[Free membership]
Become a JMAG WEB MEMBER

JMAG®
Simulation Technology for Electromechanical Design

After become a JMAG WEB MEMBER, various technical materials can be viewed.
In addition, JMAG-Express Online, from which motor design can be carried out on the Web, can be used with the same ID.

9,100 members in the world
*As of July, 2022

■ What are available after registering to JMAG WEB MEMBER

◆ White Papers

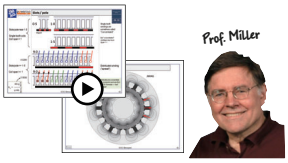
White Papers feature particularly substantial supporting information for JMAG performance evaluations, application limits, modeling methods, etc.

[W-MA-67] On the Geometry Edge Effects in Laminated Steel Sheet Eddy Current Loss Analysis

[W-SE-98] Improved Durability for Automatic Mesh Generation

◆ Webinar

- Prof. Miller:Brush up on Motor Design!" (Updated monthly)
- Video for Introducing the New Functions of JMAG



◆ JMAG Users Conference Proceedings

More than 480 materials presented in Japan, the U.S., Europe, and other countries are available to read.
Topology Optimization, AI,MBD, Material.

◆ JMAG-RT Model Library

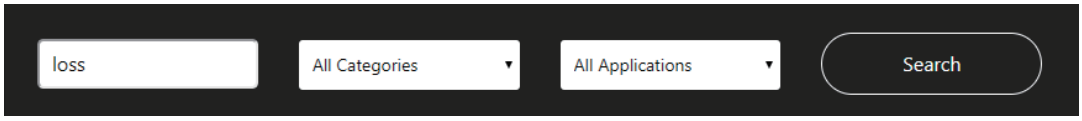
Various sample files of JMAG-RT with MATLAB/Simulink can be downloaded

Many more services are available to members only.
For details, see the JMAG website.

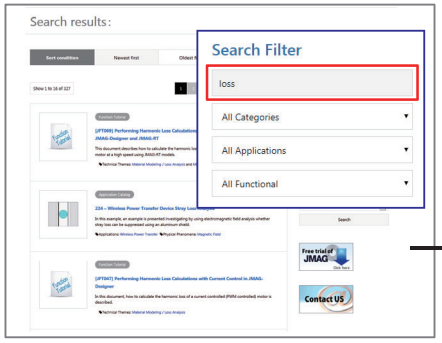
■ Searching for material

By combining multiple categories, searching or refining a search can be performed.
- Document categories ⋯ Function tutorials, application catalogs, white papers
- Analysis types ⋯⋯⋯⋯ Magnetic field analysis, electric field analysis, cogging analysis, etc.
- Module lists and others

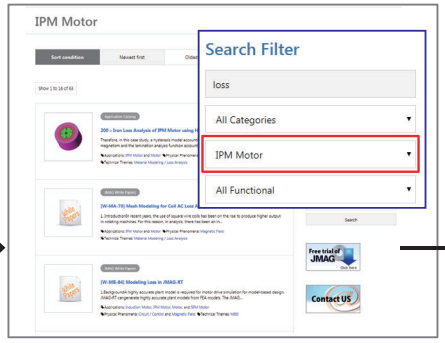
Example:
Searching by "loss"



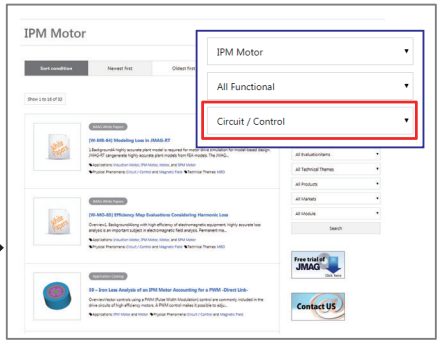
Window



Refining a search with "IPM Motor"



And further refining with "Circuit / Control"



https://www.jmag-international.com

e-mail info@jmag-international.com

Motor Design Tool : JMAG-Express Online

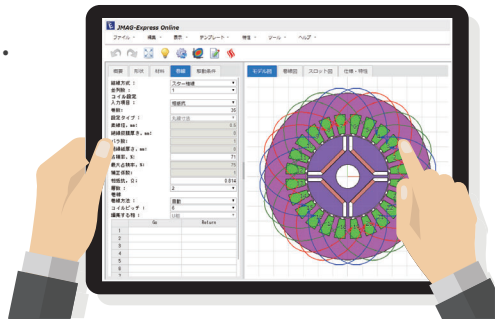
JMAG
Simulation Technology for Electromechanical Design

Capable of Computing Basic Motor Characteristics in Just 1 Sec

JMAG-Express Online is a parameter-based motor design support tool.

