Description: MC

Combines impact crushing with systematic material shaping by granulation applications

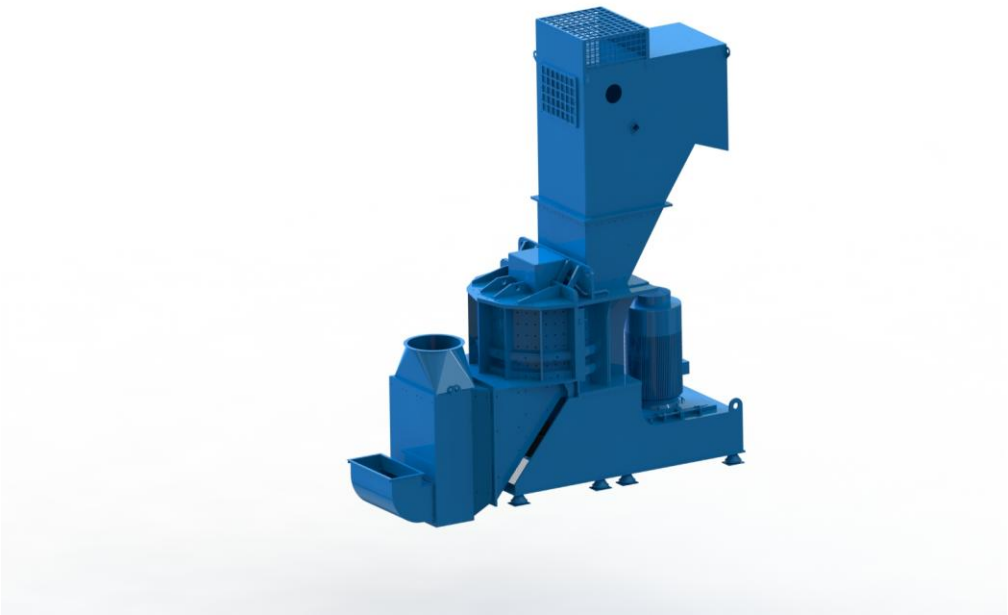


Fig. 1: MC-Serie

This machine is used for material processing in the form of:

- **Shredding,**
- **Down-Sizing,**
- **Cleaning,**
- **Ball-Shaping,**
- **Disagglomeration, and**
- **Selective Crushing**

for various materials in Recycling, in the Production of Building Materials and in Mineral Processing.

Machine:

The MC Grinder Mill is used for downsizing of various materials in the fields of recycling, building materials as well as mineral processing industry.

Principle:

The working principle is a combination of impact crushing and an optionally forced passage through grids. Doing so, the machine can be applied as a classical rotor impact mill or in the form of a combined granulator mill. This machine has a vertical rotor shaft holding flexibly mounted impact tools which are arranged in various levels.

Purpose of the machine:

Material down-sizing, material cleaning, particle ball shaping, disagglomeration, selective crushing

Input material types:

Material being generally able to be crushed, e.g. WEEE scrap, Automotive Shredder Residue (ASR), various materials coming from screening drums, minerals and other brittle fracturing materials, maximum input particle size is limited by the inlet geometrics of the machine.

Output material:

Down-sized, deformed and cleaned material as well as fines (dust) generated by the crushing process

Process:

The material is fed into the machine through the input chute which is realized by commercially available feeding systems for bulky material; such as box feeders, belt or chain conveyors. There is a limitation given by the geometry of the free cross-sectional feeding area. The grinding chamber is divided in two sections which are in each case bounded below by an exchangeable grid (see fig. 2).

The upper grinding chamber is used for the impact crushing process. Therefore, various levels of flexible impact tools are mounted on the vertical rotor shaft.

The material accelerates to wear-resistant plates being fixed on the body. Doing so, it crushes by the absorbed impact energy. The material running through different tool levels must pass a grid at the bottom of the first process region.

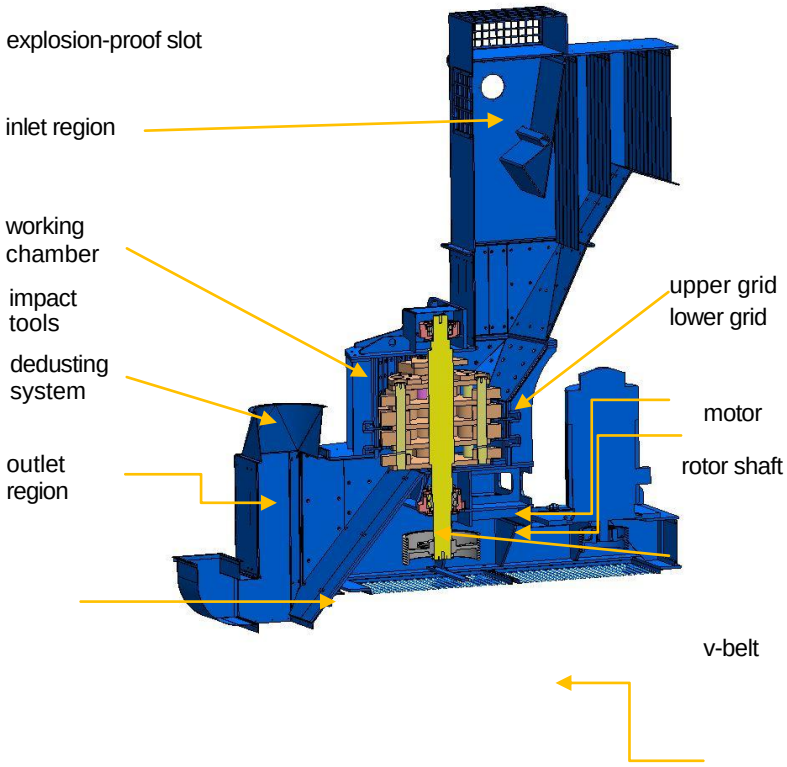
Entering the second grinding area the particles interact with a further level of flexibly mounted rotating impact tools. In addition to the impact to the outside there is a granulation effect caused by a second grid at the bottom of the granulation area.

