FROM THE IDEA TO THE PROTOTYPE

MOLDED INTERCONNECT DEVICES (MID)

High functional density in small installation space and the associated miniaturization are important success factors for mechatronic assemblies. Often, however, a product’s success or failure on the market does not only depend on technical factors, but also on visual perception. Molded Interconnect Devices (MID) technology copes with these different requirements particularly well. It paves the way for the design of multi-functional interconnect devices into the third dimension.

3D-MID parts are spatial injection moldings whose surfaces are selectively metallized. Hereby, conductive tracks, antennas or sensors are directly applicable to a spatial interconnect devices. Mechanical features such as fasteners or stiffeners can be integrated into the shape of plastic parts. In addition, optical, fluidic or thermal functions are realizable. This results in highly integrated mechatronic components that otherwise only expensive special constructions could produce.

Benefits of the technology
- Integration of different physical features, in particular, sensors.
- Miniaturization and weight reduction of mechatronic components.
- High spatial design freedom.
- Reduction of material and parts variety.
- Rationalization of installation effort.
- Increased reliability through fewer interfaces.

PRODUCT OPTIMIZATION

The increasing number of MID applications demonstrates the technology’s series maturity. Nevertheless, potential benefits are often not recognized or only insufficiently exhausted. We systematically identify and evaluate optimization potentials for your product portfolio using MID.

Our offer
- Introduction and training seminars in MID.
- Analysis of the existing product portfolio to identify MID-relevant product features.
- Joint elaboration of optimization ideas in workshops.
- Conception of complex three-dimensional designs.
- Customized evaluation of opportunities and risks of the technology use.

Our strengths
- Fraunhofer IEM has comprehensive experience in product optimization of mechatronic systems.
- We know the current market, state of the art and best practices for technology in industries like automotive, medical engineering, mobile communications technology and industrial automation.
- We equally consider technological and economic criteria when evaluating potential.

ENGINEERING AND PROTOTYPING

Functional prototypes are indispensable in order to correctly estimate the multitude of electronic, mechanical and thermal interactions as well as the strong dependences on the materials and the production process. Therefore, we precociously support you in the development and implementation. The spectrum ranges from conceptual support at your site to fabrication of MID parts in our MID-Lab.

Our offer
- Interdisciplinary development of innovative MID product designs.
- Full design and elaboration of 3D electronics for custom application.
- Integrative design of the MID process chain.
- Implementation of fully functional prototypes in our MID-Lab.
- Preparation of product-specific specification sheets and quality criteria for the coordination of logistic interfaces.

Our strengths
- We have interdisciplinary expertise in the areas of design and circuit layout as well as our own, modernly equipped MID-Lab.
- We provide technical knowledge that addresses the requirements of different markets.
- We offer conception, design and development of the product and production system as well as functional prototypes from a single source.
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