

MIKRO-PULVERIZER®

Hammer & Screen Mill



HOSOKAWA
MICRON POWDER SYSTEMS

Combining the resources of

ALPINE • MIKRO • MAJAC • MICRON • VRIECO-NAUTA

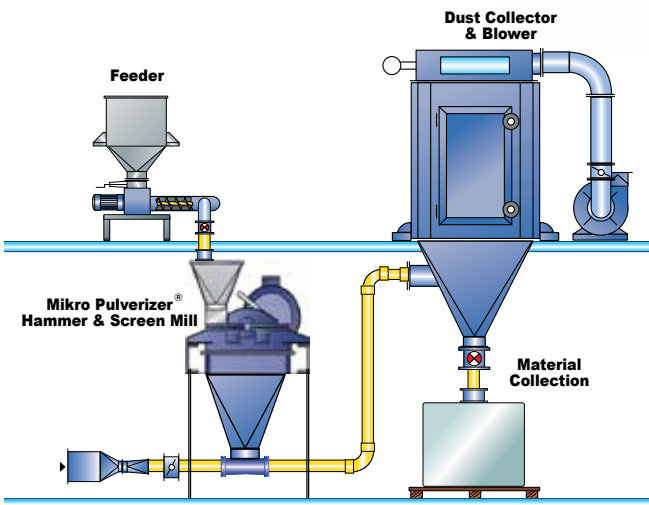
THE RELIABLE MIKRO-PULVERIZER® HAMMER & SCREEN MILL

THE MIKRO-PULVERIZER® HAMMER & SCREEN MILL

is a high speed mechanical impact mill designed for continuous size reduction of a wide range of materials down to $D_{90} = 45$ microns. This device was originally invented by Hosokawa Micron Powder Systems in 1923 and has evolved into the preeminent industrial mill with thousands of worldwide installations.

OPTIONS:

- Carbon steel, stainless steel
- Pressure shock resistant (PSR) fabricated design
- Cryogenic milling - liquid nitrogen injection
- Gravity or pneumatic discharge
- Various feeding options - screw, gravity or pneumatic
- Hammer & knife rotors available



Single pass, air conveyed Mikro Pulverizer® Hammer & Screen Mill size reduction system.

DESIGN & FEATURES:

- Suitable for Chemical, Mineral, Food, Pharmaceuticals, Plastics, and Cosmetic applications
- Laboratory scale to production models available with 3/4 HP to 300 HP
- Capacity ranges from 0.5 lbs/hr up to 30,000 lbs/hr
- Suitable for grinding soft to medium-hard materials with a Moh's hardness of less than 4
- Energy efficient & economical to operate
- Dust free operation
- No ancillary equipment required
- Easy to clean and maintain
- Compact design
- Long life & minimal downtime

EFFICIENT AND COMPACT

Mikro Pulverizer® Hammer & Screen Mills provide substantial savings in power consumption over conventional size reduction methods. Payback often occurs through power savings alone. Mikro Pulverizer® Hammer & Screen Mills are remarkably compact considering the volume of product they typically handle.

ENGINEERED FOR PERFORMANCE

The Mikro Pulverizer® Hammer & Screen Mill is built to continuously grind a wide range of materials. Designed with flexible controls and numerous configurations, this device can be used for coarse granulation or as a fine size reduction machine.

