

VLT

Danfoss Drives optimise the production of biscuits in the Netherlands

Royal Verkade, Zaandam now being part of United Biscuits, always goes for efficient and cost saving solutions in their production. "If instruments or machines break down or for some other reason need to be replaced, we do not automatically replace like for like", says Ben Baars, Electronics Manager at Verkade.

"We always look for a better or smarter solution. In this way we continuously take advantage of new developments that can improve our production and quality or provide energy savings and or safer working environments" he says. That is also why Verkade purchased their first Danfoss frequency converter many years ago. "Today we use about 2000 VLT® drives", says Ben Baard, "and they are used in all parts of our production process".



Plant description

On the upper floor of the factory Danfoss frequency converters control the system taking care of the distribution of sugar to the mixing stations. One floor below, Danfoss frequency converters control the big drums in which the ingredients are mixed. Previously the motors, up to 110 kW, driving the rotating mixing hooks in the drums were switched to the mains directly. Now they are controlled by Danfoss frequency

converters providing a smooth and controlled start and stop. In this way a lot of energy is saved and mains voltage fluctuations which could be observed through the whole factory are a thing of the past.

Interbus Interface communicates with the PLCs

On the ground floor where the dough comes down from openings in the ceiling, VLT® drives control the belts that transport the dough through different stations where extra ingredients are added, the dough is cut into biscuits and cookies and through the ovens where they are baked. This is a transport system where all parts need to work closely together to ensure a uniform and high quality.





Therefore the VLT® drives here are equipped with an Interbus Interface communicating with the PLCs that control the production lines.

Synchronizing option tunes the supply of dough

The VLT® drives are also equipped with synchronizing options, making it possible for the drives to communicate with each other and to provide the best possible synchronization. In this way the supply of the dough is matched to the temperature in the ovens, because low temperatures need a longer baking time and therefore a slower speed of the conveyor belts through the whole production line.

An Ethernet backbone running through the factory makes communication possible between weigh scales and mixing stations, for example. Danfoss Ethernet Gateways connect the VLT® drives to this backbone. Information about the connected drives is therefore available in real time.



Benefits of Danfoss Drives

- Smooth/controlled start/stop of motors saves energy
- Brake choppers integrated in the Danfoss Drives reduce maintenance costs, compared to the previous solution with mechanical brakes.
- Interbus Interface communicates with the PLCs
- Synchronizing option automatically matches supply of dough to the temperature in the ovens.

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