

BOXING CLEVER IN SPAIN

Complete CT drives package for huge corrugated carton machines

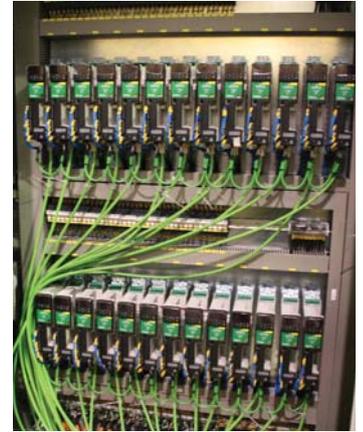
Around 170 AC drives from Control Techniques are being used on for the latest corrugated carton machines from Spanish packaging machine manufacturer Medesa.

Medesa, based in Amposta, Catalonia, is one of Europe's leading manufacturers of machinery for producing corrugated cardboard cartons. Typically lines exceed 100-metres long and one machine will employ around 170 variable speed AC drives with a total installed capacity of around 1.5MW! Control Techniques Iberia has supplied intelligent drives to Medesa for 10-years, particularly for more demanding applications such as the 'Acroloop' flying



rotary cutter, slitters and other machines that form parts of packaging production lines.

This latest machine has been developed with Control Techniques providing all of the drives as well as the servo-drives and



servomotors for the highest precision movements on the line. This line, the first of several bound for South America, comprises five unwinders, two corrugated paper machines, gluers, a drying table, where all of the joined layers are dried, a slitter, a double transversal rotary flying shear and, finally at the end of the line, the stacker.

"This has resulted from a very close working relationship with Medesa, particularly over the last five years" says Control Techniques Iberia's Sales and Marketing Manager Pedro Perez. "Medesa's design team is increasingly using the on-board programmability of the drives to simplify system design and improve response times."

74 Commander SK AC drives up to 4kW provide general speed control of conveyors and pumps throughout the line. 40 Unidrive SP drives up to 110kW and 17 modular Unidrive SPM AC drives are also employed along the line.

The slitter has a total of 26 axes under the control of 26

KEY BENEFITS

- IMPROVED RESPONSE TIMES
- SIMPLIFIED SYSTEM DESIGN
- HIGH PRECISION
- ENERGY SAVING
- ON-BOARD PROGRAMMING

Digitax Plus servo-drives teamed with Control Techniques FM servo-motors, this makes a longitudinal cut in the web and, with other tools, marks the carton for subsequent bending. There are a further 34 Unidrive SP drives each complete with an on-board programmed SM Applications module. All drives are connected by Control Techniques' high-speed communications network CT-Net and four drives also have DeviceNet communications.

All of the Digitax servo-drives are supplied by a modular Unidrive SPMC on a DC bus. Twelve of the drives control the blades, twelve control the markers and eight control spindle speeds. Each drive has a program that marks the home position and recover position, with positioning instructions coming from the controlling PLC. Tools positioning is achieved in 0.6 seconds and the design facilitates fast replacement of knives and creasers. All of the programming is done by the Control Techniques software team at the Barcelona Drive Centre.

The double rotary flying shear makes the transverse cut to the required length. The machine can run up to 350m/min with a cutting width up to 2500-mm. Each helical rotary cutter has two blades (upper and lower) and each blade has its own motor. Four modular Unidrive SPMD drives share a DC bus with braking energy being recycled between the drives to save energy. Each Unidrive SPMD drive incorporates an SM-Applications module with its own cutting program, with a special S-Ramp with sinusoidal form, continuous generation and selectable over-current. This achieves the highest line speed with the smoothest operation, but without exceeding current limits.

The Unidrive SP 'solutions platform' range of AC variable speed drives spans 0.75kW right up to 1.9MW. It is configurable into five operating modes – open and closed loop, vector, servo and regenerating modes. With a range of plug-in module options, its on-board PLC can be supplemented with programmable and specialist feedback and communication modules.

The units that make up the Unidrive SPM range can be used to implement most types of system. The separation of the power circuit into rectifier and drive stages enables elegant and compact active input configurations to be implemented. The modular nature of the power circuit allows drive systems

to be constructed in non-standard enclosures.

The Commander SK range is renowned for its reliability. It is easy to fit, set up and use, with all the 10 parameters most users need being accessible from the display keypad, which is included as standard. Very important for this application is its energy-saving efficiency and its state-of-the-art manufacturing standards which are responsible for its outstanding reliability.

Unimotor FM is a unified 200v/400v range in six frame sizes from 55-mm through to 190-mm and spanning powers from 0.75 up to a massive 73.2 NM. With IP65 protection, a wide range of shaft variants and flange dimensions including IEC and Nema configurations, a choice of feedback options and other options, the FM range is probably the most flexible in the market.

The new low inertia (fast acceleration) design has further reduced 'cogging' for low-speed, contouring type applications and performance is enhanced with state-of-the-art computer modelling techniques, with an enhanced peak torque range that means that a smaller motor can sometimes be fitted, giving cost advantages over other motors.

Medesa employs around 270 people at its 6,800 sq.m factory. The company designs and manufactures complete production lines for the production of corrugated cardboard packaging products.



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