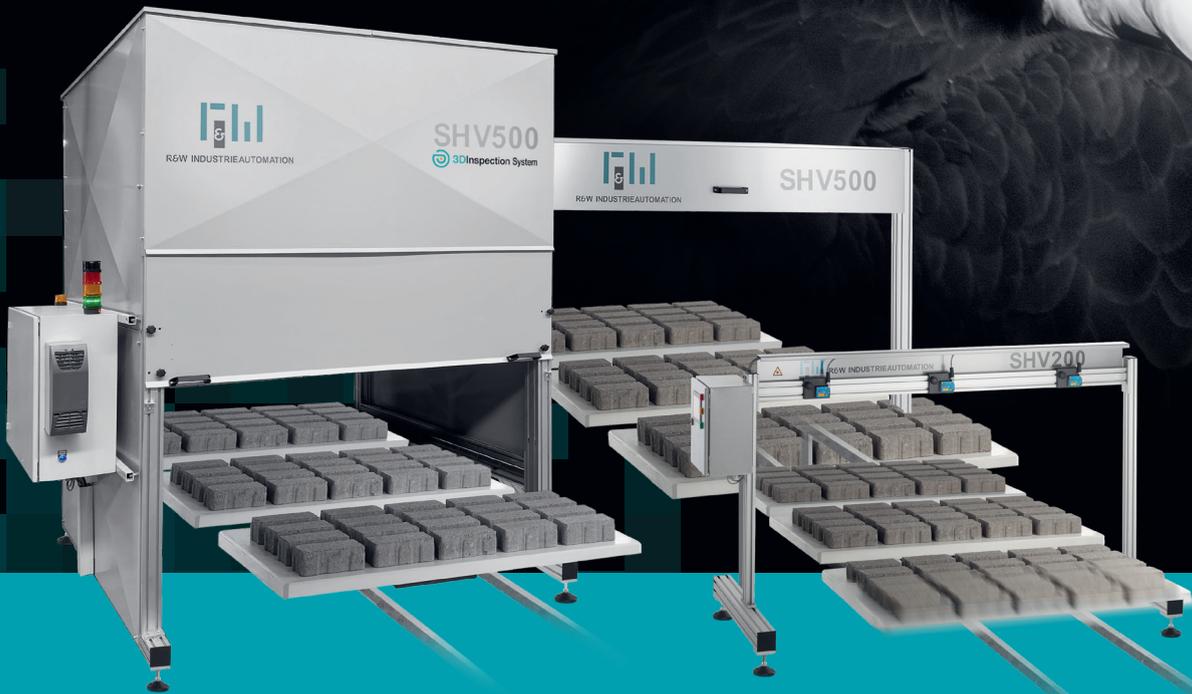


AUTOMATED QUALITY CONTROL OF CONCRETE BLOCKS

precise. strategic. efficient.

 3D Inspection System



SHV200
SHV500
3D INSPECTION
SYSTEM

**EXACT BLOCK HEIGHT
MEASUREMENT AND SURFACE
CONTROL FOR THE CONCRETE
INDUSTRY**

R&W INDUSTRIEAUTOMATION

Graf-Heinrich-Str. 20 • 57627 Hachenburg • Ph.: 02662 94 14 34 • Email: info@r-u-w.de

More information at: www.r-u-w.de

SHV200 SHV500

RULER OF HEIGHTS

precise. strategic. efficient.



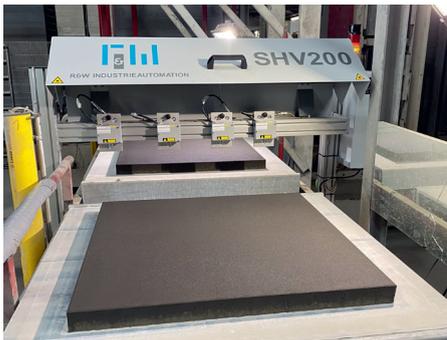
MODULAR MEASUREMENT SYSTEMS FOR ANY REQUIREMENT

Maximise your quality and minimise your scrap costs!

