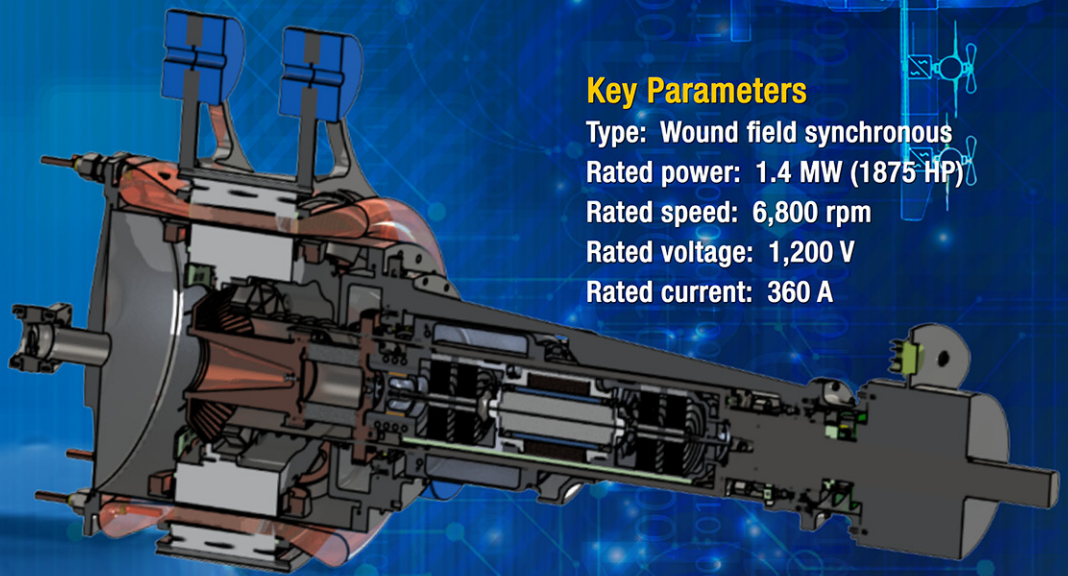


HEMM HIGH-EFFICIENCY MEGAWATT MOTOR

CHALLENGE: Motors with high specific power and low loss are not achievable unless there is a breakthrough

PHYSICS: A better magnet results in a better motor—
induction (good), coil (good), permanent magnet (better), and superconductor (best)

SOLUTION: A superconducting motor with internal cryogenic control so that it functions like a normal motor but has the power and efficiency benefit of a superconducting motor



Key Parameters

Type: Wound field synchronous
Rated power: 1.4 MW (1875 HP)
Rated speed: 6,800 rpm
Rated voltage: 1,200 V
Rated current: 360 A

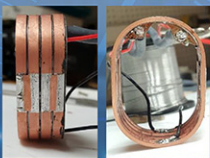
Operational Benefits

- Integrates into standard aviation systems like a conventional motor
- Direct drive of fan, propeller, or rotor (no gearbox)
- Can be shut down in failure scenario

Wound field,
superconducting DC

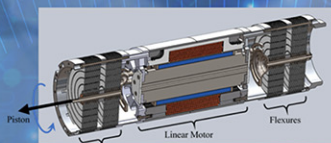


Rotor with conductive
cryogenic cooling for
superconductors

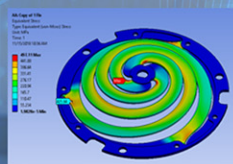


Four-layer superconducting
coils without insulation

Integrated cryocooler



Cryocooler sized to
fit inside motor

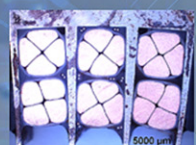


Cryocooler uses linear
motor supported by
flexures that act as bearings

500-A slotless stator



Integrated cooling loop



Semislotless with
custom Litz wire



Single-turn winding

Patent pending

