

CASE STUDY



Commercial Kitchen Ventilation (CKV) Scrubber for Fryer Application

Customer Overview

Herr's Snack Foods - a nationally recognized leader in the snack food industry - is a family-owned company and has built a reputation for crafting high-quality chips, pretzels, and other savory favorites enjoyed across the country. With a strong commitment to innovation, sustainability, and community values, their operations blend traditional recipes with modern production standards to consistently deliver exceptional flavor and freshness in every bite.

SERVICES PROVIDED:

Turn-key delivery including site evaluation, custom system design, fabrication, installation, performance testing, operator training, and ongoing support.



Project Overview

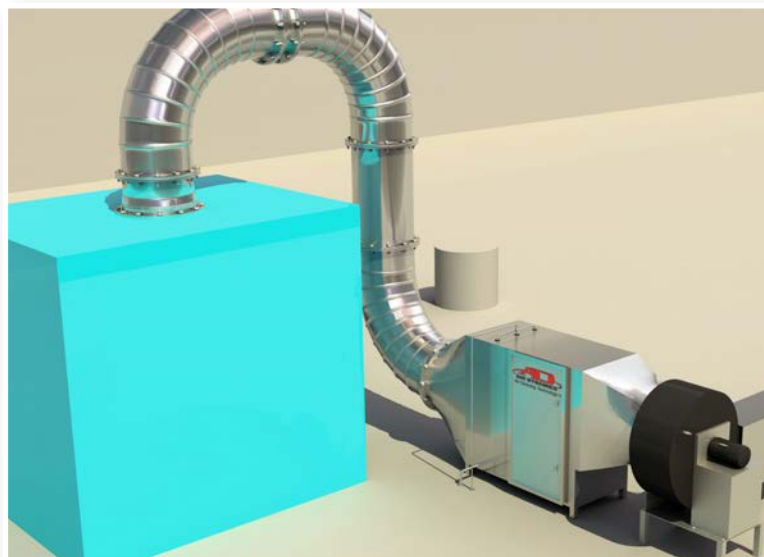
Air Dynamics was contracted by **Herr's Snack Foods**, a nationally recognized producer of chips, pretzels, and snack foods, to resolve a fryer emissions issue at their Lancaster, Pennsylvania facility. The site, located in the Susquehanna River Valley—a designated EPA "non-attainment area"—required a pollution control system to reduce fryer emissions to meet federal regulations.

The Challenge

Herr's faced a critical compliance issue: one of their fryers was emitting **1.0 lb/hour** of airborne oil and grease pollutants—**exceeding the EPA limit of 0.75 lb/hour**. The client also requested a solution that was:

- Compact and easy to maintain
- Cost-effective in both capital and operational expenses

Air Dynamics was referred by an environmental testing firm familiar with their past success in similar applications.



Air Dynamics Rendering of Scrubber System

The Solution

Air Dynamics applied its turn-key design process—from concept through fabrication and installation—beginning with a site evaluation and pollutant analysis.

Three solution paths were explored:

- 1. Regenerative Thermal Oxidizer (RTO)** – Effective but cost-prohibitive, requiring a 200 HP motor and extensive natural gas infrastructure.
- 2. Cyclonic Scrubber** – Lower cost but still material-heavy and energy intensive.
- 3. Custom Horizontal CKV Scrubber** – The chosen solution.

Air Dynamics designed a **compact, horizontal scrubber** only 4 feet tall with a top-access maintenance hatch and **15 HP motor**. Key features included:

- **Integrated Clean-in-Place (CIP) system** for automated internal cleaning
- **Efficient material usage**, lowering capital cost to ¼ of the RTO
- **Minimal energy draw**, reducing operational costs



The Results

The custom-engineered CKV scrubber system delivered by Air Dynamics exceeded all project expectations. Designed to meet EPA regulations and client requirements for size, efficiency, and cost, the system achieved outstanding performance metrics while minimizing long-term operational demands. Most notably, the scrubber reduced pollutant output far beyond the required threshold—delivering measurable environmental impact, cost savings, and maintenance ease.

Key Results:

- **70% reduction in fryer emissions**, lowering output from 1.0 lb/hr to just **0.3 lb/hr**
- **40% greater efficiency** than initial design estimates
- **Energy savings** achieved with a compact 15 HP motor, replacing larger, costlier alternatives
- **75% lower capital cost** compared to the government-recommended RTO solution
- **Zero unplanned maintenance** reported after one full year of operation, thanks to integrated Clean-in-Place (CIP) system
- **Improved operational uptime** with minimal manual intervention and user-friendly design

This successful project highlights Air Dynamics' ability to deliver high-impact, custom solutions that balance environmental compliance, technical performance, and client-driven priorities.