Our block height measuring devices are scalable. They can be used in combination with all makes of concrete block machines or can be operated as stand-alone units.

SHV200

Measurement range: 20–190 mm



One of the main quality features in concrete block production is the uniform height of the individual blocks. This is exactly why precise measurement of the products during the manufacturing process is enormously important. Our measuring devices are positioned as closely as possible behind the concrete block machine above the transport conveyor for the production plates. The concrete blocks passing under the device are scanned without contact by up to six lasers and measured with an accuracy of +/- 0.5 mm. The resulting measurement range of the stone height is 20 mm to 190 mm (SHV200) or 20 mm to 490 mm (SHV500).

SHV500

Measurement range: 20–490 mm



The relative height between the top edge of the board and the top edge of the block is used to determine the height. This measurement principle results in independence from the fluctuations in the height and quality of the production plates. The heights of a row of blocks are recorded by up to 7500 measurements per second. For the calculation of the product height, only the relevant features of the product surface are evaluated. The laser sensors are mounted on horizontally movable slides on an aluminium profile axis. The slides make it possible to adjust the measuring position to the current target. This is necessary if different products need to be measured.

SHV-VISU visualisation

In order to seamlessly integrate the SHV500 measurement system into a modern production environment, R&W Industrieautomation has developed the SHV-VISU multilingual Windows software solution. This provides the user with convenient operation, effective data storage and simple analysis. The data collected is stored fully in a database.

The SHV-VISU software is designed for installation on several PCs in the company network. A distinction must be made between the server version and the client version. The SHV-VISU server is installed once per SHV500 on the machine PC. It offers complete functionality and should always be switched on to save the data. The SHV-VISU client can be installed on several PCs in the company network. This version only has read-only access to the server data. The client can also connect to multiple servers if there are multiple SHV500s in one factory. This gives you an overview of all of the measurement systems from a central location.

SHV-VISU FUNCTIONS

- simple operation
- clear display of the results
- storage of data for each board in a database
- early detection of irregularities during production via a trend display
- statistical evaluation of the stored production data
- management of the parameters in recipes for the different products
- the data can be accessed from any PC in the network
- export of selected data to Office applications possible



Screenshot of the SHV-VISU software

THE NEW REALITY OF BLOCK HEIGHT MEASUREMENT

Detailed and intelligent quality control

 3D Inspection System

Installation of the 3D Inspection System

The 3D Inspection System extends the SHV200 and SHV500 systems to a measuring system that allows all of the blocks on a production plate to be inspected both for their height and surface. The system is used on the wet side directly behind the production machine.

ADVANTAGES

- exact height measurement of all concrete blocks on the production plate
- detailed inspection of the concrete blocks for anomalies, such as lifts, chipping, holes, cracks, etc.
- extension of existing R&W stone height measuring systems (SHV200/SHV500) possible
- measurement of freshly produced concrete products on continuous production plates in a height range of 20 - 490 mm
- early defect detection
- reduction of scrap
- data collection and evaluation

Use of the 3D Inspection System on the wet side

- direct feedback to optimise production

3D INSPECTION SYSTEM

THE EAGLE EYE

R&W market innovation
in the concrete block industry

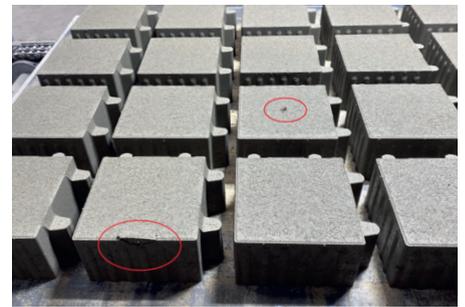
3D sensor technology enables exact quality analysis

Surface and block height at a glance

The R&W measurement processes make an analysis of the production plate height, as well as the stone height. The 3D sensor, in combination with the 3-point lasers, can detect the height of all of the products on the plate. Our **3D Inspection System** also uses the relative height between the top edge of the production plate and the top edge of the stone for height measurement. This measurement principle results in independence from the fluctuations in the height and quality of the production plates.

