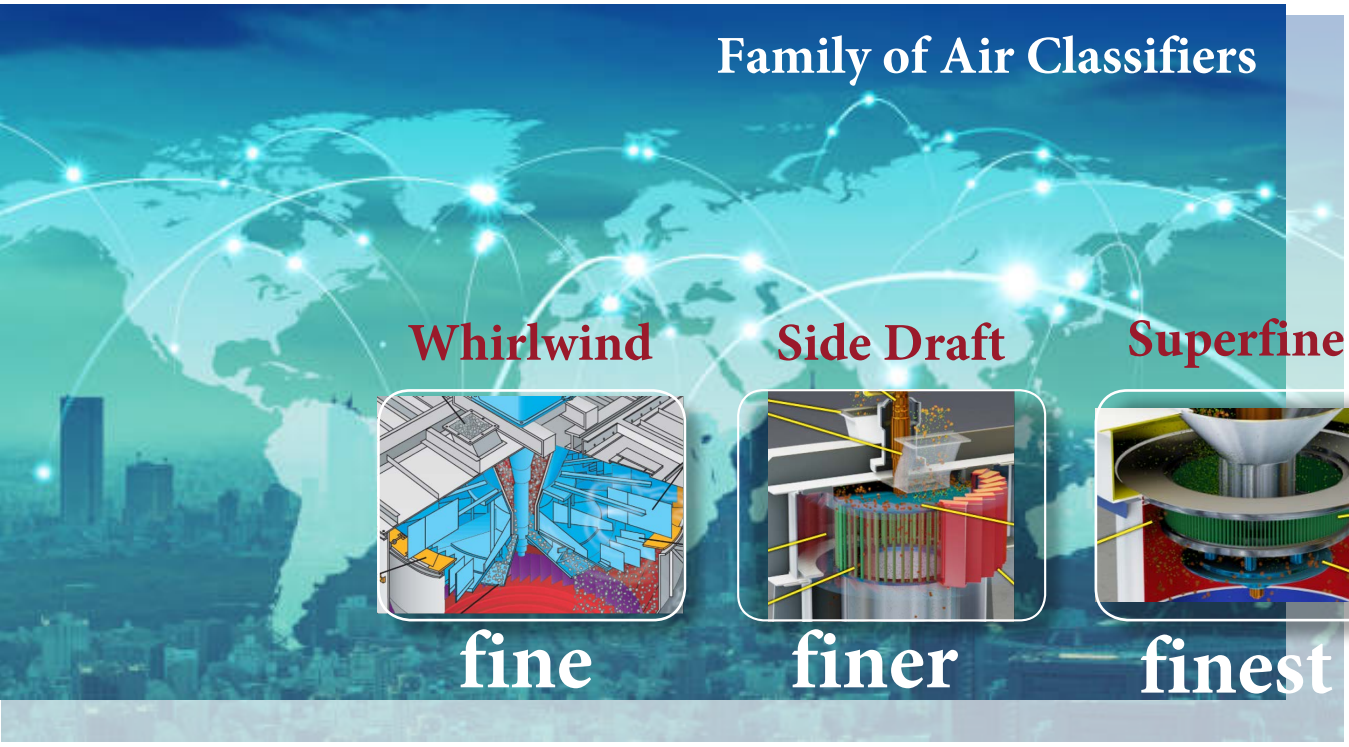
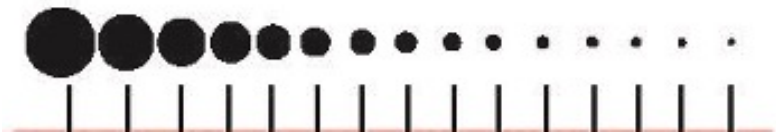
STURTEVANT
SINCE 1883





solutions for
Dry Particle Size Separation

www.sturtevantinc.com

WHY USE AIR CLASSIFIERS?

When Screens Fail!!

Eliminate Screens or Make Screening more Effective

WHY USE AIR CLASSIFIERS?

1. Fine is Better: When Screen Fail !!!
   - typically 100 mesh (150 microns) - 500 mesh (25 microns)
   - Ultra-Fine down to 8-10 microns with d50 < 2-3 microns
2. Easy Adjustability Between Product Size
3. High Capacities: up to 1000 TPH
4. Product can be the Coarse without Fines/Dust
5. Product can be the Fines without Coarse/Grit
6. Dry Process does not require Water or Settling Ponds

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.

