HEATED CONVEYOR SYSTEM FOR CEMENT PROCESSING

Heated conveyors keep materials consistently dry

Application

A cement manufacturer brings raw materials such as limestone and clay to their facility for dry processing into Portland Cement. Crushed limestone and clay are transported to the plant where they can be stored outside for future use or can begin processing on arrival. Material is loaded on a conveyor over 300 ft long for entry into the mill. The dry processing of cement requires removal of water from raw materials prior to grinding and blending. The constituents are blended based on material weight, and moisture content will adversely impact the product quality. Moisture is also a factor in how well the material can be ground.

The customer wishes to heat the walls of the enclosed conveyor system and transfer heat to the material sufficiently to remove moisture. The conveyor speed can be adjusted to increase or decrease heating time depending on the product on the conveyor, as well as weather conditions. The heating system will be located outdoors where temperatures drop to below 0°F (-18°C) in the winter.

Solution

BriskHeat Application Engineers reviewed drawings of the conveyor system to determine surfaces where heaters could be located. The environmental conditions required both heaters and controllers be suitable for outdoor environments. BriskHeat Metal Clad Hopper Heaters were selected for their easy and secure stud-welding installation. These would be applied to three sides of the conveyor. By using identically sized heaters on surfaces subject to the same environmental conditions (east side vs west side), several heaters could be wired in parallel to reduce the number of control zones. Smaller hopper heaters were placed on the underside of the conveyer belt. Several of these were wired together and one thermocouple was placed on the middle heater.

The TC4000 High-Capacity Wet-Area Digital Temperature Controller is available in single and dual-zone models with 24-amp capacity, ideal for this application. Vibration-resistant internal mounts allow the panels to be located on the conveyor frame. Control panels were located almost 100 ft away and easily accessible to the maintenance technician. BriskHeat SRL silicone rubber heaters were used to heat other pieces of ductwork.

Industries

Asphalt/Concrete
Construction
Heavy Industry/Mining