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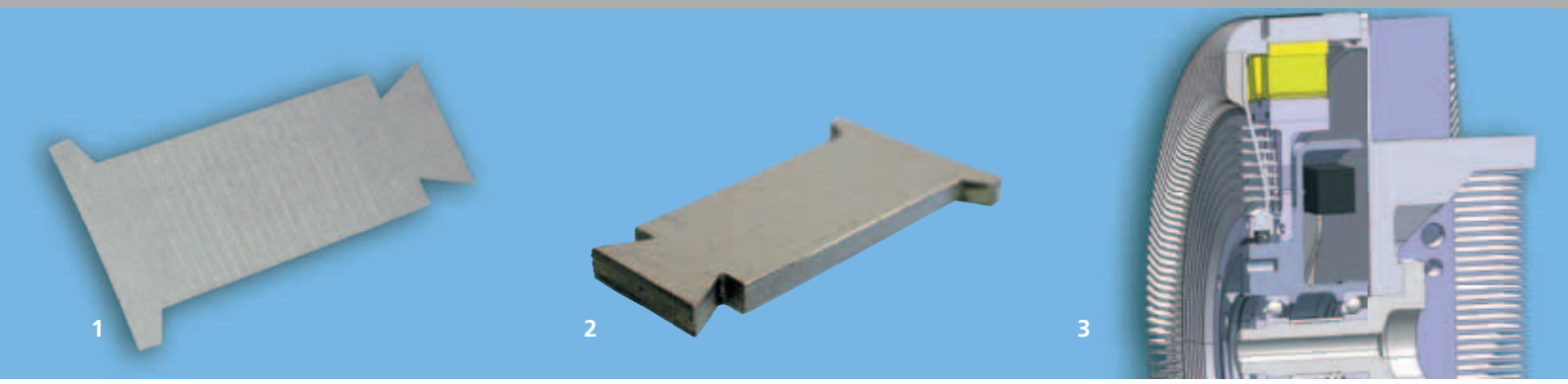

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ELECTRICAL DRIVE APPLICATION – PLASMA TECHNOLOGY FOR ADHESIVE SHEET PACKAGING

Electrical sheet coating by plasma

The electrical steel used for laminations in electric motors is required to have special surface properties. In-line plasma technology allows the dry-chemical application of thin layers (of submicron thickness) with versatile characteristics. The following surface properties can be generated:

- Protection against aging
- Adhesion promotion for using adhesives for stack formation
- Electrical insulation
- Improvement of the magnetic properties.

Adhesive selection and optimization

The use of adhesives for stacking processes enables the iron loss within the rotor and stator stacks to be minimized and improves the efficiency compared to punch-stacking. The short cycle times for series production are a particular challenge. The services of Fraunhofer IFAM on the use of adhesives for bonded stack formation complement this work:

- Qualification of industrial adhesives
- Optimization of suitable adhesive systems
- Development of suitable application methods.

Alongside layer development and adhesive application, Fraunhofer IFAM tests the adhesion strength after simulated aging and also tests the insulation strength. The goal is long-term stability and easy integration into existing production processes. The facilities at Fraunhofer IFAM for analyzing layers and components also support the goal-oriented process development.

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