






















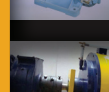





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	<b>Brush Motors</b>		<b>Eddy Current Retarder</b>		<b>MRAM Memory</b>		<b>Magnetic Actuators</b>
	<b>Induction Motors</b>		<b>Transformers</b>		<b>Induction Heating</b>		<b>High Power Capacitors</b>
	<b>Transient Eddy-Current Systems</b>		<b>Magnetic Levitation</b>		<b>Step Motors</b>		<b>RF MEMS Switches</b>

**www.emworks.com**

**System requirements**

- Autodesk® Inventor® professional 2013 or higher
- Microsoft® Windows (64-bit Version) XP, Vista or 7
- Intel® or AMD® based Desktop or Laptop
- 6 GB RAM Memory or greater
- Pointing device
- DVD drive

**ElectroMagneticWorks, Inc.**  
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H8N 2H1 CANADA  
  
Phone (514) 634-9797  
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sales@emworks.com



Looking for **ElectroMagnetic Simulation** inside Inventor®?  
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Introducing  
**EMS**  
for Autodesk® Inventor®

**Motors**

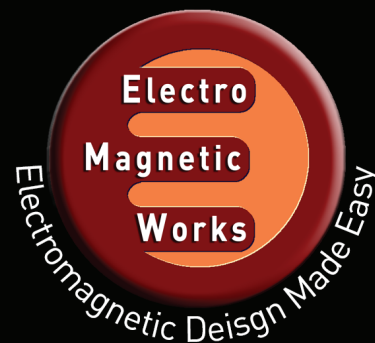
**Transformers**

**Generators**

**Induction Heating**

**Bushing**

**Magnetizing**



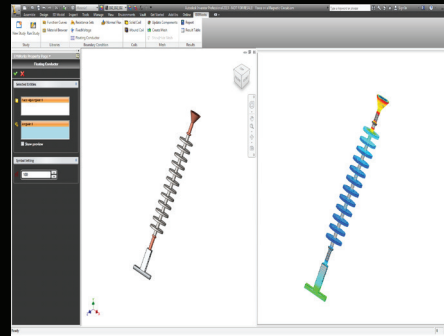
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# THE ORIGINAL ELECTROMAGNETIC SIMULATION PACKAGE DEVELOPED EXCLUSIVELY FOR AUTODESK® INVENTOR® USERS

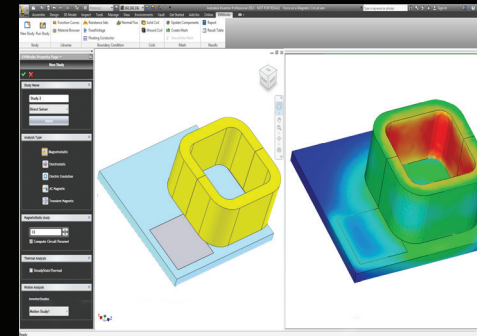
## ELECTROSTATICS

Does your design require careful attention to dielectric breakdown or electronic discharge issues? Are corona effects of interest/concern to you? Are you worried about sparking and grounding? Do you work on linear or circular particle acceleration? Is the success of your MEMS design hinging on the proper electrostatic actuation? What about proper shielding of circuits and cross-talk among transmission lines?



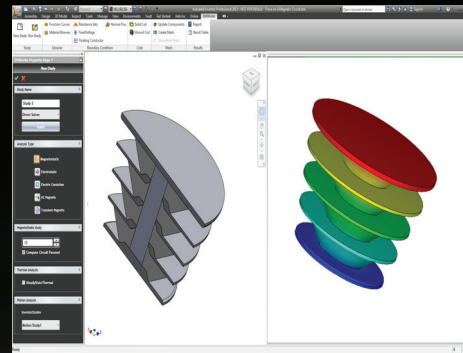
## AC MAGNETICS

Does your design require you to reduce Eddy current losses for better efficiency? Do you need to minimize skin effects in solid coils? Is your AC motor design limited by ripples, vibration and noise? Is minimizing flux leakage and leakage inductance in your transformer of importance to you? How to optimize coil design to build better metal detectors and non-destructive testing equipment?



