



MICRONISING
Better by Design



ATRITOR

MICRONISING

Micronising is a process extensively used by the pharmaceutical chemical agro-chemical, pigment and cosmetic industries for the production of fine powders.

Atritor has a policy of examining the specific needs of each client to ensure the required results can be achieved and the correct equipment selected

OPERATING PRINCIPLE

Feed material is inspired by venturi into the cylindrical grinding chamber of the mill.

Compressed gas jets, arranged tangentially around the grinding chamber, accelerate the particles, causing inter-particulate impact in the extremely turbulent zone close to the chamber wall.

Intense velocity gradients occur in the vicinity of the jets and the fluid energy is rapidly dissipated to the particles.

Larger particles are retained within the outer circulating mass by centrifugal forces, while fine particles spiral towards the centre with the outgoing gas stream.

The combination of centrifugal and drag forces operating within the grinding chamber provides an efficient classifying mechanism. An adjustable guard ring at the centre of the chamber further restricts the passage of oversize particles before material and gas pass from the chamber, either to an integral cyclone or to a separate collector.

APPLICATIONS

The Atritor Micronising Mill is suitable for virtually any material requiring ultrafine grinding, whether in campaign or continuous production. Special linings are available for cohesive and for abrasive materials.

It is possible to produce powders that are predominantly below 1 micron. Over 300 units are in service around the world producing fine powders for use in:

Agro chemicals	Animal Health
Antibiotics	Ceramics
Cosmetics	Dyestuffs
Fillers	Fine Chemicals
Inorganic Products	Metallic Minerals
Non-Metallic Minerals	Pharmaceuticals
Organic Products	Plastics
Titanium Dioxide	Pigments

BENEFITS

The Atritor Micronising Mill has many advantages over conventional comminution equipment.

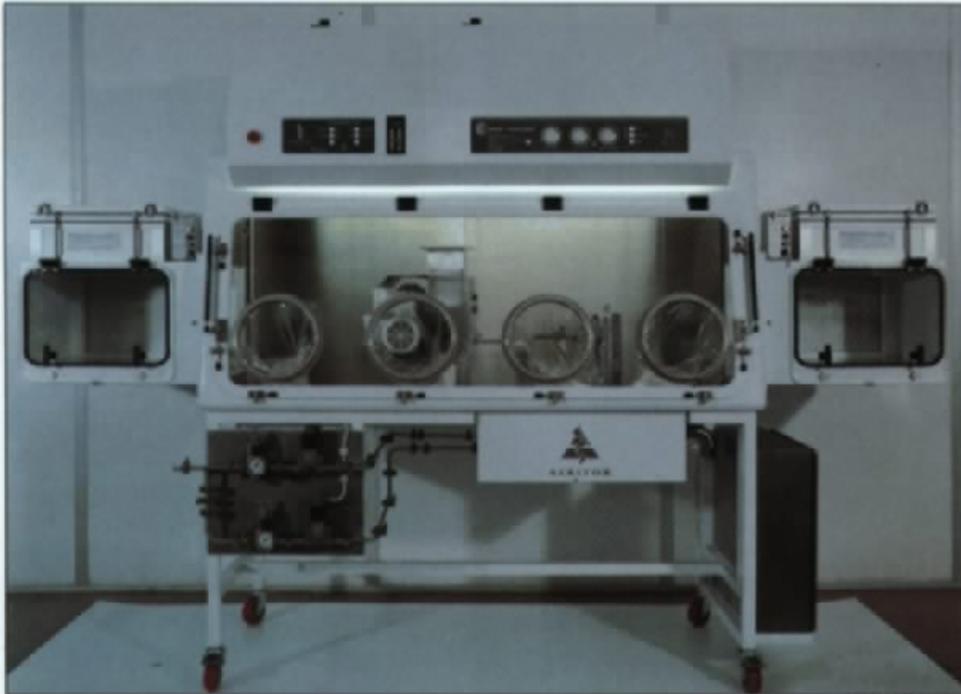
1. It can produce materials of low micron size.
2. The product particle shape is uniformly spherical.
3. It is easy to clean.
4. It can be used for hygienic/sterile applications.
5. It has no moving parts
6. It operates with any compressed gas.
7. Heat sensitive materials can be processed.
8. If compressed hot air is used, a degree of product drying is achieved.
9. Two or more materials can be simultaneously micronised and blended.
10. Materials can be coated.
11. A wide variety of materials of construction and linings can be provided.

M6 work station



Front cover
M2 hygienic microniser

BETTER BY DESIGN



Isolator M2[®] R & D unit

ISOLATION SYSTEM

Isolated Micronising Systems incorporate all the operations for micronisation under 100% containment conditions for operator protection. The systems incorporate transfer hatches which have the facility to be interlocked, ensuring containment at all times.

Users operate the equipment through a number of glove ports ensuring a contamination free working environment.

