



## featuring the H-Class printing solution RFID labels for concrete manufacturers ■■■

When Tom Wilson, president of Tema Solutions (Hudson, Mass.), developed Cast-A-Code, a product that would allow precast concrete manufactures to track information throughout the lifecycle of concrete structures; he turned to radio-frequency identification (RFID) technology, for its ability to store and remotely retrieve data. By incorporating RFID into TEMA's Cast-A-Code solution, Tilson had solved a long-standing, industry-wide information traceability problem. However, a technical issue related to the printing of RFID tags used nearly derailed TEMA's Cast-A-Code.

According to Tilson, one of the biggest obstacles to using RFID in Cast-A-Code, or in any situation where RFID tags need to be printed in a similar manner, is something called "pitch." Pitch refers to how close labels are positioned next to each other during the printing process. Each label is marked with pitch marks to denote the beginning and ending of each label. Pitch problems can prevent accurate printing. When it comes to RFID readers, labels must be very accurate and precise. "I was told by a number of design engineers and industry experts that there wasn't a printer on the market that could accurately print labels for our application," says Tilson.

The experts turned out to be right – with one clear exception. Tilson evaluated several printers and discovered much to his relief, that the H-Class printers from Datamax-O'Neil (Orlando, Fla.) were able to handle the pitch demands of Cast-A-Code. Datamax-O'Neil provided the only printer Tilson tested that met his requirements. "At first, we were in quite a panic because we had done a lot of work to develop the Cast-A-Code software and design the plastic RFID tag," says Tilson. "We worked with the Datamax-O'Neil engineers to do a little tweaking of our application, and it turned out that the H4212 printer could print RFID labels. It may be that the other printers on the market can't handle the pitch issues associated with printing RFID labels, but the H4212 printer is not only capable of performing in the manner but it does so beautifully."

Tilson installed an H4212 printer and began turning out 1,000 labels at a time. He is pleased to report that he H4212 printers he selected for the application are performing at a 100 percent write rate. "We haven't had a failed tag," says Tilson, "and the tags are working flawlessly in the field."

The outstanding performance of the Datamax-O'Neil printers doesn't surprise Tilson. "Based on our past experience using Datamax-O'Neil, we felt strongly that it was the best system for us based on price and reliability."



According to Tilson, the H4212 printers provide the throughput speed and robust performance that he requires, especially as Cast-A-Code adoption continues to grow throughout the concrete manufacturing industries. "We introduced the product in January 2008, and we already have five precast concrete manufactures as customers. In the next two years, we hope to have 60 companies using this product. It's a pretty hot market for this solution." Tilson's solution combines traditional barcode labels with DogBone RFID tags made by UPM Raflatac (Tampere, Finland). During Tilson's production process, a traditional barcode label and a UPM Raflatac DogBone are encased together in sealed, plastic housing. The entire package is provided to the manufacturer, who flush-mounts the housing to a precast concrete structure. The encased barcoded label includes a human-readable serial number and company-specific contact information. Once the tags are installed, they provide cradle-to-grave traceability.

Tilson's business continues to expand, and he plans to introduce more printers into his manufacturing process. As his business grows, Tilson says he will introduce additional Datamax-O'Neil H-Class printers in TEMA's manufacturing process. Tilson may not have to wait long to order additional printers: "We have just finished a quote today to supply about one million tags," he says.

Tilson expects to print between 2 million and 6 million labels per year when the company is running at full production. At about two labels per second, or 30 labels a minute, printer speed and reliability are the features that are foremost on his mind, hence his decision to go with Datamax-O'Neil.



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