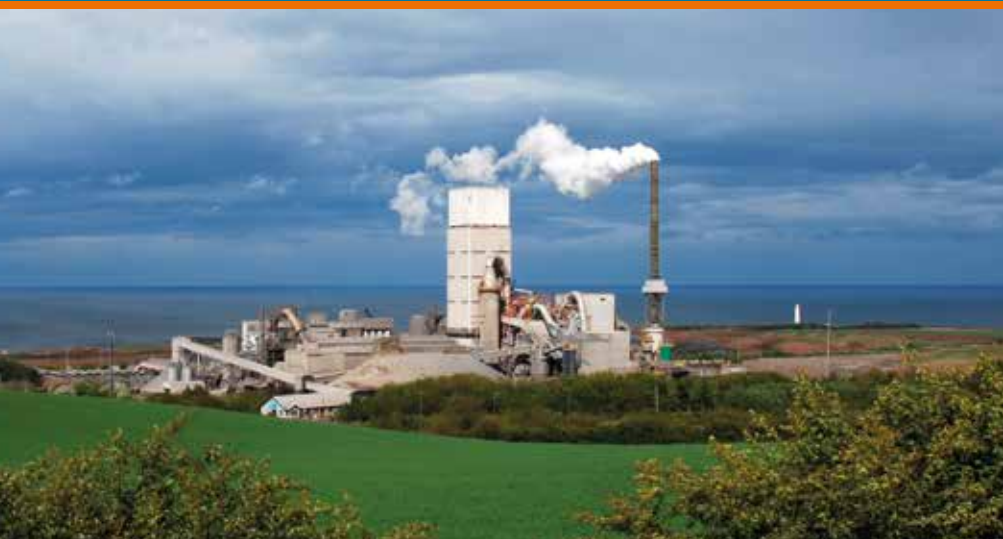


Fan erosion at Tarmac

12 year update



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At Tarmac (Dunbar, UK), their existing Raw Mill fan was replaced with an enhanced Howden design in 2007. Cement plants are challenging environments for rotating equipment due to high dust levels. As a result, Raw Mill fans are subject to high level erosion. The Howden fan was specifically designed to handle high silica dust burdens. 12 years later the fan is still running with only minor, routine outage repairs.

Challenge

The original Raw Mill fan, installed in 2006, began to show signs of heavy erosion on the fan blades due to the high silica dust burden. The wear on the fan blades adversely affected the fan performance and as a direct consequence, the plant output reduced significantly.

The plant incurred high running and maintenance costs as the rotor had to be replaced every six months by the plant's maintenance team. This was providing the plant with a quick fix but a permanent long term solution was required. Tarmac decided a new, reliable fan was required with enhanced erosion resistance.

Howden was invited by Tarmac to develop a solution. With an extensive installed base within the cement market, Howden has gained extensive process experience in plants throughout the world. We offer expert and unbiased advice that is about finding the right solution for each application.

Solution

Technical experts from Howden and Tarmac's operations team worked closely together to determine the best solution for the plant's operating conditions and process requirements.

After an in-depth study of the customer's environment, technical specifications and a measurement campaign on-site, Howden and Tarmac were able to select a new fan with a hard surfacing material and scalloped center plate. This design would limit the wear and significantly improve the lifespan of the fan. This solution would mitigate the high erosion rate caused by the silica dust.

Selected fan configuration

Considerations	Existing	New fan
Diameter (mm)	2,970	2,909
Volume (m ³ /s)	175.3	183.8
Pressure (kPa)	10.5	12.1
Temp (°C)	95	150
Power (kW)	2,146	2,539
Speed (rpm)	895	990

Installation

The new fan was installed and commissioned into the plant in late 2007 within 7 days. Seamless collaboration between the on-site Howden and Tarmac teams made this short installation time possible.

Outcome

The new rotor has solved the erosion issues. The fan, which has been running for over 12 years, performs very smoothly with only minor repairs done locally by the UK service team during the plant's annual shutdowns. The new fan not only enabled a reduction in maintenance costs but also increased efficiency reduced power consumption. This solution proved to be the best match to the plant's current operating conditions and process requirements.

Howden continue to support and partner Tarmac by providing local support from our UK service teams ensuring a fast professional response. Technical expert support is provided from our cement centre of excellence located in Chalon-sur-Saône, France.