



# Teckru

Mikro ACM Classifier Mills  
for Cocoa



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# Mikro ACM Classifier Mill

## The most versatile mill for fine and ultrafine grinding

In 1962 the Mikro ACM came on the market as the first air classifier mill and since then it has been continuously developed further and adapted to market needs. It is suitable for the size reduction of various products for all industries.

- Chemicals
- Food
- Metal
- plus COCOA POWDER
- Minerals
- Pharmaceuticals
- Powder coating

The first thing catching the eye is the ACM's compact and clear arrangement of the elements. The combination of impact grinding with integral dynamic classification offers the perfect solution for fine and ultrafine milling of soft and medium soft products, up to a hardness of 4 Mohs.

## Important Features

- Grinding and classifying in one machine
- Low energy requirements per kg of product, reducing operating costs
- Low temperature increase of the product
- Steep particle size distribution
- Sharp classifier cut point, instantly adjustable
- Easy cleaning and maintenance, high accessibility
- Compact space saving design
- Pressure shock and wear resistant, up to PSR 11
- Smooth grinding, low noise emission
- Appropriate for combined grinding and drying



Above; View of the classifier wheel.

Below; The classifier wheel and the shroud ring. In the lower right one can see the profile of the liner.

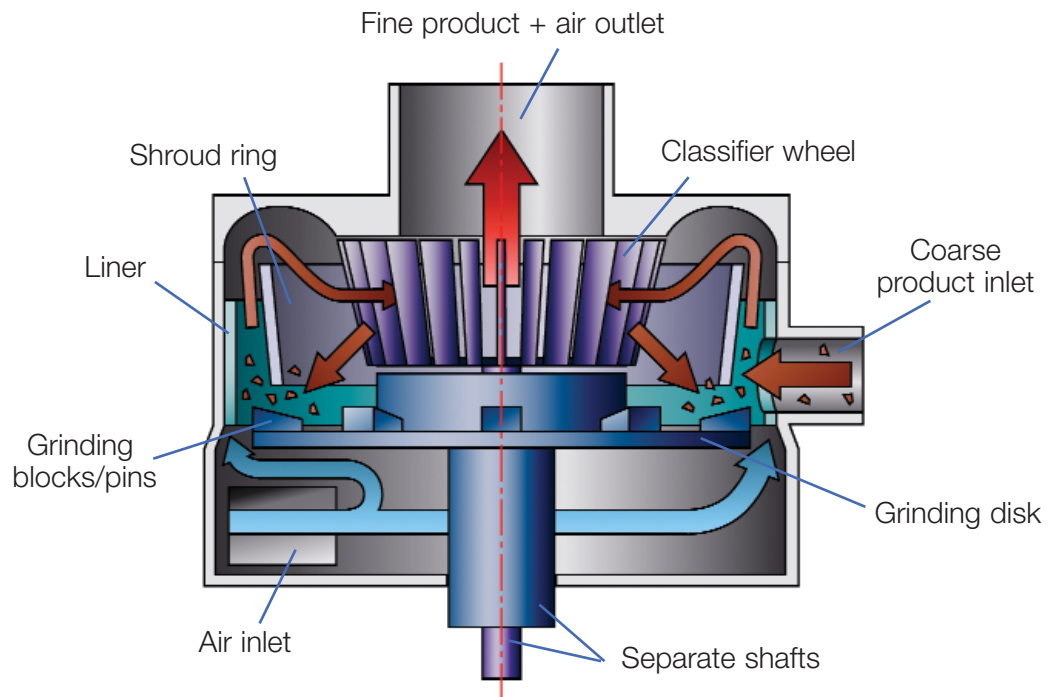


Cover; Mikro ACM 150 classifier mill.

# Mikro ACM operation

## Principle of operation

The product is fed into the mill pneumatically. Size reduction takes place by the impact of material particles on the rotating grinding surfaces and on the fixed liner. With a striking edge velocity up to 140 m/s, finenesses of  $D_{97} = 10 \mu\text{m}$  are achieved. The cooling, conveying and classifying air is drawn through the mill by the downstream fan, it entrains the metered feed material which then passes the blades of the shroud ring. The characteristic feature of the Mikro ACM is the integral dynamic classifier.



