



## A 11 basic Analytical mill

Batch mill for 2 different grinding procedures:

Impact grinding of hard, brittle or non-elastic grinding materials with high-grade stainless steel beater. This beater can be used for a Mohs hardness up to 6 (incl. with delivery).

Cutting grinding for pulverizing soft, fibrous materials with a cutting blade (not incl. with delivery).

- Moist and gluey materials can be pulverized by adding water
- Grinding chamber made of Tefcel (PTFE, glass fiber-reinforced) with stainless steel inlet (1.4571), useful volume 80 ml (incl. with delivery). For embrittlement of grinding materials with liquid nitrogen in the grinding chamber

- Optionally, a 250 ml grinding chamber is available

Accessories: A 11.4 Grinding chamber, A 11.1 Spare beater, A 11.2 Cutting blade, A 11.6 Double beater, A 11.5 Spare grinding chamber, A 11.7 Funnel, A 11.3 Beater

Technical Data	
Process type	batch
Operating principle	cutting/impact
Motor rating input [W]	160
Motor rating output [W]	100
Speed max. [rpm]	28000
Circumferential speed max. [m/s]	53
Usable volume max. [ml]	80
Feed hardness max. [Mohs]	6
Feed grain size max. [mm]	10
Material beater/cutter	stainless steel 1.4034
Material milling chamber	stainless steel 1.4571
Power-on time ON [min]	1
Power-on time OFF [min]	10
Milling chamber, can be cooled with water	no
Mill feed can be cooled in milling chamber with dry ice	yes
Mill feed can be cooled in milling chamber with liquid nitrogen	yes
Dimensions (W x H x D) [mm]	85 x 240 x 85
Weight [kg]	1.5
Permissible ambient temperature [°C]	5 - 40
Permissible relative moisture [%]	80
Protection class according to DIN EN 60529	IP 43
Voltage [V]	220 - 240 / 100 - 115
Frequency [Hz]	50/60
Power input [W]	160
<b>Ident. No.</b>	<b>2900000</b>



## MF 10.1 Cutting-grinding head

For crushing fibrous substances such as paper and vegetation, but also for plastics and material with a low volume weight. Before being discharged, the ground material passes through a sieve. This sieve is interchangeable and available in different hole sizes (not incl. with delivery). The ground material can then be collected using an NS 29 standard ground vessel.

Technical Data	
Process type	inline
Circumferential speed max. [m/s]	22.5
Feed grain size max. [mm]	15
Material milling chamber	stainless steel 1.4308
Milling chamber, can be cooled with water	no
Mill feed can be cooled in milling chamber with dry ice	yes
Mill feed can be cooled in milling chamber with liquid nitrogen	no
Dimensions (W x H x D) [mm]	320 x 560 x 300
Weight [kg]	2.2
<b>Ident. No.</b>	<b>2870900</b>



## MF 10 basic Microfine grinder drive

Continuously operating universal grinder.

- Powerful drive
- Easy to clean working surface made of stainless steel
- Two different grinding heads can be attached to the drive
- Heads are easily changeable
- Grinding heads not incl. with delivery

Accessories: H 11 Mains cable Euro plug, H 11 Mains cable CH plug, H 11 Mains cable UK plug, MF 10.1 Cutting-grinding head, MF 10.2 Impact grinding head, H 11 Mains cable USA plug, MF 0.5, MF 1.0, MF 2.0, MF 3.0, MF 0.25

### Technical Data

Process type	inline
Operating principle	cutting/impact
Motor rating input [W]	1000
Motor rating output [W]	500
Speed range [rpm]	3000 - 6500
Power-on time ON [min]	120
Power-on time OFF [min]	30
Milling chamber, can be cooled with water	no
Mill feed can be cooled in milling chamber with dry ice	yes
Mill feed can be cooled in milling chamber with liquid nitrogen	no
Dimensions (W x H x D) [mm]	320 x 380 x 300
Weight [kg]	9.7
Permissible ambient temperature [°C]	5 - 40
Permissible relative moisture [%]	80
Protection class according to DIN EN 60529	IP 22
RS 232 interface	no
Analog output	no
Voltage [V]	230 / 115
Frequency [Hz]	50/60
Power input [W]	1000
<b>Ident. No.</b>	<b>2836000</b>



