

MIKRO[®] UMP Attrition Mill System



HOSOKAWA **MICRON POWDER SYSTEMS**

Combining the resources of

ALPINE • MIKRO • MICRON • VRIECO-NAUTA

GRINDING OF POLYMERIC & HEAT SENSITIVE MATERIALS

THE MIKRO® UMP ATTRITION MILL is a high speed cutting mill designed for the fine size reduction of plastics, polymers and fibrous materials that do not respond well to other forms of impact milling. It is designed to grind heat sensitive and soft materials without liquid nitrogen or conditioned air.

The raw material enters the grinding zone from a feeding device through the centrally located feed inlet. Size reduction takes place between the adjustable stator plate and high speed rotating grinding plate. The particles are reduced in size as they pass through the tapered plates. The plates have a wider gap at the center where the material is introduced and is closest at the periphery of the plates where the material exits. The finely ground product exits the grinding zone and discharges into a product receiver. Essentially the fineness of the product is dictated by the number of teeth on the plates, rotational speed of the rotor, and the gap between the plates.



Mikro® UMP-2 Attrition Mill



Model	UMP-B	UMP-1	UMP-2	UMP-3	UMP-4
HP	1.5	5-10	20	40	60
Rotor RPM - Max	27,500	18,000	12,000	9,000	5,500
Scale Factor	0.25	1	2	4	6.5
Air Flow - SCFM	25	100	250	550	725

TYPICAL APPLICATIONS

Material	Product
Attrition Plates speeds up to 28,000 RPM	
Polypropylene (PP)	97% < 297 μm
Polyethylene (HDPE)	97% < 212 μm
Polycarbonate (PC)	97% < 297 μm
Polyvinyl Chloride (PVC)	97% < 297 μm
Thermoplastic Polyurethane (TPU)	97% < 212 μm
Polyamide (PA) Nylon	97% < 297 μm
Polyetherketone (PEEK)	99% < 74 μm
Liquid Crystal Polymer (LCP)	97% < 106 μm
Ethylene Vinyl Alcohol (EVA)	97% < 250 μm
Acrylonitrile Butadiene Styrene (ABS)	97% < 250 μm
Polystyrene (PS)	97% < 250 μm

Results based on 4-5 mm pellet feed stock. Capacities and fineness achieved is material and grade specific. Data provided in this chart is a guideline only and does not represent a performance guarantee.



SUPERIOR DESIGN - EXCELLENT PERFORMANCE

DESIGN & FEATURES:

- Capable of fine grinding to a D90 = 100 µm or finer depending on the material & application
- Lab & production models available from 1 HP to 60 HP
- Capacity ranges from 5 lbs/hour up to 3,000 lbs/hour
- Energy efficient & economical to operate
- Fabricated stainless steel construction
- Variable speed rotor drive
- Cantilevered design for ease of cleaning & gap adjustment
- Maintenance free, sealed for life bearings
- Double lip seals & gas purging between drive & process area
- Compact design & dust free operation
- Gravity or pneumatic conveying discharge available
- Chilled or Cryogenic operation available
- Variety of feeding options and system configurations



ATTRITION PLATE ROTOR

Hosokawa's attrition plates are uniquely engineered to finely grind heat sensitive materials without cooling gas or liquid nitrogen. The serrated teeth of the rotating and stator plates create shear forces that cut materials into fine powders with a narrow particle size distribution. The plates are highly durable and can be easily resharpened to maintain high performance.

GRINDING CHAMBER

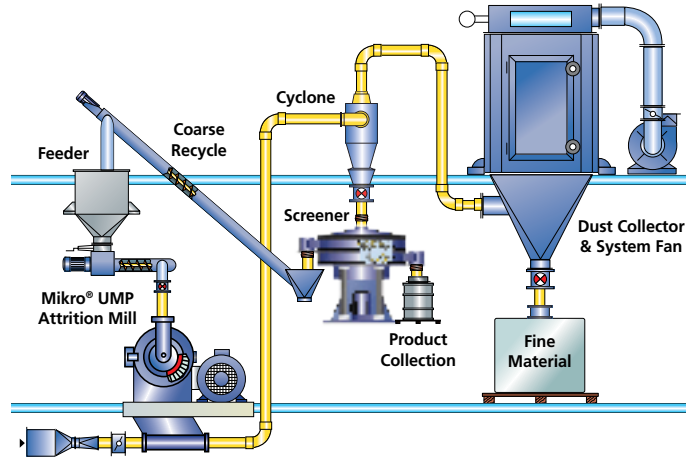
The fabricated grinding chamber is constructed in 316 stainless steel with a high quality 0.8 micron Ra finish. Higher quality finishes are available for specialty applications. The access door is hinged to the grinding chamber and is secured with a single closure device for easy and quick access and inspection.

