

a **TNA** case study

25% boosted production

Snack manufacturer increases output, optimises efficiency and improves automation with TNA. The installation of tna's roflo® high throw vibratory conveyors, alongside three mini feeders, has helped Maravilla increase the throughput of its potato/corn pellet line by 25 per cent. Maravilla has also boosted production capabilities and overall profitability thanks to TNA's cutting-edge integration technologies.



snacks

Maravilla, based in Rouiba, Algeria, produces potato and light corn-based extruded snacks. To meet growing demand in the domestic Algerian market and overseas, Maravilla wanted to boost production capacity and reduce plant downtime to ensure it stayed competitive in this dynamic sector.

challenge 1.

increase output

In every production line, plant managers want to optimise the speed and performance of their manufacturing to ensure targets are met. This means that products need to be processed as quickly and efficiently as possible. As such, Maravilla needed a high performance, flexible conveying solution that could be easily integrated alongside existing systems. In addition to this manufacturing challenge, the

company's product range goes beyond simple potato snacks. It also produces potato-based snacks and light corn-based extruded snacks in a variety of sizes (mini, medium and large) and flavours (pizza, cheese and paprika seasoning) to name just a few. The snacks market is a thriving industry, particularly in Algeria, due to changing eating habits with more people favouring mini-size bags of chips, especially children.

solution 1.

high performance, flexible conveying

To maintain and improve its production capabilities and overall efficiency, and to fully benefit from these emerging opportunities, Maravilla needed a high performance, flexible conveying solution that easily integrated alongside existing systems for a smoother distribution process. tna's roflo VM 3 vibratory conveyor offers a unique throw pattern and was the ideal solution to maintain and improve Maravilla's production capabilities. Part of TNA's complete range of processing and packaging solutions, it incorporates an innovative reaction base design combined with an intelligent microprocessor, for a much greater stroke length at a lower frequency. This feature enabled Maravilla to improve throughput by 25 per cent and achieve a smoother transfer of its products throughout the process.

Due to increasingly stringent food safety regulations in the country, Maravilla was also looking to integrate a simple design system with smooth surfaces and no blind spots or areas where product and microorganisms could build up – to reduce the risk of cross contamination. tna's roflo VM 3 features no metal-to-metal bacteria build up areas and all conveyor trays are fully welded or scalloped, meaning Maravilla now benefits from reduced contamination risk.

Additional components that require regular cleaning are also easy-to-remove to ensure the highest levels of hygiene, leaving the company with complete peace of mind. All TNA conveying equipment in the new system is made from food grade stainless steel and has few moving parts where food can become trapped. This facilitates the cleaning process, keeping downtime to a minimum – vital for maintaining Maravilla's productivity.



challenge 2.

maximise overall efficiency

In an effort to take efficiency to the next level, Maravilla was looking for effective product transfer, highlighting the need for a system to link its conveying system to its fryer. Maravilla therefore needed a

distribution system that would minimise stoppages and increase simultaneous transmission between different components of the production line.

solution 2.

a responsive variable mass seasoning mechanism

Taking the company's requirements into account, TNA implemented three tailored mini-feeders to facilitate smooth product transfer between systems, which enabled Maravilla to maximise production capacity and overall efficiency of the entire production process. Via optical sensors, mini feeders monitor pellet levels to enable rigorous quality management in the hopper. For instance, when a low level of raw pellets is detected, the controls system immediately alerts plant managers of a problem on the line. This allows for quick action to rectify the problem. As a result, Maravilla was able to maximise production capacity and overall efficiency of the entire production process.

Julien Amiaud, regional sales director at TNA, commented on the installation: "For the entire process to be successful, we conducted a complete analysis of Maravilla's requirements. Any new equipment had to work with Maravilla's current set-up while still achieving the production benefits the company was looking for. By working closely with the company, we produced a design that, in addition to adding efficiency advantages, would also fit seamlessly with the existing layout."

