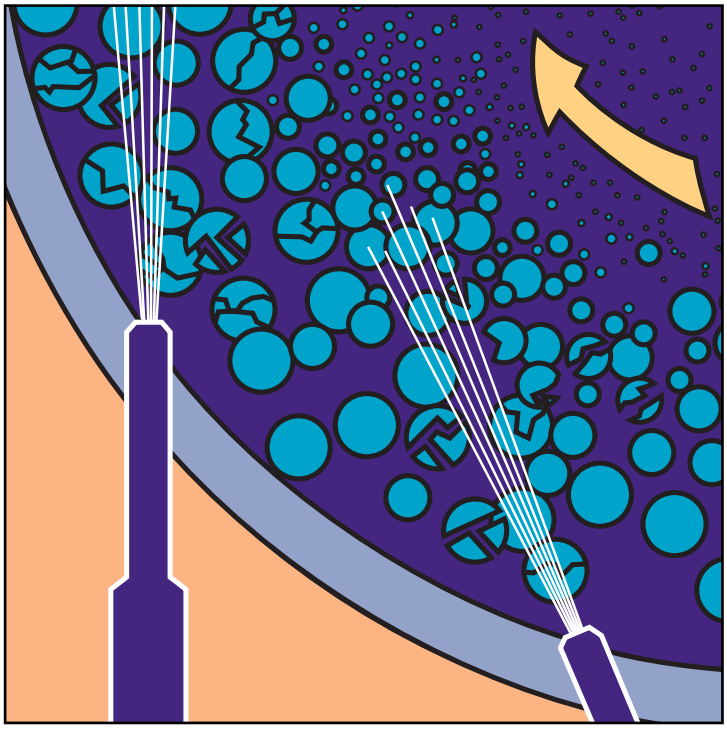
MICRONIZER®
JET MILL



STURTEVANT
SINCE 1883

POWDER PROCESSING TECHNOLOGY: THE STURTEVANT SOLUTION.

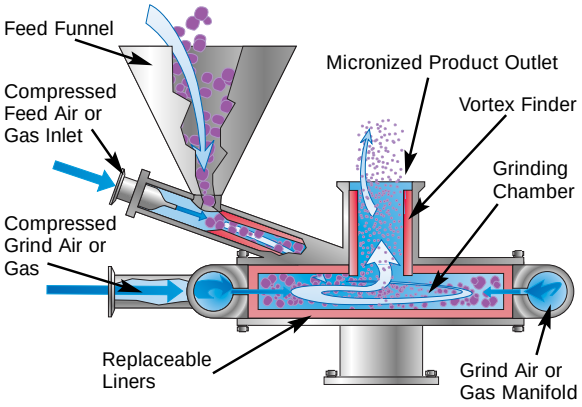
STURTEVANT. INDUSTRIAL STRENGTH EFFICIENCY.

The Sturtevant Micronizer® is our response to meeting industry demands for constant improvement in processing technology. Utilizing a unique fluid energy grinding system to generate particle-on-particle impact, the Micronizer grinds and classifies powders to micron and sub-micron sizes in a single operation, in a single grinding chamber.

A proven performer in thousands of installations around the world, the Micronizer processes a countless variety of materials throughout the food, chemical, ceramic, mineral, and pharmaceutical industries.