The air/product mixture is uniformly distributed by the blades to the rotating classifier. Due to two opposing forces and the different masses of the material particles the separation into coarse and fine fraction is achieved in the classifying section. Those of high mass are thrown away from the wheel by centrifugal force. The rejected particles return to the milling zone. The fine material is carried with the air through the classifier to the outlet connection. The cut point is adjusted by means of the classifier speed and is infinitely variable even during grinding operation.

As both the grinding disk as well as the classifier drive are speed controlled. The speed and consequently, the particle size distribution of final product can be infinitely adjusted during grinding operation.

## Grinding tools

For various size reduction tasks and depending on product features optimum equipment is chosen. Type, shape and number of grinding tools influence the grinding results. The following tools are available:

- Grinding pins
- Grinding blocks, smooth
- Grinding blocks, notched

# To fit your requirements

## Mikro ACM Series

The flexible Mikro ACM Series offer the perfect solution for every application. 19 mill types of the Mikro ACM are available ranging from 3 to 450 kW. Grinding chamber and grinding components as well as air quantity, classifier resp. grinding disc speeds are exactly matched together and allow milling results being transferred from one mill size to another.

ACM Mill Size	30	40	50	60	75	100	120	150	200	300	400	500	600
Motor Rotor [kW]	22	30	37	45	55	75	90	110	160	250	315	375	450
Motor Classifier [kW]	5.5	7.5	7.5	11	11	15	15	18.5	37	45	75	90	110
Speed mill [rpm]	4320	4320	3295	2625	2625	2100	2100	2100	1850	1650	1400	1400	1400
Speed Class. max. [rpm]	2920	2920	3250	2650	2650	2400	2400	2400	2200	2000	1860	1860	1860
airflow intake [m3/h]	2700	3600	4500	5400	6750	9000	10800	13500	18000	27000	36000	45000	54000
length [mm]	1750	1750	1750	2450	2450	2850	2850	2850	3310	3740	4470	4470	4470
width [mm]	700	700	700	1060	1060	1200	1200	1200	1300	1500	1830	1830	1830
height [mm]	1300	1300	1300	1587	1587	1731	1731	1731	2180	3010	2010	2010	2010
weight [kg]	900	1000	1800	2400	2500	2800	2800	3000	9500	12500	16800-19200		

\*Smaller Mill sizes (2, 5, 10, 15, 20, 25) are also available.

## Standard or additional wear protection

Those grinding chamber parts in contact with the product consisting of the grinding disk, shroud ring, liner and classifier wheel are made of cast iron, mild steel or stainless steel. The grinding surfaces can be treated and polished as per request. The grinding chamber can also be supplied in pressure shock-resistant design up to 11 bar.

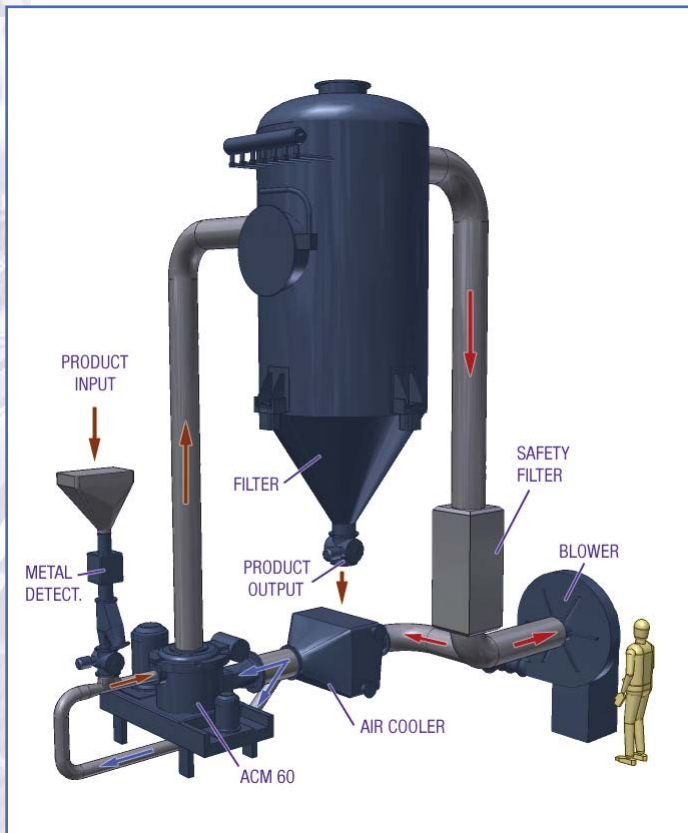
For grinding abrasive products, the grinding surfaces can be protected by the use of wear resistant materials. This wear protection is available for the following mill parts of ACM 10 to ACM 150:

