



# AIR JET MILL

EMCO MAKE PSI (PARTIAL SURFACE INCREASER)



## ABOUT US

**EMCO Engineering** is a sister concern company of **M/s Emco Dyestuff Pvt. Ltd.** who is having experience of more than 50 years in Chemicals and Pharma raw materials. Since our inception, Emco Engineering have always strived to be the leading and renowned supplier of superior quality products at the most competitive rates. It took us more than two decades, hard perspiring years to scale new heights and achieve a respectable position in the worldwide engineering Industry.

At **EMCO Engineering** we take any type of customization of our products, By continuous innovations and customer satisfaction we have obtained remarkable presence in domestic as well as overseas market.

### Customer Service

We believe in working effectively and efficiently to deliver products that fully satisfy our customer's need. Known for technical expertise and best customer service with quality products, we have gained trust and support of our client that forms the base of our growth.

### Reliability

Our reliability quotient comprises of our reputation as industry's most dependable source, with immense market awareness and foresightedness that is servicing every need of the customer.

### Our Corporate Values

- High priority to customer satisfaction
- High standards of quality, efficiency, reliability and safety.
- Promoting use of modern technology and practices.
- Maximizing Profitability and Cost-Effectiveness.
- Nurturing And Developing Human Resources.
- Cultivating Mutually Rewarding Relationships With Its Partners In Business.
- Commitment To Community Development And Environmental Protection.

### OUR EXCELLENCE... TO PROVIDE YOU THE BEST !!!!

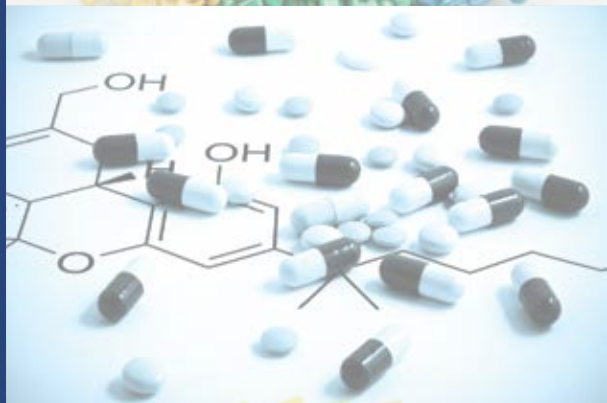
All the raw materials and finished products undergo stringent quality checks at different levels of manufacturing. Micro analysis is conducted on incoming ingredients and products thereby ensuring high durability, tensile strength and resistivity to adverse conditions. For us, total satisfaction of the customers is the prime concern.

## OUR VISION

To be a leading machinery manufacturer and supplier by offering suitable products at revolutionary price. We shall inspire our employees to be the best they can be, build top class products while engaging them in sustainable practices and anticipate the needs of our customers

## OUR MISSION

To provide quality products and their relative options along with efficient and proactive services to the customers, at competitive prices, so as to achieve total customer satisfaction & making sure that it creates a reliable relationship between us and our associates.





**AIR JET MILL** reduces the material size by using a high speed of compressed air to impact particles into each other. EMCO make PSI are designed to provide particles below a certain size, while continue milling particles above that size, resulting in a narrow size distribution of the product. Particles leaving the mill are separated by Cyclonic separation.

#### AIR JET MILL - EMCO PSI LAB

EMCO has designed this new and compact lab model for **R & D** purpose and also it acts as a **qualifying model** for the higher size production models.

The latest Designed Computational fluid dynamics (CFD) is a branch of fluid mechanics that uses numerical analysis and data structures to solve and analyze problems that involve air flows. Computers are used to perform the calculations required to simulate the interaction of carrying medium with surfaces defined by boundary conditions. This subsequently improved geometry of the milling chamber and ring integrated nozzles have led to a very narrow PSD (Particle Size Distribution).

#### Documentation to support FDA validation

- Design Qualification (DQ)
- Factory Acceptance Test (FAT)
- Installation Qualification (IQ)
- Operation Qualification (OQ)
- Performance Qualification (PQ)

#### Features of Jet Mill - EMCO PSI LAB

- Narrow Particle Size Distribution (PSD)
- Simple and rapid Assembly OR Disassembly
- Limited number of components
- Low energy consumption
- Sterile manufacturing
- No heat generation
- No cross contamination
- Variety of available liners to resist abrasion

#### Benefits for the cosmetics industries

- Ultra-fine loose and compact powders
- Improved metallic pigments effect
- Perfect skin adherence
- Increased binding effect
- Ultraviolet radiation reflecting properties



MODEL NAME	CFM REQUIRED	REQUIRED POWER (HP)	CAPACITY (KG/HR)
PSI LAB	15	5	0.01 – 0.35

## AIR JET MILL - EMCO PSI 2

The PSI-2 is ideal for clinical trials and scale-ups, especially when extremely small batches of high value products with very low product loss need micronization. The heat sensitive and low melting point materials are easily micronized, micronization takes place due to the collision between the incoming particle and the particle which are already accelerated into the milling chamber creating spiral path. The larger particle of the product get retained at the periphery of the chamber by the centrifugal force and micro particle exit the exhaust air from the center portion of the milling chamber.

