MANUFACTURER OF RFID CABINETS
MODERN TECHNOLOGIES IN TECHMARK

Implementation of the state-of-the-art technical solutions, intelligent strategic management tools, improvement of the company's efficiency, reduction of operational costs and enhancing labour efficiency are, among many others, requirements of the current market. They also pose serious challenge to modern companies.

Fourth Industrial Revolution a.k.a Industry 4.0 has set new trend where digital technologies interconnect with IT infrastructure in order to optimize financial transactions and non-financial aspects of business activity.

It also uses the concept of Internet of Things (IoT). According to this concept there is a close interaction between the men and the things, that are capable of generating data on their own and sending it via Internet, on the basis of which data processes involving the things can be optimised by the men.

The concept uses the assumption that the real world is unified with the virtual world of the Internet and information technology, and that the said unification relates to the majority of businesses carried out by the company, enterprise or service providing entity. As a result growing amount of data is collected and analysed, and consequently each business can be conducted in more efficient and cost-effective manner.

Being aware of potential benefits of the aforementioned concepts in 2017 our company started research with the aim to equip our products with the RFID technology, thanks to which we have developed intelligent cabinets of the latest generation. This is how a separate group of RFID furniture has been introduced to our offer, such as RFID cabinets with registration functionality, for which we have developed our customised IT System. The said System is capable of collecting data and non-financial indicators, which are subsequently used to conduct analyses and integrated reporting, or to optimise processes related with the resources being used. Our IT System can be integrated with other systems used by the customer, which actually fulfils the principles of IoT and Industry 4.0 concepts.

RFID technology implemented in our cabinets, as well as customised solutions, which have been presented in the patent applications and which are legally protected as utility models, prove the novelty of our products.

From the abundance of technical and IT solutions available on the market our specialists chose only those components, which have proved to be reliable and which consequently guarantee reliability of our cabinets, with possible further development of our products according to the customers’ needs and market requirements.

Competitive strength of our RFID furniture on the global market is a result of these efforts.
RFID cabinet is an innovative product implementing the principles of Industry 4.0 and Internet of Things concepts. The cabinet is a central element of the IT System developed by our company, thanks to which information flow between the things (items with RFID UHF tags, which are stored in the cabinets) and people is provided, and their interaction with IT processes is possible.

Automatic registration and collection of data allow quicker and more efficient coordination of current and planned business transactions (including purchase, production and logistic processes), which consequently improves management and enhances labour efficiency.

**OUR SYSTEM COMPRISES**

- at least one RFID cabinet with Application Software (i.e. software installed in the cabinet and operated by the user through the touch screen), antennas and related mechanisms.

  The cabinet is a central element of our System. Thanks to the technology, with which it is equipped, RFID UHF tags are identified, events using these tags are registered and all data is sent to Zasobnik software using LAN or WiFi.

- Zasobnik software - in this software the customer collects data (relating to users, items stored in the cabinet and other events), manages the System (e.g. by granting access to the cabinets) and generates data to be used in the analyses.

  The software is operated by an authorised person (administrator), who uses administrator’s panel.

  Zasobnik software can be installed on any physical server chosen by the customer, or on the virtual server i.e. on cloud.

The System may consist of any number of cabinets.
ADVANTAGES OF OUR RFID CABINET

VERSATILE SOLUTIONS AND RELIABLE READING OF DIFFERENT TYPES OF TAGS
Our cabinet uses any kind of RFID identifiers such as Unique and Mifare cards, pendants or stickers, as well as login and password assigned to a given user.

Examples of identifiers

The cabinet can provide simultaneous storing of items of different sizes and purposes (such as documents, tools and power tools, clothes, medicines, and so on) placed in different storing arrangements.

Our own method for identifying RFID UHF tags guarantees excellent efficiency in simultaneous reading of different types of tags used to mark different items.

Examples of items’ tags

As the tags are read in closed and sealed interior of the cabinet the risk of misreading the tag, caused e.g. by the presence of other items tagged and stored around the cabinet, can be eliminated.

This makes our cabinets versatile and more competitive than e.g. vending machines.

