

Case note

Salt producer saves £100,000 on single fan



A leading salt producer is saving £100,000 per year in its manufacturing process with the help of ABB drives.

ABB drive and motor save 1.6 GWh per year

Salt Union has the capacity to produce a million tonnes of salt every year at its site in Runcorn, Cheshire. The salt is passed through dryers as part of the production process, using fans to suck air in.

As well as food grade pure dried vacuum salt, the plant also produces a coarser granular product used in applications such as dishwashers. The dryer for this product previously used a fan that sucked air through the dryer at a rate controlled by a damper in the pipeline.

During normal operation, this damper was 95 percent closed so most of the fan's energy was being used to suck the air through the narrow constriction. An energy survey by ABB Drives Alliance member Central Electrical was carried out to determine what potential savings could be achieved.

The original fan motor was rated at 337 kW, but Central Electrical's calculations showed that 132 kW should be enough to create the draft needed by the dryer. "That's a

huge energy saving when you think we run the unit for about 8,000 hours a year," says Electrical Plant Improvement Engineer Dave Mullin. "In fact, it equates to over 1.6 GWh per year."

The old fan was replaced by a smaller version, equipped with a 132 kW four-pole motor coupled to an ABB industrial drive.

The resulting energy savings now average £9,000 a month.

Costing just £20k, the ABB equipment installed is saving over £100k a year, representing a cut in energy consumption of over 60 percent.

The original fan was badly oversized for historical reasons. The dryer was previously used to process vacuum salt crystals, which are much smaller than the spherical, 2-3mm diameter particles in granular salt. The fine crystals created a far bigger pressure drop across the dryer than today's coarse product.

“The fan was probably on the generous side to start with. Years ago it was common for engineers to add a safety margin,” says Mr Mullin. “But once the duty changed it became grossly oversized.”

It’s a common problem, according to Ken Tym of Central Electrical: “Industries and processes change, but there are a lot of areas that manufacturers don’t seem to consider. Sometimes it’s about re-educating end users about the energy savings that are achievable.”

At Salt Union, energy-saving initiatives aren’t confined to the process. Even the small amount of waste heat now produced by ABB’s variable speed drive is being put to work warming up the switch room in winter. “It’s not a major saving but it’s good to be using a waste product in this way,” says Mr Mullin.

Solved problem

- A salt dryer that was using too much energy

Solution

- An energy survey was carried out to determine what energy savings could be made
- A smaller fan was installed driven by an ABB industrial drive

Benefits

- Over £100,000 worth of energy is being saved every year on a single fan
- The energy consumption has been cut by 60 percent
- Waste heat from the variable speed drives is being used to warm the switch room



132 kW motor, coupled to an ABB industrial drive, saves over 1.6 GWh per year compared to the old 337 kW motor.

For more information please contact:

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