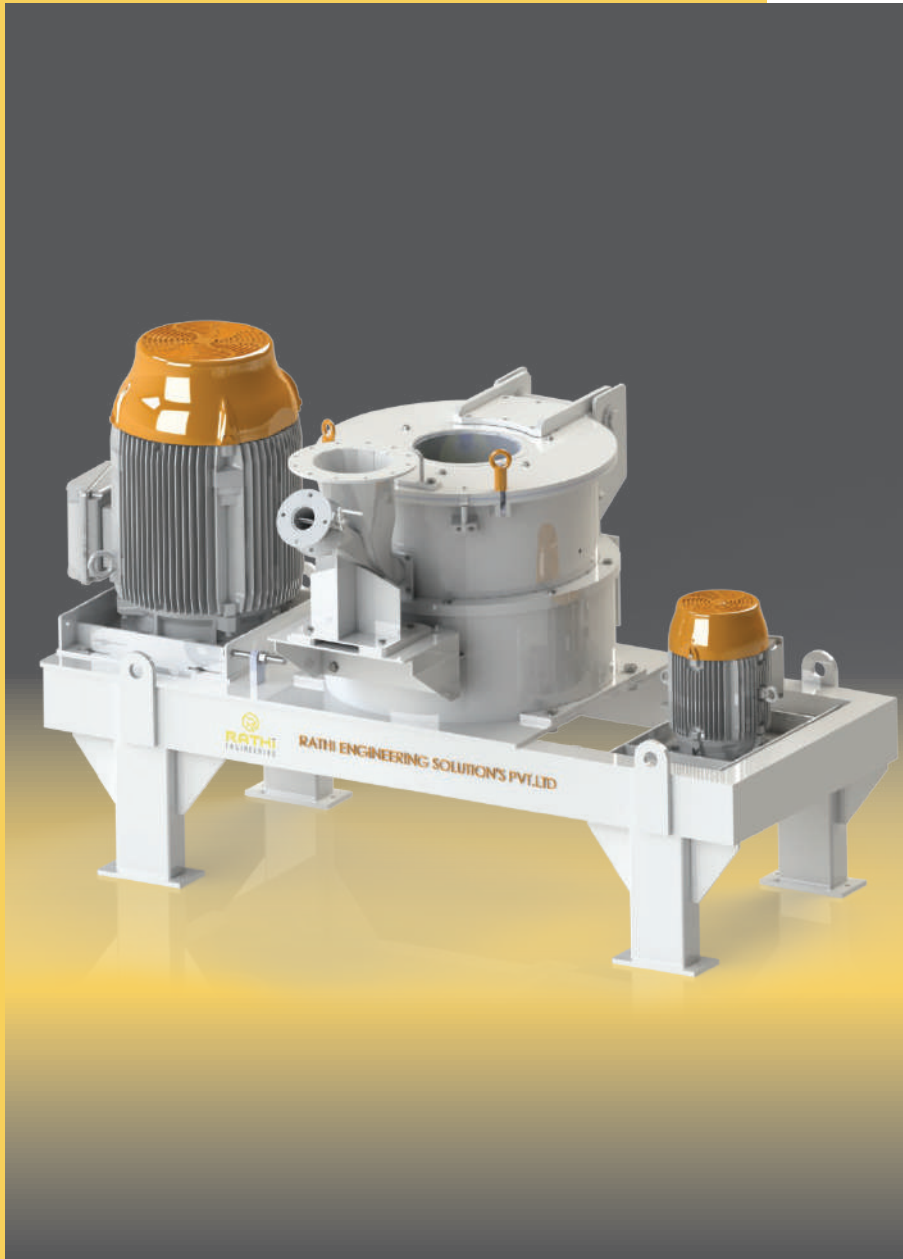


# RATHI ACM

Air Classifying Mill



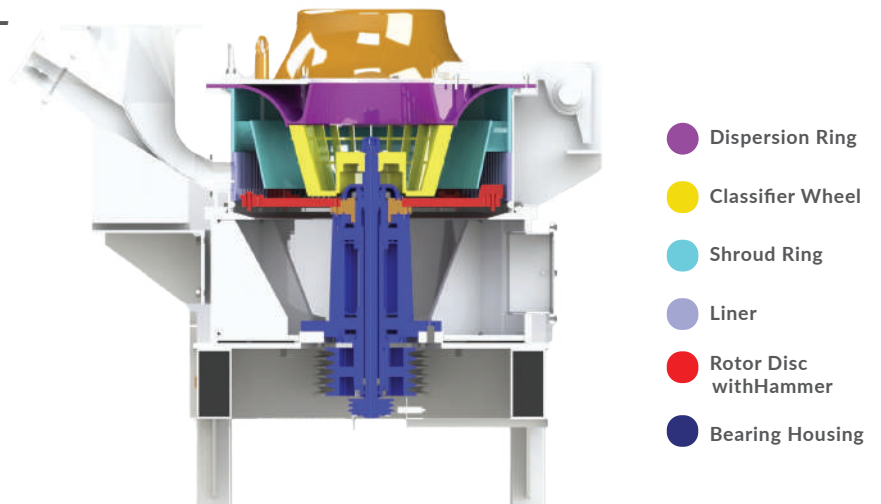
**RATHI ENGINEERING SOLUTIONS PVT LTD**

3rd Floor, Shivkrupa Building, Sakal Nagar, Pune 411007

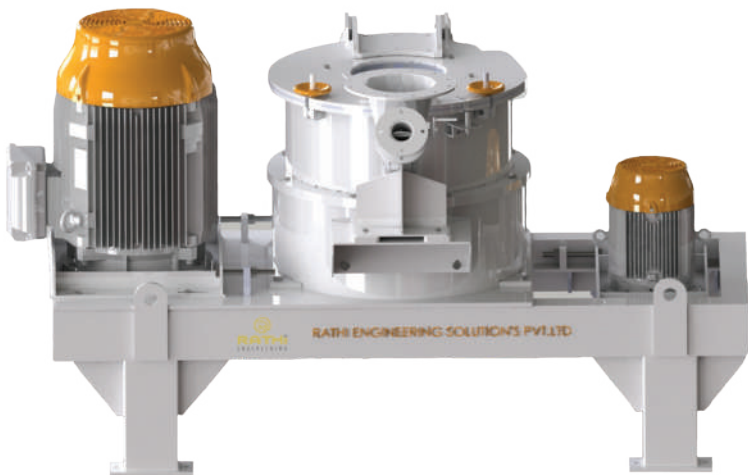
# SINGLE STAGE PROCESS FOR GRINDING AND CLASSIFICATION

## RATHI ACM - AIR CLASSIFYING MILL

Air Classifying Mill is most exciting features of Rathi Engineering Solutions Pvt Ltd Product Family. Air Classifying Mill is a fine-impact-mechanical mill with inbuilt dynamic air classifier, ground particles of the required fineness are immediately discharged out of the mill with help of the air. This allows for efficient grinding or minimizes overgrinding of the material; this model provides a wide range of product particle size up to 99% passing 5-10 Micron.



Air Classifying Mill – Cross-Section



Air Classifying Mill – Model 100

### DESIGN FEATURES:

- Single stage for grinding orz classifying
- Particle size control mechanism in Narrow bandwidth
- Excellent particle top size control by Dynamic classifier with help of VFD.
- Suitable to grind feed material having Mohs hardness up to 5
- Designed to deliver low product temperature
- Wide range of Application field – Foods, Spices, Chemical, Mineral, Pharmaceutical & Many more.
- Mills available from Lab scale model 5HP to 100 HP production models.
- Robust design with easy to clean facility with less down time.

### Options & Accessories:

- Construction in mild steel, Stainless Steel grade- SS304, SS316, or also customised as per customer requirement.
- Construction available for Explosive materials grinding or Explosion pressure up to 11bar.
- Construction available for Independent or coaxial drive
- Construction available for Temperature control by Jacketing.
- Various hammer design or material of construction configurations
- Various classifier design or material of construction configurations
- Bearing vibration or temperature monitoring mechanism.



# LAB SCALE TO LARGE PRODUCTION MODELS

## WIDE MODEL RANGE OF RATHI ACM

Rathi ACM is available in different model sizes to enhance performance in a wide range of applications.

