

Plastic transmission cross beam made from Ultramid® by ContiTech for the BMW 5 Series

Case Study

New applications for lightweight components are constantly being found in the automotive sector. For the BMW 5 Series Gran Turismo 550i a transmission cross beam has been manufactured of the plastic polyamide and used as standard. By choosing Ultramid® A3WG10 CR instead of aluminum, it was possible to reduce the weight of the part by 50%. The cross beam, which was developed by ContiTech Vibration Control in close cooperation with BMW and BASF, received an award just a few days after standard production of the vehicle got started: In the Industry category, it landed the first place Innovation Award conferred by the Federation of Reinforced Plastics (AVK).

The transmission cross beam – a structural component designed to withstand high load – is the direct link to the engine-transmission mount. It contributes to the overall rigidity of the vehicle and supports the forces and torque of the transmission unit. ContiTech produces the component from exceptionally strong polyamide in an injection molding process. With the help of BASF's Ultrasim® development instrument, it was possible to reduce the weight by 1 kg compared to the same component made of metal – a milestone in lightweight car construction. In addition to weight reduction, development focused on optimum vehicle acoustics and crash safety.

Furthermore, the developers managed to ideally adapt the component to the available installation space. The plastic transmission cross beam also fully satisfies the high temperature requirements that result from the proximity to the exhaust system. Another advantage is better recyclability. ContiTech thus contributes to sustainability with this product as well.

