



The Right Blend Is What Counts



Tire Manufacturer Pirelli Depends on MDC Terminals from DLoG

By introducing MDC terminals from DLoG, tire producer Pirelli has embraced new concepts in automotive and motorcycle tire production. The results are added company advantages, such as faster and more reliable production as well as much lower error rates.

Nylon, rayon, Kevlar and steel belts—Pirelli uses this mixture of special ingredients to make modern tires for all road and weather conditions. Innovation is a tradition at Pirelli, whose manufacturing base in Breuberg, Germany, celebrated its 100th birthday in 2003. Today, an average of ten million car and motorcycle tires are produced each year—24 hours a day, seven days a week. These are then mounted onto new cars of renowned brands such as BMW, Audi, Ferrari, Aston Martin, Mercedes and Jaguar.

Over the years, the company's award-winning quality focus has revolutionized production processes time and again. The year 2000 marked the beginning of an MIRS production plant: the "Modular Integrated Robotized System" is based on the idea of a highly flexible micro-factory that can react to market requirements quickly and accurately. Implementing this concept and making manufacturing processes transparent require up-to-date data that is always available.

Feature Overview

Customer:

- Pirelli tire manufacturers in Breuberg, Hessen (Germany)

Requirements:

- MDC terminals with touch screens and WLAN
- PXE Boot for remote installation
- ADC card for automatic capture of machine signals
- Legic reader for time recording

Products used:

- DLoG MPC 5 with Windows XP Professional

Benefits:

- Paperless operating data acquisition and time recording for transparent, effective production
- Considerably lower error rates

“The old processes were just too complicated. There was too much paper involved. It quickly became clear that something had to change,” says Jürgen Neidig, Pirelli’s IT project manager, candidly. Although there already was an MDC system in use in some parts of production, it was out-dated, error prone, and could not meet the new demands placed on it. A new computer system for production planning and control was subsequently developed together with other Pirelli sites. The individual components combine to create an integrated system, in which modern MDC terminals play a key role.

From Paper and Pencil to Touch Screen and WLAN

The Breuberg plant was still recording movements of semi-finished products on paper. At the beginning of a given shift, warehouse employees would use pencil and paper to obtain a general overview of what materials were in stock and what was needed. The semi-finished products required for production would then be conveyed to the machines. But this system had reached its limits. “Too many errors, too slow and inflexible to react to production changes,” recalls Neidig. Modern terminals for machine data capture (MDC) positioned on forklifts and pallet trucks should change all this. After assessing the market and testing the products of various providers, Pirelli opted for the MPC 5 systems from DLoG, supplied and configured by local system integrator COT. The same terminals were already installed as MDC terminals at the assembly machines.

The terminals provided by the Bavarian vendor were able to meet all of Pirelli’s demands. What was crucial besides technical specifications was the terminals’ modular setup. The MPC 5 terminals are equipped with a 10 inch touch screen and feature PXE Boot, which enables remote installation and maintenance of Windows XP Professional operating system. Furthermore, the terminals have an ADC card for transferring machine signals as well as a Legic reader. This allows staff to log on and off of their workstations simply and efficiently using their ID cards and to account for downtime.

Reliability that Convinces

The DLoG terminals have since proven their reliability not only in extensive tests, but also in daily production. In Breuberg alone, there are eleven pallet trucks and



MPC 5 with DLoG antenna



MPC 5 mounted on a fork lift



MPC 5 including a Legic reader in use for MDC

two forklifts equipped with MPC 5s, as well as 55 systems in the automotive tire production, 26 in motorcycle tire manufacturing and a further 10 systems in inspection. The terminals operate 24 hours a day, seven days a week.

The software used in the terminals for the transfer and processing of operating data was developed by Pirelli in Milan, Italy, and Breuberg. Over 15 software specialists worked on specification, programming, and testing. After hardware and software had passed the crash test in Breuberg, the application was rolled out in Pirelli plants throughout Europe.

Minimal Training for Simple and User-Friendly Terminals

The large number of MDC terminals introduced made accurate installation planning essential. “We opted for a step-by-step introduction,” says Wolfram Grulich, responsible for IT infrastructure at Pirelli, “and subdivided the system into machine groups. Once terminals in one group ran smoothly, we trained staff at the next machine.” Pirelli relied entirely on the skill of its teams. The IT department only trained “key users” on the MPC 5 terminals. These in turn passed on their knowledge to production staff. This approach had many advantages: “The relevant knowledge was given to a wide circle of users and the content could be demonstrated using practical examples,” emphasizes Grulich. The design of the system itself helped avoid elaborate and costly training sessions, as Neidig explains: “The application and the required user input are very easy to understand.” A further important aspect was the integration of the terminal in the work environment. The stable and compact casings were also easy to mount on the pallet trucks. They thus did not become a disruptive factor in the employees’ routine work, and there were no reports of any major disruptions.

More Speed using a Wireless Network

To keep up with the heightened pace of production, the MPC 5s have a wireless connection to the company network via WLAN cards. Terminal configuration is parameter-controlled, facilitating the fast replacement of devices in an emergency. “The MPC 5s have worked very reliably up to now. There have been no complete breakdowns or unplanned repairs to speak of,” says

Mr. Neidig about the quality of the DLOG devices. Furthermore, key users are in charge of the monthly updates for the application and operating system. “This procedure has worked out well and runs by itself,” says Grulich, praising the non-bureaucratic and simple organization.

Working with the MDC terminals is paperless and makes production transparent at all levels. Staff is always up to date about the precise order quantity, the production data, the warehouse stock and the delivered amounts. If material stock falls below a critical level at a certain machine, the pallet trucks are informed via wireless MDC and take care of the situation.



MPC 5 including the DLOG antenna

What’s more, the MDC terminals supply important data to the managers and controllers. Managers can now access up-to-date information on the state of affairs in production at any time, or collect and assess key data for production control and planning, such as current machine states and production levels.

MPC 5 Terminals Considerably Boost Transparency and Efficiency

First data evaluations have shown that the new terminal-based production system has been worth the investment. The blend of reliable hardware, simple maintenance and operation, fast data transfer and a cleverly designed software allows production to run smoothly and at a high and efficient speed. Pirelli was able to keep within its investment budget, in spite of terminals having been budgeted as early as 2001.

Pirelli has logically chosen to expand the use of the DLoG terminals. Since 2006, the versatile MPC 5 terminals have been running smoothly in motorcycle tire production as well. Staff at Pirelli's Italian plants have already certified the successor model, the DLoG MPC 6, which has expanded functionality. Now there is nothing to delay the use of the MPC 6 at other factories and in further projects. Currently the company's production experts are setting up a transport information system that will further enhance the speed and flexibility of the entire production process. This will help organize the entire in-house transportation of materials and semi-finished products, enabling a faster reaction rate to current and ever-changing customer needs.



Pirelli manufacturing base in Breuberg



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DLoG GmbH

Werner-von-Siemens-Str. 13
D-82140 Olching
Telefon: 08142 / 2860-0
Telefax: 08142 / 2860-10
E-Mail: info@dlog.com
Internet: www.dlog.com
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