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PRESS INFORMATION

Fakuma Press Release

"Grivory HT6 – Metal replacement 2.0"

Today, polyamide specialities are used to replace metal in an increasingly demanding range of applications. This calls for focussed further development and optimisation of high-performance polymers. The significantly improved properties of one of our latest products, Grivory HT6, ensure that it stands out among other polyamides and exhibits an excellent performance, especially at very high temperatures.

Grivory HT6 is preferably used in automotive engineering, where cost-effectively produced light-weight components can be used as metal replacement. This allows cost savings to be achieved, for example through lower wall thicknesses, while the high-performance polymer remains resistant even at extremely high temperatures. It is this maintained resistance which makes it possible to use the material in metal replacement applications and allows cost savings to be achieved.

Grivory HT6 – higher performance above 120°C and lower part costs

With its improved property profile at high temperatures, Grivory HT6 sets new standards for polyphtalamides (PPA). Despite exhibiting around 50% higher stiffness at 140 °C compared to Grivory HT1, HT6 makes no compromises in terms of processability at > 300 °C, the conventional melting point of PPA. Its heat deflection temperature HDT/C of 250 °C, is even 20 °C higher than that of polyetheretherketone (PEEK). Grivory HT6 also impresses with regard to creep resistance with enormous long-term stability, even when subjected to high loads and temperatures. At 150 °C, a 165% higher creep modulus (after 10,000 h) is achieved than with conventional PPA.

Grivory HT6 is the polyamide with the highest mechanical performance at high temperatures. On the one hand, this provides higher stability at temperatures above 120 °C and, on the other hand, makes it possible for new components with thinner wall strengths to be designed, allowing significant cost and weight reductions to be achieved.

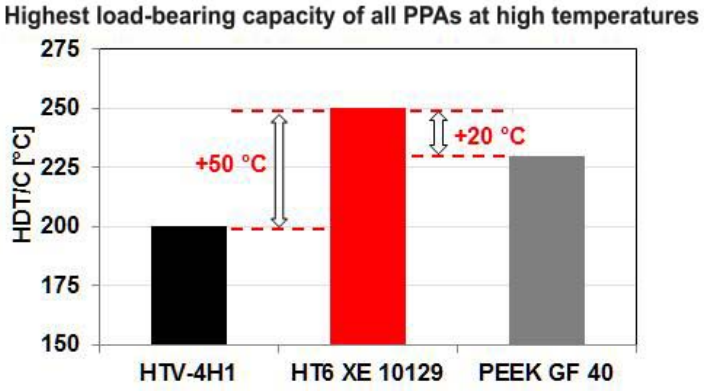
Simulation: Cost and weight reduction

A covering for a pressure-loaded transmission component can be taken a simulation example. The max. operating temperature is 140 °C at an internal oil pressure of 20 bar. The sealing performance of the covering and a maximum deflection of 0.3 mm is guaranteed under pressure.

In comparison to a conventional PPA, the higher stiffness of Grivory HT6 at 140 °C allows parts to be designed with lower wall thicknesses and fewer ribs. This reduces the part weight of the transmission component from 101g using standard PPA to 70g. The shorter cooling time required due to the thinner walls cuts the cycle time of the injection moulding process by 35%. In this way, Grivory HT6 allows cost savings of 26% to be achieved with this new design than when using standard PPA with the same warpage.

Grivory HT6 can be used in applications where current PPAs or other high-performance materials such as PPS and PEEK have reached the limits of their mechanical resistance. Grivory HT6 exhibits the best creep resistance of any PPA on the market. Grivory HT6 is intended for use in components for clutch systems, gearboxes, structural components and engine compartment supports as

well as components in the field of industrial and consumer goods requiring highest mechanical load-bearing capacity and creep resistance.



The heat deflection temperature of Grivory HT6 is 50 °C higher than that of conventional PPAs and 20 °C higher than PEEK.

Grivory HT6 reduces costs and part weight. For the gear covering shown here, it was possible to reduce wall thicknesses by 27% compared to standard PPA, leading to a weight saving of 31% a 35% shorter cycle time and a cost reduction of 26%.

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