

_THERMAL SPRAY

i-CER Electrical Isolation Coatings

Purpose of Coatings

Electrical isolation of components with a good thermal conductivity

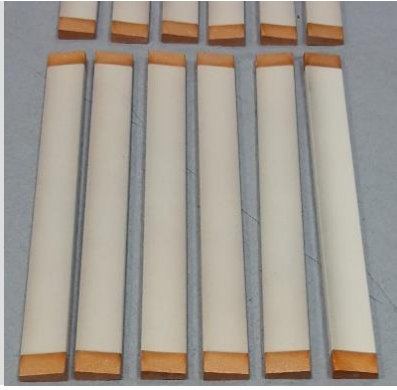
Applications

- Mechanical and electrical components in power transmission for mechanical engineering, plant engineering, railway vehicle manufacturing, automotive engineering (especially BEV/HEV), shipbuilding, aircraft industry, electrical power engineering
- Electric equipment, electronic engineering - especially power electronics
- Examples of isolated components: electrically insulating hubs, bearing seats, antifriction bearing shells, housing, corona rolls, heat sinks, circuit carriers

Features

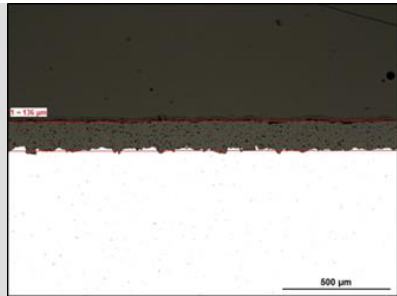
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| ▪ Technologies: | Plasma spraying, HVOF |
| ▪ Coating materials: | Al ₂ O ₃ , also in combination with other ceramics (e.g. Al ₂ O ₃ /TiO ₂ , MgAl ₂ O ₄) |
| ▪ Hardness: | 1000... 1450 HV0.3 |
| ▪ Density: | 3.45...3.55 g/cm ³ |
| ▪ Tensile adhesive strength (DIN EN ISO 14916): | 50...60 N/mm ² |
| ▪ Dielectric strength: | 1.2...2.5 kV per 0.1 mm CT |
| ▪ Thermal conductivity: | 4...5 W/(m*K) |
| ▪ Coefficient of thermal expansion (20°C): | 5...7 x 10 ⁻⁶ /K |
| ▪ Typical coating thickness: | 0.05...> 0.5 mm |
| ▪ Roughness Rz (as sprayed): | 20...45 µm |
| ▪ Roughness Ra (polished): | < 0.1 µm |





Benefits

- Maximum thermal conductivity of all thermal sprayed oxide coatings
- Very good thermal endurance in metal-ceramic multilayers for power electronics
- High mechanical strength, particularly at compression load, and wear resistance
- Excellent thermal and chemical resistance
- Low porosity



Our Service Offering

- Coating of sample and prototype parts, including fixture construction
- Advisory service, design optimization, development of specifications for serial technologies, serial production
- After thermal spraying process: sealing of residual porosity
- Mechanical post processing according drawing: grinding and polishing
- Quality control, electrical testing: electric resistance, dielectric strength



Who we are

With more than 100 years of experience, GfE is one of the world's leading manufacturers and suppliers of high-performance metals and materials. Based on our comprehensive materials science know-how, we develop high-quality tailor-made solutions for a wide range of industrial applications. We offer our customers fast service and qualified technical advice.



Certification in accordance with DIN EN ISO 9001, DIN EN ISO 14001, DIN EN ISO 50001, DIN ISO 45001 and DIN EN ISO/IEC 17025 support our claim to the highest quality and safety. We can thus guarantee products that meet the specific requirements of our customers. Your trust and satisfaction are the cornerstone of our business.

GfE is a subsidiary of AMG Advanced Metallurgical Group N.V., Netherlands, a global leader in the production of specialty metals and metallurgical vacuum furnace systems.

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