RFID Increases Efficiencies at Bemis Plant

At the company's U.K. factory, operators of injection-molding machines can access system-monitoring information in real time and quickly take any necessary actions.

By Beth Bacheldor

Dec. 8, 2006—Bemis Europe, the U.K. division of Bemis Manufacturing Co., is using passive RFID and a manufacturing execution system (MES) from Barco to track and measure both the injection-molding machines used to make its products, and the operators who work those machines. The goal is to shorten the time needed to manufacture products at its plant in Burnley, Lancashire, by better understanding where and why inefficiencies occur during production. Bemis Manufacturing makes toilet seats and other plastic products.

Fixed to each injection-molding machine is a Barco WDL DU8P proprietary data-collection terminal. Data units such as the WDL DU8P are typically used in manufacturing operations to monitor downtimes, the amount of scrap produced and cycle times created by each machine, explains Kieran Ferguson, sales manager at Barco, which is headquartered in Belgium. The machine sends a pulsed output signal to the data unit once every production cycle. Based on this signal, the unit can determine if the machine is running or has stopped, how fast it performs its molding operations per cycle and how many items it produces per hour. These measurements, called key performance indicators (KPIs), reveal run time, downtime, machine speed (cycle time), production speed (units per hour), the amount produced (target production) and other vital factors.

The WDL DU8P also incorporates an integrated RFID proximity reader. An employee starting work at an injection-molding machine logs into the device with an RFID-enabled fob featuring an NXP Semiconductors Hitag 2 125 kHz passive RFID transponder. According to Ferguson, the transponder is encoded with a unique ID number that is cross-referenced with the employee's name, job position and other information stored in the MES system, called Barco PlantMaster.

The data unit collects these KPI measurements during an operator's shift, then uses a Bluetooth wireless connection to transmit them to the PlantMaster system, which stores the measurements and associates them with the machine's operator. Using the WDL DU8P's keypad, the operator can also enter a variety of other information, such as why a machine had a certain amount of downtime during a particular shift. Additionally, the operator can pull up reports from PlantMaster, and view any current and planned jobs.

PlantMaster uses the KPIs to help Bemis create baselines for availability, performance and quality, against which the daily KPIs can be measured. Operators can use the PlantMaster system to monitor these daily levels and take appropriate action when alarm conditions are reached, Ferguson says.

"Machine downtime, speed and production output change all the time, for a plethora of reasons," Ferguson states. Providing operators with RFID-enabled access to the system-monitoring data allows them to react more quickly when problems occur, he says, keeping efficiencies at acceptable levels.

"Having RFID means that the operator can log on and off the data unit simply and easily, without having to

remember and type in any PIN numbers," Ferguson says. "And having the operator logged on means that his or her operational performance can be monitored, which can highlight issues such as training."

RELATED_ARTICLES The new RFID system—which Ferguson says took about five weeks to implement, including ordering the hardware and training Bemis' staff—isn't the manufacturer's first foray into RFID. In the second half of 2005, the company began using an RFID-enabled time and attendance system that also controlled access to the plant. That system utilizes Hitag 2-based key fobs, along with TM4 proximity readers from U.K.-based Third Millennium Systems Ltd.

Ferguson says Bemis will continue to expand its use of RFID, and that the firm plans to implement the technology in its warehouse and distribution departments at the Burnley plant.