The systems include HEPA filtration within the isolator and transfer hatches, centralised membrane keypad controls and hinged front visor to facilitate maintenance and set-up/removal of equipment.

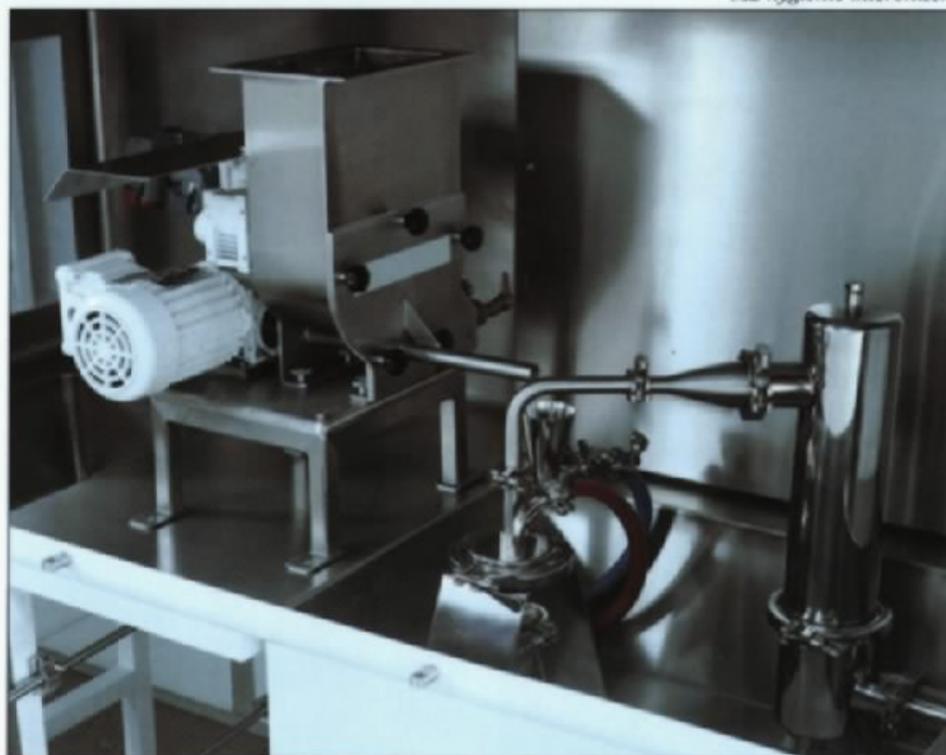
The isolator also incorporates a sink to enable pre-washing of equipment prior to autoclaving.

These systems are ideal for R&D applications where small batches are to be processed.

Atritor offers systems designed for 10 bar g containment.

Isolation models are available with capacities between 0.5 and 50kg/hr. Finished particle sizes range from 0.3 to 40 microns depending upon the product and the output rate.

The Micronising Mill is part of a comprehensive range of size reduction equipment manufactured by Atritor Limited. It is a fluid energy mill, utilising the energy contained in a compressed gas to produce superfine powders by autogenous comminution.



M2 hygienic microniser

TECHNICAL SPECIFICATION

RANGE

The Micronising Mill is available in 11 sizes with capacities ranging from 0.5kg/hr to 2000kg/hr.

The output of each mill depends on a number of factors including particle size of feed and product, material friability, fluid pressure and flow.

Trials can be conducted, without obligation, to confirm the Micronising Mill's ability to process your materials and satisfy your product specification.

MICRONISER MODEL SIZE		APPROXIMATE OUTPUT		AIR OPERATION		STEAM OPERATION	
No.	mm	kg/hr	kg/hr	FREE AIR AT 7 BAR cu.ft/min	cu.m/min	SUPERHEATED 14 BAR, 420°C kg/hr	kg/hr
2	50	2	1	20	0.6		
3	75	2 - 4	1 - 2	35	1.0		
4	100	4 - 10	2 - 5	50	1.5		
6	150	10 - 40	5 - 20	75	2.0		
8	200	35 - 100	15 - 50	100	3.0	250	115
12	300	100 - 300	50 - 150	225	6.5	600	270
15	400	150 - 500	75 - 250	375	10.5	1000	450
20	500	250 - 750	100 - 350	500	15.5	1500	680
24	600	500 - 1200	250 - 650	1000	28.0	2700	1200
30	750	1000 - 3000	450 - 1500	1500	42.5	4400	2000
36	900	2000 - 5000	900 - 2300	2500	70.0	6500	3000

SERVICE

Atritor Limited can supply unit mills or completely intergrated packages.

All equipment and plant drawings are produced by computer aided design.

In addition to supplying the equipment, Atritor Limited will provide assistance in IQ, OQ, installation, commissioning and operator training.



Atritor Micronising Mills are built to the rigorous standards of BS-EN-ISO9002.



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