

High-speed sorting machines to Germany

Datalogic and HT, Italian system and software integrator, provided the SANPAOLO IMI Banking Group with an efficient system of document tracking and tracing based on the Datalogic unattended 2D Matrix-2000

Anker Andersen A/S leads the way with an effective and required solution in an industry with high demands and therefore little competition.

The Background

In 1994 the European Union passed a directive regarding packaging and its reuse and/or disposal. After years of waiting, amendments passing and not knowing exactly how to proceed, now some things are clear. By the end of 2008 all member countries must be able to meet or exceed a certain rate of return of all packaging materials. Germany is the largest market for consumer packaging in the EU. So this directive could be seen as a daunting task for them, but a collection scheme for recycling packaging has been in place for many years in Germany. However, where the Germans were lacking was in the area of single-use containers such as beverage cans and bottles. So to tackle this problem spot, in 2003, Germany introduced the Zwangspfand, a compulsory deposit system for single-use beverage containers.

Denmark's Role as Pioneer

Danes can be said to be experts in many things such as beer and toys, but where they absolutely stand out above the rest is in their knowledge of recycling, where they are world leaders. In 2000, the Danish government formed a company called Dansk Retursystem with the sole rights to handle all bottle and can recycling. They cover all the processes involved in collecting bottles and cans, and refunding deposits. Dansk Retursystem has been a great success and has provided return systems for all types of packaging – whether they will be reused or recycled. Since the company is well on the way to achieving its aim of a 95% collection rate of disposable packaging, and it counts 200 million beverage containers each year, many countries look to Denmark for insight and ideas in this field.

An Opportunity Ever since the compulsory deposit system went into effect in Germany in 2003, the system for handling the return of cans and bottles has been manual. When a customer does their grocery shopping, they bring with them their used cans and bottles and take them to the cashier who has a container beside them at the checkout counter. When the container becomes full, the bottles and cans are taken to the back of the store, emptied into a larger container where they are collected, stored and then transported to a central hub where they are sorted – manually – aluminium cans, metal cans, re-usable plastic, single-use plastic, glass, etc.

The Machine

The Danish company Anker Andersen specializes in automation for brewing machinery, industrial plants, recycling systems and vending machines. They are the manufacturer behind the sorting machines used by Dansk Retursystem. On December 1, 2005 they delivered their first High Rate Sorting Machine to Germany to begin the automation of the then manual counting and sorting process. This machine is able to count and sort large amounts of containers with varied size and weight and at very high speeds. It is in effect the first machine of its kind that can handle the fragility and heavy weight of glass at the same time as the low weight and small size of aluminium cans; and all at a very

high speed.

At the central hubs where the high speed counting machines are used, empty beverage containers of all sorts, sizes and weights are collected in a bin at the start of the machine. The empties travel up a conveyor where they then pass through a tunnel of eight Matrix-2000 barcode imagers from Datalogic. The imagers are placed so that they can read a barcode no matter its placement on the container – in other words, they form a 360 degree ring around the empty. Due to this, the containers need not be rotated, which ensures high readability even for damaged barcodes or deformed containers. They then continue down the conveyor where they are sorted into different bins depending on the type of container. The empties are fed into the machine at a rate of 100-200 units per minute and even at this high speed the breakage rate is less than .5% and the read rate is over 99.5%. All of this is completely automatic.

Once this counting and sorting has taken place, the grocery stores will receive the deposit money back that they originally paid the drink manufacturer who then paid the scrap companies that own these high speed counting machines. The scrap companies, who own the empties, will recycle/reuse them. In 2007, it is estimated that 15 billion beverage containers will be counted in Germany. Many, if not most of these will be counted by Anker Andersen's high speed counting machines. As of now, 10 machines are installed with the anticipation of several hundred when all is said and done.

The Benefits

These empty containers are, for all intents and purposes, cash. It is extremely important that this entire sorting and counting process is accurate, otherwise the grocery stores, who have already paid the consumer their deposit when the container is returned, will not receive their money back. The empty containers are sent to the hubs with the high speed counting machines from the stores where they were returned. They arrive in plastic bags that have labels with barcodes on them. These barcodes contain the information as to the particular store where the can or bottle was returned. The barcode on the cans and bottles include information about the type of container it is (plastic, metal, etc.). If the barcode scanner does not read correctly then the store may not receive their money back and the process has failed. Therefore Anker Andersen turned to Datalogic for this component in their machine. Knud Ståvring, R&D Manager for Anker Andersen, says, "We have had a long and successful relationship with Datalogic and knew that given the high demands for read rate success and speed, Datalogic would be able to deliver." And deliver is exactly what both Datalogic and Anker Andersen are doing in Germany, and only time will tell just how many other countries will follow.