16 Foot Whirlwind installed in aggregate quarry

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:

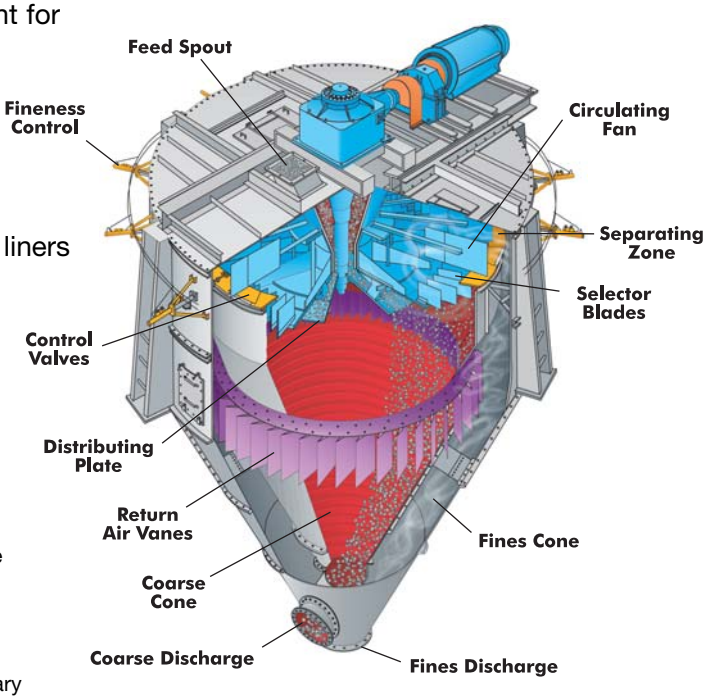
- Capability to process an extensive range of dry materials
- Higher capacity and finer separations than screeners
- Simple construction, low maintenance, easy-to-use controls
- Dial-in, external fineness controls; no system shutdown to change products
- Maximized wear-resistance for abrasive materials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

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:

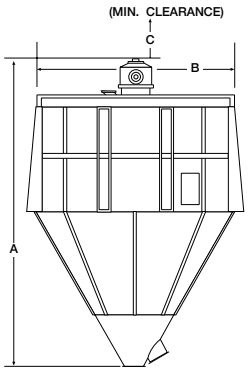
- Fine classification of 100 to 400 mesh (38 micron)
- Lowest capital cost: no auxiliary equipment, such as cyclones, process dust collectors, air locks, and system fans, are needed
- Consistent, high-quality product: external adjustment for variation in feed material
- Saves on operating expenses:
  - 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.



