

DOE SBIR Phase II

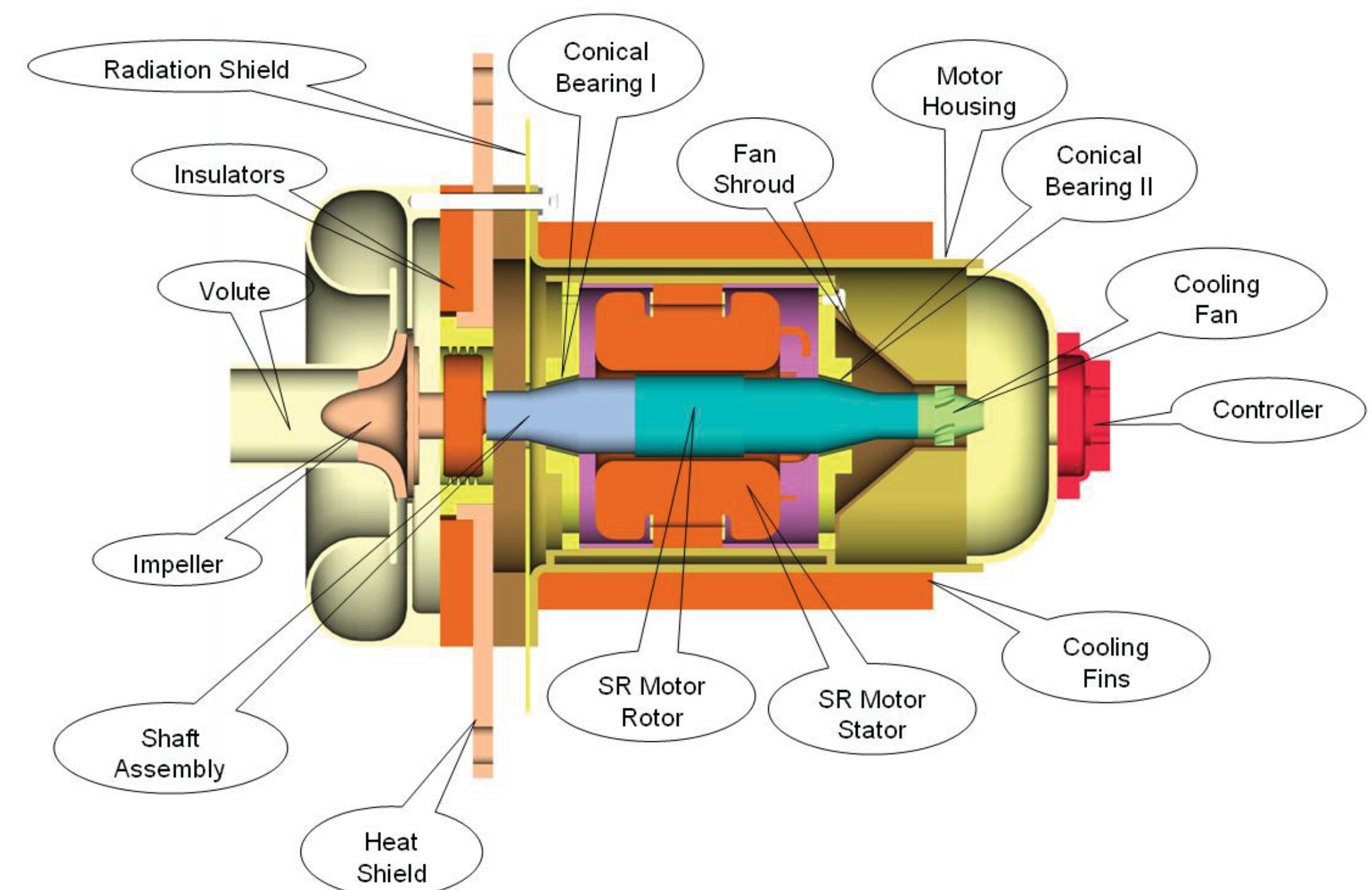
ANODE GAS RECYCLE BLOWER

...FOIL GAS BEARING SUPPORTED HIGH SPEED CENTRIFUGAL...

