

FOUNDRY AUTOMATION

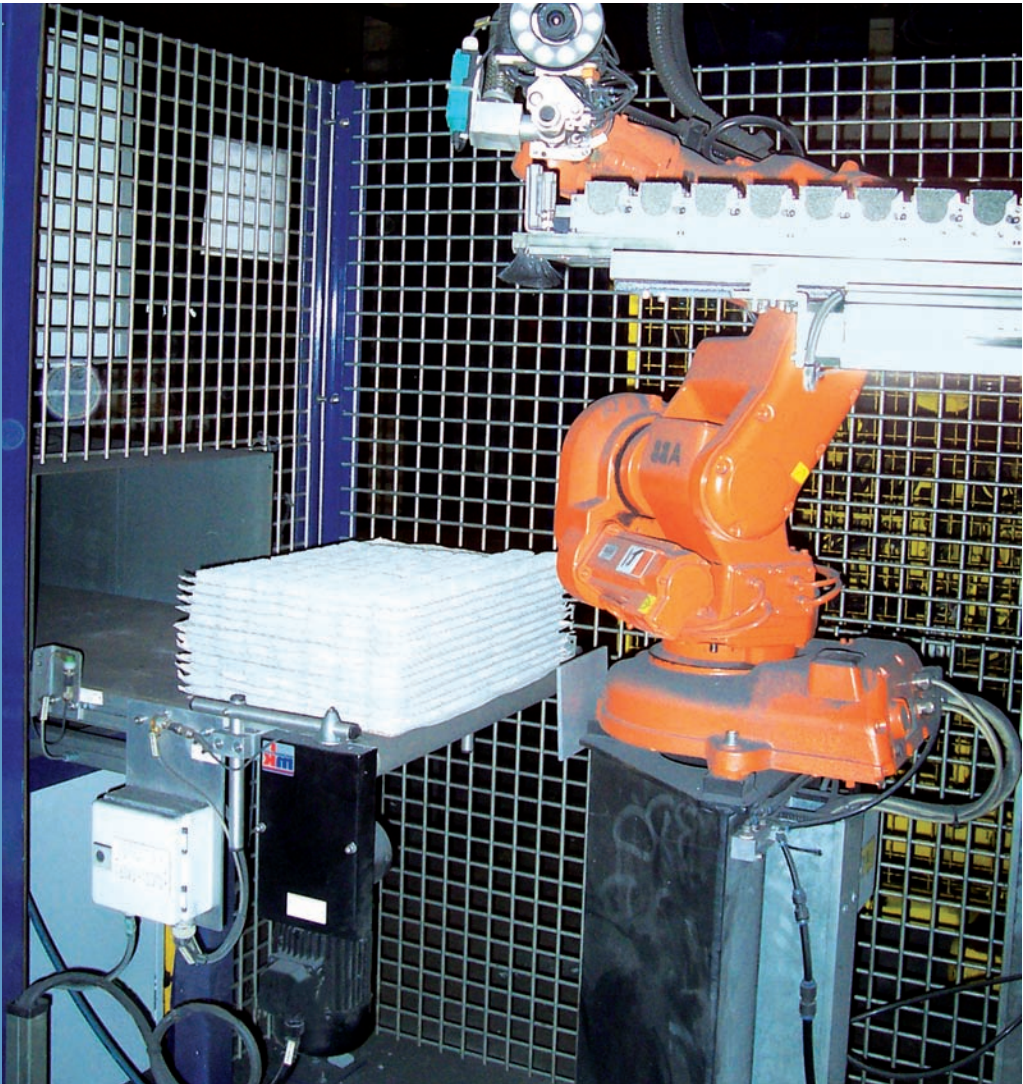
Vision Systems in Practical Operation

Electrical Design
Basic Automation
Information Technology (IT)
Robotic and Vision Systems

SEEING ROBOTS

Vision Systems

Seeing robots react independently to changes in their environment



Robotic and Vision Systems in Practical Operation

The recognition of the type, shape, position and orientation of objects is a key precondition for independently and intelligently acting robotic systems. In a moulding shop two camera-controlled robots share the task of inserting ceramic filters. The first robot recognizes the filters, which are stacked in a box in four layers, takes the filters out of the box one after the other and pla-

ces them into the filter pockets of a transport shuttle. As soon as one layer of filters has been taken out, the robot automatically removes the separating foil to take care of the next layer. When the transport shuttle is full, it takes the filters to the second robot, which places the filters with highest precision into the flasks.

