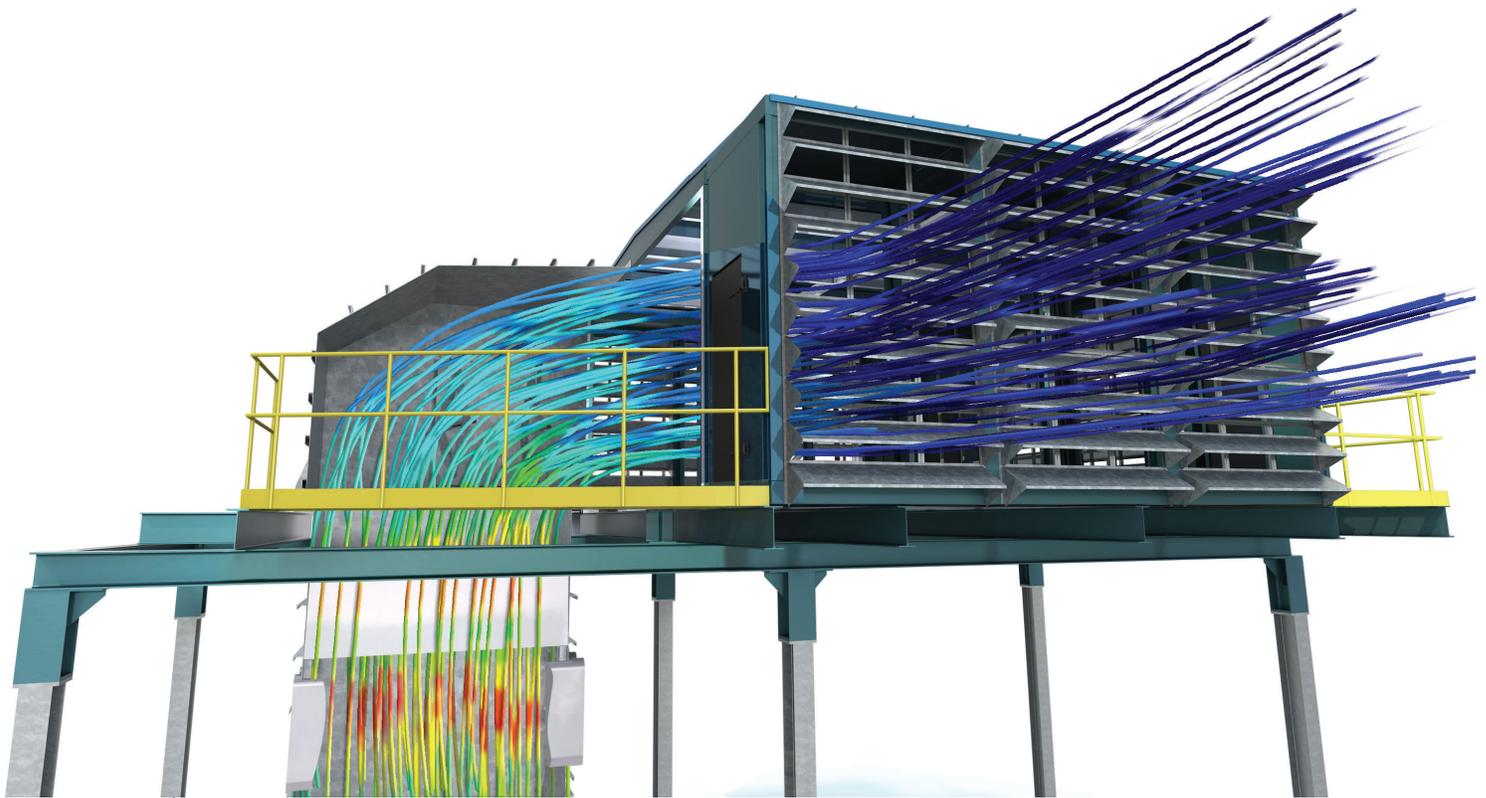


# OPTAR TECHNOLOGIES LTD.

## GROWING AIR INTAKE FILTER HOUSING CONSULTANCY WITH SOLIDWORKS SOLUTIONS



By adding SOLIDWORKS Simulation analysis and SOLIDWORKS Flow Simulation fluid flow analysis software to its SOLIDWORKS Premium design solution, Optar has reduced the time and costs of design simulation and validation, while improving the performance of its air intake filter housing designs, running studies like the fluid flow analysis shown here.

