

Durostone® CF

Carbon fibre reinforced composites

High strength materials for high-tech applications



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High strength – low weight

Carbon fibres are extremely thin fibres of about 0.005–0.010 mm in diameter and composed mostly of carbon atoms. The carbon atoms are bonded together in microscopic crystals that are more or less aligned parallel to the long axis of the fibre. This unidirectional crystal alignment makes the fibre very strong for its size. The density of carbon fibre is also considerably lower than the density of steel, making it ideal for light weight applications.

In **Durostone® CF** carbon fibre reinforced composites several thousand of carbon fibres are combined with a resin and wound or pultruded to products that provide a very high strength-to-weight ratio material.

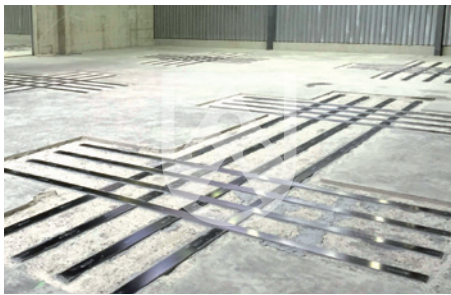
The properties of carbon fibres such as high tensile strength, low weight, and low thermal expansion make **Durostone® CF** carbon fibre reinforced composites the ideal material for numerous applications with demanding mechanical and weight characteristics.

Technologies

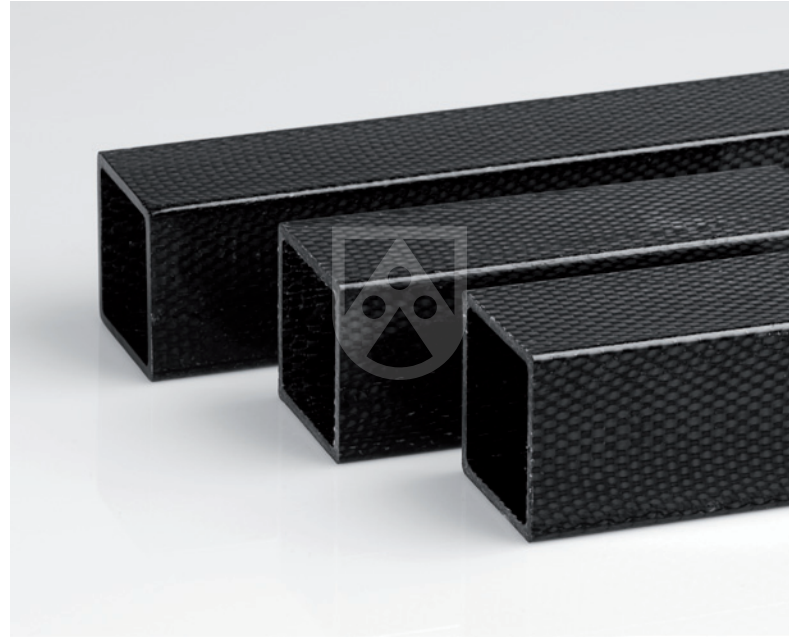
For **Durostone® CF** products Röchling use following manufacturing technologies:

- Pultrusion (for profiles and rods)
- Filament winding (for wound parts)

Depending on the type of carbon fibres, their textile structure and the type of resin the materials properties of **Durostone® CF** products may vary within a certain range.



The supporting structure reinforcement made of carbon fibre reinforced composites increases the loadbearing safety



Röchling use filament winding and pultrusion technology to produce **Durostone® CF** products

Technical values **Durostone® CF** profiles

	Unit	Value
Specific gravity	g/cm ³	1.5–1.6
Bending strength	N/mm ²	850–1,400
Bending modulus	N/mm ²	70,000–200,000
Tensile strength	N/mm ²	900–2,100
Tensile modulus	N/mm ²	88,000–245,000
Compression strength \perp	N/mm ²	120–420
Impact strength	kJ/m ²	90–240
Water absorption	%	0.01–0.2

Remarks: The material properties listed in this table are average values. Depending on the type of carbon fibres, their textile structure and the type of resin the materials properties of **Durostone® CF** products may vary within a certain range. No guaranties can be derived from this description.

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