
CONTROL TECHNIQUES
9 MILLION TYRES GET NEW LEASE OF LIFE
BANDAG SA | PLASTICS & RUBBER
DRIVE OBSESSED

# BUSINESS PERFORMANCE IMPROVEMENTS FOR GLOBAL RETREAD COMPANY

**Based in Alrode, Johannesburg, Bandag SA is part of the global Bandag Group. This leading retread company specialises in giving new life to truck tyres, enabling them to perform like new but at a fraction of the cost.**

Truck fleets are its primary focus; new treads are applied to existing tyres to deliver more mileage over any terrain, using next-generation compounds that resist wear and tear. Worldwide, almost 9 million truck and bus tyres are fitted with Bandag retreads annually, establishing this company as a true industry leader.

Through a network of independent tyre franchises in South Africa, Bandag SA has been providing a much-needed service to the African logistics industry since the 1960s.

## Overview

- **10% energy savings per month**
- **5% increase in uptime**
- **6% increase in productivity**
- **Future-ready solution**

## The Challenge

Bandag's manufacturing facility comprises various multifaceted operations starting from processing raw material, right through to extruding, pressing, finishing, trimming, quality control, and eventually warehousing.

First in the operation line is the mixer – an enclosed automated mixing machine - that breaks down rubber and other constituents into working compound batches of approximately 220kg — an energy-intensive mechanical operation requiring consistent speeds and considerable force.

For a plant of this nature to run efficiently, it is essential to continuously look for new ways to improve the use of resources and decrease downtime, using ever-evolving industrial technology.

This was Bandag's aim as it looked to maximise the motor performance and the system reliability of the mixer, that previously used analogue DC drives, which became increasingly unreliable.

Bandag then switched to Control Techniques' Mentor MP digital DC drives – locally distributed by Nidec Automation.

Bruce Grobler, Regional Manager of Nidec Automation, *"While this solution was an improvement, it was eventually found to be energy-intensive and was expensive to maintain in this application. A new solution was needed."*

Bandag SA turned to Control Techniques' trusted and valued partner, Multispeed Transmissions, for the answer. Bruce Grobler continues,

*"Led by Jim Fraser, Multispeed Transmissions has been working with Bandag SA for over 20 years. The partner ensures Bandag's manufacturing facilities are fitted with the most suitable and up-to-date solutions for the tasks at hand, helping the company to remain visionaries in the retread industry."*

## The Solution

Having previously installed Control Techniques AC drives on the plant's extruder and Calendar Mill (a process that forms the exudates and processes cushion gum), Multispeed Transmissions concluded that the mixer operation would also benefit from a similar installation.

Jonathan David, Bandag SA Manufacturing Director, said, *"Jim came to us with this idea, and we couldn't fault it. We had seen great success with the previous installations on the extruder and Calendar Mill, and it was a simple decision to roll this out to the mixer."*

Bruce Grobler comments, *"We were delighted that Jim decided once again to fit Control Techniques' drives in this plant. Our innovative and reliable technology had proven itself in similar operations, positioning our high-performance drives as the go-to solution for this application."*

The Unidrive M700 AC was selected. A high-performance motor control system that provides ultimate control flexibility in high specification industrial applications. Two Unidrive M700's are now connected to a common gearbox, which evenly shares the load throughout the operation.

Bruce Grobler adds, *"There are various aspects of this project that stand out. Most significantly, it involved a world-first for Control Techniques, which we were very proud to be part of. At the time of installation, this intermeshing mixer was the biggest tangential drive that Control Techniques had completed."*

*"The biggest worldwide tandem drive system at the time was 500 kW. At the Bandag plant, we had two of 1 MW each. This illustrates Multispeed Transmissions' appetite for a challenge and Control Techniques' high-performance drives, and makes it clear why Bandag SA has continued to choose them over the competition."*

Jonathan David comments: *"We were the guinea pigs! In addition to the actual technological solution, one thing that has contributed to the success of this project is that it has gone far beyond installation. Throughout operation, Jim and his team are at hand to assist us with the support of Bruce and Control Techniques. In the case of an issue, we can call Jim, who ensures that someone is onsite to assist us that very day. With spare parts at hand from Control Techniques. No excuses made. Spare parts are available when we need them, so that if a breakdown does occur, we get running as soon as possible."*

*"Not only is this convenient, but it saves space and* money spent on warehousing as well as carrying the spares. For 20 years, we have trusted Jim, and we will continue with this professional relationship into the future."

## The Benefit

The recent installation of Control Techniques' Unidrive M700 motor control system at the Bandag plant, has helped it achieve energy savings and reduced downtime, improving business performance, allowing the company to remain an industry leader.

The drives were each rated at 750 kW but scoped up to 1 MW to cater for future use. Jim Fraser, Multispeed Transmissions, said, ***"We upscaled the project for future developments – the motor, the transformer, and even the drive panel. Designed so we can slot an extra module in, so it is future-proof."***

Control Techniques' Unidrive M series increases the energy efficiency of all applications. The plant has seen an approximate 10% monthly energy saving since deploying the technology - not only saving money but contributing to a lower carbon footprint. The drives feature a low power standby mode, and the DC bus configuration recycles braking energy within the drive system. Additionally, the drives' magnet motors offer exceptional efficiency across all operating speeds.

In addition to the energy savings, the plant has seen higher production efficiencies since installing the system.

*"After troubleshooting and overcoming our 'teething phase,' we now quickly achieve 5% more uptime as well as improved production by approximately 6% on certain compounds since upgrading to the Unidrive M700 series,"*

*"This is a significant benefit to our sustainability as a business. The retread market in South Africa is huge, and if we can deliver our product at high volumes, consistently and on time, it means great things for our market share."*

**Jonathan David**

**Bandag SA Manufacturing Director**



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