HERZOG

Oscillating ball mill

HP-SKM

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Automatic clamping of the grinding jars

The unique design of the HP-SKM with automatic clamping eliminates the need for time-consuming and complex fixation of the grinding jar in the jar holder.

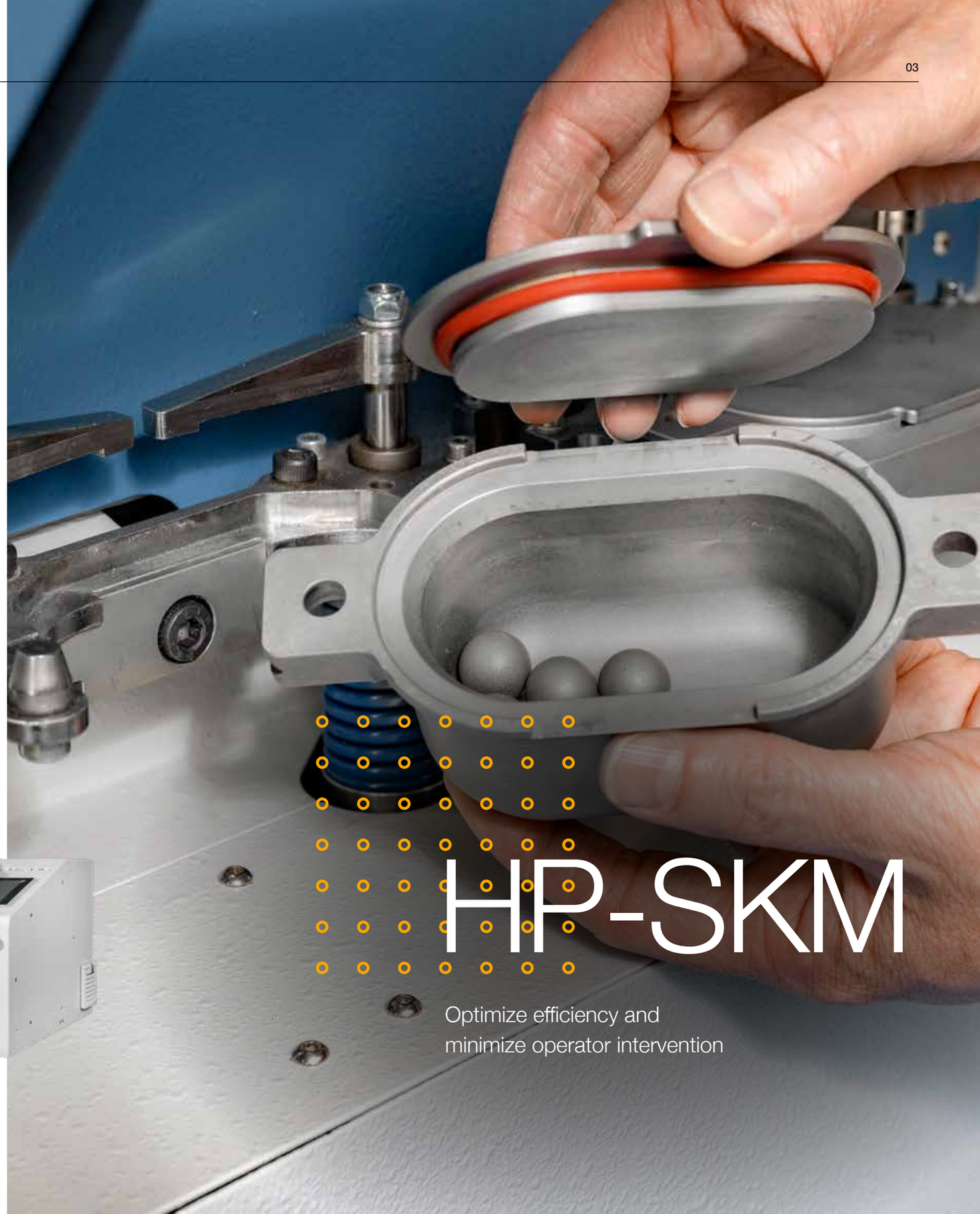
This considerably relieves laboratory staff of tedious and inefficient routine tasks. In a laboratory automation system, the loading and unloading of the grinding vessels can be completely taken over by a robot so that operator intervention is no longer necessary.

The patented clamping mechanism of the HP-SKM not only guarantees reliable and secure clamping of the jar, but also ensures that the grinding vessel is completely closed by tightening the grinding lid. This prevents any grinding material from leaking out.

The grinding jar is placed on the conical pins of the jar holder via the holes on the lateral jar extensions. Clamping then takes place with the help of the two clamping fingers, which are guided over the grinding jar lid and press it down at the same time. A spring mechanism holds the clamping fingers in position and prevents the grinding vessel from moving. The spring force is designed in such a way that the grinding vessel seal retains even the smallest grain size fractions effectively.

The correct positioning of the grinding vessel and the clamping process are monitored by sensors. This prevents the machine from being operated incorrectly by the operator and ensures the correct process within an automatic system.

Innovative automation: Reduce routine tasks in the laboratory thanks to patented grinding vessel clamping.



HP-SKM

Optimize efficiency and minimize operator intervention

Integration of the HP-SKM into automated lab systems

The HP-SKM is the only oscillating ball mill that can be operated fully automatically in a robotic laboratory system. The outer contour of the HP-SKM grinding vessels is specially designed for handling by a multi-axis robot. Grooves on the side of the grinding jar extensions enable reliable handling both in the HP-SKM and within the robotic circuit.

