



Material data libraries in QuickField

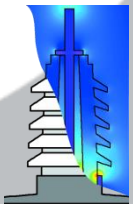
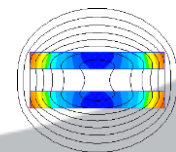
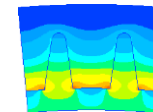
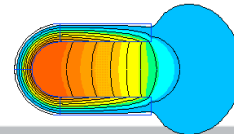
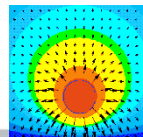
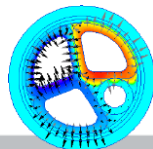
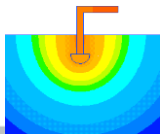
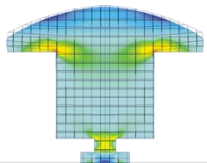


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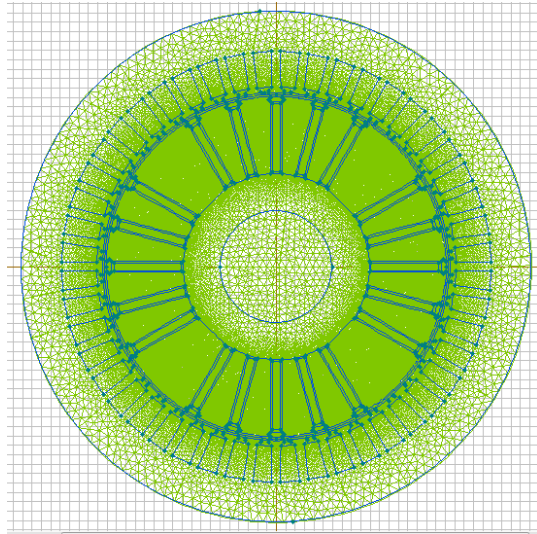
QuickField Analysis Options

Magnetic analysis suite	
Magnetic Problems	Magnetostatics
	AC Magnetics
	Transient Magnetic
Electric analysis suite	
Electric Problems	Electrostatics and DC Conduction
	AC Conduction
	Transient Electric field
Thermostructural analysis suite	
Thermal and mechanical problems	Steady-State Heat transfer
	Transient Heat transfer
	Stress analysis