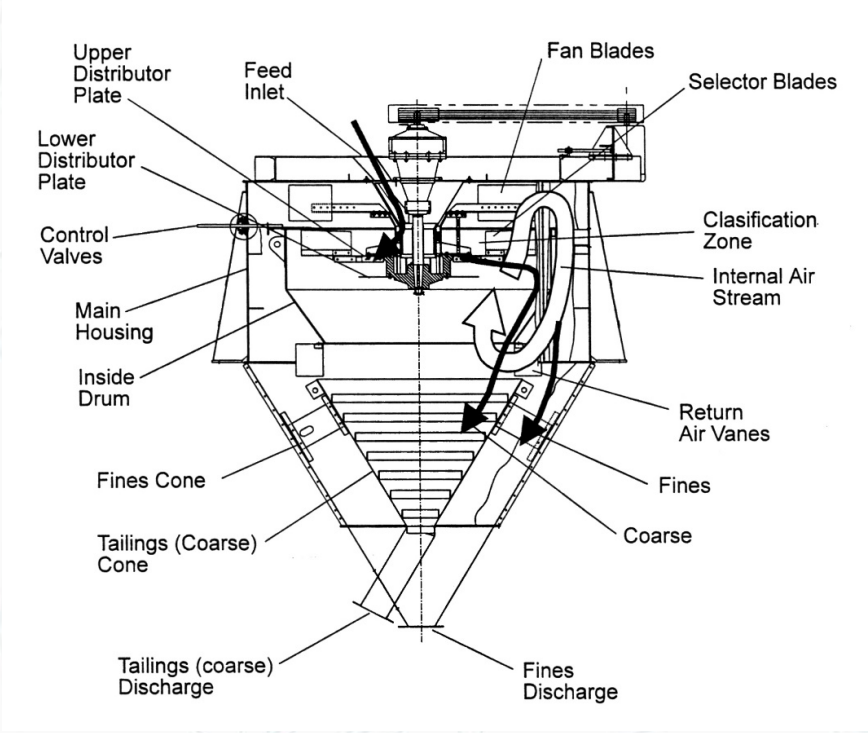
INTERNAL FAN AIR CLASSIFIER WHIRLWIND SIZES/CAPACITIES

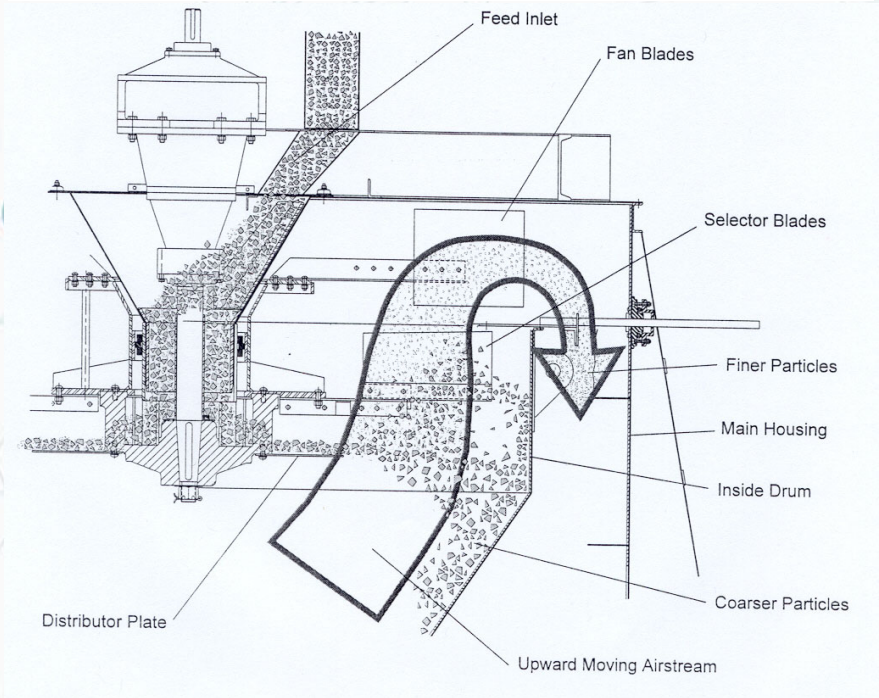
WHIRLWIND® AIR CLASSIFIER

Size	Height A (FT)	Height A (MM)	Diameter B (FT)	Diameter B (MM)	Min. Clearance C (FT)	Min. Clearance C (MM)	Approx. Weight (LBS)	Approx. Weight (KG)	HP	Air Flow (CFM)	Feed Rate (tons/hr:min.-max.)
20"	3' 9"	1143	2' 5"	737	1' 9"	533	650	295	5 – 7.5	25 – 50	0.5-1
3'	6' 7"	2007	3' 3"	991	3' 0"	914	1,500	680	7.5 – 10	65 – 125	2-5
4.5'	8' 8"	2642	4' 10"	1473	3' 0"	914	2,400	1089	10 – 15	75 – 150	5-10
6'	10' 9"	3277	6' 4"	1930	3' 8"	1118	6,800	3084	15 - 25	90 - 175	10-20
8'	13' 0"	3962	8' 4"	2540	4' 8"	1422	9,500	4309	20 - 30	150 - 300	20-40
10'	15 ' 8"	4775	10' 4"	3150	4' 8"	1422	13,000	5897	30 - 40	190 - 375	30-60
12'	19' 1"	5817	12' 4"	3760	5' 6"	1676	18,500	8392	40 - 50	275 - 550	40-90
14'	21' 1"	6426	14' 5"	4394	5' 6"	1676	21,500	9752	50 - 75	400 - 800	50-120
16'	24' 5"	7442	16' 5"	5004	6' 3"	1905	31,000	14061	100 - 150	675 - 1,350	90-200
18'	27' 7"	8407	18' 5"	5613	8' 9"	2667	50,000	22680	250 - 300	1,000 - 2,000	150-300
20'	30' 9"	9373	20' 5"	6223	9' 0"	2743	68,000	30844	350 - 400	1,500 - 3,000	200-400
22'	33' 0"	10058	22' 5"	6833	9' 0"	2743	87,000	39463	450 - 500	2,000 - 4,000	300-600
24'	35' 10"	10922	24' 5"	7442	10' 9"	3277	117,000	53070	600 - 700	2,500 - 5,000	400-900
26'	38' 9"	11811	26' 5"	8052	10' 9"	3277	125,000	56699	600 - 800	3,000 - 6,000	600-1200

Measurements are for general reference only. Please consult dimensional drawings for exact measurements.

