



CASE STUDY: NEW STUD HEAD DESIGN - BUSBARS

Company A was recently awarded an e-architecture program from an automotive OEM for their multi-car 35up platform underpinning its next wave of rear-wheel-drive cars. Lifetime of platform is 15 years. PennEngineering needed to provide a solution for all the fasteners to offer the best cost assembly solution.

CHALLENGE

- Project scope: 11 different busbars. 3 different fasteners per busbar, 3 different busbar thicknesses
- Increased complexity and cost for installation options and potential risk of mixes at the customer
- Reduced centerline-to-edge and ratio of head diameter to stud length. Difficulty in developing fasteners that could be fed In-Die
- High volume In-Die installation required
- Short project lead-time
- 7 different toolmakers involved.

SOLUTION

- PennEngineering developed and sampled new stud head design to achieve the customers performance requirements (including different thicknesses of busbars)
- PennEngineering provided customer test data, using their panel material and the new stud design, for approval
- 4 part numbers for all 11 busbars (3 different thicknesses)
- Flexibility of PEM® manufacturing operations supported short lead-time requirements
- In-Die tools customized to application
- Close alignment with toolmakers
- Co-ordination of the project to by Field Application Engineer in Germany
- Supported initial commissioning of In-Die tools and tested fastener in serial parts at customer site

PEM® STRATEGY

With the growth of EV / Hybrid vehicles, more current carrying busbars are required throughout the vehicle, opening up new opportunities to partner in long term platforms.

Promote PennEngineering's expertise in this sector to be able to develop customized solutions.

Focus on PEM® experience of stud designs / plating combinations to suit busbar electrical requirements.

Key customers involved in

Powertrain: Bosch, Denso, Continental, Magna, ZF, Aisin Seiki, Hyundai Mobis, Lear, Valeo, Faurecia, Panasonic, Mahle, Hitachi, Mitsubishi, Delphi, Infineon, TE Connectivity, Samsung.

