

HP-M/HP-P

Automatic pulverizing mill
and pellet press



HERZOG

Tailor-made solutions for pulverizing and pelletizing



Central remote controller (optional for systems with several machines instead of individual control terminals at every machine)

At a glance

- The HERZOG pulverizing mill HP-M and pellet press HP-P guarantee the optimal sample preparation of powder material for X-ray fluorescence analysis. The automatic pulverizing and pressing leads to improved reproducibility, accuracy, and precision.
- Automatic sample preparation reduces time and costs and increases sample throughput.
- The HP-M and HP-P can be used as stand-alone machines, in linear automations or can be easily integrated into robot automations.
- Automatic grinding and pelletizing leads to significant less workplace pollution due to dust and noise. Workload is reduced because it is no longer necessary to handle heavy grinding vessels.
- Machines are completely enclosed, noise-insulated and have all safety features for protection of the operating personnel.



Robot automation with 3 pulverizing mills HP-M and 2 pellet presses HP-P, dosing devices, average sample magazine and conveyor belts to the spectrometer.

The pulverizing mill for many requirements

PULVERIZING MILL HP-M

Robust design – long service life

HERZOG HP-M series pulverizing mills are suitable for grinding a wide variety of minerals such as cement raw meal, clinker, cement, slag, ores, oxides and ferro-alloys. The high RPM of the drive motor guarantees short grinding processes even with hard materials. The motorspeed is steplessly adjustable between 500 rpm and 1.500 rpm. The robust construction with, for example, dual bearing support for the eccentric shaft ensures long service life.

Effective avoidance of cross contamination

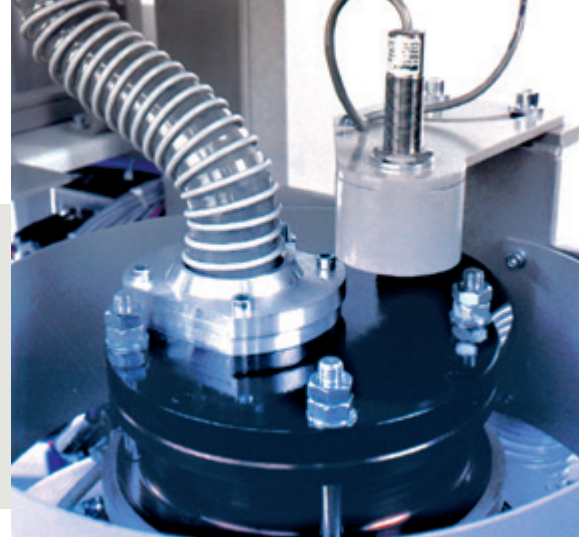
After pulverizing the grinding vessel is automatically emptied and the ground material is made available at the discharge point. Three automatic cleaning features namely compressed air, sand cleaning (option) and wet cleaning (option) allow a sufficient material removal. Using the different cleaning functions, cross contamination can be reduced to a low ppm-level.

Furthermore, spoon sampling (option) during the material input provides the possibility to pre-contaminate the grinding with subsequent sample.

Wide range of accessories and options

A wide variety of options is available for the HP-M to meet all requirements of the customer. These options include loading magazine for 26 sample cups, magnetic separator for extracting metallic particles, cooling device for the grinding vessel, dosing device for grinding aid and blank sample, wet and sand cleaning as well as chromium steel and tungsten carbide grinding vessels.

The HP-M is specially designed for integration into robot automations. It is also possible to connect the mill with a transport belt to a HP-P.



Grinding vessel with non-contact temperature sensor



Dosing device



Storage container for grinding and pressing resources



HERZOG HP-M pulverizing mill

The pelletizing press for optimal XRF analysis



Pelletizing mill HP-M with a magazin connected to the press HP-P

PELLET PRESS HP-P

Perfect quality of the pressed pellet

The HP-P produces high quality pressed pellets with a smooth surface necessary for an optimal XRF results. The HP-P achieves the desired uniformity and density of each individual pressed pellet with a maximum of reproducibility.

Program-controlled pelletizing for high reproducibility and throughput

All parameters necessary for the pelletizing process such as total pressing force, incremental increase and decrease of pressing force and pressure holding time can be preset. They are clearly presented on the HMI control panel and can be easily adjusted. Due to the program-controlled automatic sequence every sample is processed identically and is not subject to human error. Furthermore, the automatic sample operation guarantees a high sample throughput whenever required.

Various options

In the standard version of the press, the counter-pressure plate is cleaned with a brush rotating in alternate directions. As an option the use of a second pressing tool with a counterpressure plate is possible. This permits the assignment of each pressing tool to a particular sample type and a significant increase in the sample throughput.

