

PRESS RELEASE

Exa Releases PowerFLOW 4.2, Features True Rotating Geometry for Prediction of Fan Noise & Brake Cooling, Improved Accuracy & Turnaround Time

BURLINGTON, MA, USA [November 18, 2009]—Exa® Corporation, a global innovator of fluids simulation (CAE/CFD) software for product engineering, announces a new release of its flagship product, PowerFLOW®. PowerFLOW 4.2 simulates true rotating geometry – an industry breakthrough that enables practical and accurate prediction of fan noise, fan performance, brake cooling and wheel aerodynamics. In addition to improved accuracy and simulation process turn-around time, PowerFLOW 4.2 also offers the ability to simulate long-term transient thermal protection situations such as key-off and soak.

Since its inception, Exa Corporation has been committed to the seamless integration of simulation and analysis into the engineering process. This new release continues the mission and offers capabilities that further enhance accuracy and overall turn-around time. “With PowerFLOW 4.2 and true rotating geometry, not only are we handling real-world applications that were not practically possible before, but we are also providing tools, templates and physics improvements that streamline the simulation process, enabling product performance analysis to be performed at the very earliest stages of design,” commented Charles Alexander, Exa’s Director of Product Management for Simulation Products.

True rotating geometry, frequently called ‘sliding mesh’ by the simulation community, simulates the actual movement of arbitrary geometry during the course of the simulation. “PowerFLOW is an inherently transient simulator,” remarked James Hoch, Exa’s Vice President of Software Development. “Updating the position of the geometry at each time-step is a natural extension of the core technology, resulting in very accurate prediction of the fluid flow in and around rotating geometry.”

PowerFLOW 4.2 Overview

This newest Exa release adds functionality that not only extends the simulation capabilities of PowerFLOW, but when coupled with complementary products such as PowerTHERM® and PowerACOUSTICS™ also improves aerodynamic, aeroacoustic and thermal results.

- ◆ **True Rotating Geometry.** PowerFLOW 4.2 further extends Exa’s leadership in simulation technology by offering the first practical and accurate simulation of the actual movement of rotating components. True rotating geometry enables prediction of the noise and performance of HVAC and cooling fans. It also improves accuracy for any application that has rotating components, especially those transient in nature such as brake cooling and wheel aerodynamics.

PowerFLOW 4.2 offers an easy-to-use case setup for true rotating geometry as well as built-in support for visualization of results showing the geometry rotating.



- ◆ **Long Term Transient Simulations.** PowerFLOW 4.2, an inherently transient solver, coupled with Exa's PowerTHERM, now allows for the simulation of minutes or even hours of real time for the accurate prediction of critical thermal cool-down conditions such as key-off and soak.
- ◆ **Accuracy.** In addition to the accuracy benefits realized with true rotating geometry, PowerFLOW 4.2 offers an improved turbulent thermal wall model and porous media physics for enhanced precision and robustness in these extremely complex simulations.
- ◆ **Turnaround Time.** Exa continually works to streamline the engineering simulation and analysis process. Exa has now published validated design study best practices using reduced resolution runs that dramatically reduce the time and compute resources required. With PowerFLOW 4.2 extensive turnaround time enhancements are included, such as: application specific case templates—a sophisticated automated case setup capability which allows capture and re-use of company best practices; enhanced cluster/queuing support; automatic coarse-to-fine seeding capabilities; and real-time volume visualization.

About Exa Corporation

Exa Corporation develops, markets, and supports a suite of fluids simulation software solutions including PowerFLOW, PowerACOUSTICS™, PowerDELTA™, PowerCLAY®, PowerVIZ®, PowerSPECTRUM®, PowerCOOL® and PowerTHERM along with professional engineering consulting services. Exa's products and services enable engineers to create competitive designs, while shortening product design cycles, and speeding time-to-market. A partial customer list includes: AGCO, BMW, Chrysler, Ford, Hyundai, Kenworth, MAN, Nissan, Peterbilt, Porsche AG, Renault, Scania, Toyota, Volkswagen, and Volvo Trucks.

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