

Rosa TOIFL & CO GmbH: when RFID is the operational answer to a cutting-edge company mindset, based on innovation and customer orientation.



Picture 1: Rosa TOIFL & CO GmbH's premises in Vienna.

“Rosa TOIFL & CO GmbH delivers and collects 50,000 kg of textiles per day”

Brief company description and business

Rosa TOIFL & CO GmbH is an Austrian service company active in the rental textiles and textile cleaning sectors in Vienna since 1954, with services based on automated data processing and information technology.

Their customer base is within 150 kilometres from Vienna and they process around 25.000 kg of goods per day, delivering and collecting with their own vehicle fleet around 50,000 kg of textiles per day.

Around half of their orders are originated by the healthcare sector; a quarter from the hotel industry and the remaining orders are made up of workwear and flat linen from all industries.

In the healthcare sector, in particular, they provide and reprocess reusable textiles in the OR area and clean room textiles.

As a growing family business, they give great importance to the quality of the customer service and their company philosophy relies on quick, unbureaucratic actions, great flexibility, personal commitment and individual support.

In order to meet these principles according to Rosa TOIFL, it is necessary to be up to date in technology, logistics and data processing fields and to be as receptive as possible to all technical innovations in these areas.

The implementation of RFID technology

Many years ago, Rosa TOIFL introduced barcodes and datamatrix codes, enabling every single laundry item to be recorded and laying the foundation for further data processing. Capturing every code was very time-consuming because barcode readers could read only one at a time, but with the appropriate software it was possible to monitor the complete history of a textile and

track reusable surgical textiles, cleanroom clothing and personal clothing.

Encouraged by this first attempt to find the right identification system, Rosa TOIFL & CO did not stop there and continued to investigate all the possible identification options, such as the rising RFID-technology.

An experimental set-up was created and tested together with a team of the Faculty of Applied Technology of the Vienna University. The aim of the project was to make the check of the pre-packaged and already sterilized reusable surgical textiles as precise as possible. At that time, LF-RFID-TRANSPONDERS and corresponding reading devices were already available. After a short time of testing, it was found that the reading performances given by LF technology weren't satisfying. Consequently, at that time it was decided not to use it as a control and logistic system and the experiment was stopped.

But the research continued and new technologies had been developed. In this context, the company did not stop its investigation into new technologies, their possible usage/applications and their benefits. An invitation to participate in a tender in 2015 was a good opportunity to again research this direction, develop systems and make them operational.

It quickly became clear that with a functioning technology such as the new UHF radio-frequency identification, many processes could be made easier and more productive.

Therefore, the company started a market survey to find

out which companies could offer RFID UHF transponders. Twenty different transponder producers were analysed, comparing the characteristics of their transponders, in order to find out if they could endure the harshest industrial laundry conditions (high temperature during patching, laundry and sterilization process, high pressure, exposure to detergents and chemicals etc). After this first screening, considering also the producer's experience and reputation with RFID, six different transponder producers were subsequently selected for meticulous testing and evaluation. The goal was to find the best transponder producer, in relation to the reading accuracy error rate over the course of 200 washing cycles.

During the test it came out that specific types of transponders experienced a problem (e.g. tag break, antenna break, poor adhesive-quality, unreadability).

Since only Datamars' transponders were constantly readable without problems during all the 200 washing cycles, after additional mass testing involving hundreds of Datamars' transponders, Rosa Toifl decided to work with Datamars even though the price was a bit higher compared to competitors. Since then, they have been sourcing RFID UHF tags for their processes only from Datamars, together with handheld readers.



Picture 2 and 3: RFID UHF LaundryChip™ 401 PA and 401 in Pouch, customized with Rosa TOIFL logo.

“Only Datamars’ transponders were constantly readable without problems during all the 200 washing cycles”

During the development phase, it turned out that many factors influence the reading and therefore these factors had to be analysed, also defining in which processes the UHF RFID technology can be used effectively.

The first possible use cases were quickly found, in the registration of dirty laundry textiles at the entrance and clean ones at the exit stage, made possible only thanks to the bulk reading system of UHF technology. Personal laundry has always been tracked very well using barcodes, but flat linen (such as sheets, blankets and cushion covers) has such high quantities that reading each single barcode would be too time-consuming and inefficient. This waste of time would also negatively impact on delivery intervals becoming longer.

Thanks to UHF technology, these quantities can be read in just one operation. A whole container, for example, could be read and registered in just one step. It turned out that many factors, such as the position of the transponder or the antennas, the tuning of the reading device according to the transponder etc., influenced the reading result.

