



PULVERISETTE 13

premium line

Efficient *premium* fine grinding

- Easy, motor-driven grinding gap adjustment with digital gap display
- Automatic locking of the grinding chamber
- Easy operation and cleaning with Clean Design
- High throughput of up to 150 kg/h with extra powerful motor
- Fine grinding down to 0.05 mm

The *premium* model of the FRITSCH Disk Mill for efficient fine grinding of hard-brittle to medium-hard solids: Even safer due to the automatic locking of the collecting vessel and grinding chamber, even easier to operate due to the convenient motor-driven grinding gap adjustment with digital gap display. A well-designed display shows all of the parameters.

In the Disk Mill, the material to be ground is comminuted by pressure and shearing action between two counteracting grinding disks with coarse interlocking teeth. The ground material automatically falls down through the pre-set grinding gap into the collection drawer. The desired final fineness can be defined reproducibly by simply adjusting the digital setting of the gap width.



Especially easy to operate as the grinding gap of the PULVERISETTE 13 *premium line* can be especially easily and precisely adjusted motor-driven in 0.05 mm steps. The grinding time is entered via the well-designed display with a robust membrane keyboard. The multilingual menu navigation is self-explanatory and automatically displays the last entered grinding gap setting and grinding time.



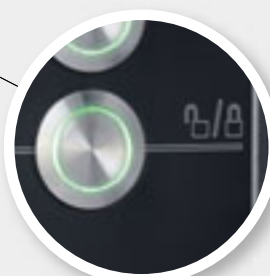


Especially convenient due to a large, removable plastic funnel with smooth inner surfaces and flow-optimised transition areas – for especially easy cleaning and optimal material feeding.

Fast, residue-free cleaning due to Clean Design with smooth grinding chamber inner surfaces and additional labyrinth sealing of the grinding chamber – saves time and effectively protects your sample against contamination.



Dust-free grinding due to the connection of a dust exhaust system which is directly controlled via the instrument and a special sealing of the drawer.



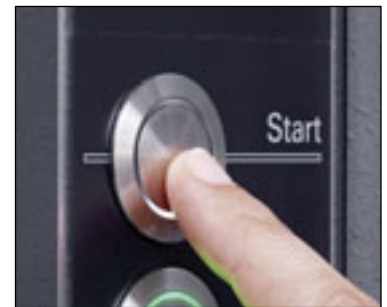
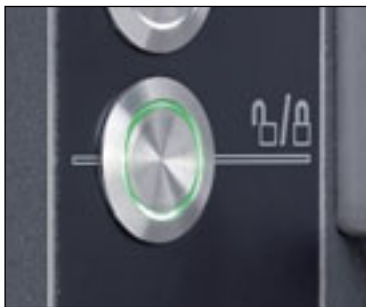
Especially safe due to automatic safety locks, simply push a button to automatically clamp and lock the grinding chamber and drawer.



PULVERISETTE 13

premium line

premium ideas for additional convenience and precision



Especially easy: Lock the grinding chamber, set the grinding parameters, start the grinding process – that's it.

This is another example of innovative technical details: An innovative motor controller provides an unique, especially easy and reproducible adjustment of the distance between the grinding disks and the zero point via display.

FRITSCH *premium advantage*: Easy operation – fast and efficient

Simply press the button to lock the grinding chamber, use the plus/minus buttons on the digital display to set the grinding gap and grinding time with accuracy to the second, fill in the sample into the easy-to-close funnel and start the grinding process. The most recent setting is saved and can be accessed directly for the next grinding.



FRITSCH *premium advantage*: Especially precise motor-driven adjustment of the distance between the grinding disks without crank

The grinding gap can be conveniently adjusted with accuracy of 50 µm by means of the plus/minus buttons on the digital display. For reproducible results that are absolutely reliable.

FRITSCH *premium advantage*: Especially convenient motor-driven zero-point adjustment

For regularly compensating wear on the grinding disks and for easy precise re-adjustment after replacement.



Our suggestion: Longer service life for grinding disks

With the control display, it is easy to prolong the service life of the grinding disks: simply change the rotational direction (clockwise/anti-clockwise) of the grinding disks to optimally compensate the abrasion behaviour.

FRITSCH *premium advantage*: Especially easy change of the grinding disks

In the PULVERISSETTE 13 *premium line*, both the fixed and the movable grinding disks are easily accessible for fast, simple replacement. For the disk change, the disk is simply driven forward by the motor, allowing the retaining screws to be easily loosened.



PULVERISETTE 13

premium line



GUARANTEED METAL-FREE GRINDING

Ideal for medical and dental engineering: On request, we can equip your PULVERISETTE 13 premium line with a complete polymer interior coating together with grinding disks made of zirconium oxide – the perfect pre-requisite for grinding without any contact of the sample with metal.

Select the appropriate grinding disks

For every FRITSCH Disk Mill PULVERISETTE 13 *premium line*, you need at least one fixed and one movable grinding disk. These are available in 5 different materials. Normally, two grinding disks of the same material are selected which must always be harder than the sample to be ground.

High final fineness in minimum time

The extra powerful motor of the FRITSCH PULVERISETTE 13 *premium line* enables you to achieve high final fineness in a very short grinding time. We have listed some examples here – always in reference to 1 kg feed quantity and 20 mm feed size and arranged by material type from hard to medium-hard.

