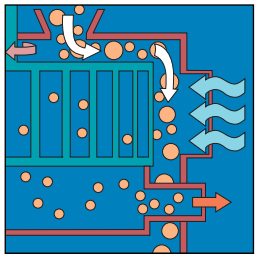
Micronizer®: Jet mills dry particles to sub-micron size; some models USDA-accepted.



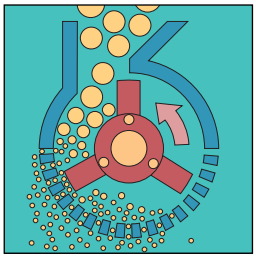
Powderizer®: Air-swept impact mill with integral classifier; grinds to low-micron range with tightest particle size distribution.



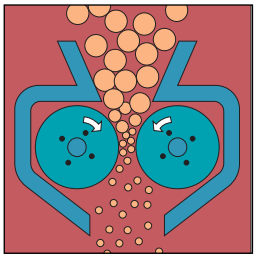
Simpactor®: Centrifugal, pin-type impact mill; reduces low- to medium-density materials to 50-200 mesh.



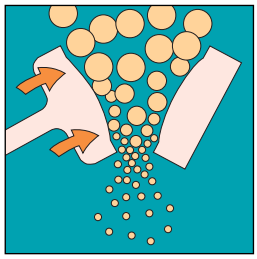
Air Classifiers: Air streams separate fine and coarse particles with mechanical rejector for product quality assurance.



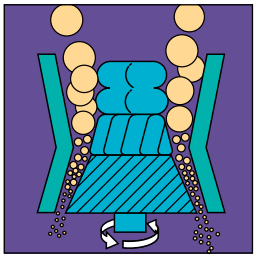
Hammermill: Versatile, perfect for friable materials; easy access for maintenance or inspection.



Roll Crusher: Best-suited for controlled reduction of friable materials; minimal fines.



Jaw Crusher: Ideal for coarse and intermediate crushing; minimal fines production.



Screening Machines: Separates powders into several fractions for multiple products or eliminating dust and oversized particles.

Sample Grinders: Disk type grinder for very fine work at small throughput rates.

STURTEVANT Inc.®

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