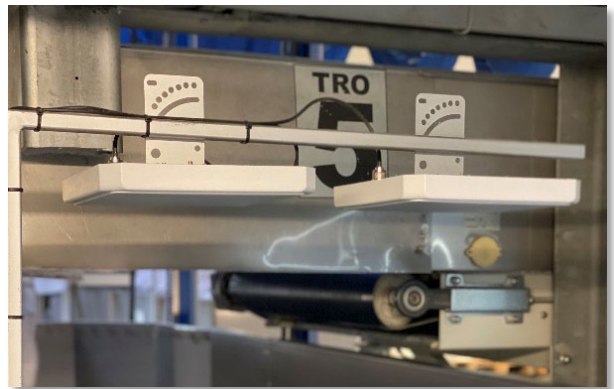
It was therefore very important to test and precisely analyse the system used.

The comparison between manual and RFID counting showed that the RFID system was nearly 100% accurate and thus much more precise and efficient than manual counting.

At this point, Rosa TOIFL had a first picture of the advantages of UHF technology and they decided to implement RFID for bulk acquisition inputs and outputs for some first customers. Thanks to RFID, they could record at once all the items packed in a container and issue right away the corresponding delivery note and invoice. This easier registration of single textiles and the subsequent automatic transfer of volumes, represented a major step forward in Rosa TOIFL's processes. Furthermore, they produced their own customized laundry software, which made it easier to analyse processes and quickly implement any changes and extensions. This in-house laundry software integration allowed them to perfectly adapt the RFID system to their existing well-functioning production processes.



Picture 4: RFID reading cabin for bulk detection of entrances and exits.



Picture 5: RFID reading point in the production process after the dryers.

“Thanks to RFID, they could record at once all the items packed in a container and issue right away the corresponding delivery note and invoice”

After the first implementations, they continued to look for further application areas in their processes and try to achieve the highest possible item detection rate, starting with dirty laundry. This was possible by implementing several reading points in the process.

The data collected at every single reading point in the process was analysed and processed, making it possible to track each textile and to create precise statistics regarding inputs, outputs and dwell time. The dwell time is that

period of time in which the textile is ready at the customer's site without having been sent to the laundry for cleaning in the meantime. It can be determined via the web portal, or at customer's premises, by using the mobile handheld reader and is crucial information from an hygienical point of view. This information, thanks to the use of RFID systems in their production processes, was made transparent and available to their customers via their specially developed web based B2B portal.

Through further research and fine-tunings, the newly integrated RFID system in Rosa TOIFL grew steadily and they designed -and implemented this together with their customer's cross-company processes.

RFID technology was also very helpful in the area of inventory / stock determination and clearly made work easier on many sides, such as the management of textile losses. Thanks to RFID, the shrinkage can be calculated and displayed each day on fixed parameters and inventories can be carried out using a mobile handheld reader.

“After the introduction of UHF-technology, the turnover per hour worked increased by 8-10%”

Especially from a B2B point of view, the company goal is to work well with its customers and make information flow optimized and transparent.

To do this, it is important to collect as much information as possible, process it and then present it in a customer-oriented manner. RFID systems are of great help here and enable many new cross-company processes. In order to guarantee themselves and their customers secure access to the system anytime and avoid downtimes, they have also developed and implemented a highly available in-house data centre.

The key figure showing that productivity was higher after the introduction of UHF-technology is that turnover per hour worked increased by 8-10%. This means that 8-10% less working time is spent on the same turnover. And this is only the start because the RFID technology hasn't been implemented at all costumers yet.

The custom RFID-based Textile Management System Platform (TMS) facilitates the establishment and optimization of cross-company business processes. One of the main goals of the system is the exact tracking of the laundry, making it possible to determine exactly where the laundry has gone and strongly reducing the textile losses on both sites (at the laundry and the customer's premises). This leads to an important cost saving, which impresses our existing customers and is often a convincing argument for new customers.

Future plans for the use of RFID

Rosa TOIFL's goal is to continue to use and develop RFID systems, constantly looking for new areas of application that could have a positive impact on the production process and cooperation with the customer.

Other considerations, such as in the area of sorting or specific laundry pile detection are already up to date and they still see great potential here. Especially considering they are a company that works very little by pooling the laundry, but where each customer is provided with his individual laundry depot, it is particularly important to think in this direction.

Rosa-Toifl has been using the high-quality RFID-UHF transponders from Datamars for more than 4 years and they look forward to facing new challenges every day in the area of "RFID systems" to with Datamars as a valuable partner.

Rosa TOIFL is firmly convinced of Datamars' high innovation power and the collaboration will be stronger and stronger, thanks also to the support that Rosa TOIFL will give Datamars to test the newly developed tags in their laundry following lab trials.