

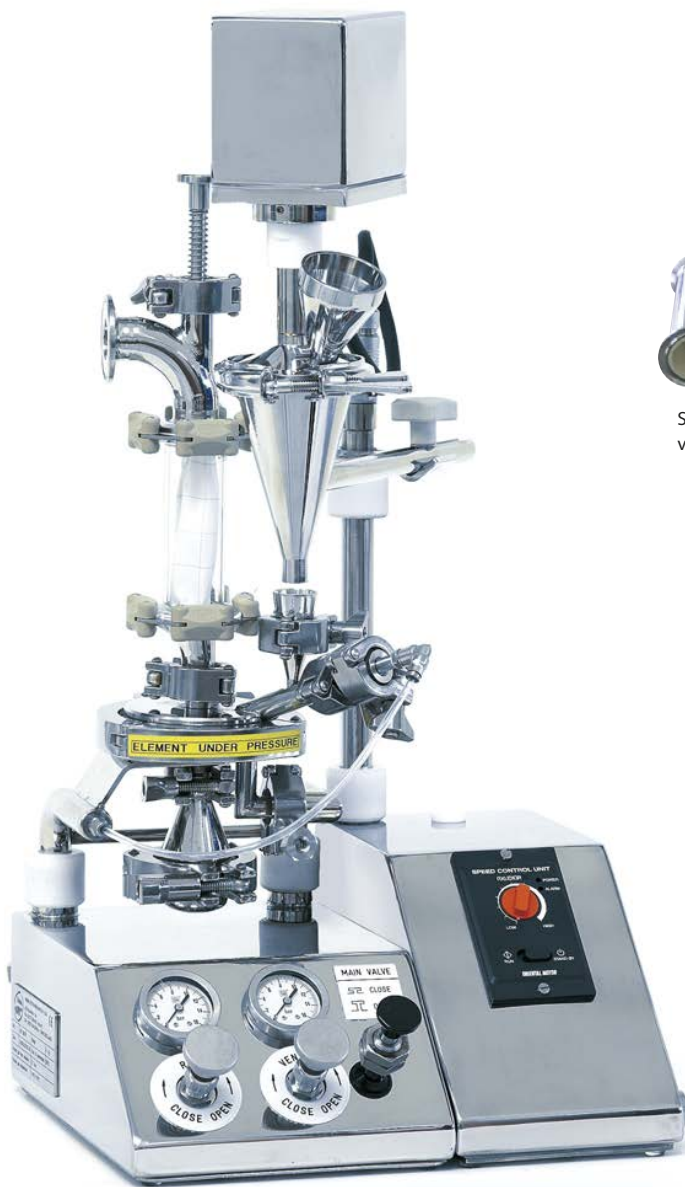


## From Simple Powder to Sublime Beauty

Micronization  
Powderhandling  
Blending  
Dosing

# Micronization

Cosmetic ingredients in powder form, whether of natural or synthetic nature, need to be reduced into the microscale size range in order to achieve their best effects. Common pitfalls of cleaning issues, heat generation, high particle lower size limits (40 microns) and flake effects when using planetary ball mills or mechanical mills can be controlled with Dec's MC Jetmill®\* range of fluid energy mills.



Award winning MCOne\* – the smallest jetmill available on the market for R&D applications

The latest generation of MC Jetmill®\* systems has been developed with Computational Fluid Dynamics (CFD) analysis. This subsequently improved geometry of the grinding chamber and ring integrated nozzles have led to a very narrow PSD (Particle Size Distribution) around 1 micron (Gaussian curve).

## 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



Special inserts for very hard products



MC Jetmill\*

## Just a few compatible products:

- Titanium Dioxide
- Zinc Oxide
- Iron Oxide
- Sericite Mica
- Magnesium Stearate
- Kaolin Clay
- Ultramarines
- Chromium Oxide Green
- Boron Nitride

\* patented technology

# Powder Handling

The MC Jetmill®\* system range is supplied in accordance with the cosmetic Good Manufacturing Practices (GMP) guidelines based on ISO 22716:2007. Our Jetmills can be fabricated with different materials depending on the physical properties of the product to be micronized (stickiness, hardness, Mohs scale > 6, etc.).

	<i>Nominal diameter</i>	<i>Estimated capacity</i>	<i>Batch size</i>	<i>Process gas @ 7 bar</i>
<b>MC One®</b>	33 mm (1.3 inches)	1 g to 50 g/h	0.3 g to 50 g	0.09 Nm <sup>3</sup> /min (3.18 CFM)
<b>MC Two® Jetmill</b>	50 mm (2 inches)	35 g to 200 g/h	1.5 g to 500 g	0.19 Nm <sup>3</sup> /min (6.71 CFM)
<b>MC Jetmill® 50</b>	100 mm (4 inches)	From 0.05 to 5.0 kg/h	3 g to 20 kg	0.45 Nm <sup>3</sup> /min (15.89 CFM)
<b>MC Jetmill® 150</b>	150 mm (6 inches)	From 0.5 to 30 kg/h	200 g to 100 kg	0.73 Nm <sup>3</sup> /min (25.8 CFM)
<b>MC Jetmill® 200</b>	200 mm (8 inches)	0.5 g to 50 kg/h	1 kg to 1000 kg	1.7 Nm <sup>3</sup> /min (61 CFM)
<b>MC Jetmill® 300</b>	300 mm (12 inches)	5 kg to 200 kg/h	5 kg to 2000 kg	4.2 Nm <sup>3</sup> /min (150 CFM)
<b>MC Jetmill® 400</b>	400 mm (16 inches)	10 kg to 350 kg/h	10 kg to 3000 kg	7.1 Nm <sup>3</sup> /min (252 CFM)