WHIRLWIND AIR CLASSIFIER (Internal Fan)



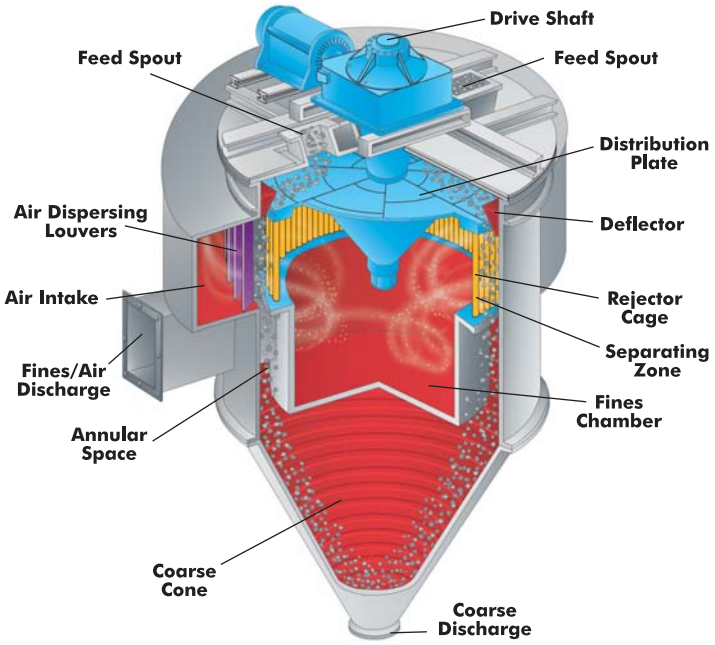


- No Cyclone, Airlocks or Dedicated Baghouse
- Simple Installation
- Gravity Feed/Discharge
- Single Machine for Low/Medium/High Feed Rates

THE SIDE DRAFT CLASSIFIER

The **SD Classifier** represents a highly versatile, energy-efficient system for the consistent separation of particles in the 100 to **500 mesh (25 micron)**.

- 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



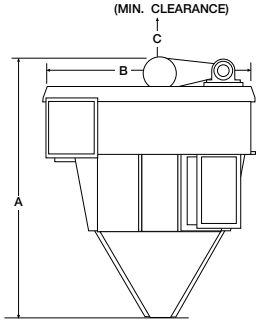
Material enters through the feed spout, is evenly conveyed across the top of the distribution plate and drops into the separating zone, creating a uniformly dispersed curtain of material. Forces generated by the rejector cage and process air subject the curtain of material to particle size classification.

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.

APPLICATIONS

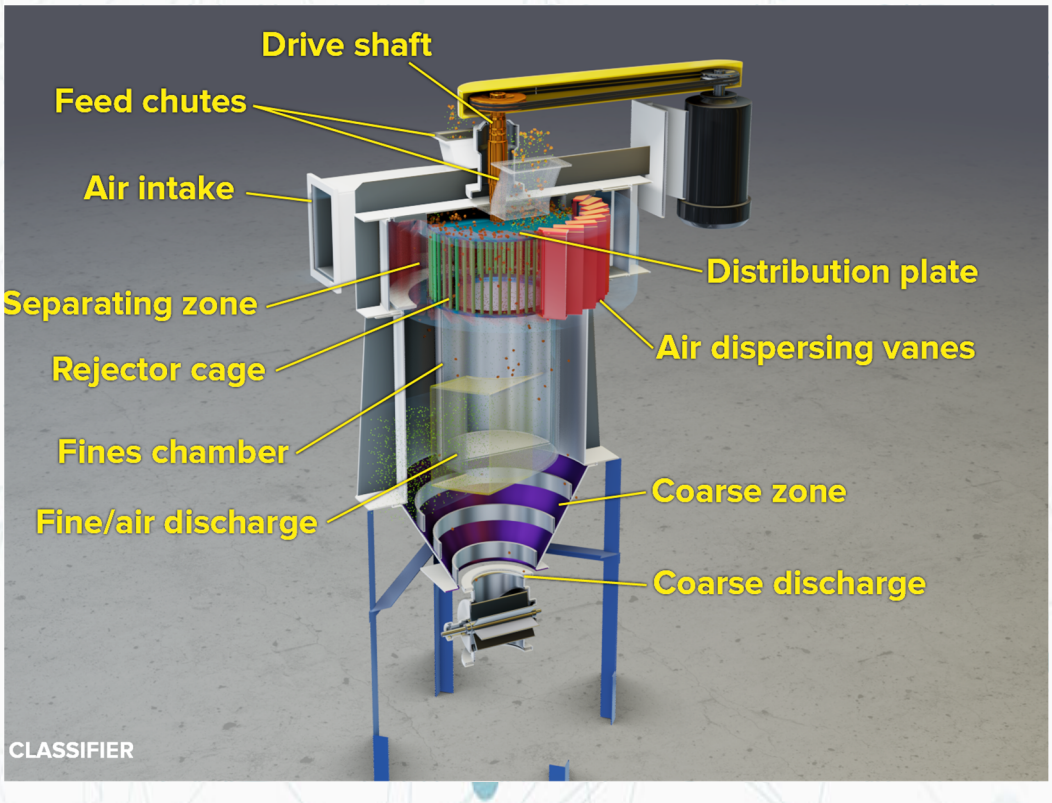
- Aggregates, crushed stone
- Cement
- Ceramics
- Chemicals
- Coal
- Diatomaceous earth
- Fly ash
- Food products
- Gypsum
- Hydrated lime
- Minerals
- Plastics
- Shredded fibers
- Silica sand
- Soda ash, bicarbonate

