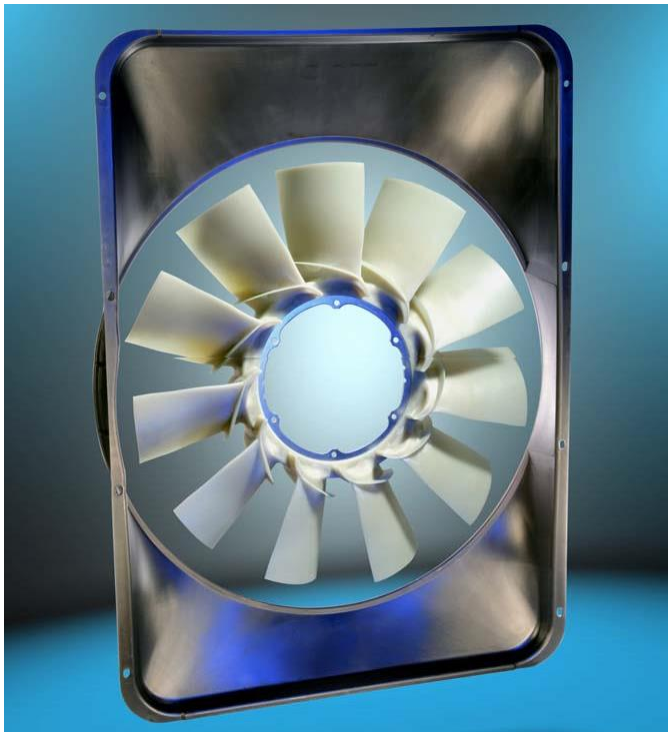
Air intake channel (fan guard) made from Ultramid®: Improved polyamide in the new DAF XF 105 truck

Case Study

BASF's new polyamide Ultramid® B3WGM24 HP, introduced at the plastics trade fair K 2004, has now made its way into a special serial application. DAF Trucks N.V. is using this plastic for the air intake channel (fan guard) of its new heavy-duty truck, the XF 105 model, which is equipped with a totally new DAF-designed 12.9 liter MX engine and has been presented to the market at the Amsterdam RAI Show in October of this year. This polyamide 6 (PA6) – which is reinforced with 10 per-cent glass fibers and 20 percent mineral – combines greatly improved flowability with high dimensional stability under heat as well as favorable shrinkage behaviour.



In designing the new MX engine, DAF placed great stock in avoiding complexity and combining functions, an example of this being the integration of the cooling channels, which used to be located outside of the engine block. These measures mean that the engine remains compact while offering high performance, as a result of which higher temperatures are generated. The fan guard reaches temperatures of up to 130°C [266°F] while being subjected to such a high negative pressure that the polypropylene used until now was not able to withstand these conditions.

The injection-moulding tool being used by the Belgian plastics processor Overpelt-Plascobel NV also sets very special requirements in terms of the shrinkage and flowability of the plastic. Ultramid® B3WGM24 HP has proven its mettle in this application since it combines the properties that are typical of PA, such as toughness and strength, with flowability that is 40 percent better than that of standard polyamide. This is a particularly relevant aspect when it comes to parts with a large surface area such as air intake channels and engine covers. The fan within the fan guard has to withstand tough bursting tests. Therefore it has to show high joint line strength and is made of Ultramid® B3WG5.