

Motor developer PM DM uses Ultradur® LUX plastic for laser welded control unit

Case Study

The new Ultradur® LUX is being used in an air flap control unit, an unusual serial application in automotive construction. Motor developer Precision Motors Deutsche Minebea (PM DM), based in Villingen-Schwenningen, Germany, is employing this highly laser-transparent and thus easily laser-weldable BASF plastic of the PBT family (PBT: polybutylene terephthalate) to make the housing cover of its novel control module. This small actuator consisting of gears, an electric motor and an electronic unit serves to control the air flaps in motor vehicles, thus contributing to better aerodynamics and lower CO₂ emissions.

In the future, it will be possible to control the air flow that cools modern car engines, achieving even greater efficiency than before: movable air flaps or vanes installed behind the radiator grill can be closed by the actuator in response to cold weather, helping the engine to reach its operating temperature more quickly. At the same time, the closed vanes reduce air resistance when the vehicle is travelling at high speeds, which also saves fuel. PM DM developed this actuator in a joint effort with Röchling Automotive.

The highly laser-transparent PBT Ultradur® LUX accounts for stiffness and dimensional stability, even in damp environments, two properties which are particularly important in the electric and electronic realms. The product's key characteristic is its high transparency toward near-infrared light in the 800 to 1100 nm wavelength.