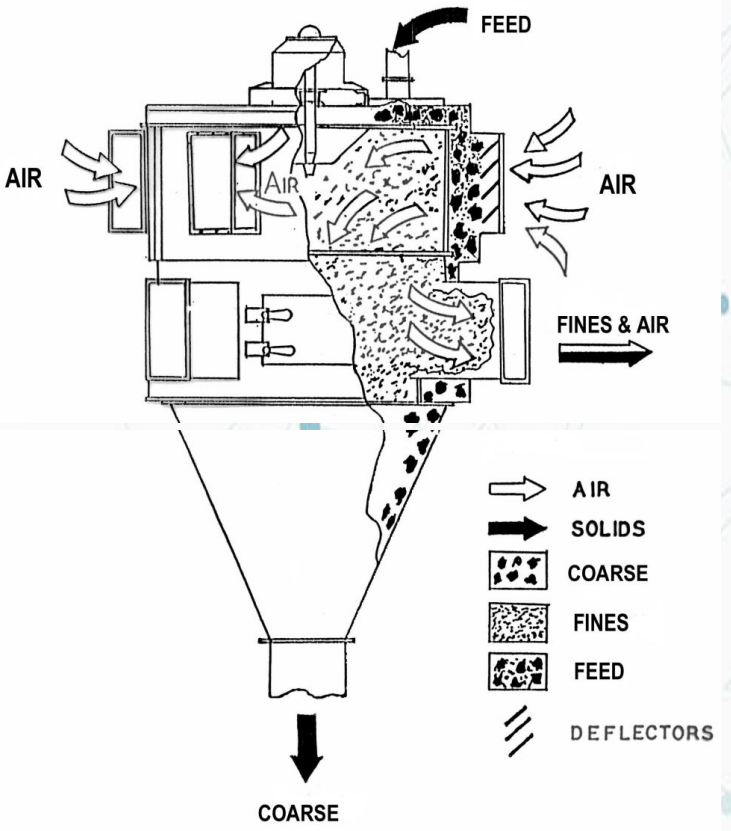


EXTERNAL FAN AIR CLASSIFIER SIDE DRAFT SIZES/CAPACITIES

SIZE	A	B	C	WEIGHT (lbs.)	H.P. (min.-max.)	AIR FLOW (SCFM)	FEED RATE (tons/hr:min.-max.)
20	7' 2"	3' 5"	2' 6"	2,100	5-7.5	**1-3,000**	4-12
30	13' 3"	5' 2"	3' 4"	2,800	7.5-10	**3-8,000**	10-40
40	14' 0"	6' 1"	3' 4"	3,500	20-30	**5-17,000**	20-65
50	15' 6"	8' 1"	3' 4"	7,000	30-40	**10-30,000**	30-100
60	16' 0"	9' 6"	4' 3"	14,000	40-50	**15-45,000**	45-150
70	17' 0"	13' 5"	4' 3"	14,600	50-60	**21-63,000**	60-190
80	22' 1"	13' 6"	4' 3"	15,000	60-75	**25-75,000**	75-240
90	24' 0"	14' 3"	4' 11"	29,000	75-100	**28-85,000**	95-300
100	24' 7"	17' 3"	4' 11"	30,500	100-125	**30-90,000**	110-370
110	28' 3"	18' 0"	5' 2"	36,300	125-150	**31-94,000**	140-450
120	25' 11"	15' 6"	5' 2"	37,300	150	**39-117,000**	160-500
130	31' 2"	19' 3"	5' 2"	45,400	150-200	**47-141,000**	190-600
140	34' 0"	21' 10"	8' 4"	62,500	200-250	**53-159,000**	220-670
150	29' 7"	20' 10"	8' 4"	63,000	250-300	**55-165,000**	250-770
160	31' 8"	23' 1"	9' 11"	87,300	300-400	**60-180,000**	280-900
170	35' 2"	23' 6"	9' 11"	109,000	400-500	**70-212,000**	320-1,020
180	35' 0"	23' 4"	9' 11"	88,500	500-600	**80-242,000**	360-1,150

