

World's First Plastic Engine Support in the New Mercedes GL Class made from Ultramid®

Case Study

Daimler is installing the world's first plastic engine support for the six-cylinder diesel engine used in the new GL Class. The part, which supports the engine with the aid of the engine mounts, is molded from Ultramid® A3WG10 CR, a highly reinforced specialty polyamide from BASF that has been optimized for high mechanical loads. Joma-Polytec in Bodelshausen assumed responsibility for designing the injection mold and producing the plastic engine support.

To replace aluminum in this challenging and also crash-relevant application, the plastic must fulfill demanding mechanical requirements: sufficiently low tendency to creep in the confined space of the engine compartment when subjected to a continuous load. Furthermore, depending on the installation conditions in the engine compartment, the plastic engine support must also withstand high bending moments. The good acoustic characteristics are the primary benefit of the Ultramid® engine support over its aluminum counterpart. Thanks to the damping behavior specific to plastic, the new engine support contributes to a more balanced sound.

The heat conduction of the plastic is considerably less than that of aluminum. As a consequence, the Ultramid® engine support provides better protection from the engine's heat for the natural rubber engine mounts connected to it, increasing their service life. In the context of the CO₂ discussion, a weight savings of over 30% for the plastic part versus the aluminum version is an additional plus.

