

# Superfine Particle Crusher / Super Hybrid Mill

# SUPER HYBRID MILL

## Features

### ●Continuous Crushing is Possible

High-speed continuous production of fine and superfine particles of the grades required, without removing unwanted coarse particles from the crusher.

### ●Dry Crushing Method

Dry crushing obviates the need for water processing, thereby simplifying installation of attached equipment.

### ●Production of high purity powders.

Even when using fine ceramics that come into contact with the inside of the classifier and the liner and rotor of the crusher, a high degree of product purity can be expected.

### ●Controlling the particle range

By using the PLC to control the revolutions of the rotor and the air flow rate of the blower, and by changing the feed rate of the raw material, particle size can easily be controlled from the micron to sub-micron range.

### ●Large range of size for the feed

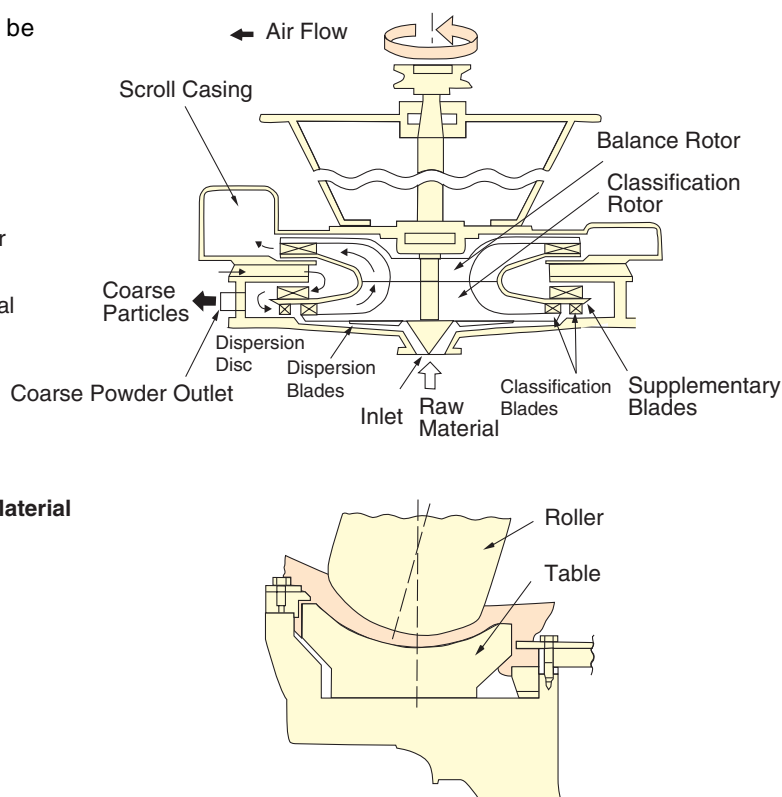
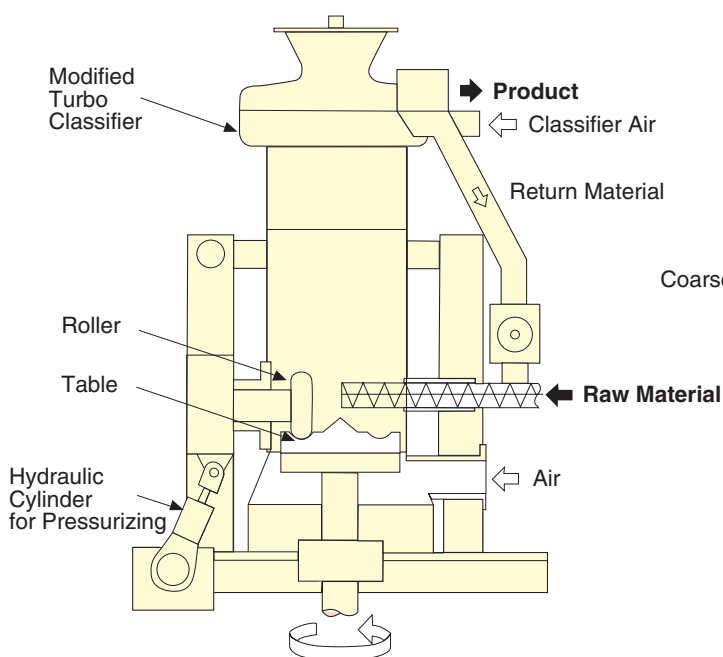
The raw material can vary from the mm size at 3 mm (small mill) to 10mm, securing optimum crushing efficiency.

