HERZOG

FoundryLab

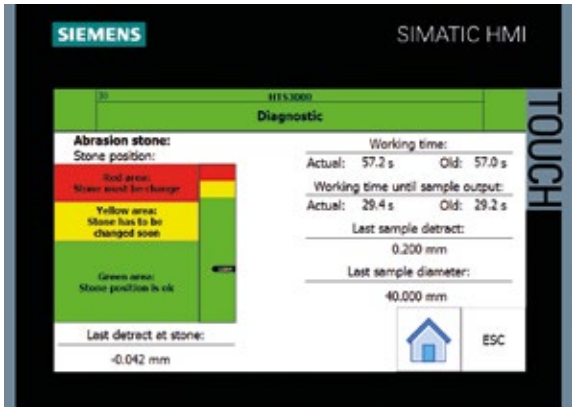
The solution for fully-automatic quality inspection in foundries

HERZOG
FoundryLab

Superior grinding performance

HTS 3000 cup wheel grinder

Manual input door of the HTS 3000



Automatic monitoring of the cup wheel height

Excellent grinding technology

The HTS 3000 makes use of the advantages of the cup wheel grinding technology by HERZOG. After insertion of a new cup wheel the machine finds automatically its right height position. During each grinding cycle, the cup wheel position is automatically readjusted to provide the exact material removal.

The combination of rough and fine grinding steps results in a perfectly finished surface for optical emission spectroscopy. The process of grinding and cooling by compressed air has been streamlined to guarantee short machining times. Furthermore, the use of cup wheels minimizes contamination of the sample surface.

Monitoring of cup wheel wear

The operator can easily track the current wear of the cup wheel on the integrated machine panel and the screen of the PrepMaster Entry. This allows predictive scheduling of maintenance activitites and exchange of the cup wheel at the most convenient point in time.

Manual operation

Both the HTS 3000 and the SPECTROMAXx can be switched to manual mode. This allows the immediate preparation and analysis of samples without using the automatic handling system. The samples can easily be inserted from outside of the FoundryLab without need to enter the safety area of the system. Program selection for the HTS 3000 is done by the integrated panel.

Media connections

The subdistribution system supplies all components of the FoundryLab including the HTS 3000, the SPECTRO-MAXx, the handling system and PC's for PrepMaster and SPARK ANALYZER. Only three media connections are necessary: Argon supply for the SPECTROMAXx, compressed air (6 bar), and a standard voltage connection.

The solution for the challenges in quality inspection of foundries

The FoundryLab is the fully-automatic solution for the challenges in quality inspection of foundries. The cost-effective system has a small footprint, significantly increases laboratory throughput and relieves the operator from mundane tasks. All components of the FoundryLab are perfectly matched and guarantee highest quality standards both in sample preparation and analysis. The HTS 3000 cup grinding machine by HERZOG excels by short machining time, optimal surface processing and contamination-free operation. The metal analyzer SPECTROMAXx by SPECTRO AMETEK provides excellent and rapid elemental analysis at a minimum of maintenance costs. The servo-transport system ensures trouble-free sample handling without need for manual intervention.

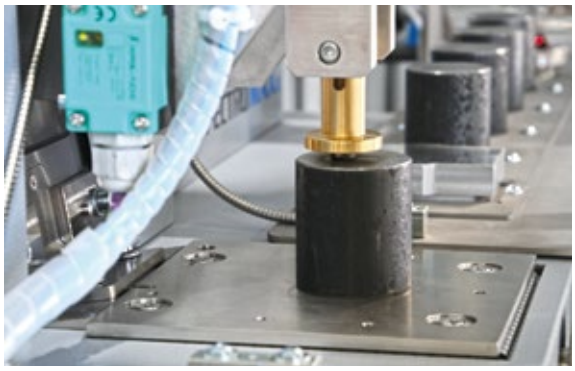
Input of high-priority samples

The operator introduces the production samples via two independent input positions. This increases flexibility and sample throughput of the system. One of the two input positions can be assigned to the insertion of high-priority production samples. These are given preferential preparation and analysis compared to normal-priority samples.

Input positions for production samples

Handling of control samples

The SPECTROMAXx proprietary iCAL calibration logic takes only five minutes for total measurement leading to a significant increase of instrument availability.
The integrated control sample magazine can be loaded with up to four control samples. These samples are managed via the PrepMaster Entry control system.



