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Store Automation & Barcode Printing

Toshiba operates largest RFID supply chain solution in Europe in Regensburg

Efficient Warehouse Process Management, Customer RFID Mandates are key drivers to RFID future

Tucked away in the northernmost bend of the Danube river in Bavaria lies Regensburg, a mere one-hour drive north of Munich and right in the center of one of the top three high-tech regions in Germany¹. Siemens, BMW, Toshiba, Infineon are just some of the global corporations that have sprawling manufacturing sites here and put Regensburg firmly on the technology map.

Their success in turn helps attract a growing number of small and medium-sized firms in mechanical and electrical engineering, energy technology, bio-technology and the automotive industry.

Among the larger employers in the Regensburg region is Toshiba Europe GmbH's manufacturing facility for the Computer Systems Division. The plant, in operation since 1990, handles the customer-specific configuration of every Toshiba laptop destined for the EMEA region.



¹ *The Prognos Institute in Basel closely examined the 97 German planning regions with regard to their technological competence for leading business magazine Wirtschaftswoche. The Regensburg region assumed third place after Munich and the greater Darmstadt area.

IDC in its latest report noted: “Notebooks clearly continue to drive overall market growth in EMEA with shipments recording a solid 19.7% growth in EMEA, only slightly below expectations. Growth continued unabated in the CEMA region, while Western Europe maintained healthy trends, despite the inventory situation.”

“While some European countries were strongly hit by slowing demand and inventory levels, continued traction for notebooks in the consumer and SMB space, driven by increasingly attractive price points and product value propositions, and the preparation of the forthcoming back-to-school season maintained a strong cushion for growth in many other countries in Western Europe,” said Elsa Opitz, research manager for IDC’s EMEA PC Tracker. “Vendors clearly continued to compete fiercely in the portable space, with many continuing to post healthy growth results.”

Toshiba maintained its fifth position in the overall EMEA PC ranking, thanks to another outstanding quarter at 36.5%, the highest growth among the top 5 vendors. Toshiba continued to deliver a robust performance in the notebook market thanks to a strong product portfolio and improved channel and go-to-market strategies.

“More than ever, to be best positioned to capture market share and future opportunities, IT vendors should develop and sell solutions that are targeted at the specific pains of the manufacturing industry,” said Jessica Goepfert, program manager at IDC’s U.S. IT Opportunity: Manufacturing program.

“This means that vendors must expand their knowledge beyond IT and truly uncover and understand the functions, processes, and pressing business challenges of a manufacturing organization. Only then will they know what the hot buttons are and where the greatest need for a technology solution lies.”

The integrated solution provides a continuous flow of pallets through a single RFID gate whereby the entire content of each pallet is scanned and booked in a single movement.





The Challenge

Whether you're a smaller job shop or a larger make-to-stock manufacturer, you face many of the same business challenges: efficient management of the assembly process, constant optimization of inventory levels, and fulfillment of customer orders – all while maintaining a firm grasp on key financial details.

“Begin at the end: indeed, a good lean manufacturing strategy starts with defining your ultimate goal,” according to Gerd Holzhauser, Manager EMEA ENG at Toshiba's plant in Regensburg.

“Looking at the Supply Chain solution that we have in place, our key objectives are focused on quality and efficiency as well as top availability and reliability to have the optimum SKU set up and release structure,” he explained. “For our customers, this can best be translated as follows: Toshiba guarantees a reliable product quality with a maximum level of competence and responsiveness from our side. We commit ourselves to deliver customized products that are easy to order and with a supply capability to match any order, either from large accounts, big retailers or any other customer.”

“Therefore, our ultimate goal is to have asset-light operations on the one hand and a steadily increasing revenue stream with an acceptable profit margin on the other. All this is somewhat theoretical but is essential to understand what we are trying to achieve here.”

Toshiba's market outlook for laptop PCs in Europe sparked an engineering project that can be defined as one of Europe's largest RFID supply chain solution today.

RFID Partnership unblocks Warehousing Bottleneck

The warehousing operation suffered from stock rotation challenges that seem to define these kinds of supply chain models. The Regensburg facility effectively looked up to a huge handling operation during the final five days of the month with about 40 percent of the total sales per month to be shipped, topping it up with a huge peak during the closing day.

