



**HIGH PERFORMANCE
MATERIALS
NEW DEVELOPMENTS**

PLASTICS
ENGINEERED BY **GEHR** 

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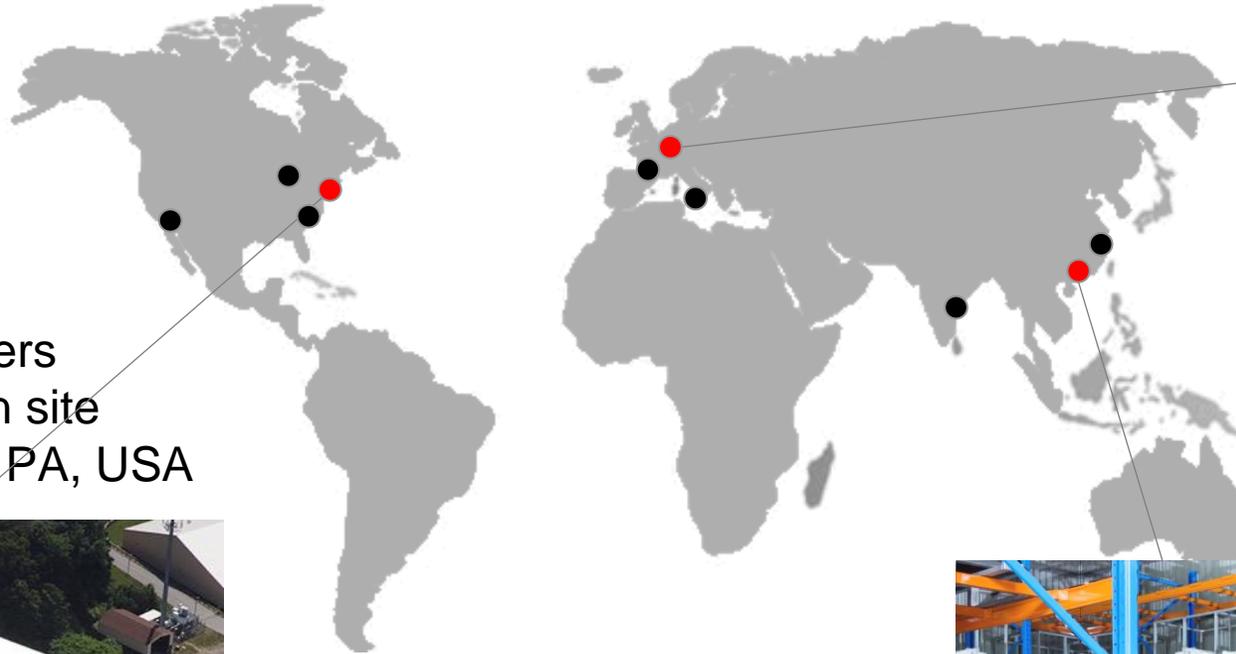
- » Our Company
- » GEHR POM-C[®] - Calendered Sheets
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» FAMILY OWNED AND OPERATED COMPANY WITH TRADITION