Control sample on the spark stand

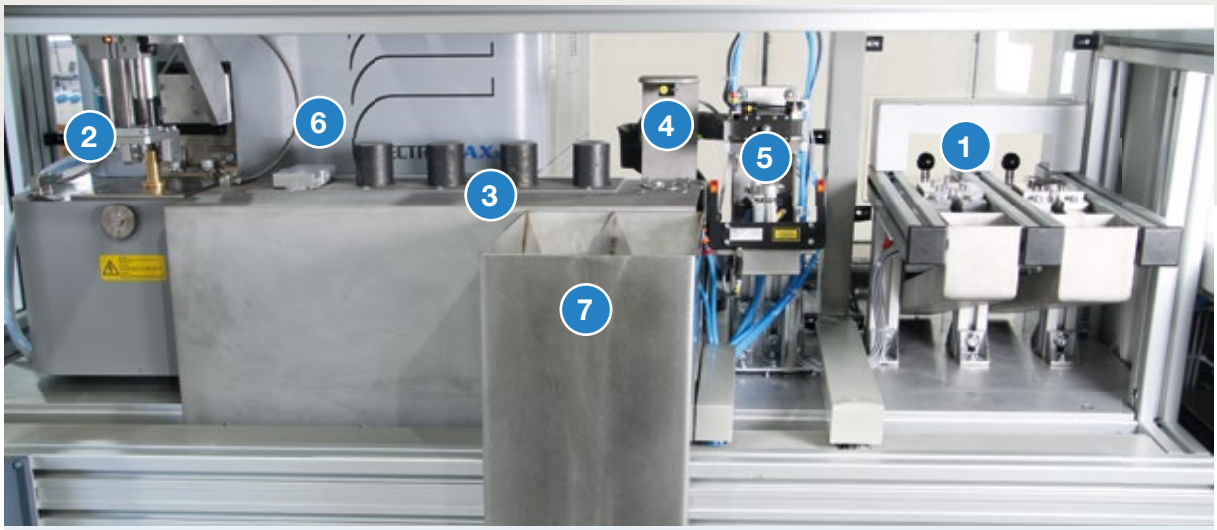
Automatic table and electrode cleaning

The spark stand cleaning provides a thorough cleaning of the electrode and the surrounding stand table to avoid cross-contamination between samples. The automatic spark stand is proven technology already used in many other laboratories.

Smart sample handling

The servo-transport handling system ensures the fast and reliable transportation of production and control samples from one position to the other. The system is extremely robust and easy to maintain. The use of a position for sample rotation allows the application of several spark points on one sample surface.

Gripper unit of the handling system inserting a production sample into the HTS 3000

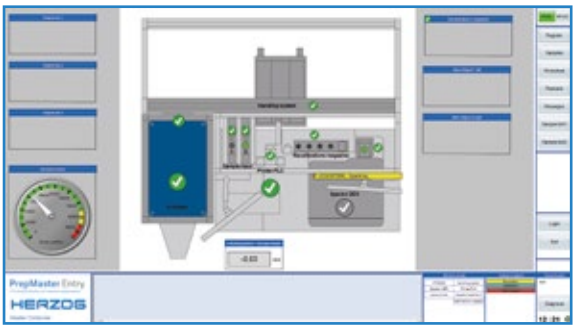


Rear view of the FoundryLab

1. Sample input position
2. Automatic spark stand of the SPECTROMAXx
3. Magazine for control samples
4. Position for sample rotation
5. Position for labelling of samples (option)
6. Cleaning brush for stand table
7. Discharge position for ready analyzed sample

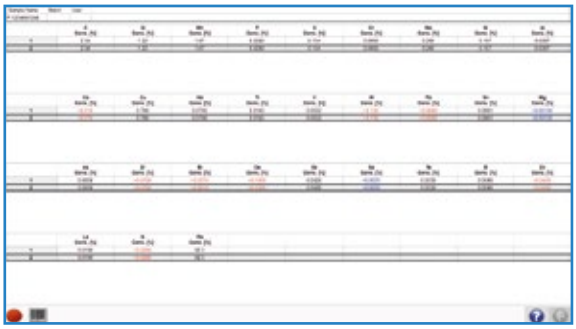
Space-saving and maintenance-friendly design

Due to its intelligent design the FoundryLab performs all functions in a limited space. Full accessibility to all components of the automation is ensured to guarantee easy maintenance and service. The FoundryLab is delivered as a ready-to-use solution for quick installation and start-up. We have taken much care to meet highest safety requirements including safety switchgears for all doors.



PrepMaster Entry

The PrepMaster Entry has been specially designed for the requirements of sample preparation. PrepMaster Entry uses a GUI where you have an excellent overview of all current, processed or queued samples in the system. The PrepMaster Entry comes with a rich variety of tools for calibration, priority management and software maintenance.



