NKE electrically insulated rolling bearings

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

**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.

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

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### Overview – Product range and technical data

<table>
<thead>
<tr>
<th>NKE suffixes</th>
<th>SQ77</th>
<th>SQ77E</th>
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<tbody>
<tr>
<td><strong>Type of insulation</strong></td>
<td>Outer ring coating</td>
<td>Inner ring coating</td>
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<tr>
<td><strong>Diameter range [mm]</strong></td>
<td>Outer diameter 90 ≤ D ≤ 500</td>
<td>Bore diameter 75 ≤ d ≤ 150 with the bore diameter to bearing width proportion d/B &gt; 3 (narrow and single row bearings)</td>
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<tr>
<td><strong>Application</strong></td>
<td>DGBB, CRB, Special types up to D=1000mm on request</td>
<td>DGBB, CRB</td>
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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 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.

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.

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