Continental using Ultramid® plastic in the control units for dual-clutch transmissions

Case Study

Automotive firm Continental applies Ultramid® A3WG6 for control units of dual-clutch transmissions. The proven PA 66 produced by BASF is used in the parts of VW, Audi, Ford and BMW. This material is highly heat-stabilized, oil-resistant and, if needed, laser-markable.

Dual-clutch transmissions are among the most innovative automatic transmissions. The main task of their electronic control unit is to ascertain the next gear needed as a function of the driving circumstances so that it can then engage one clutch and disengage the other. When the gear is being shifted, the next gear is already selected in the not-yet active transmission part before the actual shifting operation. This accounts for smooth gear shifting, without any interruption of the power transmission.

The transmission control unit is a sophisticated, mechatronic component that is installed directly on the transmission and is thus also surrounded by hot transmission oil. Consequently, the main requirement made of this plastic part is that it has to be chemically resistant to transmission oil within the temperature range from -40°C to +145°C [-40°F to +293°F]. It even has to be able to withstand brief peak temperatures of up to +170°C [+338°F] without being damaged.