DESIGN

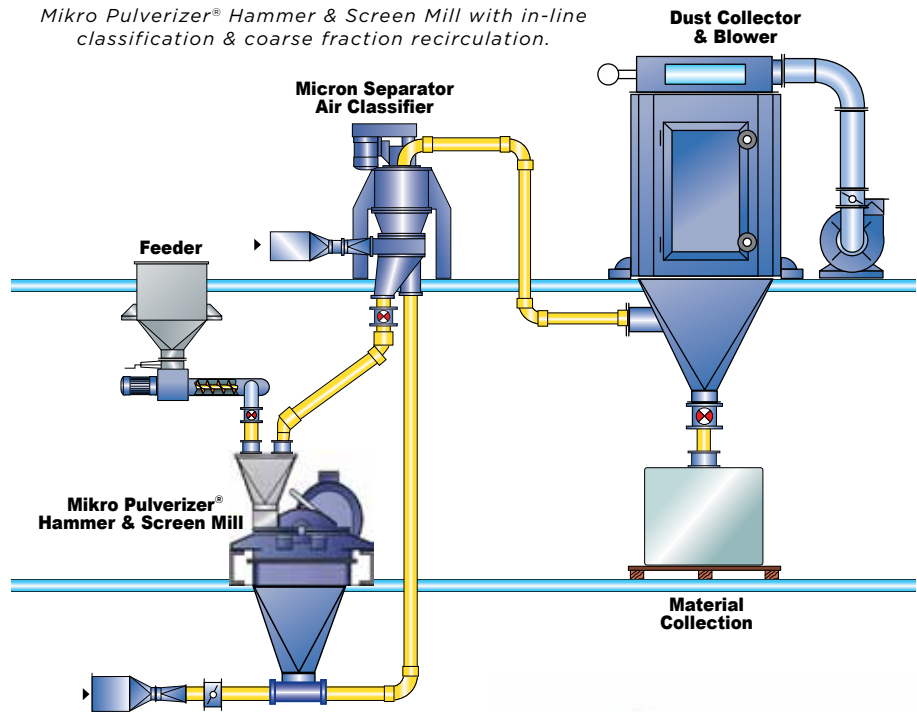
The Mikro Pulverizer® Hammer & Screen Mill uses a high speed rotor assembly fitted with sets of hammers. The grinding chamber is fitted with a cover containing a multiple deflector liner and a retaining screen at the bottom of the grinding zone. The grinding process is controlled by the type of hammers, the rotor speed, the type of retaining screen and the liner.

In the standard Mikro Pulverizer® Hammer & Screen Mill design, the mill body and housing are made of high strength cast iron. Stainless steel and fabricated designs are available for sanitary, abrasive and hazardous materials. Pressure shock resistant (PSR) models are also available and can be rated up to 10 bar (g) overpressure.



This Mikro Pulverizer® Hammer & Screen Mill Model MP #1 was built in 1936 and was used in continuous daily production until 2010.

Mikro Pulverizer® Hammer & Screen Mill with in-line classification & coarse fraction recirculation.



Mikro Pulverizer® Hammer & Screen Mill - Model #3 Mill Body & Cover



AMERICAN MADE AND BUILT TO LAST

DESIGNED, MANUFACTURED AND ASSEMBLED IN THE USA

The Mikro Pulverizer® Hammer & Screen Mill was designed by the Pulverizing Machinery Company in 1923. The company name was later changed to Hosokawa Micron Powder Systems in 1985. This legendary device has thousands of installations worldwide and carries a reputation for reliability, consistency and durability.

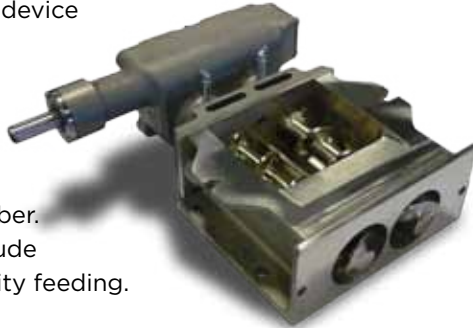
The Mikro Pulverizer® Hammer & Screen Mill is designed, manufactured and assembled in the USA and comes with our pledge to performance and guaranteed dependability. Many units built over a half century ago are still in active service today.



HIGH SPEED HAMMER & SCREEN MILL

FEEDING

As a standard, the device is equipped with a volumetric feed screw mechanism used to convey feed material into the grinding chamber. Other options include pneumatic or gravity feeding.



ROTOR & HAMMERS

Inside the grinding chamber, material is introduced to the hammer path. Hammers are available in a variety of materials and finishes. Particles are pulverized by mechanical impact until the material is fine enough to discharge through the retaining screen. The clearance between the hammers and the liner is critical to the outstanding performance of the Mikro Pulverizer® Hammer & Screen Mill.



