

# HP-MP

Compact pulverizing mill and pellet press



# HERZOG

## Compact and easy to operate

The HP-MP is the state-of-the-art solution for grinding of granular material and preparation of pressed pellets. The compact dimensions, the wealth of functions and easy operation make the HP-MP the perfect choice for laboratory environments.

The HP-MP is extremely versatile and ready for different configurations: It can be used as a stand-alone machine with manual input or magazine function, as part of a linear automation or component of a robot cell. Due to the well-thought and modular design most customer-specific requirements can be realized without great effort and extra costs. All serviceable elements are easily accessible resulting in much simpler and faster maintenance and service works.

The HP-MP contains a huge variety of different features to cover the specific needs of quality control and assurance. Thorough cleaning of all contact surfaces, blind dosing and other processes are used to effectively avoid cross-contamination. The powerful hydraulic module with press forces up to 200 kN is suitable even for challenging analytical tasks. The HP-MP can automatically retain sample aliquots for further analyses. Grinding and pelletizing can be carried out independently. Due to these and numerous other features the HP-MP is perfectly suited for preparation of cement-related material and a wide range of other industrial and research applications.



The operator inserts a cup via the input/ output device



23-position cup magazine for batch processing of samples

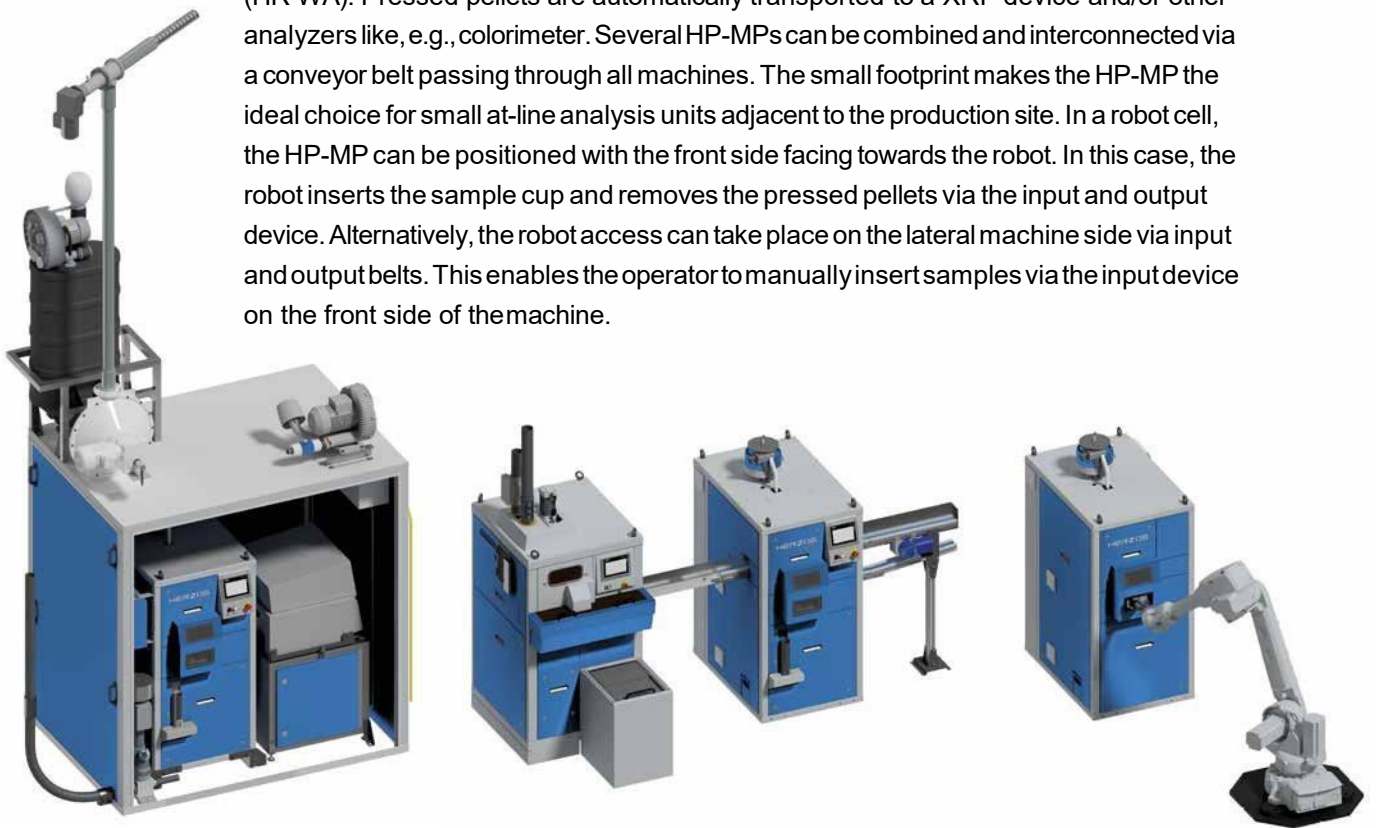
### Stand alone configuration

Great store was set in designing a machine that is versatile and deployable in many different configurations. As a stand-alone machine, the HP-MP can be operated with an input and output device where the operator inserts a single cup and removes the pressed pellet. As an option, a 23-position-magazine is available to allow automatic batch processing of samples.