SD SIDE DRAFT AIR CLASSIFIER (External Fan Design)



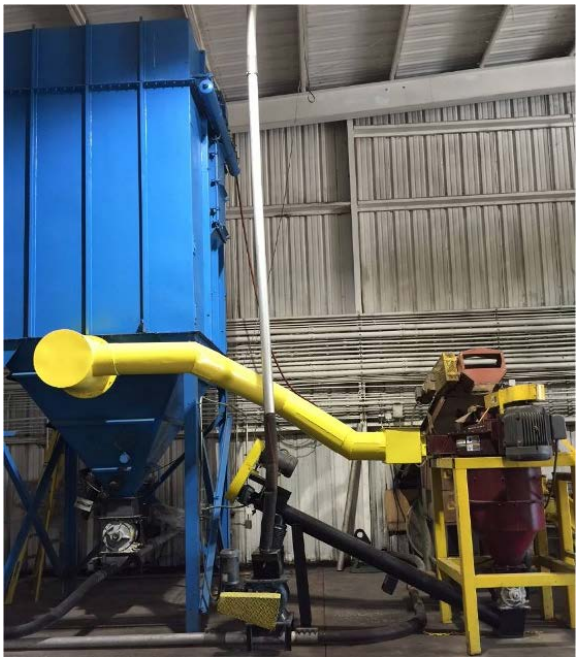


- Tighter Particle Size Distribution
- Less Oversize Due to Rejector Cage
- Greater Efficiencies
- Variable Speed/Fineness Control
- Independent Airflow Control
- Fines Collected in Cyclone or Baghouse

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:

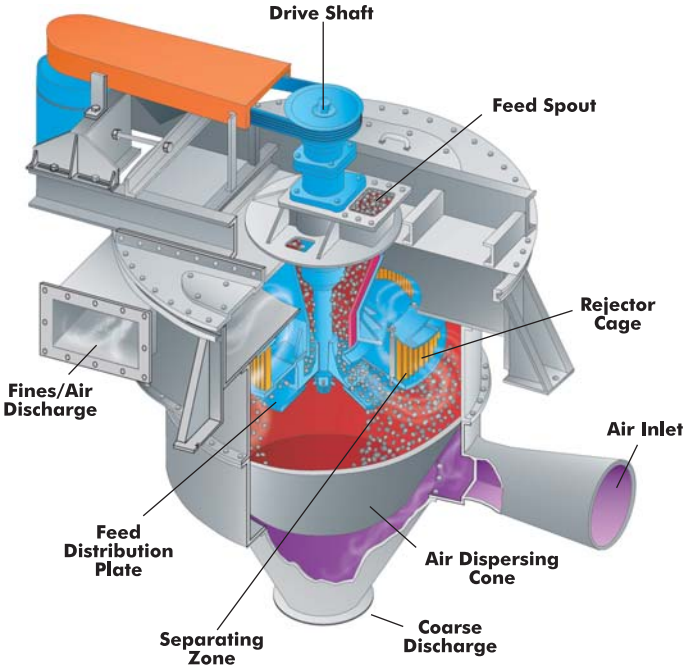
- Ideal for separation of high-value materials, 44-**2** microns
- Tight particle size control
- Compact design allows easy retrofit into existing facilities
- Consistent, high-quality product, despite variations in feed material, through easy-to-make changes in air flow and variable-speed rejector cage
- Processes abrasive materials; ceramic liners and/or inexpensive, steel replaceable liners available
- Effective product cooling
- Fines collected in cyclone or process collector