DEFLECTOR LINER

Various liner types are available. The most common is the multiple deflector liner mounted inside the grinding chamber cover. The liner is serrated and designed to redirect the particles to the hammer path. The liner is easily accessed for inspection, cleaning or replacement. Liners are available in carbon steel, hardened steel and stainless steel.



RETAINING SCREEN

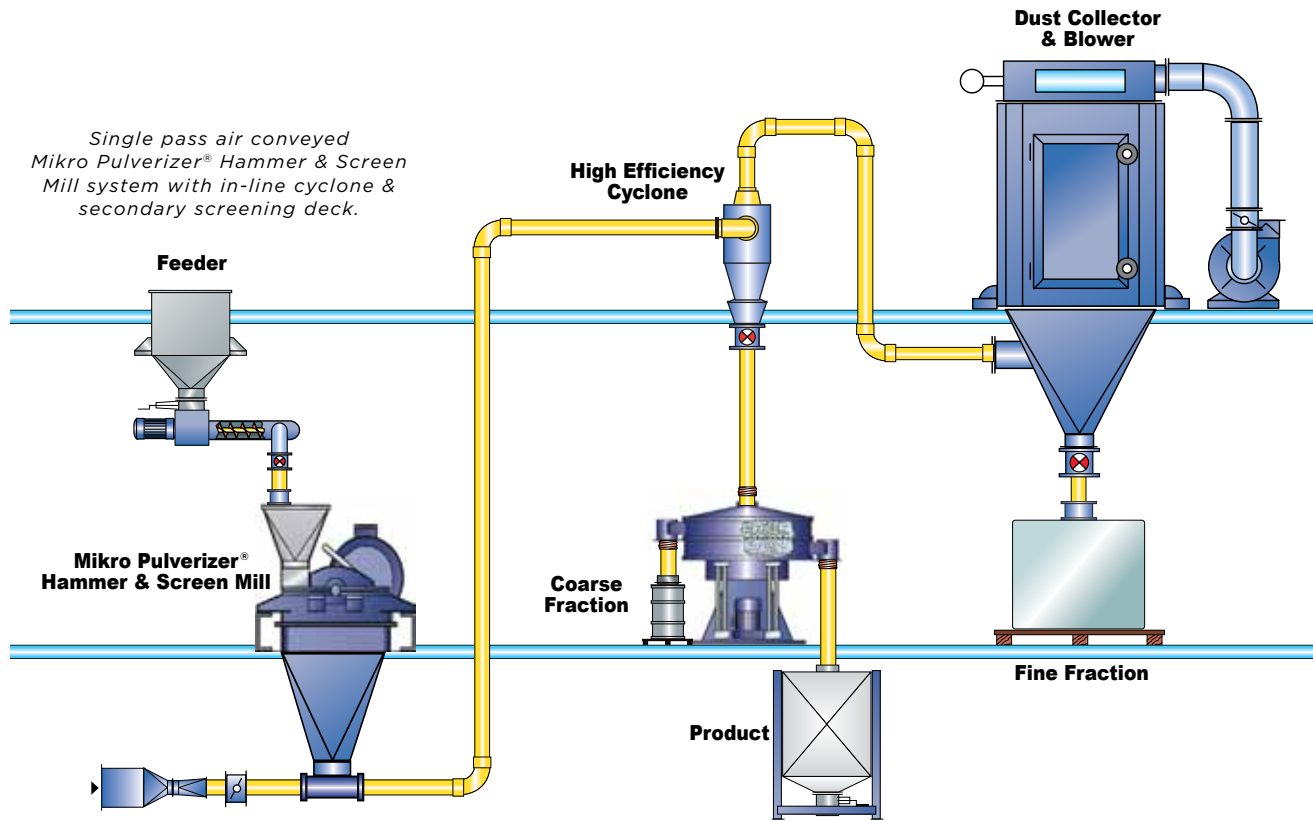
A retaining screen is positioned below the grinding chamber to control residence time and hence particle size. There are various screen configurations and perforation sizes available to accommodate a wide range of materials to control the end particle size distribution. Finished material can be gravity discharged from the mill or pneumatically conveyed away from the mill.