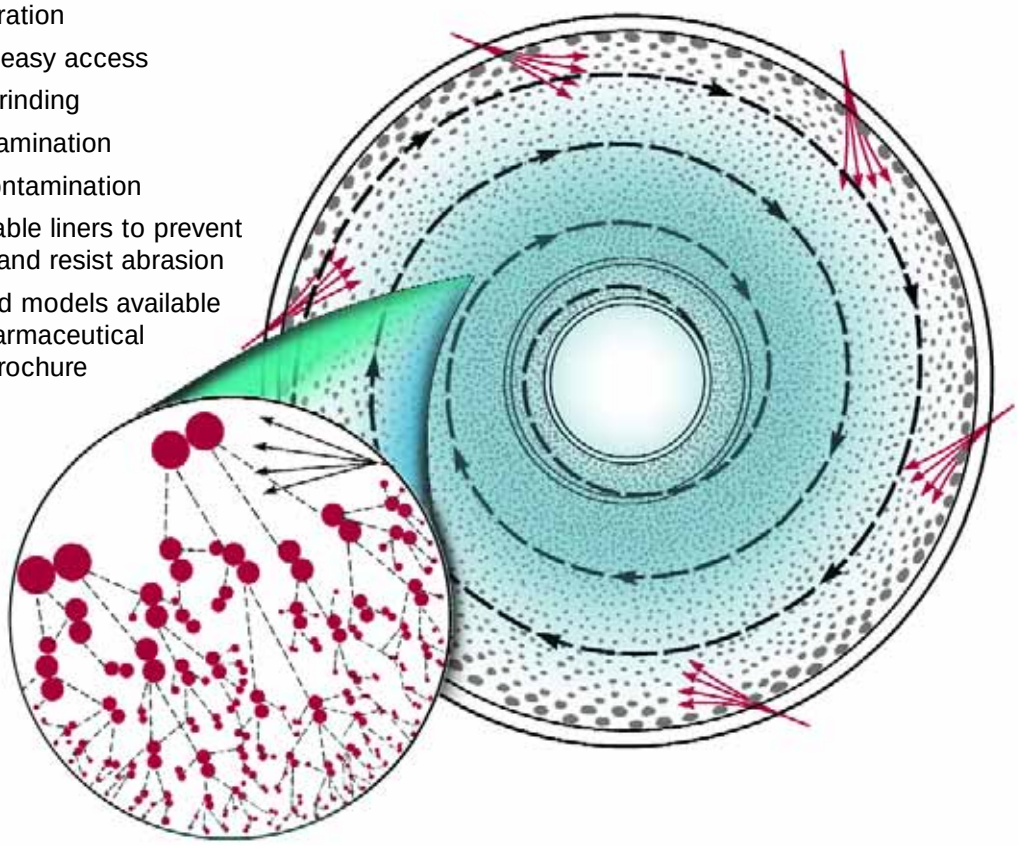
Engineered to meet industrial-strength demands with efficiency, the Micronizer combines high performance and Sturtevant dependability with these benefits:

- Simple, straightforward design with no moving parts
- Efficient, effective one-step grinding and classifying operation
- Engineered for easy access
- No heat from grinding
- No media contamination
- No lubricant contamination
- Variety of available liners to prevent contamination and resist abrasion
- USDA-accepted models available for sanitary/pharmaceutical applications. Brochure available.



Designed for high performance below 325 mesh (44 microns) — the economical fineness limit of many mechanical grinders — the Micronizer can consistently produce fines as small as 0.5 microns.

High-speed rotation subjects material to particle-on-particle impact reduction. Centrifugal force holds larger particles in the grinding area while centripetal force drives preselected-sized fines toward the center for discharge.



Rotation generates high-speed particle collision, creating increasingly smaller fines through particle-on-particle impact reduction.

APPLICATIONS

- Agricultural chemicals
- Carbon Black
- Ceramics
- Pharmaceutical, cosmetics
- Pigments
- Precious metals
- Propellants
- Resins
- Titanium Dioxide
- Toner

LINERS

- Stainless Steel
- UHMWPE (Ultra-High Molecular Weight Polyethylene)
- Polyurethane or Vulcanized Rubber
- Alloy Steel
- Aluminum Oxide
- Silicon Carbide
- Tungsten Carbide

Easily opened Micronizer shows aluminum oxide, wear-resistant liners.

