

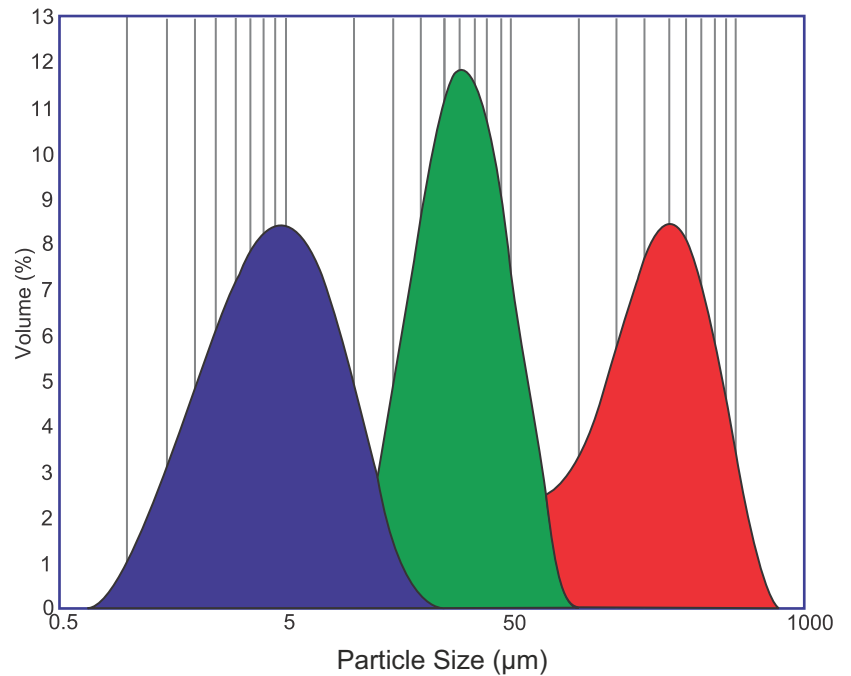
# RotoMate - I

## Lab Bead Mill

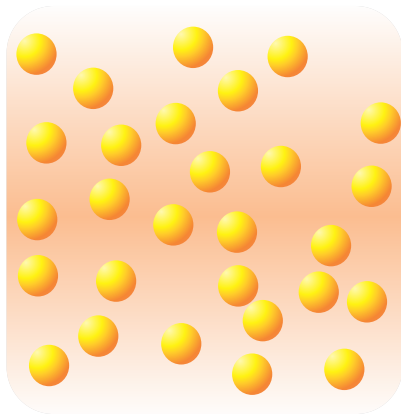
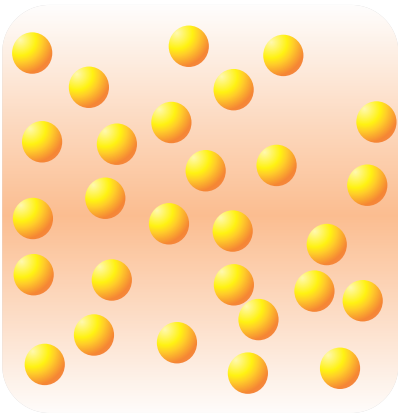
For Superfine Milling & Dispersion