OWN SOLUTIONS AND KNOW-HOW PROTECTED BY PATENTS
Thanks to our own solutions developed as a result of research, as well as owing to implementation of reliable mechanisms and high quality materials, waves in the UHF band are uniformly distributed inside the whole interior of the cabinets, with no weak areas. Therefore the cabinets guarantee absolute reliability.

Solutions developed by our company and implemented in the cabinets have been protected under the patent application and protected utility models.

RELIABLE MECHANISMS
Our RFID cabinets are equipped with reliable technological elements, in particular RFID UHF reader manufactured by Zebra. Solutions implemented in our products utilise expertise of the global pioneer in the technological innovations, guarantee suitable maintenance and further development of our product.

FUNCTIONALITY AND AUTOMATISATION
RFID cabinet is the first one to completely fulfil principles of IoT and Factory 4.0. Its operation is simple and fully automatic. To collect and process data concerning items and users no additional operations are required. Moreover, thanks to electric door handles and card readers, door opening is a fully automated process.
RFID CABINET WITH REGISTRATION OF RESOURCES

ADVANTAGES OF RFID CABINETS INTEGRATED WITH IT SYSTEM

SAFE STORAGE OF RESOURCES
Each company has resources (like items, documents or assets) which need to be stored in secure conditions, or access to which need to be restricted. Massive structure of the cabinet along with reliable door locking mechanism guarantee, that all valuable assets are stored in the cabinet in a safe manner.

The cabinet can be accessed only by users, who have been granted proper authorisations (e.g. employees, suppliers, maintenance technicians, data administrators, etc.).

FULL CONTROL OVER RESOURCES AND QUICK ACCESS TO DATA CONCERNING OPERATIONS RELATED WITH THE RESOURCES
Functionality of the majority of systems using RFID technology is limited to reading information contained in the tags. However such systems do not provide control over issues such as who has taken an item and how long it has remained in his or her possession. This information can only be acquired when RFID cabinet with registration functionality is used. Each operation (logging, taking and return) is automatically registered, thanks to which it is possible to check at any time (also using remote control) who has taken/returned which item, when it happened and what other operations were conducted using the tagged item.
Technical solutions implemented in our cabinet provide quick and easy access to information both using the cabinet's Application or the Zasobnik software.

UNLIMITED ACCESS TO RESOURCES FOR AUTHORISED PERSONS
Thanks to security measures having been implemented, the RFID cabinet can be used without additional supervision of the third party, and resources can be taken or returned all around the clock. This guarantee constant and unlimited transfer of resources which is important during the shift work.

LIMITED HUMAN RESOURCES AND THE RESULTING COST-EFFECTIVENESS
All operations related with resources flow management (supervision, giving and collecting resources, maintaining files and warehouse tracking system) which so far have been conducted by an employee (like warehouse manager), can now be automatically supervised and performed by the cabinet itself; the labour costs are therefore eliminated.
RFID CABINET WITH REGISTRATION OF RESOURCES

IMPROVED WORK EFFICIENCY THANKS TO OPTIMISED FLOW OF RESOURCES AND REAL-TIME DEMAND REPORTING

The content of the cabinet can be verified through the display and quick search of a given item (exact storing location or identification of a person who last used the item), while all resources management processes (giving, receiving, registering, etc.) are fully automated, all of which accelerates resources circulation and transfer and consequently enhances work efficiency.

As any comments can be real-time reported using Application of the cabinet (e.g. to notify the need of urgent repair to the item, restock of certain resources), access to required resources is improved and consequently work efficiency increases.

RELIABILITY OF COLLECTED DATA, ELIMINATION OF ERRORS

Automated processes guarantee that collected data is reliable and free of errors. The cabinet automatically registers each event related with given resources, which covers simultaneous returns or takings of any number of tagged items. Thanks to this possible human errors, caused among others due to drawing up and correct filling out warehouse tracking documents, can be eliminated.

The System reads data by itself, but also provide human supervision over the processes (additional approval of records).

IMPROVED EFFICIENCY OF THE COMPANY THANKS TO REMOTE REAL-TIME ACCESS TO DATA

All data (including archived) can be real-time accessed. This provides quicker responses to any demands reported by the employees (e.g. planned deliveries, audits, exchanges, maintenance and repair works, etc.) and facilitates coordination and automation of processes (e.g. deliveries, purchase orders, logistics). All of this obviously improves the company’s efficiency.