BENEFITS

Predictable Performance

- 1000+ installations and over 50 years of experience
- Sole-source responsibility with complete systems availability

Product Quality

- No heat build-up: process heat-sensitive materials
- Minimized product contamination:
  - A variety of specialty ceramic, low carbon steels, and polymeric liners available for adherent or abrasive materials
  - No media contamination
  - No lubrication contamination
- Uniformity: Produces spherical particle shape for reduced agglomeration

Safety

- Processes materials susceptible to oxidation or explosivity: easily adapts to inert gas and super-heated steam operations

Simple Operation

- Preassembled, with optional clamp connections available
- Grinds and sizes in one step; no additional classifier needed
- Operates in any orientation

Low Maintenance

- No moving parts
- No lubrication required
- Designed for easy access and cleaning
- Abrasion-resistant liners available
- Robust design

Flexibility

- Variety of product collection configurations available with integral cyclone, separate high-efficiency cyclone collector, single batch bag, or continuous cleaning dust collector
- Sizes from wheeled, portable lab units of 2", 4" and 8" to production systems of 42"

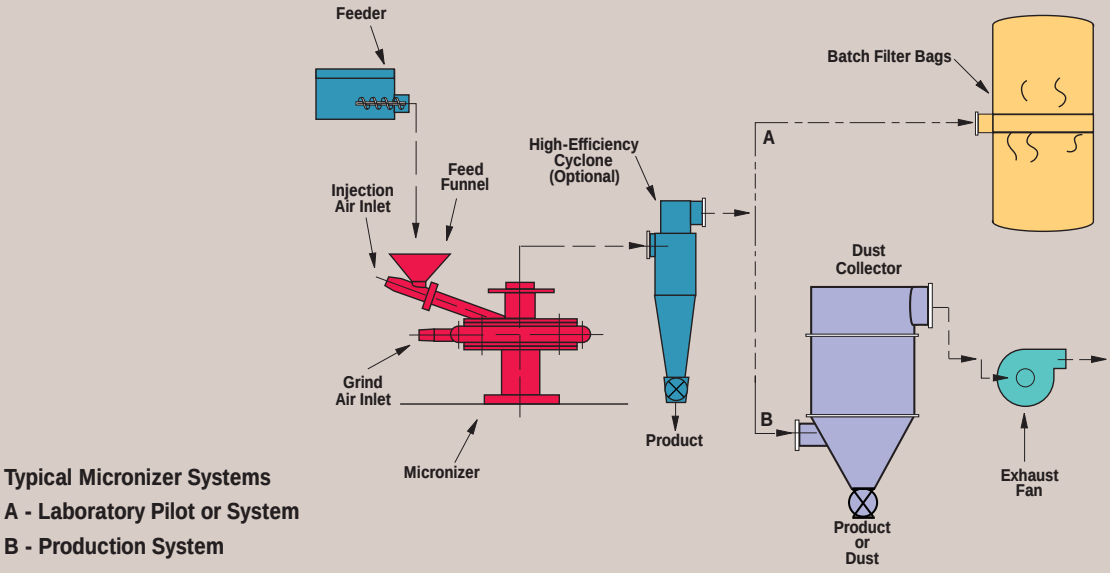
SPECIALIZED APPLICATIONS

The Micronizer's innovative design and fluid energy system enable numerous special-application possibilities for basic grinding, such as:

- Ceramic powders using wear-resistant ceramic liners
- Pharmaceutical powders using sanitary USDA-accepted design (brochure available)
- Agricultural chemicals without attritional heat

CAPABILITIES

Sturtevant Micronizers meet a variety of material and output specifications. The typical feed size for Micronizers is 100 mesh or finer. The product size ranges from sub-micron to 44 microns. Capabilities range from 1/2 to 10,000 pounds per hour. Micronizers may be operated using either compressed air, steam or inert gases.



