



## Case Study

Dossmann GmbH

Heat, dust, sparks –  
Industrial PCs are proving their  
ruggedness in an iron foundry





noax Industrial PCs support the production of high-quality cast iron parts for industrial goods

## PDA in the iron foundry – noax Industrial PCs pass the acid test

In the office of Arno Gärtner, Head of IT at the Dossmann GmbH iron foundry, the telephone rings. He picks up the receiver and listens briefly, then turns to his visitor, "I've just received notification that the casting has begun. If we hurry, we can watch it. It's always particularly exciting for visitors." Gärtner walks at a brisk pace down several corridors and into a hall that is about the size of a football field. From the top end of the induction furnace, which

is about four meters high, red-hot iron smelt is flowing into a man-sized container that is hanging on a heavy chain from an overhead gantry. The container is called a "ladle" in the technical jargon. At the same time, a shower of

"The financial losses generated by using substandard hardware end up being more expensive than using reputable quality from the beginning. I always say, if you buy cheap, you buy twice!"

glowing sparks erupts and flies through the air like those of a sparkler. The red-hot iron and the sparks bathe the space around the furnace in an orange light in an alcove next to the furnace. The display of an Industrial PC glows blue. Once the ladle is full, the overhead gantry transports it several meters to a square mold and comes to a stop directly above it. Here, there are two men waiting.

### 1,400 degrees Celsius

Concentrating, the men turn the wheel on the side of the ladle so that it tips over and the iron smelt pours into the mold at a scorching 1,400°C. A red LED display on the wall shows the temperature of the molten metal. "Weight, casting time, and other information has to be collected for every cast iron part. We still do a part of this by hand on job tickets, but the

transition to electronic data capture is already in full swing," explains Gärtner, pointing towards the alcove next to the furnace where the Industrial PC is installed. "You can see for yourself that it is hot here, sparks are flying and there is dust everywhere – which means extremely rugged hardware is required." One of the employees taps a few times on the touchscreen and then turns to his colleague again. "The noax computers have made data capture easier and above all, more secure. When we cannot collect information about the work steps electronically, we still use job tickets," explains the IT specialist pointing to a sheet of paper. These job tickets contain the part number, delivery date, and other header information, as well as a list of all the work steps that are carried out on the item: from molding to casting, removing sand from the casting mold, grinding down the seams, burrs,

and other protruding blemishes, or priming the item for corrosion protection. Each individual work step has to be noted down on the job ticket or using the noax Industrial PCs. "In comparison to the job tickets, the electronic capture of data is much more reliable as the employees input the information on site immediately after the work step has been completed. In addition, Manufacturing Control can instantly see exactly where each part is because all of the information is available in the system."

### Process reliability close to 100%

Before the IT department introduced data recording with the aid of noax Industrial PCs, only individual work stages were recorded, sometimes only at the end of the shift or even at the end of the week. "It was a never-ending



Heat, dust, dirt and sparks – the noax Industrial PCs have proven themselves in this environment since 2009



*Resilient, reliable, efficient – these properties set the products from the Dossmann GmbH iron foundry apart from the rest. As a result, the cast iron parts produced by the company are used predominantly by customers in the key industries of machine tool manufacturing, power plant facilities, and special purpose machinery manufacturing. A broad range of services, highly qualified employees, and the latest technical facilities mean that this medium-sized business can successfully assert itself on the global markets. The rugged Industrial PCs from noax support the metal-working company in organizing its production processes efficiently, while simultaneously setting new standards in product quality.*

*Process reliability: reliably documenting all work stages with the aid of noax hardware*



task to assign the correct parts to the tickets and errors frequently occurred," explains the IT specialist. "With electronic booking using noax computers, the current data is available in real time. The process reliability that we can achieve as a result is almost 100%." Dossmann places a great emphasis on traceability. Every cast iron part has its own visible part number which is cast in and used as a unique identifier. The part number provides access to all relevant information. With electronic data capture using noax IPCs, the employees at Dossmann are able to access this information (measured values and production data) at any time. They can also record any problems that occur during processing immediately on the noax IPCs, many of which can be prevented through early warnings. The software solutions that accomplish all this have been developed by RGU Expert GmbH, a company based in Würzburg, Germany. In addition to the PDA solution for direct recording on the terminals, the iron foundry predominantly uses the PPC system structure FORM, with the product planning, costing, sales management, production planning and control, material management, purchase, and quality assurance modules. The software developer specializes in foundries and has extensive knowledge of this industry. RGU Expert has worked closely with the Dossmann iron foundry for almost 30 years to design its products and solutions. In this way, the IT specialist is able to provide field-tested and innovative solutions that correspond to the state-of-the-art for foundries. Both companies are currently developing software for maintenance and repairs. Using noax Industrial PCs with the RGU Expert programs, Dossmann is able to significantly improve the quality of its products as all the information is available to employees in real-time. Previously,