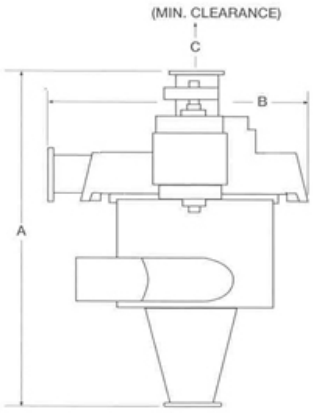


36" Superfine Installation with Dedicated Baghouse

APPLICATIONS

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



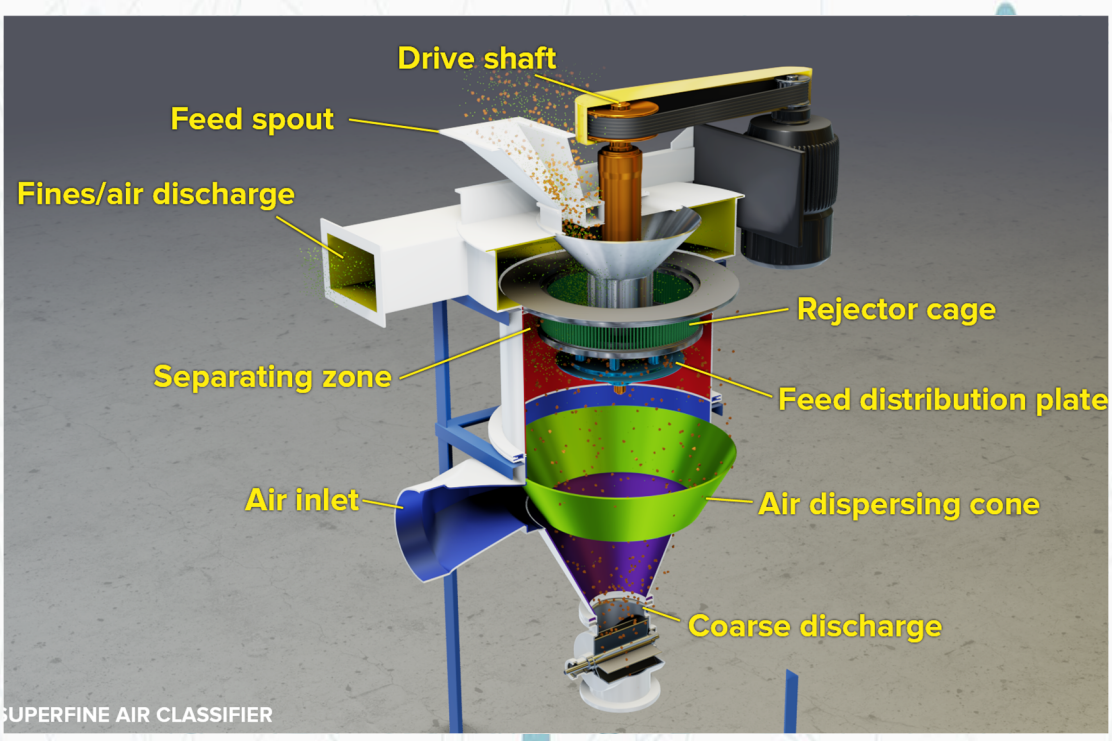


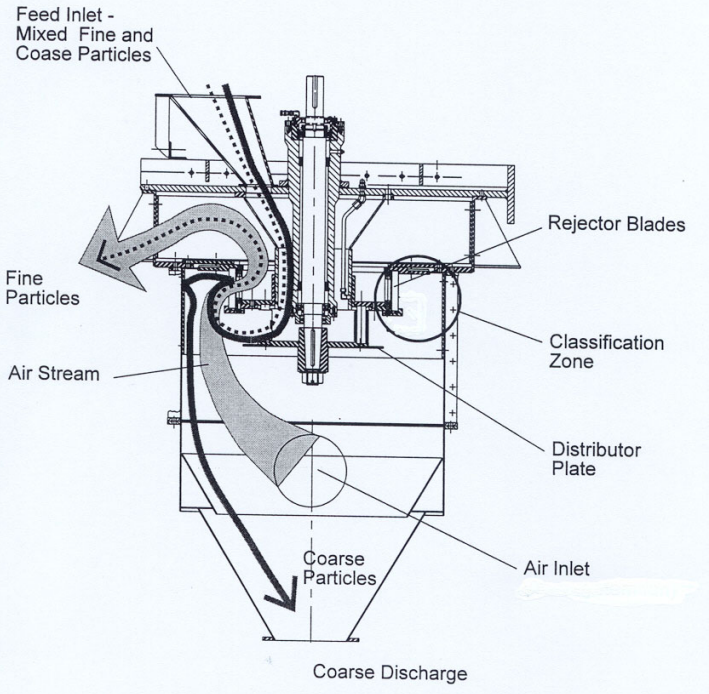
Material entering through the feed spout is subjected to centrifugal force, causing uniform distribution of the material into the upward-moving air stream. The unique design of the SuperFine's variable-speed, multi-blade rejector cage allows only the selected particles to pass into the fines chamber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

