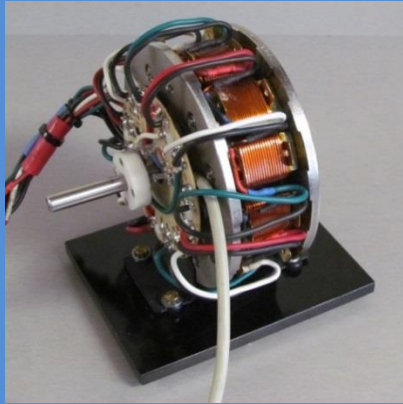


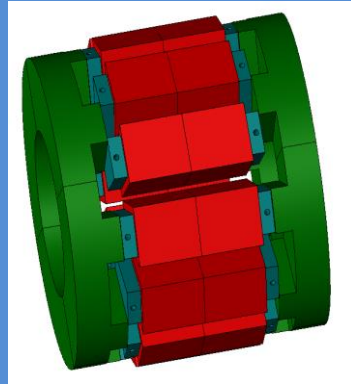


KRESS Premium Motors

115 West Main St., P.O. Box 763, Ligonier PA 15658
 (724) 238-1850 www.kressmotors.com

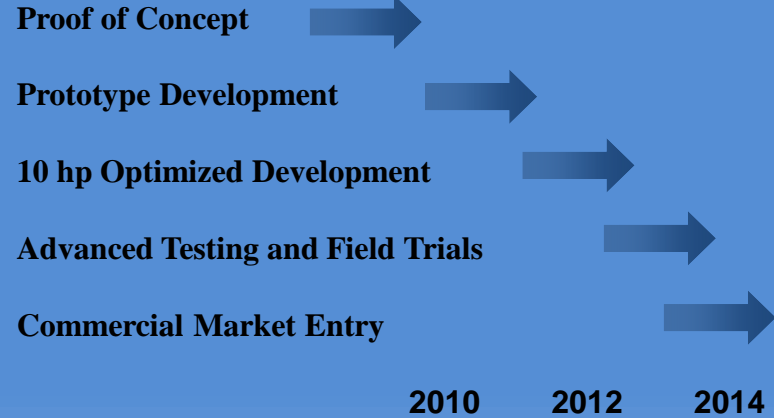


P28 Technology Demonstrator



10 Horsepower Design Concept

Technology Development Roadmap



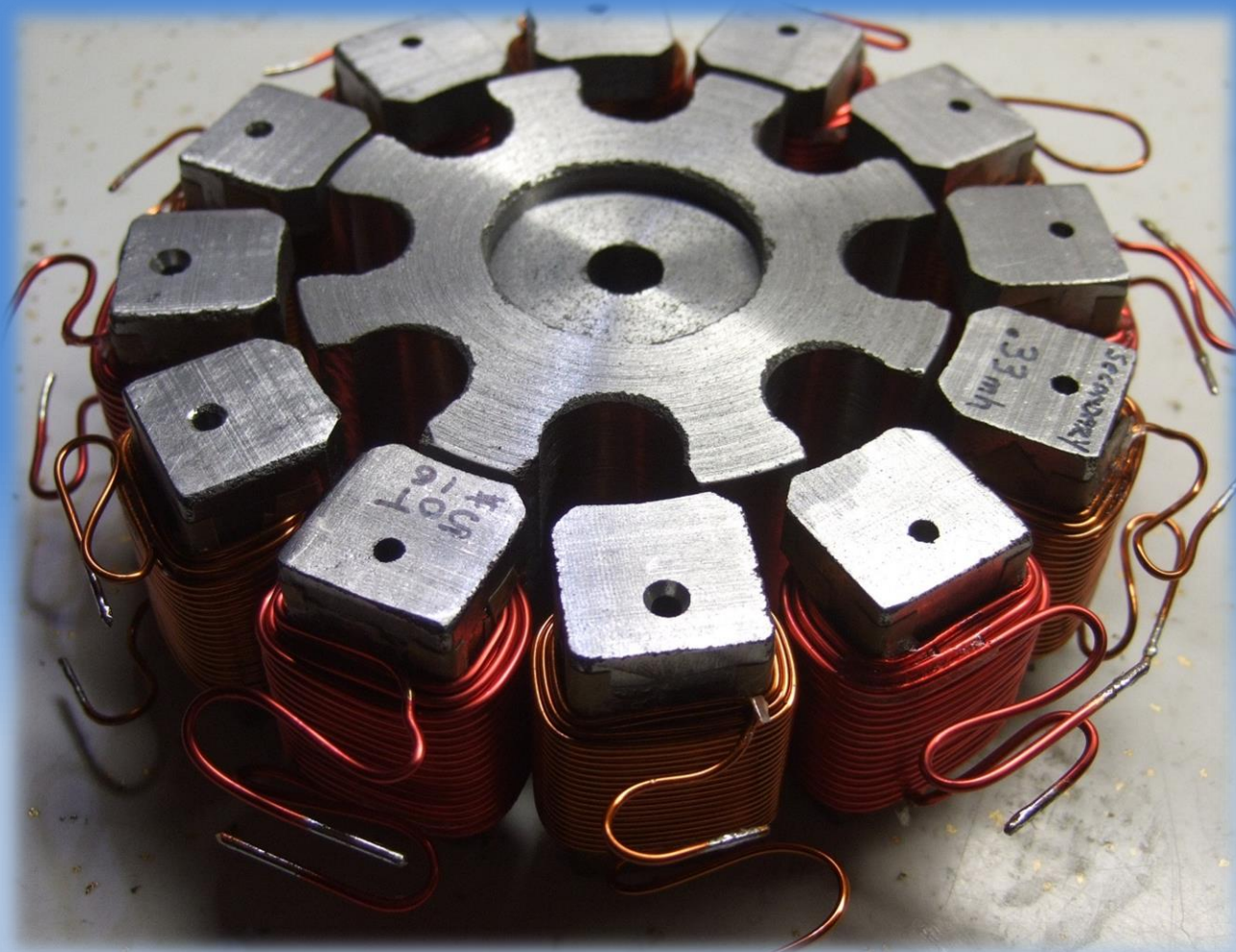
Innovation

- The Kress Intelligent Drive System utilizes a patent pending, Switched DC, Magnetless, motor design coupled with an Intelligent Controller.
- The unique geometry of the motor provides field access to all mechanical parts of the motor for enhanced reparability, and allows gear sets or impellers within the space claim of the motor.
- The integral electronic drive provides a highly efficient variable-frequency drive, and active fault mitigation software to maintain operation under fault conditions.

Customer Benefits

- 92% Premium Class Efficiency.
- Enhanced Life-Cycle Cost Performance.
- No permanent magnets or exotic materials.
- Ability to maintain operation during faults.
- Total field reparability including windings, bearings, electronic components.
- Intelligent Variable Frequency Electronic drive circuitry, provides real-time forward-looking maintenance data.
- Flexible Geometry permits specialized build-to-suit motors with integrated gearing or pump components.
- Use in Explosive or Controlled Atmospheres.

