

CASE STUDY

SECTOR Manufacturing for the Aeronautics sector

CHALLENGE Improve the process of machining supports, in order to optimise the maintenance cycles and respond quickly to audit requests

SOLUTION High resistance RFID tags (resistant to spattering of metal filings and long-term exposure to cutting fluid), fixed readers and PDA sensors, centralised database and development of 3 control modules

RESULTS Accurate information updated in real time, quickly located tools, response within 24 hours to audit requests, more efficient work process



RFID FOR ASSET MANAGEMENT WITHIN A COMPLEX INDUSTRIAL ENVIRONMENT

Asco is a leading company in the development, production and processing of high precision steel and titanium components for the aircraft industry. In spite of a complex production environment, the company was able to consistently improve the management of its machining supports with the aid of RFID.

Asco deploys machining supports for the production of mechanical parts destined for customers like Airbus or Boeing. The company owns over 2000 of them, spread out over five buildings. These supports, which are either the property of Asco or its customers, are subject to regular maintenance and periodically audited. It is therefore useful to know whether the tooling is physically present in the company, its exact location and what its status is. This is to ensure it is possible to identify the various parts, keep a maintenance record showing when the next service is due and to be able to locate them easily on company premises.

Four databases and no means of co-ordinating them

In the past, parts were identified using a number although this was not unique to each part. The identifier designated the type of tool combined with an operation type. This resulted in a situation whereby two identical parts destined for the same production process could have the same number with no way of differentiating them in the database. In addition, different databases existed: for design, the production workshop, the controller and for sales representatives. Since these different databases were not linked to each other, it was extremely

difficult to obtain an overall view of a tool's status. Moreover, information was manually encoded, which led to errors. Finally, since tools might be used in different buildings on the site, it was difficult to locate them during maintenance procedures. Hence new machining supports were produced without being really necessary and time wasted trying to locate parts affected production.

RFID: enabling total process automation

To resolve these problems, Asco decided to implement an RFID solution. *"We immediately thought of RFID because of the opportunity to increase process automation and its potential for location tracking,"* explains Hervé Le Grand, Fixture Shop Support at Asco. *"However, given the complex environment in which that technology had to operate, a complete audit of our site and operational needs proved necessary before making the final decision."*

RFIDea, a Belgian company specialising in RFID that became part of the Zetes Group in 2011, was selected to undertake the project. *"Zetes-RFIDea had a number of important assets,"* Hervé Le Grand continues. *"First of all, it offered the potential to integrate several types of hardware, which didn't tie us to one particular supplier. Secondly, their offer included analysis as well as project implementation, support and maintenance services. Finally, after comparing proposals from several providers, it was apparent that the analysis made by Zetes-RFIDea was also the most relevant".*

Spattering of metal filings and cutting oil: the need to choose an extremely robust tag

| | | | |
|--|-------------------|--------|--------|
| Date of first service | 2/2/53 12:00:00 P | | |
| Periodicity of control | 0 | | |
| Last control date | 4/22/11 9:58:08 A | | |
| Confirm Control | | | |
| Do you want to control ? | | | |
| <input type="button" value="Yes"/> <input type="button" value="No"/> | | | |
| <input type="button" value="Control"/> | | | |
| View | Check | Create | |
| 473130303032313300000000 | | | |
| Sync | Config | Read | Logout |

Before recommending a solution, Zetes-RFIDea undertook an audit of Asco's processes and carried out numerous tests. In particular, it was necessary to ensure tags were resistant to the extreme conditions they would be subjected to - the spattering of glowing metal filings and the use of cutting oil during production

presented the first major challenge. Added to this, the machining supports to be identified were made of solid stainless steel, a major obstacle to reading information accurately using radio frequencies. A dozen tags from different suppliers were tested under a variety of conditions 24 hours a day for 30 to 40 days. Only two of those tags passed the qualification test and in the end Omni-ID's MAXtag RFID UHF Gen2 IP65 was retained.

To meet Asco's software requirements, Zetes-RFIDea, in collaboration with the client's IT team, developed three modules:

- **A module for creating objects:** when a machining support is produced, it is given an identification number and exists as an object in Asco's database
- **A module for maintenance:** this module makes it possible to access and complete the object's technical file. It contains a description of the part as well as a maintenance form
- **A module for audits:** this makes it possible to locate supports easily and quickly in the company's buildings.

The various modules can be accessed via portable terminals.

Fast location of tools

Data enabling supports to be located is obtained using fixed RFID readers fitted with proximity sensors. Positioned at the entrances and exits of buildings, they have no footprint on the ground. This feature makes it possible to ensure the safety of operators and avoid collisions that can easily occur in a production environment. The use of two proximity sensors makes it possible to ascertain movement of the part (incoming or outgoing) and to trigger an alarm system in case of incorrect handling (e.g. "outgoing" object not relocated in another building after a certain period of time has elapsed). Fixed and portable sensors were needed to meet the requirements of function and robustness in a restrictive industrial

environment. There too, various tests were carried out. The SIEMENS RF670R fulfilled the requirements for fixed sensors and the Motorola MC9090 was retained for the PDA sensors.

A trusted partner

The whole solution was implemented by Zetes-RFIDea, and the company continues to be involved with the project for support and maintenance services.

Hervé Le Grand comments: "Working with an expert integrator like Zetes RFIDea has clearly helped to differentiate us compared with other manufacturers and the wide array of existing solutions on offer in the marketplace. Zetes RFIDea was able to assist and guide us through the various stages of the project, from selection of standards and hardware to the deployment of the solution, through various developments."

Updated lists in less than 24 hours

"Implementing this project was a major challenge for Asco. Given that this type of project was still relatively new and the dearth of business cases, we had to redouble our efforts to convince people internally of the relevance of the solution being proposed," Hervé Le Grand explains again. But the advantages are undeniable. Asco now benefits from a completely automated tool management process and receives information updates in real time. "Thanks to that, our knowledge of the machine park corresponds to reality and we suffer fewer losses from supports. What's more, the ID card of each tool is located in a unique database accessible to everyone. When annual audits are being conducted we can extract lists very quickly. Whereas before it sometimes took a month and a half to answer a customer's question, he can now have all the information he needs in less than 24 hours. This improvement to response time is having a major impact on our relationships with customers."

Among the other advantages brought about by the Zetes-RFIDea solution, one might also mention the fact that the work of controllers has advanced considerably. Lists of tools to be inspected for the month are generated automatically. Each building also has its own controller who also obtains his own list of tools, which greatly facilitates the organisation of their work.