



Automating Flour Processing in South America

Together with Rice Lake's Netherlands location, Básculas Mauri designed and assembled sophisticated weigh belt feeders to ensure consistent quality and high efficiency for a client in Colombia.

When the engineering team of Básculas Mauri, in Tarragona, Spain, was contacted by a nearby company specializing in the handling and automation of powder to integrate a weighing system into their equipment, several challenges presented themselves. The system would be weighing flour as an ingredient in baking cookies, which may seem like a simple process. However, because flour dust is highly explosive (even more than gunpowder), associated equipment must be treated with safeguards and specific certifications. Secondly, although Básculas Mauri and the engineering

company responsible for the product transport (Radar Process) would be able to assemble the system in Spain, they would not be able to oversee installation because that would be handled by the OEM customer in Colombia.

ATEX is a series of directives the European Union (EU) enforces to ensure safety requirements are met in explosive environments. These environments are classified into zones based on the likelihood of an explosion. While flour dust is a high risk when it collects into a combustible cloud, in this application,



"I was very impressed with the stainless-steel construction and overall capabilities. I knew it would be an accurate, long-lasting solution for the customer."

—ORIOI MAURI,
software engineer for Básculas Mauri

the phenomenon is unlikely to occur during normal operation or will persist for a short period if it does happen. Colombia doesn't have its own directive and chose to adopt ATEX, which meant Básculas Mauri's system needed to be approved for ATEX Zone 22 dust zones.

While they had never worked with Rice Lake's Master™ brand of equipment before, they contacted Rice Lake's office in the Netherlands which specializes in weighing bulk material in motion. After meeting with Jaap Oosterlee, sales manager for the Master brand, and learning more about the system, Básculas Mauri decided the Master weigh belt feeder was the best choice for the application. "It met ATEX Zone 22 requirements," explains Oriol Mauri, a software engineer for Básculas Mauri, "and Master weigh belt feeders maintain a consistent flow of material—ideal for applications striving for the highest possible product quality."

Because Oriol was not able to visit the customer's site personally, he relied on photos and descriptions to envision the end result. Understanding the process was critical for designing a successful system. The weigh belt feeder would be installed at a port, where flour is offloaded from ships. During the product's conveyance, it needed to be weighed on a certified Legal for Trade scale to accurately calculate tax fees. The first Master belt scale would be used here, integrating with an aspiration system that cleans the powder and removes lightweight impurities from the batch.

After taxes are determined and the flour is aspirated, it moves through a pipeline and is weighed a second time after arriving inside the factory. Básculas Mauri and Robitec developed a custom software to capture weight data through ProfiNet and work with the customer's ERP, data and automation systems. They assembled the equipment based on the customer's specifications and shipped it to Colombia for installation.

"I was a little nervous that something would happen between Spain and Colombia," Oriol remembers. "Although the equipment was very secure and well-packed, it's a long voyage and these are sophisticated machines. Thankfully, everything arrived safely and they had very little trouble with installation."

Oriol's background made him a perfect technician to ensure the application's success. Some might say he was born for a role in the weighing and automation industry. His grandfather started Básculas Mauri over 50 years ago. His father and two brothers already worked for the company, specializing in general weighing and mechanical equipment in Catalonia, Spain. They saw a need to expand into automated solutions, personalized for each customer, and asked Oriol (the first family engineer) to work with these digital systems. Oriol began working in Básculas Mauri's new branch of engineered products and custom programming.

Today, Básculas Mauri is recognized for all aspects of weight-based industrial needs in Spain. The flour application is running at peak efficiency—processing up to 15 tons per hour. "We are really happy to partner with Rice Lake," concludes Oriol. "The system is working flawlessly and I'm proud to present Master products from Rice Lake to our customers. I look forward to working on many similar systems in the future."

Básculas Mauri's Engineering Team is on the cutting edge of weighing, opening new doors for the business. Big data, the Internet of Things (IoT) and advanced weight-based automation are no longer on the distant horizon. They are the present, and Básculas Mauri has it all under control.

The Standard in Hazardous Locations

Challenge:

Since flour dust is highly explosive, automating the weighing process can be a challenge. Básculas Mauri needed to supply a weighing system in Colombia that could safely handle the product.

ATEX Certified Equipment:

To meet ATEX Zone 22 requirements, equipment in hazardous areas must be ATEX certified, including:

- Belt scales
- Load cells
- Speed pickups
- Junction boxes
- Weigh belt feeder motors
- Connections and enclosures

Solution:

Rice Lake's Master brand of equipment includes weigh belt feeders certified to meet ATEX Zone 22 requirements, which are necessary when dealing with flour dust. The weigh belt feeders helped Básculas Mauri be confident in the efficiency and safety of the processing system for its client.

Master™ Weigh Belt Feeders