This is the basic motor: rotor and stator

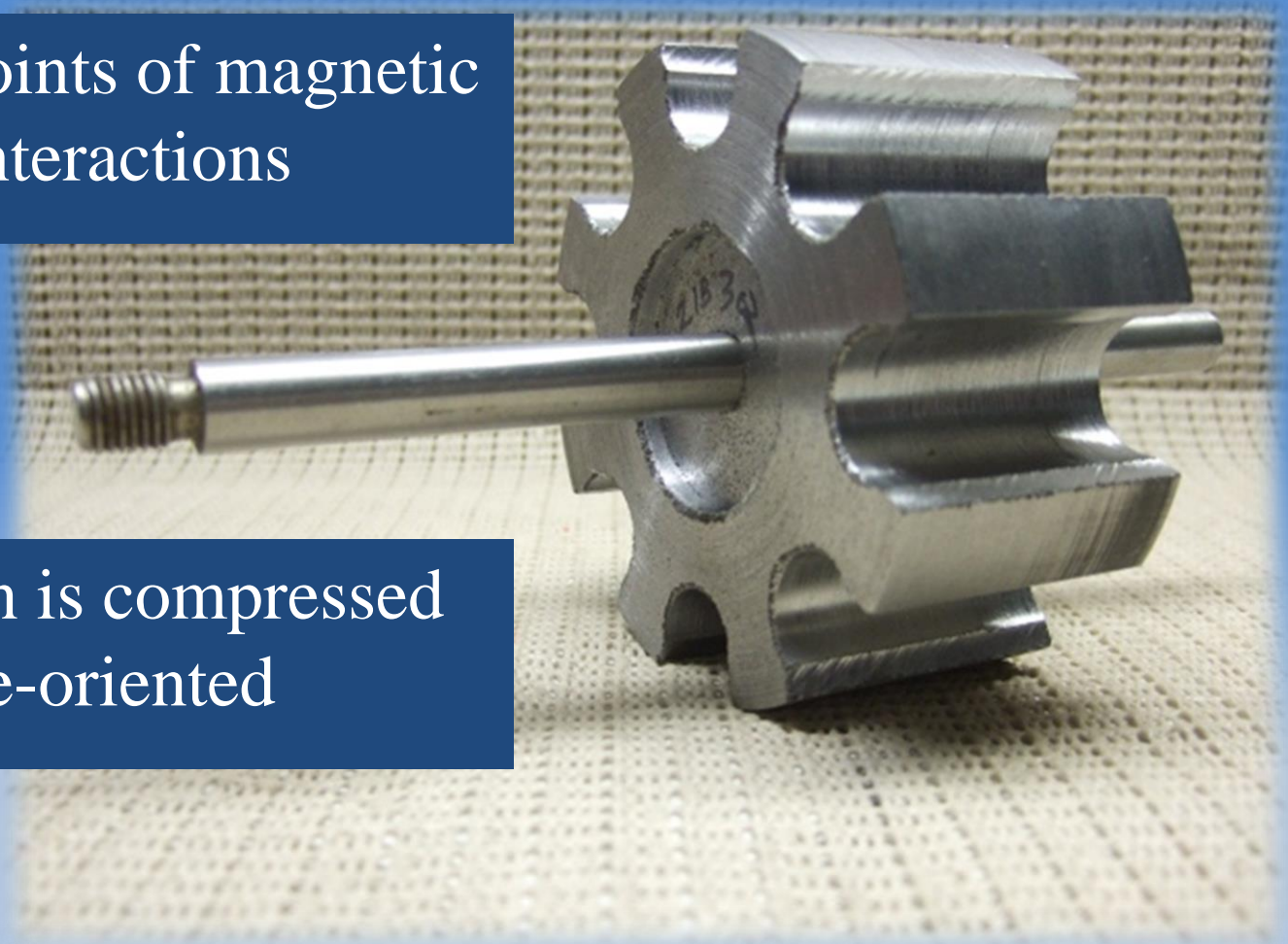


- Rotor is ferrous material
- No wiring on rotor
- No permanent magnets
- Each coil is controlled
- 8 nodes on rotor
- 12 coils
- 3 groups

