

J-20 Fluid Jet Micronizers

Fluid jet micronizers designed for R&D

The Fluid Jet family of micronizers (including the J-20 line) is based on TECNOLOGIA MECCANICA jet milling technology. Our J-20 works at a constant temperature (endothermic) and independently with just a nitrogen bottle. The powder is fed at subsonic speeds (approximately 50 m/s) into the flat cylindrical milling chamber tangentially through a venturi system using pressurized air or nitrogen. Once inside the milling chamber the particles are then accelerated by a series of jets around the perimeter to supersonic speeds (300 m/s), in a spiral movement. The micronizing effect occurs when the slower incoming particles and the faster particles in the spiral path collide. While centrifugal force retains the larger particles at the periphery of the milling chamber, the smaller particles exit with the exhaust gas from the centre of the chamber.

At a glance

- Batch size from 0.2 to 100.0 g
- Minimum batch of 50 mg in milligram kit configuration
- Productivity from 0.50 to 100.00 g/hour
- One single collecting point
- Scalability of the process to bigger micronizers
- Metal contamination below 1 PPM (particles per million)
- Two different filter sleeve sizes
- Two different collecting bin sizes
- Quick and easy assembling and disassembling of the system with a limited number of clamped components
- Simplicity of the whole unit
- Miniaturized dimensions
- The J-20 is manufactured in Aisi type 316L (EN 1.4404) stainless steel or in Hastelloy mirror polished to Ra 0.25 micron



Discover your own tailored equipment

There are many possibilities and configurations available to tailor our micronizers to your application. Try your custom version, our engineering team works with you in order to develop your personal system. Options already available:

- Single and double screw feeders
- Low Emission version with Hepa filter
- Automatic shaking system
- Balance line
- Cold / Cryogenic process gas version
- J-25 / J-30 milling chambers
- Explosion proof version
- Totally contained solution in glove box

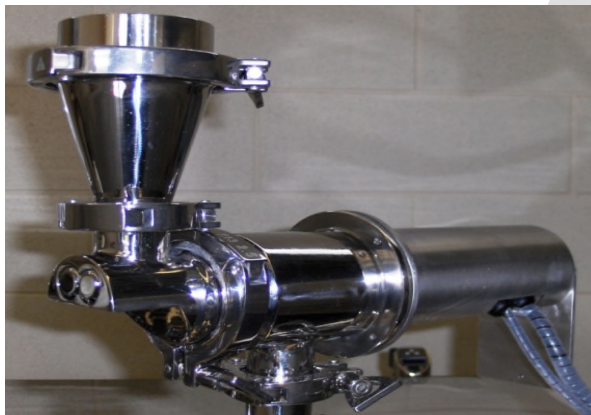


Technical Features

Able to micronize very small batches/samples from 0.2-0.3 grams (even 50 mg in milligram kit configuration) with low product loss to extremely narrow particle size distribution $D_{99} < 3$ micron. This is the main strength/innovation of the J-20; the pharmaceutical laboratories all over the world are concentrating their research efforts on new molecules and on new, very often, expensive products, of which only limited quantities might be available. This mill allows researchers to carry out many more trials with their limited or costly product(s) instead of just one or two trials, and with very low product loss. Until recently, researchers had to settle for R&D fluid energy jet mills able to micronize batches starting from 3 or 4 grams, but the laboratories don't always have 3 or 4 grams at their disposal just to make trials.

The Particle Size Distribution is controlled by adjusting two main parameters:

- **PRESSURE:** the energy used to micronize; increased pressure increases the micronization effect
- **FEED RATE:** the concentration of product fed into the milling chamber; the greater the feed rate, the less the micronization effect. This is due to the fact that particles must have space to achieve proper acceleration before collision occurs.



Example of different micronized products

- ❖ Very small batches: LACTOSE
 - Quantity of product fed 0.3 g
 - Micronized product 0.22 g
 - Yield 73.3%
- ❖ Medium batches: PEPTIDE
 - Quantity of product fed 1.0 g
 - Micronized product 0.88 g
 - Yield 88%
- ❖ Bigger batches: POLIPEPTIDE
 - Quantity of product fed 50.0 g
 - Micronized product 49.3 g
 - Yield 98.6%

with milligram kit

- ❖ Milligram batches: LACTOSE
 - Quantity of product fed 100 mg
 - Micronized product 90.3 mg
 - Yield 90.3%

Increasing the quantity the J-20 is able to guarantee higher yield performance (near 99.5%)

Available Versions

- J-20 or J-25 or J-30 milling chamber
- J-20 with milligram kit
- J-20 with DS20 double screw feeder
- J-20-LE (low emission version)
- J-20-CRYO (cryogenic version)



Narrow Particle Size Distribution

- ❖ Product: ZINC LACTATE
 - Quantity of product fed 50.0 g
 - Input particle size distribution $D_{99} < 100$ μ m
 - Output particle size distribution $D_{99} < 2.99$ μ m
- ❖ Product: BUDESONIDE
 - Quantity of product fed 10.0 g
 - Input particle size distribution $D_{99} < 300$ μ m
 - Output particle size distribution $D_{99} < 2.60$ μ m
- ❖ Product: SALBUTAMOL
 - Quantity of product fed 30.0 g
 - Input particle size distribution $D_{99} < 120$ μ m
 - Output particle size distribution $D_{99} < 2.45$ μ m

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The manufacturer reserves the right to modify specifications without prior notice.