MIKRO PULVERIZER® HAMMER & SCREEN MILL MODELS

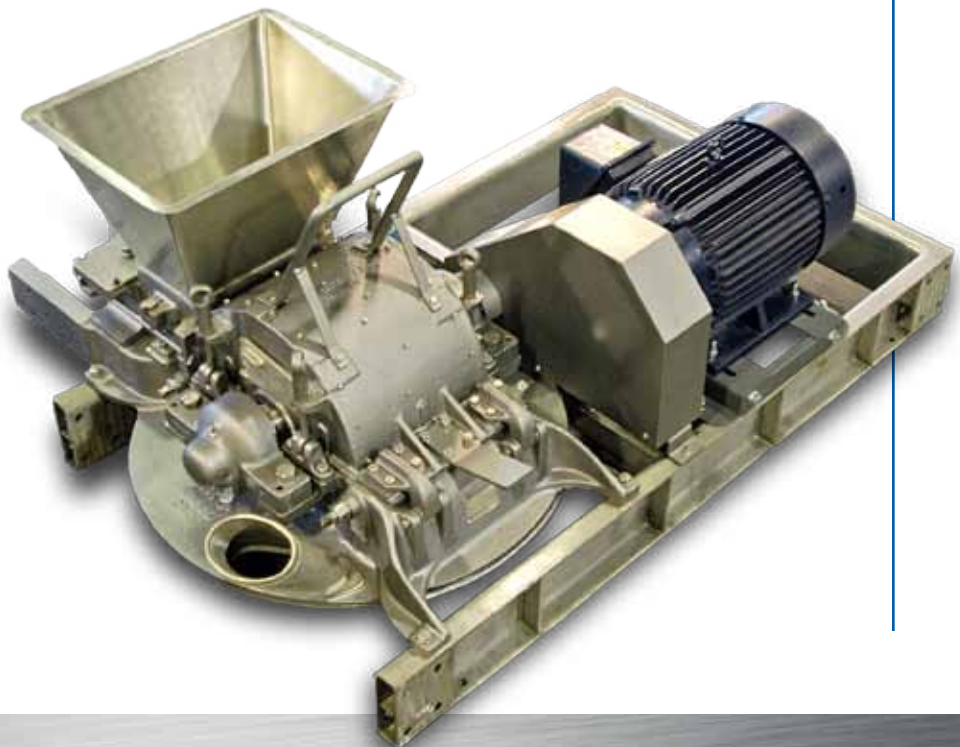
	Samplmill	Bantam	MP 1	MP 2	MP 3	MP 4	MP 44	MP 66
Motor (HP)	0.75	1	5	20	50	100	200	300
Max. Rotor Speed (RPM)	14,000	14,000	9,600	6,900	4,650	3,450	3,450	2,300
Approx. Air Flow (ft ³ /min)			60-80	150-200	450-600	600-800	1,000 - 1,500	2,000 - 3,000
Scale Up Factor	N/A	0.2	1.0	4.0	10	20	40	60

AMERICAN MADE AND BUILT TO LAST



MAINTENANCE & CLEANING

With proper maintenance and regular inspections, your Mikro-Pulverizer® Hammer & Screen Mill will operate efficiently for decades. All material contact parts can be easily accessed for cleaning or replacement. The hammers, retaining screen and deflector liner should be regularly inspected for wear to ensure optimum machine performance. Hosokawa's After-market Department stocks parts for all Mikro Pulverizer® Hammer & Screen Mills and can usually have replacement parts shipped in 24 hours.



