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Motor-CAD v6.1 Release

February 2011

Motor-CAD is the leading software package dedicated to the thermal analysis of motors and the optimisation of motor cooling. Motor-CAD enables motor designers to optimise their designs for energy efficiency, size and cost reduction. Motor-CAD provides the crucial link between the electromagnetic design and thermal analysis of motors. It makes it quick and straightforward for non heat transfer specialists to evaluate different cooling options during the design process.

Supported Motor Types:

- Brushless Permanent Magnet Motors
- Induction Motors
- Switched Reluctance Motors
- Outer Rotor Brushless Permanent Magnet Motors
- Permanent Magnet DC Motors
- Synchronous Machines
- Claw Pole Machines
- Single Phase Induction Machines

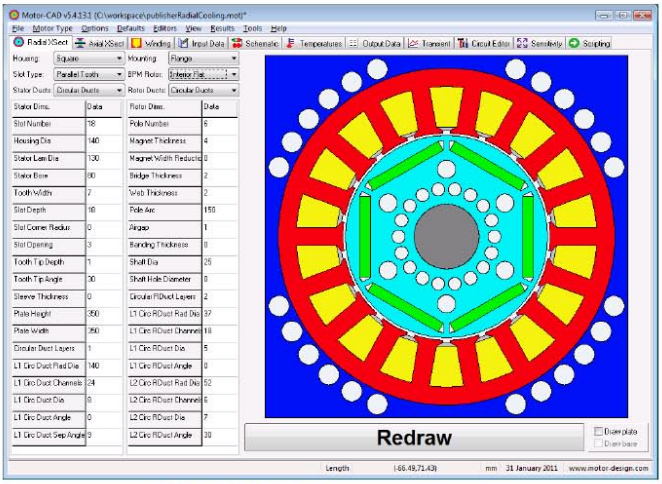
Wide Range of Cooling Options including:

- Natural Convection (Totally Enclosed, Non Ventilated)
- Forced Convection (Totally Enclosed, Fan Cooled)
- Through Ventilation
- Radiation
- Stator Water Jackets
- Rotor Water Jackets
- Wet Rotor and Wet Stator
- Submersible
- Spray Cooling
- Direct Conductor Cooling

Comprehensive Results Analysis including:

- Thermal Equivalent Circuits
- Transient Graphs
- Temperatures Displayed on Cross Sections
- Comprehensive Output Data
- Sensitivity Analysis
- Ability to export results

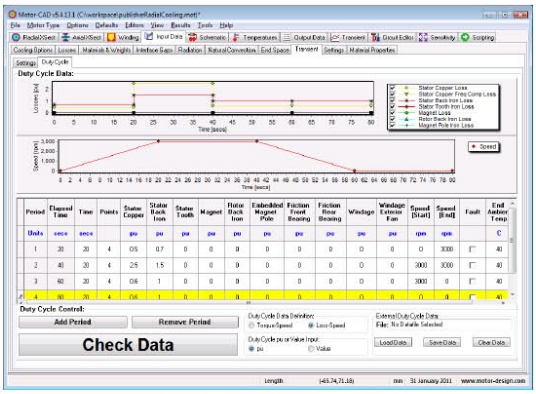
Motor-CAD has a user friendly interface that allows the user to enter the geometry, winding data, losses, materials and cooling details. All the thermal parameters such as convection and radiation coefficients are automatically calculated.



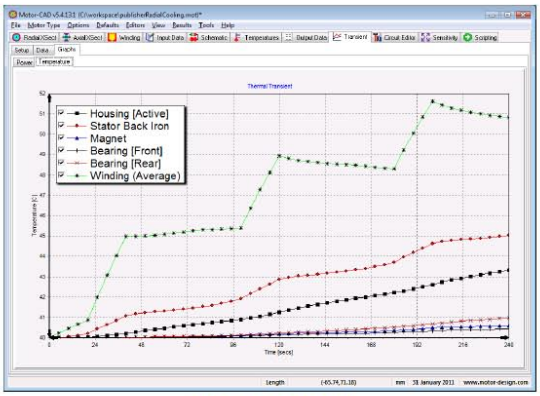
Motor-CAD radial cross section editor

Motor-CAD supports a wide range of Motor Types and has a comprehensive range of cooling options available.

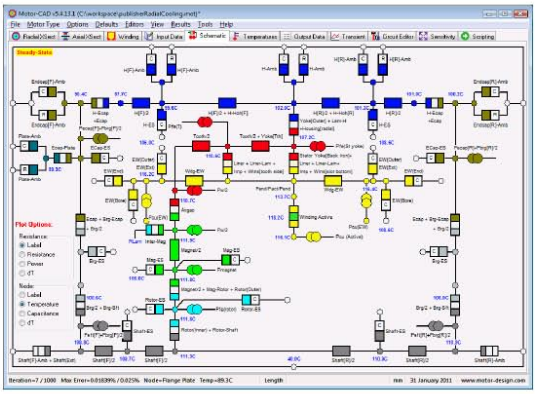
Motor-CAD provides the ability to quickly and easily perform steady state and transient thermal analysis of Electric Motors. The results are presented in an easy to understand form.



