



INTEGRATED
ENGINEERING SOFTWARE

www.integratedsoft.com

AMPERES

3D Magnetic Design Software

For many systems, it is important for multiple solvers to be combined. INTEGRATED develops comprehensive solutions for scientists modeling prototypes that require multidisciplinary analysis.

Each INTEGRATED package is designed for solving specific problems. AMPERES is a 3D magnetic field solver package and that is all that it does. I was looking for a package that would let me model magnets in 3D space and analyze the forces on that model. The way AMPERES does that is very simple and it is easy to get your head around. I was up and running in a couple of days."

— Andrew Hilton, School of Mechanical, Materials and Manufacturing Engineering, The University of Nottingham

AMPERES, a three-dimensional magnetic field solver from Integrated Engineering Software, delivers superior design capabilities in one fully integrated package.

AMPERES greatly expands your design potential and allows you to simulate and optimize electromagnetic components and systems before the manufacturing stage. Avoid building multiple prototypes. Lower your development costs and times. Reach the market faster than ever before. Select the best analysis method for your application; **AMPERES** provides both **Finite Element Method (FEM)** and **Boundary Element Method (BEM)** solvers, and includes **full parallel processing** as well as Application Software Interface (API) capability.

Design engineers depend on **AMPERES** for the design and analysis of magnetic equipment and components including:

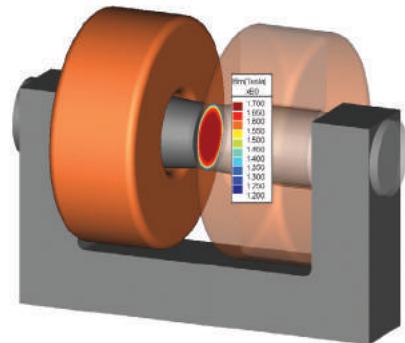
- electromagnet and permanent magnet assemblies
- motors and generators
- solenoids, relays and actuators
- sensors
- magnetic shielding
- particle accelerator magnets
- magnetic levitation and bearing systems
- magnetizing fixtures
- recording heads

Quick, productive... you're up and running in no time

AMPERES maximizes productivity by allowing for the simulation of virtual prototypes on the computer. **AMPERES** significantly reduces design and prototype costs and provides engineers far greater insight into design optimization and verification.

Hybrid Simulation Tools for Electromagnetic and Particle Trajectory Design Analysis

**SOFTWARE THAT LIVES UP
TO THE POWER OF YOUR IDEAS**



Electromagnet used in a wide range of teaching, research and industrial applications where a medium sized volume of field is required – Courtesy of GMW



Computational analysis of electromagnetic drive system in a Left Ventricular Assist Device (LVAD) – Courtesy of University of Nottingham

AMPERES key capabilities

- **3D magnetic field solver** for a diverse range of applications
- **BEM and FEM solvers** available in the same package, to provide maximum versatility
- **Design optimization by powerful parametric solvers**
- **API interface** for customized script controlled applications
- **Full parallel processing**
- Coupling to Celsius for **thermal analysis**
- Industry standard **CAD import/export utilities**
- **Easy to use**
- Excellent graphic presentation
- Comprehensive **technical support services** from the best in the industry

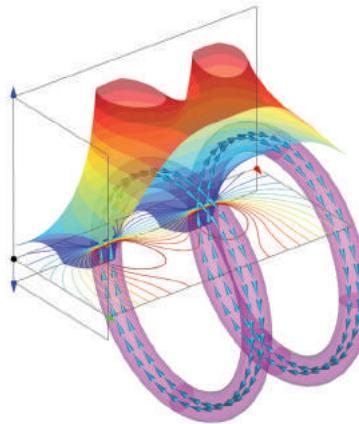
PUT OUR SOFTWARE TO THE TEST

Send us your model, whatever the level of complexity. **We will show you how to get results from your exact design** – no packaged demos.

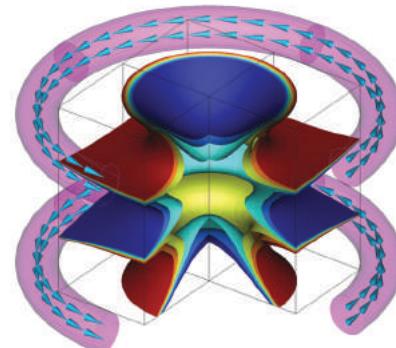
Contact us for an evaluation and start improving productivity today. A live demo is also available.

Visualize, Analyze, Optimize

AMPERES provides outstanding visualization features for detailed analysis of magnetic systems. Automated model creation using built-in **API, Scripting Capability** and **Parametric Utilities**, combined with **Self-Adaptive BEM** and **FEM** solvers, enable rapid optimization of designs.



3D Model of Helmholtz Coils showing Profile and Contour Plots of axial component of B Field



3D Model of Helmholtz Coils showing Isosurfaces Plots of axial component of B Field

AMPERES comes complete and ready to use. No need to purchase additional modules or options; **AMPERES** is a fully functional CAE tool. A partial list of **AMPERES'** standard features includes:

- Intuitive and structured interface maximizes productivity for experts and beginners
- Static and phasor analysis modes
- Simulation of non-linear ferromagnetic and permanent magnet materials
- Simulation of lossy magnetic materials
- Force, torque, flux linkage and inductance calculation
- Periodic and symmetry features minimize modeling and solution time
- A variety of display forms for plotting scalar and vector field quantities including graphs, contour plots, arrow plots, profile plots and vector loci plots
- High quality graphics and text utility for preparation of reports and presentations
- Data exportable to formatted files for integration with spreadsheets and other software packages
- Batch function allows unattended solution of multiple files
- Powerful parametric feature allows definition of variable parameters to be stepped through allowing the analysis of multiple "what-if" scenarios and facilitating design optimization
- A wide array of post-processing options for design evaluation and optimization
- Self-adaptive meshing or optional user refinement
- CAD healing utilities for automatic correction of drafting errors
- Large library of permanent magnet and ferromagnetic materials; additional materials can be easily added

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