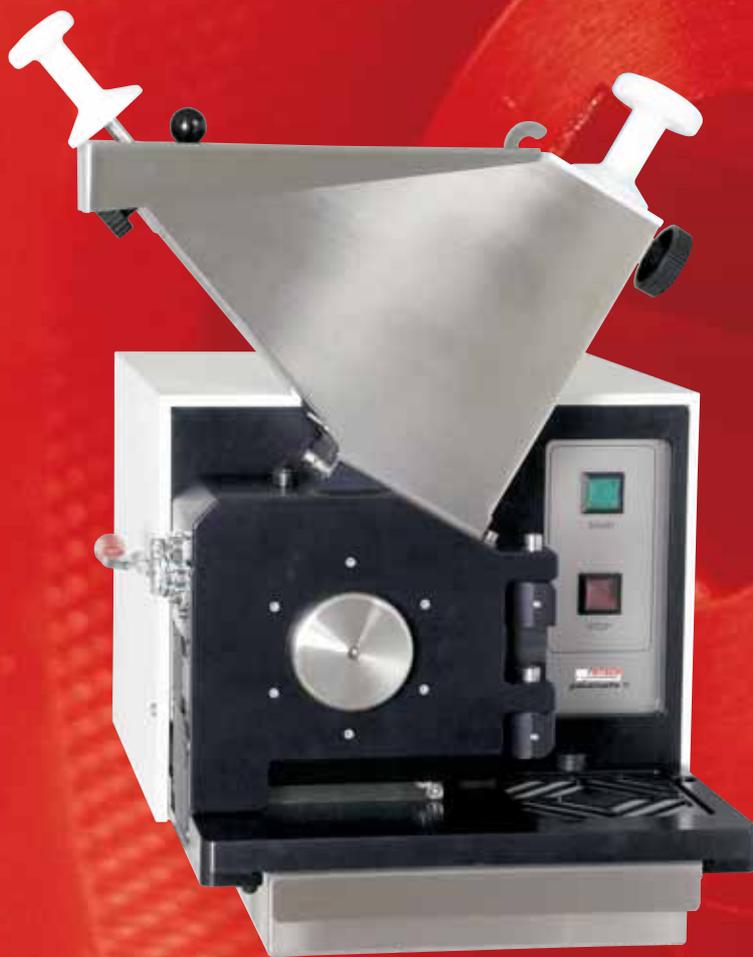


pulverisette 19



Universal Cutting Mill

- Suitable for grinding soft to medium-hard, dry materials, including fibrous materials and plastics
- Very simple to use and easy to clean
- Computer-optimised cutting geometry for rapid size reduction

crushing

cutting mill

**sample
preparation**

for your lab

FRITSCH

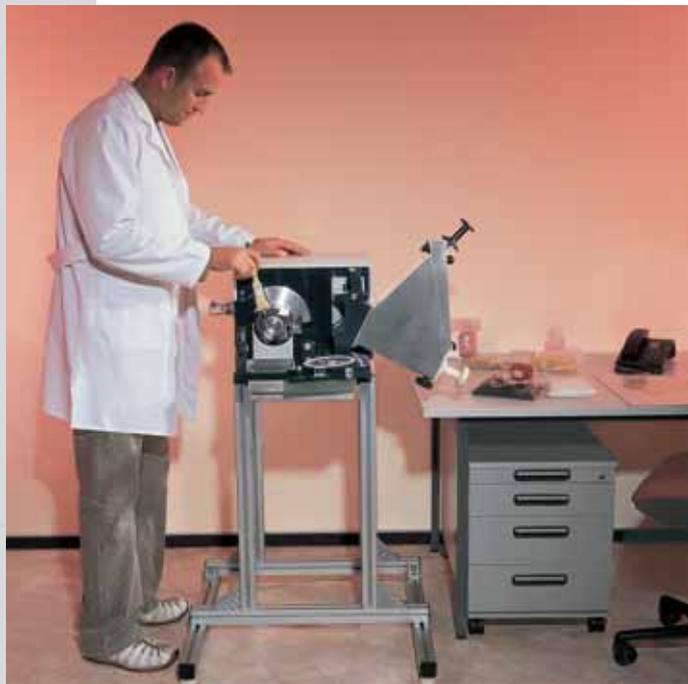
Application

Field of application

The pulverisette 19 is suitable for grinding soft to medium-hard dry materials. With a feed size of up to 70 x 80 mm (depending on the material) and a throughput rate of up to 60 l/h, the universal cutting mill sets high standards.

The mill can be used, for example, to crush the following materials: rubber, leather, paper, cardboard, tissues, plastics, wood, non-metallic waste, coal, animal feeds, maize, grain, confectionery, malt, farinaceous products, spices, dried meat, bones, horn, dragées, tablets, leaves, fibres, peat, roots, tobacco, cork, straw or film.