» GEHR – AN INTERNATIONAL COMPANY



» US headquarters and production site
Philadelphia, PA, USA



» World headquarters and production site
Mannheim, Germany



» Asia headquarters and warehouse
Hong Kong

» QUALITY AND INNOVATION



» MARKET SEGMENTS

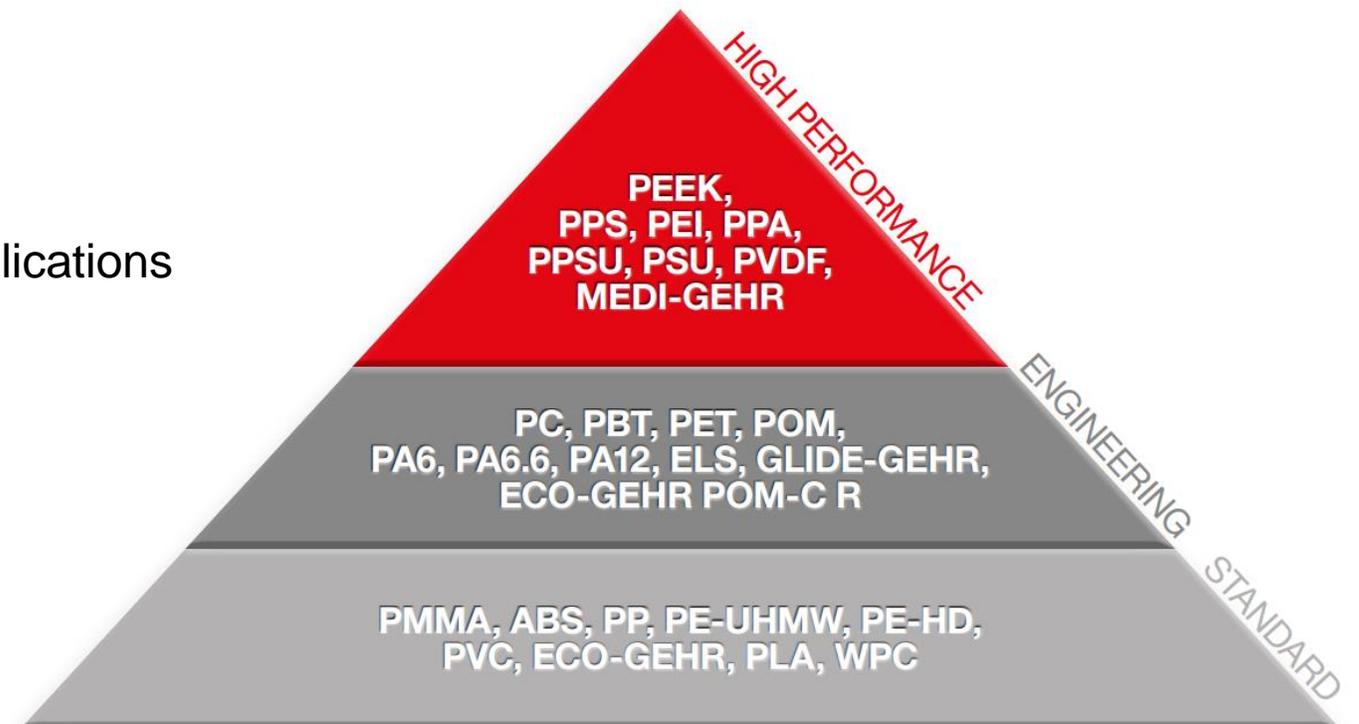
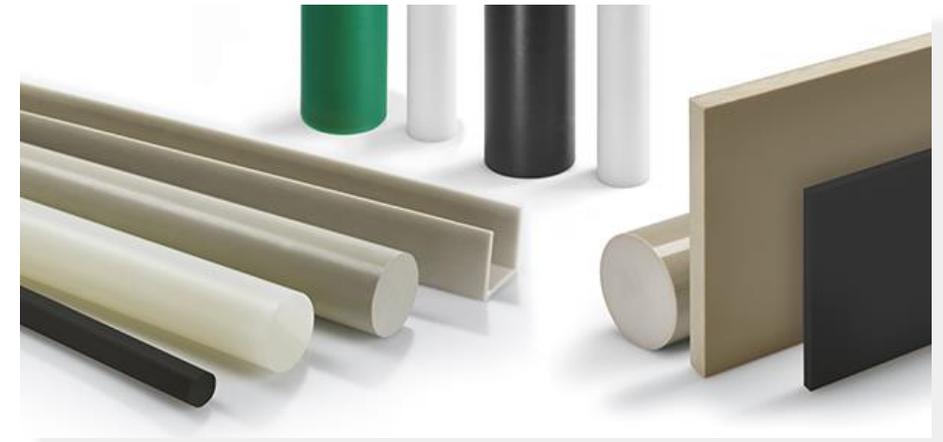


» GEHR EXPERTISE

**EXTRUDED RODS, SHEETS, TUBES,
PROFILES AND FILAMENTS**

SPECIALTIES:

- » Rods up to 700 mm diameter
- » Thick plates up to 300 mm thickness
- » Decorative precision tubes
- » Semi-finished products for medical applications
- » Filaments for professional 3D printing



» ENVIRONMENTAL PROTECTION AND SUSTAINABILITY

CO₂-NEUTRAL PRODUCTION

- Conversion to green electricity and green gas in Mannheim and Philadelphia.
- Achievement of the implementation packages of Katowice Scope1 and Katowice Scope1 and 2

SINCE 2016: 100% RENEWABLE ELECTRICITY

Since 2016, total electricity requirements covered by renewable energies - mainly from hydropower in Norway.

COOLING PROCESS OPTIMIZED

In order to sustainably conserve water as a resource, we have also made mechanical adjustments to our plants. This has enabled us to significantly reduce the amount of water required in the cooling system as well as the supply of fresh water.

RECYCLING CONCEPT FOR THE AVOIDANCE OF PRODUCTION WASTE

The returned material is sorted, ground, recycled and reused in production wherever possible and permitted.



» MOBILITY OF THE FUTURE

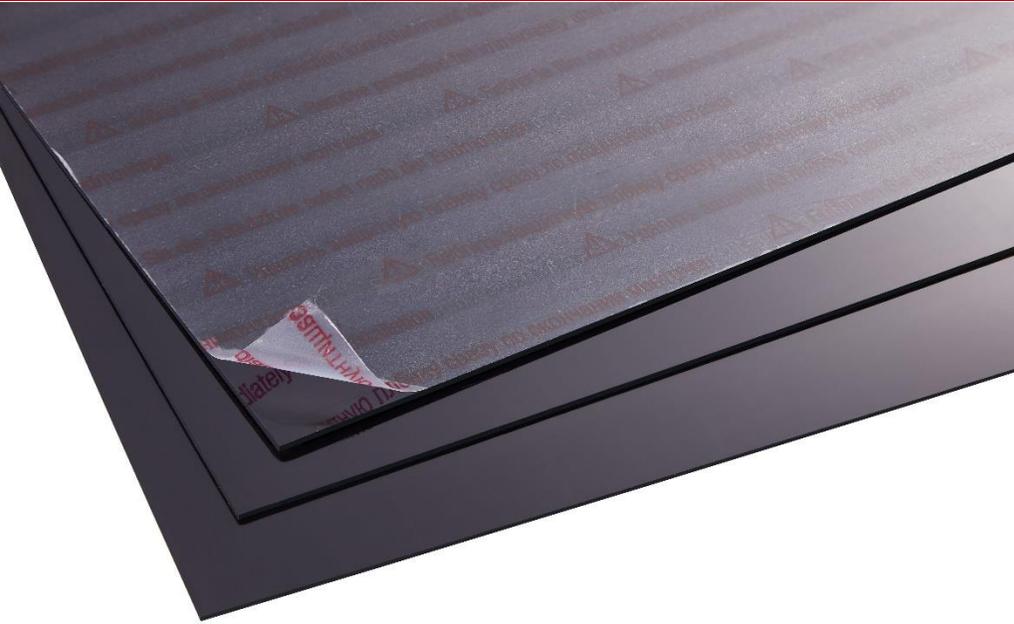
In collaboration with TU Munich and Evonik, we are ensuring that the Hyperloop project moves into the next phase. Hyperloop is a new concept for transporting goods and people at almost the speed of sound. The train travels like a maglev train in a low-pressure tube above the earth's surface. In this team, we produced sheets made of VESTAMID® (PA12 filled with glass fibers) for a 24-m-long test track. After extrusion, these sheets are machined before installation to hold the magnetic coils in position for the train.





