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## **Dry grinding in the micron range**

### **Jet Mill JMRS - A fine technique for fine granule sizes**

The **ESCO-Labor** Jet Mill grinds dry materials to a fineness in the range of 0,1 - 10 microns (0.0001 -0.01 mm). The mill is most effective in the range below 5 microns (0,05 mm).

Typical fields of application are the fine grinding of pharmaceutical active ingredients such as antibiotics, sulfonamides, salicylic acid, pesticides, mineral flour such as betonite, talc; semi-conductors such as silicium and germanium as well as graphite, molybdenum etc. Its special processing methode makes the machine particularly suitable for grinding under **sterile conditions**.

#### **This is how ESCO's JMRS works:**

The product to be ground (1) and the air or inert gases (2) are blown into the grinding chamber under pressure through specially designed jets (3). In this way a unique flow pattern is created, causing product particles to collide with each other and hit against the wall of the grinding chamber with great impact. As a result, the desired grinding effect is achieved. The separation of the created fine particles from the air or inert gases, is carried out by a special filter (5).

The obtainable degree of fineness depends,among other factors, on the shape and position of the various available jets and the size of the grinding gap. The lid of the grinding chamber and the upper edge of the guide pipe (6) form the grinding gap, which is adjustable while the unit in operation.

#### **Grinding sterile products under sterile conditions.**

The **ESCO-Labor** Jet Mill JMRS is particulary well suited for the grinding of antibiotics, sulfonamides and other pharmaceutical products,which have to be processed under sterile conditions. The mill has no motors, no rotating drive shafts and, therefore, no seals or ball bearings.

#### **The product feed of the JMRS**

An important factor in obtaining high fineness and even particle distribution, is a proper and constant product feed. Depending on the project at hand, **ESCO-Labor** can supply you with vibratory feeders and proportioning screws.

## **Power supply to the JMRS**

Compressors of different types are used as a power source. The choice depends on how free the product must be of oil, moisture and dust. The selection of the air filter is based on the same considerations. Of course, standard pressure gas cylinders can be used such as nitrogen or inert gases for materials sensitive to oxidation.

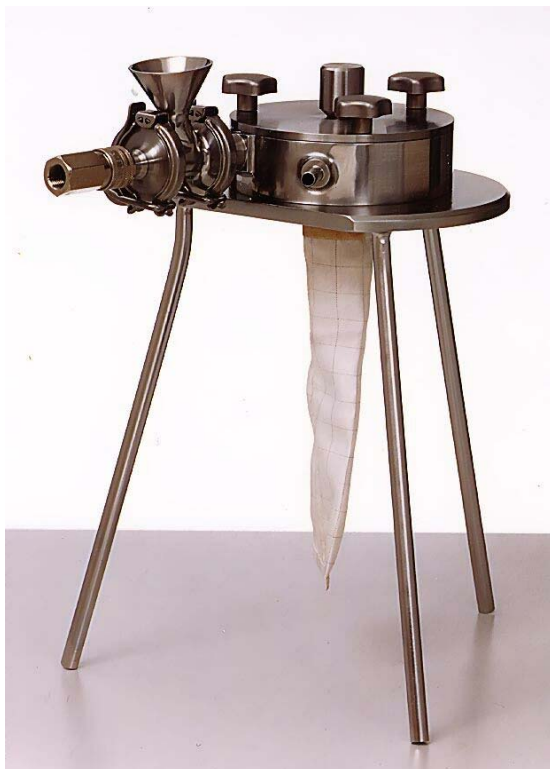
Type	Application	Quantity
JMRS 80	Production	50-1000 gramm
JMRS 80 SQ	R & D	4-100 gramm

## **Type JMRS 80 SQ**

This type is exactly the same design of the proof JMRS 80 but with the advantage of grinding small quantities. If you want to grind 5 grams with losing only 15% of the product it is the right solution. Cleaning and handling is very easy because of the construction with a absolute minimum of parts.

Product-contact parts are in stainless steel 1.4401 (V4A, AISI 316) or, for materials sensitives to metal, in ceramic (cemented aluminium oxide). Filter bags are in nylon or sterilizable material (polyacrylnitril or polyester).

- The outlet connection is made to the requirement of the customer.
- Tri-Clamp, DIN 11851 or thread suiting any glasses.



JMRS 80 SQ



JMRS 80



JMRS 80 SQ Injector parts with hopper



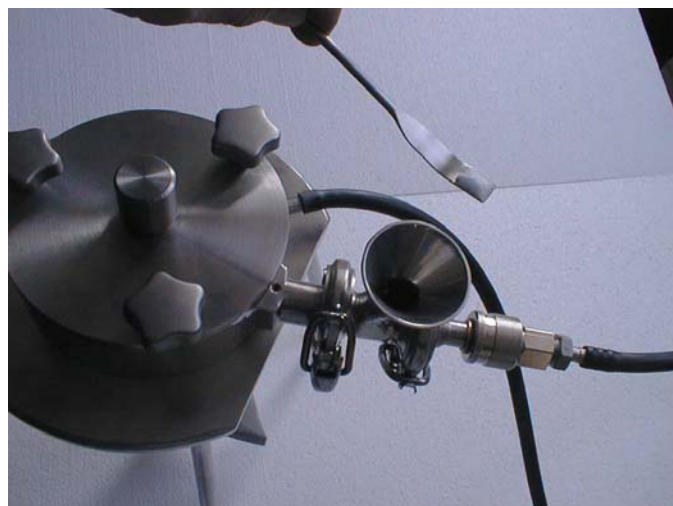
JMRS 80: Ceramic housing with two air-nozzles (total five off) and filter bag



JMRS 80 SQ: Desmanteling ceramic housing



JMRS 80 SQ: Taking off the injector



JMRS 80 SQ: Feeding the powder