### ●Few power consumption for considerable energy savings

Powder in the crushing zone is thoroughly distributed and then introduced into the classifier allowing maximum efficiency of the classifier. The high efficiency of classification reduces the amount of fine powder returned to the crushing zone, reducing energy loss in the crushing area.

### ●Low-temperature processing

The efficiency of pulverizing reduces heat build-up and water coolant is not necessary. The finished powder is maintained at approximately 40°C.



**Dry continuous process for the mass-production of sub-micron superfine powders. A joint-development in which the powder-technologies of Ishikawajima-Harima Heavy Industries Co., Ltd. and Nisshin Engineering Inc. are incorporated.**

New material development and formation into products is completed when the super-fine powder is continually produced using the dry process. Even without the use of an outside classifier (2nd classifier), 100% recovery is possible. An epoch-making innovation which assures high-efficiency crushing coupled with low power consumption and substantial energy savings.

**1989**  
**Japan Industrial Newspaper**  
**10th new product award**  
**recipient**

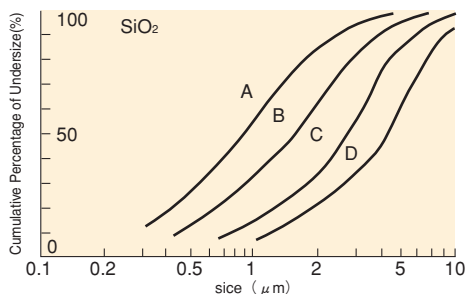
**Pulverizing Example**

**Pulverizing ability which covers the span from micron size to sub-micron size!**

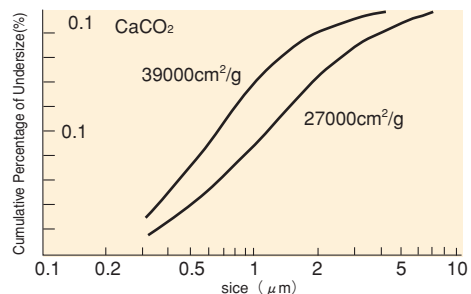
The combination of an efficient Roller Mill and a precision Classifier allows large quantities of sub-micron particles to be produced.

	Model	Throughput (kg/h)	Raw Material Size		Product Size	
			D <sub>50</sub> (μm)	D <sub>100</sub> (μm)	D <sub>50</sub> (μm)	D <sub>100</sub> (μm)
Aluminum-Chromium	SH-150	2.5	19.4	104	2.97	6.54
Sand	SH-150	3.5	—	5000	1.57	5.5
Mineral	SH-150	2.0	20.1	88	1.0	3.8
Mineral	SH-600	50	5.0	88	1.25	6.54

**Size Distribution Example**



Data of Sedigraph  
 Specific Surface Area 30000cm<sup>2</sup>/g Mean Diameter 0.87μm (A)  
 Specific Surface Area 22000cm<sup>2</sup>/g Mean Diameter 1.6μm (B)  
 Specific Surface Area 14000cm<sup>2</sup>/g Mean Diameter 2.9μm (C)  
 Specific Surface Area 10000cm<sup>2</sup>/g Mean Diameter 4.3μm (D)



Specific Surface Area 39000cm<sup>2</sup>/g Mean Diameter 0.68μm  
 Specific Surface Area 27000cm<sup>2</sup>/g Mean Diameter 1.3μm

**Specifications** Material

**The Super-fine crusher series for large quantities.**

The SH-150 located at the Test Center can be used for powder testing and scale-up testing. Small-scale production (few kg/h) and sample production are also possible.

Model	Throughput	Applied Classifier
SH-75	~4kg/h	TC-15
SH-150	~15kg/h	TC-25
SH-600	~400kg/h	TC-100-TC-110
SH-800	~800kg/h	TC-120-TC-130



SH-150