EXTERNAL FAN AIR CLASSIFIERS SUPERFINE SIZES/CAPACITIES

SIZE	A	B	C	WEIGHT (lbs.)	H.P.	AIR FLOW (SCFM)	FEED RATE (lbs./hr.)
36"	5' 6"	3' 9"	3' 6"	2,100	10-20	1,000-3,000	1,000-12,000
72"	9' 6"	7' 4"	4' 8"	4,800	25-50	3,000-9,000	3,000-36,000

SUPERFINE AIR CLASSIFIER (External Fan)





- Tightest Particle Size Distribution
- Least Oversize Due to High Speed Rotor
- Best Efficiencies Due to High Airflow
- Variable Speed/Fineness Control
- Independent Airflow Control
- Fines Collected in Cyclone or Baghouse

Company History

Sturtevant was founded in the state of Maine in 1883 by Thomas L. Sturtevant, who recognized the need to limit human exposure to harmful fumes and acids common to the fertilizer industry. He designed the Mechanical Den and Excavator, a machine which revolutionized the batch processing of super-phosphate.

During the late 1800's Laurance H. Sturtevant, a son of the founder, and Thomas J. Sturtevant, T.L.'s nephew, joined the Company. T.J. Sturtevant, an M.I.T. graduate, was an engineer and inventor whose genius, coupled with the design, and application talents of the other Sturtevants, provided the company with its initial thrust.

In the early 1900's, designs were made for crushing, grinding, blending, mixing and related material handling equipment. Venturing into the automotive field in 1904, T.J. designed the first automatic transmission. Other diversifications included a Bale Pulper for the paper industry and stainless steel control valves for industrial purposes.

In 1920, the company took over the Newaygo Screen Company. In redesigning those products, Sturtevant added to its line a vibrating type of screen for the fertilizer industry. During the 1930's, the Sturtevant Air Separator represented a cutting edge technology, developing the predominant method of making cement. In the 1940's, the firm participated in the WWII effort by servicing Navy yards and the chemical industry. The post war era created massive demand for cement in the construction industry, to which Sturtevant responded. In the 1950's, Sturtevant introduced an ultra-fine grinder, the Micronizer®, and developed pulverizers that introduced a new concept of fine grinding by impact.

For decades the Company continued to innovate and advance technology while remaining a family institution. The tradition of family management has continued from its inception to the present and is currently in its fifth generation.

To this day, Sturtevant continues to lead the way in unique applications-based systems to meet the demands of a developing market. The company delivers ***Service, Experience and Reliability*** that ensure customer satisfaction and the competitive advantage that its customers demand.

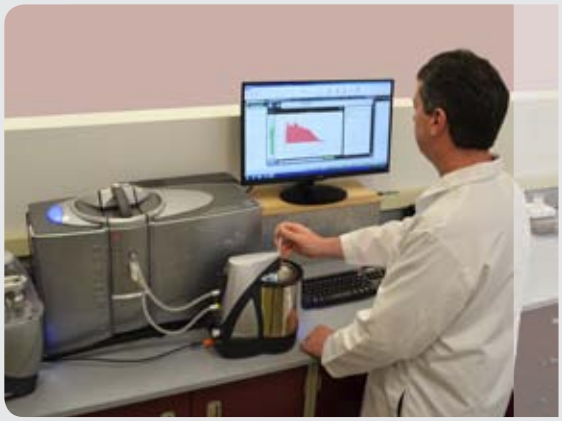
The early years of engineering and innovation.

The Sturtevant's designed the first automatic transmission automobile in 1904. US Patent #766551 was the first of several patents on their gearshift mechanism.

Put Sturtevant to the Test

Don't just take our word for it, let us prove how you can separate fines from your aggregates and reach your desired goal. Customers regularly send in their materials and visit Sturtevant to witness separation tests in our laboratory and testing facility.

Sturtevant's fully equipped laboratory and test facility in Hanover, MA can test separate aggregates and analyze the aggregate size distribution. Customers will benefit from hands-on experience, equipment operator training and technical presentations. Contact us to arrange a test date and experience our service and reliability.



Particle size analysis

Sturtevant's test facility

STURTEVANT
SINCE 1883

ABOUT STURTEVANT

- Founded in 1883
- US Manufacture and Global Supplier of Air Classifying
  And fine powder milling Equipment

Sturtevant Inc. Hanover, MA

STURTEVANT
SINCE 1883

348 Circuit Street, Hanover, MA 02339 US
P: 781.829.6501 TOLL FREE: 800.992.0209 F: 781.829.6515
E: sales@sturtevantinc.com

www.sturtevantinc.com

Proudly Represented By: