日清エンジニアリング

P&P
Creates a new world
Powder Technology &
Project Engineering

Mechanically-driven pulverizer

Super Rotor / Blade Mill

For fine pulverization of resins, elastic or fibrous material, etc.

BM-25

https://www.nisshineng.co.jp

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High-efficiency fine pulverization from centimeter level to micron level is realized with a high speed vortex generated in the narrow gap between the fixed liner and the rotor with unique shapes.

Important role of Super Rotor/Blade Mill

- Ultrafine Pulverizing
- Low Cost Operation
- Narrow Particle Range
- Ease of Particle Size Adjustment
- For fine grinding of fibrous and elastic materials
- Solid results from continuous production

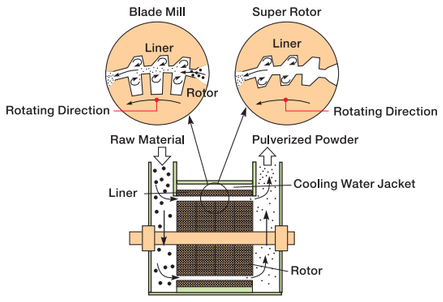
Overview

Super Rotor / Blade Mill is equipped with a unique pulverizing rotor, which enables long-term stable and low-cost operation. Fine powder pulverization can be achieved without excessive pulverization. The pulverized particle distribution is very narrow.

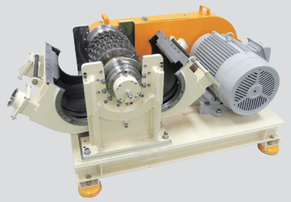
Structure and features

High speed swirling action created by the proprietary designed grooves on the rotor and the liner.

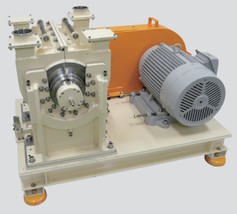
Raw material loaded into the equipment passes the gap between the liner and the rotor (blade), or pulverization zone. The high-speed vortex generated by the rotor and the liner with unique groove shapes draws in the raw material powder and pulverizes it. The vortex forms a flow in which the powder remains in the pulverization zone for a long period of time, accelerating fine particles. Fine pulverization is also possible for “fibrous material” and “elastic material” for which it was previously difficult. Nisshin Engineering also offers a range of abrasion resistant models using cemented carbide on the powder contact area for pulverizing abrasive materials.



Equipment Photos



BM-25(with the case open)



BM-25/SR-25

Examples of pulverization

Ability to pulverize various types of powders

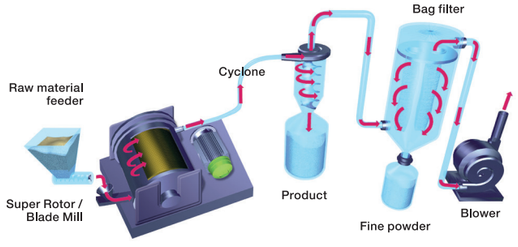
Organic matter	Minerals	Inorganic matter	Foods	Others
Toner	Calcium Carbonate	Carbon	Fruit seeds	Wood
Powder Paints	Coal	Graphite	Dehydrated vegetables	Rubber
Plastics etc	Mica etc	Pigment	Spices	Waste plastics etc
		Metal Oxide etc	Grain peel etc	

Raw Material	Model	Throughput [kg/h]	Raw Material Size		Product Size	
			D_{50} [μm]	D_{100} [μm]	D_{50} [μm]	D_{100} [μm]
Ion Exchange Resin	SR-15	2	-	1,200	9.6	40.3
Black Toner	SR-25	10	-	2,000	6.9	18.9
Hard Carbon	SR-25WC	10	26	88	9.8	26.2
Activated Carbon	SR-25WC	50	-	500	29.6	104
Graphite	BM-25WC+TC-25III	40	-	2,000	6.2	37.0
Row coke	BM-25	40	-	2,000	10.9	52.3
Coke	BM-50WC	100	-	2,000	8.4	44.0
Wheat Flour	SRC-25	50	63.1	209	16.5	88.0
Epoxy/Polyester Powder Paints	SR-25+TC-40	120	-	20,000	19.0	62.0
Color Toner	SR-15+TC-15	2	-	2,000	8.9	20.0
Black Toner	SR-75+TC-40	95	-	2,000	7.9	16.0
Wheat Bran	BM-15	1	-	2,000	10	100
Buckwheat	BM-25	8	-	500	7.8	31
Scallop shell	BM-25	37	-	4,000	10.8	100
Carboxy cellulose	BM-15	0.3	-	5,000	18.3	88
Seed coat of grape	BM-25	10	-	10,000	18.5	176
Wood waste	BM-25	10	-	2,000	27.3	249
Cinnamon	BM-25	47	-	10,000	18.4	88
Glass fiber reinforced plastic	BM-15	4	-	1,000	7~18	62
PVC pipe	BM-25	48	-	5,000	-	710
Silica gel	BM-50	300	-	2,000	9.6	26

Pulverization system flow

The grooves made with a proprietary design create a swirling action resulting in finely pulverized powder.

The blower creates negative pressure within the Pulverizer, causing the raw powder to pass through the gap between the rotor and the liner. The swirling action created by the proprietary grooves is applied to the powder and pulverizes it. The finished powder is collected in the cyclone and bag filter.



Lineup

Models	Throughput[kg/h]	Dimensions W×D×H[mm]	Weight[kg]	Revolutions[min^{-1}]	Air Flow Rate[m^3/min]	Motor Horse Power[kW]
SR-15 / BM-15	1 ~ 25	850 × 400 × 480	165	~ 15,000	0.5 ~ 3	3.7 ~ 5.5
SR-25 / BM-25	10 ~ 250	1,295 × 835 × 845	800	~ 12,000	4 ~ 8	11 ~ 18.5
SR-50 / BM-50	25 ~ 500	2,090 × 1,160 × 1,340	3,000	~ 5,500	8 ~20	30 ~ 45
SR-75 / BM-75	50 ~ 1,000	2,870 × 1,430 × 1,613	5,000	~ 4,000	15 ~30	55 ~ 75