

solidian REBAR D4-RRE

nedia-resistant glass fiber reinforcec	l plastic				and the second se
Material					and the second s
Shape	Profiled round b	ar		1	
Surface structure	Additive profiling	g		Contra Contra	
Geometry of profiling	Rib				
Fiber material core	R (ECR-glass)				
Impregnant material	E (epoxy resin)				
Color	greenish				
Geometry and structure		Unit	Value	Tolerance	Standard
Nominal diameter		[mm]	4,0	-	-
Outer diameter		[mm]	5,0	± 0,5 mm	-
Static cross-sectional area		[mm ²]	12,57	-	-
Weight per meter		[g/m]	32,2	±4%	-
Fiber volume content		[%]	≥ 67	-	-
Material properties		Unit	Value	Tolerance	Standard
Bulk density of the fiber composite mater	ial	[g/cm ³]	2,16	2,14 - 2,18	ISO 1183-1
	longitudinal		ca. 6,1		130 1103 1
Coefficient of thermal expansion	transversal	- [10 ⁻⁶ /K] -	ca. 19,5	_	-
	longitudinal		ca. 0,8	-	
Coefficient of thermal conductivity	transversal	- [W/(m·K)] -	ca. 0,5	-	-
Glass transition temperature (DSC)		[°C]	≥ 110	-	DIN EN ISO 11357-2
Residual strength rate (alkali resistance)		[%]	≥ 70	-	ISO 10406-1
Building material class		[-]	E	-	EN 13501-1
Mechanical properties		Unit	Value	Tolerance	Standard
Average short-time tensile strength re-		[]] /	> 1250		10 10 400 1
garding to nominal cross-sectional area		[N/mm ²]	≥ 1350	-	ISO 10406-1
Characteristic short-time tensile strength		[N/mm ²]	≥ 1100	_	ISO 10406-1
regarding to nominal cross-sectional area		[14/11111]	2 1100		150 10400-1
Average modulus of elasticity regarding to nominal cross-sectional area		[N/mm ²]	≥ 60000	-	ISO 10406-1
Characteristic elongation at break		[%]	≥ 1,83	_	ISO 10406-1
	longitudinal	[N/mm ²]			ASTM D4475-02
Average shear strength	transversal	[N/mm ²]	≥ 250	_	ISO 10406-1
Characteristic short-term bond strength	for ≥ C20/25	[N/mm ²]	-	-	RILEM RC6
Characteristic value of mean bond stress	for ≥ C20/25	[N/mm ²]	_	-	RILEM RC6
for $w_k = 0,15 \text{ mm}$ Characteristic resisting force		[kN]	13,8	_	ISO 10406-1
		[1/14]	13,0		130 10400 1
Further characteristic values		Unit	Value	Tolerance	
Cross-sectional force transmission at w _k = at 20°C for C50/60	= 0,1 mm	[N/mm ²]	-	-	
Delivery forms		Unit	Value		Tolerance
Bar (standard)	Length	[m]	6,0		-
Bar (maximum length)	Length	[m]	12,0		_



Measurement

Specified values were determined on the product itself. Deviating properties may occur in the structural component or during processing. We recommend checking the values by suitable structural component tests with the concrete formulation used in each case.

Country-specific regulations

The use of the product is governed by the respective national regulations at the place of use, in Germany for example the building codes of the federal states, and the technical provisions based on these regulations.

The design is generally carried out in accordance with the applicable standards for reinforced concrete components, although adjustments must be made for fiber composite plastic reinforcements if applicable standards, guidelines, etc. for fiber composite plastic reinforcements are not available. Accordingly, the respective national standards and regulations must be taken into account in the design.

Processing information

All work must be carried out by trained/instructed personnel only. Damaged fiber bundles (resin spalling, brittle areas, etc.) must not be installed, as the specified load-bearing capacity cannot be guaranteed. The specified values of the product, in particular with regard to tensile strength, only apply if the product is used as intended.

For further information, please refer to the current Technical Information for our solidian REBAR reinforcement bars (www.solidian.com/downloads).

Ecology and health protection

REGULATION (EC) NO. 1907/2006 - REACH.

This product is an article as defined in Article 3 of Regulation (EC) No 1907/2006 (REACH). It does not contain substances that are released from the article during normal use. A safety data sheet according to Article 31 of the same regulation is not required to place this product on the market, to transport it or to use it. For safe use, follow the instructions from this data sheet. To our current knowledge, this product does not contain any SVHC (Substances of Very High Concern) according to Annex XIV of the REACH Regulation or substances published on the Candidate List by the European Chemicals Agency at concentrations above 0.1% (w/w).

Industrial safety and health

Protective measures must be observed during all work with cutting equipment, such as wearing cut-resistant gloves, safety goggles and a dust mask. The actual handling of fiber composites should be based on the Technical Rules for Hazardous Substances (TRGS) of the German Federal Institute for Occupational Safety and Health (baua). Furthermore, we refer to the DGUV information "Machining of CFRP materials - Guidance for protective measures" (FB-HM 074, issue 10/2014).

Legal information

The above information is based on our knowledge and experience under normal conditions, provided that the product has been transported, stored, used and processed properly and in accordance with the specifications in this Product Data Sheet and the Technical Information for our solidian REBAR reinforcement bars. The work results that can be achieved with our products depend in particular on their use and processing. The suitability of the product for the specific application must be checked in advance on your own responsibility.