**Wet Milling**

Particle Size Distribution



**Aggregates**



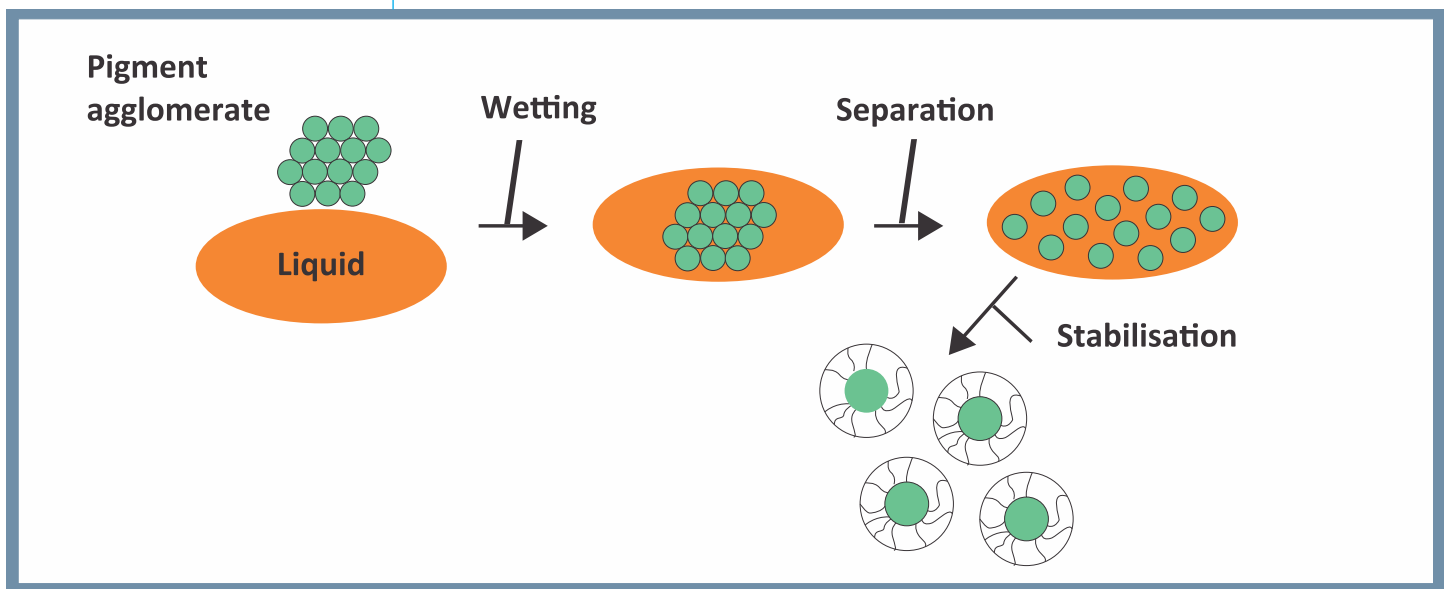
**Dispersion**



## Features

- Compact user-friendly design
- Suitable for continuous circulating operation
- Batch Size : around 750ml to 1 ltr; Grinding chamber volume: 200 ml
- Use of small grinding media of 0.5 mm for grinding down to nanometer range
- Minimal loss of product
- Significant results within short span of time
- Ideal for product development work
- Scales up operations are available

## Functions



In many technical processes, it is necessary to divide a solid material into fine particles & distribute them evenly within a liquid carrier or base. This process is generally known as “dispersion”.

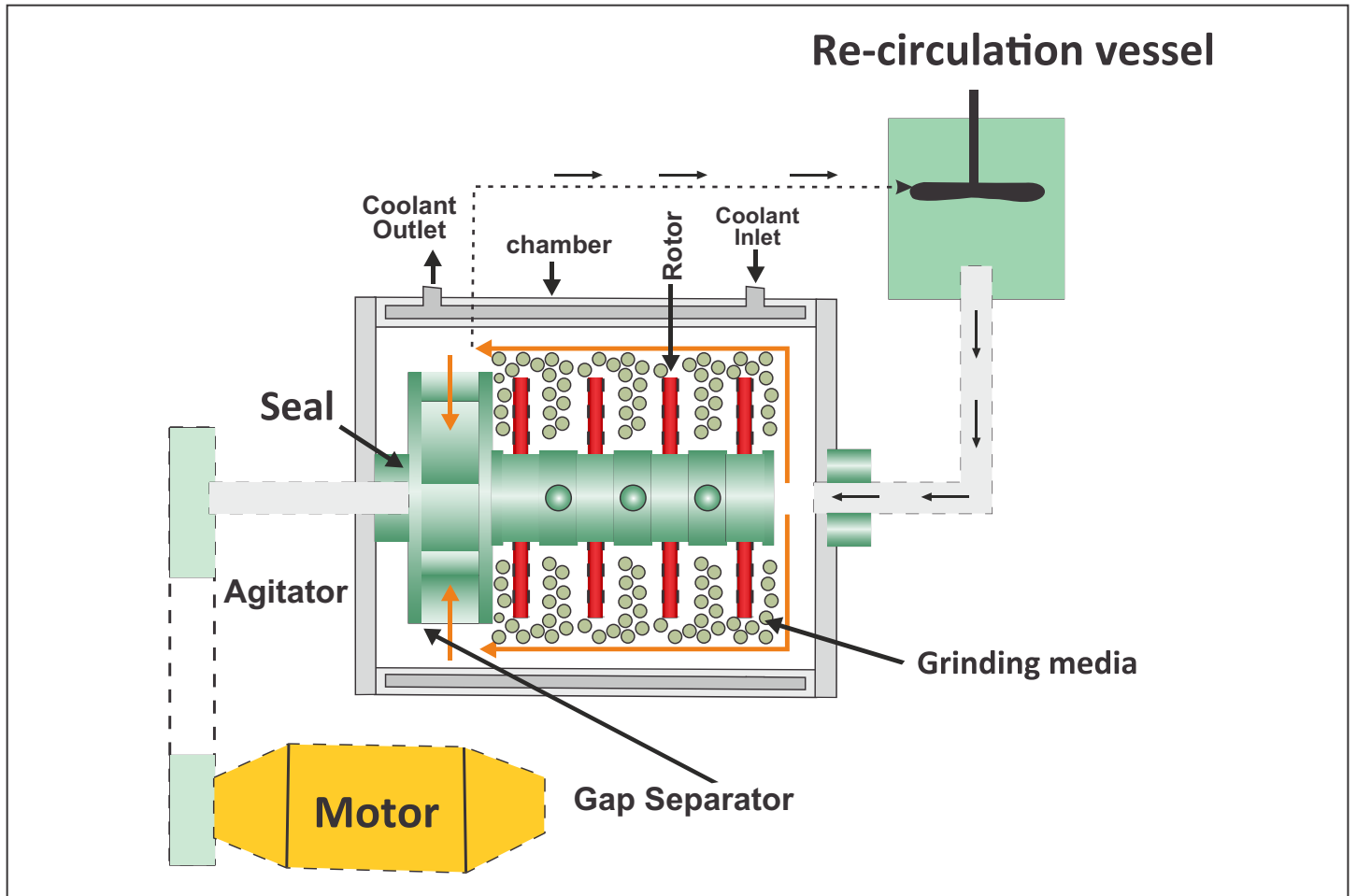
During dispersion, the adhesive forces that act between the extremely fine solid matter powder particles must be overcome. When the requirement on fineness is high or the solid matter is difficult to disperse, a dispersion with high speed stirrer or high shear mixer or homogenizer is often insufficient.

