

All Plastic Oil Pan Case Study



Picture 1: Transmission Oil Pan



Picture 2: Prototype Engine Oil Pan

Material Used: DURETHAN® BKV60 H2.0 EF

In the search for solutions to provide lighter, lower cost products for automobiles, LANXESS has developed a plastic solution for engine oil pans. The prototype includes the fixing points for a magnetic absorber, integrated oil pick-up pipe. The integrated oil pick-up will help reduce fluid aeration by placing the pick-up at the optimal point. Thanks to an innovative design, ribs on the outside are able to help withstand stone impact. In addition, a cartridge-type oil filter and windage tray can also be integrated for minimal additional expense. The plastic transmission oil pan is being produced by IBS/Filtran, a German producer of plastic oil pans. This system is already in mass production for the oil pans of 6-speed automatic ZF transmissions of several OEMs such as BMW, Jaguar, and Ford.

Advantages:

- Potential cost reduction of up to 40% compared to current parts using aluminum and steel (see Picture 3 and 4 below).
- Potential weight reduction of up to 25% compared to current parts using aluminum and steel (see Picture 3 and 4 below).
- DURETHAN® BKV 60 EF offers a high modulus of 20,000 mPa·s at room temperature and great stiffness at elevated temperatures.
- If higher stiffness is needed, combining DURETHAN® BKV 60 EF with Plastic/Metal Hybrid technology is possible to create a structural oil pan to reinforce the joint between the engine and transmission.



Picture 3: Aluminum Engine Oil Pan



Picture 4: Steel Engine Oil Pan

As with any product, use of the products mentioned in this publication in a given application must be tested (including field testing, etc.) by the user in advance to determine suitability.



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