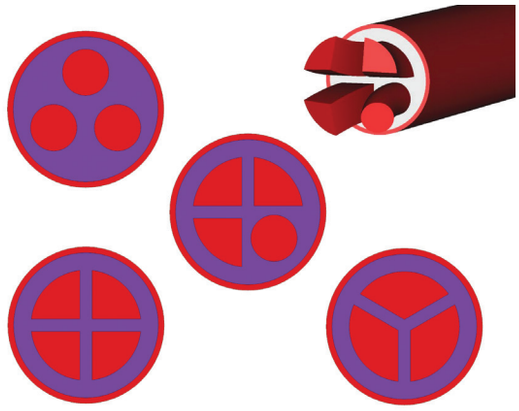
INTEGRATED ENGINEERING SOFTWARE

www.integratedsoft.com

CABLES

Power Line Analysis Software

Developed in collaboration with Manitoba HYDRO INTERNATIONAL the **CABLES** suite analyzes irregular, asymmetrical and non-symmetrical transmission line structures and models consisting of long parallel wires, sheaths and insulation. **CABLES** solves electric line parameters such as capacitance, eddy currents and electric field strength. **CABLES** facilitates consideration of proximity effects when computing line and cable properties, providing the frequency dependent impedance matrices for the user. The results can be output to a proprietary file format used by PSCAD for importing cable properties, or exported to a text data file for further analysis.



*Sample transmission line cross sections in **CABLES***

Hybrid Simulation Tools for Electromagnetic and Particle Trajectory Design Analysis

SOFTWARE THAT LIVES UP
TO THE POWER OF YOUR IDEAS

WE GO BEYOND TRADITIONAL MULTIPHYSICS:

CABLES

- Precise calculation of electrical parameters using our proprietary **Boundary Element Method (BEM) solvers**.
- **Finite Element Method (FEM) in addition to BEM**. This hybrid approach uses the strengths of each method, while designing an electromagnetic system.
- Built in API, Parametric and/or Scripting capabilities.

The **INTEGRATED API** enables the direct control of program functions by utility scripts or macros created in tools such as EXCEL or Visual Studio. Scripting can control the entire process of model creation and testing.

- Direct import of models from CAD Partners including:
  - Autodesk, PTC, Solid Edge and SolidWorks.

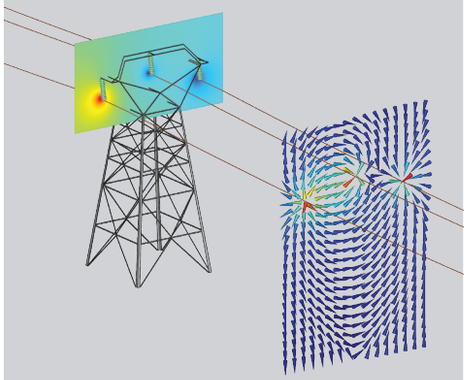
MORE BENEFITS:

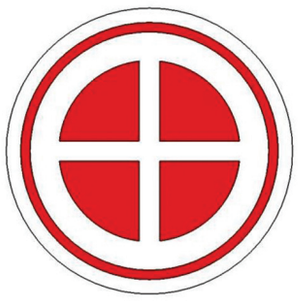
- Easy-to-use and intuitive interface.
- High resolution 3D graphic representations that can show enhanced tracing of points on your model.
- Automatic meshing and removal of intersecting geometries.
- World class support team ready to unlock your ideas.

MATLAB Enabled
MathWorks Partner

CABLES

INTEGRATED develops comprehensive solutions, with combined solvers for engineers who model prototypes that require Multiphysics analysis.





Standard copper cable cross-section

COMPLETE SOLUTIONS FOR ENGINEERING AND SCIENTIFIC DESIGN

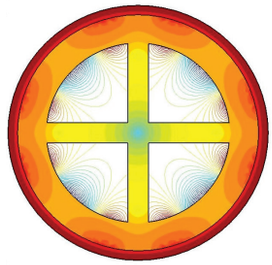
PUT OUR SOFTWARE TO THE TEST

Don't take our word for it.

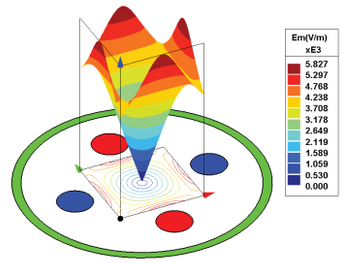
Contact us for an evaluation. Ask for a live demo.

Visualize, Analyze, Optimize

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



CABLES *– Contour plot in regions*



Quadrupole field from anti-symmetric voltage assignment in a cable

The CABLES suite has been developed offering a *modular* approach, for customization and ease of use.

- **CABLES Basic –** Electric Line Parameters Calculation
- **Electrostatic Module –** Electric field strength, Force, Torque, Transmission line parameters and Capacitance.
- **Eddy-Current Module –** Magnetic field analysis, Induced voltages, Displacement current, Flux linkage, Induced voltage, Power, impedance and Currents.

A partial list of fully loaded features include:

- Simulation of non-linear conductivity and permittivity
- Ability to assign constant or non-uniform charge distributions to surfaces
- Electrostatic force and torque calculations
- Transmission line parameter and capacitance calculations
- A variety of display forms for plotting scalar and vector field quantities including graphs, contour plots, arrow plots, profile plots, streamline plots and vector loci plots
- Ability to model voltage excitation and back EMF effects of coils and windings
- Calculation of true AC resistance due to skin and proximity effects
- Variety of refine wave forms available, such as sinusoidal sources with the DC offset and various square wave and triangular pulses
- Solution of current induced in conductors and skin effect current impressed in conductors
- Force, Torque, Flux linkage, Induced Voltage, Power and Impedance Parameters
- Intuitive and structured interface maximizes productivity for both experts and beginners
- Transient, phasor and static analysis modes
- Display forms for plotting scalar and vector field quantities include: graphs, contour plots, arrow plots, profile plots and vector loci plots
- Data exportable to formatted files for integration with spreadsheets and other software packages
- Batch function allows unattended solution of multiple files
- Powerful parametric feature facilitates design optimization

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