



# Polycarbonate dash dial in VW Golf saves materials and labor

FABRICATION  
AND PLASTICS  
MACHINING

by Sheffield Plastics, Inc., A Bayer MaterialScience LLC Business

**B**y utilizing a patented new “high pressure forming” method, the dash dial in the VW Golf is now made of polycarbonate film, eliminating the need for a decorative aluminum ring. Integrated into the dial is a matte metallic outer ring which previously would have been a separate metalized molded part.

The integration of the dial into a single component eliminated several steps in the component assembly process, resulting in savings in materials and logistics, and removing the need for a complex electroplating step. In addition, the formed film looks more homogeneous than an equivalent component with a mounted ring.

The dash dial is made of printable polycarbonate film. The 375 millimeter thick film is printed on both sides with more than 10 layers of ink using the screen printing method. The translucent symbols are gray and are backlit by colored LEDs (backlit effect for nighttime use).

One particularly tough challenge in manufacturing the component was to meet the exacting demands made on the positioning accuracy of the printed symbols. This was very important because the speedometer is a measuring instrument that has a direct effect on the drivers' behind-the-wheel behavior, and therefore, on safety. Any deviations in print-



The dash dial above is made of Makrofol® DE 1-4 printable polycarbonate film from Bayer MaterialScience. At the edge, it is formed such that the circumference has a matte metallic look.

ing and forming had to be kept to an absolute minimum. For example, precise adjustments to the heating system of the high pressure forming equipment utilized a thermal imaging camera in order to achieve an optimum forming process with controlled shrinkage of the film.

Due to the precision with which symbols can be positioned, great opportunities for the use of polycarbonate films in measuring scales and displays in mechanical engineering as well as for clock and watch faces are now possible.

New materials and technologies make the manufacturing process for automotive dials more cost-effective and give designers greater creative freedom. An example of this is a new light-diffusing film which disperses light to a greater extent than the PMMA films which, until now, have set the standards in this field. It also offers greater light permeability. Dials made of this material can therefore be backlit with light diodes which emit less light and are thus considerably cheaper.

Further design possibilities include films that are “back injected” with a thermoplastic using the film insert molding (FIM) process to produce and stabilize the curvature of the product. ■

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