The result: High-precision placement of the filters as well as a significant improvement in overall plant productivity and quality.



PROCESS AUTOMATION: FROM THE IDEA TO THE IMPLEMENTATION

The key to higher productivity and profitability is the automation of processes



High-performing sensors, automation systems, information technology and innovative software solutions form the basis for the individual, tailor-made concepts we develop for our clients



Electrical Design (EPLAN/ELCAD)

- Electrical layout
- Switchboard design
- Switch cabinet assembly
- Documentation
- Site management

Basis Automation

- Planning, engineering and consulting
- Network engineering using LAN, WAN and wirelessLAN
- Client/server applications
- PLC technology and programming
- Visualization and control desk systems
- Plant and process simulation
- Training
- Migration

Information Technology

- Data base systems
- MES and PPS solutions with SAP link
- Web solutions for intranet, extranet and Internet
- iIM - industrial Information Management

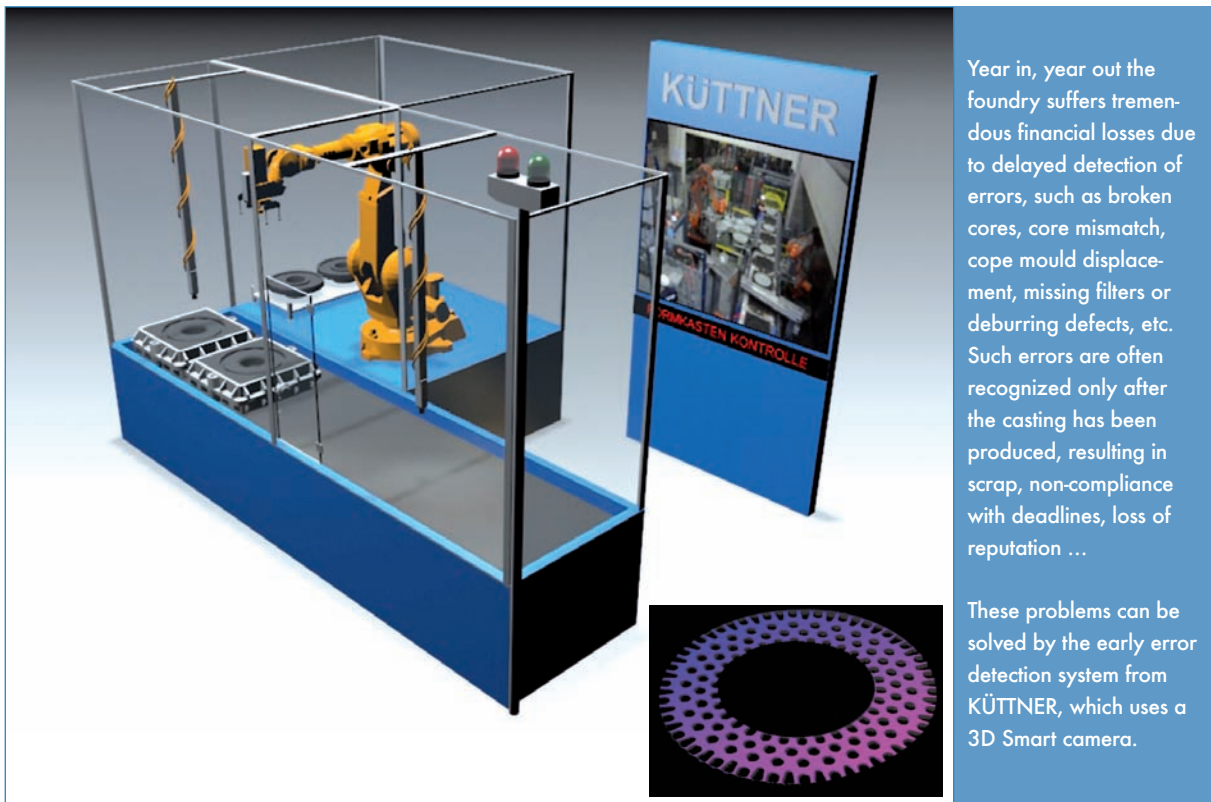
Industrial Information Management

- Inventory management
- Material data system
- Recipe calculation
- Data logging
- Accounting
- Analysis calculation
- Data import and export

Computer-Controlled Blowing Process

- Bottom purging by TBM (Thyssen Blowing Metallurgy) process
- Static converter model for burden and oxygen calculation
- Dynamic blowing model
- Sublance system with sublances
