

Case Study

BHA® ThermoPleat® Filter Elements

US steel producer solved poor Melt Shop ventilation and avoided a new baghouse purchase by replacing filter bags and cages.

Challenge:

The plant's Desulfurization Station and Melt Shop were both vented by a three-compartment Amerex™ pulse-jet baghouse with polyester felt bags. The system had can velocity (the gas speed between filters) considerably above levels recommended for metallurgical fume applications. Because high can velocities prevent efficient on-line cleaning, off-line pulsing of compartments was required.

When one compartment went off-line to clean, the two remaining on-line received full gas volume. Can velocities nearly doubled during cleaning, forcing fine particulate deep into the felt and accelerating filter blinding. Consistently high differential pressures (8" w.c., average) restricted process airflow, causing ventilation problems in the Melt Shop area.

At the same time, a new baghouse was being considered to provide an additional 40,000 CFM of airflow to vent the Kish/Ladle Transfer Station.

Solution:

Parker Hannifin recommended replacing the filter bags with alternating rows of 1- and 2-meter BHA PulsePleat filter elements, more than doubling the total filter area in the collector and creating a 64" dropout chamber below the elements to help reduce gas velocities.

Results:

- The dropout space below the shorter BHA PulsePleat filters significantly reduced can velocity, allowing on-line cleaning and reducing potential for filter damage.
- Differential pressure was significantly lowered, and ventilation of the Melt Shop was improved.
- With more than twice the total filtration area, and air-to-cloth ratio reduced to 2.3:1, the existing collector gained the air volume capacity to vent the Kish/Ladle Transfer Station without the purchase of a new baghouse.

