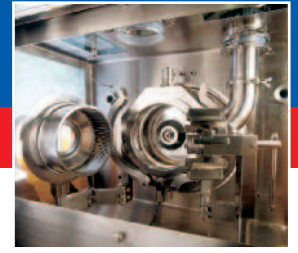
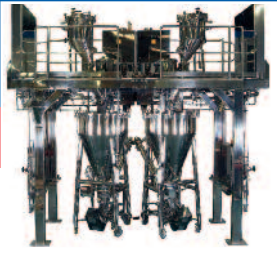


SIZE REDUCTION EQUIPMENT AND SYSTEMS



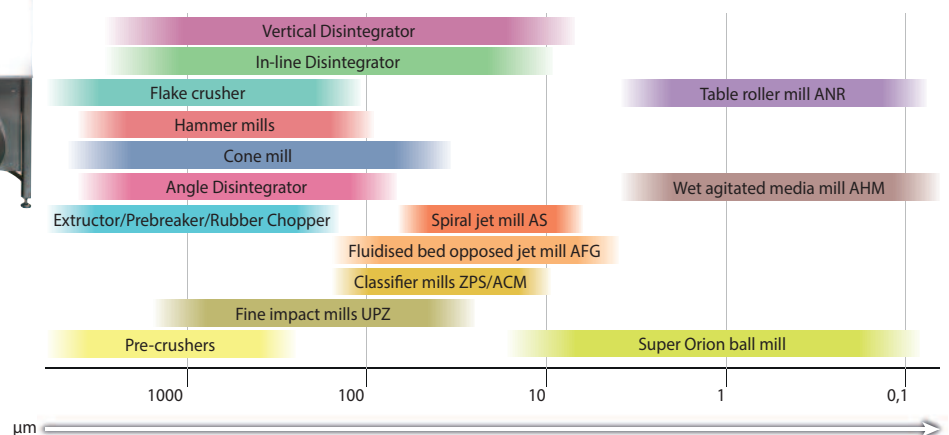
- crushing to ultra fine milling down to 10nm

Hosokawa Micron Ltd offers one of the largest ranges of standard and bespoke equipment and turnkey systems for accurate size reduction.

Our range of ball mills, granulators and crushers, fine impact mills, jet mills and air classifier mills available within Alpine, Bepex, Mikro, and Hosokawa Rietz brands can deliver coarse crushing down to ultrafine milling of submicron particles across a range of wet or dry processing applications in the chemical, food, pharmaceutical, mineral and other industries.

Hosokawa Micron can supply a range of mill technologies from lab up to production scale. Our aim is to provide not only a stand-alone machine but engineering systems and capabilities to meet individual production needs.

APPLICATION AREAS OF DIFFERENT MILL TYPES



A selection of our mills are shown overleaf.

Contained Milling Systems

Hosokawa Micron Ltd has pioneered the development of contained milling systems in which size reduction equipment is re-designed to become an integral part of a contained system to offer operator, product or environmental protection from potentially hazardous dusts.

Hosokawa Micron Ltd's range of high containment enclosures or Stott Isolators and Gloveboxes create a physical barrier between the operator and the product. This enables 'shirt sleeve operation' without the need for Personal Protective Equipment and suitable for critical processes as milling, micronising and associated manual and automated handling and processing procedures.

With a wide range of individual machines available in various wear resistant materials, surface finishes and easy clean designs we have added versatility in the range. This is further extended by cryogenic or high heat variants, low noise and explosion protection designs.

Mikro Air Classifier Mill

The first classifier mill on the market in the 1960s, the Mikro ACM can be found in thousands of installations across the world in the minerals, cosmetics, plastics, powder coatings, food and confectionery industries.

The Mikro ACM delivers:

- Grinding and classifying in one unit
- Guaranteed, accurate particle size in the medium to fine particle size range because of the highly efficient, variable speed, dynamic integral air classifier
- Steep particle size distribution with minimum ultra fines
- Cool grinding with minimal product temperature increase
- Milling of even sticky, fatty or oily materials, including chocolate
- Compact space saving design



Alpine Fluidised Bed Opposed Jet Mill

The Alpine Fluidised Bed Opposed Jet Mill with integrated classifier produces contamination-free ultrafine powders with narrow particle size distribution and sharp topsize limitations in the range $< 5 \mu\text{m}$ to $200 \mu\text{m}$ - grinding even very hard materials eg. Mohs hardness 1 (talc) to Mohs hardness 10 (diamonds) down to ultra high fineness.

Even difficult products can be processed efficiently with the AFG jet mills.

- Heat-sensitive materials such as toner, resin, wax, fat, ion exchangers, plant protectors, dyestuffs and pigments
- Hard and abrasive materials such as silicon carbide, zircon sand, corundum, glass frits, aluminium oxide, metallic compounds
- Highly pure materials where the requirement is contamination-free processing such as fluorescent powders, silica gel, silica, special metals, ceramic raw materials, pharmaceuticals
- High-performance magnetic materials based on rare earth metals such as neodymium-iron-boron and samarium-cobalt. Mineral raw materials such as kaolin, graphite, mica, talc
- Selectively ground composite materials such as metal alloys



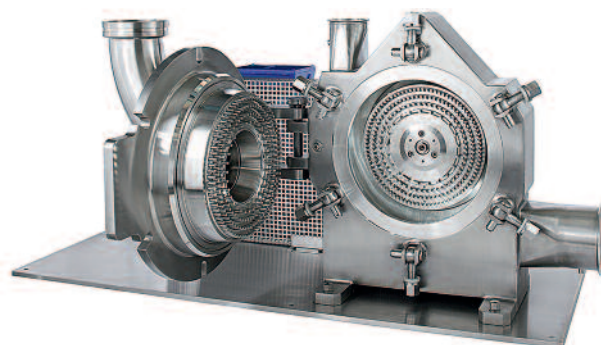
Alpine Ultraplex UPZ Fine Impact Mills

A well proven versatile size-reduction system with exchangeable grinding elements, Alpine Ultraplex UPZ Fine Impact Mills offer versatility in use combined with simplicity of operation.

UPZ mills can be equipped with a variety of easily interchangeable milling elements to suit a wide variety of feed materials and fulfill a great variety of demands on the end product, including:

- High fineness with sharp top cut
- Production of end products that are low in fines with good flow properties
- Production of powders with a high bulk density
- Production of powders with a high mass fraction within a defined particle size range

Applications in the chemicals industry, foodstuffs and animal feed industry, as well as in the pharmaceuticals industry are common.



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