

Motor Design Tool

JMAG-Express Online

for Rotating Machines

The latest web version of JMAG-Express,
which can compute basic motor characteristics in **1 sec !**

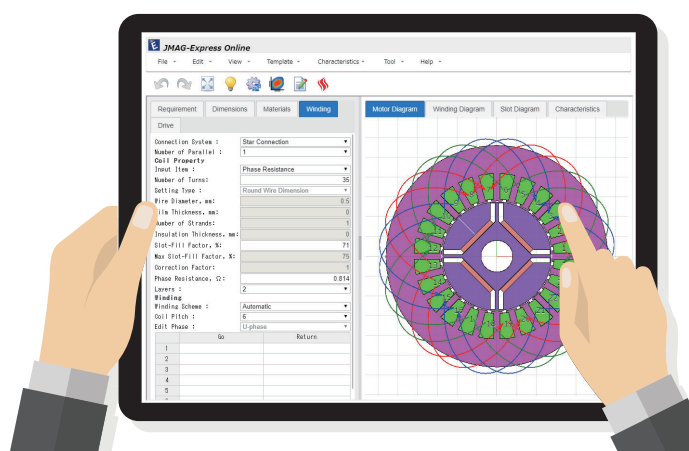
JMAG-Express Online is a parameter-based motor design support tool.

JMAG-Express Online now has the ability to evaluate all the motor characteristics like voltage constant, torque constant, inductance characteristics, current vs torque characteristics, rotation speed vs torque characteristics, iron loss / copper loss characteristics, etc. merely by inputting a geometry template, materials, windings, and drive conditions.

Because JMAG-Express Online can be used with tablets and smartphones, you can design motors anytime, anywhere, on the go or at home.

Start using JMAG-Express Online

www.jmag-international.com/express/



JMAG-Express Online
can be used for free
after creating an account.



Main functions of JMAG-Express Online
are on the reverse side.

Recommended browser



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With over 260 analysis use cases,
JMAG's homepage is full of information.
Please come visit!
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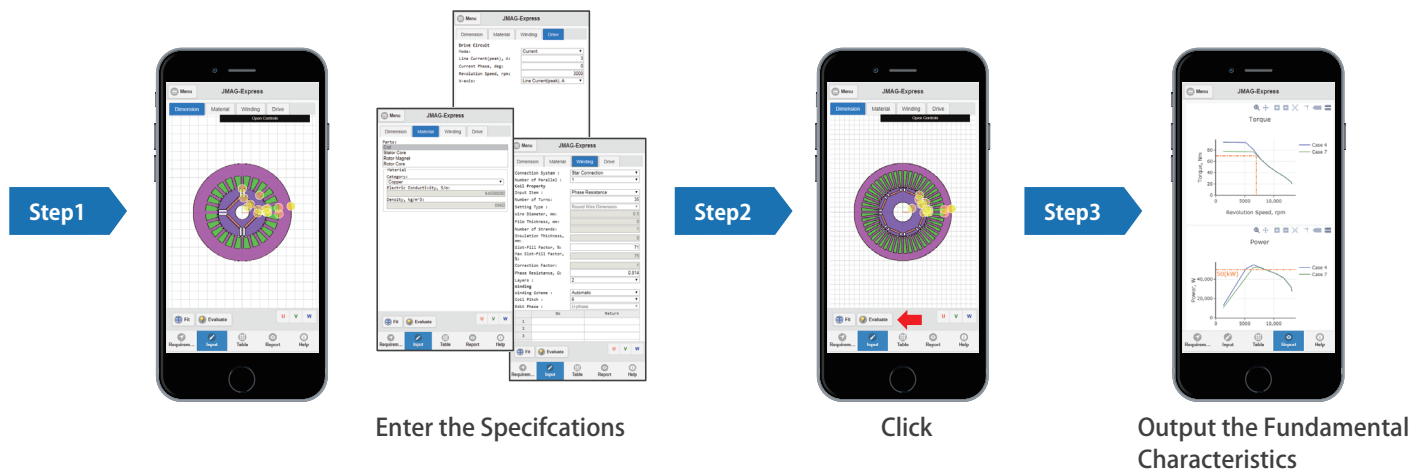
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Main functions of JMAG-Express Online