### **Challenge:**

Acquire tools for developing innovative, cost-effective solutions to the many design and engineering challenges associated with the development of air intake filter housing systems for a variety of applications.

### **Solution:**

Implement SOLIDWORKS Premium design, SOLIDWORKS Simulation (FEA) analysis, SOLIDWORKS Flow Simulation (CFD) analysis, and SOLIDWORKS Enterprise PDM product data management solutions.

### **Benefits:**

- Saved a customer four weeks and £5 to 10K with flow simulations
- Reduced time and costs required to perform simulations
- Achieved ISO 9001 certification renewal
- Grew its engineering services business

Optar Technologies Limited specializes in the design and manufacture of air intake filter housings and systems for rotating machinery, compressors, and turbines. Founded in the United Kingdom in 2005 to supply and install gas turbine air intake filters for international energy companies, the design and engineering consultancy leverages its traditional strengths in large power station projects to also work on air intake systems for a variety of smaller applications.

In order to offer a complete set of engineering services, including design, engineering, validation, project management, and manufacturing services, the firm needed to utilize advanced design, simulation, and product data management (PDM) tools, according to Managing Director Andrew Thomson. Optar acquired SOLIDWORKS® Premium design software in 2008, and while the software enabled the consultancy to perform design modelling, Optar had to rely on outside partners to perform the structural and fluid flow analyses that are frequently required for air intake filter housing projects.

Although using external resources to perform design simulation and validation was adequate, the practice added unnecessary delays and costs to the process and negatively affected the firm's pricing and competitiveness. To eliminate these additional costs and delays, Optar decided to bring design simulation and validation in-house, and began evaluating both structural and fluid flow phenomena with computational fluid dynamics (CFD) and finite element analysis (FEA) software solutions. The consultancy also needed an automated PDM system to satisfy the requirements of its ISO 9001 certification renewal.

Because of the positive experience that Optar had with SOLIDWORKS Premium design software, the firm chose to add SOLIDWORKS Simulation analysis and SOLIDWORKS Flow Simulation analysis software in 2012, and SOLIDWORKS Enterprise PDM (EPDM) software in 2013. Optar selected SOLIDWORKS solutions because they are easy to use, provide all required capabilities, and are completely integrated. "It was

a natural thing for us to go from using SOLIDWORKS design to using the SOLIDWORKS Simulation and PDM packages," Thomson says.

### **SAVING TIME AND MONEY THROUGH IN-HOUSE SIMULATIONS**

Since adding SOLIDWORKS Simulation and SOLIDWORKS Flow Simulation software, Optar has reduced the time and costs of design simulation and validation by bringing the processes in-house, as well as improved the performance of its air intake designs. For example, on a 720 MW power station project, simulations proved that an Optar design increased 0.1-micron particulate filtering efficiency for unburnt hydrocarbons from 15 percent to 90 percent.

In addition to eliminating unnecessary delays and costs at Optar, bringing simulation capabilities in-house is saving the firm's clients money. "We supplied an inertia separator to a client," Thomson recounts. "They issued the order and then came back with some further information on the anti-icing system. We were able to run a thermal and fluid flow analysis with SOLIDWORKS Flow Simulation within 24 hours to confirm that the product supplied would work and that the anti-icing would have no hot or cold spots on the separator vanes. This saved us and the customer up to four weeks in external review and £5 to 10K in assessment costs, and kept the project on-time and on-budget."

**"SOLIDWORKS is absolutely fantastic. Not only are we controlling the design of the products but we are also controlling the manufacture."**

