



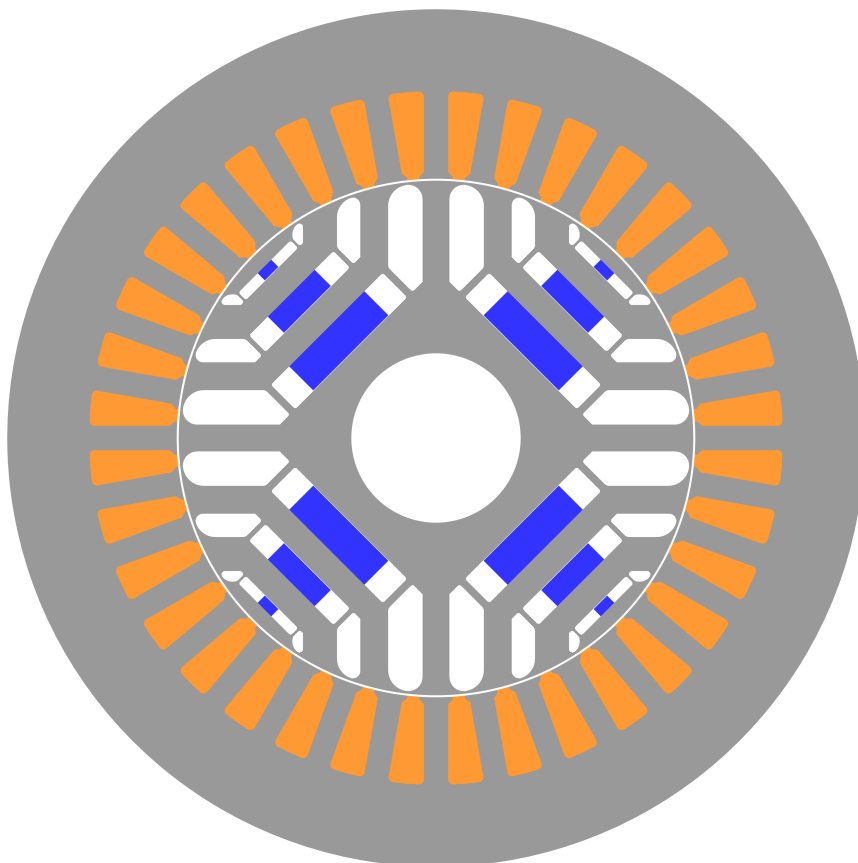
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syre

THOR-REG



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I. DESCRIPTION

Permanent Magnet Synchronous Machine with high-anisotropy rotor:

- IPM rotor geometry with 3-barriers PM-SyR design
- high-temperature NdFeB permanent magnets
- custom-designed stator and rotor laminations
- baseline for asymmetric rotor design

TABLE I: Motor Nameplate

Number of pole pairs		2	
Number of stator slots		36	
Number of phases		3	
Stator outer diameter	(mm)	170	active
Stack length	(mm)	120	active
Rated torque	(Nm)	19	at base speed
Peak torque	(Nm)	43	
Rated power	(kW)	5	
Peak power	(kW)	11.5	
Rated speed	(rpm)	2500	
Maximum speed	(rpm)	9000	
DC-link voltage	(V)	310	4.6 Arms/mm ²
Rated phase current	(A _{pk})	22	
Peak phase current	(A _{pk})	44	

II. LIST OF FILES

The repository includes:

- SyR-e files (THOR-REG.mat and THOR-REG.fem), with custom geometry imported (SyR-e parametrization slightly changed), with:
 - flux and loss maps at 20°C and 120 °C;
 - demagnetization limit;
 - SyR-e MMM file with extended flux maps (for short-circuit computation): THOR-REG_ext.mat and THOR-REG_ext.fem;
- description (this file);
- compressed result folder, with:
 - flux maps computed on standard domain and extended domain (for short-circuit model computation);
 - transient short-circuit results (obtained using extended flux maps);
 - efficiency maps computed at cold and hot conditions;
 - characteristic current computation;
 - HWC short-circuit current estimation;
 - airgap flux density at no-load and rated condition;
 - eNVH sources at no-load and rated condition.

III. ADDITIONAL RESOURCES

The files can be opened with MATLAB or using SyR-e, available on:

- GitHub (github.com/SyR-e/syre_public)
- Zenodo ([10.5281/zenodo.13944454](https://doi.org/10.5281/zenodo.13944454))