Rathi ACM Model	Main Motor HP	Classifier Motor HP	Rotor RPM Max.	Classifier RPM Max.	Scale Up Factor
5ACM	5	1	9000	5400	0.5
10ACM	10	1.5	7000	4000	1
10ACM ID	10	1.5	7000	5000	1
15ACM	15	1.5	7000	4000	1.5
15ACM ID	15	1.5	7000	5000	1.5
30ACM	30	5	4600	2500	2.5
30ACM ID	30	7.5	5000	3000	3
40ACM	40	5	4600	2500	3.5
40ACM ID	40	7.5	5000	3000	4
60ACM	60	12.5	3000	2000	5
60ACM ID	60	15	3500	3000	5.5
75ACM	75	12.5	3000	2000	6.5
75ACM ID	75	15	3500	3000	7
100ACM	100	12.5	3000	2000	9
100ACM ID	100	15	3500	3000	9.5

*Data provided in this chart is a guideline only or does not represent a performance guarantee  
\*ID - independent drive.*

### Our Promise:

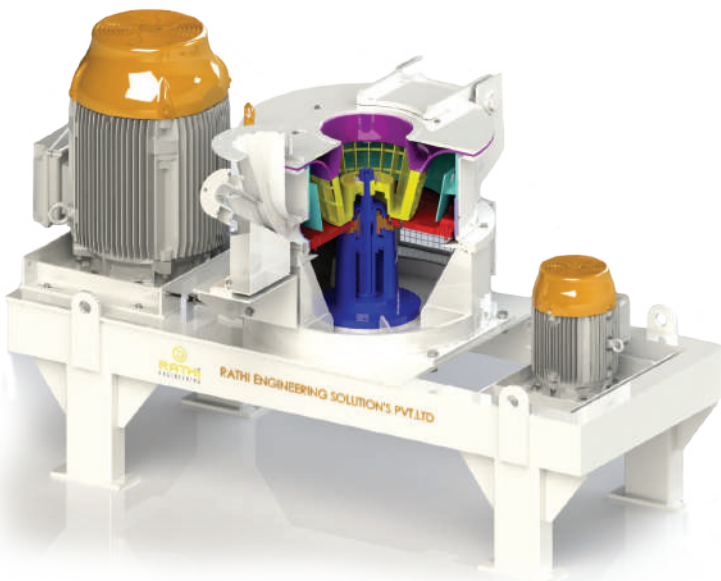
At Rathi Engineering, we work diligently to ensure that our products are made to deliver maximum performance, dependability or durability. We strive to deliver European grade products at optimized or affordable prices. All Rathi Engineering equipment is inspected or tested to meet strict standards before it is availed to our customers. Rathi ACM's come with our pledge of performance or guaranteed dependability.

## WORKING PRINCIPLES

The material to be ground is conveyed to the grinding chamber through the feed hopper by the feed screw or by suction feed method. In case of feed screw speed of the feed screw is infinitely variable. In case of suction feed system, a feed injector is provided or above feed injector RAL of variable speed is provided to control the feed rate. The pin type or bar type hammers mounted on the rotor disc provide high impact to the material at high velocity, thus causing disintegration of the material.

The primary Air Stream following up the inner wall of the grinding chamber carried the material particles through the dispersion ring into the separator wheel. In this section each ground particle is effected by two forces opposite to each other; the suction force caused by the flowing air or the centrifugal force caused by the rotation of separator. If the suction force is prevailing, the material particle is discharged with the primary air streams as finished product or if the material particle is not yet fine enough the centrifugal force prevails. it will be rejected by the separator or thrown into the grinding zone by means of the secondary air stream. The separator is fitted with a variable speed drive for different speeds or the drive of the mill rotor is of fixed speed. Fine particles passing through the separator are conveyed by the suction created by the fan on discharge side. These fine particles are collected efficiently in dust collector or discharged through Rotary Air Lock Valve.

The particle size of the ground material discharged from RATHI ACM is determined by the relationship of the force exerted upon the particles by velocity of the air flowing through classifier wheel to opposing centrifugal force exerted upon the particles by the rotation classifier wheel.



The fineness of the finished product can be increased by following means:

- A. Increasing the speed of classifier wheel
- B. Reducing the air volume in grinding chamber with help of inlet damper of centrifugal fan.
- C. Using difference configuration of Liner.
- D. Increasing rotor speed Suitable selection of RATHI ACM models for individual materials with respect to desired fineness must be determined by Trials in Rathi Lab. Rathi Engineering Solutions Pvt Ltd can carry out different trials in their well-equipped laboratory at Bhosari factory,Pune.

