

RFID in EUROPE

INFORMATION CONCERNING RFID IN EUROPE FEBRUARY 2018

RFID
in EUROPE

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LEARN HOW TO INCREASE
VOLUME OF BUSINESS BY
IMPLYING RFID TECHNOLOGY!



RFID ON ALL STORAGE RACKS OF FRESH PRODUCE 100% FI-FO, NO LOSSES DUE TO FORGOTTEN PALLETS



BASIC INFORMATION

Hellefors Brewery was founded in the 30's by Charles Holmstrand. His son, Elof Holmstrand, took over after him. In 2008, the third generation, Mats Holmstrand sold the company to the Spendrup-Group and Hellefors Brewery is now an integral part of its strategies, policies and guidelines.

From 1991 until 2003, investments were made in new machines and equipment for about 100 MSEK. The premises were expanded in five phases during the same period and today there are four production lines covering an area of more than 15,000 m2 used for production and storage.



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Hellefors Brewery has a wide range of products, which are produced in four production lines, each line dedicated to a specific packaging type;

- 1-litre cartons for liquid, Combibloc-packaging.
- 2 dl cartons for liquid, Tetra Brik-packaging.
- Bottles (glass and PET).
- Plastic containers for fruit juice

The brewery's product range consists of the following product groups: cider, juice, fruit soup, fruit fool, multivitamin, mineral water, soft drink, fruit juice, fruit drinks, light drinks etc.

Besides the brewery's own trademark, the company is a subcontractor, producing products which are packed and privately labelled.

PROJECT OBJECTIVES

Hellefors Brewery main goal is to unite products of a high quality with low prices. The brewery constantly strives to find the best suppliers and to improve control and productivity. To meet these objectives, Hellefors wanted to get a system that would guarantee a FI-FO situation and avoid any possibility of having pallets misplaced or simply forgotten.

PROJECT BACKGROUND AND DESCRIPTION:

From production until delivery, the pallets are stored in racks, taking 5 pallets in height. The traditional method, of marking each rack position with a barcode, does have certain weaknesses. When the driver shall scan the position there is always a risk of him scanning the wrong label. The higher up in the rack, the bigger the risk of making an error. If an error occurs, the risk of the pallet "disappearing" is great and maybe it will only accidentally be found after a few months or maybe not at all.

THE SOLUTION

Now, each forklift truck has been equipped with a truck-PC, a Barcode scanner, an RFID-reader and each pallet position is identified by an RFID-tag.

AMC HB, the supplier of the RFID-equipment, designed and produced a special reader, where all electronics for reading and communication are integrated. The system is powered by a battery, also integrated in the reader. The communication between reader and truck-PC is done by means of a Bluetooth-module. In order of obtaining a long uptime, the reader is con-

trolled by a photocell. It activates the reader as soon as the truck is picking up a pallet. Hence just the Bluetooth-module and the photocell are active all the time and they draw extremely little power.

The truck handling is rather harsh, so all trucks are equipped with a special protection fence at the forks. The RFID-reader is placed in the upper left corner field of the frame and firmly attached to it by four screws. A very quick and easy installation.

The load on the pallet is secured with stretch film and equipped with a barcode label. When the truck takes a pallet, then the barcode is scanned automatically. As soon as the truck drives in towards a rack position, then the RFID-reader verifies the position by reading the tag code. Now the pallet ID is unmistakably connected to the rack position. The whole identification process is carried out automatically. Thanks to this procedure, Hellefors gets complete control over the stock and at the same time they get the stock status updated in real time.

Every change – in or out – is registered at the same time it happens.

The trucks get heavily worn and as a rule they are exchanged after two



Typical cable guides on a truck installation. Expensive and time consuming.



years of service. Hence it is important that the equipment installation can be carried out in the shortest possible time. An RFID-installation on a truck takes normally 1½ to 2 days, which in addition to high costs also means a certain capacity shortage. The cables that must be lead the long way over the mast are both expensive and exerted to wear and tear, eventually leading to a cable rupture.

Thanks to the completely integrated reader, antenna, and communication units into one and the same casing, the installation was done in less than half an hour! No wiring necessary!



