Small Machines Make A Big Impact

INDUSTRIAL PROCESSING COST SAVING CHALLENGE

Electric motors make an average of 70% total power cost

$87k/ Hour

Average cost of unplanned downtime for a typical industrial processing plant**

Multiple suppliers, designs and specifications tying up resources.
Frequent unplanned maintenance disrupting operations requiring replacement motors onsite.
Older low efficient motors eating profits.
Higher Efficiency and Less Downtime

$930k/Year
Energy savings uncovered during a plant motor audit and resulting frame agreement

Frame agreements increase supply and specification efficiency freeing up resources. Less unplanned maintenance and downtime with more robust motor designs. 1% energy efficiency gains translates to less than two year payback.
Application Considerations
TOTAL COST OF OWNERSHIP

CONSIDER LIFECYCLE OPERATING COSTS FIRST
The initial cost of an electric motor makes up 5% or less of the total cost of operation. So all aspects of the motor operation should be considered when purchasing motors.

- Energy Consumption
- Efficiency
- Ease of Maintenance
- Reliability
- System Criticality
- Lifecycle
- Environmental Impact

WE ADDRESS THE MOST COMMON REASONS FOR MOTOR FAILURE

BEARINGS
- Heat
- Contamination
- Vibration
- Misalignment
- Lubrication Issues
- Electrical Discharge
- Stress, Load, Fatigue

STATOR WINDINGS
- Heat
- Load
- Inverters
- Contamination
- Voltage Issues

COMMON INDUSTRIAL APPLICATION REQUIREMENTS
Each petroleum, chemical, power generation, pulp/paper, mining, metal, mineral, water/wastewater, and general process application has unique torque, speed, voltage, enclosure, temperature, and industry standard requirements that must be designed into motors.

- Pumps
- Compressors
- Blowers
- Heat Exchangers
- Mixers
- Conveyors
- Crushers
- Augers
Durable and Reliable Technology

ALL LOW VOLTAGE MOTORS ARE NOT BUILT THE SAME

GEGARD™ INSULATION OFFERS ADDED PROTECTION IN SEVERE APPLICATIONS

Our Class H GEGARD insulation system is designed to excel in variable frequency drive applications where lesser designs often short circuit and cause overcurrent trips.

GEGARD Insulation

180°C Class H 1.15 SF

120°C Class B 1.0 SF

40°C Normal Ambient

Larger Thermal Margin = Longer Motor Life

GUARDING AGAINST BEARING FAILURE

Common shaft currents create voltage spikes that reach bearings causing them to vibrate in operation. Over a short period, this vibration (fluting) will degrade bearings to the point of failure. We include bearing insulation for higher ratings and Aegis™ shaft grounding rings are optional on all ratings.

ROTATIONAL VARNISH APPLICATION

Motor coils are rotationally varnished with a "Trickle Treat" process while an electric current is passed through the windings to ensure a penetrating, thorough and even coating. This proven process fills air gaps that could cause corona inception damage during operation.

WIRE BONDING

Resin penetrates deep into tightly packed coil wire creating a strong bond that guards against end-turn vibration.

MOISTURE PROTECTION

Contaminants can't penetrate carefully and tightly packed stator coils bonded by deep resin penetration into the slots.
Product Portfolio
RUGGED, RELIABLE AND EFFICIENT LOW VOLTAGE MOTORS

SEVERE DUTY NEMA IE3

NEMA PREMIUM EFFICIENT

This versatile and robust design is ideal for a wide range of challenging industrial applications and environments.

MODELS
- XSD Ultra
- XSD Ultra 841
- Energy Saver

TECHNICAL CAPABILITIES
- 0.75–300 HP, 900–3600 RPM
- 230/460, 460, 575 V, Freq. 60 Hz
- Alternate 50 Hz data on nameplate
- TEFC (IP55) and ODP
- Frame sizes: 143T–449T
- NEMA, UL, CSA, IEEE 45, IEEE 841, IEEE 112B, GM 7E-TA
- Division 2 applications
- C-Face and high-torque Design
- "C" models available.
- VFD ready with GEGARD Class H (XSD Ultra) or Class F (ES) insulation
- Five (XSD Ultra) or Three (ES) Year Warranty

SEVERE DUTY IEC IE3

RUGGED AND RELIABLE

Based on the XSD Ultra mechanical and electrical design for the global market. Ideal for extreme environments.

