

Electrically Conductive Seals

Disruptive electrical discharges found in applications such as electric motors, can cause damage to bearing raceways or disturb signal transmission in encoders.

Fast switching frequency converters can account for these discharges, however asymmetrical magnetic flow in the motors and unshielded asymmetrical wires are the two classic causes common in large motors with a low pole pair number, as they have higher magnetic asymmetry than their smaller counterparts.

Disruptive electrical discharges can cause damage not only to the raceways but also to the grease and balls in the bearing.

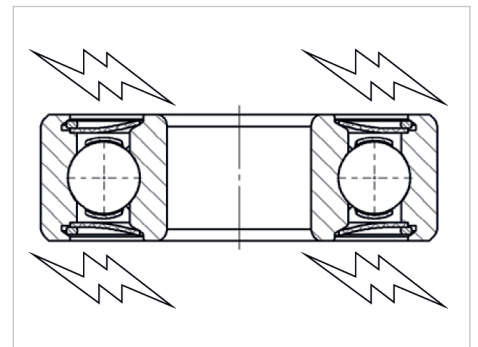
There are several general approaches to solving this issue:

- Isolation of the inner and outer ring (e.g. with ceramic balls or coating of the inner or outer ring)
- Targeted current flow in the ball bearing (e.g. through an electrically conductive seal)
- Targeted current flow with brushes on the shaft

In addition to utilising the first approach of using ceramic balls or coating the inner or outer rings, HQW Precision has developed an electrically conductive seal which leads the current directly from the inner ring to the outer ring and vice versa, thus avoiding undesirable capacitor effects.

Seal Specifications & Advantages:

- Contact seals
- Minimise raceway damage
- Minimise signal transcription errors



Section Drawing of the bearing with electrically conductive seal



Exploded view of a deep groove ball bearing

www.hqw.gmbh

HQW Precision GmbH | Wachtelberg 23, 97273 Kürnach, Germany
Tel: +49 (0) 9367 98408-0 | Email: info@hqw.gmbh

No liability can be accepted for any errors or omissions.
This publication or parts thereof may not be reproduced
without permission. | Ref: HQW-ECS-F-12/2019-EN