



A sparkling tune up solution

Installing solutions with decentralized frequency converters represents a key alternative for traditional control techniques, based on power panels.

Martini & Rossi transformed their sparkling-wine production line, with the help of Danfoss.

Martini & Rossi, of the Bacardi group, has replaced the bottling system of its sparkling wines using a model, that is an alternative to the “classic” tune up based on a power panel equipped with PLC featuring a series of frequency converters that control the geared motors on the line’s belt conveyors.

The benefits of “decentralized”

The idea of implementing a handling project based on the inverter decentralization originates from the requirement of Martini & Rossi to increase the production capacity of their plant. The approach demanded a technical thoroughness beyond mere reliability of the hardware involved.

It was necessary to take into account many environmental challenges that traditional power panels do not pose. However, the decentralized system ensures a number of benefits, including the reduction of the central power panel.

Decentralized frequency converters



allow non-shielded power distribution, which is cheaper and easier to find.

Synchronisation of bottle lines

The solution for Martini & Rossi uses the VLT® Decentral FCD 300 frequency converters. The line winds through the bottling hall starting from the depalletizer: bottles file on a bed without pressure, feeding the rising/filling monobloc Krones Sensometric, driven by a single VLT® 5000 drive, which controls two synchronous motors in virtual shaft.

After the filling phase, bottles are

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capped and arranged for the application of the characteristic cap wire hood.

They are then transferred to the dehumidification step, going through a heating tunnel and a ventilated drying system to be finally labelled and packed.

Improved peed

All production steps are tuned up in speed, to keep the production rhythm

of the filling machine, as well as to manage the flows of the other phases, avoiding build-ups.

40 motors controlled via fieldbus

With the adoption of the VLT® Decentral FCD 300-based solution, Martini & Rossi has also adopted the fieldbus tool, at the same time turning to the direct connections of line sensors on the available inputs.

All drives are linked in Profibus Network for the control of the 40 motors operating on the belt conveyors connecting several processing steps.

The field wiring operation ensures a remarkable time reduction, as well as higher modularity. The only disadvantage is that space for connections are quite small.

Vector control

VLT® Decentral FCD 300 series range from 0.37 to 3 kW, with three-phase, 380-480 V power supply and an IP66 protection grade. The drives can be installed directly on the motor or next to it.

The control system is called Voltage Vector Control. It controls the voltage input in a way that ensure proper magnetization inside the motor coils and thus saves energy and prevents heat losses.

EMC and low harmonic distortion

For full compliance with the EN55011-1A EMC regulations (industrial environment), the drive integrates the RFI filters as well as a series of inductances, located at the same level of the intermediate circuit, limiting the network harmonic distortion.



IP66 VLT® decentral FCD 300 drives mounted near by the motor

The Profibus network is also used to connect automated units such as sensors and actuators to the controls.

VLT® 5000

The VLT® 5000 series covers a range of power from 0,75 to 355 kW, with different power supplies (200-240 V / 380-500 V / 525-600 V).

The drive is available in book style and compact versions, with IP00, IP20/NEMA1, and IP54/NEMA2 protection grades. Voltage Vector principle has been adopted for speed and torque control.

The start-up and programming operations can be adjusted through the so called "Quick Menu" by setting the parameters, as they are displayed. Besides the RFI filters, in compliance with the EN55011 1A+B regulations, the VLT® 5000 series integrates DC filters for the reduction of harmonic distortions and optionally LC filters for elimination of the noise generated by the switching frequency.

For applications requiring synchronization and positioning, the SyncPos Motion Controller board can be used. The serial communication option extends the communication capacity of the VLT® 5000 to more PLC systems.

Brake resistors

Brake resistors are employed for fast motor deceleration.

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