

## **PRESS INFORMATION**

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### **Material with all-rounder qualities**

**Long-fibre reinforced thermoplastic materials are real all-rounders. Due to their excellent property portfolio they are perfectly suited for challenging applications in a variety of fields.**

Above all, long-fibre reinforced thermoplastic materials (LFT) are perfectly suited for high-quality metal replacement applications as they offer metal-like strength values despite extremely low weight. The reason for this exceptional property pairing is the long fibre content. The long fibres form a skeleton-like structure inside the finished part, thus increasing the mechanical properties of the component. In this way, exceptionally high stiffness and strength values can be achieved, which are significantly higher than those of thermoplastics reinforced with short fibres.

#### **Attractive combinations possible**

Long fibre technology also has much more to offer. The thermal properties of these materials have a marked better performance at high or low temperatures. At the same time, no negative effect occurs on polyamide-specific properties such as resistance to chemicals or surface quality. This means that components can be made which, for example, must be resistant to high thermo-mechanical loading while having excellent surface quality. In addition, the long fibres reduce creep and increase dimensional stability.

#### **Low weight, high stability**

An exterior mirror holder for trucks is a further application where the excellent properties of long-fibre reinforcement come into play. The trend towards larger exterior mirrors increases the loading on supporting elements but the component weight should remain at the usual low level of high-performance polymer parts – perfect pre-requisites for use of Grilon TSGL-40/4. This material withstands permanent loading from the weight of the mirror (low creep) and high vibration (permanent dynamic fatigue strength). It also shows good absorption despite high stiffness values.

### **Illuminatingly tough**

In an application for the architectural lighting specialist ERCO, a further long-fibre reinforced design material from EMS-GRIVORY proves its high loading capacity. The housing of exterior light TESIS was previously made of metal. Along with the problem of higher weight, ERCO was also faced with corrosion from contact with the ground, even for housings made of stainless steel. At the same time, temperatures inside the housings were reduced by increasing use of LED technology. This made it a logical step to make the ground assembly and lighting housing for the new TESIS generation of a high-performance polymer. In some cases when in use, the lights are also driven over by heavy-duty vehicles so that the material used must also be extremely tough. Based on the high loading capacity and creep resistance as well as good warpage behaviour, Grivory GVL-4H was selected for this application. Tests on the light housings made with this material showed compressive strength of 17 tons although only a value of 5 tons was required. As these lighting systems are very popular with ERCO's customers and the expectations were well exceeded, further development projects with this material are already underway.

### **Saddle-fast**

Long-fibre reinforced polyamides are also used in equestrian sports. A new, heavy-duty stirrup has been developed in France based on Grilon TSGL-50/4. This material is able to transfer the dynamic loading of the lower edge during horse-jumping very well and is resistant to even the hardest knocks. Besides achieving a significant weight reduction, the component is sheathed with an elastomer providing a safe forwards hold but allowing riders to slip their foot quickly out of the stirrup.

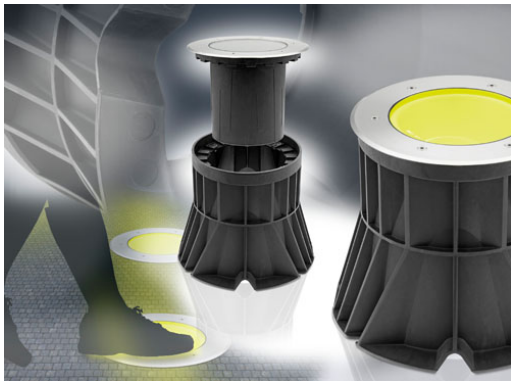
In the meantime, EMS-GRIVORY has expanded its product assortment of long-fibre reinforced polyamides to include five product families: Grivory HT, Grivory GV, Grilamid L, Grilamid TR and Grilon TS. All these materials can be processed using conventional injection-moulding equipment and enable the production of fine component structures which are not possible with thermosetting carbon-fibre reinforced materials. With their exceptional properties, they are predestined for the most demanding high-quality applications.

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*Thanks to Grilon TSGL-40/4 the truck exterior mirror holder is light in weight but extremely resistant.*



*In-ground lighting housings for the new TESIS exterior light fittings. Thanks to Grivory GVL-4H, the compressive strength values are many times higher than specified.*



*This insert moulded stirrup made of Grilon TSGL-50/4 provides a safe grip, transfers the dynamic loads well and is resistant to hard knocks.*



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