

CONTROL 
TECHNIQUES



CONTROL TECHNIQUES FOR CRANES

CONTSHIP ITALIA | CRANES & HOISTS

DRIVE OBSESSED

LOADED LIFT SPEEDS IMPROVED UP TO 90 M/MIN

Digital DC drives from Control Techniques have been chosen for the latest phase in the upgrading of cranes in La Spezia Container Terminal (LSCT) in northern Italy. La Spezia Container Terminal (LSCT), owned by Contship Italia Group, is Italy's most important cargo-handling and container terminal and is the country's most advanced port in terms of high technology logistics.

Overview

- **Fast container handling**
- **Highly configurable**
- **Excellent technical support**
- **Maximum operating reliability**

The Challenge

One of the last cranes to be refurbished was a ship-to-shore (STS) gantry crane manufactured by Italian crane company MGM OMG.

LSCT required rapid container handling, fast and precise crane positioning to provide the required productivity, maximum crane availability and reliability, as well as excellent technical support and effective preventative maintenance using an improved faults analysis facility.

The Benefit

Mentor MP is designed to withstand extremely harsh conditions.

The drive is reversible, giving maximum speed control during acceleration and deceleration, and also saves energy by using regeneration during braking. Drive performance is also enhanced with full PID digital speed control. Mentor MP drives feature a series of user-configurable functions that are arranged logically in different menus and preconfigured with default values to facilitate commissioning.

The Solution

Nidec Control Techniques Italy was responsible for replacing all medium voltage electrical equipment, low-voltage auxiliaries, drives, the controlling PLC and the crane management system, they also replaced the DC hoist motors with new ones from sister company Leroy Somer. Hoisting, trolley, boom and gantry movements are now driven by DC motors, controlled by Mentor MP digital drives from Control Techniques that are connected via a Profibus network to an S7-300 PLC.

The completed OMG crane features:

- Two 1200 A Mentor MP drives controlling 290 kW DC LSK Leroy Somer hoist motors
- A 60 tonne lifting capacity under the spreader
- A lift rating of 70 tonnes
- Lift speeds of 90 m/min (rated load) and 150 m/min (unloaded)

Each hoist drive is fitted with a plug-in SM-Applications module. Crane productivity is achieved using a series of bespoke basic, developed specifically for crane control.

These are programmed into the SM-Applications modules and optimise movements, trajectories, position location and load swaying.

Crane Management System (CMS) is integrated into its basic software and includes control modules for diagnostics and maintenance.

