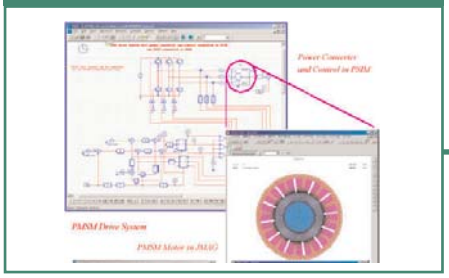
Your European Partner in Power Simulation

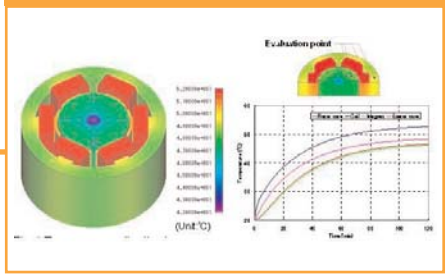
JMAG Software Modules Presentation

Power Electronics Link
RT

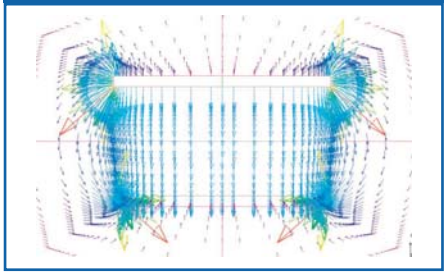


JMAG
CAD link

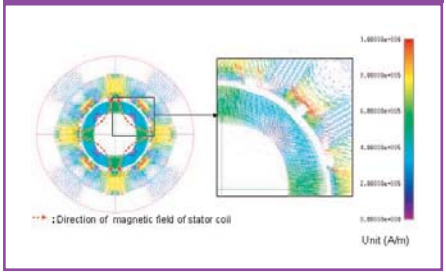
Thermal Analysis
HT



Electric Field Analysis
EL, CB



Magnetic Field Analysis
ST, FQ, DP, TR, RT, CB, LS, Speed, PI, SMP



Structural Analysis
DS

Magnetic Modules

ST - Magnetostatic (Ax/2D/3D)

Magnetostatic analysis in both 2D and 3D. The analysis can include magnetic saturation and permanent magnets.

Outputs:
- magnetic flux
- magnetic field
- magnetization
- leakage flux
- current
- loss
- magnetic force
- lorentz stored energy
- permeance

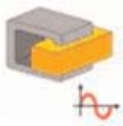

ST 3D

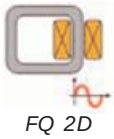

ST 2D

FQ - Time harmonic magnetic (Ax/2D/3D)

Simulates magnetic field induced by an alternating current in both 2D and 3D. Magnetic saturation, hysteresis loop and displacement current can be taken into account. An external circuit may be connected to the FEA model.

Outputs:
- magnetic flux
- magnetic field
- magnetization
- leakage flux
- current
- loss
- force
- stored energy
- voltage
- eddy current
- electric field
- coil inductance
- PM motor inductance

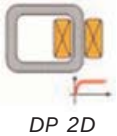

FQ 3D


FQ 2D

DP - Transient magnetic (Ax/2D)

This is the 2D and axi-symetric version of TR. Combines the FEM model with BEM for the air region requiring a mesh only for objects such as the iron cores and coils.

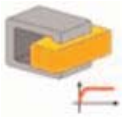
Outputs:
- magnetic flux
- magnetic field
- magnetization
- leakage flux
- current
- loss
- force
- stored energy
- permeance
- voltage
- eddy current
- displacement
- speed
- coil inductance
- PM motor inductance


DP 2D

TR - Transient magnetic (3D)

Provides transient magnetic analysis and covers most of the magnetic phenomena, such as eddy currents and magnetic saturation. Allows motion and an external circuit to be included in the analysis model. For 3D analysis only.

Outputs:
- magnetic flux
- magnetic field
- magnetization
- leakage flux
- current
- loss
- force
- stored energy
- permeance
- voltage
- eddy current
- displacement
- speed
- coil inductance
- PM motor inductance


TR 3D

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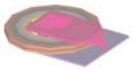
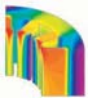
JMAG Software
Modules Presentation

Module	Type		Description	Output
HT		**3D**	Adding the basic features for thermal simulation, this module is specially designed for coupled analysis with other modules. Makes it easy to analyze induction heating system with a magnetic solver.	Temperature Distribution, Heat Flux Vector, Heat Generation Density, Total Amount of Heat Generation, Average Temperature
EL		**3D**	Evaluates the capacitance of devices and insulation effects as well as current distribution for conductors. Also, calculates materials with non-linear permittivity and conductivity, in addition to lossy dielectric materials.	Electrical potential, Electric field, Charge Distribution, Current distribution, Electric force, Loss
DS		**3D**	Analyzes mechanical aspects, such as stress and deformation, of machines and devices. Also calculates sound pressure. Enables the electromagnetic force calculated by the magnetic and electric solvers and thermal load by the thermal solver to be applied to the structural analysis model.	Stress, Displacement, Velocity, Acceleration, Sound level, Sound Pressure, Eigen modes, Centrifugal Force, Vibrations
CAD Connection Module			Pro/Engineer Interface	Solid Model
			3D-IGES Interface	Solid Model
			Catia-V4 Interface	Solid Model
			Catia-V5 Interface	Solid Model
RT			JMAG-RT system is a tool for executing FEM analyses (finite element method analyses) based on JMAG-Studio, and outputting its results in an exclusive form of the power electronics circuit simulator. Required module: TR (3D) or DP (2D)	Behavior model, inductance map
Pi			Calculates total and partial inductances for arbitrarily shaped conductors such as a busbar Required module: FQ (3D)	Frequency characteristic of busbar inductance and resistance
Speed-Link			An interface to the SPEED software, a motor design tool, based on the magnetic circuit method. This tool generates a ready to run FEA model from the SPEED model automatically. Required module: DP (2D)	FEA model
CB			Enables the magnetic flux and electric field distribution in air regions to be obtained with a high resolution. An integral method employed allows the accuracy to remain unaffected by the mesh in the air. Useful for applications requiring accurate field distributions, such as sensors, magnetic recording head, magnetic field air gap. Required module: ST (2D) or FQ (2D) or TR (3D) or DP (2D) or EL (3D)	Magnetic flux, electric field
LS			The iron loss analysis tool makes it possible to determine hysteresis loss and eddy-current loss from the results of magnetic field analysis. Stress dependence is another factor that can be taken into account. Required module: ST (2D) or FQ (2D) or TR (3D) or DP (2D)	Hysteresis loss, Joule loss, eddy current density
SMP			SMP means "Symmetric Multi Processing". With this module, 2 CPUs on the same machine (e.g. a Dual Core machine) and sharing the same memory are used to increase the calculation speed. Required module: ST or TR or FQ or DP	

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