



Electric Motors: Why They Matter to Data Centers and our Planet

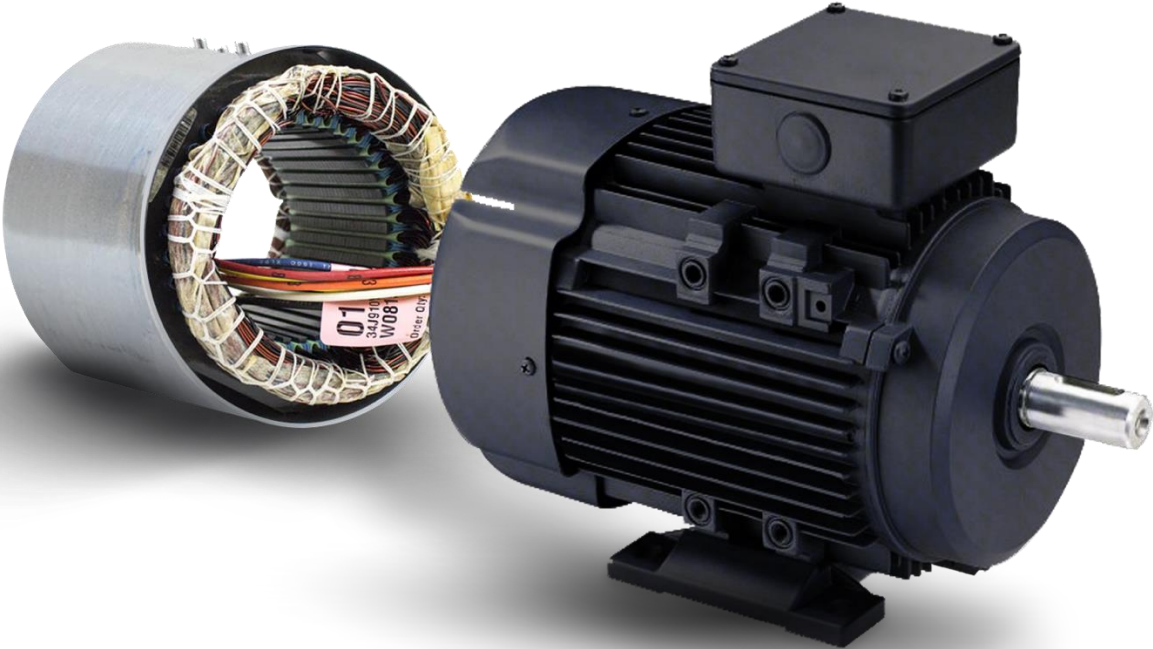


Nikola Tesla Invented the AC Induction Motor in 1888



Image Credit: Tesla Memorial Society of New York, National Inventors Hall of Fame

Stator generates magnetic field and makes the motor GO



Still In Use Today!