— Andrew Thomson, Managing Director

### **EFFECTIVE MANAGEMENT OF PROJECT DATA**

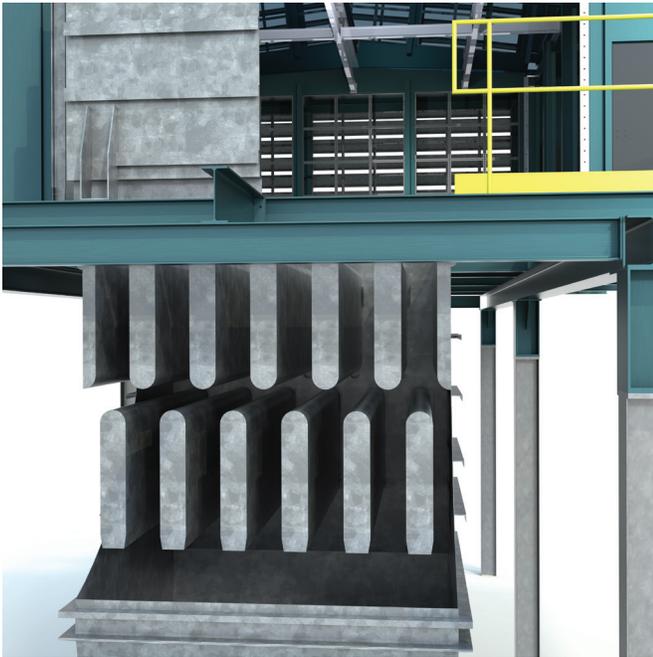
Optar has realized similar benefits from its implementation of the SOLIDWORKS EPDM system. The firm had formerly managed files using only Microsoft® Windows® Explorer tools, an approach that was inadequate for renewing its ISO 9001 certification. SOLIDWORKS EPDM has proven to be a powerful and flexible tool by managing everything from design documents to holiday request forms. It has also helped cut down on administration time to release staff for manufacturing or customer-facing duties.

"The training opened my mind as to what SOLIDWORKS EPDM could do," Thomson recalls. "The capabilities of the system exceeded all our expectations. In addition to controlling the SOLIDWORKS documents, it completely controlled Microsoft Office documents too. SOLIDWORKS is absolutely fantastic. Not only are we controlling the design of the products but we are also controlling the manufacture."

## ACHIEVING ISO 9001 CERTIFICATION RENEWAL

To renew its ISO 9001 certification, Optar needed to have implemented a document management system with strict file-naming conventions, version and revision controls, and formal workflows for handling design and engineering change requests. As part of its renewal of its ISO 9001 certification, Optar rewrote all of its procedures and quickly realized that an easy-to-use automated PDM system was essential for supporting quality management.

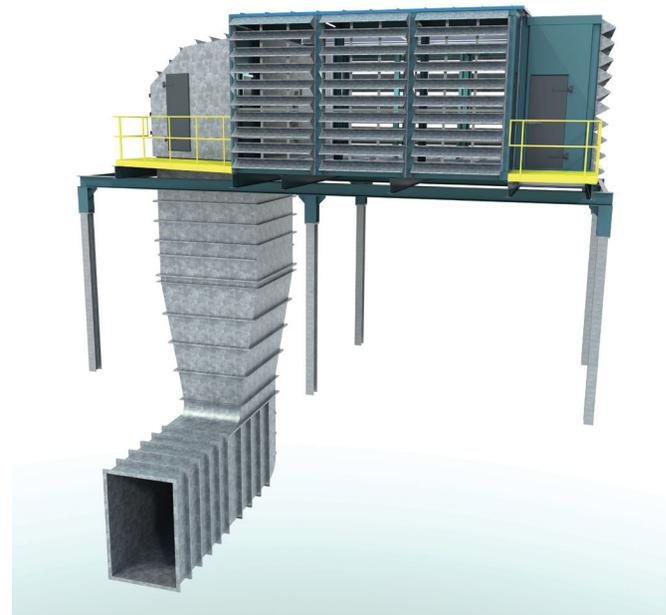
Following Optar's implementation of the SOLIDWORKS EPDM system, the firm easily achieved its ISO 9001 certification renewal. In fact, the official ISO assessment group commented, "Of particular note is the development and utilization of the SOLIDWORKS [EPDM] software package for the document control and approval processes. The system demonstrated a solid foundation to manage the company documentation efficiently."



**Focus on Optar Technologies Ltd.**  
VAR: Cadtek Systems Limited, Bristol, U.K.

**Headquarters:**  
Unit 12 and 13 Springfield Business Centre  
Brunel Way, Stonehouse  
Gloucestershire, GL10 3SX  
U.K.  
Phone: +44 (0)1453 824887

**For more information**  
[www.optar.co.uk](http://www.optar.co.uk)



With SOLIDWORKS Premium design software, Optar has improved design visualization of its systems, and the addition of the SOLIDWORKS Enterprise PDM product data management system enabled Optar to more effectively manage design data and more easily renew its ISO 9001 certification.

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