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Extraordinary maintenance on a control system of a CERETTI & TANFANI CT 160 track crane at Terminal Rinfuse Italia (Marghera – VE).

Purchaser: **Terminal Rinfuse Italia s.p.a.**
Order: January 2004
Time required: About 6 months.

Mechanism data:
Feeding: from 3 kV average network with cable reel.
Principal transformer: 3/0.4 kV 630 KVA resin.
Bucket manoeuvre and lifting: 2 110 kW asynchronous engines with inverter.
Wagon translation: 2 15 kW asynchronous engine.
Jib movement on sea side: 1 35 kW asynchronous engine with inverter.
Bridge translation: 6 12 kW asynchronous engines with inverter.
Maximum ropes' capacity: 30t.

Description:
The crane for dock needed a renewal in the control system in order to increase the reliability. A recent SIEMENS S7 control device, with the possibility of communication on data bus and CPU with floating point calculation, has been then proposed instead of the relay logic. It has been chosen to employ some frequency converters with a regenerative systems for the movement of the manoeuvres (seen the optimal result obtained for the twin crane) in order to reduce the dissipation loss. In particular the bucket engines have been replaced with modern and reliable asynchronous engines. The wagon movement has been realised with extremely precise inverter with move precision and low working stress. The bridge movement has been modified by operating the original engines with two inverter units for the optimal regulation of the portal.
All the system is monitored on board by a PC with diagnostic process and report of the alarm signals, moreover an optical fiber communication system allows the command and the control even from earth. The hardware engineering has engineered the system "ex novo" maintaining only small parts of the existing one and applying the newest technology for safety and control functions.