

TECBAR

GFRP/CFRP/BFRP

Our TEC BAR's with profiling are manufactured using pultrusion technology. The TEC BAR's are a reinforcing bar made of composites and an alternative to the well-known reinforcing steel.

The profiled reinforcement bars developed by us are characterized by very high corrosion resistance and outstanding tensile strength. Another advantage lies in the same thermal expansion behavior of GFRP TEC BAR's and the concrete matrix surrounding them, which reduces temperature-induced stresses. The profiled rebars, which are manufactured in one process step, are manufactured on fully automated systems using a newly developed process. The surface of TEC BAR's have a continuous series of ridges or indentations to promote better bonding with the concrete. The composite rebars can be made of GFRP (glass fibers) CFRP (carbon fibers) or BFRP (basalt fibers). They differ in technical properties and also in weight.



Advantages:

- Light weight
- High corrosion resistance & durability
- Low concrete cover sufficient
- High chemical resistance
- Higher tensile strength than reinforcing steel (e.g. high ductile reinforcing steel)
- Diameters can be adjusted to use case/loads
- Less need for reinforcing bars compared to steel due to high tensile strength

Areas of application for all materials (GFRP/CFRP/BFRP):

- Design elements
- Concrete reinforcement
- Restorations / renovations



Technical properties:

	GFRP	BFRP	CFRP
Density (g/cm ³)	2,0	2,2	1,6
Bending Tensile Modulus (Gpa)	50	60	110
Tensile Strength (Mpa)	> 1000	> 1600	> 1900
Magnetism	non	non	non
Elongation at Break (%)	2	5	1,7
Temperature resistance (°C)	100	100	100
Thermal Expansion Coefficient (fiber; α in 1/K)	$5,5 \times 10^{-6}$	6×10^{-7}	$-0,1 \times 10^{-6}$

High corrosion resistance:

- High alkali and chemical resistance as well as high acid resistance
- Resistant to industrial effluents and chemical liquids
- Absolutely rustproof - Prevents concrete spalling and protects static components

High mechanical properties:

- Higher tensile strength and durability compared to steel
- Positive bond stress properties for best power transmission
- Fiber composite material is up to 80% lighter than steel
- Reduced dead load of the different concrete constructions

Advanced properties:

- No electrical or electromagnetic conductivity
- Easy to machine or cut
- Safe handling on the construction site
- No magnetism, therefore no interference with electronic equipment
- Transparent to radar, radio and radio waves
- Very low thermal conductivity
- Long service life in concrete

