

## Simulation Provides Deeper Understanding of Intuitively-Designed Pet Food Dryer

Wenger Manufacturing, Inc. is a privately held corporation, headquartered with plant and corporate offices in Sabetha, Kansas, U.S.A. Wenger has approximately 25,000 square meters of manufacturing facilities located in Sabetha devoted to various manufacturing operations, specializing in state-of-the-art commercial extrusion and drying systems.

### TECHNOLOGY USED

Consulting Services

### CHALLENGE

Wenger engineers designed a vertical cascade dryer based on intuition and wisdom. In such driers, wet pet food and other foodstuffs enter at the top of the dryer, heated air is used to remove moisture, and the dried food exits at bottom. The dryer is being used successfully by many pet food manufacturers, yet the engineers had a limited understanding as to why it worked so well. Additionally, they were seeking better methods to design their next-generation dryer. Wenger's challenges were to:

- gain a better understanding of the operation of their current dryer to assist them in marketing, specifying, applying and servicing it
- overcome the physical measurement limitations inherent in traditional dryer design, which involve time- and labor-intensive procedures
- gain a higher level understanding of the flow of gases, liquids, particles and heat involved in the dryer operation
- eliminate the need for long and expensive build and test cycles to optimize the design

### SOLUTION

Using CFD software, our consulting engineers:

- used a solid model of the design developed using Pro/ENGINEER® from PTC
- imported the geometry into the preprocessing software package, GAMBIT®, to prepare it for analysis

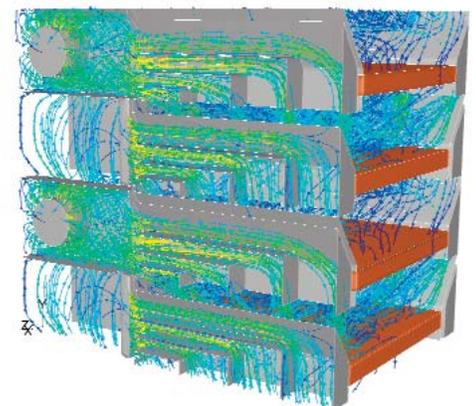
### RESULTS

The results of the analysis helped Wenger:

- gain a deeper understanding and quantify the consistently superior performance of the existing design
- streamline the process for developing the next-generation dryer by quickly evaluating alternative configurations via simulation rather than physical prototyping
- gain actionable information faster and at a lower investment than purchasing CFD software and training in-house specialists

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Pathlines showing airflow through the drying chambers



### COMPANY INFORMATION

Country: U.S.A.

Industry: Manufacturing equipment



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### KEY IMPACTS

- Quantified design features that made their products perform consistently and effectively
- Developed streamlined process for next-generation dryer
- Received fast results by using CFD consultants to manage the project