

RFID “Tag On A Roll”: A Case Study

Radio Frequency Identification (RFID) tags can be used in counting and identifying soiled and clean linen without physical handling. Industrial textile linen rental companies looking to improve associates’ productivity, while providing accurate soil and clean count to customers, may be better served with the use of RFID tags. Worker’s safety may be improved as risk from illness due to direct contact with contaminated material or from repetitive motion in handling and counting soiled linen is reduced dramatically. The challenge faced by manufacturers (like Venus Group) is how to apply RFID tags on table linen in an automated production system.

PROJECT DURATION:	1 year
TEAM:	Venus Group: 1 dedicated industrial engineer Fujitsu: 2 R&D managers and a team of dedicated RFID scientists
NET INVESTMENT:	\$75,000
COUNTRY OF DEVELOPMENT:	USA: Design and Development China: Fabric Pockets Japan: RFID Tags
TOTAL VARIATIONS BEFORE FINAL PRODUCT:	6
CUSTOMER TEST:	6 months (150+ Industrial Wash Tests and Hand/Feel Test)

Our solution is a continuous roll of custom-designed RFID pouches which are inserted into the hem. Venus Group developed this innovation in collaboration with Fujitsu. RFID chips are inserted in custom-designed fabric rolls with RFID chip pockets and cut lines where pockets are thermally sealed/welded; this prevents RFID tags from slipping out of their pockets and keeps the perimeter of the tag from fraying.

Venus Group Table Linens with RFID have been successfully commercialized in our target markets since beginning of 2018. We are happy to provide customer references upon request.

[VIEW VIDEO](#)

Venus Group Adds to Value of Linens with Automated Fujitsu RFID Tag Insertion

California-based textile and linen manufacturer and supplier collaborated with Fujitsu to develop a process to fully automate RFID tag insertion process

Facts:

Industry:

Textiles/Linens

Location:

Foothill Ranch, CA

Manufacturer:

Venus Group

Challenge:

Venus Group's customers wanted to integrate Fujitsu RFID tags into its linens, but Venus needed to do so in a way that would not disrupt the company's unique automated manufacturing process.

Solution:

Fujitsu collaborated with Venus Group to create an RFID tag roll that would make automated insertion into linens possible.



Venus Group is a global textiles manufacturer and distributor based in Foothill Ranch, CA. The company provides bed linens, towels, medical scrubs and more to industries such as hospitality, hotel, food and beverage, and healthcare worldwide. Manufacturing is Venus' strength, but the company is always looking for ways to innovate and improve its processes to meet industry needs.

The Problem:

For businesses that rent or provide textiles and linens, managing and handling items is a major pain point. Sorting, counting, packing and separating clean and soiled linens uses manual labor and is prone to error. Additionally, there is no accurate way to account for loss. Solving these problems requires individual identification of each item. RFID resolves these issues, but installing an RFID tag on every individual item can be time consuming.

That is why Venus Group worked with Fujitsu to develop a solution that would save time, virtually eliminate physical handling of items, and streamline inventory management for customers.

In order to stay on the cutting edge of manufacturing and linen tracking, Venus worked with Fujitsu to integrate RFID technology into its automation system.

Manually sewing RFID tags into linens would slow down Venus' state-of-the-art production system, which is one of the company's unique advantages. So, Venus and Fujitsu collaborated on a solution that would automate the RFID tag insertion process.

The Solution:

Fujitsu Frontech North America is a leader in RFID technology. Fujitsu UHF RFID linen tags are designed to withstand industrial washing and dry cleaning, and are virtually undetectable when installed. With a small form factor allowing them to be sewn into seams, Fujitsu RFID linen tags are ideal for flat linens and garments.

With RFID tags installed, thousands of linens can be read in seconds without having to scan individual barcodes. This makes managing soiled and clean linens easy, and improves asset tracking to reduce loss.

To fully automate the process of inserting the Fujitsu RFID tag into a Venus-manufactured linen, the two companies created a continuous roll of custom-designed RFID tags in fabric pouches. Each pouch includes an embedded RFID linen tag and a cut line with a heat seal. During the automated manufacturing process at Venus, the RFID pouch is cut off the roll and inserted into the hem of each linen, then thermally sealed or welded onto the item.

This process reduces the amount of manual labor needed to integrate RFID solutions and provides consistent quality for each linen. The heat seal prevents RFID tags from slipping out of linens, while the fabric material protects the tag from fraying and damage.

The Result:

After successful tests, Venus Group Table Linens embedded with Fujitsu RFID tags were successfully commercialized beginning in early 2018.

With Venus' manufacturing strength combined with Fujitsu's washable RFID tags, the result is a superior quality linen with advanced functionality that is shipped to the customer quickly. The automation system manufactures linens expeditiously, while RFID technology allows the customer to be as efficient as possible when managing linen inventory.

Venus Group's automated manufacturing process fully integrates RFID tags, providing customers in hospitality, food and beverage, and healthcare industries with a complete solution for textiles and linens.



Fujitsu RFID tag on roll and being inserted into linen during Venus Group automation process



Fujitsu RFID Tags :

- Small form factor
- Highly reliable
- Ultra rugged
- Chemical resistant
- Virtually undetectable when inserted into linens

About Venus

Venus Group, founded in 1972, is a privately held business headquartered in Foothill Ranch, CA. A business founded in textiles, Venus Group has evolved into a global company competing within numerous markets. The Group's commitment to its customers has led it to explore various industries and develop smarter products through innovative technologies. For more information on Venus Group, Inc., please visit www.venusgroup.com

About Fujitsu Limited

Fujitsu is the leading Japanese information and communication technology (ICT) company, offering a full range of technology products, solutions, and services. Approximately 140,000 Fujitsu people support customers in more than 100 countries. We use our experience and the power of ICT to shape the future of society with our customers. Fujitsu Limited (TSE: 6702) reported consolidated revenues of 4.1 trillion yen (US \$39 billion) for the fiscal year ended March 31, 2018. For more information, please see www.fujitsu.com.

About Fujitsu Frontech North America Inc.

Fujitsu Frontech North America Inc. (FFNA) provides market-focused IT solutions that enable customers to achieve their business objectives through integrated offerings for self-checkout and currency management solutions, kiosks, mobile, RFID, and biometric authentication technology. FFNA delivers industry-specific solutions for the manufacturing, retail, healthcare, government, education, financial services, and enterprise and communications sectors throughout North America. FFNA is headquartered with operations and product development at 27121 Towne Centre Drive, Foothill Ranch, CA 92610.