the documents were often only available as loose sheets of paper and the information had sometimes become obsolete. If these sheets of paper were lost, a considerable amount of work was always needed to acquire the information. The IT solution comprising noax hardware and RGU Expert software has resulted not only in considerable improvements to the quality, but has also noticeably increased productivity.

### Abrasive iron dust

Dossmann recognized years ago that a computer-based automation solution would



*A job for rugged and reliable hardware only*

yield numerous benefits, and subsequently invested large amounts in the IT support for the entire production process, quality assurance,

and online data logging on-site. Arno Gärtner explains that, "at first, we had one noax IPC in production, then a cheap solution was constructed using mini PCs and touchscreen monitors, though this did not prove to be stable in continuous operation. The high temperatures in the foundry and above all, the dust repeatedly took its toll on the cheap devices. In this work environment, we deal with wood dust in the joinery, silica sand dust in the molding workshop, coal dust in the casting process, and fine metal dust in the fettling shop, which is particularly abrasive.

We had to replace the mini PCs regularly because they were not developed for such harsh conditions. The financial losses generated by using hardware that was not suitable was, in the end, more expensive than using devices suited to the industry." For this reason, Gärtner reverted back to the noax computers at the recommendation of RGU expert. The deciding factors for choosing noax were the completely sealed construction, the reliable operation even in high temperatures and with abrupt temperature fluctuations, the low maintenance requirements, the "Made in Germany" label, and the rugged construction in general. The Dossmann foundry is currently using a dozen noax Compact C15 IPCs and four Compact C12 devices. Due to a consistently positive experience, Dossmann is planning on equipping its other departments with the reliable Industrial PCs from noax. "The Industrial PCs by noax function reliably in the conditions that we have here. Even for us in the IT department, they are simply an investment in a brighter future."

*"The Industrial PCs by noax function reliably in the conditions that we have here."*



## Dossmann GmbH

### Company Profile:

The Dossmann GmbH iron foundry in the German town of Walldürn, Baden-Württemberg, has been producing cast iron parts in small and medium lot production since 1954. With considerable expertise and innovative processes, Dossmann can offer high-quality products that are popular across the world. Customers of the medium-sized company include renowned companies from the industries of mechanical engineering, pressing machinery, engine and drive technology, and hoisting and structural engineering. Every year, approximately 165 employees produce cast iron parts with a total weight of 13.000 metric tons.

More information online:  
[www.dossmann-eisengesserei.de](http://www.dossmann-eisengesserei.de)

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Case study arranged 2013

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## Specifications and Application

### Objectives:

- ✓ Use of industrial PCs in casting and the processing of pig iron
- ✓ Digital documentation of all processing steps
- ✓ Complete traceability of all work steps
- ✓ Improvement of product quality
- ✓ Verified statistics and assessment of production data
- ✓ Support for employees by means of large-scale visualization
- ✓ Improved adherence to delivery dates

### IPC Requirements:

- ✓ Use in casting and processing of iron parts
- ✓ Rugged design, resistant to heat
- ✓ Resistant to abrupt temperature fluctuations
- ✓ Completely sealed according to protection class IP65 (NEMA4)
- ✓ Protection against wood, coal, silica and iron dust
- ✓ Clear and high resolution display with touchscreen
- ✓ Easy, intuitive operation
- ✓ Smooth maintenance and fast service
- ✓ Maximum operational reliability and availability in extreme conditions

## Overview of Components

### Hardware:

- Industrial PC Compact C12 and C15
- In-house developed noax all-in-one motherboard
- Input: particularly robust touchscreen
- Bright, high-contrast TFT display
- Protection class IP65 (NEMA 4)
- Completely sealed, no external fan

### Software:

- Operating system: Windows 7
- RGU Expert applications: structura FORM (PPS system) PDA expert (PDA/MDA solutions) Report Designer, Report CUBE (reporting tools) MER expert (mathematical statistics)
- Application program: DVS System Software: DVSQLIC, integrated information system for internal and external communication and the allocation and monitoring of responsibilities

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