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Auto. ID just the right package for manufacturer

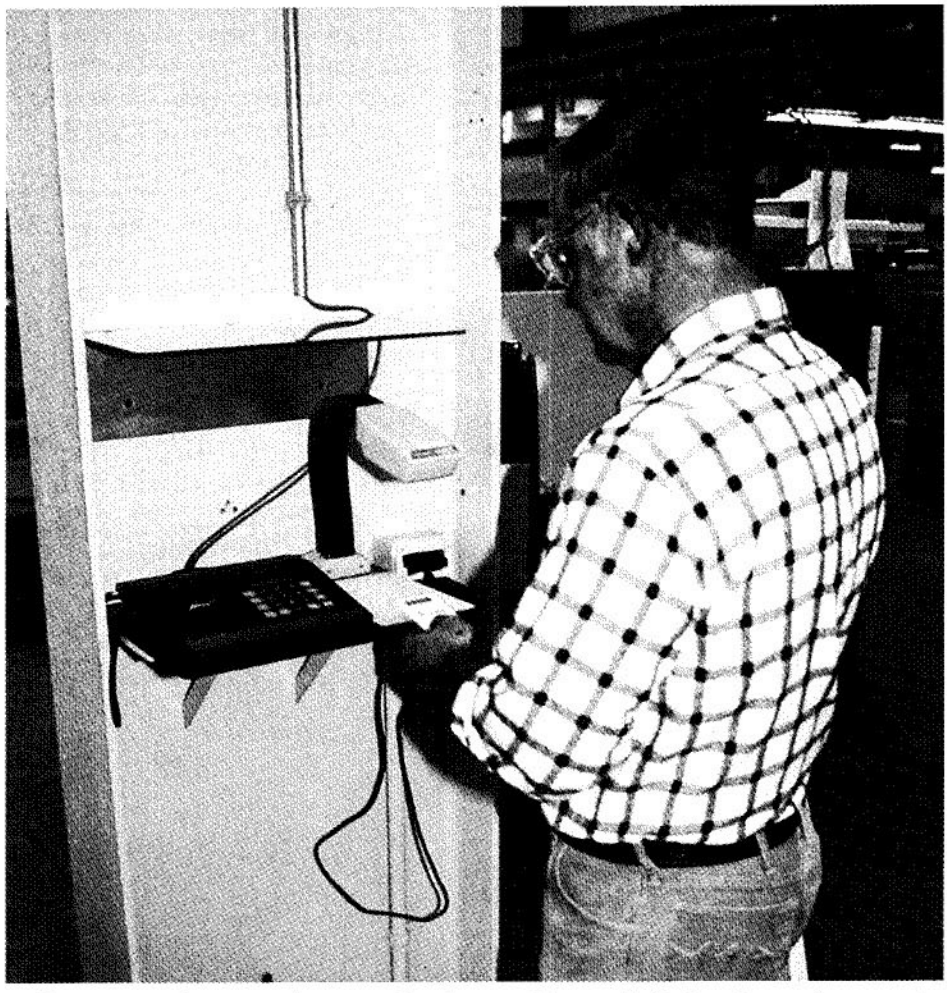
Using bar-coded badges and job orders, Will-Pemco charts progress every step of the way

By John Jesitus, Contributing Editor

In custom manufacturing, parts tracking is everything. That's why Will-Pemco of Sheboygan, WI, chose automatic identification technology.

Will-Pemco makes folio and cut-size sheeting and packaging equipment to customer specifications for the paper mill industry. Such equipment can cost anywhere from $60,000 to three million dollars. But before the company installed its first bar code-based tracking system, it had no way of knowing where a part was in the manufacturing cycle, how far along a customer's order was or even how much time had been spent on a particular order so it could be costed out, until days after the fact.

The 260-employee company, a part of Körber AG of Hamburg, Germany, has been making packaging equipment since 1960. Prior to automation, it recorded part numbers on manual punch cards. Whenever a machinist performed an operation like sawing, turning, milling or inspecting a part, he had to punch in on the card when he started and punch out when he finished. And each part went through several such operations at various stations before it was completed.



Will-Pemco workers scan laminated badges and bar-coded job orders to keep track of their work.

The paper punch cards eventually went to Will-Pemco's accounting department. There it took four hours to add and subtract and manually enter data from an average of 1,300 punches a day into the company's computer system.

Kevin Widder, Will-Pemco's chief manufacturing engineer, says, "It would take about seven working days

to complete a single manufacturing part. So that means that you've lost seven days of manufacturing information. It's history by that time."

And the fact that the company works three shifts around the clock further complicated matters. Under the manual system, implementing engineering changes or correcting a mistake in a part in progress was difficult at best. "If I had no tracking system," Widder says, "where would I begin to start looking for it?"

