SLY

Case History

Custom Collector Design for Efficient Dryer Ventilation

A limestone supplier was looking for a way to meet air pollution emission limits while efficiently and effectively optimizing their production process. The firm needed a way to collect and recycle fines generated from a fluid bed dryer that were released during the drying and cooling process.

The customer worked with a sales representative from Sly, Inc. through multiple meetings to review not only the purchase of the dust collector, but the dryer as well. The representative was able to effectively hear the customer's issues and help accordingly as he had technical expertise in both products.

After meeting with the customer, Sly selected an STJ-4717-10 Tubejet collector for their manufacturing facility. The collector operates at a 5.2:1 air-to-cloth ratio and installation required only one air outlet connection to the fan located on the end of the collector.

Because the preferred location of the outlet duct exceeded the space available on the collector, Sly chose to customize its clean air plenum with a taller design and a larger outlet. These modifications were able to accommodate a duct size that could manage the large air flow of 62,000 ACFM.

The inlet loading to the collector from the dryer was six tons per hour. To reduce abrasion at the inlet, both air inlets were sized for a velocity below 3,000 FPM and the internal inlet diffuser was fabricated of abrasion resistant steel. Because the inlet loadings may vary, Sly provided controls to either clean continuously or only when the pressure drop demands a filter bag cleaning. This method saves on compressed air usage and extends the life of the filter bags. It is available on all Sly dust collectors.

Finally, because the collector is so large, a trough hopper, screw conveyer, and rotary valve were furnished to provide a single point discharge for the collected product. This product was then returned to the limestone processing cycle. To monitor filter bag performance, a differential pressure gauge is included in the unit to track pressure drop and a detector designed to check for broken bags was installed in the outlet duct to indicate an increase in emissions caused by bag wear or other upset conditions.

The dust collector was conservatively sized to process materials efficiently while still meeting air pollution control standards. The filter bag media chosen was cost effective and long-lasting while still efficiently collecting dust.

The bags in Sly's Tubejet collector operated for 22 total months of continuous use before a bag change was needed. The collector itself has been running smoothly since the summer of 2013 with excellent results.

Sly, Inc. manufactures a full line of industrial fabric filter dust collectors and baghouses, cartridge collectors, wet scrubbers for particulate collection, retractable dustless bulk loading spouts, and aftermarket parts for their own and competitors' dust collectors. Sly has been a privately owned company since 1874 and manufactures equipment in their own facility located in Mathiston, MS. Sly specializes in customized applications solutions employing a variety of technologies to meet any user's specific requirements. All products are engineered and fabricated to order.

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AIR POLLUTION CONTROL