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Reliability is the key to new slurry plant

The reliability of drives and motors from ABB Automation is maintaining the production of chalk slurry for Rugby Cement's newly refurbished cement works in Rugby.

A £150 million refurbishment, will allow the plant to increase its annual cement output from 390,000 tonnes to 1,350,000 tonnes. Two ACS 600 variable speed drives and two ABB AC motors have been installed at the heart of the production process, 57 miles away at Rugby Cement's Kensworth Quarry near Dunstable. The quarry has been in operation for 35 years and provides all the chalk needs for the plant in Rugby.

Because of the amount of capital investment and the practicality of doubling up on pipe work, spares, changeover valves, pumps and motors, there are no back-up systems at the quarry.

The slurry production facility within the quarry has had to develop its existing slurry plant to keep up with cement production at the new plant. Chalk is quarried at a rate of 900 tonnes per hour. The chalk is mixed with water in a wash drum 20 m long and 4m in diameter. This turns the chalk into slurry.

This slurry is then pumped over screens to separate out any large particles. Once through the screen, the slurry is then pumped at a rate of 720 m^3/hour into a storage tank that measures 40 m diameter and 12 m deep, which is agitated with air to maintain a suspended solution of chalk in water.

This operation uses two 132 kW ABB motors (4 pole 415 Volt) and two ABB ACS 600 drives each rated at 160kW. From the storage tank the slurry is pumped along a 57-mile pipeline between the quarry and the new Rugby Cement works.

"The new cement works has extensive ABB equipment, so in order to keep maintenance simple and to have common spares and operation systems we decided to install ABB equipment at the quarry as well." Says Riches

The cement manufacturing process at Rugby is governed by the production of slurry not the demand of the cement works. Therefore it is imperative that the quarry can supply a steady flow of slurry. The storage basin acts as a buffer for this purpose. It can provide enough slurry for 4 days full capacity cement production at the new plant.

The drives were supplied through ABB Drives Alliance Partner Sentridge Ltd., Coventry, which is also handling the site's maintenance agreement.

Caption: The ABB ACS 600 family of variable speed drives. Two ABB ACS 600 160kW rated drives and two ABB 132kW motors maintain the production of chalk slurry for Rugby Cement's refurbished cement works.

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