- Product inlet
- Grinding disk
- Grinding blocks
- Grinding chamber cover
- Liner
- Grinding pins
- Classifier wheel
- Product outlet

For each application we work out a special wearing protection concept, whereby numerous special materials are at disposal.

- Nodular graphite iron
- Hard metal
- Aluminium oxide
- HARDOX®
- Cast basalt

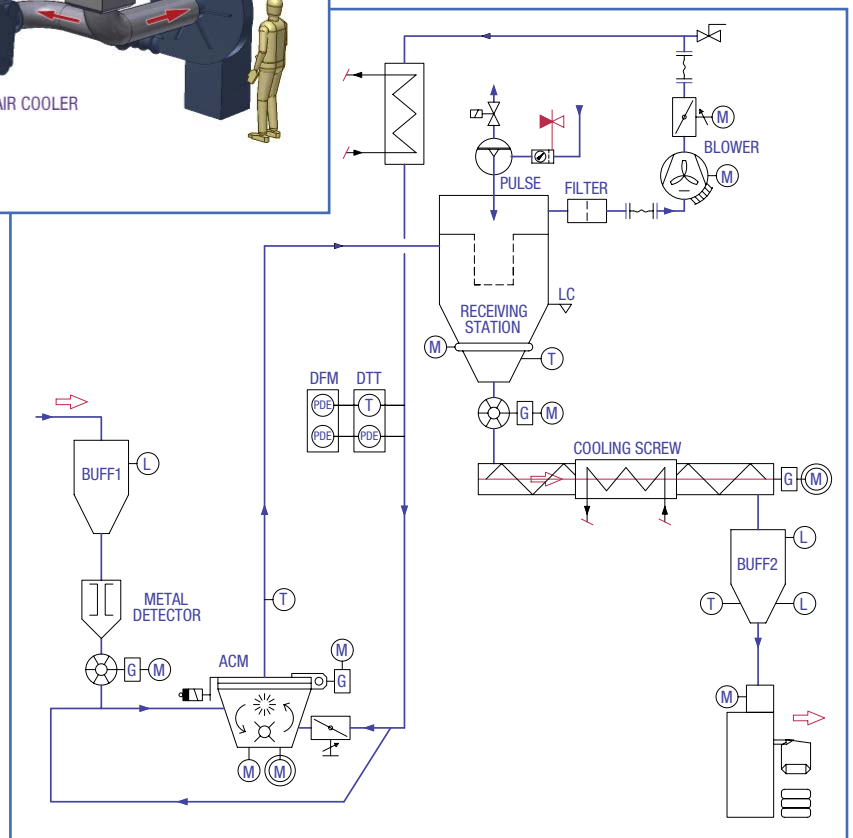
# The complete system



The complete grinding system consists of the Mikro ACM, a Filter that separates the fine product from the airflow, a blower and an air cooler. The images on this page illustrate the complete system including these components.

The 3D illustration on the left shows the core components of an ACM-60 installation. For size comparison a human model is placed beside it.

The example Process & Instrumentation Diagram below contains all these items, as well as a cooling screw and a bag-filler for cocoa powder.



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