**Press Facts**

Quality control in the production of concrete blocks

**ROTHO: The concrete block is going digital**

**Optical inspection system increases the number of top quality products with the use of artificial intelligence.**

**Neunkirchen, Germany, December 17th 2020 The industrial plant manufacturer ROTHO in Neunkirchen, together with the Institute of Applied Construction Research (IAB) in Weimar, developed the new Quality Control System QuCON (Quality Concrete) for concrete products. It identifies defects on the surface of concrete products, such as blocks and pavers, and makes it possible to automatically sort out faulty products.**

QuCON captures the surface of the blocks and pavers after the curing process with high-resolution cameras and analyzes the images with image and pattern recognition algorithms. It detects production errors such as efflorescences, broken edges, stone inclusions, colour deviations and detachments of face-mix concrete.

A prototype has successfully been tested at the Institute of Applied Construction Research (IAB) on a large number of various blocks and pavers, and with various types of defects.

The first pilot system will be put into operation at Betonwerk Pfenning GmbH in Lampertheim, South Hesse in the beginning of 2021. It will automatically identify and mark defective blocks, after the curing process under real-life conditions, so that they can be sorted out before packaging. In the next expansion stage, it is possible for a sorting robot to reject the faulty concrete products.

Mario Bäcker, Member of Corporate Management at Robert Thomas Metall- und Elektrowerke GmbH & Co. KG and ROTHO Business Unit Leader, sees a high potential for this new system: “QuCON recognizes the defects with special cameras of the latest generation and methods of artificial intelligence, fast, reliable and due to objective criteria – gapless in the intervals of the production line. The automatic solution replaces the monotonous, mentally and physically demanding work of replacing the faulty concrete products, which do not have the desired quality.”

Dr.-Ing. Justus Lipowsky, head of the IAB Process Technology Research Department, is already thinking ahead: “In the future, ROTHO is planning, together with us, to classify the surface errors by types, to assign them cause-related to the production process and prevent the surface errors even before their occurrence.”

The start-up company for Automatic Defect Recognition Software “sentin GmbH” is accompanying the project and contributing the algorithms for the artificial intelligence.

Thomas Wohlfart, Plant Manager at Betonwerk Pfenning, will strengthen the reputation of the company for its high-quality concrete products: “With the gapless inspection of each concrete block by QuCON, we can reach our goal of an “100-percent-final-inspection” and deliver even more concrete blocks in top quality. Simultaneously, we are relieving our employees of a strenuous and monotonous task."

The market launch is planned for 2021. Interested concrete product manufacturers can contact ROTHO already today, if interested in an additional pilot application.

**440 words including introduction**

**About ROTHO**

Robert Thomas founded the company in 1900, in Neunkirchen, Siegerland. The family business, which is in its fourth generation, is still managed at the same location and is internationally successful with the brands THOMAS (innovative household products) and ROTHO (industrial plants). In the beginning of the company history, ROTHO produced milk cans made out of sheet metal, which were then exported globally. The production was expanded with tool and fixture constructions for the local industry. Later, sheet metal products for storage and transportation, boxes and containers, as well as transport cars for different industries, were added.

Today, ROTHO produces innovative drying systems for clay bricks and roof tiles in the brick and tile industry. In the concrete industry, ROTHO is the specialist for entire concrete curing systems, as well as sound protection and dust extraction systems. With more than thousands of installed industrial plants is ROTHO a global market leader. The production at the main factory in Neunkirchen, Siegerland guarantees a high quality standard and pronounced flexibility. With representatives and service-support points is ROTHO present worldwide.

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**Figures**

**Download of high resolution image files:** [**press photos Rotho**](https://www.vip-kommunikation.de/rotho.html)

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| **Fig. 1**: A, by QuCON, detected inclusion of a stone in an interlocking paver block.  File name: Rotho\_QuCON\_22.jpg |  |
| **Fig. 2**: Furthermore, QuCON recognizes broken edges.  File name: Rotho\_QuCON\_111.jpg |  |
| **Fig. 3**: Concrete paver blocks shortly before packaging.  File name: Rotho\_20200225\_093104.jpg |  |
| **Fig. 4**: The participants from IAB, Betonwerk Pfenning, sentin and ROTHO at the project launch meeting.  File name: Rotho\_Betonwerk\_Pfenning\_Gruppenbild.jpg |  |
| |  |  | | --- | --- | | **Bild 5**: The IAB is already working on a manipulator that removes defective stones and replaces them with flawless ones.  File name: Rotho\_P1010440.jpg |  | |  |

Image credits: fig. 1 – 4: Robert Thomas Metall- und Elektrowerke GmbH & Co. KG, fig. 5: IAB Weimar