

**CONTROL**   
**TECHNIQUES**

# IMPROVED EFFICIENCY FOR STS CRANES

EMPRESA NACIONAL PORTUARIA | CRANES & HOISTS

**DRIVE OBSESSED**

# EXTREME FLEXIBILITY AND VERSATILITY

State owned Puerto Cortés container terminal is the main seaport in Honduras and is operated by Empresa Nacional Portuaria (ENP). It is capable of handling roughly 600,000 TEUs (twenty-foot equivalent container units) per annum. The port is equipped with two ship-to-shore (STS) cranes, five mobile harbour cranes (MHCs) and 12 straddle carriers.

## The Challenge

Due to tough global competition in the international container shipping market, the port of Puerto Cortés is constantly seeking ways to enhance efficiency.

As part of the ongoing drive, ENP decided to refurbish one of the two 20-year-old PACECO manufactured STS cranes to improve its performance. The goal was to improve container handling, provide more rapid and precise crane positioning, and reduce downtime and maintenance.

## The Solution

**Working with ENP, Control Techniques switched the electrical system from DC to AC and replaced the LV electrical equipment and LV auxiliaries, the drives, the PLC and its devices, and the crane control software.**

Thirteen Unidrive SPMD drives were installed on the active front end, hoist, trolley, boom and gantry. The crane's DC motors were replaced with AC FLS motors from sister company Leroy-Somer, which included a 560 kW AC hoist motor, a 55 kW AC trolley motor, a 75 kW AC boom motor and sixteen 11 kW DC gantry motors. The motors are controlled by Unidrive SP digital drives connected via a Profibus and fibre optic network to a type S7-300 PLC.

## Overview

- Significant energy saving
- Space-saving lift
- Extreme flexibility & versatility

## The Benefit

**The SM-Application modules that operate the hoisting motors use a load balancing function to control hoisting and calculate the maximum lifting speed.**

With the spreader empty, the SM-Application modules enable movements at the maximum programmed speeds. Control Techniques' dedicated crane control software – the Crane Management System (CMS) – greatly improved the efficiency. The CMS incorporates leading-edge digital technology and a distributed operations system based on Fieldbus. It is programmed onboard the SM-Application modules that are fitted to the PACECO crane's hoist drives.

The CMS relieves the operator of delicate and repetitive tasks by optimising the crane's movements and trajectories, as well as improving position location and reducing load swaying. The CMS also contains software packages for diagnostics and maintenance that automatically monitor the cranes to assist technicians with repair and preventative maintenance operations.

