

RFID Brings ROI to Air-Filter Maker

German manufacturer Herding is using RFID to track production, quality control and shipment of new and reconditioned filters. The company expects to recoup its investment in 2007.

By Rhea Wessel

Dec. 22, 2006—Herding, a German manufacturer of industrial air-filtering systems, is using RFID to track the production and quality control of the reusable air filters it produces. The firm is also tracking the process of receiving, refitting and returning the filters to their original owners.

The company implemented the application in 2004 and is now using about 40,000 tags a year in the course of this project. Because of efficiency gains the RFID system has brought to the production process and the processing of handling returns, the company expects to recoup its investment in 2007. In the meantime, Herding is working with its systems integrator to use the existing system to further refine production processes, with the hope of achieving even more efficiency gains, says Wolfgang Raabe, Herding's head of filter development.

In early 2004, Herding began to look for a better way to manage the process of returning each refitted filter to its original owner. At that point, it was using a pen-and-paper method that was both time-consuming and error-prone. The company tried attaching bar-code labels to the filters, but dirt and dust on the labels made it difficult to read the bar codes. For a while, Herding stamped the numbers into filter frames, but these were difficult to read and had to be noted by hand. Therefore, Raabe contacted several RFID systems integrators.

"I was promised quite a lot by these integrators, but as soon as the project got more concrete, the partners were suddenly no longer available and had nothing to offer," said Raabe, who eventually contracted EURO I.D. Identifikationsysteme, based in Weilerswist. Ultimately, the company chose EURO I.D. as its systems integrator.

Herding decided on a system using passive 868 MHz UHF transponders attached to new filters during production. The tags, made by UPM Raflatac, with U-Code 1.19 chips from NXP Semiconductors, are embedded in a plastic case measuring 10 millimeters wide by 15 centimeters long. The tags fit along the outside edge of the frames.

Once attached, the tags are written with the current date—the birth date—to track the filter throughout the 14-day production cycle. The encoding takes place when tagged filters pass the antenna of a Tripod Data System (TDS) RFID interrogator, installed near a computer terminal used by workers to monitor the production process.

After completing the production cycle, the company erases the birth date from the tag and encodes it with an article number (indicating the model of the filter), a serial number and the date on which it passed Herding's quality inspection. This second writing also takes place at a workstation equipped with an RFID antenna. To make visual identification easier for customers, the company attaches a label printed with the filter's article and serial numbers. It then sends the filter to a warehouse until orders for new filters come in.

Companies using Herding's filtering systems include car manufacturers and pharmaceuticals makers. Some customers order dozens of filters at a time; others order hundreds. When an order comes in, Herding stacks the ordered filters in boxes and shrink-wraps them. A worker then reads the tags for the third and final time by wheeling the shipping box through a gate reading station. The gate interrogator includes four antennas and a long-range TDS reader. The data on the tag is saved to a computer to record the dates on which filters are shipped to specific customers.

RELATED_ARTICLES Herding makes about 400 different filters by combining various features and sizes. After a certain amount of use, the filters become clogged and the filter elements must be cleaned or replaced. When customers return the filters for refitting, Herding can identify each unit by means of its article and serial numbers, then link that filter with its owner. This keeps filters from getting switched and returned to the wrong customers.

Down the line, Herding says it wants to equip employees with mobile RFID interrogators for identifying filters at the customer's premises. This would allow workers to know the quality-inspection date and service history of each filter. At present, factory managers have one TDS mobile reader to use for ad-hoc filter identification.

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