



**CONTROL  
TECHNIQUES**

# CUTTING EDGE DRIVES FOR PORT CRANES

TCY | CRANES & HOISTS

**DRIVE OBSESSED**

# EASY DIAGNOSTICS FOR GREATLY REDUCED DOWNTIME

**TCY, owned by Group TCB of Spain, is the most important container and cargo-handling terminal on Mexico's Yucatan peninsula.**

## The Challenge

**With cranes that were nearly 40 years old, keeping them operational had become difficult due to increasing downtime and escalating maintenance costs.**

Mechanically they were in good condition but electrically they were not. Replacement parts for the old DC drives had become almost impossible to find and could take weeks to obtain, leading to unacceptable downtime.

## The Solution

**Nidec Control Techniques proposed an all-new, fully integrated drive and control system featuring the Mentor MP DC drive.**

The control system encompassed all the electrical equipment, including low-voltage auxiliaries, DC drives, PLC, I/O, crane management system and MCC. Also included were new remote I/O and control stations, RF Ethernet-based remote diagnostics, and a modern rotating operator's chair and consoles to replace the old sliding chair and fixed consoles.

The Mentor MP is a reliable, flexible and powerful digital DC drive designed to maximize motor performance, enhance system reliability and interface digitally with the latest control equipment using Ethernet and a wide range of industrial networks. The drives feature a series of user-configurable functions (master-slave management, electric shaft function, digital or analogue feedback, torque control, etc.) arranged logically in different menus and preconfigured with default values to facilitate commissioning.

## Overview

- **Robust design**
- **Easy to maintain**
- **Extreme reliability & flexibility**
- **Maximum motor performance**

## The Benefit

**This cost-effective solution provided TCY with better reliability – increasing uptime, a rapid supply of spares and remote monitoring and diagnostics to facilitate troubleshooting and maintenance.**

The SM-Application modules of the two drives use a load balancing function to control container hoisting and calculate the maximum lifting speed as a function of the load hooked to the spreader. With the spreader empty, the SM-Application modules enable movements at the maximum programmed speeds.

Crane productivity is maximised using bespoke basic, modular & open-ended software packages, developed by Control Techniques specifically for crane control. Hoisting, trolley, boom and gantry movements are all driven by DC motors controlled by means of Mentor MP digital drives connected via a Profibus network to a controlling PLC. Control Techniques also designed the Crane Management System (CMS) integrated into its basic software and enhanced with control modules for the maintenance guide and diagnostics.