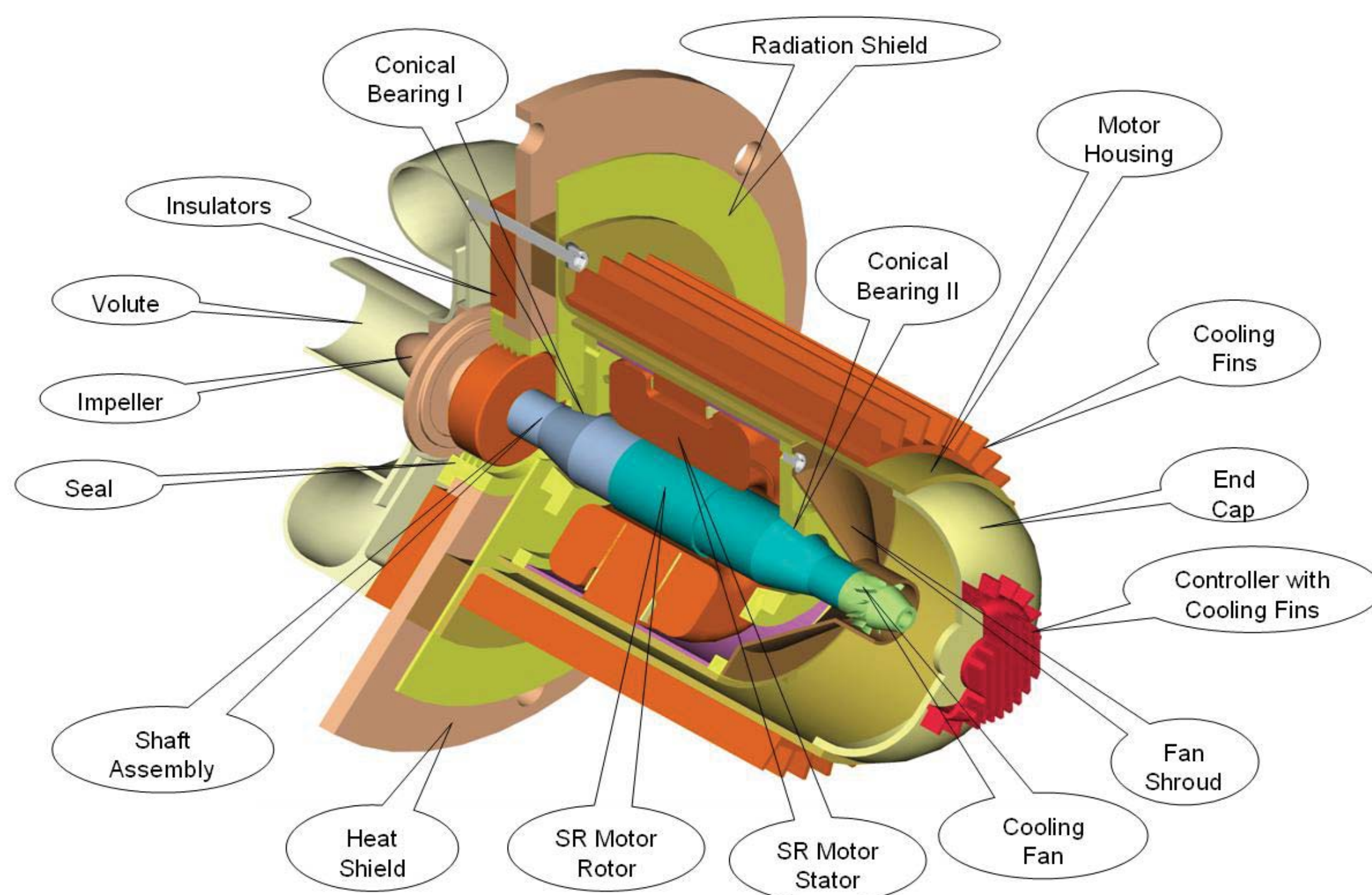
Highlights...

- ✓ Low Cost
- ✓ Increases SOFC System Efficiency
- ✓ High-Speed Centrifugal Rotor
- ✓ High Temperature Capability 850+ °C
- ✓ SOFC Friendly
- ✓ Oil Free
- ✓ Foil Gas Bearing Supported
- ✓ Maintenance Free
- ✓ High Reliability
- ✓ Scalable

Cross Section



Cut Section View



Design Point

- | | |
|-----------------------------|----------------------------------|
| ✓ Shaft Speed | 90,000 rpm |
| ✓ Pressure Ratio | 1.025 |
| ✓ Pressure Rise | 25.4 cm of Water |
| ✓ Inlet Pressure | 1.013 bar |
| ✓ Outlet Pressure | 1.038 bar |
| ✓ Inlet Temperature | 850 °C |
| ✓ Outlet Temperature | 857.3 °C |
| ✓ Gas Constant | 369 J/kg.K |
| ✓ Specific Heat Ratio | 1.274 |
| ✓ Mass Flow | 1.56 g/s |
| ✓ Volume Flow | 100 SLPM |
| ✓ Impeller Isentropic Power | 16 Watts |
| ✓ Target Cost | @ \$100/unit for 50,000 units/yr |

FUEL CELL BLOWER EXPERIENCE



Automotive PEM Air Blowers



Automotive PEM Reformer Air Blower

MANUFACTURING CAPABILITY

...Prototype, Production & Quality...



FAA Approved PMA Parts