## WIDE RANGE OF APPLICATIONS

RATHI AIR CLASSIFYING MILL has wide range of applications such as Foods, Spices, Pharmaceuticals, Chemicals, Minerals & Many more.

Material	Feed Material	Milled Material
Zink Stearate	2 mm	98% (-) 20 $\mu$
Sugar	20 mesh	100% (-) 200 mesh
Zink Oxide	100 mesh	99.5% (-) 325 mesh
Calcium Stearate	2 mm	98% (-) 325 mesh
Pulses (Chana Dal)	2-3 mm	99.9% (-) 200 mesh
Pulses (Udad Dal)/Rice	3-4 mm	98% (-) 500 $\mu$
Wettable Pesticides	10-20 mesh	98% (-) 400 mesh
China Clay	80% (-) 75 $\mu$	85% (-) 2 $\mu$
Phenolic Resin	2 mm	99% (-) 200 mesh
Paints Chips	10-15 mm x 1.2 THK	99% (-) 120 $\mu$
Powder Coating	10 mm X 1.2 THK	50% (-) 25 $\mu$
Soya Flakes	5-10 mm	95% (-) 100 mesh
Acephate	10-20 mesh	99% (-) 400 mesh
Graphite	2 mm	99% (-) 10 $\mu$
Pigment	5-10 mm	98% (-) 325 mesh
Dry Calcium Phosphate	5 mm	98% (-) 350 mesh
Tamarind Seed	3-4 mm Cut Piece	95% (-) 350 mesh
Food Colour	3-4 mm	98% (-) 400 mesh
PPT Silica	4-5 mm	95% (-) 2 $\mu$
Aluminium Hydrate	10-20 mesh	95% (-) 5 $\mu$
TBLS PVC Stabilizer	5-10 mm	100% (-) 17 $\mu$
Red Oxide	2-3 mm	99% (-) 400 mesh
Rice Proteins	1 mm & Less	95% (-) 300 mesh
Ammonium per Chlorate	320 $\mu$	D50 45-60 $\mu$



## MAINTENANCE & CLEANING

Designed for continuous size reduction on a wide range of applications, the Rathi ACM is the most cost-effective & durable industrial workhorse on the market. Like any machine however, the Rathi ACM requires routine inspection & maintenance to continuously operate at peak performance. Preventive maintenance carried out at systematic intervals as well as internal inspections for wear or tear will ensure longevity of the mill.

RATHI ENGINEERING SOLUTIONS PVT LTD keeps all spare parts of Air Classifying Mill in stock, hence delivery of the spare parts can be done within 24hr from Rathi factory.

# MILL SYSTEM AND ACCESSORIES

Rathi Air Classifying Mill integrates grinding, classifying, conveying or collection process.

Rathi Air Classifying Mill is prime equipment in milling system, but to make in operational accessories equipment's/components are required as given below:

## 1. Feeding Device:

Suitable Rotary air lock valve or Screw feeder is used to feed the material to mill in controlled manner.

## 2. Product Collector:

Bag filter of sufficient filter bags is used to separate desired product from Conveying air or collect the same at bottom of product collector discharge nozzle.

## 3. Discharge Device:

Suitable Rotary air lock valve is used to discharge desired product from product collector.

## 4. Prime Mover:

Centrifugal Fan is used to create air flow or suction in mill chamber or conveying desired product in product collector.

## 5. Interconnecting ducting:

Adequate size of interconnecting ducting is used to connect system equipment's / components in order to convey desired product.

## 6. Control Panel:

Control Panel with necessary interlocks is used to operate, monitor or control performance of system.



# KEY COMPONENTS

## Rotor & Hammer

Rotor is circular disc, on which hammers is fitted by screw or dowel pin. Both are fitted in mill grinding chamber, Rotor disc with replaceable wear resistance plate is also available for abrasive product grinding. Wear resistance plate can be easily removed or replaced.