Typical Micronizer Systems
A - Laboratory Pilot or System
B - Production System

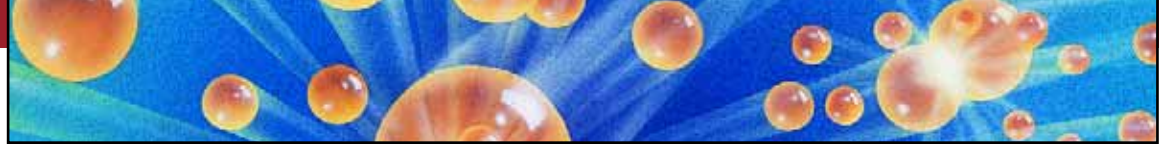
MICRONIZERS				
	ENERGY REQUIREMENTS			
MILL SIZE/DIA.	[1] COMPRESSED AIR	[2] SUPER-HEATED STEAM	[3] HP	CAPACITY LBS./HR.
2"	30	80	10	1/2 - 1
4"	55	145	15	2 - 40
8"	130	325	40	10 - 100
15"	350	900	100	50 - 300
20"	550	1250	125	100 - 1000
24"	800	2500	200	250 - 1400
30"	1500	4000	350	600 - 3000
36"	2250	6000	600	1000 - 6000
42"	3300	8000	750	2000 - 10,000

[1] Volume of free air at 60° F, 14.7 psi compressed to 100 PSIG. Includes air consumed by feed injector nozzle.
[2] Steam supplied at 550° F and minimum 150 PSIG.
[3] Approximate HP necessary to generate 100 PSIG compressed air.

SAMPLE STURTEVANT MICRONIZER GRINDING DATA

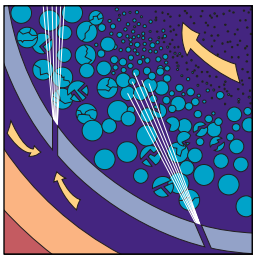
Material	Feed Size	Product Size	Feed Rate (lbs./hr.)	Mill Size Dia. (in.)
Acetanilide	100% - 325 mesh	5 microns avg.	1/2	2
Aluminum Oxide	100% - 325 mesh	100% - 3 microns	30	8
Ammonium Perchlorate	100% - 80 mesh	3.2 microns avg.	500	15
Barium Ferrite	100% - 20 mesh	100% - 6 microns	6	4
Barium Titanate	100% - 20 mesh	100% - 325 mesh	1	2
Barytes	100% - 200 mesh	3-4 microns avg.	1800	30
Bentonite	100% - 200 mesh	100% - 400 mesh	5	4
Bismuth Trioxide	100% - 200 mesh	2.1 microns avg.	80	8
Carbon Black	100% - 100 mesh	75% - 15 microns	45	8
Chrome Oxides	100% - 325 mesh	6.5 microns avg.	30	8
Chromium Carbide	75% - 200 mesh	100% - 325 mesh	3	4
Cobalt	15 microns avg.	1.5 microns avg.	60	8
Copper Chromate	94% - 325 mesh	1.0 microns avg.	6	4
Copper Oxide	100% - 400 mesh	1.25 microns avg.	90	8
Cryolite	100% - 325 mesh	3.0 microns avg.	1000	30
Cupric Sulfate	100% - 325 mesh	10.0 microns avg.	4	4
Dolomite	25% - 100 mesh	100% - 325 mesh	2400	36
Ferrite	43% - 325 mesh	100% - 10 microns	5	4
Graphite	100% - 325 mesh	100% - 3 microns	20	8
Gypsum	50% - 325 mesh	100% - 15 microns	60	8
Iron Oxide	100% - 10 microns	100% - 1 microns	3	4
Iron Oxide Pigment	90% - 325 mesh	3.0 microns avg.	1000	30
Lead Chromate	100% - 100 microns	100% - 5 microns	120	8
Magnesium Oxide	100% - 14 mesh	3.2 microns avg.	50	8
Mica	100% - 100 mesh	100% - 325 mesh	15	8
Molybedenum	100% - 325 mesh	7.0 microns avg.	12	4
Paladium	100% - 200 mesh	4.2 microns avg.	10	4
Phenolic Resin	50% - 20 mesh	100% - 325 mesh	15	8
Pigments	100% - 50 mesh	100% - 10 microns	45	8
Polyvinyl Resin	100% - 20 mesh	100% - 12 microns	60	8
Potassium Chloride	100% - 20 mesh	100% - 10 microns	90	8
Potassium Perchlorate	100% - 14 mesh	2.3 microns avg.	75	8
Silicon Dioxide	100% - 200 mesh	100% - 6 microns	10	8
Silver Powder	85% - 325 mesh	100% - 10 microns	3	2
Sulfur	100% - 200 mesh	2.0 microns avg.	3000	36
Talc	100% - 20 mesh	2.0 microns avg.	2000	30
Titanium Dioxide	100% - 325 mesh	100% - 1 microns	4000	42
Titanium Oxide	100% - 80 mesh	0.5 microns avg.	20	8
Toner	100% - 100 mesh	7.0 microns avg.	60	8
Tungsten Carbide	100% - 30 mesh	95% - 100 mesh	10	8
Uric Acid	100% - 25 microns	1.0 microns avg.	1	2
Yttrium Oxide	75% - 100 mesh	3.0 microns avg.	30	8
Zinc Oxide	40% - 325 mesh	100% - 325 mesh	300	15
Zirconium Oxide	100% - 325 mesh	100% - 1.5 microns	50	8

