

MIKRO[®] V-UMP MILL

FINE GRINDING OF POLYMERIC & HEAT SENSITIVE MATERIALS



HOSOKAWA MICRON POWDER SYSTEMS
Process Technologies for tomorrowSM

THE NEXT STEP IN MILLING EVOLUTION

THE MIKRO® V-UMP MILL

is a vertical, 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. This unique mill design allows for interchangeable rotor configurations depending on the fineness required and was developed to grind heat sensitive and soft materials without liquid nitrogen or conditioned air.

The V-UMP is the next step in the evolution of the Mikro® UMP Attrition Mill by providing the same grind as a rigid rotor setup while adding the flexibility of converting to a pin mill for fine size reduction.



Mikro V-UMP Model	V-UMP 15	V-UMP 40	V-UMP 75
HP	15	40	75
Scale Factor	1	2.5	5
Air Flow - SCFM	500	1300	2250

SUITABLE FOR PLASTICS, POLYMERS & FIBROUS MATERIALS

Common Materials Processed	Industries Served
High Density Polyesthylene (HDPE)	Medical
Low Density Polyethylene (LDPE)	Automotive
Polycarbonate (PC)	Airline & Aerospace
Polyphenylene Sulfide (PES)	Marine
Polyetherketoneketone (PEKK)	Electrical & Electronics
Polyetheretherketone (PEEK)	Industrial Coatings
Polyvinylidene Fluoride (PVDF)	Sports Equipment
Liquid Crystal Polymer (LCP)	Building Materials
Polyetherimides (Nylon)	Recycling
Polypropylene (PP)	Packaging
Polystyrene (PS)	Appliances
Polyvinyl Alcohol (PVOH)	Textiles
Polyethylene Teraphthalate (PET)	Consumer Products
Acrylonitrile Butadiene Styrene (ABS)	Food
Polyvinyl Chloride (PVC)	3D Printing
Ethylene Vinyl Acetate (EVA)	Rotational Molding
Nitrile Rubber (NBR)	Chemical Recycling
Ethylene Propylene Diene Monomer Rubber (EPDM)	Pyrolysis Recycling
Thermoplastic Polyurethane (TPU)	
Polyurethane (PU)	
And Many Others	

DESIGN OPTIONS

GRINDING CHAMBER:

The standard mill is constructed in 304 stainless steel with a highly cleanable finish. Higher quality finishes are available for specialty applications. The top cover is easily removed and allows for quick access and inspection to the mill interior. The high-speed bearing housing includes maintenance free, sealed for life bearings.



ATTRITION PLATE ROTOR:

Hosokawa's attrition plates are uniquely engineered to finely grind heat sensitive materials, and in many cases, 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 re sharpened to maintain high performance.



PIN DISC ROTOR:

The pin disc assembly includes a stationary pin disc mounted to the inside door cover. As an option, the door and stationary pin disc can be provided as one single piece if required for a specific application. A rotating pin disc rotor is mounted to the main drive shaft of the mill. During rotation the interlacing pins create a labyrinth the product has to pass through — providing ultra fine size reduction through a high number of impacts of the feed with the pins. At high speed, the Mikro® V-UMP Pin Mill can process materials to a top size of 35 microns or even finer in certain applications.

DESIGN AND FEATURES:

- › Pin or Attrition rotor options
- › Can process heat sensitive materials
- › Compact design, low profile design with Vertical Drive
- › Sizes available from 2 HP to 75 HP
- › Process 5 lb/hr up to 3,000 lb/hr
- › Capable of ultra-fine milling down to $d_{97} < 75 \mu\text{m}$
- › More energy efficient than other polymer milling systems
- › Variable speed rotor drive with tip speeds up to 150 m/s
- › Adjustable rotor plate gap
- › Three (3) access ports to facilitate rotor gap adjustment
- › Fabricated stainless-steel construction
- › Dust free operation
- › Cryogenic option for more difficult to grind materials
- › Variety of system configurations

OPERATION:

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 particle size is reduced as the raw feed passes through the tapered plates, which have a wider gap at the center of the plates where the material is introduced and the tightest gap is at the periphery of the plate where material exits. The finely ground product exits the grinding zone and discharges into the evacuation and collection system. Essentially the fineness of the product is dictated by the number of teeth on the plates, rotational speed of the rotor, as well as the gap between the plates.



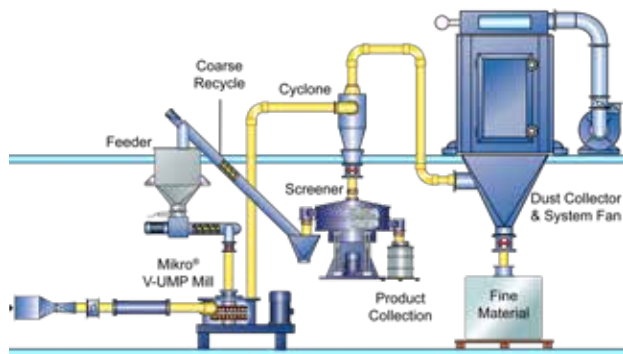
DESIGNED, MANUFACTURED & ASSEMBLED IN THE USA

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

SYSTEM CONFIGURATIONS

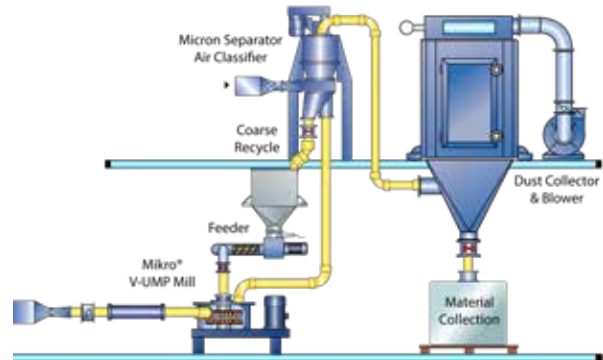
MULTIPLE SYSTEM OPTIONS ARE AVAILABLE TO FURTHER ENHANCE THE PERFORMANCE AND FLEXIBILITY OF THE MIKRO V-UMP MILL.

V-UMP MILL WITH SCREENER



Hosokawa can install a cyclone and a screener in-line with your V-UMP Mill for material separation and collection, preventing oversize particles and ensuring powder tcp size.

V-UMP MILL WITH AIR CLASSIFIER



Hosokawa's V-UMP Mill systems can incorporate high-efficiency air classifiers for applications where ultra-fine grinding is required, providing extremely tight particle size distributions and the ability to make a fine and coarse end product.

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, Containment and Filling/Weighing 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 Plastic processing industries.



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ANY QUESTIONS? WE WILL BE GLAD TO ANSWER THEM!

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