**HIGH PERFORMANCE
MATERIALS
STOCK SHAPE**

PLASTICS
ENGINEERED BY **GEHR** 



» GEHR POM-C® Calendered Sheets

- » Pressure resistant quality
- » High hardness and stiffness
- » High toughness (down to -40 °C)
- » High heat resistance
- » Low water absorption
- » High dimensional stability
- » Good electrical isolation behavior
- » Very good sliding friction and sliding wear behavior
- » High resistance to solvents
- » High resistance to stress cracking

PRODUCT RANGE:

- » Colours: black and natural
- » Sheets from **1 mm** to 8 mm (length: 2 m; width: 1000 mm)
- » Custom production on request
- » Other dimensions can be produced to customer order

» ECO-GEHR POM-C R®

- » ECO-GEHR POM-C R® is made from 100% recycled POM-C.
- » The remaining properties can be considered as equivalent to virgin POM-C

- » Enormous Surface Hardness
- » Very Good Sliding-friction Properties
- » High Chemical Resistance
- » Long-term Service Temperature 100°C
- » Limited UV-Resistance

PRODUCT RANGE:

- » Colours: black
- » Rods and sheets
- » Custom production on request.

Das Kunststoff-Zentrum

SKZ

Carbon Footprint

This document confirms that on behalf of



GEHR Kunststoffwerk GmbH & Co. KG
Casterfeldstr. 172
68219 Mannheim

the Carbon Footprint¹ (CF) has been determined for the following products

Full rods from recyclate from 100 % recycled POM	Full rods from virgin material from 100 % virgin POM
1,29 kg CO ₂ -eq.	4,61 kg CO ₂ -eq.

relating to 1 kg of the respective product.

Using 1 kg *Full rods from recycled POM* instead of 1 kg similar virgin *Full rods* reduces greenhouse gas emissions by about 3,33 kg CO₂-eq.

Würzburg, 11.10.2022

Antonia Ivanda

Antonia Ivanda M.Sc.
SKZ – Das Kunststoff-Zentrum

¹ The Carbon footprint was calculated using established, science-based methods. The calculation was conducted based on the international LCA standards DIN EN ISO 14040, DIN EN ISO 14044 and the standard DIN EN ISO 14067 "Carbon footprint of products". The comparison is subject to limitations.

