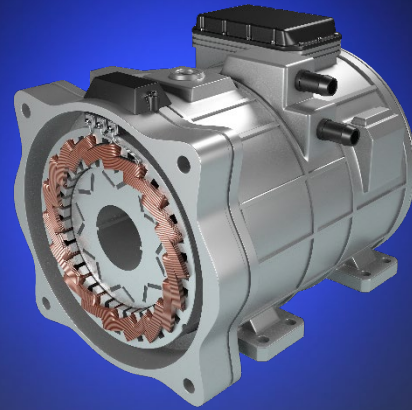


Amorphous Alloy for Motor

By using an amorphous alloy for the motor core, a high-efficiency motor suitable for high rotation can be realized.



Outline

Motor core iron loss reduction achieves :

- Energy saving by improving motor efficiency
- Reduction of motor thermal generation

Applications

Low Load・High rotation speed Motor

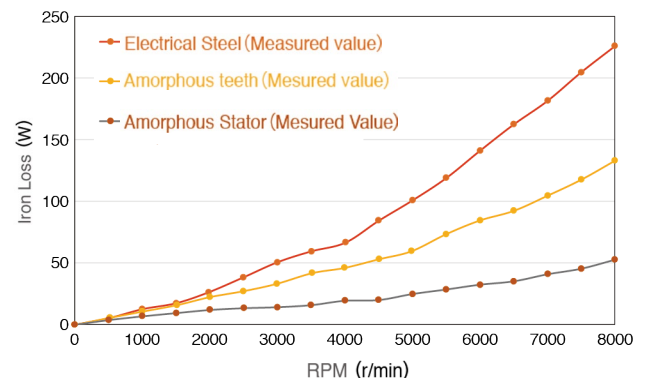
Features

Amorphous stator core test confirmed:

- Iron loss reduced to about 1/5
- Efficiency improvement of 3% or more in the high rpm range
- Motor thermal generation can be reduced by half

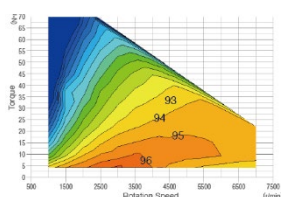
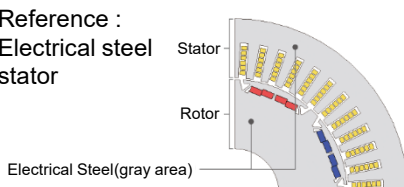
Note: evaluated loss of IPM motor (Φ215mm × 50mm stator core)

Iron loss evaluation result of prototype motor



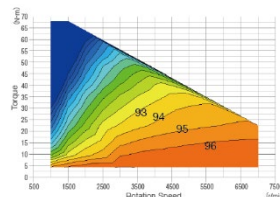
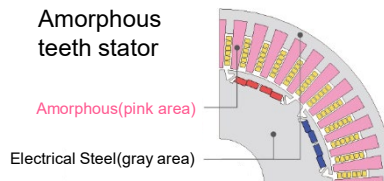
Efficiency comparison of prototype motor

Reference :
Electrical steel
stator



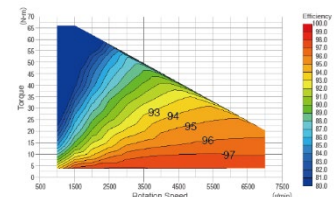
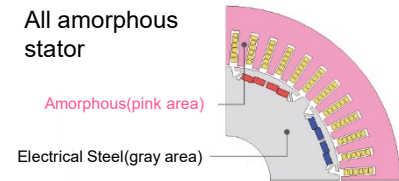
Reference : Electrical steel stator

Amorphous
teeth stator



Amorphous teeth stator

All amorphous
stator



All amorphous stator

References: Yuji Enomoto, Mamoru Kimura, Yasuhiro Marukawa, Hirohisa Sano, "Distributed winding IPM motor with an entire stator core made of amorphous metal," Proceedings of the 2021 Industrial Applications Division Conference of the Institute of Electrical Engineers of Japan, 3-4, pp111-133-138 (2021)