Reader, Antenna, Bluetooth



Battery and Photocell



RFID-Tag Ø15x105mm

SYSTEM ADVANTAGES

- Fi-Fo, no losses due to forgotten or lost pallets
- Never a pallet in the wrong stock position
- Inventory in real time
- Short installation time, low costs
- Easy to move when trucks are exchanged
- BlueTooth-communication =no cabling, no cable ruptures
- Long uptime, reading only when pallets are on the forks
- Rack position-ID directly in the tag – saves on communications with the stock computer
- Pallets can be handled even if the network is temporarily down
- Easy to integrate in the existing data system

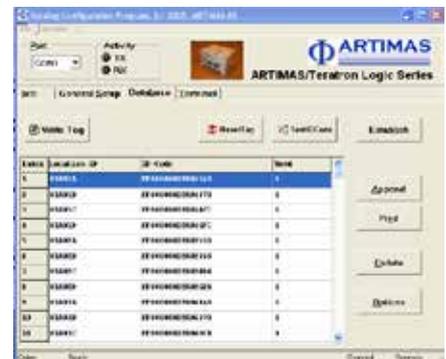




Part view of the stock



Menu to add more tags to the system



Part view of database

THE DATA BASE

The RFID tags used had 125 kHz 2kBit chips that were reprogrammed to a 40 bit kod, describing the exact position in the stock areas. Thanks to this way of handling the data, the truck driver knows that he is in the right position when picking up or leaving a pallet. The communication between truck and the stock computer is kept to a minimum. Should for some reason the communication link be temporarily broken, the truck driver can still carry out his work and then transfer all data to the stock computer, as soon as the communication link is up and running again.

AMC developed a data base and tag re-programming system to easily

handle registering of all 2000 stock location numbers. Hellefors wanted a 6-digit number stored in the tag.

Since the re-programming of the 2 kbit tag into a 40 bit fixcode tag requires 10 digits, the programmer was pre-loaded with four leading zeroes. For easy handling we used a few sub-functions to e.g. search for tags in the database, substitute tags or append more tags to the system.



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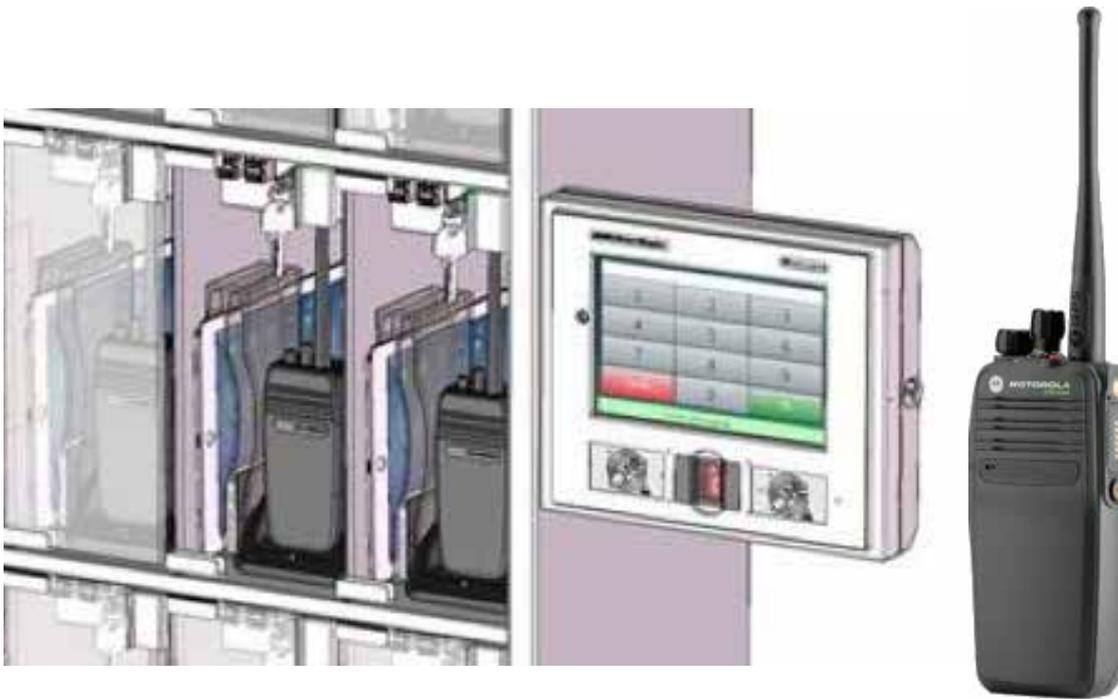
SECUREX

STORAGE & CHARGER LOCKERS

PSBR-40 – CHARGING OF IPODS AND IPHONES

- USB charger connectors inside the boxes
- holder sleeves inside the lockers
- contains 40 lockers, but it can be more by adding a row with 4 lockers
- Steel door frame with safety glass