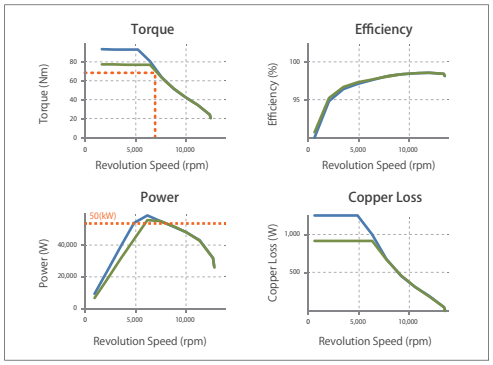
JMAG-Express Online now has the ability to evaluate all the motor characteristics like Torque- Speed characteristics, Loss characteristics, Inductance characteristics, etc.

You can design motors anytime, anywhere, on the go or at home.



■ Evaluate torque, efficiency, loss, and inductance characteristics with graphs and numerical values

Rotation speed vs torque characteristics, iron loss / copper loss characteristics, etc. are displayed in graphs in an instant. Motor characteristics can be confirmed from tables of machine constants.



Performance Graph

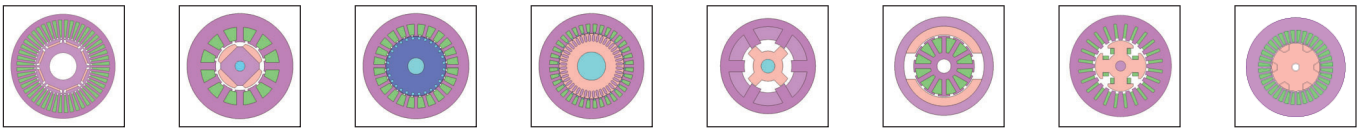
Machine Constant		
Revolution Speed	N, rpm	7000
Inductance	Ld, H	1.744e-04
	Lq, H	3.016e-04
	Self Inductance, H	1.586e-04
	Mutual Inductance, H	-7.932e-05
Torque Constant	Kt, Nm/A	0.2337
Voltage Constant	Ke, V s/rad	0.2699
Magnetic Circuit	Average Teeth Flux Density, T	0.6113
	Average Back Yoke Flux Density, T	0.3369
	Average Gap Flux Density, T	0.3751
	Magnet Flux Linkage, Wb	0.04965
Electric Part	Phase Current(RMS), A	56.83
	Wire Current Density, A/m^2	2.193e+06
Power	Torque, Nm	18.31
	Efficiency, %	95.06
	Power, W	1.34e+04
	Power Factor	0.8114
Loss	Copper Loss, W	48.38
	Iron Loss, W	647.4
Electric Circuit	Phase Voltage(RMS), V	102.1
	Line Voltage(RMS), V	176.8

Dimension		
All	Outer Diameter, mm	201.3
	Gap Length, mm	0.85
	Stack Height, mm	201.3
stator : so_000	Number of Slots	48
	Outside Diameter, mm	201.3
	Inside Diameter, mm	102.7
	Tooth Width, mm	4.026
	Slot Opening Width, mm	2.5
	Core Back Width, mm	15.09
	Tooth Tang Depth, mm	2.012
ipm_rotor : rip_000	Number of Magnet Poles	8
	Outside Diameter, mm	101
	Shaft Diameter, mm	40.3
	Position of Magnet, mm	40.6
	Magnet Thickness, mm	3.52
	Magnet Width, mm	23.2
	Clearance between Slits, mm	3.52
	Slit Width, mm	3.52
	Slit Depth, mm	1.51

Design sheet

■ Define geometries with templates

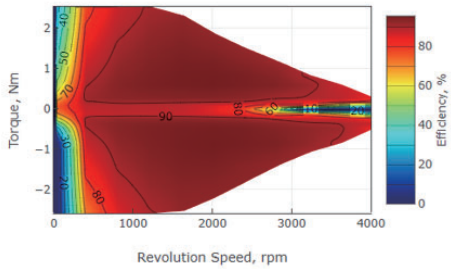
Templates for PMSMs, induction machines and brush motors are available.



IPM | SPM | Induction motor (Single-Phase) (Three-Phase) | SRM | DC brush motors | Synchronous machines | Claw Pole Alternator

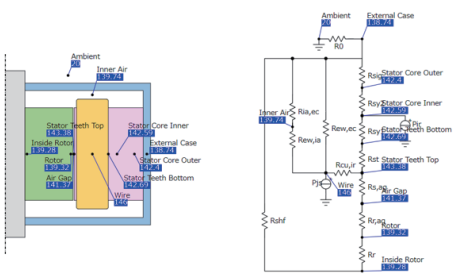
■ Efficiency Maps

When creating maps, voltage and current limits can be applied. Multiple maps can be compared while using the parametric function.



■ Temperature Evaluation

The thermal model is evaluated using various heat generation sources like Copper Losses, Iron Losses, and Mechanical losses.



Thermal equivalent circuit model