Thanks to remote access to the System, it is also possible to grant or block access to the cabinet for certain users. Therefore one-off access to the cabinet (e.g. using login) can be granted at any time to persons like maintenance technician for the cabinet or for the resources, suppliers etc. with no need to participate in these events in person.

PROCESSES OPTIMIZATION BASED ON COLLECTED DATA

The System has been developed so that own database could be created and certain data could be exported to CSV file in order to conduct relevant analyses (e.g. in terms of processes carried out by the employees, number of takings, as well as wear and tear of the items, or reported defects of the tools, etc.).

Automated collection of data related with the resources (tools, documents, medicines and other items stored in the cabinet) as well as other non-financial indicators makes an important source of reliable information relevant for analyses, integrated reporting, or optimization of processes connected with the use of resources. IT system implemented in the RFID cabinet with registration functionality can be integrated with other systems used by the customer (Clock Card Register system, machine control system, production planning and control, etc.) which satisfies the principles of IoT and Industry 4.0 concepts.

Our System, which is based on automated and reliable collection of data, followed by the real-time access to this data, as well as on possible integration with other systems, gives the customer opportunity to create modern IT and technical infrastructures which constitute indispensable elements of the factories or offices of the future.
Drop box RFID cabinet, commonly known as “dirty linen cabinets” are generally utilized to store used resources e.g. clothes, protective gloves, shoes, tablecloths, towels, as well as other items to be exchanged or disposed of.

Thanks to RFID technology used in this type of cabinets the scope of their applications has increased. RFID technology makes it possible to automatically register all used items with RFID UHF tags, which are dropped in the cabinet, as well as register all returns.

This type of products is generally used to manage processes connected with providing PPE to the employees (collecting used clothes, transferring them to the laundry or providing access for an outsourcing company). Therefore they are mainly used by production plants, hotels, restaurants, medical centres, as well as other companies, such as outsourcing entities whose scope of business includes maintenance of PPE.

Registration of used items being returned
- provides control over such items
- improves delivery planning for new resources, thanks to which shortages can be eliminated
- facilitates collecting of used resources and their exchanging into new ones (e.g. PPE, hotel cosmetics, etc.)
- makes it possible to analyse data (e.g. in terms of the tear and wear of items, or frequency of exchanging resources) in order to improve management processes, such as optimizing stock and reducing costs
- facilitates financial settlements with recycling or maintenance companies (e.g. laundry).

The cabinets have very spacious interiors, where variety of tagged items can be stored, also the ones used in laundry industry. Thanks to the structure of the furniture items can be dropped in the cabinet without additional authorisation, but the drop box structure prevents unauthorised persons from taking these items out of the cabinet.

Software implemented in the cabinet can be integrated with other systems used in the company, which improves control and optimisation of business processes, such as financial settlements between the companies.

Techmark has filed two utility models applications for this product: Title: METAL DROP BOX CABINET WITH A SYSTEM IDENTIFYING STORED ITEMS (application numbers W.127528 and W.127529)
RFID furniture with access control constitute a group of cabinets where RFID HF and LF technology has been implemented to store different types of items, access to which has been restricted to users having coded proximity cards.

Depending on the product type there are different functionalities in terms of authorisation management and registration of events where said cards have been used.

Solutions implemented in our RFID cabinets are versatile, thanks to which each customer can configure the furniture so that it can correspond to their functional requirements as much as possible.

This group consists of:
- multi-compartment lockers (food lockers, deposit lockers, lockers for clean clothes)
- office and warehouse cabinets
- cart with possible charging of tools.

ADVANTAGES OF RFID FURNITURE WITH ACCESS CONTROL:

SECURITY
The cabinet/compartment door is open only after positive verification of access data coded on the proximity identifier (access card) using RFID LF or HF reader installed in the cabinet. Each identifier has its unique number assigned by the TID database. Massive structure of our furniture and technological solutions implemented in the cabinets contribute additionally to secure storing of items deposited in our cabinets/compartment.