The bearing housing is a cantilevered design and includes maintenance free, sealed for life bearings. There are double lip seals and a gas purge between the drive and process areas to eliminate material contamination and premature wear of drive components.

SYSTEM CONFIGURATIONS

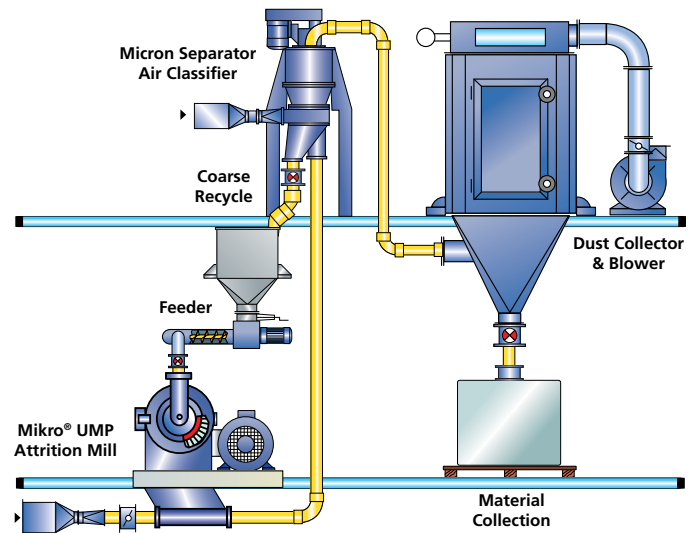
Multiple systems options are available to further enhance the performance and flexibility of the Mikro® UMP Attrition Mill.

ATTRITION MILL WITH SCREENER



Hosokawa can install a cyclone and a screener in-line with your Attrition Mill for material separation and collection.

ATTRITION MILL WITH AIR CLASSIFIER



Hosokawa's Attrition Mill systems can incorporate high-efficiency air classifiers for applications where ultra-fine grinding is required.

DESIGNED, MANUFACTURED & ASSEMBLED IN THE USA

The Mikro® UMP Attrition Mill is an innovative mill designed, manufactured and assembled in the USA and comes with our pledge of performance and guaranteed dependability.





HOSOKAWA MICRON POWDER SYSTEMS



Mikro® UMP Universal Milling System –
Laboratory Model

MIKRO® LPM – LABORATORY MILL

The Mikro® LPM – Laboratory Mill is the smallest model in the UMP line used for small sample grinding of 5 to 100 grams. This compact model has self-contained controls and product collection and can be operated in a small glove box or flexible isolator. It is only available with pin disks or plate beaters (similar to hammers).



SR SIZE REDUCTION EQUIPMENT

- Mikro ACM® - Air Classifying Mill
- Mikro Pulverizer® Hammer & Screen Mill
- Mikro® UMP - Universal Milling System
- Mikro LGM® - Long Gap Mill
- Mikro Atomizer® - Air Classifying Mill
- Alpine AFG - Fluidized Bed Jet Mill
- Alpine AS - Spiral Jet Mill
- Alpine UPZ - Pin Mill
- Alpine SO - Ball Mill

CL CLASSIFICATION & SEPARATION

- Majac® Acucut Air Classifier
- Mikro® Classifier
- Micron Separator
- Alpine ATP Turboplex Classifier
- Alpine ASP Stratoplex Classifier
- Alpine TTSP Tandem Classifier

m/b MIXING, BLENDING & DRYING

- Vrieco-Nauta Conical Screw Mixer
- Micron Drymeister Flash Dryer
- Vrieco-Nauta Cyclomix
- Vrieco-Nauta Vacuum Dryer
- Vrieco-Nauta Active Freeze Dryer
- Micron Nobilta

CI CONTAINMENT, FILLING & WEIGHING AND ISOLATION TECHNOLOGY

- Stott Rigid Wall Isolators
- Stott Hygienic Filling & Weighing Systems
- Stott Flexible Isolators
- Vitalair Downflow Booths

PA LABORATORY & ANALYTICAL EQUIPMENT

- Mikro Air Jet Sieve™ MAJSx
- Mikro® LPM Laboratory Pin Mill
- Micron Powder Characteristics Tester PT-X
- Micron Labomixer LV

W SERVICES

- Hosokawa Brand Parts
- Engineering & System Design
- Custom Toll Processing
- Test Center & Analytical Laboratory
- On-site Service & Maintenance
- Pre-Owned Equipment Sales
- Equipment Validation & Surveying
- Educational Programs & Training



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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