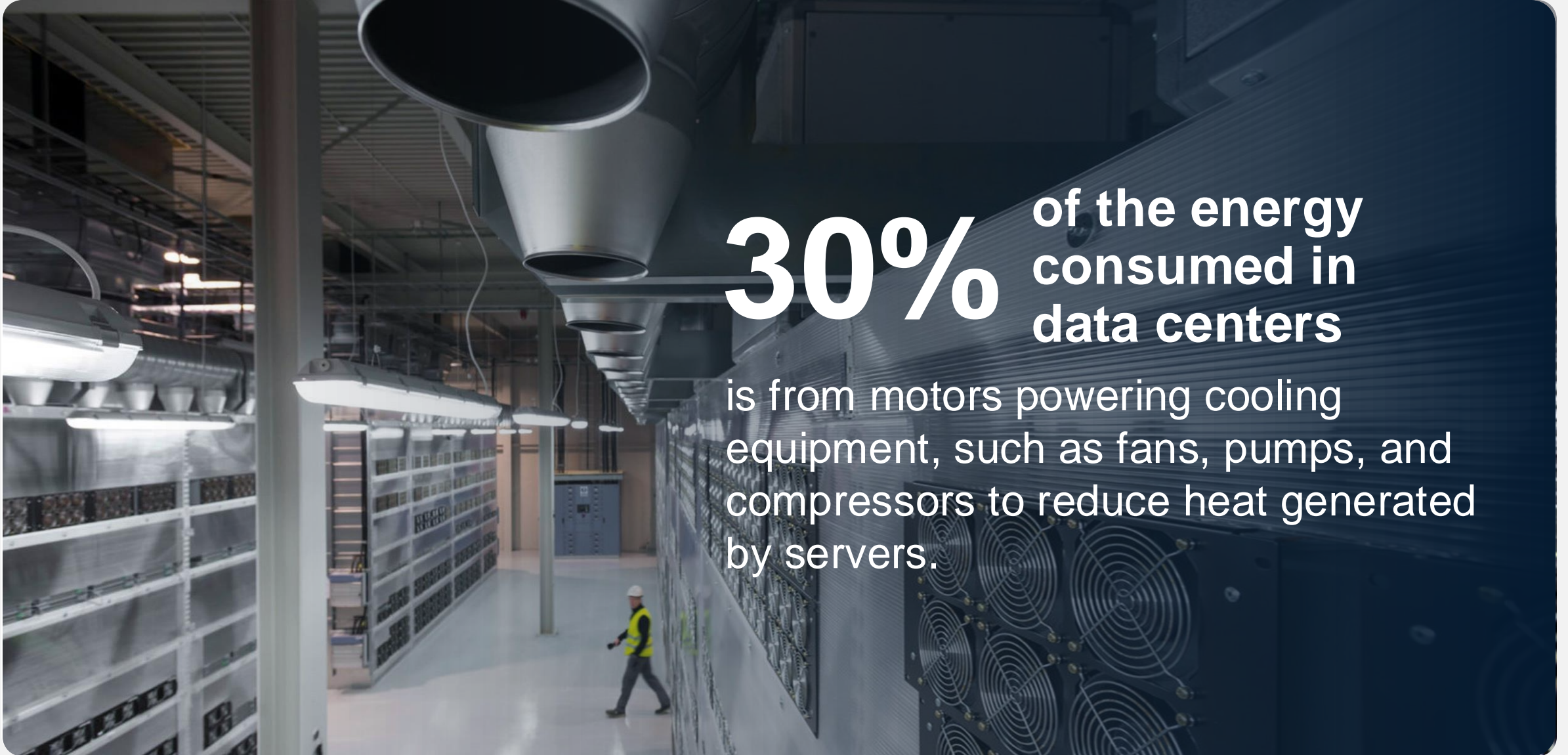
Motors in Data Centers: Critical systems, reliability, energy efficiency



Fan walls, CRAHs, chillers, pumps, gensets, server rack fans, compressors, UPS, etc