The prepared pressed pellets are collected in an output magazine attached to the side of the machine. As a matter of choice for the operator, the cup can be returned empty to the magazine or filled with retain material for further processing.

## Designed for easy automation

In a linear automation, the HP-MP may receive the sample from, e.g., an input magazine, laboratory airtube station (type HR-LA), crusher (HP-CA) or gravimetric dosing unit (HR-WA). Pressed pellets are automatically transported to a XRF device and/or other analyzers like, e.g., colorimeter. Several HP-MPs can be combined and interconnected via a conveyor belt passing through all machines. The small footprint makes the HP-MP the ideal choice for small at-line analysis units adjacent to the production site. In a robot cell, the HP-MP can be positioned with the front side facing towards the robot. In this case, the robot inserts the sample cup and removes the pressed pellets via the input and output device. Alternatively, the robot access can take place on the lateral machine side via input and output belts. This enables the operator to manually insert samples via the input device on the front side of the machine.

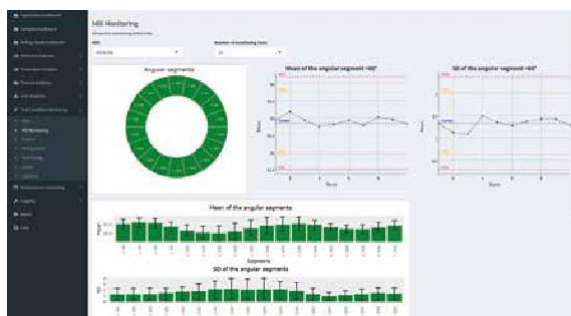


Examples of configuration possibilities for the HP-MP

HP-MP in an at-line container for raw meal production, connected to a sampler and XRF analyzer

HP-MP with a transport belt connection to the pneumatic receiving station HR-LA (left)

HP-MP in a robot cell, robot access via front side of the machine

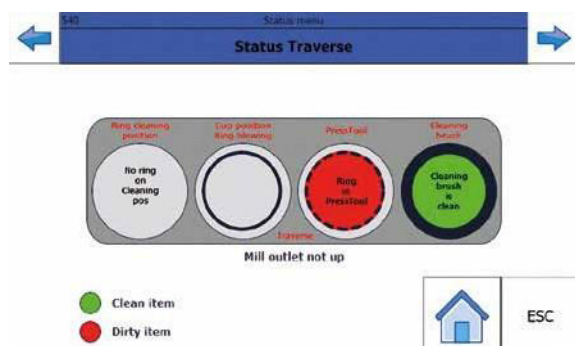


Dashboard in the PrepMaster Analytics for Tool Condition Monitoring of disc mills

## Tool Condition Monitoring

The HP-MP is ready for smart industry solutions enabling tool condition monitoring and predictive maintenance. Integrated sensory technology allows the online monitoring of grinding efficiency and performance of swing aggregate and grinding set. This powerful tool, in combination with the PrepMaster Analytics software, makes it possible to define and ensure reproducible sample preparation conditions for more accurate analysis.

