

TECATEC™ product family Thermoplastic composite with outstanding strength

Components made of the composite material TECATEC™ offer high mechanical strength alongside excellent heat distortion properties.

Stock shapes made using the new product series comprise a thermoplastic matrix and a woven fabric of carbon fibre bundles. This combination ensures the achievement of significantly higher tensile and flexural strength compared to fibre reinforced extrudates. The lightweight materials also offer good chemical resistance and are radiolucent, making them ideally suited for external fixation devices and surgical instruments.

TECATEC™ PEEK CW50 makes use of the matrix polymer VICTREX® PEEK™, which is compressed with laminated woven carbon fabric mats. A special coating on the fabric helps to reduce the number of faults. A carbon fibre fabric component of 50 % ensures very good torsional stiffness and minimal tendency to warp even after multiple sterilization cycles. These attributes make for a long service life of components.

TECATEC™ PEKK CW60 comprises a polyetherketoneketone matrix (PEKK), laminated with a 60 % carbon fibre fabric. The proprietary manufacturing process with autoclave used achieves excellent fibre and matrix integration. Because of its high glass transition point (165 °C), PEKK is extremely resistant to repeated steam sterilization cycles, while its enhanced carbon fibre component ensures even higher dimensional stability and stiffness.

Properties

- | Outstanding strength
- | Excellent heat distortion
- | Good dimensional stability
- | Low moisture absorption
- | Corrosion resistance
- | Excellent chemical resistance
- | Excellent steam sterilization in autoclave performance
- | Physiologically harmless

Preferred fields

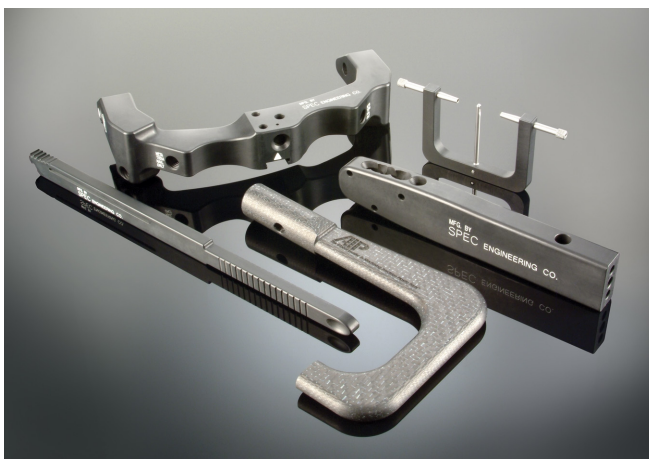
- | Medical technology (surgery, orthopaedics)

Applications

Targeting guides, retractor blades, fixturing assemblies, structural components

Availability

- | All productions custom-made
- | Thickness ranges usually from 3mm to 50mm (1/4" to 2"); thicker plates on request.
- | Ensinger offers also cut pieces made of TECATEC™



Medical components made of carbon fibre filled PEEK and TECATEC™ composite material for high-end applications offer stiffness while providing radiolucency

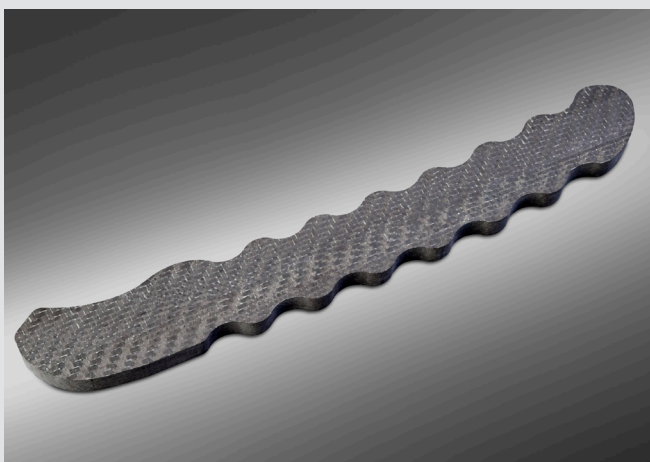
Technical characteristics

				TECATEC PEEK CW50	TECATEC PEKK CW60
Properties	Test Method	Orientation	Unity	Value	Value
Tensile Strength	DIN EN 527-4	Warp	MPa	491	585
Tensile Strength	DIN EN 527-4	Fill	MPa	511	626
Tensile Modulus	DIN EN 527-4	Warp	GPa	53,2	54,3
Tensile Modulus	DIN EN 527-4	Fill	GPa	50,4	55,3
Flexural Strength	DIN EN ISO 178	Warp	MPa	813	964
Flexural Strength	DIN EN ISO 178	Fill	MPa	738	882
Flex Modulus	DIN EN ISO 178	Warp	GPa	48,9	50,9
Flex Modulus	DIN EN ISO 178	Fill	GPa	47,1	45,3
Coefficient of thermal Expansion	ISO 11359	Warp	10 ⁻⁵ 1/k	0,5	0,5
Coefficient of thermal Expansion	ISO 11359	Fill	10 ⁻⁵ 1/k	0,5	0,5
Coefficient of thermal Expansion	ISO 11359	Thickness	10 ⁻⁵ 1/k	50	50
Water absorption	48h / 80°C		%	0,15	0,23
Glass transition temperature matrix	ISO 3146		°C	143	165
Density	ISO 1183		g/cm ³	1,48	1,61
Biocompatibility	ISO 10993-5			yes	yes

Conditions at room temperature.

TECATEC™ is a registered trademark of ENSINGER Inc.

The above information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of chemical resistance, of certain properties and the suitability of our products and their applications. Please find information concerning the exclusion of liability and Terms and Conditions of Delivery in our Semi-finished products catalogue or at www.ensinger-online.com.



Target device blank made of TECATEC™ composite material