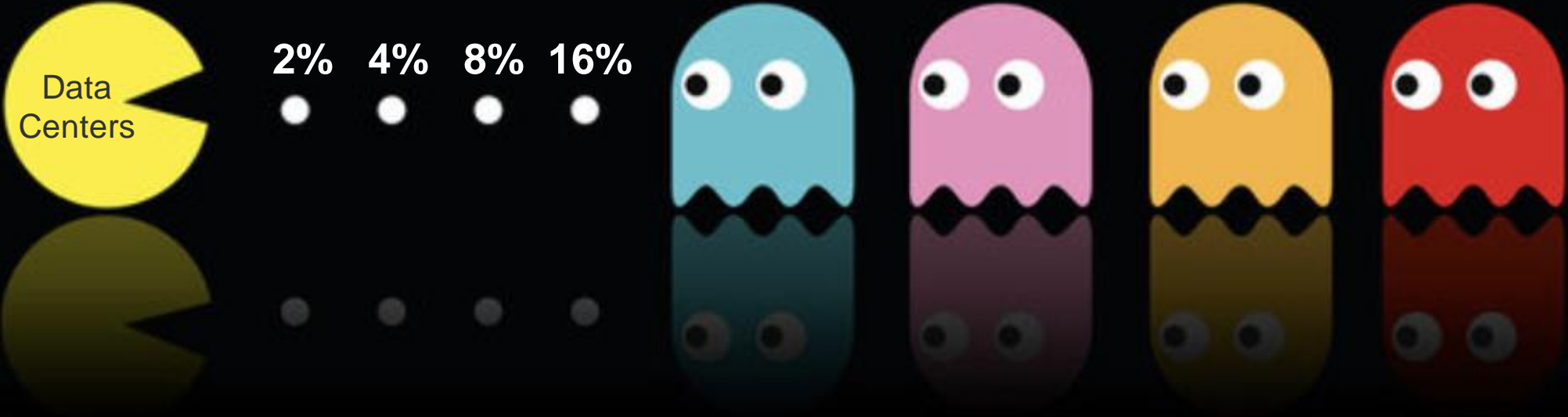
Data Center Energy Consumption



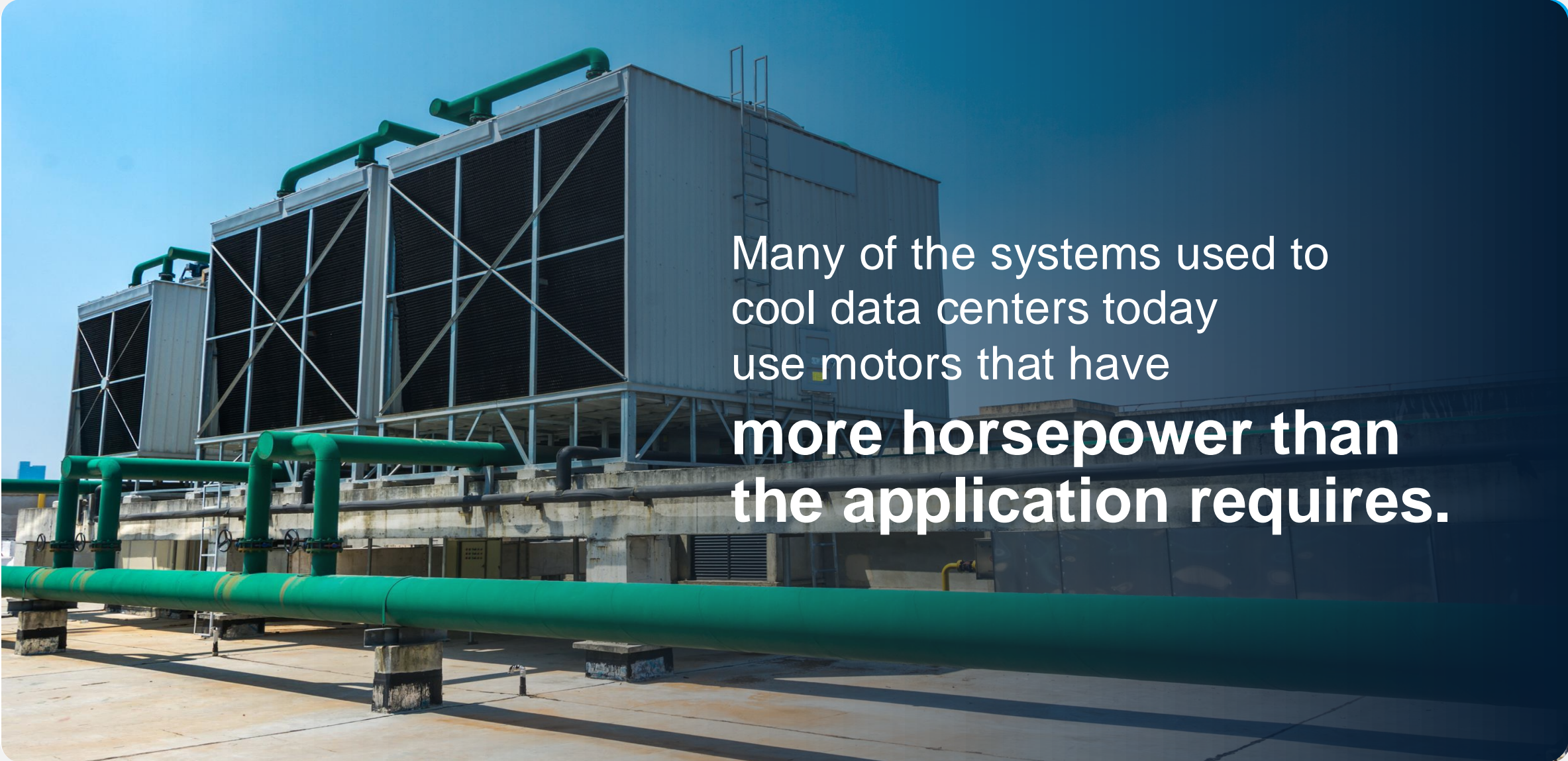
30% of the energy consumed in data centers

is from motors powering cooling equipment, such as fans, pumps, and compressors to reduce heat generated by servers.