The unit displays the product heights with a resolution of 0.1 mm. The accuracy of the measurement is +/- 0.5 mm. In addition to height measurement, the 3D sensor is able to check the surface of the concrete products for defects. This is made possible by a special 3D camera and a laser with a bright laser line. This allows the sensor to check accurately, even for concrete products in dark colours. Optional equipment of the system with an additional high-resolution 2D camera and illumination is possible. This allows us to detect fine cracks and stains in the texture.

The measurement system has a frame to hold the three-laser sensors and a lifting device for the 3D sensor, camera and lighting. Thanks to the flexible design, all of the components are height-adjustable and compatible with local conditions. The entire system is covered with protective plates. These protect the sensors and prevent external light from affecting the measuring system. All of the sensors used have protection class IP65 and are suitable for use in concrete plants.



Typically recognised faults



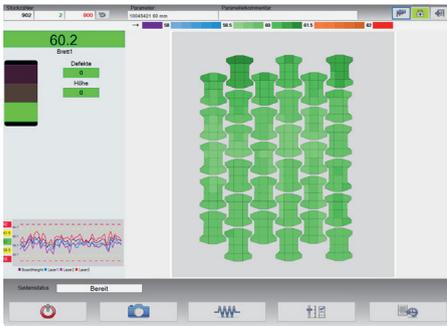
Display in the R&W software



Data acquisition and evaluation with the SHV-VISU software

Detailed results for cost reduction and quality improvement

R&W also offers a software solution for the 3D Inspection System that provides the user with convenient operation, effective data storage and simple analysis. The operator receives a real view of the blocks produced in a coloured representation that allows them to see the height progression of the blocks on the production plate. Defects on the surface are displayed at the same time. This means that the operator can use the measuring system as a reliable tool to optimise the production line.



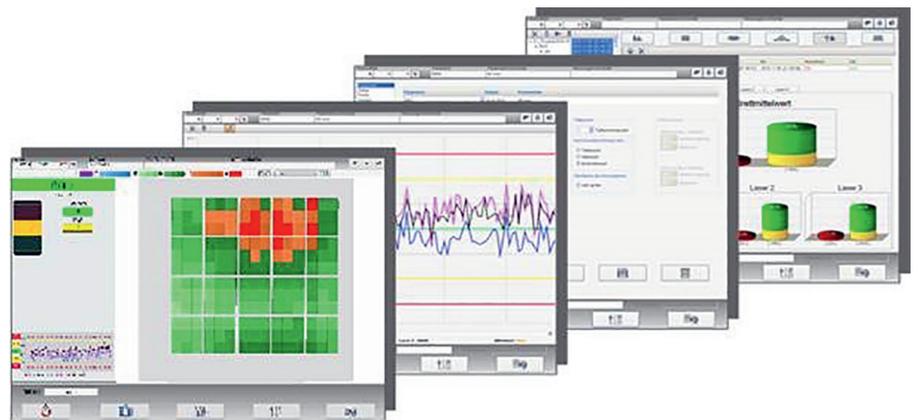
Display measurement results without faults



Display measurement results with height and surface faults

ADVANTAGES

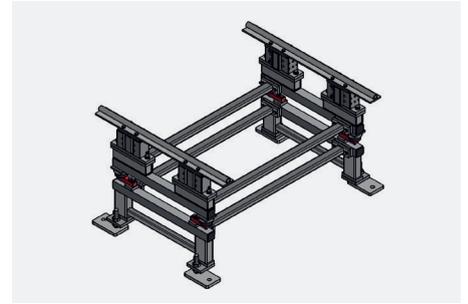
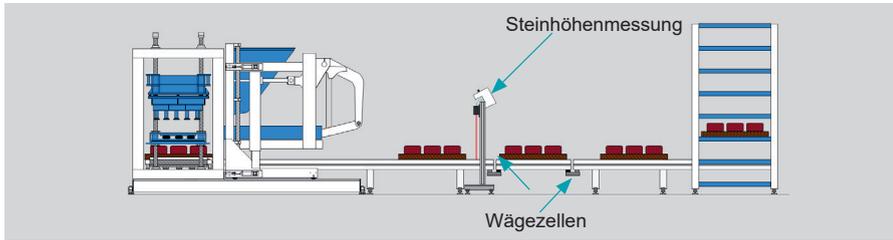
- our innovative display concept lets the machine operator respond promptly to new and recurring faults in the height or on the surface
- trend curves for the heights and defects provide a quick insight into the current production process
- verification of surface defects in the software



