

TOSHIBA

Leading Innovation >>>



Toshiba is proud to introduce the IEC IE4 Permanent Magnet motors from the New Tosh-ECO™ Series.

With ever-increasing regulations on energy efficiency for electric motors, Toshiba offers a high efficiency AC Permanent Magnet motor to meet the IE4 and “Super Premium” efficiency levels. The AC Permanent Magnet Motor utilizes rare-earth neodymium elements in the rotor construction. By using permanent magnets incorporated into the AC Motor design, the motor utilizes the same power output and high torque density with reduced size and weight.

Power	.55 to 315 kw
Speed (50 Hz)	1000, 1500, 3000, & 4500 RPM
Efficiency Class	IE4 Efficiency (As defined by IEC60034-30-1)
Voltage (50 Hz)	400 V
Enclosure	Totally Enclosed Fan Cooled (TEFC)
Frame Size	71 - 315 Frame per IEC 60072
Construction	Aluminum Frame 71 - 132 Cast Iron Frame 160 - 315
Ingress Protection	IP55
Insulation Class	Class F-Random Wound
Applicable Standards	IEC 60034, 60072, 60204
Mounting	Suitable for Horizontal Mounting; All Mounting Orientations for <160 Frame
Vibration	Grade A, Balanced with Half Key per ISO 8821

- Average Efficiency Improvement of 5-8% over Induction Motors
- Powerful Mechanical Strength & Corrosion Resistance of Rare Earth Magnet in Core
- Slipless Design, Synchronous Speed, & Precise Application and Rotation Control
- No I²R Losses in Rotor
- Rotatable 90° Increments F-3 (Top Mount) with 2 Ground Provisions (One Plastic Cable Gland & Plug)
- Suitable for High Speed Operation Up to 50% Above Rated Speed at Constant Power (Beyond NEMA Max Overspeed)



Tosh-ECO™ Permanent Magnet Motor

LOW VOLTAGE MOTOR





BENEFITS OF PM MOTORS VS. INDUCTION MOTORS

- Reduction of Rotor Losses
- Energy Cost and Savings
- Footprint and Size
- Lighter Weight
- Demand for Higher Productivity and Required Torque
- Smoother Drive Performance
- Reduced Maintenance Required



Energy Savings

- Meets IE4 Efficiency Levels (As defined by IEC60034-30-1)
- No I²R Losses in Rotor
- Low Temperature Rise
- Must be Operated on ASD
- 5-8% Typical Avg. Efficiency Improvement vs. Induction Motor



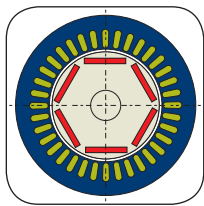
Drive Applications

- Constant Power Output in Field Weakened Range for Variable Torque Operation
- Precision Speed Control Without Requiring an Encoder
- Suitable for Shaft Grounding and Bearing Protection
- Suitable for Overspeed Conditions
- Full Torque across the Rated Speed Range
- Bi-Directional Designs



Construction

- Class F Insulation System with Class B Temperature Rise at 1.0 SF
- Interchangeability/Drop-In Replacement with IEC Metric Frame Induction Motor Counterparts
- IEC Mounting and Flanges with Removable Feet
- Thermally Protected by Thermistor PTC Rated for 135°C for 160-315 Frame (Quantity 3, Single-Phase)
- Eye Bolt or Cast in Lifting Mechanism for Frame >90L



Interior PM Design

- NdFeB Magnets Embedded in the Rotor Core
- Corrosion Resistance with Protective Coating
- Advanced Mechanical Strength Magnets
- High Loss Magnetizing Steel Core



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