NewsFlash

Ticona

Outsert Technology

Intelligent lighting systems with Vectra® LCP

New push for established process

- Integration of complex technical functions in a very confined space, while meeting extremely high tolerance requirements
- Production of precision parts for highly stressed applications now also possible by outsert molding
- Vectra® LCP offers special material advantages such as:
  - minimal outgassing, even at elevated temperatures
  - thermal expansion coefficient similar to metal
  - low tendency to flash formation

In a newly developed and innovative dynamic cornering light system, bi-xenon headlamps track the steering movements of the driver, so providing better illumination of corners. High-precision slide bearings and gearwheels made from Vectra® LCP ensure reliable functioning of this intelligent lighting system.

The production process features an important innovation: the first commercial use of Vectra® LCP in outsert molding now makes this technology of interest for other highly stressed precision components.

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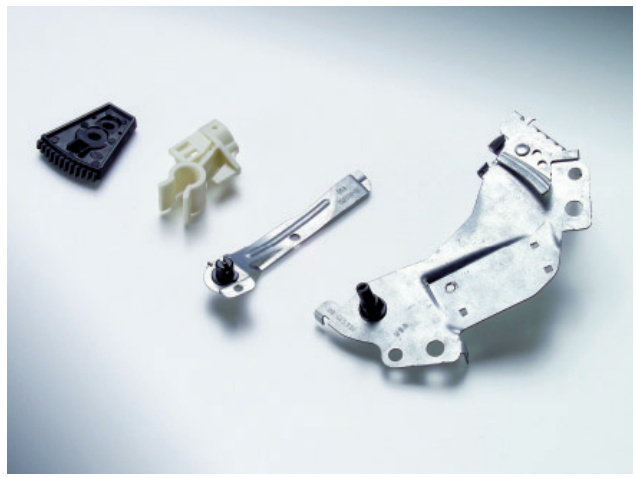
Outsert molding with Vectra® LCP

A key functional element in the swiveling bi-xenon headlamp system from Hella is the projection module, which rotates about a vertical pivot axis within a frame. This movement is controlled by a microcomputer according to the steering angle and speed of the vehicle. The swiveling movement must operate with the utmost precision to meet the high safety standards and other requirements specified by legislation.

Switching between the lower- and upper-beam lights is controlled by a shutter that moves on a slide bearing made from Vectra® LCP. The grades selected for this complex task are Vectra® A625 and Vectra® S625. These high-performance polymers can be used without any problem over the expected headlamp service temperature range of -40 °C to +180 °C. In addition, Vectra® offers the advantage of low outgassing, can be manufactured to very close tolerances and meets all the mechanical property requirements for use in complex mechatronic systems.



In addition to Vectra® LCP, the dynamic cornering headlamp also contains Hostaform® POM and Fortron® PPS. Important components produced from Ticona polymers in this application include beam width adjusters, toothed gear segments, switching shutters and lamp sockets.

Outsert molding

In outsert molding, different functional elements produced from plastic are injection molded onto a metal baseplate in one shot. Ticona has many years' experience with outsert molding technology.

The established polymers for this production method include:

- Hostaform® POM
- Fortron® PPS
- Celanex® PBT
- And now: Vectra® LCP

Advantages of Vectra® LCP for outsert molding:

- High temperature resistance (up to 240 °C, short-term up to 340 °C)
- Minimal outgassing, even at high temperatures
- Similar thermal expansion coefficient to metal
- Low tendency to flash formation
- Inherently flame-retardant (UL 94 V-0)
- Halogen-free

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