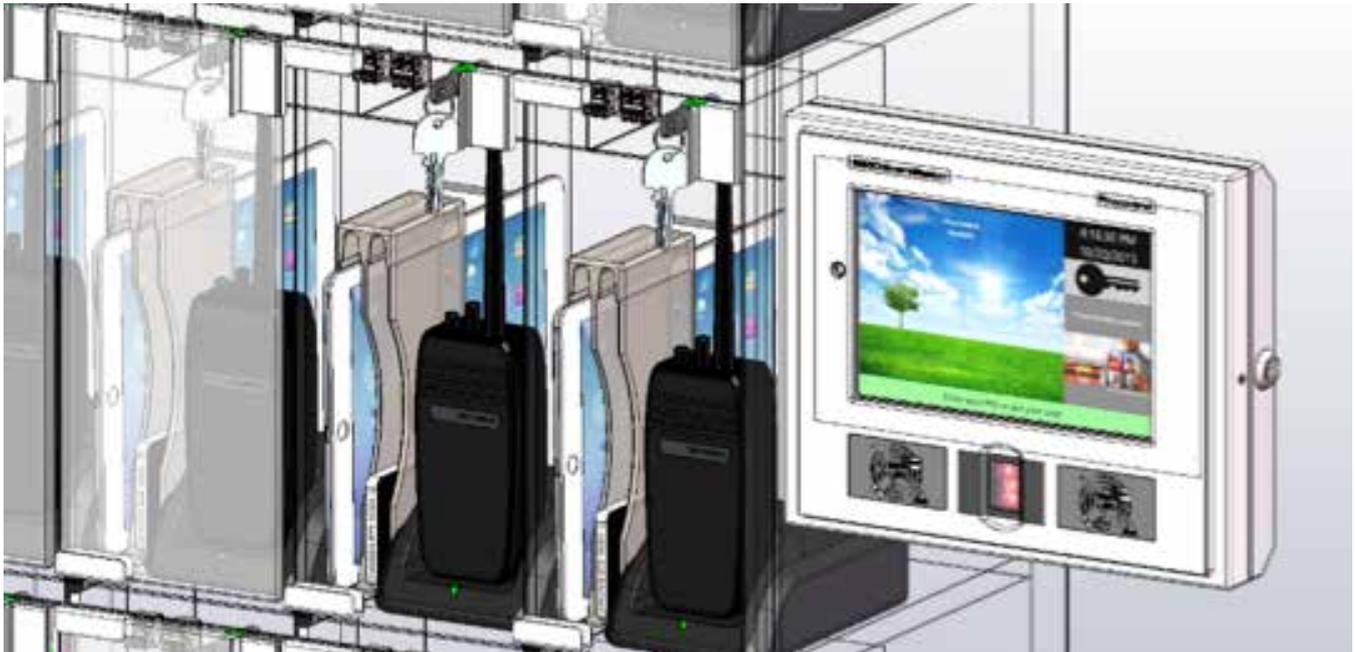


**PSB-60-GXXL CABINET FOR KEY MANAGEMENT,
CHARGING IPADS, HANDHELD RADIOS IN CRADLE, ETC.**

The PSB-60-GXXL type intelligent charger and storage locker cabinet is capable of charging Motorola XPR6350 handheld radios and iPhone, iPad (9.7") devices, however any other type of walkie talkies, handheld terminals can be charged using the power outlet inside the lockers or the USB plugs. The locker doors are made of safety glass in steel and they are equipped with electronic engine driven bolt locks. The Motorola radios can be placed upfront into the lockers when inserted into the charging cradles. iPhones and other smart devices can be placed into the polycarbonate sleeves and they can be charged by 2x 2A using standard USB cables.

- 60 boxes, in every box there are:
 - 2 USB connectors that can charge with 5V @ 2 A each
 - 1 power outlet 110V @ 15A for the handheld radio
 - 1 RFID based key position, locked by electric engine driven latch (store keys)
- UPS, backup battery (does not apply for charging , only emergency opening of boxes and computer operation)
- WiFi & Ethernet connection multi frequency RFID card reader (EM+Mifare supported the same time)
- Biometric fingerprint scanner
- USB charging function for iPhone/iPad, power outlet to charge radios slots to store iPhone/iPad while charging box dimensions with standing radios in cradle: 300 x 305 x 135 m
- boxes are equipped with safety glass doors and adjustable LED lights inside built-in embedded computer with touch screen