The result is a material with an exactly defined output particle size due to the grid opening geometry.

The grinder mill can be used as a pure rotor impact mill by taking away both grids.

The machine is adaptable to the material to be treated by changing the shape and number of tools, the number and geometry of grids as well as the rotor speed and the intensity of feeding flow.

The material outlet of the grinder mill is made by conveyors which are normally used for bulky material.



Drive System:

The drive is built by a v-belt system. The rotor speed can be easily modified by changing diameters of the v-belt pulleys. During operation the flexibility in speed is given by using a frequency converter for the electric motor.

Maintenance:

The machine is built on a fixed supporting steel frame. The front half shell of the machine body is fixed on hinges and can be opened by hand (see fig. 4). Based on such a design the access to the interior of the machine for maintenance is very easy, e. g. the exchange of the grids which are also built as two half-rings.

Optionally a crane can be installed to facilitate maintenance. Therefore it is very easy to change to tools, the grids and if it is necessary to change the rotor

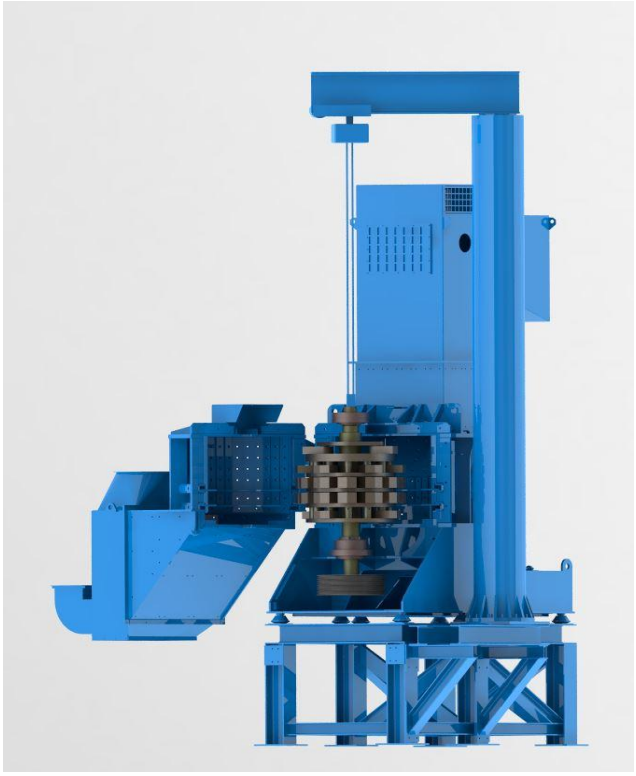


Fig. 4: Maintenance access

Operational safety:

Various measures have been integrated in machine control to protect operators and maintenance people against accidents and bodily injuries, e. g. emergency-stop, observation of machine vibrations, rotor speed
observation to avoid an opening when the machine is running and a safety switch system which blocks the machine for maintenance purpose.

Fire protection:
Optionally and depending on the processing material

In order to protect people, machine and environment against fire caused by flying sparks, there is a fire detection and extinction system mounted at the outlet of the grinder mill. Spark detectors via infrared sensors detect glowing parts in the outlet material flow.
In the case of positive detection of sparks, a water spray is generated to extinguish the hot particles. At the same time, the production continues without interruption.

Additional characteristics (specifying the type series, not a single machine)**:**

- Dimensions: length, width and height according to size type
- Rotor: vertical
- Grids: exchangeable respectively operation without grid(s) possible
- Maximum input particle size: depends on geometry of the inlet chute
- Weight of the machine: approx. 8 – 25 t depending on size type
- Drive: electric motor with optional frequency converter / multiple v-belt drive
- Installed motor power: approx. 90 – 400 KW
- Rotor speed/peripheral speed tool outside diameter: up to 70 m/s
- Rotation direction of the rotor: reversible
- Dedusting system: required 6000 – 10000 m³/h

Machine characteristics are subject to change without notice.

Contact:

KM Key Machinery GmbH
Wachsenegg 3
87477 Sulzberg Germany
Fon: +49 8376-921828-0
Fax: +49 8376-921828-99
Email: info@km-recycling.de
Web: www.km-recycling.de