### Features of Jet Mill - EMCO PSI 2

- No heat created during milling protecting heat sensitive products.
- An approach to improve drug solubility, dissolution and bioavailability
- Simple and rapid Assembly OR Disassembly
- Limited number of components
- Engineered to avoid risk of cross contamination of milled products
- High grade materials – AISI type 316L

### Documentation to support FDA validation

- Design Qualification (DQ)
- Factory Acceptance Test (FAT)
- Installation Qualification (IQ)
- Operation Qualification (OQ)
- Performance Qualification (PQ)

### OPTIONS

1. Volumetric, Vibratory OR Gravimetric feeder, with various hopper dimensions available.
2. Special internal lining: PTFE, Ceramic, titanium Nitride.
3. Sanitary rotary valve for production collection.
4. System fully automated by PLC.
5. HEPA Filter
6. Anti Static Filter



MODEL NAME	CFM REQUIRED	REQUIRED POWER (HP)	CAPACITY (KG/HR)
PSI 2	20	7.5	0.1 - 0.8

## AIR JET MILL - EMCO PSI 4

Jet mill is widely used in Pharmaceutical, Chemical, Food industry, Cosmetics industries for milling material below 25 microns and up to 1 micron or so. It is used for the Crystalline, Amorphous or Agglomerated products, Colour pigments, heat sensitive products etc. Hard materials milling such as Ceramics, glass etc.

### ➤ FEEDING SYSTEM – MOC SS 316

- ✓ Manual
- ✓ Vibratory
- ✓ Vfd Controlled Screw Type - Volumetric
- ✓ Vacuum feeding system

### ➤ MILLING CHAMBER – MOC SS 316

- ✓ Diameter 100MM
- ✓ Liners Can Be SS 316, SS 304, PUR (Vulkollan), Ceramic, titanium Nitride etc.

### ➤ BAGFILTER SYSTEM

- ✓ Pneumatic Shaking Bags
- ✓ Reverse Pulse
- ✓ HEPA Filter
- ✓ Anti Static Filter

### ➤ CONTROL PANEL

- ✓ Non Flame Proof
- ✓ Flame Proof
- ✓ Plc Based
- ✓ Electro Pneumatic



MODEL NAME	CFM REQUIRED	REQUIRED POWER (HP)	CAPACITY (KG/HR)
PSI 4	55	10	1 – 5

## AIR JET MILL - EMCO PSI 8

The Pharmaceutical jet mill utilizes compressed air to grinding system which rapidly expands to generate a high speed rotation of material which runs below sonic speed. This creates near sonic particle-on-particle collision, generating increasingly smaller particles. Centrifugal force holds larger particles in the grinding rotation area until they have achieved the desired fine particle size. Centripetal force drags the desired particles towards the static classifier where they are allowed to exit upon achieving the correct particle size.

### Features of Jet Mill - EMCO PSI 8

- Documents to support FDA validation
- Narrow Particle Size Distribution (PSD)
- Simple and rapid Assembly OR Disassembly
- Limited number of components
- Sterile manufacturing
- No heat generation
- No cross contamination
- Variety of available liners to resist abrasion

#### ➤ FEEDING SYSTEM – MOC SS 316

- ✓ Manual
- ✓ Vibratory
- ✓ Vfd Controlled Screw Type - Volumetric
- ✓ Vacuum feeding system

#### ➤ MILLING CHAMBER – MOC SS 316

- ✓ Diameter 200MM
- ✓ Liners Can Be SS 316, SS 304, Ceramic, titanium Nitride etc.

#### ➤ BAGFILTER SYSTEM

- ✓ Pneumatic Shaking Bags
- ✓ Reverse Pulse
- ✓ HEPA Filter
- ✓ Anti Static Filter

#### ➤ STAR OPTION

- ✓ System fully automated by PLC with full batch reporting integration of on-line particle size analysis can be provided.



MODEL NAME	CFM REQUIRED	REQUIRED POWER (HP)	CAPACITY (KG/HR)
PSI 8	120	30	10 - 55



## AIR JET MILL - EMCO PSI 12

The EMCO PSI – 12 works independently with the process at a constant temperature. The powder is fed at below sonic speeds into the flat cylindrical milling chamber tangentially through a venturi. The system uses compressed air. Once the particles are inside the milling chamber they are accelerated by a series of jets around the perimeter to supersonic speed, in a spiral movement. The micronising 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 from the center of the chamber.

### FEATURES OF JET MILL - EMCO PSI 12

- Documents to support FDA validation
- Narrow Particle Size Distribution (PSD)
- Simple and rapid assembly/disassembly
- Limited number of components
- Sterile manufacturing
- No heat generation
- No cross contamination
- Variety of available liners to resist abrasion

#### ➤ FEEDING SYSTEM – MOC SS 316

- ✓ Vibratory
- ✓ VFD Controlled Screw Type - Volumetric
- ✓ Vacuum feeding system

#### ➤ MILLING CHAMBER – MOC SS 316

- ✓ Diameter 300MM
- ✓ Liners Can Be SS 316, SS 304, Ceramic, titanium Nitride etc.

#### ➤ BAGFILTER SYSTEM

- ✓ Pneumatic Shaking Bags
- ✓ Reverse Pulse
- ✓ HEPA Filter
- ✓ Anti Static Filter

#### ➤ STAR OPTION

- ✓ System fully automated by PLC with full batch reporting integration of on-line particle size analysis can be provided.



MODEL NAME	CFM REQUIRED	REQUIRED POWER (HP)	CAPACITY (KG/HR)
PSI 12	230	62	20 – 105



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