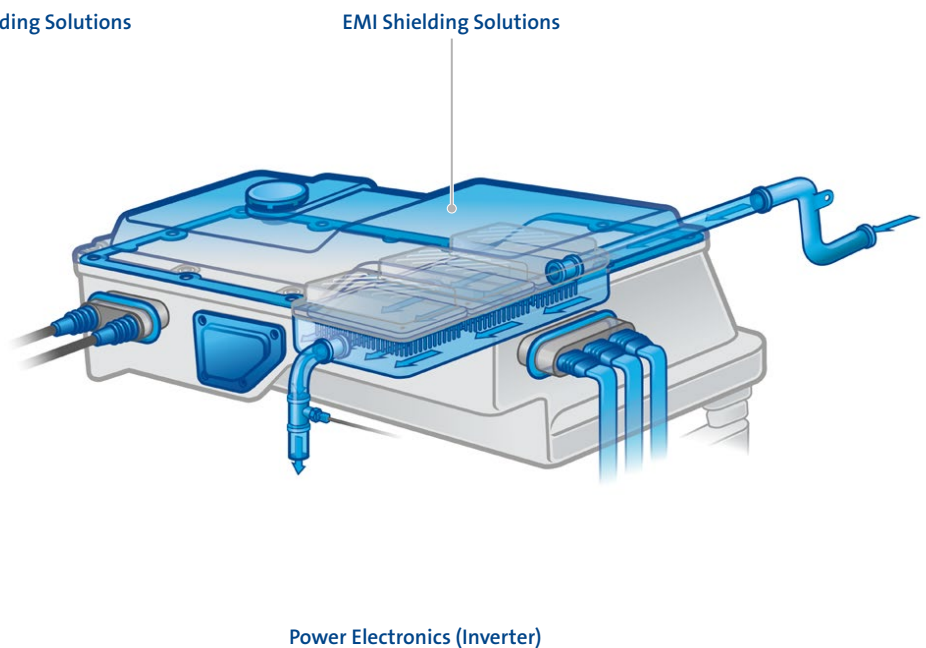
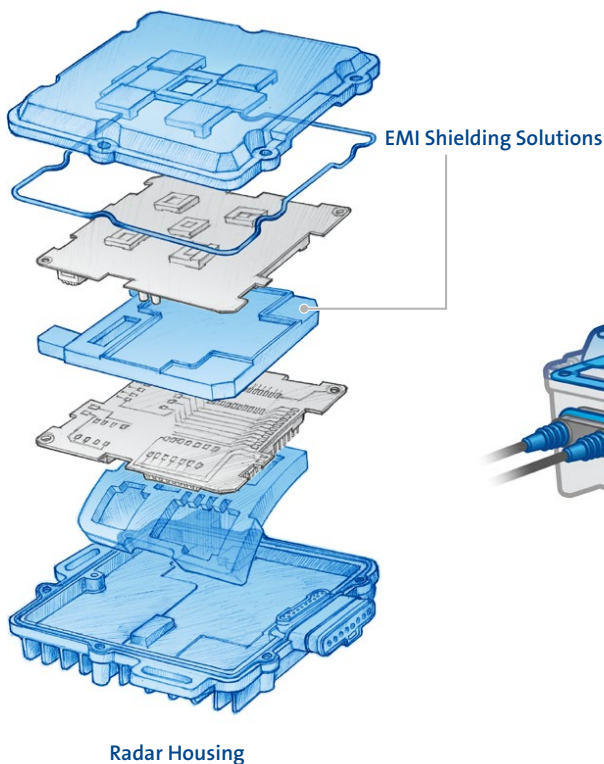


EMI SHIELDING FOR THERMOPLASTIC HOUSINGS

Electromagnetic interference (EMI) shielding is the practice of **reducing the electromagnetic field** by blocking the field with **barriers made of conductive or magnetic materials**. Shielding is typically applied to housings to isolate electrical devices from the 'outside world' in both directions.

EMI shielding plays an important role in electrically driven cars. Currently most housings and covers for the e-powertrain and partially (power) electronics are made out of aluminum, but for the next e-car generation trends towards the use of plastic materials motivated by light weight, function integration, NVH regulation and cost savings are developing. Plastics, with the application of special technologies, can be used for EMI shielding in housings and covers.

Example applications for FST EMI shielding solutions for Radar Housings and Power Electronics (Inverter) with FST products.