Mohamed Abdesselam, managing director at Maravilla, added: "We're delighted with the results of the installation. The incorporation of multiple tna roflo VM 3 and customised mini feeders fit perfectly with our existing production line. It has enabled us to reduce downtime by 25 per cent, as well as increase our production line speeds by 25 per cent – a fantastic outcome for us."



challenge 3.

improve process automation

Having installed a brand new distribution system into its existing production line, an additional requirement for Maravilla was improving process automation. However, integrating new technology into an existing production line can be challenging, as existing technology requires careful configuration in order to optimise the production process. With increasing demand for its products from customers around the world, it was imperative that the company maximise its production line efficiencies to meet output targets.

“With the support of TNA and the installation of its complete integration systems on our production line, we have been able to reduce process inefficiencies and simplify our operations, while maximising productivity.”

- Mohamed Abdesselam, Managing Director at Maravilla

solution 3.

fully integrated control system

In keeping with those objectives, TNA installed a fully integrated control system across Maravilla’s entire production line. Via a combination of programmable logic controller (PLC) systems and sensors, operators can now accurately control the speed at which the product is transferred from the feeder into the fryer and the optimum frying temperature, as well as having complete control of the operation of the seasoning system. This ensures the process only begins once the product is inside the drum and avoids unnecessary waste.

With a PLC at the heart of the control system and a clear, concise Human Machine Interface (HMI) system providing machine status and production data, Maravilla experienced additional advantages including better workforce efficiency, improved product quality and enhanced product safety. For example, due to the installation of TNA’s automation systems, operators at Maravilla can now monitor any unusual activity and react quickly and efficiently, before any further processes are affected, significantly simplifying operations and reducing the risk of human error.

Amiaud says: “One of the key requirements for an efficient line is communication between all equipment. Line integration is the first step towards operational efficiency as it ensures each component communicates effectively with the others. In the case of Maravilla, it was important that the new conveyors were synchronised with the current line so that all individual components can operate simultaneously at their highest level of performance.” Abdesselam adds: “With the support of TNA and the installation of its complete integration systems on our production line, we have been able to reduce process inefficiencies and simplify our operations, while maximising productivity.”

unrivalled speeds & efficiencies

A turnkey approach covers everything from project management, design, manufacturing, installation, testing, training, after-market support and warranty services.

Maravilla was looking for a provider that could take full responsibility for the entire project – from start to finish. When working with Maravilla, TNA provided full support, from assessing the production site and its capabilities, to testing the equipment and integrating it to maximise the efficiency of the whole line. TNA also helped select a number of performance indicators, setting targets for downtime, line efficiency and throughput. These served as a guide to Maravilla throughout the implementation of the project, with TNA providing invaluable support above and beyond installing equipment.

“Partnering with a total solutions supplier such as TNA helped us to easily resolve minor inefficiencies or inaccuracies such as machine configurations to adapt frying temperatures or seasoning applications, before the new machines were integrated into the production line. The team’s understanding of our challenges as well as its extensive expertise and knowledge provided us with support throughout every stage of the process, bringing new opportunities for our business as well as a new level of success,” comments Abdesselam.

Amiaud said: “Our 360-led approach and knowledge of the industry allowed us to come up with a solid plant optimisation strategy that fulfilled Maravilla’s key requirements. By handling every aspect of the project, from the pre-build to the installation and the monitoring, we’ve provided Maravilla with flexible, customised and efficient solutions to make sure the company’s objectives were exceeded.”



TNA solutions is a global leader in food processing and packaging solutions, committed to helping people succeed responsibly in a changing world. With over 40 years of experience, TNA's global team of experts have installed more than 14,000 systems in over 120 countries. The company creates and sustains solutions that help customers realise goals and exceed their expectations, with performance, responsibility, and a customer-centric approach at the core of the business. A collaborative, consultative approach ensures measurable results and lasting success, with solutions designed to evolve and perform over time.

As an inclusive partner, TNA supports a growth agenda that goes beyond business, emphasising its commitment to people, prosperity and the planet in harmony. TNA is a powerful advocate of social justice, and aims to support children in disadvantaged communities through education, healthcare, and social enterprise programmes, through the humanitarian initiatives undertaken by the Nadia and Alf Taylor Foundation.