MODEL
- XSD Ultra 841 IEC

TECHNICAL CAPABILITIES
- 0.55–220 kW
- 750–3000/900–3600 RPM
- 200 V, 400 V, 400/690, 690 V / 50 Hz
- 230/460, 460, 575, 690 V / 60 Hz
- TEFC (IP55)
- Frame size: 90S–280H
- IEC, IEEE 841, IEEE 45, ATEX, and IEC Exn
- Zone II, ABS
- VFD ready with GEGARD Class H insulation
- Five Year Warranty

EXPLOSION PROOF NEMA IE3

PROTECTS SYSTEMS IN HAZARDOUS ZONES

This enclosure has been specially designed to contain any sparking for hazardous environments where volatile gases may be present.

MODEL
- XSD Ultra XP
- Energy Saver XP

TECHNICAL CAPABILITIES
- 1–300 HP, 900–3600 RPM
- 230/460, 460, 575 V, Freq. 60 Hz
- Alternate 50 Hz data on nameplate
- TEFC (IP55)
- Frame sizes: 143TC–449T
- NEMA, UL, CSA, IEEE 112B
- Division 1, Class I - Groups C, D
- Class II - Groups F, G
- Five (XSD Ultra) or Three (ES) Year Warranty

ADJUSTABLE SPEED NEMA

EXCELS IN CONSTANT TORQUE APPLICATIONS

Optimized performance in metal processing, plastic extrusion, winders, test stands, crane and hoist and material handling.

MODEL
- ASD Ultra

TECHNICAL CAPABILITIES
- 1.5–300 HP, 1800 RPM
- 230/460, 460, 575 V, Freq. 60 Hz
- TEFC, TEBC, TENV (IP55)
- Frame sizes: 143TC–449T
- NEMA, IEEE 841, IEEE 112B
- VFD ready with GEGARD Class H insulation
- Five Year Warranty
### HEAT EXCHANGER
**NEMA IE3**

**STABLE, RELIABLE, EFFICIENT**

Specially rated and ideally suited for harsh outdoor heat exchange applications.

**MODEL**
- XSD Ultra 661

**TECHNICAL CAPABILITIES**
- 0.75 - 300 HP, 900 - 3600 RPM
- 460, 575 V, Freq. 60 Hz
- TEFC (IP55)
- Frame sizes: 184T - 449
- NEMA, UL, CSA, API 661, IEEE 841, IEEE 45, GM 7E-TA, IEEE 112B
- CE, ATEX Zone 2
- Division 2 application
- VFD ready with GEGARD
- Class H insulation
- Five Year Warranty

### VERTICAL PUMP
**NEMA IE3**

**INVERTER-DUTY AND EFFICIENT**

Combines extra severe duty engineering with advanced thrust and cooling technologies.

**MODELS**
- Ultra Series Vertical
- Large Custom Vertical

**TECHNICAL CAPABILITIES**
- 3 - 1000 HP, 600 - 3600 RPM
- 460, 575, 2300/4600 V
- 60Hz or 50Hz
- WPI and TEFC Enclosures
- Hollow and Solid Shaft
- Normal, High, and Extra High Thrusts
- Frame size: 182 - 5000
- API 610 12th Edition
- P-Base mountings
- VFD ready with GEGARD
- Class H insulation
- Three Year Warranty

### MEDIUM VOLTAGE
**NEMA**

**SEVERE DUTY, LONG LASTING**

Designed to operate in extreme Petrochemical, Power Generation, Mining and general process environments and applications.

**MODELS**
- Quantum LMV

**TECHNICAL CAPABILITIES**
- 100 - 1750 HP, 900 - 3600 RPM
- 460, 575, 2300/4000 V
- Freq. 60 and 50 Hz
- TEFC
- Available in IEEE 841 config.
- Frame sizes: 440 - 8200
- NEMA, CSA, UL, IEEE 112B, AEx nA
- API 547 and 541, Division 2, Zone 2
- Class F insulation
- Three Year or Five Year Warranties (IEEE 841)

### DIRECT CURRENT
**NEMA**

**RELIABLE WORKHORSES**

A reliable lifeline to driven equipment and backbone for production and operation.

**MODELS**
- Kinematic
- CD6000 Series
- Mill Duty

**TECHNICAL CAPABILITIES**
- 1 - 500 HP, 300 - 3600 RPM
- Armature voltage: 180, 240, 500
- Field voltage: 300/150, 240/120
- DPFG, DPFG-BV, TE
- Explosion proof
- TREC coils on large frames
- Two Year Warranty
- (CD6000 Series)
- 500 - 2000 HP, 300 - 1750 RPM
- Armature voltage: 500, 600
- (Mill Duty)
- 5 - 500 HP, 340 - 1025 RPM
- Armature & Field voltage: 230, 460
- Meets AIST standard