

# Hammer Mills for Spice Grinding

## Why a hammer mill?

Hammer mills processes by pulverization instead of compression. As a result, spices are ground to the desired finished particle size without significant heat increase that could result in loss of flavor or aroma. Operational flexibility and the ability to control finished particle size are two additional reasons why the hammer mill is the best tool for grinding spices. With the

exception of high oil content spices such as mace and nutmeg (unless cryogenically frozen), hammer mills are ideal for processing a wide variety of spices, including:



- Allspice
- Cinnamon
- Coriander
- Cumin
- Cloves
- Thyme
- Oregano
- Chillies
- Black and White Pepper
- And many more...

## One mill, many spices

The simplicity of the hammer mill allows it to be adaptable for the varying characteristics of different spices. This versatility makes the hammer mill ideal for those processing more than one variety of spice.

## Finished Particle Size

When grinding spices, the importance of a consistent, precise finished particle size cannot be overstated. The key factor in determining finished particle size is the screen covering the mill's discharge opening. Screen selection allows the processor to select the largest allowable finished particle size. Material remains in the grinding chamber and continues to be pulverized until it can pass through the screen. Screen sizes of varying sized can be used in the same mill. A 1/8" perforated screen will produce a coarse finished particle size. Whereas a 1/32" screen will produce a fine powder.

The second component of finished particle size determination is rotor speed. As the rotor spins, the hammers flail out and impact the material in the grinding chamber.

*Generally speaking:*

*High rotor speed ++ small screen = finer particle size*

*Slow rotor speed + larger screen = coarser particle size*

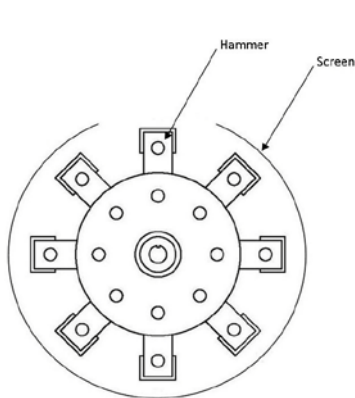
In addition, very hard spices such as cloves, ginger and turmeric will require a higher rotor speed to produce the same finished particle size as softer materials such as white and black pepper. An optional variable frequency drive (VFD) electrical control allows the mill operator to easily speed up or slow down the rotor speed as needed for different applications.

**Schutte**Buffalo

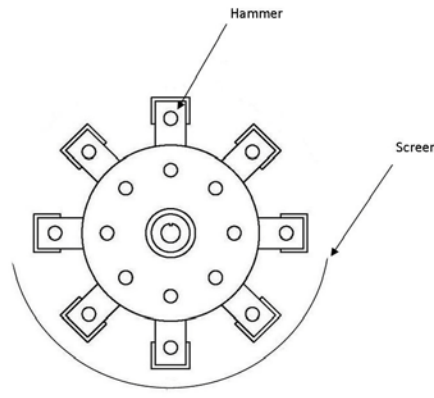
## The Proper Hammer Mill Style

Hammer mills are available in a variety of styles, each intended for specific application characteristics and production goals. The relatively soft, easy to grind properties of most spices, make the full circle screen hammer mill the most appropriate style of hammer mill.

Full circle screen hammer mills get their name because of the 300 degree coverage of the rotor, nearly 50% more than traditional industrial gravity discharge hammer mills.



Full Circle Screen



Traditional Industrial

This increased screen area provides more surface area for the material to evacuate the grinding chamber. As a result, the full circle screen hammer mill provides the greatest production rate at the lowest horsepower of all hammer mill styles.

## Spice Grinding Hammer Mill Models

Each model features dual directional rotors, four-way reversible hammers, and easy to open doors to access mill's interior for cleaning and maintenance. All models can be configured for pneumatic or gravity discharge, as well for as optional variable frequency drive.

### 24 Series High Speed Circ-U-Flow



- Four standard mill widths: 10", 15", 20", 24" and 30"
- Screen discharge area from 600 to 1800 square inches
- High speed (3600 RPM) rotor assembly

[More Information](#)

### Pilot Scale Circ-U-Flow



- Ideal for small batch production.
- Pilot scale, 7" width
- Requires only 10 to 30 hp motor
- 18" diameter rotor at 3600 RPM produces high hammer tip speed

[More Information](#)

### 44 Series High Production Circ-U-Flow



- Six standard mill widths: 13", 17", 24", 30", 48" 60"
- Screen discharge areas of 1375 to 6600 square inches
- Low Speed (1800 RPM) rotor assembly

[More Information](#)