

# No more searching

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In warehouses, tidiness is a flexible term. Storage areas can be rearranged or moved around at any time. Forklift trucks will soon make it easy to follow the material flow and keep an overview in the warehouse automatically and with no special effort.

Which wire crate holds the magnesium-treated materials? And where were those ready-cast pieces? Without time-consuming documentation, it has so far been virtually impossible to know at all times, from production to shipping, exactly where parts for a particular job are to be found, and how many parts are involved.

At the Ortrand steel works, forklift trucks will soon make this easier: They will deliver the necessary information without interrupting work flows. "We use the forklifts as mobile gates," reveals Jens Trebus of the Fraunhofer Application Center for Logistics System Planning and Information Systems ALI in Cottbus. The Ortrand steel works manufactures cast-iron parts for furnaces, household appliances and vehicles. Unfinished cast-iron parts leave the works after only ten to twelve production steps, while many more may be involved in the production of complex parts.

Forklifts transport the parts in wire crates from one workstation to another, to the ground bulk warehouse and to the shipping hall. Up to 10,000 wire crates are in circulation every month. The Ortrand steel works has tripled its revenues over the past three years, and the figure is rising. It is becoming increasingly difficult to keep tabs on the material flow by the old methods.

In future, RFID transponders on the wire crates will provide information as to which parts the box contains and the job to which they belong. Antennas on the forklifts will read the RFID tags on every transport operation. At the same time, scales integrated in the forks will determine the number of parts in the container on the basis of their weight.

An ultra-broadband car-to-car communication locating system determines the current position of the forklift and the box – in three dimensions and to an accuracy of within 15 centimeters. If the RFID tag on the crate is obscured, for instance if it is affixed to the back of the wire crate, the metal screens off the radio waves. In this case the forklifts cannot read the RFIDs, so a software logic takes over and determines the location and content of the container.

As soon as the forklift puts down its load, all information is stored in a database, thus creating a floor plan with the exact location of each individual wire crate. The forklift drivers can call up this information via their on-board car-to-car communication terminal. The system displays the entire material flow in real time. Trebus and his team are currently testing the system with a forklift truck on site. If the pilot system works well, all forklifts will be upgraded in early 2009.

Source: Fraunhofer-Gesellschaft

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