



## MOTOR DESIGN LTD

### INTRODUCTION TO MOTOR-CAD

Training course for Engineers involved in the design and manufacture of electric motors and generators

**Goal:** To introduce engineers to the use of Motor-CAD for thermal analysis of motors

**Date:** 2 Day Course on 16<sup>th</sup> & 17<sup>th</sup> June 2009

**Location:** Motor Design Training Rooms, Ellesmere, Shropshire, UK

**Cost:** £650 (40% discount for students and additional attendees from same company)

£1,100 for both Introduction to Motor-CAD and Advanced Use of Motor-CAD Courses (4 days in total)

To book Call +44 (0) 1691 623305 or Email: [info@motor-design.com](mailto:info@motor-design.com)

### DAY 1

#### Motor-CAD in Use and an Introduction to the Calculation Theory Used

##### Motor-CAD: a commercially available lumped circuit program for electric motors

- Motor-CAD package for thermal design of motors and generators
- Motor-CAD and other design software
- software demo
- examples of Motor-CAD in use
- steady-state and transient analysis
- transient duty cycle analysis
- automated links to other software such as SPEED and PORTUNUS
- example of modelling a machine with different cooling types
- questions and answers
- practice with Motor-CAD on the computers

##### Important issues relating to thermal analysis of electric machines:

- losses
- interface gaps
- winding models
- radial and axial heat transfer
- motor mounting
- convection models for complex surfaces
- radiation
- steady state and transient solver types
- transient and duty cycle analysis
- flow network and analysis and pressure drop calculation
- design examples
- questions and answers

### DAY 2

#### Practical Examples of Thermal Analysis using Motor-CAD

- On this training day we use Motor-CAD to model various electrical machines and to demonstrate the relative importance of various heat transfer mechanisms in the machine
- There will be the chance to model the attendees machines
- The attendees will have the opportunity to use Motor-CAD themselves and to contribute suggestions for further design examples that we will try to model on the day