Rotor is non-electrical and passive

Nodes are points of magnetic flux interactions

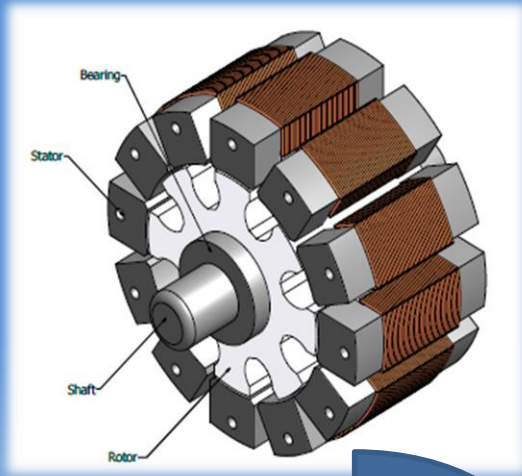
Flux pattern is compressed and re-oriented



- **No basket weave windings**
- **No Back iron**
- **Electrically stand-alone by design**
- **Magnetic propulsion flux from independent stators**
- **Can be individually replaced making motor field-repairable**



Design Advantages



THIS

- Simplicity
- Ease of Manufacture
- Weight
- Efficiency
- Safety
- Maintainability
- Logistics



NONE OF THIS



Intelligent Real-Time Feedback

- Kress Motors and Drives are made for each other
- Fully-instrumented motor provides real time conditional feedback via the motor drive
- Operational and maintenance data is available locally, over a wired data link, or wirelessly

KRESS INTELLIGENT MOTOR STATUS SCREEN

VAT 1 STEERING MOTOR #0125

MOTOR STATUS SCREEN RESET

MOTOR SPEED:	<input type="text" value="1300"/>	RPM	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
MOTOR BUS VOLTAGE :	<input type="text" value="325"/>	DCV	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>

CURRENT LEVELS

MOTOR BUS CURRENT :	<input type="text" value="160"/>	Amp	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
CONTROLLER CURRENT :	<input type="text" value="7"/>	Amp	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
STATOR 1 CURRENT :	<input type="text" value="36"/>	Amp	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
STATOR 2 CURRENT :	<input type="text" value="36"/>	Amp	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
STATOR 3 CURRENT :	<input type="text" value="36"/>	Amp	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>

TEMPERATURE LEVELS

CONTROLLER TEMPERATURE :	<input type="text" value="97"/>	°F	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
STATOR 1 TEMPERATURE :	<input type="text" value="115"/>	°F	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
STATOR 2 TEMPERATURE :	<input type="text" value="114"/>	°F	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
STATOR 3 TEMPERATURE :	<input type="text" value="116"/>	°F	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
FRONT BEARING TEMPERATURE :	<input type="text" value="120"/>	°F	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
BACK BEARING TEMPERATURE :	<input type="text" value="50"/>	°F	<input type="button" value="LOW"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>

BEARING NOISE LEVELS

FRONT BEARING NOISE	<input type="text" value="10"/>	DB	<input type="button" value="NORMAAL"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>
BACK BEARING NOISE	<input type="text" value="10"/>	DB	<input type="button" value="NORMAAL"/>	<input type="button" value="HIGH"/>	<input type="button" value="ALARM"/>	<input type="button" value="Ⓜ"/>

MOTOR POWER CONTROL

PASSWORD 10 DIGITS:	<input type="text"/>	<input type="button" value="RETURN TO MAIN MENU"/>
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What makes the Kress Motor different?

The Kress Motor has:

- **Greater energy conversion efficiency than traditional motors with intrinsic soft-start capability to minimize “demand-meter” costs, and eliminate the need for power-factor correction.**
- **Independent stators: support the ability of the Kress motor to maintain operation during a stator winding failure.**
- **Field repairable windings, bearings, electric components – no need to send motors to offsite repair shops.**
- **Real-Time Diagnostics generated by the Intelligent Variable Frequency Drive Circuitry allow for prediction of failures and condition-based-maintenance.**
- **Projected lower life cycle costs from high efficiency and field reparability**
- **Flexible Geometry permits specialized build-to suit motors with integrated gearing or pump components.**

The Kress Motor can be used in Explosive or Controlled Atmospheres.