Food and Beverage Applications For ABB Adjustable Speed AC Drives

ABB AC Drives

Adjustable Speed AC Drives improve malt kilning for a brewery

Background

Of all the food processing industries, the brewing and malting sector is one of the most thirsty energy users. Malt is widely used in products such as beer, whisky and vinegar.

Regulated airflow saves energy

Malt is a cereal grain, usually barley, which is steeped in water and allowed to germinate before the grain is stabilized by drying in a 'kiln'.

Kilning is essential for the development of color and is carried out under carefully controlled temperature and airflow conditions. Pauls Malt introduced ABB AC Drives for several reasons.

Keeping the barley flowing

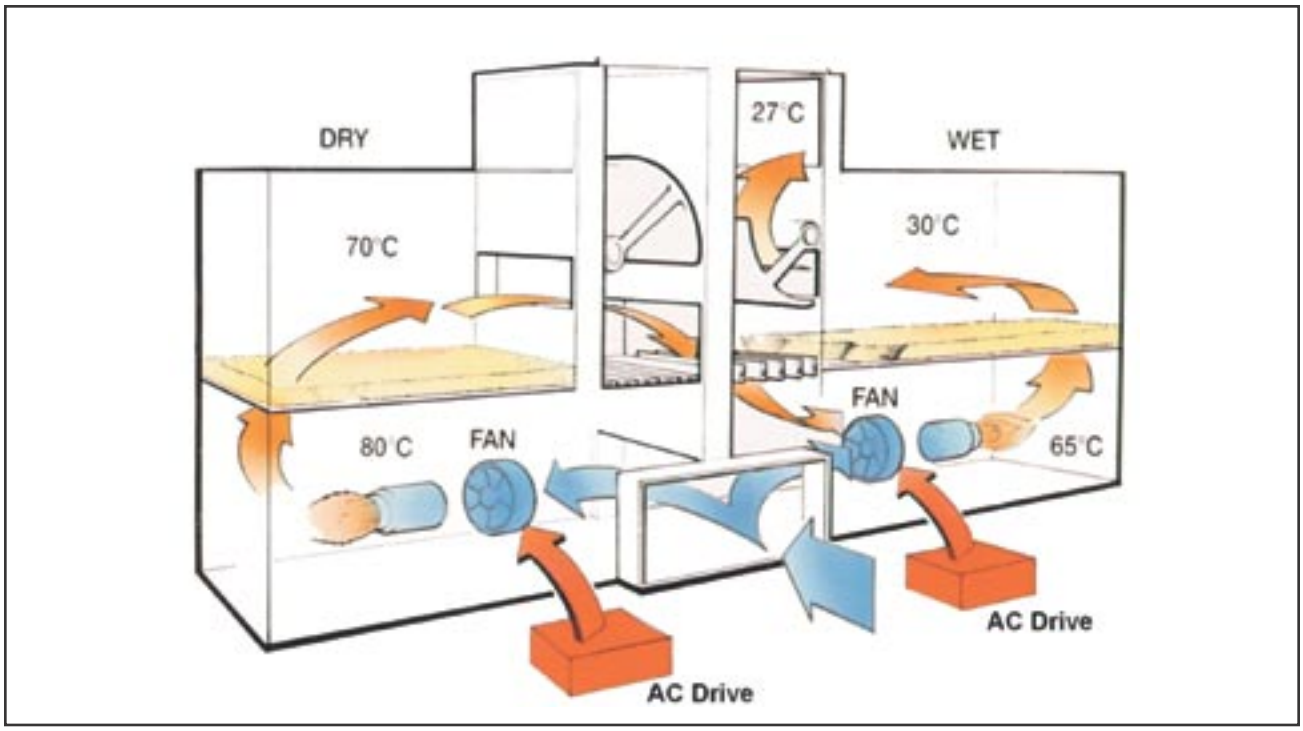
Once the germination process begins, the ensuing chemical reaction is a natural process, which ceases only at the kilning stage. It is essential therefore, that the kiln fans are reliably operated according to batch process conditions, with no hold-ups or breakdowns. Otherwise, the following batch will be irreversibly damaged.

AC drives provide reliability

The high electrical energy costs associated with operating kiln fans are reduced by varying the fan's motor speed. AC Drive control means the motors can be speeded up at night, when electricity is cheaper, or slowed down without exceeding the maximum kilning time.

Since installing the ABB AC Drives, the energy used per ton of grain has fallen from 95 Hp per ton to 50 Hp per ton.

More importantly, the Drives can easily be switched into a spinning load. For example, if a fan trips, it has so much kinetic energy that it can keep spinning for up to 20 minutes. Some converters have to wait until the fan stops before reconnecting.



The ABB AC Drive design allows immediate reconnection to the load, thereby saving invaluable production time.

Measured savings

Pauls Malt devised a mathematical model, using a desktop computer, to generate greater awareness of the potential cost reductions. The electrical input to the Drive was measured over the operating range and the relationship of the absorbed electrical power to airflow determined and inserted into the mathematical model.

The results show that the minimum electrical cost is achieved if the fan speed is increased by 20 to 25 percent during nighttime, with a reduction during the day.

However, most of this benefit can be achieved with a smaller increase in spedd and ultimately a figure of 15 percent was inserted into the model.

A fan of ABB Drives

“As far as I’m concerned, converters are the answer,” claims Dennis Asher, Engineering Manager of Pauls Malt. “I particularly like the technology for its reliability and accuracy. For us the success of the ABB Drives is that they simply have not broken down.”

Total Customer Satisfaction

The quality of ABB drives is backed by a company-wide commitment to total customer satisfaction. ABB’s 24-hour customer support line, plus an extensive sales and service network, provide a wealth of drives applications expertise and personalized assistance that will ensure your continued success.

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APPnote08-US-00