

CASE STUDY: PACKAGING MACHINE

Solution: Anybus X-gateway CANopen
Country: Italy
Company: Mas Pack Packaging Srl
Summary: Mas Pack has developed a customized packaging machine for Rémy Martin cognac bottles. The Anybus X-gateway CANopen enables communication between the CANopen-based motor system which picks up the bottles and the main PROFINET control system.



The effects

- ✓ Communication enabled between CANopen and PROFINET.
- ✓ Bottles can be tilted 45 degrees inside the box.
- ✓ Easy to view labels and OCR/QR codes. This enables better quality and gives the end customer proof of authenticity.

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Davide Reita
Purchasing Manager, Mas Pack

45 degrees that make a difference

“A machine capable of placing bottles in a carton and tilt them 45 degrees in order to show the label and protect the content.” These were the requirements of world-famous fine spirits maker Rémy Martin as they asked Mas Pack to design a new and innovative packaging machine. The goal was achieved thanks to Anybus gateways, which enabled communication between different parts of the machine.

Mas Pack is a major player within packaging and bottling in Italy and located in the province of Asti, home of Italian sparkling wine. At their 7000 square meter facility in Canelli, Mas Pack employs sixty people and has in-house expertise in everything from design and implementation, to programming and assembly of machines.

The core business of Mas Pack was initially wine bottling due to their location in Asti. Their know-how from wine bottling, along with a strong inclination to customize solutions according to the needs of the customer, have become the signature traits of Mas Pack whose experience, reliability, precision and innovation have impressed the major producers of wine and spirits, both in Italy and worldwide. “Our growth has been constant,” says Davide Reita, Purchasing Manager at Mas Pack. “Among the first countries outside Italy to be conquered by Mas Pack technology was France, a land of wine and spirits of superior quality. After that came Germany, Switzerland, Spain and lately also Chile.”

The challenge from Rémy Martin: Bottles at 45°

Mas Pack’s dream of attracting the attention of a top player in the spirits sector came true as they were approached by Rémy Martin (part of the Remy Cointreau Group) to produce a packaging machine for cognac bottles. “Remy Martin is a well-known French producer of cognac and very demanding regarding the final product. This includes manufacturing techniques and production management,” says Davide Reita. “To fulfil their needs, we created a production line at their bottling plant in Cognac which included a depalletizer with two robots, a carton folding machine, a packaging robot, a sealer, a palletizer, and carton transport facilities.

The most spectacular part of the production line is the packaging machine, designed and built by Mas Pack and commissioned by Rémy Martin. The tricky part was that the cognac bottles were to be tilted 45° in the box. This met two requirements from the Rémy Martin — one practical and one related to appearance. Firstly, if the box would be subject to shocks or would fall, bottles would not break. Secondly, when opening

the box, the cognac labels would be immediately visible, thus increasing the exclusivity of the product through an impeccable packaging.

The machine solves this through a “suction bell” which uses vacuum to grab the bottles and place them in the carton. The machine is able to work 24 bottles simultaneously, with an hourly production rate of 8000 bottles per hour.

Communication required

“We had never implemented a similar customization on our machines,” says Davide Reita. “It’s not every day that a customer requests a particular inclination of the bottles in the carton. We studied how to fulfill this requirement trying to maintain maximum automation in the process. We wanted to avoid manual intervention that could compromise the production in any way.”

The machine was equipped with 24 stepper motors from Nanotec (distributed by Delta Line in Milan), with the task of grabbing the heads of the bottles. The motors are able to rotate the bottles 45° simultaneously for all the bottles.

This lifting and rotating process is handled by the CANopen communication protocol, but the rest of the machine communicates via PROFINET. Thanks to the Anybus X-gateway CANopen, the integration of the CANopen network was fast, despite the fact that a network with 24 engines presented some challenges in the installation. Through status and control words, the PLC (which runs PROFINET) has full control of the Nanotec motors. It can start and stop the CANopen bus, see status of connected nodes, etc.

An effective collaboration

“I am of the opinion that if a company has a new project, the first thing it should do is to collaborate with the most experienced expert suppliers,” says Davide Reita. It is at this point that EFA Automazione came into the picture. It was EFA who suggested the Anybus X-gateway CANopen.



The Anybus X-gateway CANopen in action in the MAS Pack cabinet.

Directly overseeing the project was Massimiliano Cerrato, from Mas Pack R&D. “The initial need of the client was quite unique: placing the bottles in a slanted position inside the carton. However, solving this provided us with other benefits since we could do label facing, and rotate the bottles for reading bar codes or QR codes allowing tracking of the entire production chain before opening the bottle. This improved quality control, but was also a way for the end consumer to make sure that the bottle of Rémy Martin is real and not a counterfeit, a problem that luxury products typically suffer.”

Award-winning solution

The innovative bottling machine has received the Innovation Challenge Lucio Mastroberardino award 2013 at the Sime-ENOVITIS fair. The Mas Pack solution was awarded in the “New Technology” category. The award was presented by the President of the European Parliament’s Agriculture Commission, Paolo De Castro, and emphasizes the value of research and quality of Italian technology.

Research and innovation are indeed the focus of Mas Pack, as Davide Reita recounts: “If a company does not invest in innovation and does not pursue continuous improvement, it will have no future. In the face of a competitive market and constantly evolving technology, falling behind is not an option.”



Learn more on www.anybus.com, www.efa.it or www.maspac.com

The Anybus X-gateway CANopen family allows any CANopen enabled device with slave functionality to communicate with almost any other fieldbus or Industrial Ethernet network.

The X-gateway CANopen series provides CANopen Master (Manager) or Slave functionality on the CANopen network and Slave/Adapter functionality to all popular fieldbuses such as Profibus, DeviceNet, Modbus, ControlNet and for industrial Ethernet with Profinet, EtherNet/IP, EtherCAT and Modbus TCP.