- Off-gas analysis with off-gas model

EVERYTHING UNDER CONTROL... ERROR DETECTION BY 3D MEASUREMENT



Year in, year out the foundry suffers tremendous financial losses due to delayed detection of errors, such as broken cores, core mismatch, cope mould displacement, missing filters or deburring defects, etc. Such errors are often recognized only after the casting has been produced, resulting in scrap, non-compliance with deadlines, loss of reputation ...

These problems can be solved by the early error detection system from KÜTTNER, which uses a 3D Smart camera.

On the Way to ZERO DEFECT Production ...

many obstacles must be overcome, because in each area of the value creation chain in a foundry errors leading to scrap may occur. Therefore the main task must be to detect such errors as early as possible and eliminate the affected components from the production process. This is only achievable by means of reliable and continuous quality assurance techniques. KÜTTNER has developed a solution for the continuous inspection of contour and surface properties of fast moving objects. This system uses a 3D Smart camera and enables 100 percent capturing of all parts in each stage of the production process, for example in the moulding shop, fettling shop, machining, packaging or palletizing of small castings.

The Functional Principle

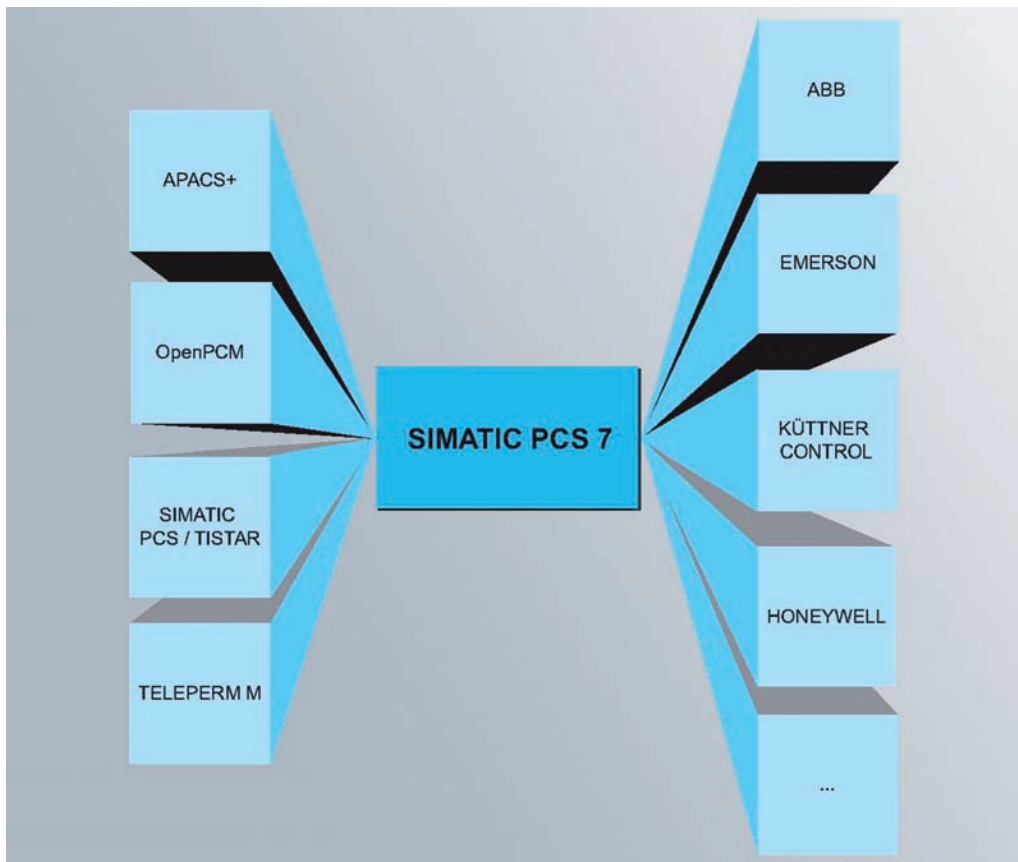
The 3D Smart camera consists of a laser source for the generation of laser line, a scanning optics unit complete