RELIABLE SOLUTIONS
Our RFID cabinets are equipped with reliable and versatile elements, which guarantee that furniture can be easily, conveniently and failure-free operated.

Readers offered by our company are compatible with any Unique 125 kHz and Mifare 13.56 MHz identifiers. Cabinets/compartment can be also opened by means of identifiers used in Time and attendance systems (TnA).

RFID AS A SOLUTION FOR HACCP
The cabinets constitute perfect solution for enterprises where HACCP system have already been implemented and where employees must not bring metal elements in the production floor area, still where RFID cards are permissible.
RFID FURNITURE WITH ACCESS CONTROL

PRODUCT PROFILING
Apart from basic version each RFID cabinet may be equipped with additional elements, thanks to which its functionality can be improved (e.g. LED lights, sockets to charge tools, glass door, etc.). Cabinets can be also customised and configured in accordance with individual requirements of the customer (e.g. different size of the cabinet/compartments, equipment, etc.).

TIME- AND COST-EFFECTIVENESS
When a key to traditional locker (compartment) is lost, it is usually necessary to exchange the lock, which obviously results in additional costs to be borne.
Our cabinets have electric strikes installed, which open following positive verification of the access card. When a card is lost, electric strikes need not be exchanged, but simply new card is issued to the user.
Thanks to RFID technology unlimited number of new identifiers can be coded and preparation of a new access card takes only a few seconds.
Using the cards is also advantageous as access to certain cabinets (compartments) can be quickly restricted for some cards and granted to the others. This functionality is very crucial where access to the cabinet/compartment need to be often or promptly changed and granted to some other user (e.g. in case of the hotel guests, employees, tenants, etc.).
It is also possible to open a number of cabinets using a single RFID card, which additionally facilitates their operation.

FUNCTIONALITY
Apart from being capable of verifying data and granting access on the basis of coded proximity cards, our cabinets have also a number of other functionalities.
Multi-compartment RFID cabinets provide secure storing of items in public forums and other places like hotels, office buildings, apartments, out-patient clinics, schools, cloakrooms, shops, sport facilities, production floors, train and bus stations, or canteens (as food lockers).

Cabinets for clean clothes constitute a type of multi-compartment RFID cabinets. This type of cabinets is used by outsourcing companies which specialise in equipping production plants and service providers with PPE or workwear. An employee of such rental company has a maintenance card which opens all compartments, so that clean PPE could be delivered.

Multi-compartment cabinets can be used to combine them in modules or in a series of cabinets. Each cabinet can contain up to 30 compartments having different sizes and being differently arranged. Therefore individual requirements of a customer as to the size of compartments in a given cabinet can be customised as needed.

The cabinets are equipped not only with a card reader, but also with a display showing various data and messages. Each cabinet is also provided with an inspection window, where administrator’s panel for maintenance operations is located.

**TYPES OF MULTI-COMPARTMENT RFID CABINETS**

- **Food lockers**
- **Cabinets for clean clothes**
- **Deposit cabinets**
MULTI-COMPARTMENT RFID CABINETS

Basic functionalities of the cabinets:

- cards coding and identifying, granting access to particular compartments
- emergency opening of a given compartment (e.g. when a card is lost)
- opening all compartments in a sequence (e.g. for maintenance technicians).

Additional functionalities:

- Depending on the requirements of a given customer the cabinets can be also equipped with other types of readers, which provide further functionalities:
- programming of access cards carried out from any point of access in the LAN
- creating employees' databases and granting authorisations e.g. in order to temporarily open some of the compartments
- awarding one employee with access to a number of compartments and programming a number of cards to open one compartment
- depriving a given employee of the access to the cabinet (with no need to use his card)
- time and attendance system or integration with other TnA systems
- registering of some kinds of events (e.g. date and hours of the cabinet/compartment opening)
- inspecting events which occurred in particular compartments (who opened which compartment and when it happened)
- possible interconnection with the alarm signal in case of unauthorised opening of the cabinet
- signalling of unlocked door
- other functionalities.
OFFICE AND WAREHOUSE RFID CABINETS

This type of cabinets can be used in offices, medical centres, hotels, warehouses, or production plants to store documents, tools, medicines, valuables or other resources of the company, which need to stored in secure conditions where access is restricted.

