Results-Driven Automation

Partnership Focus

Cement

Success Stories

Lone Star Industries (now Buzzi Unicem) Doubles Capacity via Electrical Retrofit

Demand-beyond-capacity created the need to nearly double the facility's production – from 750,000 TPY to 1.3 million TPY – maximize uptime, *and* introduce a new cement-making process to the U.S. A decade of upgrades leading to the massive '99-'00, $75 million expansion included the addition of new motors and the installation of 40 ABB Variable Frequency Drives on new and existing motors throughout the entire plant.

The plant is the first U.S. cement maker to use a semi-dry production process. Built in 1918, Lone Star (now owned by Dyckerhoff AG) produces Type-III, Type-1, masonry and Portland lime blend cement on a 24/7 schedule. Low-cost electricity, combined with efficient energy usage and the plant's ability to utilize alternate fuels for producing clinker, make the mill's products competitive with those from dry process facilities.

Benefits

Benefits of the ABB electrical retrofit include:

- Shorter Kiln Turned 3x Faster
- Host Of Horsepower Demands
- Standardization Saves Parts, Training

Shorter Kiln Turned 3x Faster

Shortening the kiln from 580 to 255 feet, adding a 322 foot, one-stage preheater tower, complete with an in-line calciner, a dual de-dusting cyclone, and a hammermill dryer utilizes two-thirds of the total fuel at the preheater end to dry the slurry – before it reaches the kiln. The kiln, powered with a new ABB 900 HP DC motor and ABB DCS 500 drive, rotates at 3rpm. ABB MV technology – a 5,000 HP ABB drive and motor — power the new ID fan in the one-stage preheater.

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Host Of Horsepower Demands

ABB drives power motors that range from three HP (feeder weights) up to 800 HP (the ID fan drawing air through the kiln into the stack.) Six 150 HP drives control the slurry pumping stations and feed pumps into the kilns, while 600 HP drives power the primary air fan and baghouse cooler exhaust. VFDs also control the primary OSEPA exhaust fan *(since 1993, a 300 HP drive, the first such unit manufactured by ABB, has controlled this motor/fan for more than 40,000 hours, without a single incident or trip of the switch)*. A 200 HP drive controls the OSEPA separator in the finish mill.

Standardization Saves Parts, Training

Motors *and* drives are sized to the largest HP an application requires, and then slightly oversized. ABB's AC 600 drives share a common operating platform, so that electrical technicians can be trained once, but operate drives throughout the plant. Like motors and like drives also reduce the number of spare parts.

"We have over 19,000 HP on line," notes plant manager John Kass. "If you save one percent of your consumption a year, that is significant. If you do that with a higher-efficiency motor, putting in a VFD that controls a motor right to the rpm you need, that saves energy."

For more information, log on to www.abb-drives.com

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