

One hot topic: The company igus advances the development of high-temperature filaments with self-built HT printer

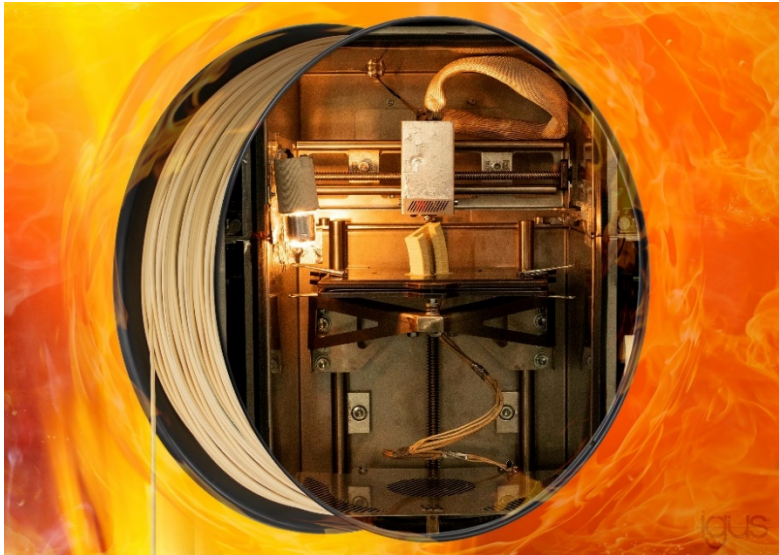
"A good example of our Low Cost Automation concept," says Tom Krause, igus GmbH, about his team's newly designed and constructed high-temperature 3D printer

Low Cost Automation in our own factory: Following this idea, igus has built an HT-3D printer for the development of new high-temperature filaments using in-house mechanical engineering components. Thus, complete linear systems, consisting of drylin W linear guides, dryspin lead screws made of stainless steel and the igus standard stepper motors were used. Thanks to the new 3D printer, users can now use a lubrication-free and maintenance-free filament for the production of heat-resistant special parts with the iglidur J350 high-performance plastic.

High temperatures not only create problems for many machine elements in plants but also conventional 3D printers. In order to develop new filaments for wear-resistant parts in high-temperature applications, igus has now built a high-temperature 3D printer. For the mechanical system, the igus engineers relied on heat-resistant stainless steel components of the maintenance-free drylin W linear guide and smooth-running dryspin high helix lead screws in the X, Y and Z axes. Lubrication-free liners and lead screw nuts made from the wear-resistant high-performance plastics iglidur X and iglidur C500 ensure precise adjustment of the building board, even with installation space temperatures of up to 200 degrees Celsius. "In the new 3D printer, we rely on standard components from igus, which work reliably even with the high installation space temperatures. We use a nozzle that can melt the filament at a temperature of up to 400 degrees Celsius," explains Tom Krause, Head of Additive Manufacturing Business Unit at igus GmbH. "Thus we were able to develop and extensively test a new filament for high-temperature environments with iglidur J350."

Wear-resistant parts suited for up to 180 degree Celsius

The lubrication-free iglidur J350 material is already offered by the motion plastics specialist in the plain bearing and bar stock range. The high-performance plastic is characterised above all by its extremely high wear resistance and its low coefficients of friction on steel. The endurance runner is particularly suitable for rotation and has a high dimensional stability at temperatures up to 180 degrees Celsius. Medium to high loads are no problem for the iglidur J350. Using the high-temperature 3D printer, the filament can be processed well on a printing plate equipped with a PET film. Typical application areas of the new filament can be found, for example, in the field of vending machine technology, in the automotive sector, in the glass industry and in mechanical engineering. In addition to iglidur J350, six more filaments are available from igus: from materials approved for food contact up to chemical-grade materials. The new iglidur J350 filament can be ordered at [Online shop](#).

Caption:**Picture PM7018-1**

A self-made high-temperature 3D printer with drylin stainless steel linear guides and dryspin lead screws enabled igus to develop a new wear-resistant and heat-resistant filament. (Source: igus GmbH)

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ABOUT IGUS:

igus GmbH is a globally leading manufacturer of energy chain systems and polymer plain bearings. The Cologne-based family business has offices in 35 countries and employs 3.800 people around the world. In 2017, igus generated a turnover of 690 million euros with motion plastics, plastic components for moving applications. igus operates the largest test laboratories and factories in its sector to offer customers quick turnaround times on innovative products and solutions tailored to their needs.

The terms "igus", "Apiro", "chainflex", "CFRIP", "conprotect", "CTD", "drylin", "dry-tech", "dryspin", "easy chain", "e-chain", "e-chain-systems", "e-ketten", "e-kettensysteme", "e-skin", "flizz", "ibow", "igear", "iglide", "iglidur", "igubal", "kineKIT", "manus", "motion plastics", "pikchain", "plastics for longer life", "readychain", "readycable", "ReBeL", "speedigus", "triflex", "roboLink", and "xiros" are protected by trademark laws in the Federal Republic of Germany and internationally, where applicable.