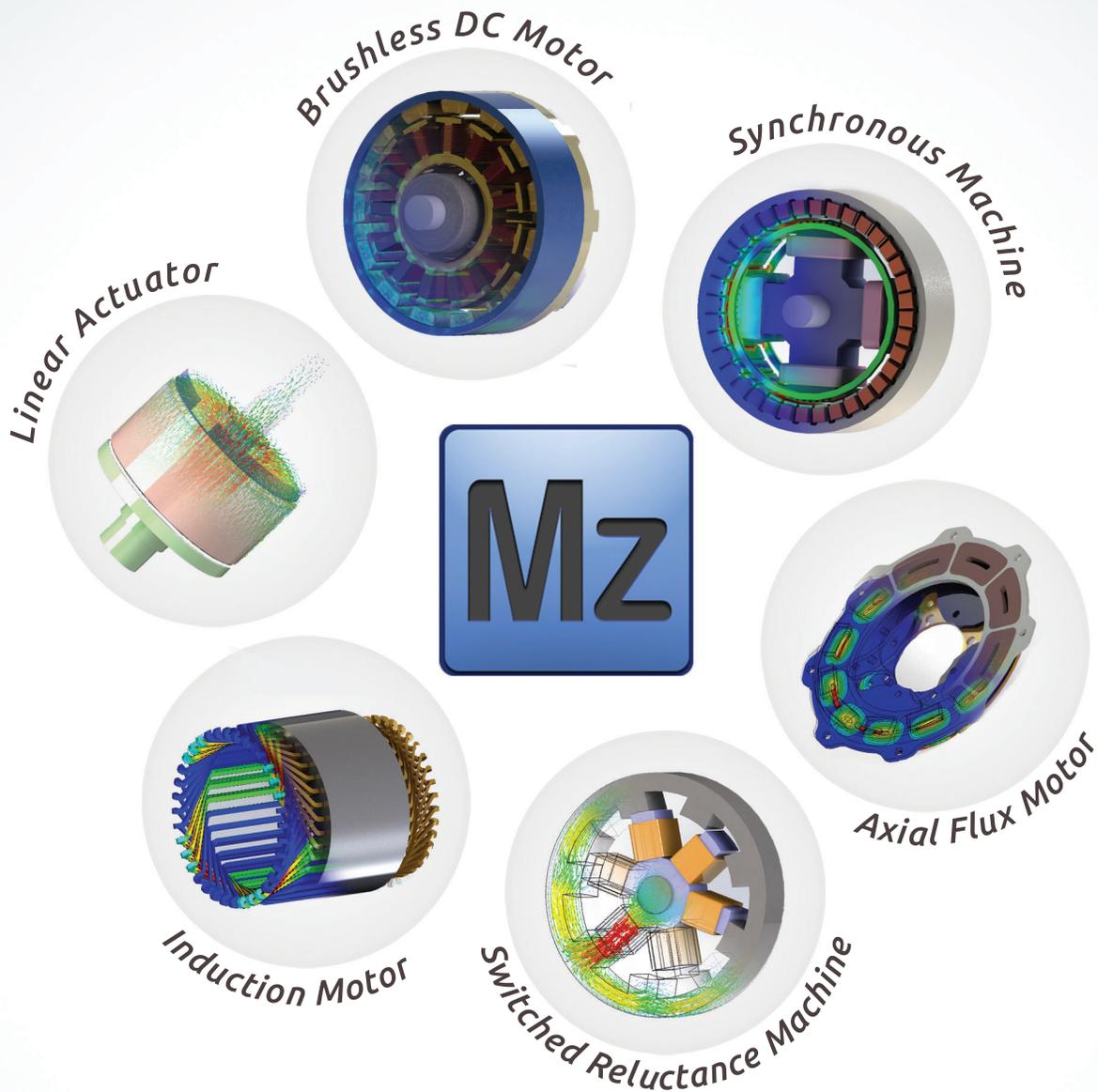


ELECTROMAGNETIC SIMULATION SOFTWARE FOR ELECTRIC MACHINES AND ACTUATORS



EMWORKS Inc.

www.emworks.com



Transform SOLIDWORKS into a Motor Design Software

Mz MotorWizard

MotorWizard is a template-driven motor design software for SOLIDWORKS users. It allows you to effortlessly get an optimized machine design through specifying its geometrical, electrical, operational, mechanical and other different parameters. Coupled to a quick-prediction Performance Calculator and a Finite Element Analysis tool, the result is a native SOLIDWORKS model that you can review and manually adjust.