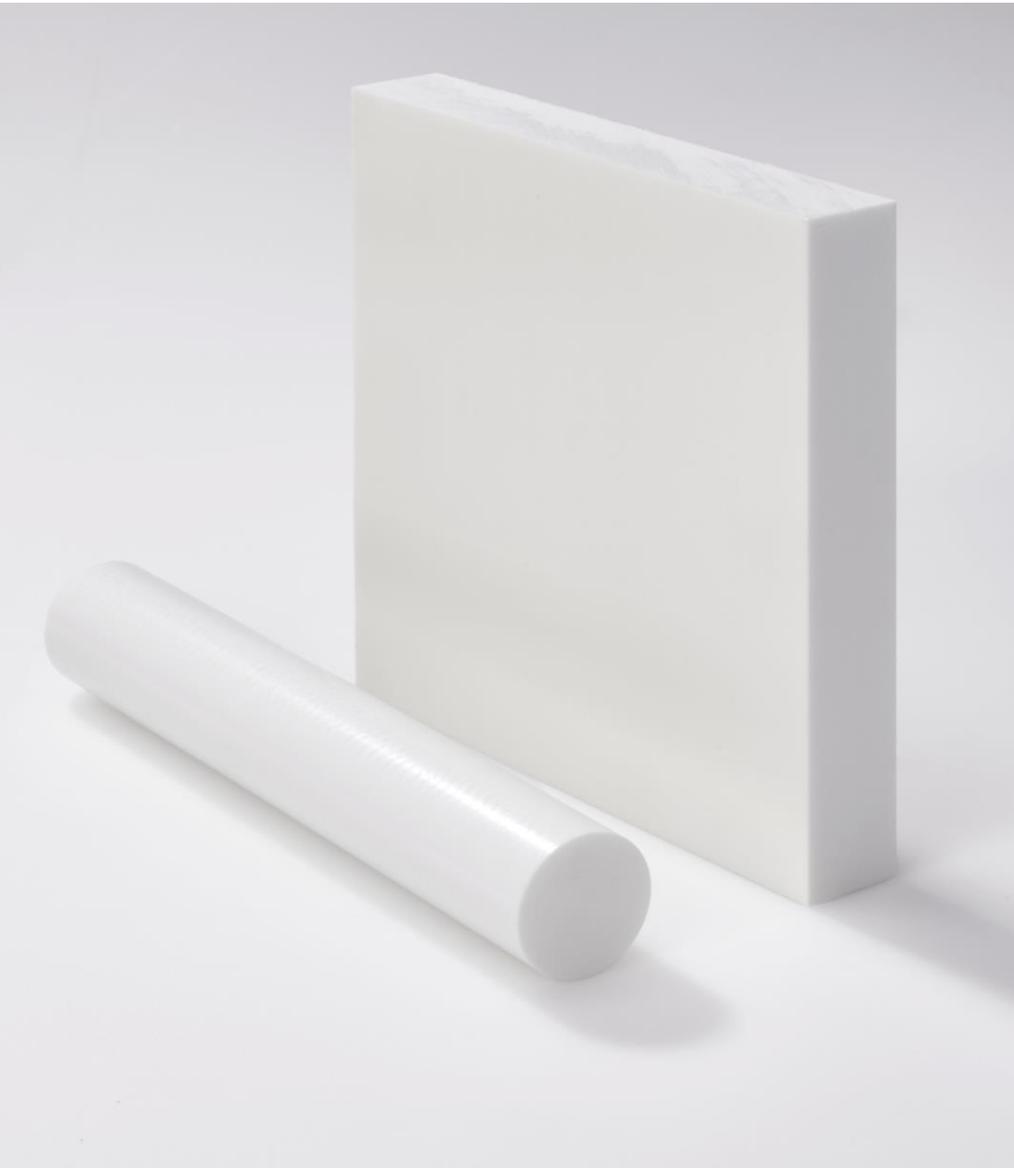
GEHR PET®



- » High strength and stiffness
- » High creep resistance
- » High surface hardness
- » Good polishability
- » High dimensional stability
- » Good sliding friction properties and abrasion resistance
- » Good electrical isolation properties
- » High chemical resistance
- » Good coatability
- » Medium dielectric properties
- » Sensitive to hydrolysis

PRODUCT RANGE:

- » Colours: black and **natural (snow white)**
- » Sheets: 10, 16, 20, 30, 40, 50 und 60 mm (length: 1-3 m; width: 620 mm)
- » Rods from 20 to 100 mm diameter (length: 1-3 m)
- » Calendered sheets from 2 mm to 8 mm
- » Custom production on request
- » Other dimensions can be produced to customer order



GEHR PA6 FR®

- » Flame retardant
- » Resistance to many oils, greases and fuels
- » High strength and stiffness
- » Good sliding and dry running operating features
- » High impact and notch impact strength
- » High heat deflection temperature
- » Shock-absorbing properties
- » Size alteration by humidity absorption must be considered

PRODUCT RANGE:

- » Colour: Natural
- » Rods and sheets

APPROVALS OF THE RAW MATERIAL:

- » Aerospace FAR 25.853
- » Railway EN45545-2:2013+A1:2015

GEHR PPA®

- » Continuous service temperature from -40°C to +160°C
 - » Very low water and moisture absorption
 - » Excellent mechanical properties up to 125°C
 - » Very high chemical resistance
 - » Low wear and abrasion at higher temperatures
 - » Very high toughness and dimensional stability
 - » Constant coefficient of expansion (up to 100 °C)
 - » Bursting pressure at 130°C (1.5mm wall thickness): 105 bar
-
- » Melting point (DSC): 280°C
 - » Glass transition temperature: 125°C
 - » Tensile Modulus: 2500 MPa

APPLICATIONS:

- » Transportation industry
- » Automotive industry
- » Thermostat housing and kitchen appliances