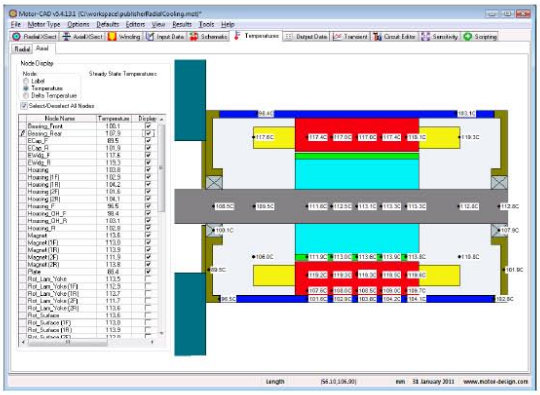
Duty cycle editor



Transient results



Thermal Equivalent Circuit



Temperatures Displayed on Axial Cross Section

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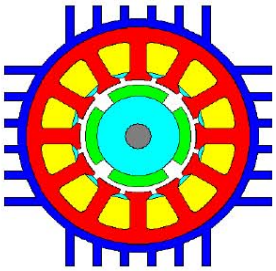
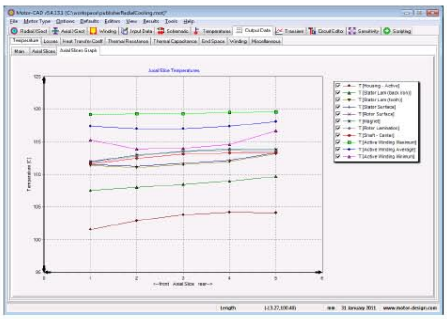


Motor-CAD v6.1 New Features

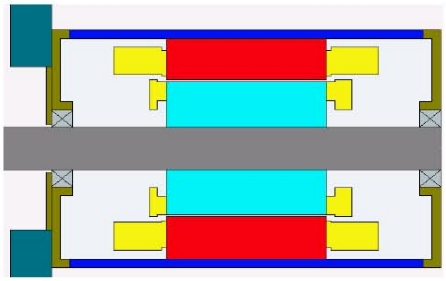
The development of Motor-CAD v6.1 has been driven by the user requirements. There are many new features that will be of interest to existing and new users of Motor-CAD.

A range of new features have been added that include:

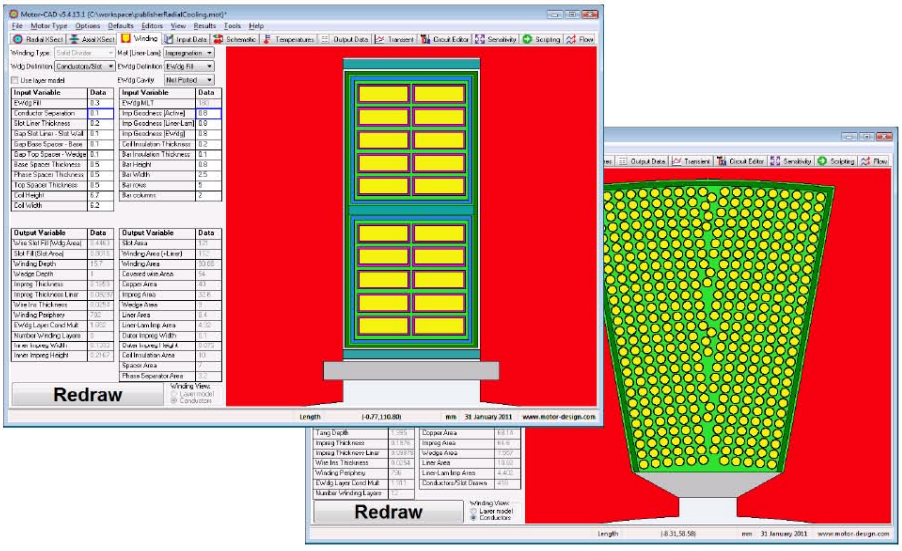
- **Increased geometric options** including additional magnet geometries, improved end ring definitions, stator and rotor ducts.
- **Axial Slice Model** for improved modelling of axial heat transfer in larger machines.
- **Improved models**, including improved end-space, end ring and cooling models.
- **Flow Circuit View** for understanding the flow cooling paths.
- **ActiveX Parameter Search**
- **Improved transient analysis** with faster solving and now possible to view results during transient calculation.



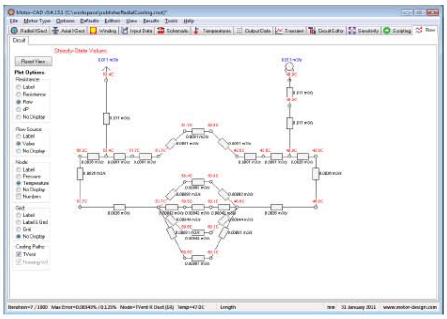
Axial temperature variation results



Increased end ring geometry options



Slot visualization



New Flow Circuit View

The improvements to existing features in Motor-CAD v6 include:

- New Geometries — BPM Interior Magnets, Form Wound Winding Geometry , Slotless Winding Geometry, Rectangular conductors, Housed BPM outer rotor, BPM outer rotor axle mounting, BPM Outer Rotor Single Bearing.
- Fluid Database — with property variation with temperature.
- Improved links to SPEED software — automatic calibration of SPEED thermal models.
- Internal scripting interface.
- Increased graphing options with data logging feature.
- Multi-parametric and linked sensitivity analysis with improved graphing.
- Improved radiation model.
- Improved output data sheets.
- Full Microsoft Windows 7 and Vista support for 32 and 64 bit.

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