The HP-P can be fitted with magazines for sample cups, steel rings as well as pressed pellets and can be easily integrated into robot automations.



HERZOG HP-P pellet press



Technical data HP-M

Model Pulverizing mill HP-M

- Color: blue/grey, RAL 5007/7035
- Labeling text: English
- Operating manual: 1 copy, English

Dimensions L x W x H

Machine	750 mm x 1,300 mm x 1,630 mm
Machine incl. box packing	1,850 mm x 1,200 mm x 2,200 mm

Weight

- Machine: 755 kg
- Machine incl. box packing: 1,100 kg

Electrical power supply and consumption

Voltage	400 V, 50 Hz, 3-phase
Neutral conductor	Not required
Power consumption	5.0 kVA

Compressed air supply and consumption

Pressure	Min. 5 bar, max. 10 bar
Consumption	Approx. 1,800 dm ³ N/sample for dry cleaning Approx. 3,000 dm ³ N/sample for wet cleaning (option)

Waste connections

dry cleaning:

Position dust collection connection	Left side
Outside diameter of connection	50 mm
Dust collection capacity	6–10 m ³ /min at 2100 Pa

wet cleaning (option):

connections on the left side of machine	
Dust collection connection	Ø 80 mm
Waste water connection	Ø 50 mm
Steam drain connection	Ø 98 mm
Dust collection capacity	6-10 m ³ /min at 2100 PA

Electrical control cabinet (integrated)

PLC control	SIMATIC S 7-300
Control voltage	24 V DC
System of protection	IP 54
Insulation class	B

Processing parameters

Duration of grinding cycle 1	0–300 sec.
Duration of grinding cycle 2	0–300 sec.
Processing time	Approx. 2 min. + preset grinding cycle + options
Number of processing programs	16

Processable samples

Material	Various minerals, cement raw meal, clinker, cement, slag, ores, oxydes, ferro-alloys
Grain size	Max. 5 mm
Hardness	Max. 9 Mohs
Temperature	Max. 100 °C

Options

- Loading magazine with 26 sample cups
 - Wet cleaning device
 - Sand cleaning device
 - Dosing device for grinding aid
 - Cooling device for grinding vessel
 - Blank sample dosing device
 - Grinding vessel chrome steel 100 ccm
 - Grinding vessel tungsten carbide 100 ccm
 - Magnetic separator for extracting metallic particles from the sample
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Technical data HP-P

Model Pellet Press HP-P

- Color: blue/grey, RAL 5007/7035
- Labeling text: English
- Operating manual: 1 copy, English

Dimensions L x W x H

Machine	750 mm x 1,300 mm x 1,630 mm
Machine incl. box packing	1,850 mm x 1,200 mm x 2,200 mm

Weight

- Machine: 910 kg
- Machine incl. box packing: 1,300 kg

Electrical power supply and consumption

Voltage	400 V, 50 Hz, 3-phase
Neutral conductor	Not required
Power consumption	5.0 kVA

Compressed air supply and consumption

Pressure	Min. 5 bar, max. 10 bar
Consumption	Approx. 1,700 dm ³ N/sample

Waste connections

Position dust collection connection	Left side
Outside diameter of connection	80 mm
Dust collection capacity	6-10 m ³ /min at 2100 Pa

Electrical control cabinet (integrated)

PLC control	SIMATIC S 7-300
Control voltage	24 V DC
System of protection	IP 54
Insulation class	B

Processing parameters

Processing time	Approx. 60 s, depending on program and parameter selection
Pressing force	50–200 kN steel rings 40 x 35 x 14 50–300 kN steel rings 51.5 x 35 x 8.6
Pressing force up	0–99 sec.
Pressing force down	0–99 sec.
Force difference ramp down	0–300 kN
Press blank sample	no/yes
Pressure holding time	0–99 sec.
Material dosing steps	0–9
Dosing quantity per step	Adjustable
Number of processing programs	16

Processable samples

Material	Various minerals, cement raw meal, clinker, cement, slag, ores, oxydes, ferro-alloys
Form	Powder, dry
Grain size	Max. 100 µm
Hardness	Max. 9 Mohs

Standard dimensions of steel rings

Outside diameter	40 mm	or	Outside diameter	51.5 mm
Inside diameter	35 mm		Inside diameter	35 mm
Height	14 mm		Height	8.6 mm

Options

- Loading magazine with 26 sample cups
- Magazine for steel rings, 10 positions
- Press tool for pressing into steel rings



The design of the machine complies with the applicable accident prevention and VDE (German association of electronic engineers) regulations. We reserve the right to make technical changes.

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