# Excellent results in pulverizing and pelletizing



HMI panel of the HP-MP for easy control and configuration of the machine



Various possibilities of sample input and output  
(here: sample input from the side by a robot)



Perfectly prepared pressed pellets for manual or automatic analysis

## Pulverizing

The operator has full control over the pulverizing process and can adjust all relevant machine parameters and process steps. The rotation speed of the grinding vessel is continuously adjustable between 600 and 1500 rpm. The feeding and discharge intervals, the timing for adding grinding aid, the cleaning cycle and much more can be adapted to achieve the optimum result for each material.

The grinding vessel has a volume of 100 ccm which offers maximum flexibility for operation of all kind of material. Both chrome steel and tungsten carbide grinding vessels are available and can be exchanged with little effort. After pulverizing, a sample aliquot can be automatically retained for preparation of duplicate pellets or administration of further analytical methods. The grinding vessel can be flushed with a blank feed to minimize cross-contamination between subsequent samples.

## Pelletizing

The hydraulic unit ensures a controlled and absolutely reproducible pelletizing process. All parameters are easily adjustable to allow fine-tuning for each material and analytical approach. The operator can directly change the total pressing force (50- 200 kN), the incremental increase of the pressing force and the pressing holding time. Each pelletizing cycle can be monitored using the clearly laid-out HMI panel of the HP-MP or the PrepMaster screen. Using the dosing device of the HP-MP, the operator can choose between two different sample volumes for production of pressed pellets. The HP-MP can process 40 and 51.5 mm rings by default. The press tool is very easy to change.

# Numerous options



23-position ring magazine for clean and filled rings (option)



Dosing unit for grinding aid in tablet form (option)



Collection box of the internal ring cleaning unit (option)

## Options

The HP-MP offers a range of different options:

- Ring cleaning unit, integrated into machine housing
- 23-position magazine for clean and filled 51.5 mm rings, outside the machine (insertion of filled rings only available in combination with ring cleaning unit)
- 23-position cup magazine
- Chute or carrying handle magazine for pressed pellets
- Dosing unit for grinding aid in tablet form
- Volumetric dosing unit for sample material (10, 12.5 and 15 ccm)
- Cooling unit for grinding vessel incl. automatic temperature monitoring
- Conveyor belts for cup and ring transport on both sides of HP-MP, partially height-adjustable

## HP-MP at a glance

- Small footprint machine for combined grinding and pelletizing of a wide range of different granular materials
- Designed for versatile applications including stand-alone operation, linear or robot automation
- Re-engineered for even better performance and easier maintainability
- Ready for smart industry solutions including tool condition monitoring and predictive maintenance



# Technical Description

- Model: HP-MP
- Colour: RAL 5007/7035
- Equipment: 1-set, of wrenches
- Operating manual: 1-set, English

Dimension (L x W x H)	
Maschine	1200 x 750 x 1500 mm
Machine incl. packing:	1400 x 1000 x 1600 mm
Weights	
Machine:	Approx. 740 kg
Machine incl. packing:	Approx. 1000 kg
Power supply and consumption	
Voltage:	400 V, 50 Hz, 3 Phases
Neutral wire:	Not required
Connected load:	5,0 kVA
Compressed air supply and consumption	
Pressure	min. 5 bar, max. 10 bar
Consumption:	Approx.: 1500 l/sample
Disposal connection	
Compressed air supply and consumption	At rear side of the machine, height approx. 100 mm
Diameter of dedusting stud:	80 mm (exterior)
Required dedusting capacity:	6-10 m <sup>3</sup> /minute at 2100 Pa
Electric control cabinet (integrated)	
PLC-control:	Siemens PLC SIMATIC S7
Control voltage:	24 V
Protection:	IP 44
Insulation class:	B
Sample input/output	
Side or front of the machine	
Processparameter	
Grinding time:	0-999 s
Adjustable press power:	50- 200 kN
Pressure holding time:	0-99 s
Number of programs:	16
Processable samples	
Material:	Minerals, raw materials for cement production, clinker, cement, slags and others
Grain size:	max. 5 mm
Hardness:	max. 5 Mohs
Temperature:	max. 90° C



The machine is manufactured in accordance with European CE Directives.

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