Fulfilling the requests of each customer is a huge task in itself, the time pressure on top increased the risk of errors and mistakes with double bookings, space problems and product availability delays.

After thorough investigations, the Regensburg RFID Project Team shortlisted three Best Practice technology vendors. They were to come up with a cost-efficient yet future-proof solution for the expanding laptop PC configuration facility.

A team with business partners UPM Raflatac, providers of RFID labels, Tyco/ADT, suppliers of RFID hardware and RFID Services including



RFID Performance Testing, Site Surveys and Deployment and TOSHIBA TEC, vendors of RFID-ready label printers was formed. They created an integrated RFID solution for an improved workflow that could not only guarantee solving the current bottlenecks but also lift the supply chain system to the next level, hereby providing the Regensburg plant with a secure future.

What set the B-SX4 apart from the pack is a unique 'head-up' feature, whereby the print head is lifted over the chip to protect the sensitive smart labels. This also protects the print head.

Hans-Peter Scheidt, Business development Manager, RFID, ADT Security Germany: "The Sensormatic® SensorID™ Agile 2 Reader uses RFID technology to read data stored on RFID tags and labels. A separate software application, the SensorID Deployment Manager, will be used to direct its operation and provide the user interface. The SensorID Agile 2 Reader transfers the RFID data to a PC either through a wired 10/100 or a wireless Ethernet connection."

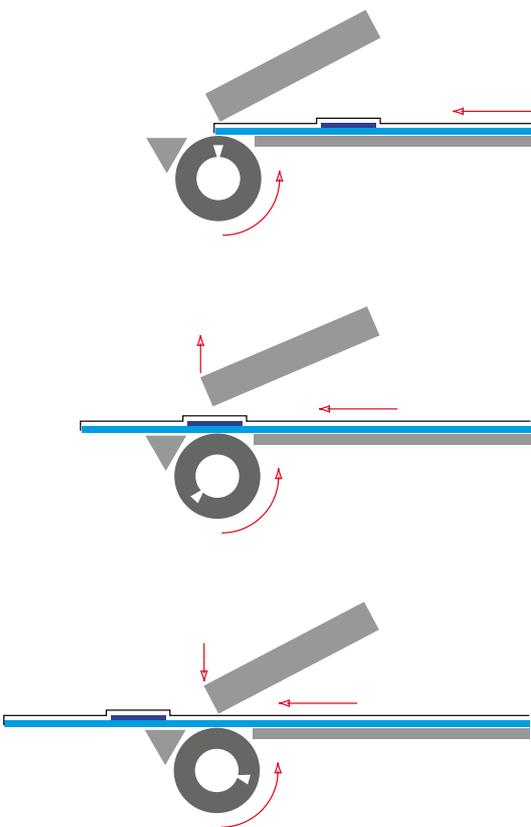
"The SensorID Agile 2 Reader from ADT is designed as a gateway between the RFID tag/label and the data information system by incorporating an RF air interface to the tags. This easy-to-network internet appliance acts as a web server and has a simple interface that is accessible through any standard browsing system."

Norbert Jungbauer, Senior Specialist, CIM Engineer, at Toshiba Regensburg and his team developed the interface between the plant's Linux operating system and the RFID reader to optimize the system.

Thomas Wythe at UPM Raflatac: "UPM Raflatac manufactures tags and inlays based on passive RFID technology. This means that they don't require an internal power supply or battery. The power required to energize the tag is drawn from the magnetic field created by the reader unit's antenna. The tag's ability to draw energy efficiently from the reader RF field is based on the well-known electrical resonance effect."

The broadband RFID antenna design from UPM Raflatac enables end-users to reach and sustain consistently high levels of performance in all UHF frequency regions around the globe with the same tag, regardless of the local frequency regulations. This represents critical competitive and logistical advantages for any company with manufacturing, distribution and customer locations in different parts of the world. The same RFID tag can be used by the manufacturer, the logistics service provider and the retailer, to track and identify products accurately and cost-efficiently throughout the supply chain.

"Toshiba's solution clearly shows the benefits which item level RFID can bring to the supply chain of fast moving, high value items. RFID improves supply chain management drastically when the business processes are well defined and state of the art. In this case, the professional and enthusiastic co-operation between different RFID vendors has greatly contributed to the speed and success of the implementation. UPM Raflatac is proud to deliver Rafsec G2 Short Dipole tags to Toshiba," says Mr Samuli Strömberg, VP Marketing, RFID at UPM Raflatac.