MotorWizard uses 2D and 3D FEA to compute important motor design parameters such as torque, losses, back emf, inductance, flux linkage, flux density, efficiency, power, temperature etc.

Machine Types

- BLDC Interior Permanent Magnet
- BLDC Surface Mounted Permanent Magnet
- BLDC Spoke Permanent Magnet
- BLDC Inset Permanent Magnet
- Switch Reluctance Motor
- Interior and Exterior Rotor Configurations

Performance Characteristics

Below are some of the performance characteristics computed by MotorWizard:

BLDC Performance (No-load/On-load) Curves:

- Torque vs Speed
- Current vs Speed
- Power vs Speed
- Flux vs Rotor Position
- Flux vs Current
- Inductance vs Rotor Position
- Efficiency vs Speed
- Losses
- Torque Waveforms
- Cogging Torque
- Induced EMF

SRM Performance Curves:

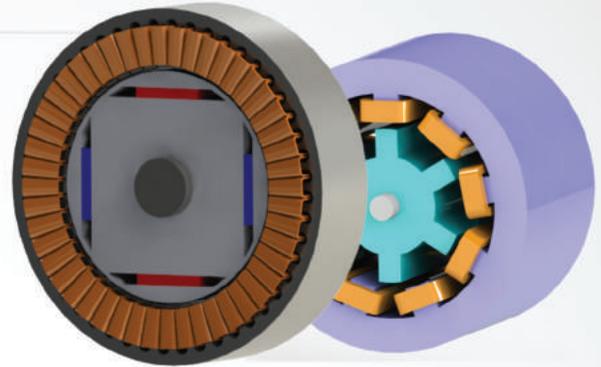
- Flux vs Rotor Position
- Flux vs Current
- Inductance vs Rotor Position
- Co-energy vs Current

Other Characteristics:

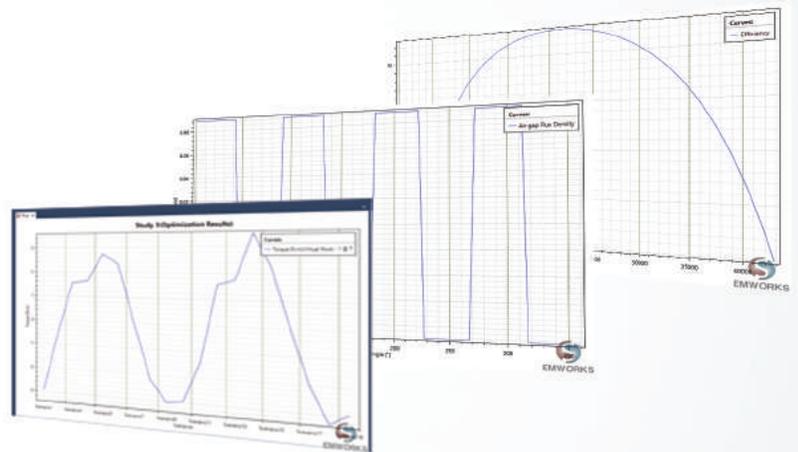
- Inductance (Phase, Armature leakage inductance)
- Leakage factor
- Phase resistance
- Frictional loss
- Windage loss, Ohmic loss
- Slot Area
- Slot Fill Factor
- Wire Diameter
- Stator Yoke Width
- Etc.

Field Plots

- Flux Density
- Current Density
- Losses
- Force Density



BLDC and SR motors built by MotorWizard



Torque, Air Gap Flux Density and Efficiency Curves



2D FEA of a BLDC motor