Environmental Impact: The World's Watching!

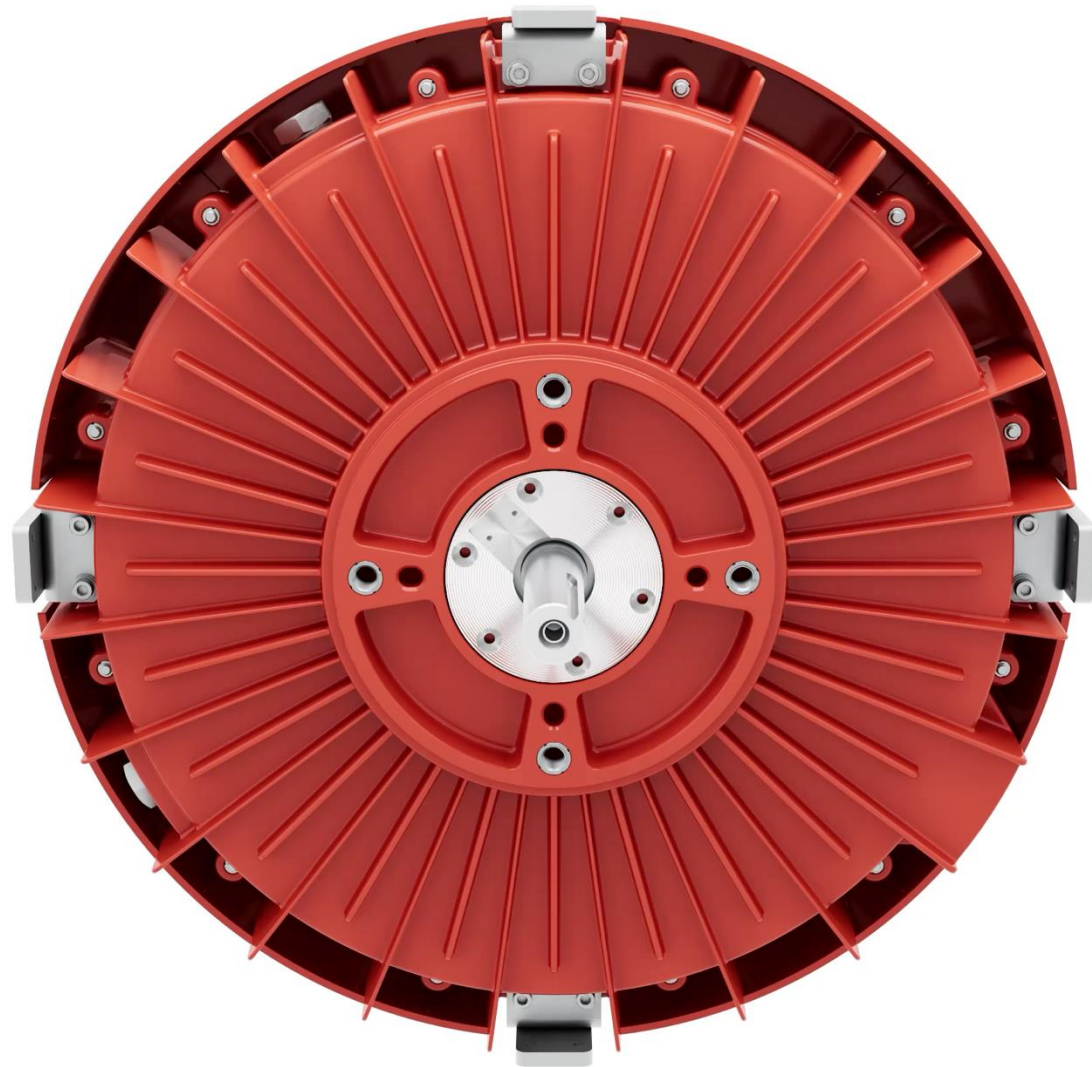


Fan and Pump System Consumption



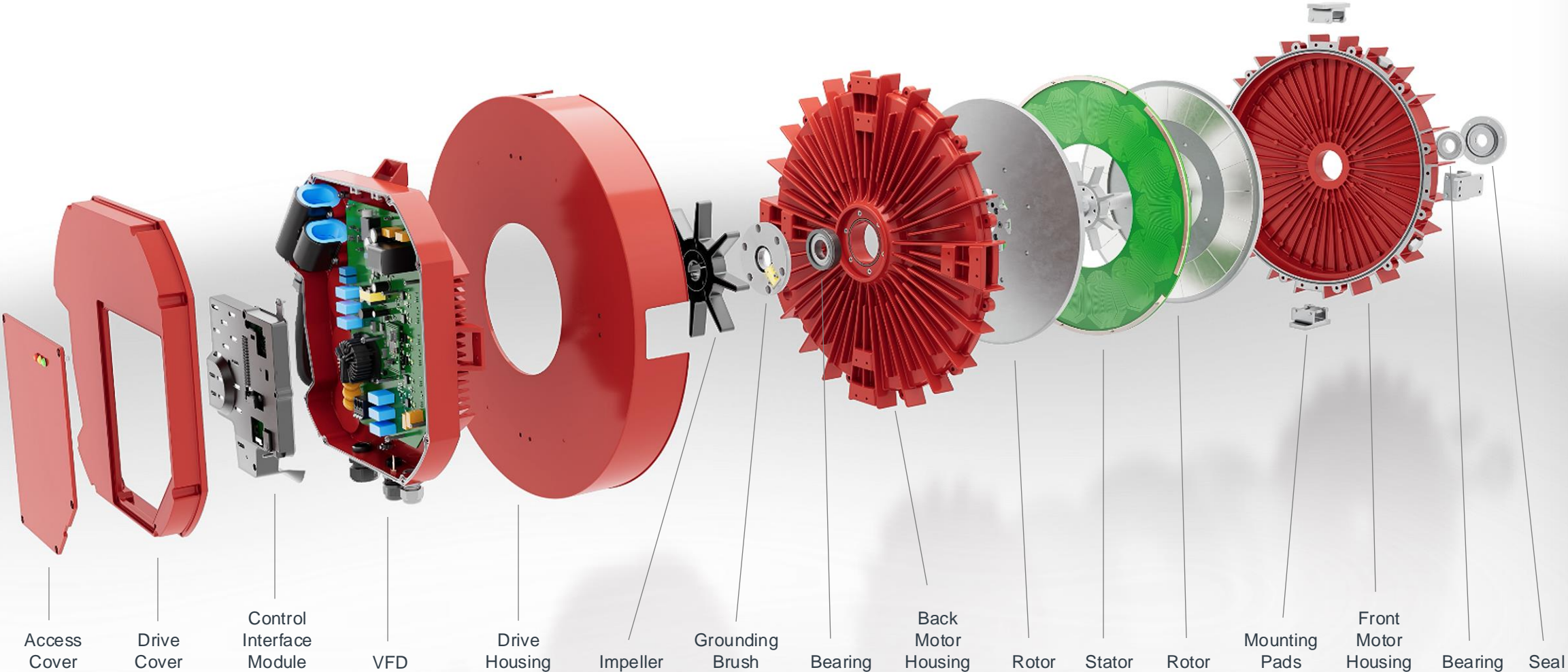
Many of the systems used to cool data centers today use motors that have **more horsepower than the application requires.**