When the HP-SKM is operated automatically, the machine flap is opened automatically by means of a pneumatic cylinder. Thanks to the programmable logic controller of the HP-SKM, integration into the higher-level control system of a plant is very easy.

The range of functions of a robot automation system can be further expanded with additional optional components. In a separate emptying unit, the sample material is transferred from the grinding vessel into a cup and made available for further sample preparation and subsequent analysis (optional). In the cleaning unit, the grinding balls are removed and cleaned along with the grinding vessel and lid (optional).

Manual operation of the HP-SKM

As a standalone machine, the HP-SKM is also ideal for manual operation. The grinding vessel is inserted and removed by the operator. A gas pressure spring on the machine flap allows the operator to open and close the machine effortlessly.

The grinding program can then be selected via a large, easy-to-operate control panel. Alternatively, a program can also be started quickly using the programmable buttons on the front of the machine. The HP-SKM can be retrofitted easily for automated operation and integrated into an automatic system.

Advantages

- Automatic clamping and closing of the grinding vessel
- Can be used in robot automation or as a standalone machine
- Standalone version can be retrofitted for automation operation
- Suitable for laboratories in the mining, cement, chemical, recycling, steel, food, and other industries
- Grinding speed continuously adjustable up to a maximum frequency of 35 Hz
- Small footprint, low noise level, excellent maintainability
- Grinding vessels available with different grinding volumes
- Optional upgrade: add a unit for automatic discharge of the ground material and cleaning of the grinding jar and balls

Laboratory equipment with outstanding ergonomics and ease of maintenance

The use of an HP-SKM makes the work of the laboratory staff considerably easier and significantly increases the efficiency of laboratory processes. This is already the case when used as a standalone machine, but especially when integrated into a fully automated robot automation system.

Due to design optimization and effective insulation of the machine housing the noise emission of the HP-SKM is extremely low. The HP-SKM can therefore be operated in a laboratory environment without any problems.

The HP-SKM has a high level of safety: unintentional opening of the machine flap during grinding vessel fixaton and grinding is prevented by a safety switch with guard locking. The sensor-supported monitoring of all operations within the machine also ensures that all HP-SKM processes are completely reliable.

Integration of the HP-SKM in automated laboratories: handling of grinding vessels using a multi-axis robot

All areas of the machine are easily accessible for maintenance and service work. The covers can be easily removed and fitted at all relevant points. Components that are subject to wear can be easily replaced by qualified personnel.

Highest performance for a variety of different industries and applications

The HP-SKM covers the entire application spectrum of an oscillatory ball mill. The grinding speed can be infinitely adjusted up to a maximum frequency of 35 Hz. This means that even more complex applications are possible with the HP-SKM. The maximum volume of the chrome steel grinding vessels is 125 ccm. Smaller volumes of 50 and 80 ccm are also available.

Technical description

Model	HP-SKM
Color	RAL 5007 / 7035
Dimensions	
Machine	660 x 725 x 660 mm (L x W x H)
Machine incl. packaging	1,100 x 1,100 x 1,200 mm (L x W x H)
Weights	
Machine	220 kg
Machine incl. crate packaging	300 kg
Power supply and consumption	
Voltage	380 - 415 V, 50/60 Hz, +N 200 - 240 V, 50/60 Hz, 3-phase 200 - 240 V, 50/60 Hz, 1-phase 20A (other voltages available upon request)
Center conductor	Not required
Power consumption	2.0 kVA
Electrical control cabinet (integrated)	
Control voltage	24 V DC
Compressed air supply and consumption	
Pressure	Min. 6 bar, max. 10 bar
Consumption	10 dm^3
Processing parameters	
Speed	0 - 35 Hz (infinitely adjustable)
Processed samples	
Material	Soft, hard, brittle, fibrous - dry or wet
Max. ball size	30 mm
Application	
Feed grain size	< 10 mm
Jar size	50 ccm, 80 ccm, 125 ccm
Application	Fine grinding of sample material for X-ray fluorescence, diffractometry and other analytical methods
Operating mode	Manual Automatic (can be used in automation)

DEUTSCHLAND
HERZOG Maschinenfabrik GmbH & Co. KG

Auf dem Gehren 1
49086 Osnabrück
Germany

T +49 541 9332-0
F +49 541 9332-33
info@herzog-maschinenfabrik.de

FRANCE
HERZOG France

8 rue Bis Gabriel Voisin
51100 REIMS
France

T +33 (0)6 81 72 41 65
info@herzog-automation.fr
www.herzog-automation.fr

USA
HERZOG Automation Corp.

8245 Dow Circle
Strongsville, OH, 44136
USA

T +1 440 891 9777
info@herzogautomation.com
www.herzogautomation.com

JAPAN
HERZOG Japan Co., Ltd.

3-7, Komagome 2-chome
Toshima-ku
Tokio 170-0003
Japan

T +81 359 0717 71
F +81 359 0717 70
info@herzog.co.jp
www.herzog.co.jp

CHINA
HERZOG (Shanghai) Automation Equipment Co.,Ltd

Section A2,2/F, Building 6,
No.473, West Fute 1st Road,
Waigaoqiao F.T.Z, Shanghai, 200131,
P.R. China

T +86 21 503 759 15
F +86 21 503 757 13
MP +86 15 800 750 53
info@herzog-automation.com.cn
www.herzog-automation.com.cn

INDIEN
HERZOG Automation India

Office No 416, 4th Floor, Westport, Baner Gaon
Pune, Pune City, Maharashtra, 411045
Indien

T +49 541 9332-40
info@herzog-automation.in
www.herzog-automation.in

www.herzog-maschinenfabrik.de