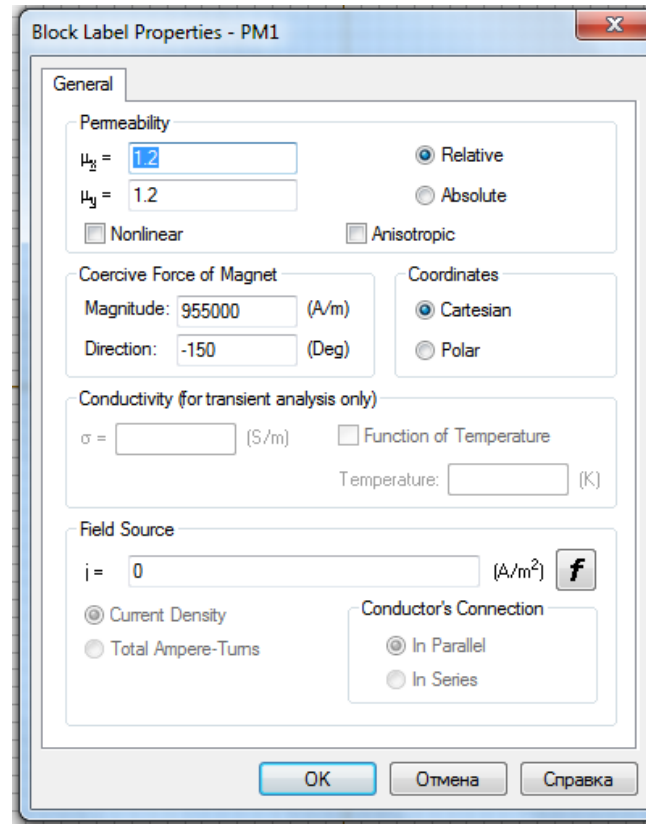




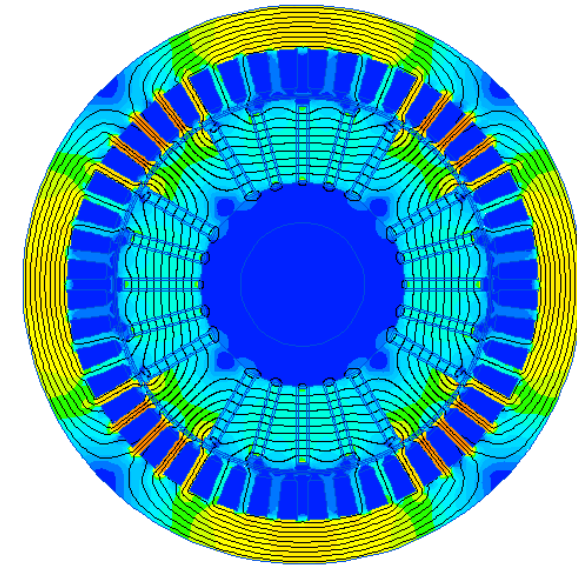
Stages of solution



Model



Physical parameters



Result



QuickField problem database

Name.pbm – Problem file, should be opened in QuickField

Name.mod – Geometry model file

*Name.d*** – Material data file

.dms	DC Magnetics, Transient Magnetics
.dhe	AC Magnetics
.des	Electrostatics
.dcf	DC Conduction
.dec	AC Conduction
.dtv	Transient Electric Field
.dht	Heat Transfer
.dsa	Stress Analysis

Name.res – Result file

Physical parameters

Block Label Properties - core

General

Permeability

$\mu_z =$ 1000

$\mu_y =$ 800

Nonlinear

Relative

Absolute

Anisotropic

Coordinates

Cartesian

Polar

Electrical Conductivity

$\sigma =$ 1000000 (S/m) Depends on Temperature

Temperature: 273+20*x (K)

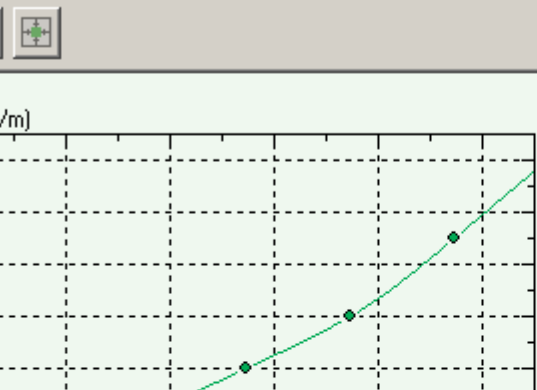
Tensor

Constant

Equation

Data table

ve Edit - core



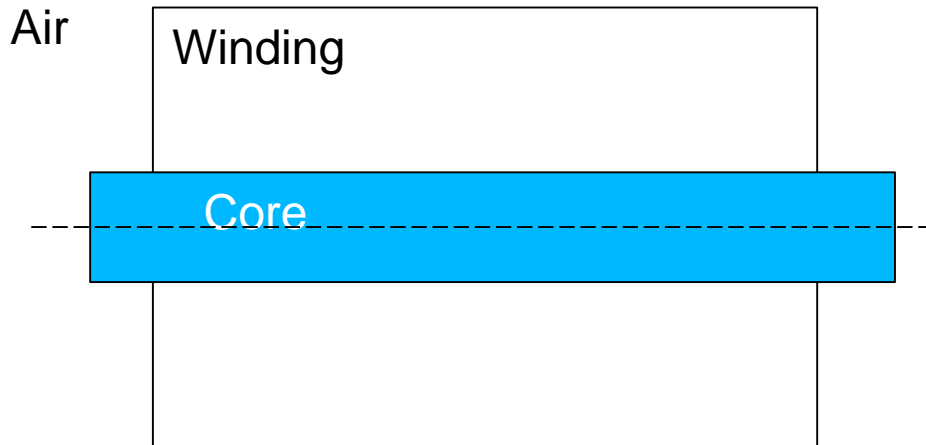
	Tempera...	Conducti...
	T (K)	s (S/m)
1	273	10000...
2	373	12000...
3	473	15000...
N...		

eg)

nection



Test case - coil



Core diameter 10 mm
Winding diameter 40 mm
Core length 70 mm
Winding length 60 mm

DC magnetic:

