



## **NKE electrically insulated rolling bearings**

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

*More possibilities!*

**NKE**  
B E A R I N G S

# NKE electrically insulated rolling bearings

- > Simple, effective electrical insulation of bearings
- > Optimum protection against the passage of current

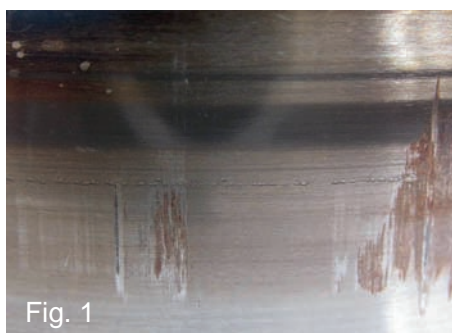
## Bearing damage by the passage of electrical current

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



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:

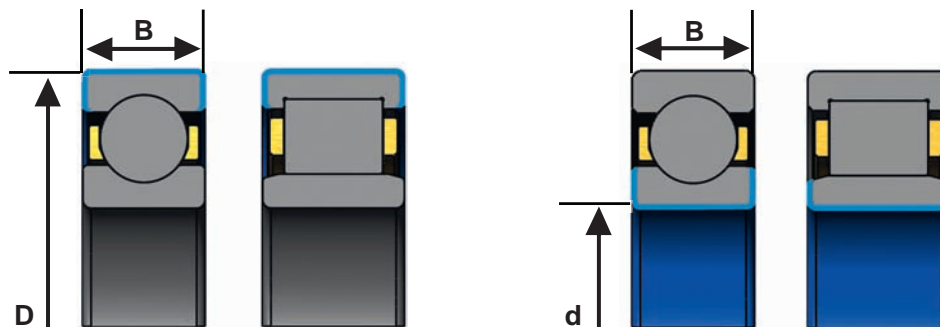
- > **SQ77**: Insulation on the outer ring
- > **SQ77E**: Insulation on the inner ring (Fig. below)



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 $90 \leq D \leq 500$	Bore diameter $75 \leq d \leq 150$ with the bore diameter to bearing width proportion $d/B > 3$ (narrow and single row bearings)	Bore diameter $150 \leq d \leq 315$ with width within the range of $20 < B \leq 315$ (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)

NKE headquarters in Steyr – more than 10.000 m<sup>2</sup> for core functions such as engineering, production, logistics, quality assurance, marketing and sales



# NKE AUSTRIA

NKE AUSTRIA GmbH is a premium bearing manufacturer with headquarters in Steyr, Austria. The company was founded in 1996 by a group of senior staff members of the former Steyr Wälzlager.

NKE manufactures both standard and special bearings for all industrial applications. Our core competences – engineering, product development, final processing of components, assembly, quality assurance, logistics, sales and marketing – are centralised in Steyr. The site is accredited with ISO 9001:2008 (design, development, manufacturing and distribution of bearings), ISO 14001:2004 and OHSAS 18001.

For more information please contact:

**NKE**  
B E A R I N G S

**NKE AUSTRIA GmbH**  
Im Stadtgut C4,  
4407 Steyr, Austria  
Tel: +43 7252 86667  
Fax: +43 7252 86667-59  
office@nke.at  
www.nke.at

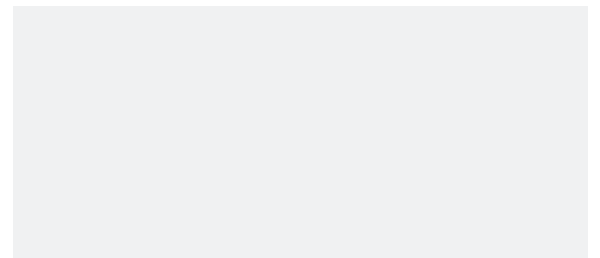
We offer:

- Standard bearings with a comprehensive stock range
- Tailor-made bearings for special requirements
- Technical service (e.g. consulting, documentation, training etc.)

NKE bearings are distributed through 18 international representative offices and more than 240 distribution outlets in over 60 countries.



Your local NKE partner



Every care has been taken to ensure the accuracy of the information contained in this publication, but NKE accepts no liability due to errors or omissions NKE reserves the right to change any product specifications. All rights reserved. © NKE Austria GmbH.

Member of:

