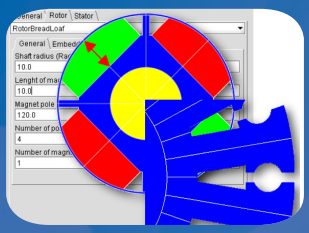
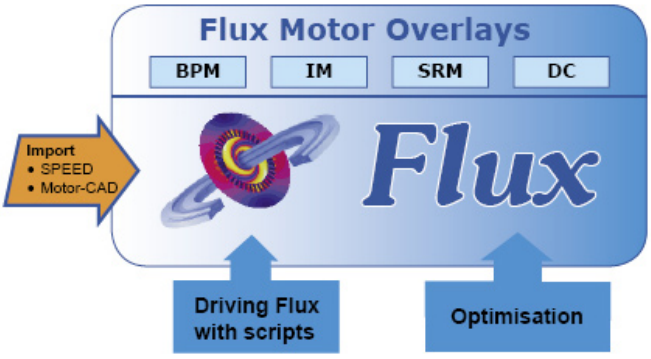


Flux & Motor Overlays

New Generation of Simulation Packages



The revolutionary Motor Overlays are fast, reliable and easy solutions for rotating machine design.

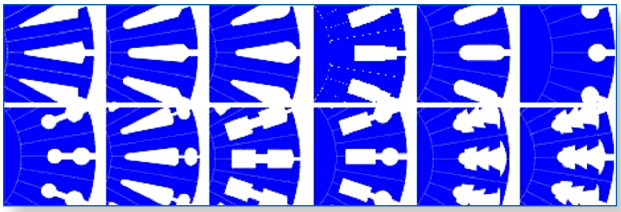
» **Fast**, as the designer gets rid of any tedious preprocessing and goes directly to its core job: design.

» **Reliable**, as libraries of components are backed by years of engineering in motor field and implemented on users requests.

» **Easy**, as Flux & Overlays provide adapted parameters and vocabulary to the user: the designer does not need then any skills in Finite Element modelling.

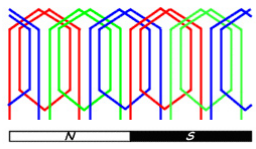
Automated solution for motor design

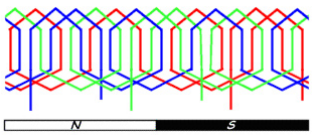
The aim of Motor Overlays is to provide motor engineers and designers an automated solution that capitalises knowledge accumulated by years of engineering and motor design and helps the engineer to focus on its core work: the design.

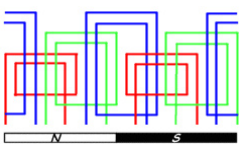


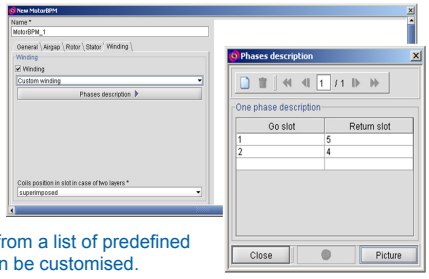
Examples of rotor bars available in IM Overlay.

Based on a **set of user defined parameters** (all of them are editable and **can be parameterised** and **varied when solving**), Motor Overlays provide the ability to **define completely** and **intuitively** a new model of motor (geometry, mesh, windings) using libraries of rotor shapes, stator slots, winding types, etc.









Windings can also be defined from a list of predefined classical windings, or can be customised.

Automated tool and library of components

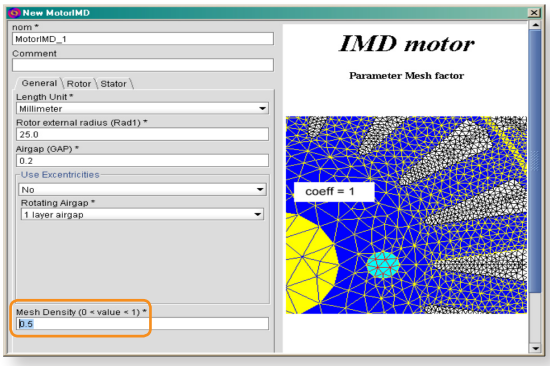
The provided **libraries of components** (rotor types, slots shapes, windings) feature most common components used in the motor industry. As an example, more than 40 different rotor topologies and over 20 stator slots are available in BPM Overlay. Those libraries are completed by **numerous features** (slits, eccentricity, cooling holes, bifurcated teeth, lamination shape, ...) whose dimensions and number are **customised**.

Fractional slot windings, concentric windings per pole, lap per pole windings can also be defined automatically. Alternatively, customised windings let the designer choose any type of winding configuration.