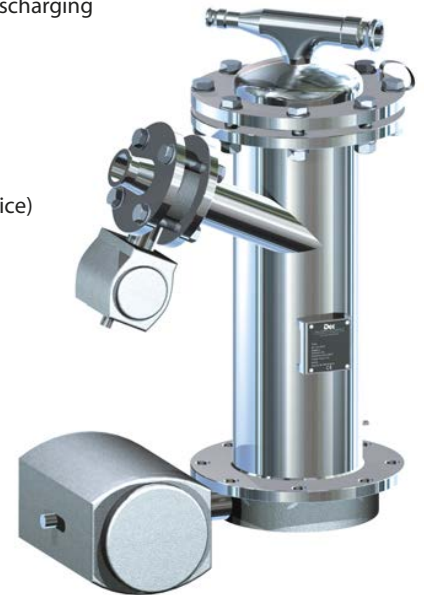
## MC Jetmill® Micronization

- Narrow Particle Size Distribution (PSD)
- Simple and rapid assembly/disassembly
- Limited number of components
- High yields
- Low energy consumption
- Sterile manufacturing
- PSD scalability with all MC Jetmill® models

Dec's proprietary PTS\* technology provides innovative solutions for automated transfer, dosing and packaging of powders by means of vacuum and pressure. The PTS\* (Powder Transfer System) with its unique filtration concept makes it the only vacuum dense-phase system that functions at optimum levels when handling ultra-fine, sticky and adhesive powders.

### PTS\* (Powder Transfer System)

- Dustfree filling and discharging
- Packaging
- Dosing
- No product retention
- No particle damage
- No demixing
- Easy to clean (CIP device)
- Mobile unit available



PTS\* – Powder Transfer System

### Technical Data

PTS	50	80	100	150	200	250	300	400
min/max conveying cap (l/h) depending on the powder characteristics and the transfer distance								
	10-200	15-500	20-800	50-2000	80-3500	120-6000	160-9000	400-16000
<b>d</b>	50	80	100	150	200	250	300	400
<b>h1</b>	400	450	500	600	600	600	600	850
<b>h2</b>	520	600	680	800	810	830	860	1150

\* patented technology

## Blending

The mixing of powders is a core task for cosmetics processing industries. The PTS\* technology also drives our fully automated PTS Batchmixer\* blending system able to mix powders to a very high blend homogeneity, while reducing overall process time compared to traditional blenders. The system ensures a dust-free environment during charging and product transfer after the blending operation. Powders with different characteristics can be mixed for applications from 2 to 5'000 liters. Product volumes may vary from 10 – 100%. The PTS Batchmixer\* has no moving parts, therefore, it supports full clean in place (CIP) capabilities.

### PTS Batchmixer\*

- Highly efficient mixing and reduced mixing times
- Filled from any container
- Full discharge by gravity or active transfer
- Load cells available
- Easy integration into production lines
- Excellent homogeneity and minimal agglomeration
- No moving or rotating parts
- Minimal maintenance
- Cleans in place



PTS Batchmixer\*

## Small Quantity Dosing

For minimum product volumes (0.5mg 100g) Dec offers the  $\mu$ PTS\*, which is characterized by high volumetric dosing accuracy. The dosage occurs within seconds producing up to 60 doses per minute. Using a contactless „on the fly“ weighing sensor for level control, the system behaves identically to a gravimetric system, however, comparably offers considerable advantages in terms of cleaning and foot print area. The great advantage of the system is that all powders can be dosed, including difficult cosmetic products with binding agents and very fine powders having a particle size of <1 micron. Options include pre-compacted and shape adapted discharge possibilities.



$\mu$ PTS\*



Pre-compacted doses for enhanced compaction efficiency

\* patented technology





Dec Group is a world class global provider of powder handling systems and is recognized as a leading expert in process containment technologies. It has been supplying the pharmaceutical, chemical, food and cosmetic industries for more than 25 years.

Dec Group is headquartered near Lausanne, Switzerland, and has a global presence with subsidiaries and agents in more than 35 countries including European subsidiaries in the UK, Ireland, Germany and Poland, together with Asian offices in India and China, as well as a North American subsidiary.

In excess of 200 companies worldwide have already successfully integrated more than 4000 Dec systems into their production sites. These include a wide range of patented products that enhance safety, hygiene, containment, reliability and productivity in powder handling.

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