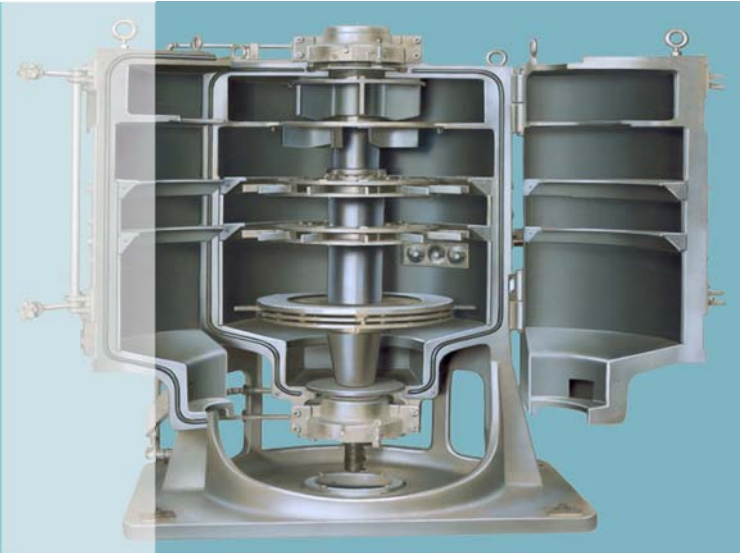


Raymond® Vertical Mill

For extreme fineness

- Uniform particle size
- Unit swings open easily for inspection and maintenance
- Easy replacement of wear parts
- Compact design requires minimal floor space
- Available with integral flash drying or water-cooled grinding



The Raymond® Vertical Mill is a specialized unit intended to pulverize material in the extreme fineness range. The principle of integral air classification, originally developed by Raymond®, has been applied with outstanding success to this mill and as a result a great number of materials can be produced in the lower micron sizes with a very minimum of oversize.

Principle of operation

The most distinguishing feature of the vertical mill is the straightforward manner of operation. One vertical shaft carries all the rotating parts within the mill. On top is the fan which produces the required air flow. Below this are the two banks of whizzers which do the classifying, and below these are the hammers or accelerating elements.

The feed enters the mill through the side mounted variable speed screw feeder between the hammers and the whizzer classifier. The airflow enters below the grinding chamber and carries pulverized material vertically, combining it with newly introduced feed then to the classifier where any acceptable material is removed from the mixture prior to being ground. The classifier's high speed cyclonic action concentrates the

coarser fraction along the walls where it falls back to the grinding chamber for further size reduction. The pulverizing action combines impact of the hammers and attrition with the grinding chamber walls. Properly sized material is then transported to the product collection system. The system airflow may recycle through the mill with only a portion vented in many applications, or it operates as a once-through system and all the air is vented when the feed material is heat sensitive.

Particle size range

In many cases, the Raymond® mill operates in the fluid-energy mill fineness range. The ultimate crystalline particle size of the particular material handled has a definite effect on the fineness and determines the highest particle size range available. Many products can be reduced to 95% to 99% passing 15 to 20 microns while some products with smaller crystalline structure can be ground as fine as 95% to 99% passing 5 to 10 microns.

Range of uses

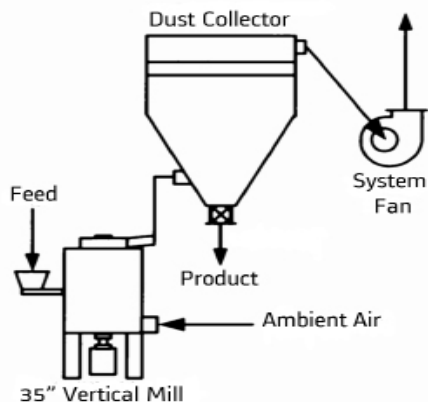
The mill is well adapted to grinding a substantial number of non-metallic minerals and manufactured materials in the extreme fineness range. Typical materials processed include graphite, limestone, cocoa powder, marble, kaolin, sugar, talc, certain synthetic resins, organic and inorganic colors, phosphate chemicals, pharmaceuticals, food products, and a variety of chemicals

Mill sizes

Available in two grinding chamber sizes, 18in / 457mm and 35in / 889mm, the mills are similar in operation and construction. Both are exceptionally compact requiring a small amount of floor space for their power transmission and product surface area capacities.

Preparation for pulverizing

Materials to be ground should be pre-crushed to a maximum of ¼ in / 6mm in size and with some materials the best results can be obtained starting with a maximum of 10 to 20 mesh material.



Raymond® 35" Typical Vertical Mill Performance

Materials	Fineness		Rate	
	%Passing	Size	lb/h	kg/h
Alumina Trihydrate	90	10 microns	1400	630
Cocoa 18% butterfat	99	200 mesh	2400	1100
Talc	95	200 mesh	3500	1600
Sugar	99.9	20 microns	2500	1100

Raymond® Vertical Mill Performance

Mill Size	18	35
Capacity Factor	1	7
Power-hp	20-25	150-220
Airflow – cfm -m ³ /h	1000 1700	3500 5900

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