Furthermore, the universal cutting mill can also be used in the pharmaceutical or animal feed industries, in dental, medicinal and metallurgical technology, in veterinary institutes and for RoHS testing.



grinding quality control
Universal Cutting Mill



cutting tool set with sieve cassette



standard rotor with V-cutting edges and fixed knives

Method of operation

The grinding chamber of the universal cutting mill pulverisette 19 houses a rotor fitted with knives in combination with three fixed knives to effect size reduction of the grinding sample. The material which has been processed remains in the grinding chamber until the desired particle size is achieved. It is then carried out by the permanent air throughput through the mesh of the replaceable sieve cassette into the collecting vessel.

The advanced technology of this cutting mill is based on an ideal alignment of the blades with a cutting geometry which adapts as the material is cut and ground. The three fixed blades are each set at a different cutting angle, to grind and crush the material as the rotor at high speed.

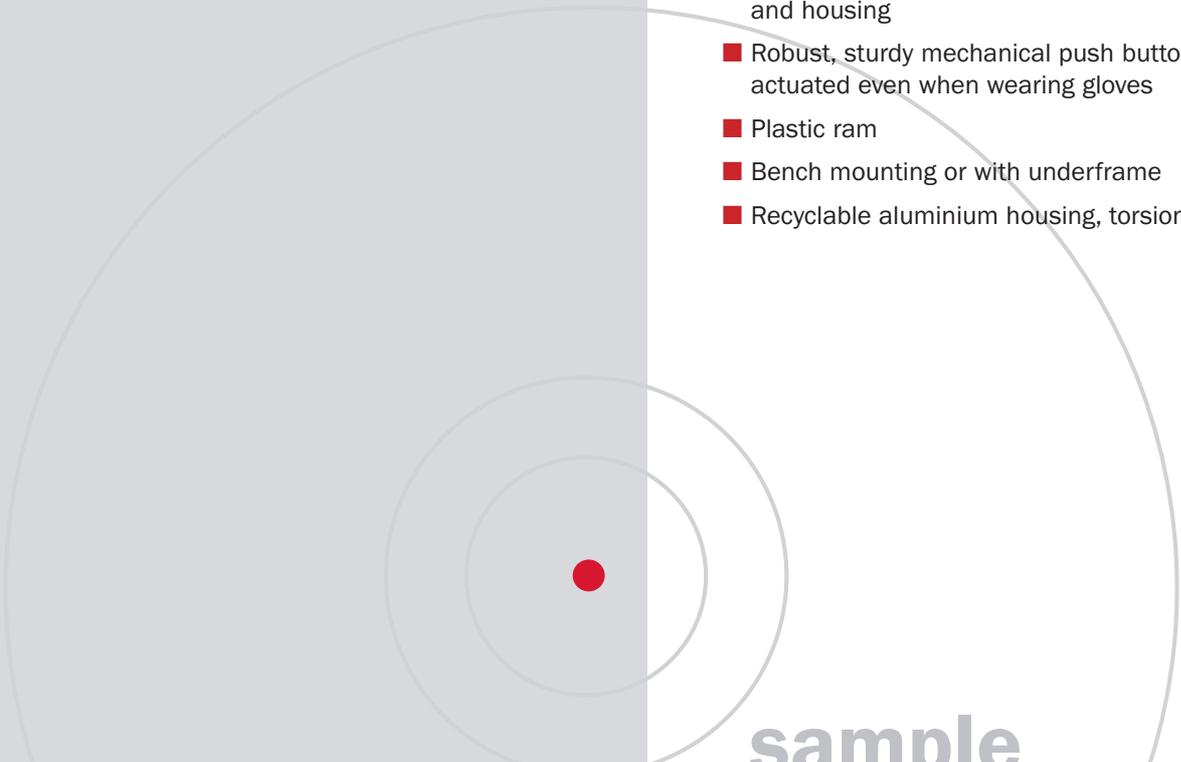
Features

Advantages

- Easy to use
- Easy, rapid and thorough cleaning of grinding chamber
- Easy cleaning of all grinding components
- Fast, reproducible grinding
- Extremely wide range of duties possible due to comprehensive range of accessories available
- Different rotors to suit the cutting process appropriate to the sample
- Permanent cooling of the material to be ground due to constant air throughput (when using sample exhauster)
- Specific particle size achievable due to a choice of sieve cassette
- Ram for pressing in the sample can be completely removed, when the housing is open
- Safety tested (CE mark)
- 2 year guarantee