VALUES FOR THE CUSTOMER

FST approaches for plastic housing with EMI shielding offer several advantages compared to conventional metal housings:

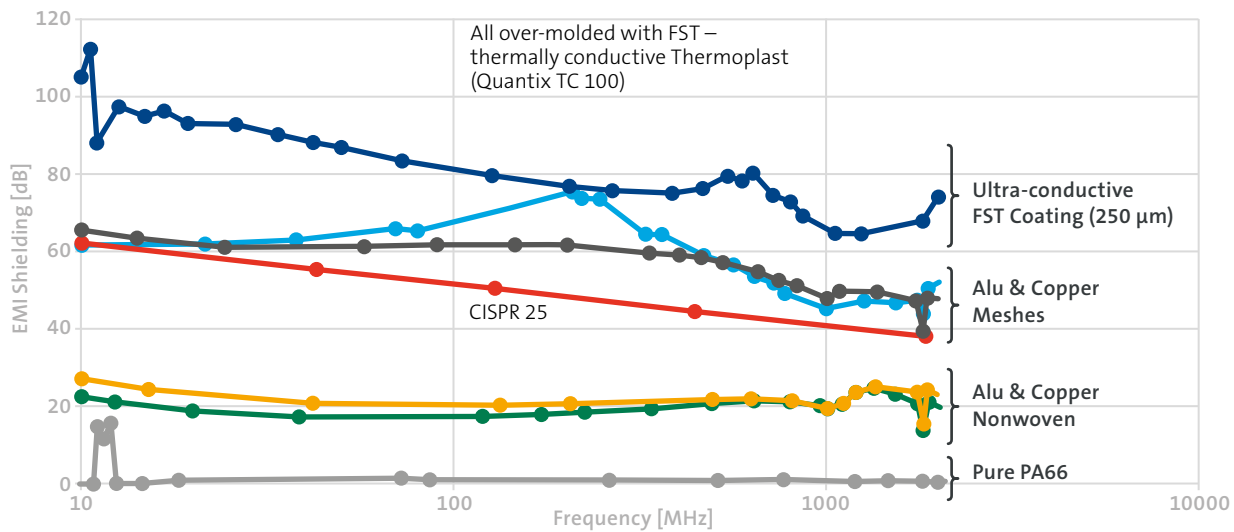
- Various technology options with adjustable EMI shielding performance according to customer needs.
- Freedom of design and weight reduction by about 40%.
- Functional integration e.g. thermal conductivity, crash and NVH.
- Options for integration of further FST products e.g. seals, gap fillers, breathing elements, etc.
- Tooling lifetime increase by about factor 10 in comparison to aluminum die-casting.
- Leading to total cost advantages for mass production.

FEATURES & BENEFITS

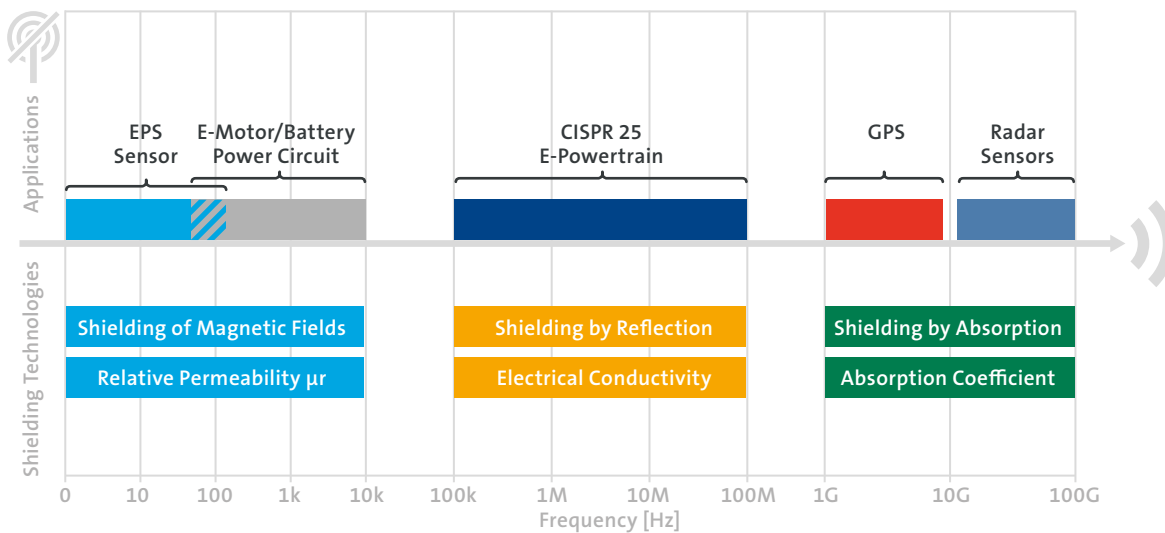
- Modular system setup enables:
 - Material and design optimizations tailored to specific application needs
 - Early development support (simulation and testing)
- Patented EMI shielding material solutions by FST
- No aging of the shielding performance - validated to 120°C.

- Material, design and process choice are flexible and it depends on:
 - Frequency range of the application (Hz)
 - Type of EMI: electromagnetic / pure magnetic
 - Desired EMI behavior: absorbing / reflecting
 - Required shielding effectiveness (dB)
 - Required thermal conductivity (W/mK)
 - Environmental/application temperature
 - Media contact
 - Part size
 - Mechanical loads (static, dynamic, crash and vibration)

Measured EMI shielding for different material combination classes



EMI shielding technologies for different applications with regards to various frequencies



The information contained herein is believed to be reliable, but no representation, guarantees or warranties of any kind are made to its accuracy or suitability for any purpose. The information presented herein is based on laboratory testing and does not necessarily indicate end product performance. Full scale testing and end product performance are the responsibility of the user.

www.fst.com