SPARK ANALYZER

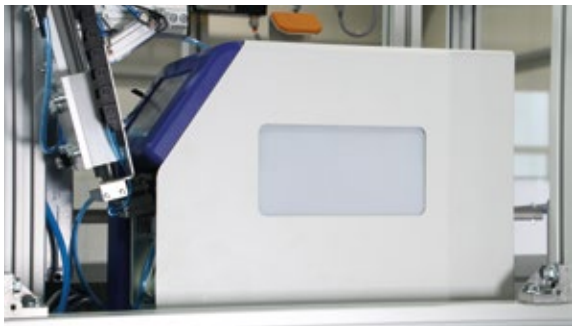
Even for less experienced personnel, SPECTRO's SPARK ANALYZYER Pro Software takes effortless operation to a new level. The SPARK ANALYZER presents clear choices via dedicated toolbar buttons. Instead of complicated method development application profiles are tailored to predetermined user requirements.

Options

Input desk using a barcode scanner (option) for sample registration

Barcode scanner

The optional barcode scanner simplifies the process of entering the sample identification code and ensures error-free data transfer from sample input to the spectrometer and the higher-level system.



Label printer (option) for sample marking

Label printer

After completion of analysis, production samples might be marked for archive purposes. The label printer allows an unambiguous assignment of the sample to the analysis results. The operator-friendly arrangement of the label printer makes it easy to refill labels and other printer consumables.

Position for labelling of production samples (option)

Container housing and special voltage

As an alternative to installation in laboratory facilities, the FoundryLab can also be delivered in a standard container. The container includes oxygen monitoring, air conditioning and a sample input terminal from outside the container. The container needs only three media supply lines for argon, compressed air and voltage. The standard voltage of the FoundryLab is 3 x 400 V 50 Hz. For other voltages, HERZOG can supply an optional electrical transformer.

Mold for casting of production samples (option)

Mold

The sample shape is critical to successful analysis. The supplied mold with an integrated brass body has been optimized with regard to sample shape, material solidification and easy removal of the cast sample. All components in the automation are tuned to the sample shape for fast and smooth handling.

powered by SPECTRO

Technical data

HTS 3000

- Colour: RAL 5007/7035
- Documentation: 1 Set English/German

Dimensions (L x W x H)

Machine	1200 mm x 600 mm x 1700 mm

Weight

Machine	550 kg

Power supply and consumption

Voltage	3 x 400 V, 50 Hz
Neutral conductor	Not required
Switch cabinet integrated	

Cup Wheel dimensions (dm x H)

Cup wheel	200 mm x 100 mm

Compressed air supply and consumption

Pressure	Min. 5 bar, max. 10 bar
Consumption	Approx. 750 dm³N per sample

SPECTROMAXx

CCD Optics

High resolution CCD multi detectors
Stabilized against fluctuations in temperature
Effective wavelength range:
140–670 nm, the applicable and config- ured wavelength range is based on the customer's application requirements
Automated profiling

Spark Stand

Open spark stand for high sample throughput and various kinds of sample geometries
Minimized argon consumption with Argon Saver Module
Optimized argon flow
Spark stand plate easily exchangeable

Excitation System

Fully digitalized plasma generator with digital discharge definition, digital pulse generation and digital offline pulse control 32 MHz micro-controller

Energy resolution	125 mW in 0.5 ns steps
Max. spark duration	4000 µs
Max. spark power	4 kW

Software

Spark Analyzer Pro MAX Software for analytical operation and calibration
Continuous automatic hardware diagnosis in the background
Automatic alloy/grade verification and identification
Result Manager
Online Maintenance Scheduler

Environmental Conditions

Room temperature	10–30 °C (50–86 °F)
Relative humidity	< 80 %, non-condensing
Atmosphere	free of corrosive vapors and high dust pollution

Spectrometer Data

max. 400 VA during sparking

Fuse	16 A slow-blow
Version	Benchtop Floor model
Depth	750 mm/30“ 790 mm/31“
Width	625 mm/25“ 625 mm/25“
Height	450 mm/18“ 1350 mm/53“
Weight	77 kg
	127 kg approx. 169.7 lbs 279.9 lbs

Automation

- Colour: RAL 5007/7035
- Documentation: 1 Set English/German

Dimensions (L x W x H)

Machine	2150 mm x 2000 mm x 2000 mm

Weight

Machine	Approx. 1100 kg
Machine incl. packing	Approx. 1500 kg

Power supply and consumption

Voltage	3 x 400 V, 50 Hz
Neutral conductor	Not required

Compressed air supply and consumption

Pressure	Min. 5 bar, max. 10 bar
Consumption	Approx. 750 dm³N per sample

Processed Samples

Material	Cast iron
Production samples	Round ø 40 mm, h = 8 mm
Control samples	Round ø 45 mm, h = 50 mm

Processing parameters

Cutting depth	Max. 2 mm programmable in steps of 0.1 mm
Processing cycle duration	Depending upon the program min. 60 sec.

Sample cooling

Cooling type	By means of cooling nozzles
Cooling media	Compressed air

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

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