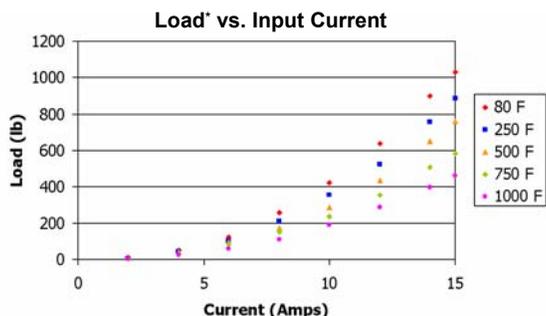


# 3<sup>RD</sup> GENERATION HIGH TEMPERATURE MAGNETIC BEARING

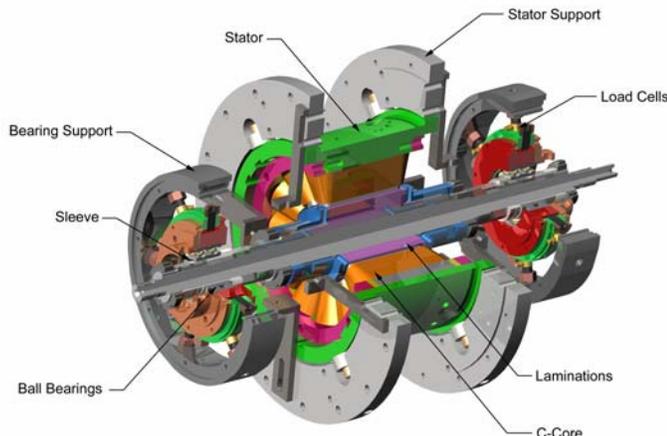
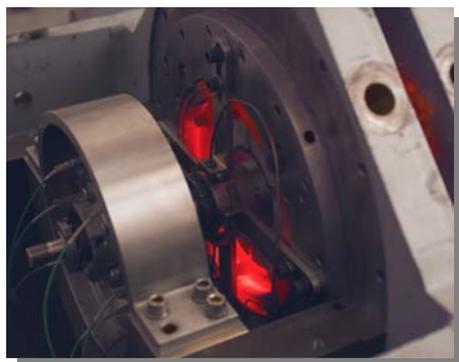
C-Core, Heteropolar, High Load Design – Non-Levitation Load Testing – August 2002

## Over 1000 lb. Load Per Axis

- 0.1 T/Amp, 52 turns/coil
- 3" diameter, 51" rotor, 8" O.D Stator
- Room temp force of 1056 lb/axis up to 20K RPM
- Axis uses 380 W at 1056 lb



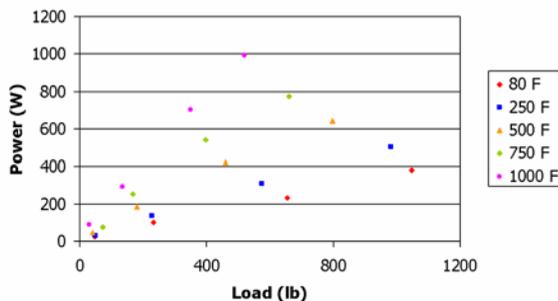
\*No Soak Time – Increased Gap



## 1000°F Operation

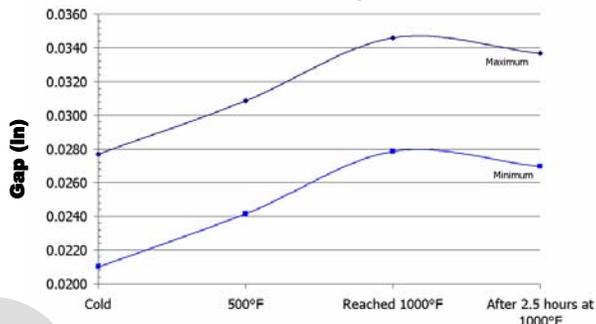
- Demonstrated Operation at 1000°F to 20,000 RPM
- C-Core constructed with advanced technology wire
- Laminations constructed from Hiperco 50-HS

## Power vs. Load



\*No Soak Time – Increased Gap

## Rotor / Stator Gap Growth



## Heating Challenges

- Due to heater configuration, the stator heats at a higher rate than the rotor
- The difference in heating rate results in a growth of the gap between the rotor and stator
- The gap growth results in lower magnetic force and higher power consumption than would be seen if the rotor and stator were at the same temperature