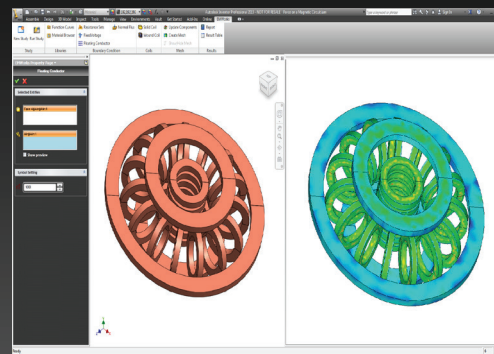
## CONDUCTION

Will your system require protection against overvoltage conditions? Do you need to sense/measure current flow in your device? Do you have the right resistance value at the proper location? What is the impact of the conductivity on your power budget? Will power dissipation require you to review your thermal management plans? Are you working with biological tissues and need to accurately model their electric behaviour?



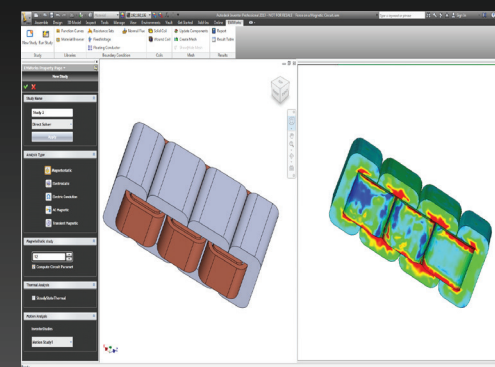
## MAGNETOSTATICS

Are you concerned about magnetic saturation? Do you need to minimize the cogging torque? Do you want to optimize torque and minimize driving current? Are you worried about brush wear? How much force and torque can you get from your solenoids without overheating their windings? Is it possible for you to lower weight and cost by trimming excess material from ferromagnetic cores?



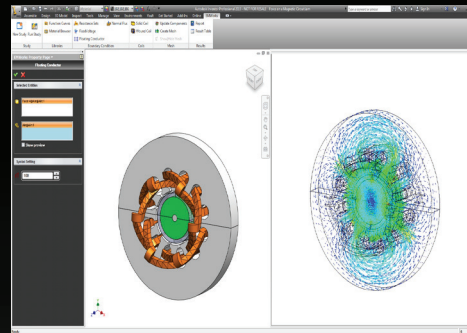
## COUPLED THERMAL

What heat generation will power dissipation cause? How much temperature rise will this lead to? Is a heat sink needed? Is active cooling required? Where are the heat spots in the design? What is the temperature distribution throughout the model? Do you have fire safety and security concerns? Will your design meet UL norms? What design changes are required for better thermal management?



## TRANSIENT

How will your design respond to a power failure or a switch-off? Will it withstand a pulsed power surge? How do your nonlinear materials behave under transient conditions? What is the impact of coupled Eddy currents and saturation on your design? Are you working with magnetic heads, pulsed power transformers or electromagnetic launchers?



MANY QUESTIONS  
ONE ANSWER:

**EMS**  
for Autodesk® Inventor®

Versatile ■ Powerful ■ Easy to use

Specify your materials and excitations and let EMS do the rest.

### Materials

- Built-in extensive library
- Linear
- Nonlinear
- User-definable

### Excitations

- Voltages
- Currents
- Charges
- Charge distributions

- Polarization
- Coils
- Magnets
- Pulses

Use EMS's visualization tools to help you gain insight into your design and to validate your work.

### Results: data & visualization

- Voltage distribution
- Electric field
- Magnetic field
- Current distribution
- Heat/Temperature distributions
- Flux density
- Power loss
- Resistance
- Stored energy
- Custom reports

- Capacitance(self/matrix)
- Inductance (self/matrix)
- Flux linkage
- Eddy current
- Torque
- Force

EMS allows you to leverage the full power of Autodesk® Inventor® to bring your design experience to a whole new level.

Because it is fully embedded inside Inventor, EMS allows you to enhance your productivity and your design experience. In this powerful design environment you will be able to:

- Construct complex 3D models in record time.
- Import designs in a wide range of popular CAD formats.
- Exploit advanced visualization and rendering technologies that bring unprecedented realism to your models.
- Generate engineering drawings and CAM-ready files quickly and automatically.
- Shorten product design time and lower design cost.

