

## 180-Degree-Phase-Span Bobbin-Wound Cores for Electric Machines

### **Disclosure Number**

200902270

### **Technology Summary**

Bobbin wound cores of electric machines are utilized to improve winding fill rate and speed the winding process. This 4-pole machine utilizes four bobbin wound outer cores and four inner cores. The available phase span for each core is greater than 120 electric degrees, so the chance of producing cogging torque is less and the potential to use the third space harmonic for additional third-harmonic torque production is greater. The magnetic inner and outer cores are separated by non-magnetic material to prevent the magnetic short circuit of the bobbin cores. The inner and outer bobbin cores are assembled together during manufacture using specialized tools, and once assembled; the cores are locked together tightly.

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