

Case Study

Pocan® B 4235 for structural frames of electric motors



Figure 1 Structural frames of electric motors

The Ametek Electromechanical Group is one of the world's leading manufacturers of electric motors and fans of different sizes and performance levels. They are used in areas including drives for various machines and vehicles, ranging from precision engineering to railroad vehicles. For a large number of electric motors, the BMC (bulk molding compound) for the rotor and stator structural frames and brush holders has been replaced by Pocan B 4235 and Pocan B 4235 Z.

Switching from BMC to easily processed and more cost-effective injection molding grades was only possible because Pocan B 4235 and Pocan B 4235 Z, which are LANXESS glass-fiber-reinforced PBT grades with low flammability, comply with the technical requirements of the IEC regulations. Both grades are classified to IEC 85 (class F up to 155 °C) and are suitable for use at high continuous working temperatures. The RTI values for both grades are between 130 °C and 140 °C.

Material: Pocan® B 4235 and B 4235 Z

OEM: Ametek Electromechanical Group

Industry: Electrical/electronics

At 1.5mm, Pocan B 4235 and Pocan B 4235 Z have the UL classification V-0. At 3.0 mm, the classification is even 5VA. Both materials are suitable for outputs of 400 to 1500 watts at various voltages (100 – 250 volts). Additional benefits of using Pocan B 4235 Z include reductions in noise and vibrations, particularly for high-speed electric motors (up to 45,000 rpm).

The products' mechanical properties are also key. The high dimensional accuracy, stiffness, and toughness are particularly noteworthy. Pocan B 4235 Z is somewhat tougher than Pocan B 4235. The tensile strain at break for the Z grade has been increased by 30% and impact strength by approximated 20%.

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Unless specified to the contrary, the values given have been established on standardized test specimens at room temperature. The figures should be regarded as guide values only and not as binding minimum values. Kindly note that, under certain conditions, the properties can be affected to a considerable extent by the design of the mould/die, the processing conditions and the coloring.

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