Design Characteristics

- High cutting rotor speed (2800 rpm)
- Single-handed central locking device
- All housing components inter lock when the housing is closed
- Hinged housing and cover can be lifted up for easy access
- Double hinge between the upper and lower housing ensures stability
- Automatic recognition of rotational direction for protection of the rotor
- Removable cover
- Smooth, easy-to-clean grinding chamber walls
- Grinding chamber externally anodised for improved cleaning and appearance
- Cutting rotor and sieve cassette can be easily removed without tools
- Cutting rotor with dual bearings
- Cutting gap can be externally adjusted
- Bearings protected against dust
- Dust-free cutting chamber
- Soundproofed motor cover
- Brake motor; safety switch with inter lock of cover and housing
- Robust, sturdy mechanical push buttons, can be actuated even when wearing gloves
- Plastic ram
- Bench mounting or with underframe
- Recyclable aluminium housing, torsion-resistant



cutting mill
sample preparation
grinding

Accessories

Funnel

The standard funnel can be used to process most samples. A pressing and feeding device ensures successful supply of the feed material to the mill. To feed straw, film and other materials in their full length, the combination-funnel for long- and bulk solids must be used. The combination-funnel can also be used without pressing device for free flowing materials.

Sieve cassette

Sieve cassettes with trapezoidal or square perforations can be selected from the range to obtain final particle size of your choice.

Collecting vessel

Collecting vessels are available in a range of sizes. An adapter is required when these are used in combination with sample extraction equipment using the cyclone.

Cutting tool set

The rotor with V-cutting edges and fixed knives made of hardmetal tungsten carbide has a combined impact/shearing action, while the standard rotor with V-cutting edges and fixed knives made of tool steel has pure cutting action, gently reducing the sample size. In addition to these rotors, the disk milling rotor - with indexable inserts and fixed knives made of hardmetal tungsten carbide - has a high level of resistance to excessive stress because of their stability under load. This rotor is even suitable for crushing p.c.b. scrap with glass fibre residue.



different rotors of the cutting tool sets

Underframe

The pulverisette 19 can be used on the bench or on a free standing underframe which can be ordered as an optional extra.

Cutting tool sets and sieve cassettes for chromium-free grinding

A rotor with V-cutting edges and fixed knives and alternatively a rotor with straight cutting edges and fixed knives made of tool steel chromium-free as well as sieve cassettes with sieve insert with trapezoidal and square perforations made of constructional steel ST12 are offered for chromium-free grinding for sample materials to be analysed for trace of hexavalent chrome or XRF analysis.

Cutting tool set and sieve cassette	Element analysis
rotor with V-cutting edges and fixed knives made of tool steel	Rotor knives + rotor body - 1.2379 - approx. 85.79-82.14% Fe, 1.45-1.6% C, 0.1-0.6% Si, 0.2-0.6% Mn, 0.03% P, 0.03% S, 11-13% Cr, 0.7-1% Mo, 0.7-1% V
rotor with straight cutting edges and fixed knives made of tool steel	Rotor knives - 1.2379 Rotor body - 1.1191 (CK45) - ca. 98.21-97.83% Fe, 0.42-0.5% C, 0.4% Si, 0.5-0.8% Mn, 0.035% P, 0.035% S, 0.4% Cr
rotor with V-cutting edges and fixed knives made of hardmetal tungsten carbide (WC + Co)	Rotor knives - HWP40 - 76.5% WC, 12% Co, 7.5% TaC, 4% TiC Rotor body - ST70 - 98.21-97.83% WC, 12% Co, 7.5% TaC, 4% TiC
disk milling cutter rotor with indexable inserts and fixed knives made of hardmetal tungsten carbide (WC + Co)	Rotor knives - HWP40 Rotor body - tool steel - 1.1191 (CK45)
rotor with V-cutting edges and fixed knives made of tool steel chromium-free	Rotor knives + rotor body - 1.1740 (C60W3) - approx. 98.63-98.08% Fe, 0.55-0.65% C, 0.15-0.4% Si, 0.6-0.8% Mn, <0.035% S, <0.035% P
rotor with straight cutting edges and fixed knives made of tool steel chromium-free	Rotor knives - 1.1740 (C60W3) Rotor body - 1.0570 (S355J2G3) - approx. 97.55% Fe, <0.22% C, <0.55% Si, <1.6% Mn, <0.040% S, <0.04% P
Sieve cassette made of stainless steel	1.4301 - approx. 67-70% Fe, 0.07% C, 1% Si, 2% Mn, 0.045% P, 0.03% S, 17-19% Cr, 8.5-10.5% Ni
Sieve insert made of structural steel	ST12 - 1.0330 - 99.19% Fe, 0.12% C, 0.6% Mn, 0.045% P, 0.045% S

Special accessories

Special accessories

Sample exhauster with cyclone separator

This type of collection is the most convenient because the ground material is transferred directly to a glass bottle, from which it can be easily removed, transported or stored. The strong air current cools and transports the ground material so that even samples which would normally be difficult to grind can be processed. „Clogging“ of the sieve meshes is virtually negligible. At the same time, the amount of cleaning required in the mill itself is minimal. As standard, the sample exhauster with cyclone separator is delivered with a 500 ml glass bottle. If a larger sample collection is required, a sample glass for 1 litre, 2 litres or 5 litres with additional adapter can be ordered.

