NKE electrically insulated rolling bearings

> Optimum protection against bearing damage caused by the passage of electrical current

NKE BEARINGS

More possibilities!

NKE electrically insulated rolling bearings

> Simple, effective electrical insulation of bearings

> Optimum protection against the passage of current

Bearing damage by the passage of electrical current

Under adverse conditions the rolling bearings used in electrical machines can sustain damage through current discharge.

The electrical current passing through the bearing may be caused by

> Incorrect or faulty wiring
> Faulty or damaged earth connections resulting in insufficient potential equalisation
> Unshielded and/or asymmetric wiring in electric motors
> Asymmetrical magnetic flux
> Fast acting frequency converters

Damage by current passage: electrical corrosion

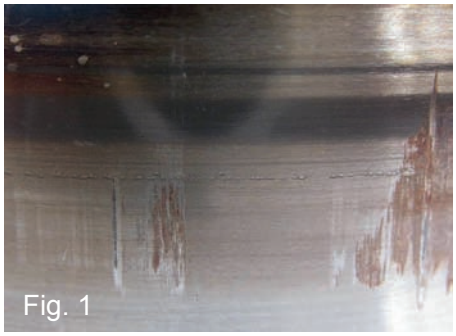


Fig. 1

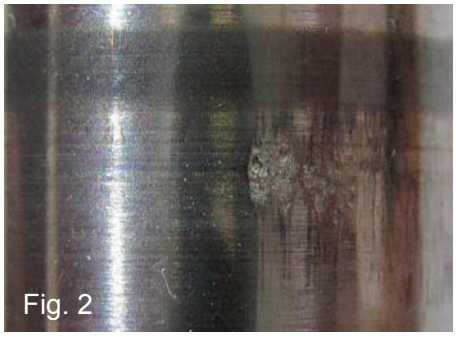


Fig. 2

Current passage has led to a formation of craters/flutes on the inner ring raceway (fig. 1) and the lateral surface of the rolling elements (fig. 2) of a cylindrical roller bearing

The solutions

The potential for damage can be eliminated by:

> Ensuring correct wiring
> Sufficient earth connection
> Isolated coupling to the electrical machine
> Electric filters
> Grounding of rotors and brushes

Moreover, it is advantageous to NKE electrically insulated bearings.

NKE electrically insulated bearings – efficient and effective

NKE provides **bearings with oxide ceramic insulating layers on the bearing ring**. Applied with plasma technology, the insulation has a guaranteed breakdown resistance of at least **1000V** AC or DC.

Two variants are available:

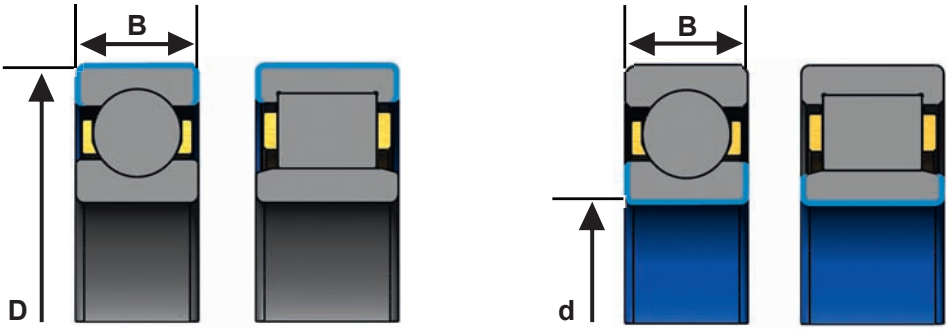
> SQ77: Insulation on the outer ring

> SQ77E: Insulation on the inner ring (Fig. below)

A NKE deep groove ball bearing > with insulation on the inner ring (SQ77E)

> Fast availability
> Versatile applications

Overview – Product range and technical data



NKE suffixes	SQ77	SQ77E	
Type of insulation	Outer ring coating	Inner ring coating	
Diameter range [mm]	Outer diameter 90 ≤ D ≤ 500	Bore diameter 75 ≤ d ≤ 150 with the bore diameter to bearing width proportion d/B > 3 (narrow and single row bearings)	Bore diameter 150 ≤ d ≤ 315 with width within the range of 20 < B ≤ 315 (wide and double row bearings)
Application	DGBB, CRB, Special types up to D=1000mm on request	DGBB, CRB	DGBB, CRB

Frequently used bearing types in **SQ77** execution (insulation on the outer ring) are available on stock or with short lead times. Examples:

> **Cylindrical roller bearings**
Design: NJ, NU, NUP
Dimension series: 210-230, 310-330
Cage: brass and polyamide
Radial clearance groups: C0, C3, C4

> **Deep groove ball bearings**
Dimension series: 6212-6226; 6312-6326
Cage: brass
Radial clearance groups: C3, C4

Other bearing types and SQ77E (insulation on the inner ring) on request.

Advantages:

> Higher operational reliability through optimum protection against current passages
> More economical than insulation on housings or shafts
> Interchangeable: Same dimensions and technical properties as conventional bearings
> Coating resistant to mechanical damage if correctly handled

Typical applications:

> Traction motors of railway vehicles
> Electric motors (AC/DC)
> Generators (e.g. in wind turbine generators)