### A 10 basic

Suitable for low-loss dry grinding of soft, hard and brittle substances

- With a built-in cooling chamber
- Removable, easy-to-clean, high-grade steel chamber
- 3 interchangeable cutters available
- Electronic overload protection

Accessories: A 14, A 15, A 17, A 18

#### Technical Data

Process type	batch
Operating principle	cutting/impact
Motor rating input [W]	180
Motor rating output [W]	80
Speed max. [rpm]	20000
Circumferential speed max. [m/s]	57
Usable volume max. [ml]	50
Feed hardness max. [Mohs]	5
Feed grain size max. [mm]	6
Material beater/cutter	stainless steel 1.4034
Material milling chamber	stainless steel 1.4301
Power-on time ON [min]	5
Power-on time OFF [min]	10
Milling chamber, can be cooled with water	yes
Mill feed can be cooled in milling chamber with dry ice	yes
Mill feed can be cooled in milling chamber with liquid nitrogen	no
Dimensions (W x H x D) [mm]	120 x 225 x 105
Weight [kg]	2.2
Permissible ambient temperature [°C]	5 - 40
Permissible relative moisture [%]	80
Protection class according to DIN EN 60529	IP 21
RS 232 interface	no
Analog output	no
Voltage [V]	220 - 240
Frequency [Hz]	50/60
Power input [W]	180
<b>Ident. No.</b>	<b>1603500</b>

## Data Sheet

Crushing / Mills



### M 20 Universal mill

Batch mill suitable for dry grinding of hard and brittle substances.

- Double-walled grinding chamber can be cooled with water through two hose adapters
- Removable grinding chamber, easy to clean
- Two grinding chambers can be alternately operated using one drive
- M 21 blade incl. with delivery

Accessories: M 21 Spare cutter, stainless steel, M 20.1 Grinding chamber, M 23 Star-shaped cutter, M 22 Hard metal cutter

#### Technical Data

Process type	batch
Operating principle	cutting/impact
Motor rating input [W]	620
Motor rating output [W]	260
Speed max. [rpm]	20000
Circumferential speed max. [m/s]	72
Usable volume max. [ml]	250
Feed hardness max. [Mohs]	5
Feed grain size max. [mm]	7
Material beater/cutter	stainless steel 1.4034
Material milling chamber	stainless steel 1.4301
Power-on time ON [min]	7
Power-on time OFF [min]	10
Milling chamber, can be cooled with water	yes
Mill feed can be cooled in milling chamber with dry ice	yes
Mill feed can be cooled in milling chamber with liquid nitrogen	no
Dimensions (W x H x D) [mm]	170 x 350 x 170
Weight [kg]	6.6
Permissible ambient temperature [°C]	5 - 40
Permissible relative moisture [%]	80
Protection class according to DIN EN 60529	IP 21
RS 232 interface	no
Analog output	no
Voltage [V]	230 / 115
Frequency [Hz]	50/60
Power input [W]	620
<b>Ident. No.</b>	<b>1603600</b>



## MF 10.2 Impact grinding head

For crushing brittle, hard materials such as minerals, building materials up to Mohs hardness 6. Before being discharged, the ground material passes through a sieve. This sieve is interchangeable and available in different hole sizes (not incl. with delivery). The ground material can then be collected using an NS 29 standard ground vessel.

### Technical Data

Process type	inline
Circumferential speed max. [m/s]	31.4
Feed hardness max. [Mohs]	6
Feed grain size max. [mm]	10
Material milling chamber	stainless steel 1.4308
Milling chamber, can be cooled with water	no
Mill feed can be cooled in milling chamber with dry ice	yes
Mill feed can be cooled in milling chamber with liquid nitrogen	no
Dimensions (W x H x D) [mm]	320 x 450 x 300
Weight [kg]	2.7
<b>Ident. No.</b>	<b>2871000</b>