Magnetic permeability of
air, winding $\mu = 1$
Core - BH-curve

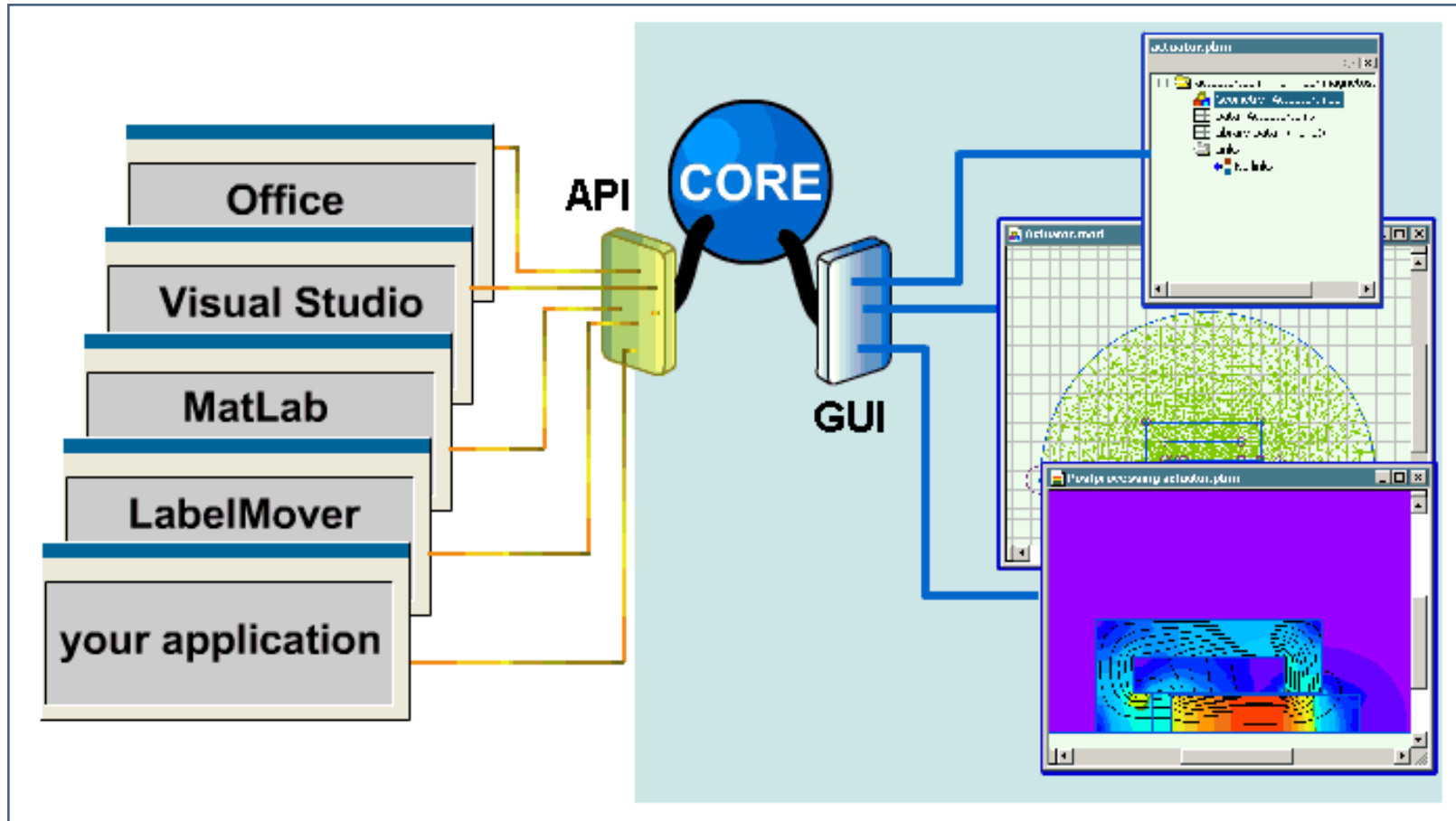
AC magnetic

Core – electric conductivity
 $\sigma = 1e6$ S/m

Heat transfer

Winding, core – thermal
conductivity
Air – boundary condition

Open object interface



Open object interface

Microsoft Excel spreadsheet
for data conversion