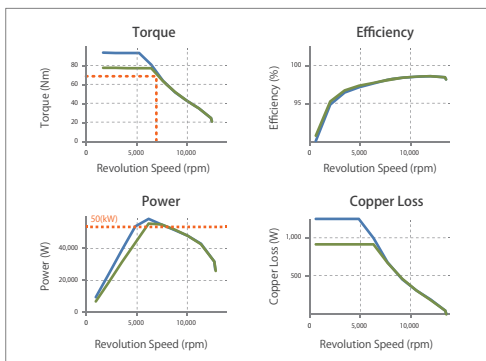
■ Extract motor characteristics in an instant

Displays motor characteristics from design specifications with one click. Requires no analysis experience.



■ 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.



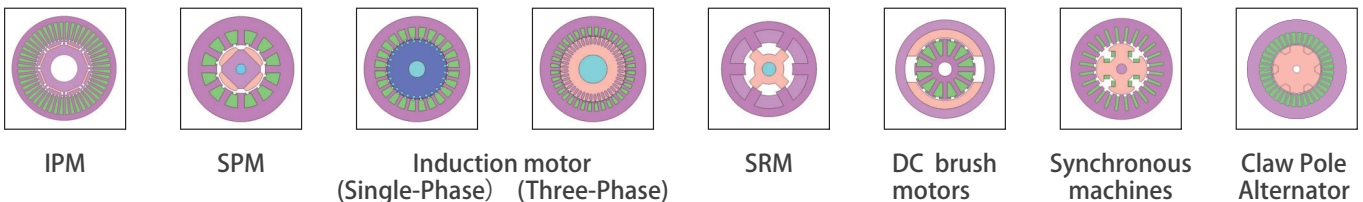
Performance Graph

Machine Constant			Dimension		
Revolution Speed	N, rpm	7000	All	Outer Diameter, mm	201.3
Inductance	Ld, H	1.744e-04		Gap Length, mm	0.85
	Lq, H	3.016e-04		Stack Height, mm	201.3
	Self Inductance, H	1.586e-04		Number of Slots	48
	Mutual Inductance, H	-7.932e-05		Outside Diameter, mm	201.3
				Inside Diameter, mm	102.7
Torque Constant	Kt, Nm/A	0.2337		Tooth Width, mm	4.026
Voltage Constant	Ke, V/srad	0.2699		Slot Opening Width, mm	2.5
Magnetic Circuit	Average Teeth Flux Density, T	0.6113		Core Back Width, mm	15.09
	Average Back Yoke Flux Density, T	0.3369		Tooth Tang Depth, mm	2.012
	Average Gap Flux Density, T	0.3751	ipm_rotor : rip_000	Number of Magnet Poles	8
	Magnet Flux Linkage, Wb	0.04965		Outside Diameter, mm	101
	Phase Current(RMS), A	56.83		Shaft Diameter, mm	40.3
Electric Part	Wire Current Density, A/mm²	2.193e+06		Position of Magnet, mm	40.6
	Torque, Nm	18.31		Magnet Thickness, mm	3.52
	Efficiency, %	95.06		Magnet Width, mm	23.2
	Power, W	1.34e+04		Clearance between Slots, mm	3.52
	Power Factor	0.8114		Slit Width, mm	3.52
Power	Copper Loss, W	48.38		Slit Depth, mm	1.51
	Iron Loss, W	647.4			
	Phase Voltage(RMS), V	102.1			
Loss	Line Voltage(RMS), V	176.8			

Design sheet

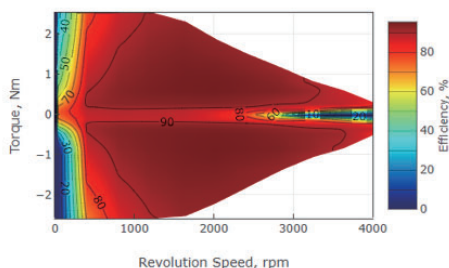
■ Define geometries with templates

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



■ 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.