Chart data contains typical feed rates. For rates reflective of your specific application, contact our customer test center.

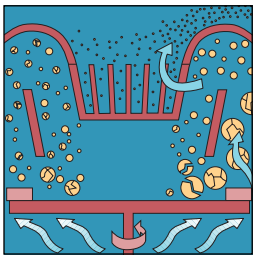


PROVEN PERFORMERS

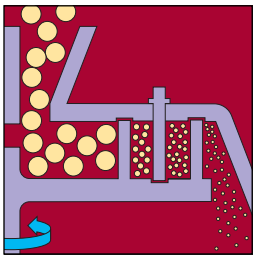
For most dry material size reduction or separation needs,
Sturtevant's extensive line of products can meet your requirements.



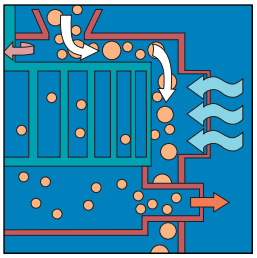
Micronizer®: Jet mills dry particles to sub-micron size; some models USDA-accepted.



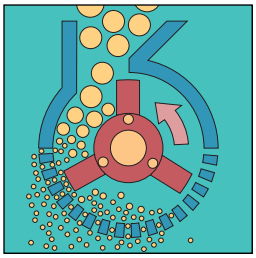
Powderizer®: Air-swept impact mill with integral classifier; grinds to low-micron range with tightest particle size distribution.



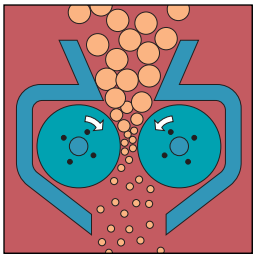
Simpactor®: Centrifugal, pin-type impact mill; reduces low- to medium-density materials to 50-200 mesh.



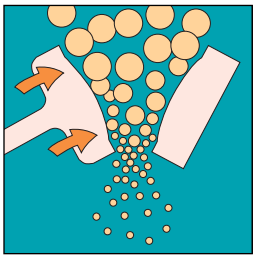
Air Classifiers: Air streams separate fine and coarse particles with mechanical rejector for product quality assurance.



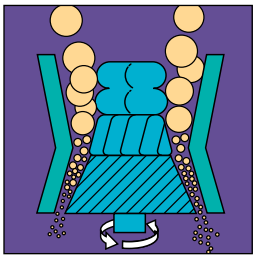
Hammermill: Versatile, perfect for friable materials; easy access for maintenance or inspection.



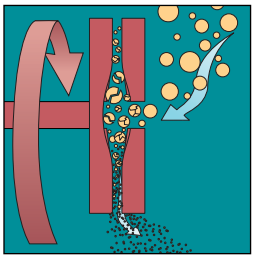
Roll Crusher: Best-suited for controlled reduction of friable materials; minimal fines.



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



Rotary Crusher: Rugged rotary action produces high reduction ratios and production rates for soft-to medium-hard materials.



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

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