

Visual Inspection Screen



Visual Inspection at Georg Fischer Werdohl



Data Matrix Code Detection



Transfer Point for Post-Processing

Cast part production control is one of the typical applications of the Production Data Control System prodaisi® developed by IFA Meß-, Regel- u. Elektrotechnik which has been implemented in a new production hall of Georg Fischer GmbH at the plant in Werdohl. 2300 motor blocks, whose production and testing steps are documented in an exemplary way, are produced here daily.

As soon as a motor block leaves one of the die-casting machines, it is imprinted with a life-long, data-matrix code. During the production, intelligent camera systems read the code before each process or test step. As a consequence, the product can be followed through production continuously. The database system prodaisi® fulfils a wide range of important tasks in this process. It identifies the motor block at all relevant points for example at the machining centres, at the precision stamping and,

of course, at all the integrated test steps in the process. Simultaneously, it controls the individual process steps of the motor blocks, collects the test results and sends the motor block to corrective or post-processing when necessary. Additionally, the dispatch is organized. With the help of the database system prodaisi® it is possible that the motor blocks can be brought into the dispatch depending on the form used in the casting machine and packed correctly. Packaging mistakes are consequently impossible. Lastly it is especially important that the foundry, which is located in a narrow valley, has a limited warehouse capacity and has to produce virtually just-in-time. All data is capable of statistical assessments. Trends are then easy to identify.

Flexible and user-friendly

The production data control system decides what is done with each motor block, when and where between the casting machine to dispatch. Simultaneously, the complete process is documented and prepared graphically. The operator can find out why at any time in the process. For example, a mouse click is enough to see which drill holes have to be re-processed as a consequence of the visual inspection, or from which casting machine the casts have come and which batches were used.

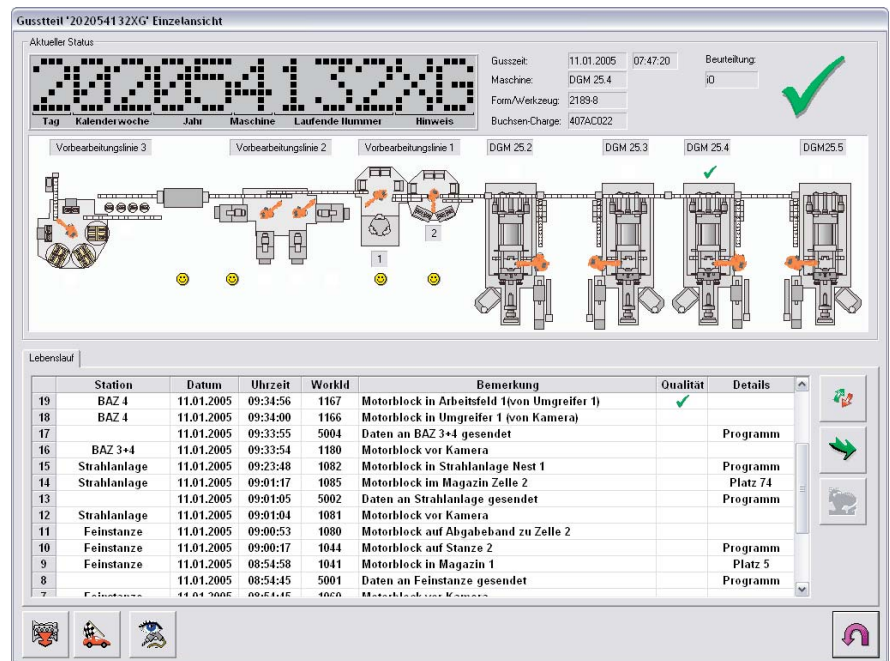
The basis of this continuous process control is the heart of Prodaisi® a powerful SQL database, in which all the data collected during the production and test processes and linked to the identification code of the relevant motor block. The database works on all usual computer platforms. Different operating systems are supported e.g. Windows 2000, Windows 2003 Server, Windows XP or Linux.

In order to be able to collect all the production and test data, the database server in Werdohl has been equipped with an industrial Ethernet solution connected to all plant components. In principle, a connection to any other bus system could be considered. Through the Ethernet, it was possible to set up a comprehensive network structure in the new production hall starting from the office of the supervisor and training rooms through to the machines and test centres. Here the use of modern active network

components assures security of the network for a production system with widely available access. The single network components have been designed that even in the extremely rough conditions of the foundry, functions are not affected. The complete solution tracing of parts including the Ethernet network comes from one partner. IFA was not only responsible for the development and the customer-specific adjustment of prodaisi® but also conceived, supplied and installed the complete network technologies.

Technical Data

- ◆ Production of 2300 motor blocks per day
- ◆ Processing and logging of 60,000 manufacturing orders per day
- ◆ SQL Database prodaisi® with two redundant servers
- ◆ Connection to 11 machines e.g. CNC processing centres and light metal die-cast machines
- ◆ Connection to 9 robot units
- ◆ 8 input terminals for quality tests, control station, visual checks and dispatch
- ◆ Dispatch processing connected to a high-level order processing system
- ◆ Interfaces for data import/export via XLM, CSV, ODBC or SQL
- ◆ Integrated back-up system and independent program supervision for the highest availability of the system



Detailed view of Motor Block Data



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