

ENERGY-SAVING FOR TURKEY'S BIGGEST SHIPYARD CRANE

When power regeneration for energy saving was specified for Turkey's biggest ever shipyard crane, the crane manufacturer, Vinçsan, had no hesitation in turning to their local Control Techniques Drive Centre for help.

The crane, recently built for the end-user Tersan Tersanecilik, a ship-builder who is in the process of fitting out a new state-of-the-art shipyard in Yalova in north-western Turkey, is believed to be the largest capacity overhead crane in the whole of Turkey. It has a lifting capacity of 2x275 tonnes (SWL 550 tonnes), and will be in operation for 18 hours a day once the shipyard is in full production.

Solutions offered by other leading drives suppliers failed to meet the response time required for regeneration in the supply transient conditions of the site, whilst the Control Techniques scheme, based on three modular drives, gives the required performance.

The regeneration set-up comprises three paralleled Unidrive SPMD 1424 AC modular drives in regenerative mode, rated at 500kW and feeding all the motor drives on the crane. The two main 275 tonne hoisting motors, from Control Techniques' sister company Leroy Somer, are driven by further SPMD1424 modular AC



drives, an auxiliary hoisting motor is controlled by a 55kW Unidrive SP AC drive and a travel motor by a 44kW Commander SK AC drive.

There is a total of 20 crane travelling motors, which are electrically controlled in groups of five, each group being controlled by a modular SP 1421 drive.

All of the drives are under the overall control of a master PLC that communicates with all of the drives by Profibus DP, each drive being fitted with a special SM module for this purpose.

The system features control of the brakes via the drive software and constant power hoisting via feedback from

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load-cells to prevent overload / over-speed. During lowering operations, the system automatically moves into regeneration mode to feed energy back into the common bus system to provide significant savings in overall energy consumption.

The 1,000 tonne crane has a span of 65 metres, with a hoisting height of 50 metres, the highest point of the crane being 67 metres. Its hoisting speed is 2 m/min and its trolley speed is a maximum of 20 m/min. Vinçsan, of Pendik in Istanbul, built and installed the panels, with Control Techniques Turkey commissioning the

KEY BENEFITS

- REGENERATION MODE GIVES SIGNIFICANT ENERGY SAVINGS
- EXTREMELY RELIABLE
- FLEXIBLE OPERATION
- MODULE DRIVE DESIGN
- LOCAL TECHNICAL SUPPORT & SERVICE



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drive system.

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The Unidrive SP Modular drives range offers power can be arranged to provide a common DC bus system with or without an active front end (regenerative, 4 quadrant operation). Very high current motors may be controlled

using a multi-drive modular arrangement. The drives are packed with the same features as the whole Unidrive SP range that spans 0.75kW right up to 1.9MW. Unidrive SP is the world’s most advanced ‘solutions platform’ AC drive family, configurable into five operating modes – open and closed loop, vector,

servo and regenerating modes - connectivity to most industry standard networks and accepting 14 position feedback protocols. With a range of plug-in module options, its on-board PLC can be supplemented with programmable modules.

The Commander SK range offers ease of fitting, set up and use, good dynamic response, almost universal connectivity as well as energy-saving efficiency. The range has been designed to encompass the needs of the mainstream distribution market with easy-to-fit and set up features that encompass some 90% of applications.

Vinçsan (<http://www.vincsan.com>) has been established for 30 years, specialising in the design and fabrication of overhead cranes, gantry cranes, custom built hoisting and towing winches, electric hoists as well as fabrication of steel structures.

Its production facilities at Dolayoba – Pendik in Istanbul, consist of approximately 10.000 square meters closed workshops on well equipped with modern steel fabrication equipment and ample crane capacity.

Tersan Tersanecilik has a major shipyard in Tuzla, performing every kind of maintenance, overhaul and refurbishment for vessels up to 15,000 DWT. Its new shipyard in Yalova, still under construction, has an open area of 220,000 sq m with an increased ship manufacturing capacity up to 200,000 DWT. Once the yard is complete, the new Vinçsan crane will be in operation for 18-20 hours a day.



For further information please visit
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