

VLT® control pays back in two years controlling ammonium screw compressor

Monthly savings were USD 1,155, ensuring recovery of investment on the Danfoss frequency converter within two years, when Bimbo applied a VLT® frequency converter control to an ammonium cooling compressor. Now their successful experience is becoming standard in other Bimbo plants.

Founded in Mexico, in 1945, Bimbo Group is currently one of the most important baking companies in the world, in terms of production capacity or sales volume, in addition to being the absolute leader in Mexico and Latin America. Present in 18 countries, in America, Europe and Asia, and with massive growth in China, Bimbo brings to the market approximately 5,000 products and 100 well-known trade marks. Its net sales in 2007 were over \$7 billion USD.

The company has used and trusted Danfoss products for a long time. Recently, Bimbo selected the



*Screw Compressor
200 kW CT7*

Hazpan plant and granted Danfoss authorization to implement an energy saving system on one of its ammonia compressors. In this case, a 200kW CT7 Frick screw compressor, which represented an excellent opportunity for energy savings, due to the large number of compressor units installed in Bimbo plants, and owing to their requirements for motors.

Knowing the demand

The traditional control method for screw compressors is using a slip valve, due to its outstanding functionality and low cost. A slip valve is basically a valve that regulates the gas flow, maintaining the compressor suction pressure. However, using a frequency converter to control the speed is becoming more and more common..

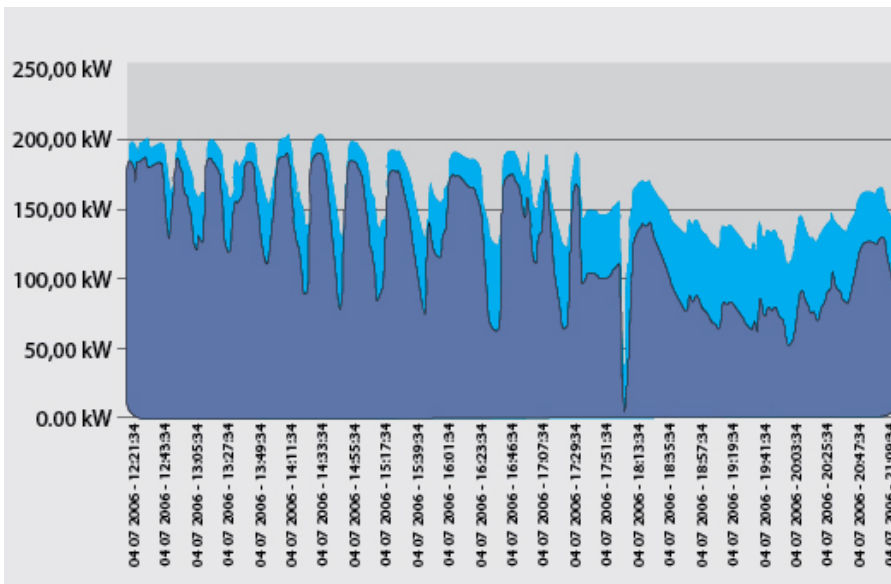
VLT® FC 302 in operation

The compressor's energy consumption can be optimised and the compressor capacity will vary proportionally to the speed. Although the frequency converter solution requires a larger initial investment, it is definitely the most effective solution in the long term, given that the most important issue to be taken into account is the saving gained in daily operation. What really matters is analysing the system demand profile. Although the CT7 Frick compressor works for long hours, power consumption never reaches close to 100 % load. In order to map the load profile, Danfoss chose the current as a reference because it has a direct relationship with the compressor's load percentage. Normally, an a.c. motor on no-load uses one third of

its rated current, and in the case of a screw type compressor, when on no-load, the current usually reaches a value close to 40% of the motor's rated current.

In this case, the monthly cash savings have been USD 1,155, assuring a return on investment on the VLT® frequency converter in two years. Now the successful experience is becoming standard in other Bimbo plants.

Once again Danfoss provided a fast and secure return on investment, in this case by means of the electrical energy savings, thus contributing to the environment and making a significant improvement in Bimbo's carbon footprint..



Operational profile study

The light blue area represents the energy saving with the Danfoss VLT® AutomationDrive.

The monthly savings is USD 1,155, meaning a return on investment in 24 months maximum.

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