INNOVATION

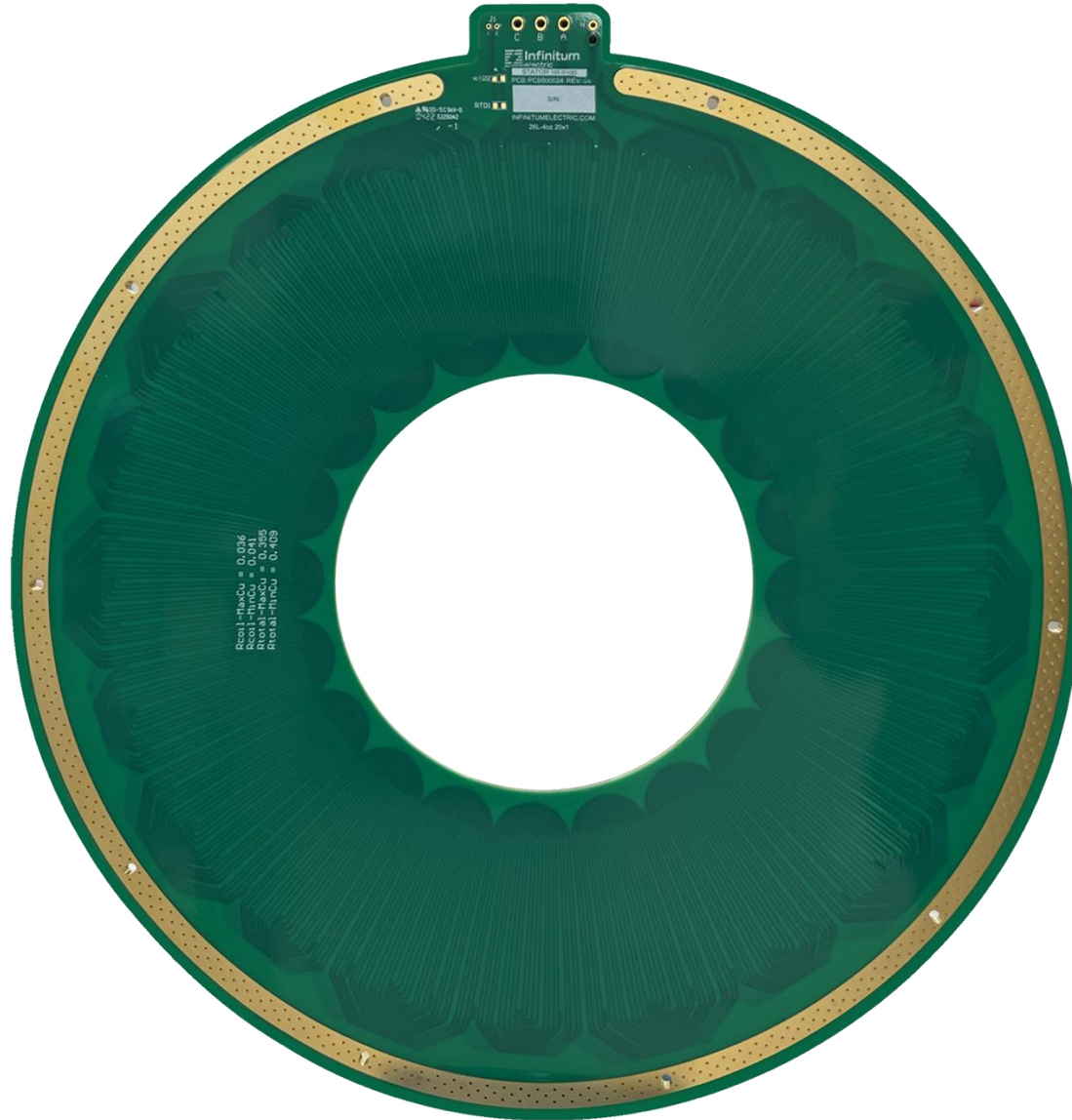


Infinitem Aircore EC Motor

Axial-flux motor with Aircore PCB stator



PCB Stator



Flat efficiency curve

More reliable, longer life

Lower noise, lower vibration

Sustainable

Serviceable

Much Smaller Carbon Footprint than Conventional Motors – Scope 3

66% Less Copper

A typical 10 HP motor uses 6kg of copper. Ours has only 2kg.

10% Less Energy

All the power using less energy when compared to a similarly rated motor with a VFD.

30% Fewer Emissions

A smaller form factor and lighter weight per unit makes transportation more efficient.

No Iron Core

Our patented PCB stator replaces the heavy iron core in a conventional motor.

50% Less Weight and Size

Our motors are smaller and lighter, requiring less material for the housing.

Circular Design

Majority of components can be reused and kept in service for over 100 years.

