



# Ultrasint® PA6 MF

## Mechanically Reinforced PA6 for Exceptionally Strong Parts with In-particle Filler Technology

Ultrasint® PA6 MF is the material of choice for advanced technical applications where properties of mechanically reinforced thermoplastics are needed. Besides reinforced PA6 being a very popular engineering material for highly loaded parts, Ultrasint® PA6 MF boasts extremely high rigidity, media tightness and enhanced thermal distortion performance – properties where other PBF materials often show limitations. Ultrasint® PA6 MF is thus a huge step towards additive-based serial production.

### Benefits at a Glance

- Exceptionally high strength & rigidity
- Media tightness as-printed
- Very high HDTs
- In-particle filler technology
- Color: Black

### Example Applications

- Engine bay parts
- Media flow and storage parts (i.e. oil)
- Housings and covers
- Tooling equipment & molds
- Multi-purpose industrial goods

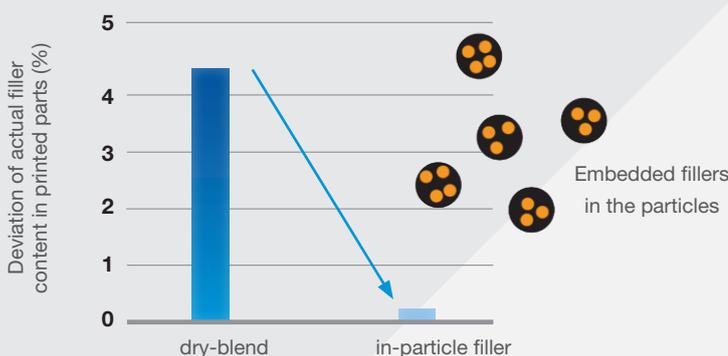
### Material Properties

Tensile strength	62 MPa
Young's modulus	3300 MPa
Elongation at break	7 %
Charpy impact unnotched	28 kJ/m <sup>2</sup>
HDT B (0.45 MPa, dry)	209 °C

### Key Features

Ultrasint® PA6 MF combines superior thermal resistance with high isotropic rigidity thanks to in-particle filler technology.

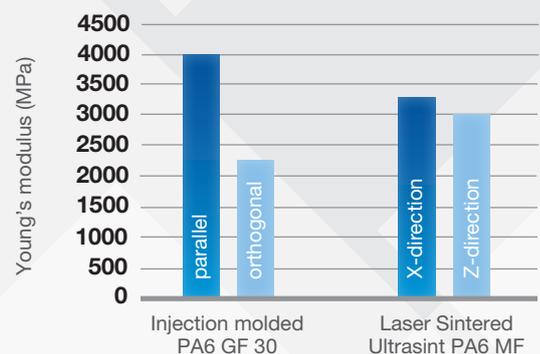
### In-particle filler technology



### In-particle filler technology

- Filler is embedded into the polymer particles
- Excellent homogeneity of filler distribution
- No de-mixing, improved recycling and easy handling

### Rigidity vs. injection-molded PA6 GF30



### Rigidity compared to injection molded PA6 GF30

- Stiffness of Ultrasint PA6 MF is much more isotropic compared to injection molded PA6 GF 30 (fiber orientation)
- Easy substitution of IM performance materials with PBF

# Ultrasint® PA6 MF



## Engine Bracket (incl. Simulation and Redesign)

- This engine bracket printed using Ultrasint® PA6 MF was used by Daimler as a functional prototype
- The material is strong enough to hold the whole engine assembly and handle all heat, vibration and static loads
- Easy mechanical post-processing and insertion of metal inserts and bushings
- With an optimized design validated by our Ultrasim® Simulation service, the printed part even fulfills the same Noise Vibration Harshness parameters as the original Injection Molded part geometry
- Readily implemented material model allows for further part optimization via BASF Ultrasim® simulation and design services