For induction machines, specific squirrel cage electric component enables representing the complex circuit in a faster way and in a simple component.

No Finite Elements skills needed

Defined out of well chosen parameters, the motor model does not require any skills in Finite Element modelling. Finite Element mesh is indeed **totally driven by a single and editable parameter**. From 0 (coarse mesh) to 1 (tight mesh), this single value will provide accurate and refined mesh to the model and let the engineer concentrates on the design itself.

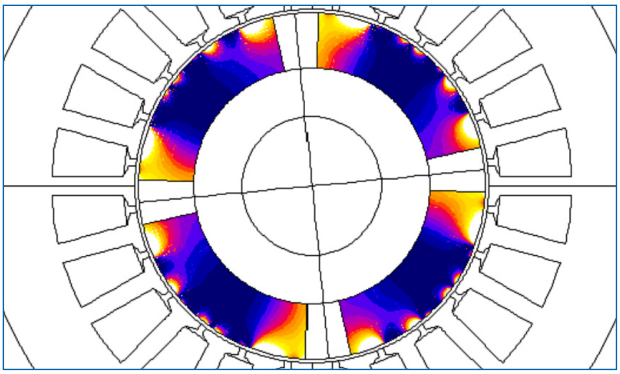


Model's mesh is fully driven with a single parameter.

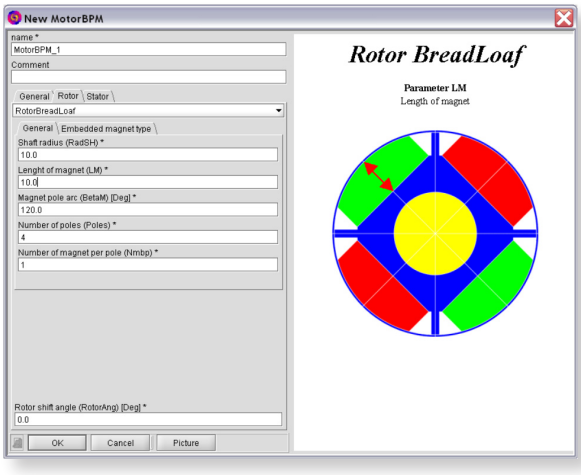
GROUPE CEDRAT

SPEED Import

Besides their ability to intuitively generate pre-processed models for various types of electrical machines, Motor Overlays are the only solutions to provide direct and editable import of SPEED* files and their parameters to Finite Element package.
Every parameter (having the same name than in SPEED) comes with its textual and animated explanation and can be used for multi-parametric analysis with Flux.



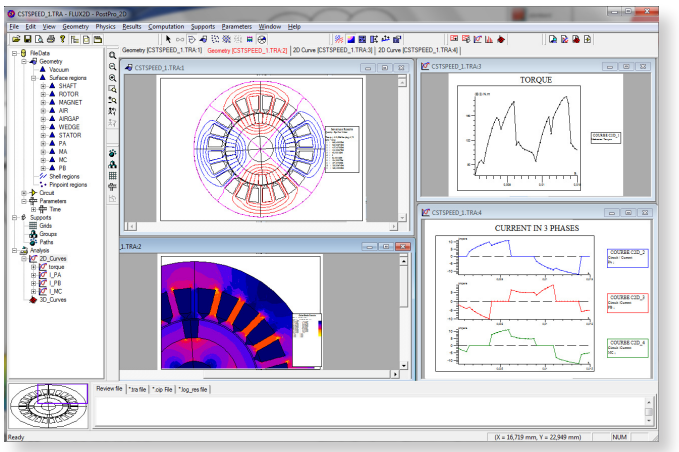
Eddy currents in the magnets of a BPM machine.



Every parameter comes with its textual and animated explanation.

Motor types

Motor Overlays are available for Brushless Permanent Magnet, Induction machines, DC machines commutator and SR machines.



Flux and Overlays feature modern graphical user interface from pre to postprocessing.

Latest paradigm for Finite Element solution

Motor Overlays benefit from latest developments in software technology provided with Flux. Whithin a modern GUI, Flux & Motor Overlays allow the user to benefit from one of the fastest solver for Finite Element Simulation with natural **multi-parametric** capabilities to compute:

- back EMF
- cogging torque
- currents
- phase line-to-line voltages...
- flux density in the air gap
- iron losses
- no load and loaded startup

Associated with Flux unique capabilities for motor simulation, Motor Overlays are the new generation simulation solutions for Electrical Machines.

Try it now: contact ***cedrat@cedrat.com*** or ***www.cedrat.com*** !

** SPEED is a software from SPEED Laboratory, University of Glasgow, United Kingdom.*

UNIVERSITY of GLASGOW

More information on dedicated leaflet on cedrat.com

GROUPE CEDRAT

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