



CKA Birla Group

Precision Bearings for High-Demand Traction Applications

Protecting Motors from Electrical Erosion



Advanced Solutions for

- ▶ Traction Motors
- ▶ Railway Applications
- ▶ VFD Driven Motors
- ▶ Industrial Drives
- ▶ EV & E-Mobility Systems

Reliable Protection Against Electrical Bearing Damage.

The Hidden Threat: Bearing Current Damage

Modern inverter-driven motors generate shaft voltages that can discharge through the bearing.

Common Failure Modes

- ✓ Electrical Erosion
- ✓ Raceway Fluting
- ✓ Micro Cratering
- ✓ Lubricant Degradation
- ✓ Premature Bearing Failure



Electrical fluting damage

Consequences

- ✓ Reduced bearing life
- ✓ Unplanned maintenance
- ✓ Increased downtime
- ✓ Higher operating costs





Ceramic Coated Bearings

High-performance ceramic coating is plasma sprayed on the outer ring surface creating a highly effective electrical barrier.

Key Features

- ✓ Excellent electrical insulation
- ✓ Suitable for large motors
- ✓ Mechanically robust coating
- ✓ Compatible with all type bearings

Benefits

- ✓ Prevents current passage through bearing
- ✓ Reduces electrical pitting
- ✓ Long service life
- ✓ Easy interchangeability

Applications

- ✓ AC Traction Motors
- ✓ Medium & Large VFD Motors
- ✓ Wind Generators
- ✓ Railway Propulsion Systems

Outer Ring Insulation Technology





Hybrid Bearings

Steel rings combined with Silicon Nitride Si₃N₄ ceramic rolling elements.

Key Features

- ✓ Excellent electrical insulation
- ✓ Higher speed capability
- ✓ Lower friction
- ✓ Reduced lubrication demand
- ✓ Excellent wear resistance
- ✓ Lightweight rolling elements

Applications

- ✓ High-speed traction motors
- ✓ EV motors
- ✓ High-frequency inverter motors
- ✓ Servo drives

Ceramic Rolling Element Technology





Polymer Overmoulded Bearings

Engineered polymer insulation is directly overmoulded onto the bearing outer diameter.

Key Benefits

- ✓ Excellent electrical insulation
- ✓ Suitable for small and medium motors
- ✓ Lightweight design
- ✓ Compatible with all type bearings
- ✓ Cost-effective protection

Applications

- ✓ HVAC Motors
- ✓ Fans & Blowers
- ✓ Pumps
- ✓ Textile Machinery
- ✓ Compact Industrial Motors
- ✓ Auxiliary Railway Motors

Compact Insulation for Small Motors



Why Choose NBC Insulated Bearings?

- ✓ Proven Railway Experience
- ✓ Designed for Converter Driven Motors
- ✓ Extended Bearing Life
- ✓ Reduced Maintenance Cost
- ✓ Suitable for New Motors & Retrofits
- ✓ Global Manufacturing Standards

1946

India's first bearing
manufacturer

260+ Million

Bearings
manufactured/ annum

7600+

Variants of
bearings offered

3000+

Peoples
strength

30+

Countries
leading exporter

5+ Mfg. Plants,

Two Innovation
& R&D Centers

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