with an image sensor and a process computer. Whenever the laser line runs over an irregular 3D profile, the inclined perspective view of the camera does not capture the line as through-running, straight line, but as a stepped profile. The corresponding 3D values can be calculated by triangulation.

The advantages:

- Low investment and short ROI
- Objective quality control during running operation
- Easy programming
- Quick adjustment to changed products
- 100 percent capturing of the production process
- Detection of systematic errors
- Qualitative inspection and evaluation in line with production cycle
- Continuous documentation

MIGRATION: STRATEGIES FOR CHANGE



The growing competition due to globalization calls for constant innovation. The integration of new technologies into a company's existing systems must take place smoothly in order to avoid production downtimes.

Change Management of a Different Type

In a manufacturing company, efficiency and availability of machines and equipment have top priority. But what shall be done if for critical parts of a still perfectly running plant the support service has been discontinued? There are two options: plant replacement or plant modernization. There are numerous reasons to go for the modernization alternative.

An investment in a new plant involves a larger time horizon - which in many cases is not available. Moreover, with the purchase of a new plant the process know-how acquired over many years as well as the knowledge about the numerous modifications to the hardware as well as control and application software, etc. are lost.

Other drawbacks of a new system are the required start-up and optimization measures which often take several months and involve considerable loss in production. The financial risks and losses are high. Therefore the better option often is to migrate the systems with the support of an experienced partner. Accumulated intellectual capital and assets, which have not been written off yet, can be continued to be used.

Our engineers can build on many years of experience in migration processes as well as on numerous, successfully implemented migration projects in Germany and abroad - among others on the basis of SIMATIC® PCS 7. We provide our clients a customized, individually tailored package comprising the complete range of services from consultation and concept design through to implementation, commissioning and operator training.

KÜTTNER TRIER GMBH

A Subsidiary of KÜTTNER GmbH & Co. KG

On July 1, 1992, KÜTTNER Trier GmbH was established as an independent subsidiary of KÜTTNER GmbH & Co. KG, headquartered in Essen, by incorporating an electronics and software company located in Trier since the 1950ies. Through a network of subsidiaries and agencies the parent company is active throughout the world as a supplier of process technology plant and equipment.

Being the automation branch of the KÜTTNER Group, the staff of KÜTTNER Trier is made up of technicians, engineers and computer specialists. Know-how, partnerships with manufactu-

urers of automation systems and the use of most modern tools form the basis for the company's capability of making efficient and prompt use of innovative products and trends in the development of solutions to highly complex tasks.

In addition to the intensive exchange of information with the clients, KÜTTNER Trier places great emphasis on continuing employee education. The constantly high level of qualification and skilfulness guarantees that KÜTTNER Trier will always provide its clients services based on innovation and dedication – the foundations for a continuing, successful partnership.