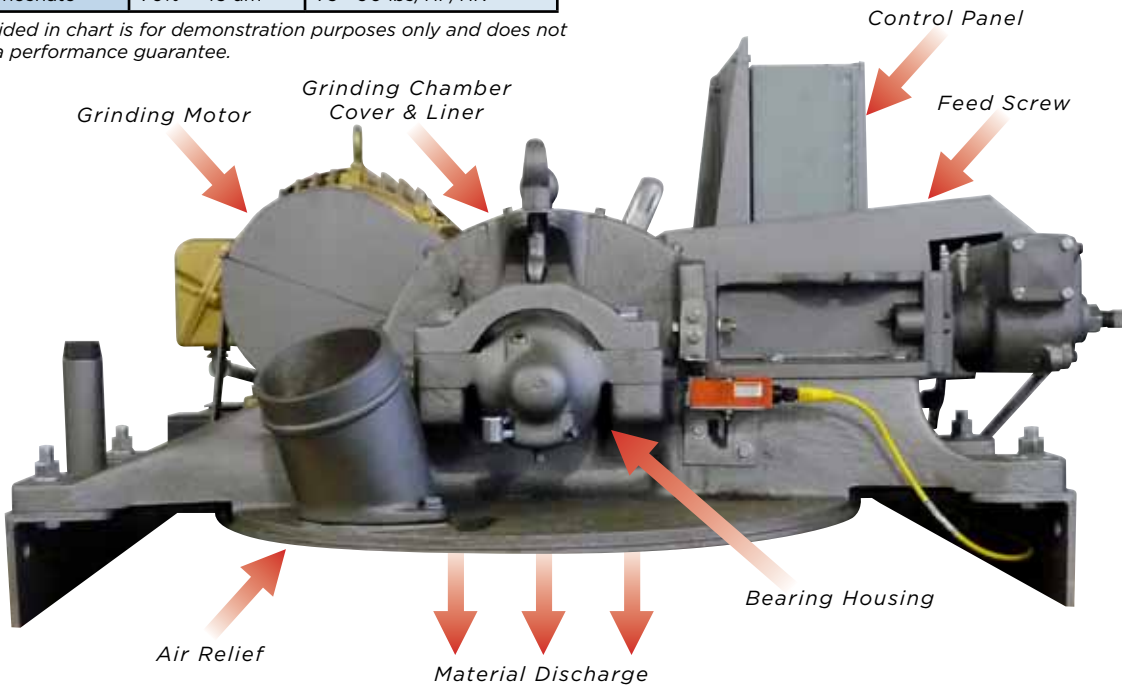
**MIKRO PULVERIZER® HAMMER
& SCREEN MILL APPLICATION DATA**

Material	Product	Nominal Rates (pounds per HP/HR)
Common Food/Food Ingredients		
Ammonium Sulfate	99% < 150 um	100 - 130 lbs/HP/HR
Ascorbic Acid	81% < 45 um	200 - 250 lbs/HP/HR
Gum Arabic	95% < 150 um	50 - 70 lbs/HP/HR
Corn Flour	87% < 200 um	20 - 30 lbs/HP/HR
Corn Starch	99.9% < 75 um	220 - 280 lbs/HP/HR
Lactose	99% < 100 um	30 - 45 lbs/HP/HR
Sugar 6X (Beet)	93% < 75 um	75 - 100 lbs/HP/HR
Wheat Flour	97% < 300 um	25 - 35 lbs/HP/HR
Common Spices		
Black Pepper	90% < 500 um	50 - 70 lbs/HP/HR
Caraway Seeds	62% < 500 um	10 - 15 lbs/HP/HR
Cinnamon	98% < 250 um	15 - 20 lbs/HP/HR
Ginger	76% < 150 um	25 - 30 lbs/HP/HR
Nutmeg	92% < 500 um	50 - 70 lbs/HP/HR
Common Chemical Compounds		
Borax	58% < 150 um	600 - 650 lbs/HP/HR
Calcium Sulfate	98% < 75 um	210 - 240 lbs/HP/HR
Magnesium Sulfate	82% < 75 um	60 - 80 lbs/HP/HR
Potassium Carbonate	95% < 75 um	220 - 250 lbs/HP/HR
Potassium Chloride	80% < 150 um	900 - 1,000 lbs HP/HR
Sodium Bicarbonate	99% < 75 um	130 - 150 lbs/HP/HR
Sodium Chloride	92% < 150 um	250 - 275 lbs/HP/HR
Sodium Phosphate	70% < 45 um	75 - 90 lbs/HP/HR