MATERIAL DATA FOR FIXED AND MOVABLE GRINDING DISKS

Material	Main component of the material*	Abrasion resistance	Use for material to be ground
Hardened steel cast	Fe – Cr	Good	Hard, brittle samples
Manganese steel	Fe – Mn	Good	Very hard, brittle samples
Hardmetal tungsten carbide	WC	Very good	Very hard, abrasive samples
Zirconium oxide ¹⁾	ZrO ₂	Good	Medium-hard, brittle samples, metal-free grinding

* At www.fritsch.de you can find the corresponding element analyses with detailed information about the materials.

¹⁾ Grinding disks of zirconium oxide are only suitable for grinding ceramic materials, minerals, etc. and never for hard-tough samples, such as metals.

Material to be ground	Grinding time (min)	Gap setting (mm)	Fineness (µm)	Throughput (kg/h)
90% < x 50% < x				
Basalt	2.1	1.0	600	28
	3.5	0.1	220	17
Clinker	2.0	0.5	900	30
	10.0	0.1	220	6
Slate	1.4	1.0	1500	45
	2.2	0.1	300	27
Hard coal	3.5	1.0	800	17
	13.5	0.1	250	4
Limestone	2.0	1.0	1000	30
	6.3	0.1	210	10
Thomas meal (potash)	1.3	1.0	1000	45
	2.3	0.5	350	36
Pumice stone	3.5	0.5	600	17
	5.0	0.1	150	12
Glass	2.5	3.0	4000	25
	3.3	2.0	2500	18
	3.8	1.0	1400	16

The indicated results are to be considered as an orientation guide, since the chemical and physical properties (e.g. residual moisture, morphology, etc.) can vary even with the same material to be ground.



TECHNICAL DATA

Electrical details

400 V/3~, 50-60 Hz, 1830 watt

Motor shaft power in accordance with VDE 0530, EN 60034

1.5 kW

Weight

Net 240 kg

Gross 275 kg

Dimensions w x d x h

Bench top instrument 52 x 105 x 63 cm

Packaging w x d x h

Wooden case 60 x 120 x 70 cm

Emissions value of workplace

according to DIN EN ISO 3746:2005

approx. 70 dB(A)

(depending on the material to be ground)

Order no.

13.3040.00



Comminution of ceramic with the Disk Mill PULVERISETTE 13 *premium line* – gap width 0.7 mm

APPLICATION EXAMPLES

Mining and metallurgy	Ores, coal, coke, slags
Ceramics industry	Steatite, sintered ceramics, electrotechnical porcelain, fire-proof clay, dental ceramics
Rocks and soils	Bauxite, slags, quartz, clinker, gypsum, chalk
Glass industry	Frits, glass, raw materials
Soil research	Dried soil samples, sewage sludge, hydrological sediments, drilling cores

FACTS AND ADVANTAGES

Working principle	Shearing
Bearings	Needle and double row angular contact ball bearings
Equipment	Instrument without grinding disks
Optimal for material type	Hard-brittle, medium-hard
Max. feed size (depending on the material)	20 mm
Min. sample quantity	20–30 ml
Max. throughput (depending on the material)	150 kg/h
Final fineness	0.05 - 12 mm
Feeding	Batchwise/continuous
Grinding parts	Fixed and movable grinding disks
Rotating speed	Grinding disk 440 rpm
Conformity	CE mark
Guarantee	2 years



PULVERISETTE 1 / 13

premium line

premium combination for integrated pre- and fine-grinding

- Powerful continuous pre- and fine-grinding
- Compact in a single instrument with integrated Riffle Sample Splitter
- High throughput for production of small amounts
- Maximum feed size 95 mm
- Minimum final fineness 0.05 mm

For especially fast continuous *premium* pre- and fine-grinding of large quantities of coarse material, the combination of the Jaw Crusher PULVERISETTE 1 *premium line* and the Disk Mill PULVERISETTE 13 *premium line* is the ideal solution. Together, they form an efficient, heavy-duty, high-performance grinding instrument with integrated Riffle Sample Splitter. This gives you the full range of opportunities for optimal sample preparation with a feed size of up to 95 mm and final fineness of down to 0.05 mm – all in a single step.

Select the appropriate grinding parts and the desired configuration from the options available for the PULVERISETTE 1 and 13 *premium line* on pages 4–9 and 10–15.

Integrated representative sample division

After the comminution in the Jaw Crusher PULVERISETTE 1 *premium line*, the ground material falls directly into the Riffle Sample Splitter integrated in the collecting vessel and is automatically divided into representative samples. The division ratio can be set as desired, from 1:1 to 1:6.

METAL-FREE PRE- AND FINE-GRINDING

The combined FRITSCH *premium* high-performance grinding instrument can also be configured for completely metal-free pre- and fine-grinding (see pages 8 and 14).



Pre- and fine-grinding, with granite as an example

- ① Size of the material filled into the **PULVERISETTE 1**
Feed size up to 95 mm
- ② Intermediate result of the **PULVERISETTE 1**
Final fineness of down to 1 mm
- ③ Final result of the **PULVERISETTE 13**
Final fineness of down to 50 µm



APPLICATION EXAMPLES

Mining and metallurgy	Ores, coal, coke, slags, niobium-titanium, ferrovanadium, chrome vanadium, tungsten carbide
Geology and mineralogy	Granite, basalt, barite, silicates and other rocks
Glass industry	Frits, glass, raw materials
Ceramics industry	Steatite, fire-clay, sintered ceramics, electrotechnical porcelain, dental ceramics
Rocks and soils	Bauxite, slags, quartz, clinker, gypsum, chalk