Hammer configurations are as below

1. Bar Hammers - used for fine or finer product
2. Pin Hammers- used for coarser product
3. J Hammers- used for grinding fibrous product

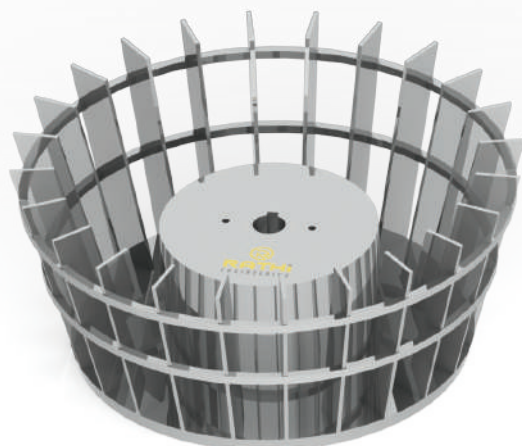


## Shroud Ring

Shroud ring is used to make two separate zone, one is grinding zone or other is classification zone, also used to guide flow mixture of conveying air + product near classifier wheel or back to grinding zone after rejection of product from classifier wheel.

Shroud ring configurations are as below

1. Shroud ring with Baffle - used for Non-sticky product
2. Smooth Liner with Pin-used for sticky product

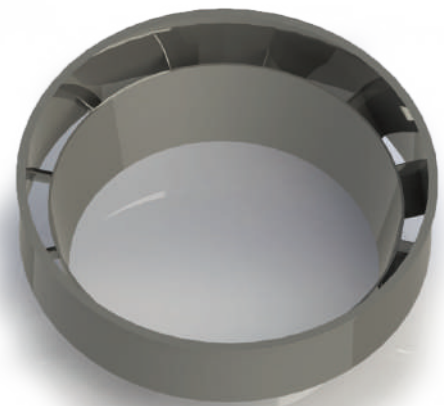


## Liner

Liner is used for efficient grinding of material, fitted in mill grinding chamber.

Liner configurations are as below

1. Multiple deflector Liner- used for finer product generation
  2. Smooth Liner-used for coarse product generation
- Based on feed material abrasiveness, different MOC of liners will be offered.



## Classifier Wheel

Classifier wheel is used to separate grinded product into desired fine product or coarse product.

Classifier wheel configurations are as below

1. Classifier wheel with straight blades-used for coarse or fine product
2. Classifier wheel with inclined blades-used for finer product

Different configurations of classifier wheel with numbers of blades is available as per product characteristic or fineness.

## RATHI ADDITIONAL PRODUCT RANGE



### RATHI HEAVY DUTY CRUSHERS

Heavy Duty Crusher (HDC)  
Extra Heavy Duty Crusher (2 HDC)  
Super Heavy Duty Crusher (SHDC)



### RATHI UNIVERSAL MILL/PIN MILL

BT-130  
BT-220  
BT-450  
BT-800



### RATHI HAMMER MILLS

RHM-12  
RHM-24  
RHM-32  
RHM-36



### RATHI - DELUMPERS

DL-200  
DL-500  
DL-750  
DL-1000



### RATHI MICRON SEPERATORS

MSS-1  
MSS-2  
MSS-3  
MSS-4  
MSS-5



### RATHI MICRO PULVERISERS

1SH/1W  
2DH/2W  
3TH/3W/3SCB  
4TH/4W/4SCB



### RATHI AIR SWEEP MILLS

ASM-15  
ASM-25  
ASM-40



### RATHI ROTARY AIRLOCK VALUE

RAL AL-150 TO  
RAL AL-1000



### RATHI RIBBON-BLENDERS

U-05 TO U-100



HEAD OFFICE : 3rd Floor,  
Shivkrupa Building, Sakal Nagar, Pune 411007



[www.rathiengineering.com](http://www.rathiengineering.com)



FACTORY: 'S' block, W-153, MIDC,  
Bhosari, Pune 411026



[info@rathiengineering.com](mailto:info@rathiengineering.com)



R & D FACILITY : 'S' block, W-153, MIDC,  
Bhosari, Pune 411026



[www.linkedin.com/company/  
rathi-engineering-solution-s-pvt-ltd](http://www.linkedin.com/company/rathi-engineering-solution-s-pvt-ltd)



Delhi, Mumbai and Patna



020 25656182 | 020 25656183