SPRINT™



The third partner in the project is TOSHIBA TEC which has already 40 B-572 label printers in operation. Their longevity and endurance proved a winning ticket for the new B-SX4 label printers to join the Regensburg RFID project.

“The B-SX4 desktop printer is a solid and dependable performer, RFID-ready and already in use with reference customers using ADT and UPM Raflatac products,” Andreas Unterbusch, TOSHIBA TEC Germany said.

“But what set the B-SX4 apart from the pack is a unique ‘head-up’ feature, whereby the print head is lifted over the chip to protect the sensitive smart labels. This also protects the print head,” Andreas Unterbusch explained. “This innovative design feature allows users a high MTBF (Mean Time Between Failure) of the printer and a low risk of damage to the microchip on the label.”

TOSHIBA TEC's SPRINT™ (Short Pitch RFID Encoding Technology) is a customer-driven solution for RFID-mandated suppliers engineered by TOSHIBA TEC.

Enterprises using SPRINT™ will be equipped with a next-generation application infrastructure combining Toshiba B-SX barcode printers with low-cost RFID tags. The Toshiba TEC SX-series of barcode label printers are the only ones in the world that are able to successfully print label information straight onto RFID tags.

The Next Level

With the RFID team now in place and all components of this large RFID project linking up seamlessly, the laptop configuration plant in Regensburg was ready to move up.

The next level, as defined by Toshiba Regensburg Manager EMEA Gerd Holzhauser, is the expected increase of warehouse booking throughput per head at the Regensburg plant of configured laptop PCs by a stunning 57 percent, thanks to RFID.

The current daily average throughput is of some 9,500 laptop PCs to be properly configured and made available for shipment to hundreds of distributors in the EMEA region. As of the second half of 2006, the Regensburg facility is expected to increase its average throughput to 15,000 units per day, with an expected peak throughput capacity of up to 30,000 units per day. As each Toshiba laptop PC will be labeled with an RFID tag, that means nearly 4 million RFID tags per annum!

In the past, a pallet with 36 laptop PCs would be trucked in and stored in the warehouse. Each pallet duly waited to be booked in until handling staff was available to scan each laptop PC on each pallet, one by one. Once this process of 36 scans was completed, the pallet could move on.

“We save up to 90 percent of the time we spent before and we can now use warehousing storing positions in a much more efficient way. But most importantly, we did completely away with double handling and product availability delays,” says Gerd Holzhauser.



All that changed with the introduction of the RFID technology in the warehouse. The integrated solution provided by the team of Tyco/ADT, UPM Raflatac and TOSHIBA TEC today provides a continuous flow of pallets through a single RFID gate whereby the entire content of each pallet is scanned and booked in a single movement. After a pallet has passed under the RFID gate, it is ready to be stored for further processing.

Benefits of an RFID-based warehousing solution

For the Toshiba Regensburg manufacturing facility, the benefits are huge: "We save up to 90 percent of the time we spent before and we can now use warehousing storing positions in a much more efficient way," Holzhauser explained. "But most importantly, we did completely away with double handling and product availability delays."

The program is currently being rolled out at the Toshiba plant in Regensburg and is acclaimed to be the one of the largest in Europe, involving two million RFID tags per annum today and climbing.

Regensburg as a city where engineering is flying high, certainly is proud to announce that the future of one its largest manufacturing facilities is made more secure thanks to RFID technology.

About TOSHIBA TEC

TOSHIBA TEC Europe has earned a reputation as a leading manufacturer of retail and industrial information systems through product development that aims to anticipate and uncover potential customer needs, resulting in products that provide real value and benefits to the user.

As a total solution provider, TOSHIBA TEC Europe offers a complete package from consulting and system design to system installation, operation and maintenance of point of sale systems, cash registers, scales, barcode printers, peripherals and software information systems.

TOSHIBA TEC Corporation has a global turnover of 355 billion yen. TOSHIBA TEC's majority shareholder is the TOSHIBA Corporation, which provides TOSHIBA TEC with the support of an unrivalled worldwide organisation with a strong presence in four continents.

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