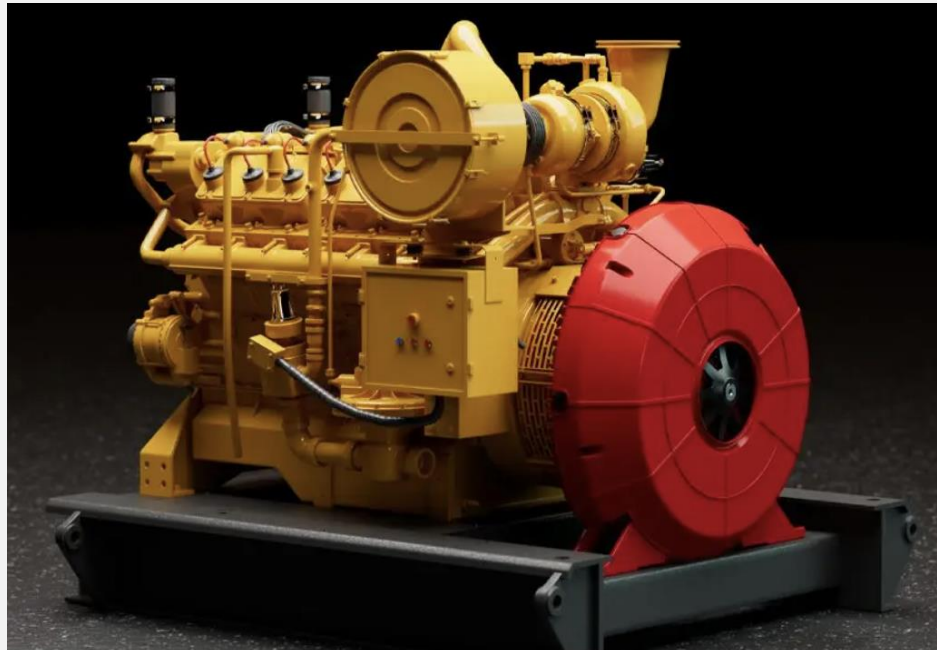


Applications



Infinitum EC Motor Applications

- HVAC = fans, pumps
- Material handling = conveyor belts
- Power Gen = alternators for gensets
- Electric vehicles = traction motors





Serviceable and Recyclable

Lifecycle Services

Comprehensive, scalable maintenance and parts service to keep motors running smoothly

- Spare parts stocking program
- Tailored service plans
- Repair and maintenance

Sustainability by design

We reuse what we can, recycle what we can't and remanufacture motors to give them a second life.



Remanufacturing Can Reduce Carbon Emissions by More than Half



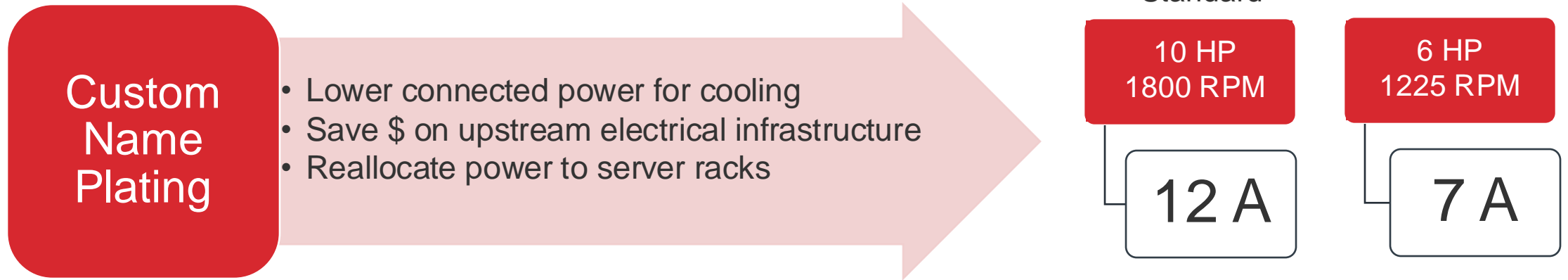
	Conventional AC induction motor (kg of CO ₂)	Infinitem motor (kg of CO ₂)
Copper	12	2
Iron/Steel	226	30
Aluminum	10	63
PCB		4
Magnets		3
TOTAL	248	102

CO₂ Reduction 59%

**All components reused*

- Infinitem keeps components in use and out of landfills
- Most Infinitem components can be reused for decades — housing, rotors, magnets
- In 20 years, the conventional motor will have been manufactured twice. An Infinitem can be manufactured once and remanufactured from reused components.

Save or Make \$\$\$ with Custom Nameplated Motors



Example:

- 50 MW data center requires over 2,000 motors for air cooling
 - Standard motors would require electrical infrastructure to support **24,000 A**
 - Infinitem's system would require only **14,000 A**
 - **5 MW* of connected power** could be reallocated towards additional **revenue-generating compute capacity**