The Mikro Samplmill® is used for laboratory size reduction

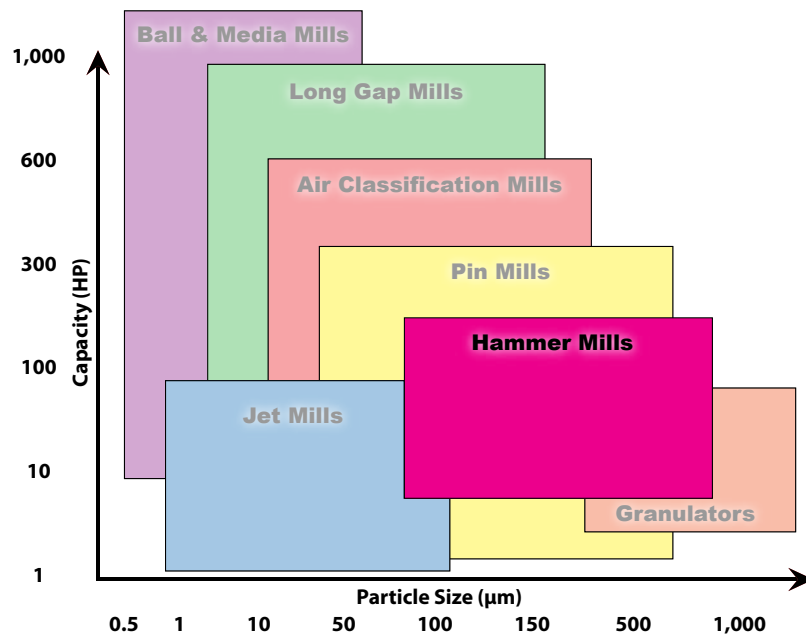
**Data provided in chart is for demonstration purposes only and does not represent a performance guarantee.*



SIZE REDUCTION EQUIPMENT

Hosokawa Micron Powder Systems offers a wide range of equipment for coarse granulation to ultra-fine size reduction.

- Coarse Granulation to Ultra-fine Grinding
- Laboratory Scale to Large Production Models
- Air Classification Mills
- Jet Mills: Opposed Gun, Fluidized & Spiral
- Hammer & Screen Mills
- Pin & Universal Mills
- Pre-Crushers & Granulators
- Ball & Media Mills
- Attrition Mills
- Wet & Dry Grinding



ABOUT HOSOKAWA

Hosokawa Micron Powder Systems produces size reduction systems and powder processing solutions for the Chemical, Pharmaceutical, Food, Mineral, Cosmetic & Plastic Industries.

Hosokawa Micron Powder Systems brings its customers the leading powder processing technologies from the most respected brand names throughout the world. Our Alpine, Micron, Mikro, Vrieco-Nauta, Stott and Vitalair brand names assure reliability, durability and optimal product performance.

We offer system engineering, process technology, equipment manufacturing and assembly, commissioning, on-site training, and process optimization. Hosokawa Micron Powder Systems can provide complete product development services from concept through commercialization.



EQUIPMENT & SERVICES

- Size Reduction & Milling
- Classification & Particle Separation
- Mixing, Blending & Drying
- Laboratory & Testing Equipment
- Compaction & Granulation
- Particle Design & Modification
- Test Center & Laboratory
- Custom Toll Processing
- Service & Maintenance
- Equipment Validation and Evaluation
- Pre-Owned Equipment & Refurbishing Services
- Engineering & System Design
- Educational Programming

MIKRO-PULVERIZER®

Hammer & Screen Mill



HOSOKAWA **MICRON POWDER SYSTEMS**

Hosokawa Micron Powder Systems, located in Summit, New Jersey is a member of the Hosokawa Micron Group. We are a leading provider of equipment and systems for Size Reduction, Classification, Mixing/Blending, Drying, Particle Analysis, Compaction, Granulation as well as a full line of laboratory and analytical equipment. . We also provide Contract Manufacturing, Complete Aftermarket Services and OEM parts, Equipment Leasing, Refurbishing, Product Development Services and Educational Programming. We serve the Chemical, Mineral, Food, Pharmaceutical, Cosmetic and Plastics processing industries.

***Disclaimer:** The content shown within this brochure may contain errors and omissions and is subject to change at anytime without notice. The data and details provided in this brochure is for promotional purposes only. The purpose of this brochure is to provide information about a specific device or service offered by Hosokawa Micron Powder Systems. This information does not constitute any equipment warranty or performance guarantee.*

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