

# pulverisette® 23



## Mini-Mill

- Very small sample quantities < 5 ml
- Very easy to operate
- Compact and low-priced

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Made in Germany

# Mini-Mill "pulverisette 23"



## Field of application

For fine comminution of very small-quantities, dry laboratory samples or solids in suspension. For mixing and homogenisation of emulsions. Sample quantity up to 5 ml.

Ideal for sample preparation, for example, for chemical analysis, chromatography, mass spectrometry or X-ray structural analysis. Can be used for preparing samples for genetic research, for homogenising of active ingredients, preparation of extracts in the forensic analysis and milling of pigments or other precious materials.

## Method of operation

Vertical oscillations of the grinding bowl with high amplitude generates a particle-size reduction through the impact of the grinding ball and friction between ball and grinding bowl wall.

clamping system and integrated glass keyboard



## Design Characteristics

- Small grinding bowl volume (2 sizes)
- Low contact surface area with grinding elements
- Quick fastening of the grinding bowl
- Slot-and-key clamping system
- Oscillation amplitude 9 mm
- Adjustable and reproducible grinding time
- Adjustable stress frequency
- Regulated oscillation frequency (15-50 Hz)
- Robust crankshaft drive
- Integrated glass keyboard

## Advantages

- Very small sample quantities < 5 ml
- Very easy to operate
- Easy cleaning of the grinding elements
- Rapid, reproducible grinding
- Ease of maintenance
- Certified safety (CE mark)
- 2 year guarantee

# Mini-Mill “pulverisette 23”

grinding bowl opened  
with grinding ball



mini-mill “pulverisette 23”



## Accessories

### Grinding bowls and balls

Grinding bowls and balls are available in 4 different materials to avoid contamination of samples caused by unwanted abrasion of grinding elements.

Material	Density g/cm <sup>3</sup>	Abrasion resistance	Material to be ground
Agate 99.9 % SiO <sub>2</sub>	2.65	good	soft to medium-hard samples iron-free grinding
Zirconium oxide 94.8 % ZrO <sub>2</sub>	5.7	very good	fibrous, abrasive samples
Stainless steel bowls: 17-19 % Cr + 8-10 % Ni balls: 12.5-14.5 % Cr + 1 % Ni	7.8	fairly good	medium-hard, brittle samples
Tempered steel bowls: 11-12 % Cr balls: 1.0-1.65 % Cr	7.9	good	medium-hard, brittle samples

### Recommended number of balls per grinding bowl

grinding bowl/ useful capacity	Diameter	15 ml 0.5 ... 5 ml	10 ml 0.2 ... 1 ml
<b>balls</b>	15 mm	2	1
or	10 mm	4	3
or	5 mm	60	30

Normally grinding bowls and balls of the same material are used.

## Technical data

Maximum feed particle size	6 mm	Weight	net 15 kg, gross 20 kg
Maximum feed quantity	up to 5 ml	Dimensions (W x D x H)	20 x 30 x 30 cm
Final fineness	10 µm	Packing Details	carton 25 x 35 x 35 cm
Electrical Details	100-240 V/1~, 50-60 Hz, 100 Watt		

## Ordering data

Oder no.	Description	For rapid fax quotation tick here!
23.1000.00	<b>Mini-Mill "pulverisette 23"</b> without grinding bowl and balls for 100-240 V/1~, 50-60 Hz	
23.1410.00	<b>Grinding bowls 15 ml volume</b> stainless steel	
23.1409.00	tempered steel	
23.1305.00	<b>Grinding bowls 10 ml volume</b> agate	
23.1327.00	zirconium oxide	
23.1310.00	stainless steel	
23.1309.00	tempered steel	
55.0150.05	<b>Grinding balls 15 mm dia. for grinding bowl 15 ml, 10 ml</b> agate, polished	
55.0150.27	zirconium oxide	
55.0150.10	stainless steel	
55.0150.09	tempered steel	
55.0100.05	<b>Grinding balls 10 mm dia. for grinding bowl 15 ml, 10 ml</b> agate, polished	
55.0100.27	zirconium oxide	
55.0100.10	stainless steel	
55.0100.09	tempered steel	
55.0050.05	<b>Grinding balls 5 mm dia. for grinding bowl 15 ml, 10 ml</b> agate, polished	
55.0050.27	zirconium oxide	
55.0050.10	stainless steel	
55.0050.09	tempered steel	