Construction & Quarrying

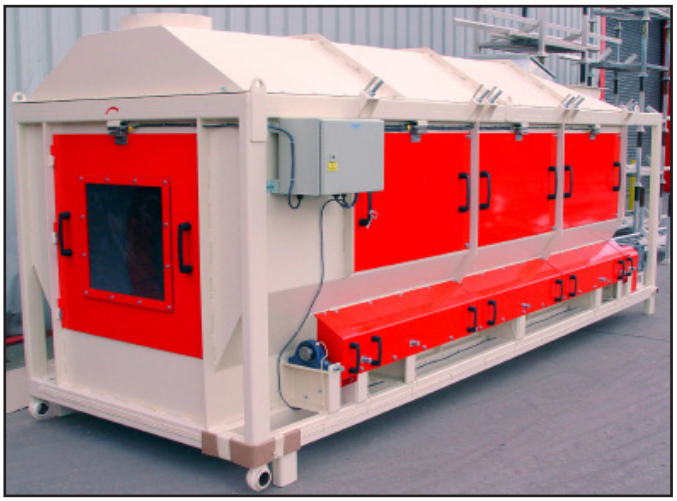
30TPH Rotary Sifter for Plasterboard Production

Overview

To design and manufacture a rotary sifter to screen 30tph of DSG (flue-gas desulphurisation gypsum).

Problem

Plaster is manufactured using either natural gypsum (mined or quarried) or from gypsum produced as a by-product of flue-gas desulphurisation gypsum (DSG) which is a cleaning process in use at a number of coal-fired power stations. The client secured DSG output from one of the UK's largest Power Stations and required the system to reclaim the DSG product. The rotary sifter was required to remove 'nibs' (hard particles of limestone) from the dry DSG at a rate of 30 TPH, working in an ambient factory temperature of 45°C. The product has a dynamic bulk density of 948kg/m3, aerated bulk density of 843kg/m3 and a packed bulk density of 1198kg/m3 with a material temperature of 130°C. Dry DSG is very abrasive and takes on moisture.



Solution

After tests on a trial machine, GAME produced a sealed machine which included aspiration to manage the fine plaster particles. Attention had to be paid to the selection of suitable components and lubricants to cope with the temperature.

Feed to the machine was controlled via a rotary value under a silo and the speed through the machine can be varied.

Result

The client utilised alternative sources of gypsum and were able to re-use pre-mined and pre-quarried products.

GAME
MATERIALS, PROCESSING & HANDLING ENGINEERS