Cutting Eastern's emissions

One Source

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FLSmidth supplied equipment to Eastern Province Cement Company (EPCC) so it could better meet its environmental requirements. This involved a reduction of particle emissions below 15mg/Nm³ for two of the plant's older kiln lines and the installation of alkali bypass filters.

The configuration for the kiln lines is based on modern jet pulse fabric filter technology with eight compartments. There are a total of 6336 filter bags, each 6m long, designed to specifically enable online maintenance

When it comes to kiln dedusting and alkali bypass dedusting at cement plants, the right air pollution control solution is vital. At EPCC in Saudi Arabia, the electrostatic precipitators (ESPs) were yielding substantially high emission levels and a desire to protect the environment, along with increasingly stringent regulations, made intervention necessary.

Choosing the right supplier for a large-scale, complex project such as this is critical, and EPCC took great care to select a partner with the right experience and knowledge, and the most advanced, optimised technology. FLSmidth met these criteria, and more than this, was also committed to resolving project challenges that arose along the way – an important requirement for the cement producer.

Latest fabric filter technology

In this project, FLSmidth's FabriClean® fabric filter technology was used for both kiln lines. New fabric filters replaced the kiln ESPs but utilised the existing concrete support.

"The use of the latest fabric filter technology included FLSmidth's sophisticated gas and dust distribution system, perfect bag-to-cage match and long bag lifetime – all contributing to the success of the solution."

Ahsen Hussain
Department manager sales
FLSmidth

FLSmidth's RetroClean™ fabric filter technology was used for the alkali bypass solution. One of the existing kiln ESPs was converted into a fabric filter, reusing the casing, foundation, support structure and dust transport.

Low investment costs

FLSmidth's in-depth knowledge of cement plants and its latest technology enabled the maximum possible reuse of existing equipment and minimum shutdown time.

Wherever possible, reusing existing machinery was prioritised and new equipment minimised. The location of both the fabric filters for the kiln and bypass solutions utilised the existing ESP foundations, support structure, casing and dust transport, reducing the need for new ducting and dust transport and enabling


Purge tubes and venturies prior to installation of weather enclosure

easy reuse of the existing stack. A new frequency-controlled fan, working on the clean side of the fabric filter, was installed for the kiln solution, and one kiln ESP fan was reused as the alkali bypass fabric filter fan.

Using the latest fabric filter technology enables online maintenance and ensures an overall extended filter lifetime.

Reduce operational costs

This robust, well-proven solution has kept operational costs to a minimum. Wear and tear is low and the amount of maintenance required is small. Using the latest fabric filter technology enables online maintenance and ensures an overall extended filter lifetime.

Both kiln and bypass solutions use fresh air bleeding through fresh air dampers as the cooling method, ensuring efficient temperature control, protecting the bags from excessive heat.

Woven glass bags with PTFE coating were chosen because of their durability at high temperatures, limiting the amount of cooling needed. In addition, using identical bag lengths for all fabric filters meant that spare parts were standardised and costs therefore saved.

Exceeding expectations

The use of the latest fabric filter technology included FLSmidth's sophisticated gas and dust distribution system, perfect bag-to-cage match and long bag lifetime – all contributing to the success of the solution.

To date, the fabric filter solution at EPCC has exceeded its design performance, achieving substantially less than the required 15mg/Nm³ (dry gas) of emissions.

In addition, FLSmidth's air pollution control solution is future ready – ensuring that EPCC is well prepared as environmental regulations become even more stringent in the future.

A complete solution

With the exception of the civil work (which was undertaken by EPCC), this was a turnkey project. FLSmidth supplied completely new fabric filters and also converted the existing ESPs to fabric filters. In addition, the solution included:

- **fresh air bleeding of air dampers**
- **new filter fans (including an electrical package: motors, variable speed drives/VSDs, transformers etc.) to handle the extra pressure drops**
- **dust transport**
- **ducting**
- **support structures**
- **compressor systems**
- **electrical rooms**
- **compressor rooms.**


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