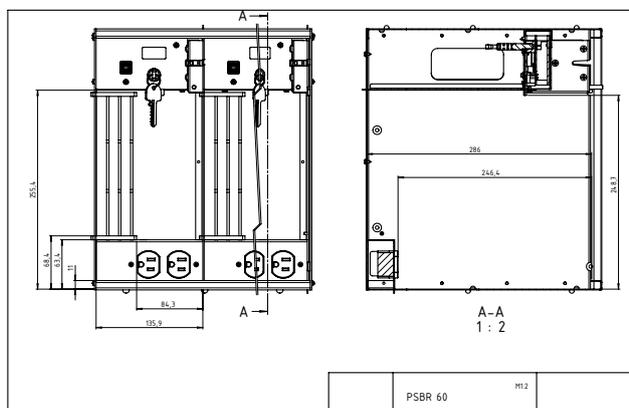
MONITORING FUNCTIONS IN SOFTWARE:

- monitor door open/close
- pick up/return of key inside locker
- connect/disconnect on USB plug 1
- connect/disconnect on USB plug 2
- connecting/removing radio charger from power outlet
- showing charging level in software
- user rights are configurable, separate rights for keys and locker contents

The built-in SmartStation SS-30 is used to control the cabinet:

- Allreader RFID card reader (supports both EM and Mifare cards the same time)
- Fingerprint scanner
- High Resolution color touch-screen (with PINpad on-screen)

User authorisation can be done by PIN code, RFID card, Fingerprint or any of this combinations.



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WINNER OF THE GOLDEN TAG AWARD



RFID FASHIONTECH RFID FOR END-OF-LIFE HANDLING

Project Owner: Swerea IVF

Lisa Schwarz Bour, *Project Manager* & Louise Holgersson, *Project Manager*

Project Consultant: Learningwell West AB

Gunnar Ivansson, *Senior RFID Expert*

BACKGROUND:

We use more and more clothes and textiles and in average we throw away 12.5 kg of clothes per individual and year, of which only 2.4 kg goes to recycling and the remaining 10.1 kg is burned. This is an untenable situation, a waste of resources and natural assets, we must be better on recycling! The sorting available today is also completely manual and mainly aimed at re-use/second hand and not recycling.

THE PROJECT:

In 2016, Swerea and Lisa Schwarz Bour took the initiative for a project for recycling clothes, a project that seriously started 2017 with funding from Vinnova. In addition to Swerea IVF, the project includes the Swedish clothing companies Filippa K and Peak Performance, the research institute RI.SE/Acreo, TEKO The Swedish Textile and Clothing Industries and Learningwell West as RFID experts.

The project initially aimed to achieve better traceability and information on the textile that reaches the textile sorting plants. This in order quickly and efficiently sort out clothes based on different fibre composition to achieve a more efficient recycling as well as enable control of chemical contents. Learningwell West together with Beneli (RFID tag supplier) began to look at the possibilities of getting small RFID tags sewn into clothes in cooperation with the fashion companies Filippa K and Peak Performance.

A first demo with sewn-in RFID tags was made at the Technical Museum in Stockholm under the theme "Smart clothes". The clothes with these RFID tags was scanned by an RFID reader that shows a lot of information about the item itself. This was a given success when we, in addition to product information on the different garments, also could have different musical instruments triggered by the garments. A pants could represent a drum kit, a shirt a

//
A small initiative, but a big step in the direction of a circular economy for textile materials //



guitar and so on. A concept that naturally became much appreciated among children and young people who could create music with the help of clothes, but this was also for adults an effective way to show the speed and efficiency with which these tags can be read.

Both Filippa K and Peak Performance have a clear picture in their production and welcome this opportunity to track and trace clothes. With RFID tagged garments, we naturally see fantastic opportunities, partly from the so important environmental perspective where the technology allows us to be able to follow the clothes in the entire production chain. This gives us great opportunities to follow garments from factory to store and ultimately also a better service to the end consumer says Filippa K and Peak Performance. That the technology has exciting potential throughout the value chain is also important in terms of implementation, as the cost of technology can be worn by several parties in the value chain.

As a synergy of the project, a new member has entered the project, WRSD, which works with innovative solutions with dyeing of textiles in low

temperatures, etc. where RFID technology gives new possibilities.