In addition to displaying the measurement data, statistical evaluations can also be carried out. It is also possible to export measured values. The analysis of historical data in our SHV-VISU 3D software offers fast and uncomplicated ways to identify fault „hot spots“. Interfaces adapted to the customer can provide helpful data for their own evaluation and/or for machine optimisation. Connection to the controller on the production machine is possible. The software can be installed on additional PCs (e.g. in the quality control office).

Options

BOARD WEIGHING



Rack board weighing

Besides the height, the weight is an essential quality feature of freshly produced concrete blocks. The system for weighing boards with concrete blocks is set up directly behind the block height measurement. The conveyor places the board behind the stone height measurement on a rack with the load cells. The empty weight of a single board can be specified in the SHV-VISU software or read from an RFID chip in the board. The board weighing control measures the weight of the entire load and forms the concrete weight from the empty and full weight.

COLOUR MARKER

The colour marker indicates those block layers for which the height is outside the tolerances specified. The system is installed at the side of the conveyor and marks the defective block layer on one side in the direction of transport.



Marked blocks

PDM (PRODUCTION DATA MANAGEMENT)

The PDM system records production data in the concrete plant. To ensure a closed flow of information from the wet to the dry side, identifiable production plates are used. The basis of the technology is an RFID chip in the production plate, which allows the plate to be identified uniquely along its production path.

A PLC collects the quality-relevant data from the controls of the mixing plant, wet side, dry side, quality measuring devices, etc. By means of the chip number, the information in a database can be assigned to the corresponding production plate. In this way, a wide range of information, such as production data, quality characteristics, etc., can be assigned to each production plate – and, as a result, to a block layer produced on it. The combination of this with an R&W block height measuring system allows consistent quality management, as all of the data is available and traceable at all times for each block layer up to the packaging stage. Quality variations are immediately displayed on the dry side and can be used for automatic sorting there. Likewise, the cycle numbers and service intervals of the production plates can be documented.



Screen for displaying measurement results on the dry side



RFID reader

Automate your quality control

Get to know R&W as a future-proof partner for smart measurement systems.



PRECISION.

One of the main quality features in the production of concrete blocks is the uniform height of the individual blocks, as well as their flawless surface. This is exactly why precise measurement of the products during the manufacturing process is enormously important. The measurement systems from R&W enable non-contact measurement of your products using high-quality sensors. As precise as the razor-sharp gaze of an eagle!

- measurement of the concrete blocks with an accuracy of +/- 0.5 mm
- precise analysis of the surface of the concrete blocks
- optimum production results due to above-average precision

STRATEGY.

In the ever-changing industrial sector, flexibility and adaptability are two crucial factors for the success of your business. Due to their modularity, our measurement systems ensure a high degree of flexibility and can be adapted optimally to your individual requirements. Demonstrate foresight and invest in the future of your company.

- modular design of the measurement systems with many expansion options
- long-term investment through the processing of high-quality materials
- enduring working method guarantees consistently high quality over the years

EFFICIENCY.

Benefit from the advantages of our measurement systems and avoid cost-intensive complaints. Our systems work efficiently and guarantee quality within your production in the shortest possible time, which you will no longer want to do without.

- quality optimisation and cost reduction through the reduction of scrap
- flexible integration into existing production facilities and worldwide service
- Intelligent R&W software for evaluation and archiving



Discover our production solutions for concrete block production!



Join our LinkedIn business network!

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