

## composite fiberglass rebar 4MM

Unidirectional composite rebar for  
concrete reinforcement



Shape	Profiled round bar
Surface structure	Additive profiling
Geometry of profiling	Rib
Fiber material core	ECR-glass fiber
Impregnant material	Epoxy resin
Color	Greenish

### Geometry and structure

	Unit	Value	Tolerance	Standard
Nominal diameter	[mm]	4,00	± 0,2 mm	EAD 260023-00-0301
Outer diameter	[mm]	5,41	± 0,5 mm	EAD 260023-00-0301
Static cross-sectional area	[mm <sup>2</sup> ]	12,68	-	EAD 260023-00-0301
Weight per meter	[g/m]	35,32	± 4 %	EAD 260023-00-0301

### Material properties

	Unit	Value	Tolerance	Standard	
Glass transition temperature (DSC)	[°C]	≥ 100	-	EN ISO 11357-2	
Bulk density of the fiber composite	[g/cm <sup>3</sup> ]	2,15	2,15 - 2,25	ISO 1183-1	
Coefficient of thermal expansion $\alpha_{sp}$	longitudinal	[10 <sup>-6</sup> K <sup>-1</sup> ]	5,4	± 0,6	ISO 11359-2
	transversal	[10 <sup>-6</sup> K <sup>-1</sup> ]	2,1	± 0,4	ISO 11359-2
Residual strength rate (alkali resistance)	[%]	≥ 20	-	EAD 260023-00-0301	
Building material class	[-]	E	-	EN 13501-1	

### Mechanical properties

	Unit	Value	Standard	
Average short-time tensile strength regarding to nominal cross-sectional area	[N/mm <sup>2</sup> ]	≥ 1110	EAD 260023-00-0301	
Characteristic short-time tensile strength regarding to nominal cross-sectional area	[N/mm <sup>2</sup> ]	≥ 1020	EAD 260023-00-0301	
Average modulus of elasticity regarding to nominal cross-sectional area	[N/mm <sup>2</sup> ]	≥ 51000	EAD 260023-00-0301	
Characteristic elongation at break	[%]	≥ 2,2	EAD 260023-00-0301	
Characteristic maximum service temperature	[Tmax °C]	70	EAD 260023-00-0301	
Average compressive strength	[N/mm <sup>2</sup> ]	360	ASTM D695-10	
Average compressive modulus	[N/mm <sup>2</sup> ]	50700	ASTM D695-10	
Average shear strength	longitudinal	[N/mm <sup>2</sup> ]	≥ 57	EAD 260023-00-0301
	transversal	[N/mm <sup>2</sup> ]	≥ 240	EAD 260023-00-0301
Average short-term bond strength	for ≥ C20/25	[N/mm <sup>2</sup> ]	16,2	EAD 260023-00-0301
Average short-term bond strength at (Tmax)	for ≥ C20/25	[N/mm <sup>2</sup> ]	16,3	EAD 260023-00-0301
Characteristic resisting force	[kN]	16,2	EAD 260023-00-0301	

### Delivery forms

	Unit	Value	Tolerance	
Bar (standard)	Length	[m]	6,0-12,0	0,02
Coil (min-max length)	Length	[m]	50 - 200	0,05

### Storage conditions

Protect from direct sunlight.

### Measurement

The identified values have been determined directly from the product. Variations in these properties might be observed in the structural element or throughout its processing. It is advised to validate these values through appropriate tests on the structural component, using the specific formulation employed in each instance.

### Country-specific regulations

The application of this product is subject to the relevant national regulations in the country of use. Design processes are conducted following the standards applicable to reinforced concrete components. This includes adherence to EU EN 1992 Eurocode 2 and the forthcoming Annex R, which pertains to Embedded FRP (Fiber-Reinforced Polymer) reinforcement.

### Processing information

Only qualified and trained personnel should install GFRP. Do not use damaged rebars, as this compromises load-bearing capacity. The product's specified values, especially tensile strength, are valid only when used as intended.

### Ecology and health protection

This product is classified as an 'article' under Article 3 of Regulation (EC) No 1907/2006 (REACH) and does not release substances during normal usage. Consequently, a safety data sheet as per Article 31 is not necessary for its marketing, transportation, or usage. Adherence to the guidelines in this data sheet is essential for safe use. Based on current knowledge, the product does not contain any Substances of Very High Concern (SVHC) listed in Annex XIV of REACH or on the European Chemicals Agency's Candidate List in concentrations exceeding 0.1% (w/w).

### Industrial safety and health

When cutting, sanding, or drilling fiber composites, fine particles and fibers can be released into the air. These can be harmful if inhaled or if they come into contact with the skin or eyes. Thus, proper personal protective equipment (PPE) like masks, safety goggles, and gloves are essential. Good ventilation or extraction systems are also important in work areas. Special tools and techniques are often required for cutting and machining fiber composites. Standard tools can wear out quickly due to the abrasive nature of the fibers. Diamond-coated tools are recommended to be used.

### Legal information

This information is grounded in our expertise and experience, assuming the product is correctly transported, stored, used, and processed as per the guidelines in this Product Data Sheet and the Technical Information for our reinforcement bars. The effectiveness of our products largely depends on their usage and processing. It is your responsibility to verify the product's appropriateness for your specific application.

As most countries do not yet have building regulations for non-metallic reinforcements, it is vital to consult with planners, specialists, building authorities, structural engineers, and experts for load-bearing structures, and adhere to country-specific regulations (like obtaining individual approvals, where necessary). Non-load-bearing use is generally less regulated, but it's still crucial to ensure compliance with local standards and safety norms to guarantee the integrity and longevity of the project.

We retain the authority to modify product specifications. Any existing third-party industrial property rights should be respected. Our standard terms and conditions of sale and delivery apply in all other aspects. The most recent technical product data sheet at the time of your product purchase is applicable.