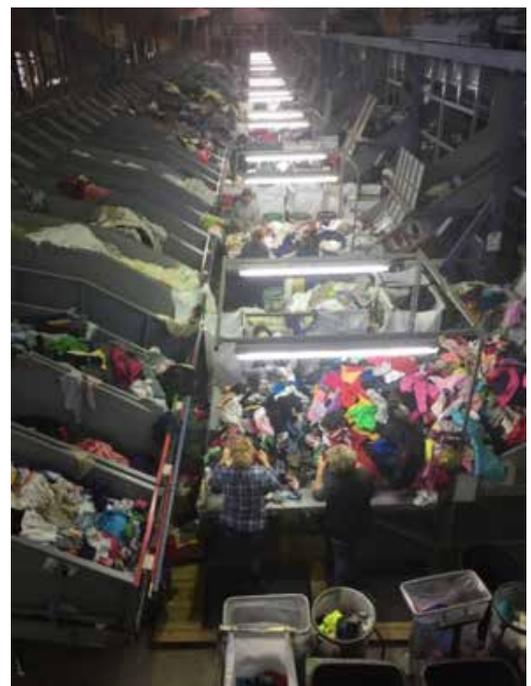
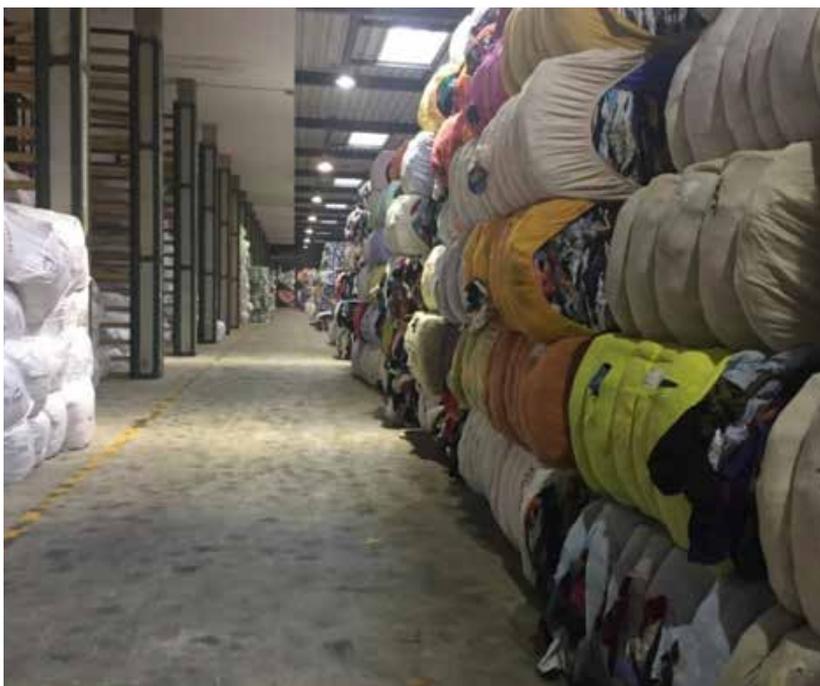
TECHNICAL SOLUTION:

- UHF Gen2 Class1 tags with internal memory
- RFID readers from Harting and Impinj
- GS1 standards for information structure in the tag
- GS1 standard, EPC IS for information exchange between actors
- -cloud service for information management

A fantastic project says Swerea IVF; Being able to follow a garment from "cradle to grave" that would not have been possible without the RFID technology. A project entirely in line with our environmental thinking says Filippa K and Peak Performance. A project with interesting challenges that we believe in comments Beneli and Learningwell West!

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RFID

in EUROPE

WHAT IS RFID IN EUROPE?

RFID in Europe AISBL is a not-for-profit organization established in 2012. RFID in Europe's principle goal is to promote the adoption of Radio Frequency Identification and related technology solutions enabling small and medium sized organizations throughout Europe to gain competitive advantage through their best use. RFID in Europe connects with European end-users, operators, solution providers, universities, research establishments, nongovernment and government organizations and all other European stakeholders through own initiatives and promotion of national projects via our international network. RFID in Europe is an extension of a European Commission FP7 Thematic Network called RACE networkRFID initiated in 2009. RFID in EU also supports EU National RFID Organisations and related events including: RFID Nordic, DKRFID, ID World and EC IoT Week, in addition to industry initiatives including RFID & U with Marks and Spencers.

OUR MISSION?

Promote the adoption of RFID and related technology solutions across European end-users, operators, solution providers, universities, research establishments, including governmental and nongovernmental organizations.

MAIN ACTIVITIES IN 2018?

- RFID in Europe Magazines with exciting updates www.is.gd/rfid_mag
- Annual general assembly (see the RFID in Europe website for updates)
- Academic engagement - Call for papers / proposals
- Hosting RFID in Europe networking events
- Development of RF identification technology (RFID, NFC, IoT, etc.) roadmap documents outlining current "state of the art" and future market trends.
- Direct engagement with European Commission and EC funded research initiatives
- Conducting European wide surveys to evaluate RFID implementation, highlighting common pitfalls, outlining general recommendations including interest and perceptions.



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