



Product information

TECATEC™ - product family

Thermoplastic composites with excellent strength

Components made from the highly-filled carbon fibre composite material TECATEC™ are characterized by an extraordinary degree of mechanical strength and high thermal dimensional stability.

Stock shapes made using the new product range are comprised of a thermoplastic matrix and a woven fabric of carbon fibre bundles. This combination ensures significantly higher tensile and flexural strength compared to fibre-reinforced extrudates. These lightweight composites offer good chemical resistance and are also radiolucent, making them ideal for use in medical applications.

The matrix polymer used in TECATEC™ PEEK CW50 is VICTREX® PEEK™, which is compressed with woven carbon fabric mats. A special coating on the fabric reduces the number of faults. The carbon fibre fabric content of 50 per cent offers extreme torsional stiffness and practically eliminates warping despite repeated sterilization, resulting in a long service life of components.

TECATEC™ PEKK CW60 comprises a polyetherketone-ketone (PEKK) matrix, laminated with 60 per cent carbon fibre fabric. The manufacturing process achieves excellent fibre and matrix integration. Because of its high glass transition point (165 °C), PEKK is highly resistant to repeated autoclave cycles, and its enhanced carbon fibre component ensures optimum dimensional stability and rigidity.

Properties

- Outstanding strength
- Excellent thermal dimensional stability
- Good dimensional stability
- Low water absorption
- Corrosion resistance
- Excellent chemical resistance
- Excellent resistance to hot steam autoclaving
- Physiologically harmless

Field of application

- Medical technology (surgery, orthopaedics)

Applications

- Target arms used in medical technology
- External fixing aids
- Structural elements

Delivery scope

- All deliveries are produced to customer order
- Panel thicknesses from 10 mm to 50 mm; greater dimensions available on request
- If required, Ensinger also offers cut pieces made of TECATEC™



Technical Properties

Material			TECATEC PEEK CW50	TECATEC PEKK CW60
Chemical Designation			PEEK	PEKK
Density	DIN EN ISO 1183	[g/cm ³]	1,48	1,61
Mechanical properties				
Modulus of elasticity	DIN EN ISO 527-4, warp direction	[GPa]	53,2	54,3
Modulus of elasticity	DIN EN ISO 527-4, fill direction	[GPa]	50,4	55,3
Tensile strength	DIN EN ISO 527-4, warp direction	[MPa]	491	585
Flexural strength	DIN EN ISO 527-4, fill direction	[MPa]	511	626
Modulus of elasticity, flexural test	DIN EN ISO 178, warp direction	[GPa]	48,9	50,9
Modulus of elasticity, flexural test	DIN EN ISO 178, fill direction	[GPa]	47,1	45,3
Flexural strength	DIN EN ISO 178, warp direction	[MPa]	813	964
Flexural strength	DIN EN ISO 178, fill direction	[MPa]	738	882
Thermal properties				
Glass transition temperature (matrix)	ISO 3146	[°C]	143	165
Thermal expansion (CLTE)	23 - 80 °C, DIN EN ISO 11359, warp direction	[10 ⁻⁵ *K ⁻¹]	0,5	0,5
Thermal expansion (CLTE)	23 - 80 °C, DIN EN ISO 11359, fill direction	[10 ⁻⁵ *K ⁻¹]	0,5	0,5
Thermal expansion (CLTE)	23 - 80 °C, DIN EN ISO 11359, thickness	[10 ⁻⁵ *K ⁻¹]	5	5
Miscellaneous data				
Biocompatibility	ISO 10993-5	-	yes	yes
Water absorption	48h / 80 °C	[%]	0,15	0,23

Tests performed at room temperature.

Our information and specifications are provided to the best of our current knowledge and are designed to provide data about our products and their application possibilities. They are consequently not intended to provide any legally binding guarantee or assurance of chemical resistance, product properties or saleability. For more information on our delivery conditions and liability disclaimer, please refer to our Stock Shapes Catalogue or visit www.ensinger-online.com.

TECATEC™ is a registered trademark of Ensinger Inc.

TECATEC combines thermoplastic characteristics with properties similar to metal, so offering extraordinary mechanical strength and high thermal dimensional stability - the number one choice to address extreme strength requirements in the field of medical technology.



Target arm
TECATEC PEEK CW50
Courtesy Stryker Trauma GmbH