» **PROTECT-GEHR®**

- » Development of a dental prosthesis with an antibacterial effect
- » The aim was to develop an inorganic antibiotic metal in order to then use it in semi-finished products. These semi-finished products can then be processed into dental products.
- » Patented solution
- » Can be added to all our products (Rods, Sheets, Filaments, etc.)
- » Designation of these new product range is:

PROTECT-GEHR

PROTECT-FIL-A-GEHR





HIGH PERFORMANCE MATERIALS FOR MEDICAL TECHNOLOGY

PLASTICS
ENGINEERED BY **GEHR** 



» **MEDI-GEHR PET MG®**

- » Very good chemical resistance
- » Very high impact strength
- » High surface hardness
- » High hydrolysis resistance
- » High creep resistance
- » Good polishability
- » Good sliding friction properties and abrasion resistance
- » Good electrical insulation properties
- » High resistance to gamma radiation

APPLICATIONS:

- » Operating room lights
- » Housings
- » Medical components
- » Disposables for biomedical applications



» **MEDI-GEHR PC MG®**

- » Continuous service temperature from -60°C to +120°C
- » Very high stiffness
- » Very high impact strength
- » Very high dimensional stability
- » Resistance to x-ray irradiation
- » Very good heat deflection temperature (approx. 135°C)
- » High surface hardness

APPLICATIONS:

- » Surgical lights
- » Dialysis machines
- » Incubators
- » Oxygen equipment
- » Inhalers





» **MEDI-GEHR PEI MG[®]**

- » Long-term Service Temperature 170°C
- » High Chemical and Hydrolysis Resistance
- » Very high strength and stiffness as well as creep resistance
- » Very high torsional strength and hardness
- » High heat resistance
- » Very Good Weather Resistance
- » High resistance to γ -rays

APPLICATIONS:

- » Delivery capsule for minimally invasive procedures
- » Autoclave components
- » Structural medical components
- » Radiation therapy systems
- » Infusion pumps

» **MEDI-GEHR PPSU MG[®] COLORED**

» Your benefit: All dimensions are made-to-order; customization with fast delivery and minimum order quantity of 25 kg

» Available colours:

red (~RAL 3000)

blue (~RAL 5005)

green (~RAL 3262)

yellow (~RAL 1006)

purple (~RAL 7668 C)

black (~RAL 9004)

» More colours are available on request

» Material: Solvay Radel[®] PPSU

» Diameter Ranging: 10 to 100mm

APPLICATIONS:

» Instrument handles

» Sizers and spacers

» Surgical instruments





» **MEDI-FIL-A-GEHR®**

MEDI-FIL-A-GEHR products are suitable for medical and pharmaceutical applications with direct body contact with tissue, bone, skin and mucosa for up to 24 hours. All materials meet the same requirements as the semi-finished products. Especially for our certificates and approvals:

FDA*, **EU 10/2011***, **ISO 10993-1, -5, -12, -18** and **USP Class VI**

* only for raw material

MATERIALS:

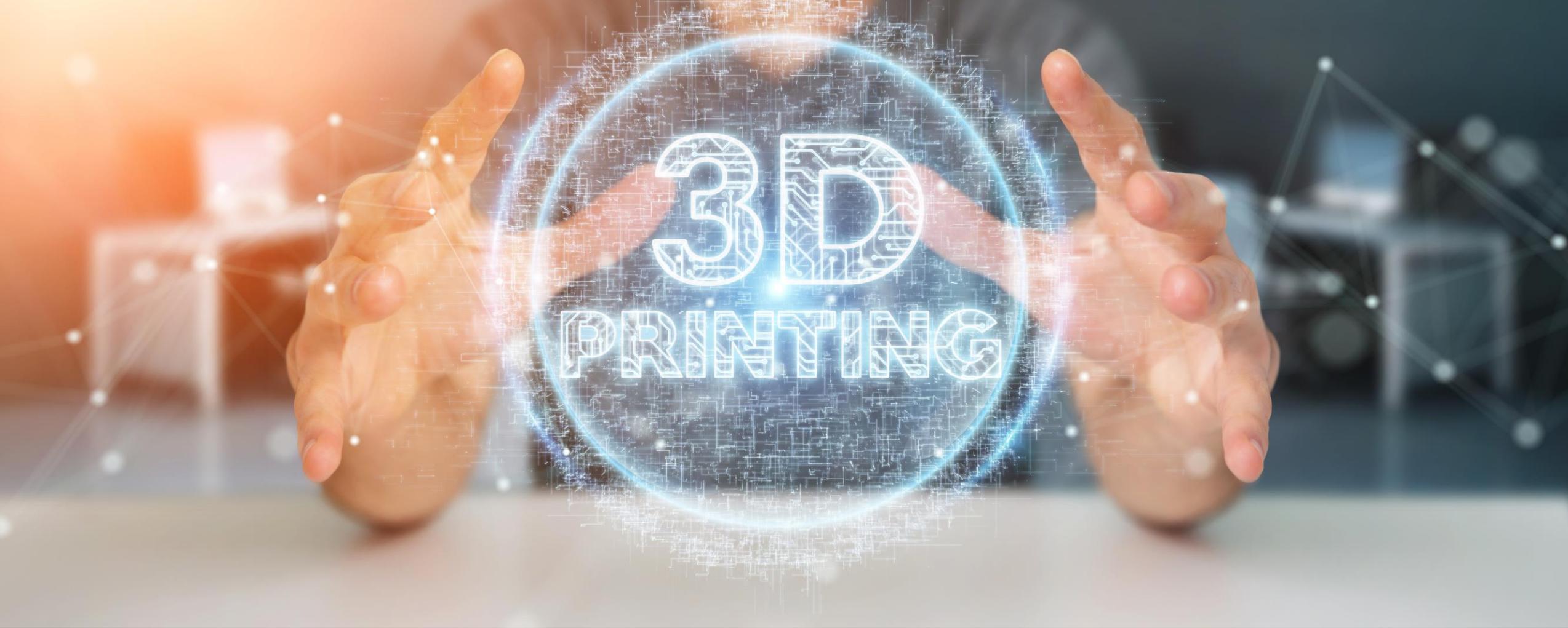
- » **MEDI-FIL-A-GEHR** PET MG (white and transparent)
- » **MEDI-FIL-A-GEHR** PC MG
- » **MEDI-FIL-A-GEHR** PPSU MG
- » **MEDI-FIL-A-GEHR** PEEK MG



MEDI-FIL-A-GEHR PPSU MG
Arthroscope prototype



MEDI-FIL-A-GEHR PEEK MG
Instrument holder prototype



FIL-A-GEHR[®]

FOR ADDITIVE MANUFACTURING

PLASTICS
ENGINEERED BY **GEHR** [®]



FIL-A-GEHR PC®

FIL-A-GEHR PC® is a polycarbonate filament with high heat resistance and high impact strength. The polycarbonate has been optimized for the 3D printing process.

- » Heat deflection temperature approx. 135°C
- » High mechanical strength
- » High dimensional stability
- » Low water absorption
- » High notch impact strength values
- » Post-processing possible (e.g. drilling, sawing, ...)
- » Pressure nozzle temperature 260°C, printing plate temperature 90-110°C

APPLICATIONS:

- » protective covers
- » tool handles
- » lamps housing

PRODUCT RANGE:

- » Colour: Natural
- » Diameter: 1,75 and 2,85 mm
- » 1 kg Spools



» FIL-A-GEHR PA 12 – CF15®

FIL-A-GEHR PA 12 – CF15® is a filament strengthened by carbon fiber (15%), which has a very high mechanical strength with low water absorption.

- » Low water absorption
- » Very high stiffness and impact strength
- » Good chemical resistance
- » Good abrasion and sliding properties
- » High resistance to weathering
- » Pressure nozzle temperature 250-260°C
- » Printing plate temperature 100°C

APPLICATIONS:

- » Construction components
- » Transportation

PRODUCT RANGE:

- » Colour: Black
- » Diameter: 1,75 mm and 2,85 mm
- » 500 g and 1 kg Spools



» FURTHER INFORMATION



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