



Mill Selection Chart

The selection chart shows the types of mills most commonly used for food and pharmaceuticals, at the various stages of the manufacturing process, with their typical range of application in terms of product PSD (Particle Size Distribution).

P.S.D.	1µm	10µm	25µm	45µm	75µm	150µm	425µm	850µm	1700µm	4750µm	+
Pre-sizers Hammer Mills							Ideal for lump/crystalline 'hard' material producing coarse gritty product. For de-agglomeration applications, capable of finer products.				
Cone Mills						Lump / de-agglomeration applications, typically after dryer or pre-sizing before jet mill. Hard crystalline materials may damage mesh basket.					
DCM Dynamic Classifier Mills		Universal mill capable of a wide range of PSD's. Inverter driven Integral classifier allows instant adjustment of product PSD.									
Spiral Jet Mills	Widely used in pharmaceuticals, no moving parts and easy to clean. Typical PSD of d97 8-10 µm, d50 2-3µm.										
Pharmill (Classifier Spiral Jet Mill)	Similar size range to spiral jet mills - much finer with SSA's > 3m ² /g & 'tighter' size distribution compared to spiral jet mills.										

Integrated System Design

We provide:

- Full plant design using the latest CAD software.
- Process control systems with custom programmed PLC's.
- Design to GMP and GAMP.
- BS-EN-ISO9001: 2000 Quality System.



Containment Solutions

The processing of API's (Active Pharmaceutical Ingredients) or aseptically manufactured products requires containment technology to protect the operator from the product or the product from the environment. OEL's of less than 1µg/m³/8h TWA are frequently requested, and to achieve this the solution is to integrate the mill inside an isolator. Atritor has the experience of working with several leading isolator manufacturers and providing integrated mill isolator processes.



Close co-operation is required between the mill supplier and Isolator manufacturer to make sure the equipment layout and operator interfaces are compatible. A wooden mock-up is a fundamental requirement for ergonomic assessment of operator tasks, working within the constraints of gloveports or half-suits. The wooden mock-up opposite contains an Atritor M4 micronising system inside an Extract Technology isolator.



Flexible solutions are an alternative to rigid stainless steel isolators. Opposite is an Atritor M2 and M4 microniser R&D combination in a La Calhene flexible isolator and half-suit.



Atritor M8 micronising mill for low OEL steroids inside an ACE (Applied Containment Engineering) isolator.