A high speed/high energy bead mills have the ability to process a wide variety of solid matters that are difficult to process. Here, the dispersion process consists of three partial steps running in parallel:

1. The wetting of the surface of the solid matter to be processed by liquid components of the milibase.
2. The mechanical division of agglomerates into smaller agglomerates & primary particles.
3. The stabilization of primary particles, agglomerates and aggregates against renewed attraction (=flocculation).

A Bead mill plays a vital part in the mechanical division & also aids the wetting process.

## Operating Principle



The dispersion system in a bead mill consists of a milling chamber and an agitator or rotor with discs or pegs; the milling chamber is filled with the grinding beads (material eg. Glass, Zircon, Oxide, Steel) & product to be dispersed.

In the milling chamber, the grinding media is kept moving by the agitator, which itself is driven by a motor & the product to be dispersed is also pumped into the chamber through peristaltic pump. As the grinding media collides & rolls about each other, the solid particles caught between them are gradually reduced in size. Each primary particle or aggregate in the finished product is the result of billions of bombardments by the grinding media & between the rotor and/or the chamber walls & the grinding media

The milled product is separated from the grinding media at the outlet by a slotted screen.

The milled product is filled in the collecting vessel & re-circulated back into the chamber via peristaltic pump while being stirred continuously in the same vessel.

## Applications

- Printing Inks
- Pigments-Organic & Inorganic
- Magnetic coatings
- Pharmaceuticals
- Cosmetics
- Mineral & Ores
- Microbiology
- Paints
- Textile Dyes
- Paper coatings
- Food - cocoa, chocolate etc.
- Pesticides / Agrochemicals
- Biotechnology-Cell Treatment
- Ceramics

## Technical Data

<b>Grinding Chamber Volume</b>	Designed Volume: 400ml   Effective Volume : 200ml
<b>Inner Chamber Material</b>	High wear resistant hard alloy
<b>Batch Volume</b>	750 ml to 1 litre
<b>Outer Chamber Material</b>	SS 304
<b>Grinding rotor material</b>	High wear resistant hard alloy
<b>Cooling Mode</b>	Cooling water passing grinding Chamber
<b>Cooling water pressure/flow rate</b>	2kg, 0.8m <sup>3</sup> /h
<b>Sealing Type</b>	Sillicon seal
<b>Mechanical sealing support</b>	SS 304
<b>Dispersing and grinding structure</b>	Turbine type Rotor
<b>Linear speed</b>	10.2 m/s
<b>Material Transportation</b>	Self-recycled
<b>Separating mode</b>	Dynamic Gap separator
<b>Grinding Media</b>	95% Zirconia Beads
<b>Zirconia Beads Specs</b>	0.5mm – 2mm
<b>Filling Quantity</b>	50% ~ 90%
<b>Main Shaft Material</b>	SS 304
<b>Product contact pipes</b>	SS 304
<b>Main Power</b>	1.5 kw motor
<b>Power Supply</b>	220V/50Hz
<b>Speed</b>	0 to 2840rpm
<b>Dimension</b>	580(L) x 210(W) x 270(H)
<b>Weight</b>	Approx. 60kg

Other Laboratory & Production Bead Mill available as Per Customer Requirement

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