**(considers additional fans needed to cool the additional server racks)*

Contribution to Sustainability

RIGHT SIZE EQUIPMENT – reduce capex

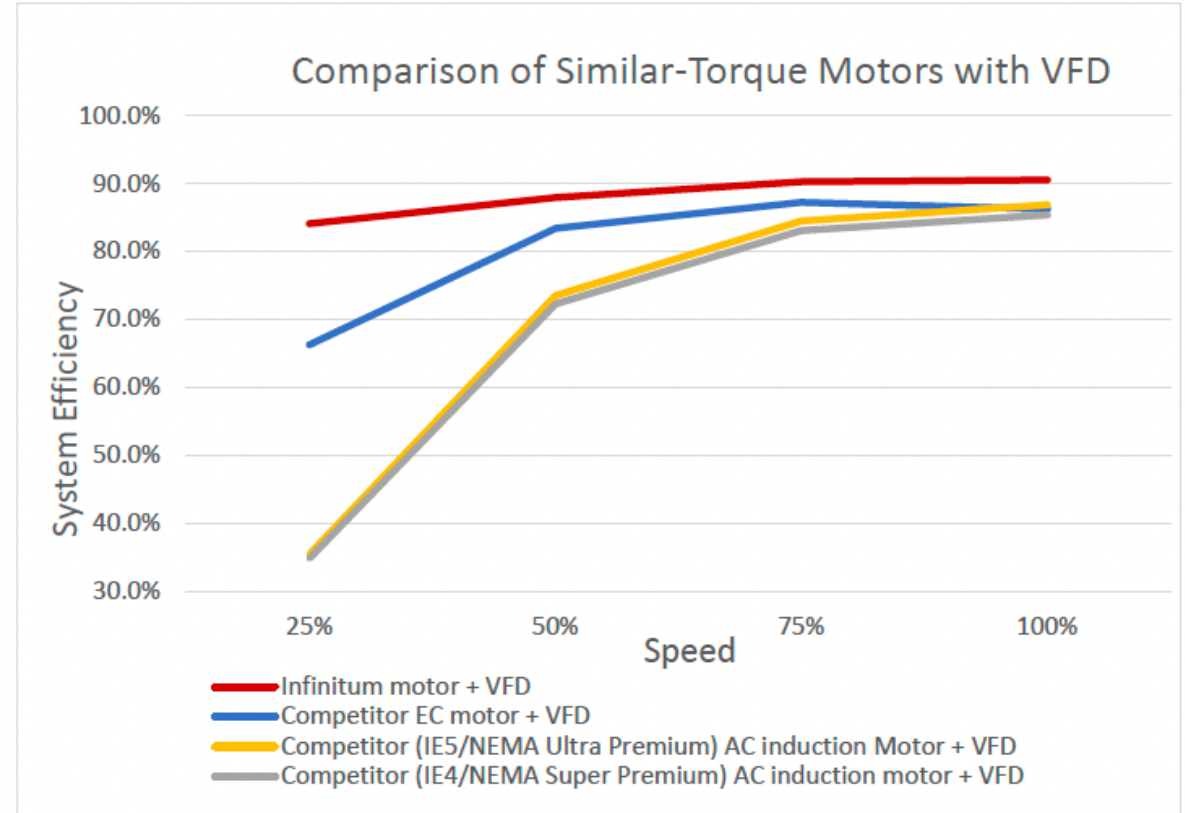
SERVICEABILITY – limit downtimes, reliability

ENERGY EFFICIENCY – top efficiency at all loads

CIRCULARITY – keep motors out of landfills

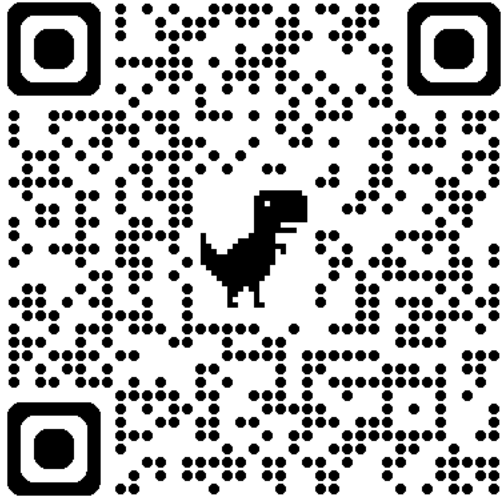
"Infinitum's custom nameplating capability is an extremely powerful offering as it can drastically lower overall capital investment associated with large motor-driven systems."

Blake Griffin, **Interact Analysis**



REDUCE Scope 2 and 3 Emissions while improving PUE and generating more **REVENUE**

Retrofit Case Study



Connect w/ Anthony



For the next generations and beyond!





Thank you.

