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Press Release

Bearings with optimized coating for improved protection against current passage

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- Optimized Insutect A bearing coating offers superior protection against current passage
- Machine availability is increased, and the service life of lubricating greases is extended
- Improved performance of traction motors in rail transport, across wind turbines, and in drive technology

Whether in traction motors for rail transport, wind energy systems, or drive technology, the use of electric motors or generators with frequency converters is increasingly becoming the norm. However, this trend also introduces the risk of electrical voltage developing between the inner and outer rings of rolling bearings. Current passage can significantly damage lubricants, rolling elements, and raceways, leading to premature bearing failure. As a result, implementing measures to prevent such damage and failures is advisable at the early planning stage. Schaeffler has now introduced improved current-insulated bearings from the J20G series to mitigate this risk.

The new J20G series bearings from Schaeffler have an optimized Insutect A coating, offering even greater protection against the risk of current passage. “Wherever current can flow through bearings, robust insulation is essential. Without it, parasitic currents can cause significant damage and wear to rolling bearings and lubricants, resulting in unplanned downtime and high maintenance costs,” explains Manuela Baerthlein from Global Product Management for current-insulated bearings at Schaeffler. “With these new bearings, our customers benefit from our long-standing experience in current insulation and can significantly enhance the reliability of their systems.”

New coating process provides enhanced insulation protection

The outer surfaces of the outer and inner rings are coated with Insutect A, an insulating aluminum oxide coating applied using plasma spraying. Schaeffler has refined the bearing coating process for enhanced reliable protection against current passage to provide a more efficient insulation protection, even under challenging operating conditions such as high humidity. The result is reduced maintenance costs, increased machine availability and operational safety, and an extended grease service life.

The bearings can withstand direct voltages of at least 3,000 volts and exhibit a higher impedance and an ohmic resistance of at least 250 megaohms. The aluminum oxide coating is extremely hard, resistant to wear, and a good conductor of heat. The bearings are available as standard in the J20GA, J20GB, and J20GI variants to meet diverse requirements. The J20GB coating thickness provides enhanced protection for higher electrical currents, such as those encountered in the rail sector. The highest level of protection is achieved with bearings featuring a coated inner ring (J20GI). Other variants are available upon request.

Dimensions according to DIN 616 for maximum flexibility

The external dimensions of the bearings conform to the dimensions specified in DIN 616 standards, meaning that they have the same dimensions and tolerances as standard bearings and offer seamless interchangeability. Deep groove ball bearings and cylindrical roller bearings are most commonly used with aluminum oxide coatings, though other bearing designs are also available with the coating by agreement. Insutect A-coated bearings from Schaeffler meet all requirements relating to service life, maintenance intervals, operational safety, and cost-efficiency.

In addition to bearings with coated rings, Schaeffler offers hybrid bearings with ceramic rolling elements, which offer the highest resistance to current passage. For applications with elevated requirements or outside diameters measuring less than 120 mm, Schaeffler experts recommend the use of hybrid bearings. Schaeffler's comprehensive portfolio ensures customers can find the right solution for every application.

Further information on bearings with an Insutect A coating can be found here:
Insutect A bearings | Schaeffler medias

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Schaeffler Group – We pioneer motion: The Schaeffler Group has been driving forward groundbreaking inventions and developments in the field of motion technology for 80 years. With innovative technologies, products, and services for electric mobility, chassis solutions, and renewable energies, the company is a reliable partner for making motion more efficient, intelligent, and sustainable – over the entire life cycle. Schaeffler describes its comprehensive range of products and services by means of eight product families: from bearing solutions and all types of linear guidance systems through to repair and monitoring services. With around 110,000 employees and more than 250 locations in 55 countries, Schaeffler is one of the world's largest family-owned companies and ranks among Germany's most innovative companies.

Current passage can significantly damage lubricants, rolling elements, and raceways, leading to premature bearing failure. Image: Schaeffler

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Die neuen Lager der J20G-Serie von Schaeffler verfügen über eine optimierte Insutect A-Beschichtung. Mit dieser lässt sich das Risiko des Stromdurchgangs jetzt noch besser vermeiden. Bild: Schaeffler

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