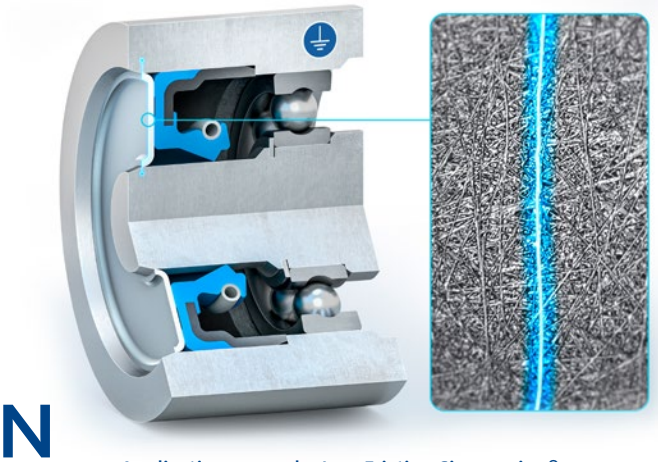
eCON – ELECTRICALLY CON-DUCTIVE NONWOVEN



Application example: Low Friction Simmerring® with electrically conductive nonwoven

One of the outstanding characteristics of electrically powered vehicles is their longevity due to the small number of moving parts in the electric drive compared to combustion engines. However, this longevity can be severely limited by wear and damage to the bearings in the electrical machine caused by bearing currents and the associated electrical erosion. In order to protect the bearings effectively, these damaging currents must be diverted past them and grounded.

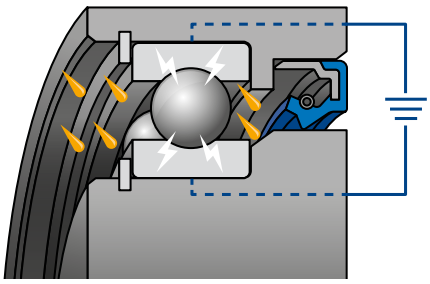
The electrically conductive nonwoven material from Freudenberg can solve this problem. It forms a conductive bridge between the housing and the shaft and thus prevents electrical erosion inside the drive unit.

In addition, the nonwoven is able to support the shielding of the overall system in order to minimize radio noise or faulty data transmissions of the BUS system.

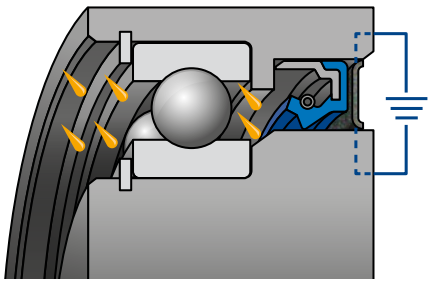
The electrically conductive nonwoven material is available as a pure grounding system or in combination with a sealing system and no extra space is required.

VALUES FOR THE CUSTOMER

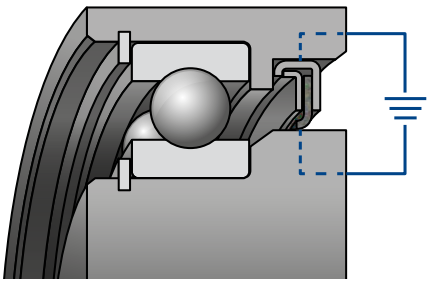
- Safe electrical connection between the housing and the rotating shaft
- In combination with the sealing system, no extra space or weight is needed
- Low friction and maintenance-free
- Tested and recommended by expert committees
- Successful bearing protection in high-volume battery electric vehicles since 2015



Sealing system without grounding (initial state)



Sealing system with grounding function



Pure grounding system

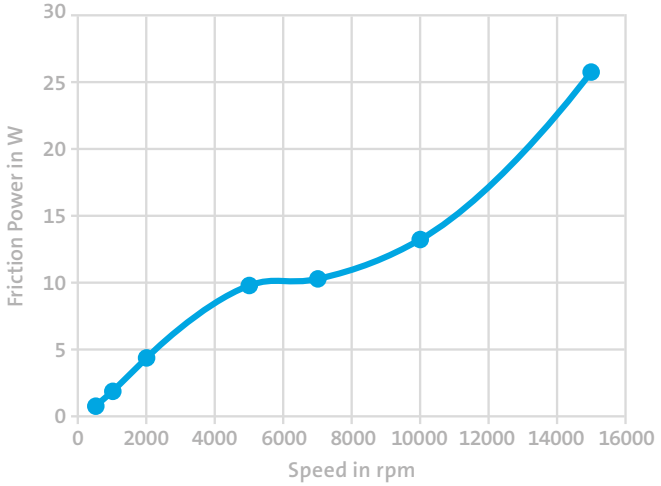
OTHER IMPORTANT INFORMATION

Comparison of performance features: Traditional components for dynamic grounding versus eCON

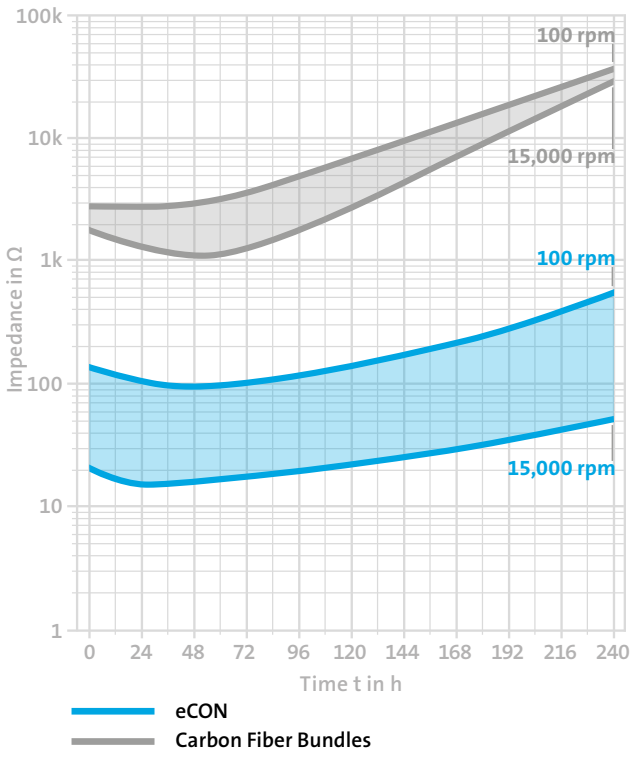
	eCON	Carbon brush	Carbon Fiber Bundles	PTFE-Slip Ring
Dynamic Impedanze	+	++	-	+
Durability	+	-	-	-
Oil Seal Option	+	n/a	n/a	n/a
Part Complexity	+	--	-	-
Pollution by Wear	+	--	-	+
Friction	+	-	+	-

++ very beneficial - neutral n/a not applicable
+ beneficial -- unfavorable

eCON – Friction Power



eCON – Impedance Benchmark



Test Conditions:
Measurement on series components
Temperature 120 °C
Speed 100 bis 15,000 rpm
Shaft ø 32 mm

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