Cutting Mill Combination

The Universal Cutting Mill pulverisette 19 can be combined with the Power Cutting Mill pulverisette 25. This Cutting Mill Combination pulverisette 25/pulverisette 19 is the optimum solution for the pre- and fine crushing of soft to tough and more plastic or fibrous materials in the laboratory. The important effect is that samples with a feed size of 120 mm maximum can be grind to a few 100 µm within a very short time and in a single operation.

Further information can be seen in the separate leaflet Cutting Mill Combination pulverisette 25/pulverisette 19.



pulverisette 19 with combination-funnel for long- and bulk solids and sample exhauster



Cutting Mill Combination pulverisette 25/pulverisette 19

quality control
 fine crushing
Cutting Mill Combination

Technical data

working principle	cutting
funnel opening	70 x 105 mm
max. feed size (depending on the material)	70 x 80 mm
min. sample quantity	20 - 30 ml
max. throughput (depending on the material and sieve size)	60 l/h
final fineness depending on sieve cassette	0.25 - 6 mm
feeding	batchwise/continuous
rotor speed	2.800 rpm
electrical details	400 V/3~, 50-60 Hz, 2000 watt 230 V/1~, 50-60 Hz, 2200 watt 100-120 V/1~, 50-60 Hz, 1850 watt
motor-shaft-power according to VDE 0530, EN 60034	1.5 kW for all motors, except 1.1 kW for 100-120 V/1~ motor
weight	net: 56 kg, gross: 96 kg
dimensions w x d x h	table mounting or on stand: 44 x 55 x 63 cm
packing details	wooden case: 80 x 70 x 90 cm

Special accessories

Order-no.	Description
	Sample exhauster with cyclone separator
45.5900.00	sample exhauster with cyclone separator for 230 V/1~
19.1800.00	adapter for sample exhauster (essential in combination with 45.5900.00)
83.3230.00	sample glass 5 litres
83.3220.00	sample glass 2 litres
19.5770.16	adapter for sample glass 2 and 5 litres
83.3210.00	sample glass 1 litre
19.5780.16	adapter for sample glass 1 litre

Ordering data

Order no.	Description
19.1030.00	Universal Cutting Mill pulverisette 19 without funnel, cutting tool set, sieve cassette, collecting vessel and underframe for 400 V/3~, 50-60 Hz, 2000 watt Attention: The pulverisette 19 with voltage of „/3~“ can <u>only</u> be operated on a three phase supply network!
19.1020.00	for 230 V/1~, 50-60 Hz, 2200 watt
19.1010.00	for 100-120 V/1~, 50-60 Hz, 1850 watt
	Other voltages on request!
	Accessories
	Funnels
19.1850.00	standard funnel
19.1550.00	combination-funnel for long- and bulk solids
	Cutting tool sets
45.5100.00	standard rotor with V-cutting edges and fixed knives made of tool steel
45.5370.00	rotor with V-cutting edges and fixed knives made of hardmetal tungsten carbide
45.5000.00	rotor with straight cutting edges and fixed knives made of tool steel
45.5200.00	disk milling cutter rotor with indexable inserts and fixed knives made of hardmetal tungsten carbide
	Sieve cassettes with sieve insert made of stainless steel
45.5410.10	0.25 mm trapezoidal perforations
45.5420.10	0.5 mm trapezoidal perforations
45.5430.10	0.75 mm trapezoidal perforations
45.5440.10	1 mm trapezoidal perforations
45.5450.10	1.5 mm trapezoidal perforations
45.5460.10	2 mm trapezoidal perforations
45.5500.10	4 mm square perforations
45.5510.10	6 mm square perforations
	Accessories for chromium-free grinding
45.5112.00	rotor with V-cutting edges and fixed knives made of tool steel chromium-free
45.5012.00	rotor with straight cutting edges and fixed knives made of tool steel chromium-free
	Sieve cassettes with sieve insert made of constructional steel ST12 for rotors made of tool steel chromium-free
45.5410.09	0.25 mm trapezoidal perforation
45.5420.09	0.5 mm trapezoidal perforation
45.5430.09	0.75 mm trapezoidal perforation
45.5440.09	1 mm trapezoidal perforation
45.5450.09	1.5 mm trapezoidal perforation
45.5460.09	2 mm trapezoidal perforation
45.5500.09	4 mm square perforation
45.5510.09	6 mm square perforation
	Collecting vessels
45.5730.00	collecting vessel, 3 litres
45.5700.00	collecting vessel for large quantities, 10 litres
	Further accessories
45.5820.00	universal-underframe