First installation

That's why, in 1986, the company installed its first Auto. ID system. The installation met all of Will-Pemco's needs except one—its hardware was too unreliable. So in 1990, the company switched to a system of 10 LINX III-1 time clocks from Linx Data Terminals running that company's BARCON software and Symbol Technologies SL-6700 ScanLamps linked directly to the company's database, running on a DEC 4300 mainframe.

Will-Pemco considered several vendors, but it chose the Linx system largely because it could hook directly to host computers with an online, real-time system. Also, the units maintain up to 96 kilobytes of data storage, so, if the link to the host is broken, a unit can maintain complete system integrity 24 hours a day. Widder adds that the company didn't want a system that connected to PCs first because this would have required the company to contact another vendor and integrate another piece of hardware.

Will-Pemco used no VAR or consultant in designing and setting up the network. For installation, Widder says the vendor's instruction manuals, plus some telephone support, were virtually all that was needed.

The company wrote its own software for the terminals in the BARCON language. In this area, Will-Pemco got help from systems integrator Pilot Systems of Brookfield, WI, particularly Joseph Bohte, Pilot Systems' technical manager.

However, the system software that resides on the 4300 which is used to receive the data from the terminals was written entirely by Will-Pemco. Here, Leon Sleiter, the company's MIS manager, was instrumental. The software then was used to distribute the data for many different applications.

System workings

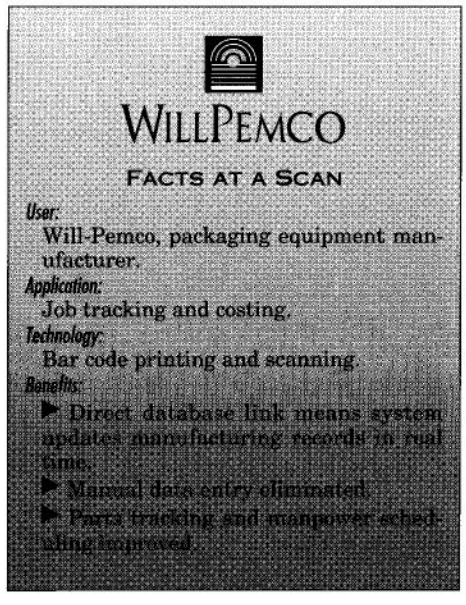
Here's how the system works: Each part made by Will-Pemco has a unique number. It, along with a sequence number that tells the company for which job order the part was made, makes up the part's bar code (the company uses Code 39 symbology).

In addition, each part's time card (or job order) includes information such as the serial number of the customer who ordered it, as well as routing instructions that tell machinists exactly which phases a part must pass through before being completed. This information is printed on standard 8.5-by 11-inch pin-fed paper by a Printronix Model 6240 dot-matrix printer.

Similarly, employee badges are laser printed on regular paper, then laminated into plastic jackets for durability with a laminator made by Identatronics. It's these codes and badges that help the terminals prompt an employee through the manufacturing process.

Once a machinist is at a terminal, the unit's LED display first asks him for his badge number. The employee then scans his bar-coded employee badge into the clock by running it under the scanning lamp, which scans the bar code 40 times a second.

Next, the terminal asks the machinist to enter the job order. This he does by scanning the bar code (containing the part and sequence number) located in the upper left portion of his job order.



After this information is processed, the terminal asks the machinist to enter the step number upon which he plans to work. If it's step one, which might be sawing, for example, he presses that digit on the time clock's keyboard.

The LINX-III network then makes the data available to be drawn to the host computer via a polling program running continuously on the host in background mode. After the machinist finishes his part of the job, he performs the same routine to punch out.

Benefits galore

The setup's advantages are many. For starters, instead of flipping through paper punch cards at the end of the day, the direct database link allows the system to update manufacturing records instantly in real time. This function alone has cut the time needed to process a day's accounting information to half an hour. At the same time, it eliminates errors from manual data entry.

This information tells Will-Pemco exactly how much time and money were spent on each part. Along with improving parts tracking, the data helps the company figure out its profit or loss from each piece of equipment. It also improves the company's manpower scheduling. And, if a customer calls and wants to know the status of his order, punching up the job number at a computer terminal provides an instant answer.

Widder says the only real difficulty in installing the system was integrating the scanning lamp and the terminal. However, LINX sent a representative to the site to look at the problem. The vendor also gathered the appropriate information from Symbol Technologies to change the LINX-IIIs' software and EPROM chip so the units would send information from the scanner to the terminal.

Now, Will-Pemco is so satisfied with its installation that it plans no additions or changes in the foreseeable future. "Everything is working fine," Widder says. "Don't fix it if it's not broken." ■