The possible versions of this product include office cabinets, office and clothes cabinets (the cabinet is divided into two parts) or workshop cabinets (with reinforced shelves).

These cabinets are characterised by spacious interior, and therefore in some applications, like in workshops, they can be used as storage areas.

Moreover these cabinets may be equipped with additional elements which contribute to the comfort of their use or improve their functionalities (e.g. sockets for charging tools stored in the cabinet, LED lights, glass door).

The cabinets may be provided with standard coding and decoding readers, or with other types of readers having further functionalities (e.g. enabling registration of events such as cabinet opening or locking, or time and attendance systems).
RFID carts with access control are used for secure storing of tools and electronic devices which need to be charged e.g. power tools, laptops, tablets, etc. Two electric strikes installed in the door are open following positive verification of access data coded in the RFID proximity identifier.

Our carts make it possible to simultaneously charge several dozen tools and equipment in safe conditions.

RFID carts can be customised in terms of their sizes and types. Moreover, the cart’s compartment can be divided into 1, 2 or 3 columns. A single cart can be provided with up to 30 separate shelves (compartments). Each shelf has free access to sockets on the power strip.

Inside the cart there are power strips with power sockets (up to 30 sockets). Each socket is additionally provided with 2 USB ports, so that 2 different devices can be charged using 1 socket at a time. The cart is provided with ventilation openings to cool electronic devices stored inside.

The cart is provided with RFID reader - for coding and reading proximity identifiers. The basic reader can store data for maximum 2 thousand identifiers.

It is also possible to install readers with additional functionalities.
OUR OFFER INCLUDES

SALE OF READY-MADE METAL PRODUCTS

Our regular offer covers more than 300 types of metal furniture, which is suitable for nursery-schools, schools and other education-related bodies, as well as company seats, offices, authority departments, banks, hotels and other public facilities, workshops, production floors and service halls. Apart from this, we also manufacture a number of non-standard products, which use automatics and latest IT solutions, such as parcel lockers, slot machines, etc.

PROTOTYPES CONSTRUCTION

We are open to new ideas. Therefore we continuously seek innovative solutions and implement new, custom-made projects, which meet our customers’ expectations and follow the latest trends.

METAL WORKING

We are able to provide a wide range of services related to metal working, which include processes used during production of metal furniture:

- POWDER COATING
- SHEET METAL CUTTING, BENDING AND WELDING
- UV PRINTING on all types of flat surfaces

QUALITY COMES FIRST

Over 60,000 pieces of furniture are manufactured in our plant each year. Still we are ready for further production growth. We have suitable production facilities and machine park, as well as we work with experienced teams of professionals. Today it comprises machines manufactured by the most recognised companies, like Salvagnini, Itw Gema, Trumpf, Göteneds, Eagle or Amada, which gives us the highest precision and quality of the products we manufacture. Our machine park includes:

- CO2 laser cutters, as well as 2D and 3D fibre lasers
- Automatic sheet metal processing machines
- Flanging machines and bending brakes for materials of different thickness and size
- Powder paint shop
- Other equipment used in manufacturing processes (e.g. UV plotter suitable to provide prints on metal sheets and other materials).
WE ALSO MANUFACTURE

WORKSHOP FURNITURE
- light and heavy workbenches, workshop carts
- industrial cabinets
- cabinets for industrial computers
- szafy na komputery przemysłowe
- metal boxes and containers for waste segregation
- other cabinets

OFFICE FURNITURE
- height adjustable desks
- office cabinets with upper sections, file cabinets
- map and plan cabinets
- laptop carts and cabinets
- other cabinets

SOCIAL CABINETS
- compartment cabinets, food lockers, clothing lockers
- utility lockers
- fire station lockers
- benches and benches with coat racks
- other cabinets

SCHOOL FURNITURE AND SPORT LOCKERS
- clothing lockers and compartment
- sport lockers
- benches and benches with coat racks
- laptop carts
- office and files cabinets
- other cabinets

MEDICAL FURNITURE
- medical cabinets and lockers
- office cabinets
- file cabinets
- desks and containers
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