Since non-metallic reinforcements are not yet regulated by building authorities in most countries, planners, specialist planners, building authorities, structural engineers, experts, etc. must be consulted for load-bearing components and country-specific regulations must be observed (e.g. approvals in individual cases).

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Date: 01.03.2023 Version: 2303 solidian REBAR D4-RRE Technical Product Data Sheet v2303.docx

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solidian REBAR D6-RRE

nedia-resistant glass fiber reinforced	plastic				
Material					and the second se
Shape	Profiled round b	ar		1	
Surface structure	Additive profiling	9		Contraction of the second	
Geometry of profiling	Rib				
Fiber material core	R (ECR-glass)				
Impregnant material	E (epoxy resin)				
Color	greenish				
Geometry and structure		Unit	Value	Tolerance	Standard
Nominal diameter		[mm]	6,0	-	-
Outer diameter		[mm]	7,0	± 0,5 mm	-
Static cross-sectional area		[mm ²]	28,27	-	-
Weight per meter		[g/m]	66,0	±3%	-
Fiber volume content		[%]	≥ 67	-	-
Material properties		Unit	Value	Tolerance	Standard
Bulk density of the fiber composite materi	al	[g/cm ³]	2,16	2,14 - 2,18	ISO 1183-1
	longitudinal		ca. 6,1	-	
Coefficient of thermal expansion	transversal	- [10 ⁻⁶ /K] -	ca. 19,5	-	-
Coefficient of thermal conductivity	longitudinal	[]]]///ma. [/]]	ca. 0,8	-	
Coefficient of thermal conductivity	transversal	- [W/(m·K)] -	ca. 0,5	-	-
Glass transition temperature (DSC)		[°C]	≥ 110	-	DIN EN ISO 11357-2
Residual strength rate (alkali resistance)		[%]	≥ 75	-	ISO 10406-1
Building material class		[-]	E	-	EN 13501-1
Mechanical properties		Unit	Value	Tolerance	Standard
Average short-time tensile strength re-		[N/mm ²]	≥ 1350	_	ISO 10406-1
garding to nominal cross-sectional area		[14/11111]	2 1550		150 10400-1
Characteristic short-time tensile strength		[N/mm ²]	≥ 1100	_	ISO 10406-1
regarding to nominal cross-sectional area		[]			
Average modulus of elasticity regarding		[N/mm ²]	≥ 60000	_	ISO 10406-1
to nominal cross-sectional area			1.02		100 10 100 1
Characteristic elongation at break	le se esta velta e l	[%]	≥ 1,83	-	ISO 10406-1
Average shear strength	longitudinal transversal	[N/mm ²] [N/mm ²]	≥ 50 ≥ 195	_	ASTM D4475-02 ISO 10406-1
Characteristic short-term bond strength	for ≥ C20/25	[N/mm ²]	-	_	RILEM RC6
Characteristic value of mean bond strength			-	-	
for $w_k = 0.15$ mm	for \geq C20/25	[N/mm ²]	-	-	RILEM RC6
Characteristic resisting force		[kN]	31,1	-	ISO 10406-1
Further characteristic values		Unit	Value	Tolerance	
Cross-sectional force transmission at $w_k =$ at 20°C for C50/60	0,1 mm	Unit [N/mm ²]	-	-	
Delivery forms		Unit	Value		Tolerance
Bar (standard)	Length	[m]	6,0		-
bar (standard)					



Measurement

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Country-specific regulations

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Processing information

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Ecology and health protection

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solidian REBAR D8-RRE

nedia-resistant glass fiber reinforcec	l plastic				and the second sec
Material					and the second se
Shape	Profiled round b	ar		1	
Surface structure	Additive profiling	g		Contra Contra	
Geometry of profiling	Rib				
Fiber material core	R (ECR-glass)				
Impregnant material	E (epoxy resin)				
Color	greenish				
Geometry and structure		Unit	Value	Tolerance	Standard
Nominal diameter		[mm]	8,0	-	-
Outer diameter		[mm]	9,5	± 0,5 mm	-
Static cross-sectional area		[mm ²]	50,27	-	-
Weight per meter		[g/m]	119	±2%	-
Fiber volume content		[%]	≥ 67	-	-
Material properties		Unit	Value	Tolerance	Standard
Bulk density of the fiber composite mater	ial	[g/cm ³]	2,16	2,14 - 2,18	ISO 1183-1
	longitudinal		ca. 6,1		
Coefficient of thermal expansion	transversal	- [10 ⁻⁶ /K] -	ca. 19,5	-	-
	longitudinal		ca. 0,8	-	
Coefficient of thermal conductivity	transversal	- [W/(m·K)] -	ca. 0,5	-	-
Glass transition temperature (DSC)		[°C]	≥ 110	-	DIN EN ISO 11357-2
Residual strength rate (alkali resistance)		[%]	≥ 80	-	ISO 10406-1
Building material class		[-]	E	-	EN 13501-1
Mechanical properties		Unit	Value	Tolerance	Standard
Average short-time tensile strength re-		[N/mm ²]	≥ 1350		ISO 10406-1
garding to nominal cross-sectional area			2 1550	-	130 10400-1
Characteristic short-time tensile strength		[N/mm ²]	≥ 1100	_	ISO 10406-1
regarding to nominal cross-sectional area			2 1100		130 10400 1
Average modulus of elasticity regarding		[N/mm ²]	≥ 60000	-	ISO 10406-1
to nominal cross-sectional area Characteristic elongation at break		[%]	≥ 1,83	_	ISO 10406-1
	longitudinal	[N/mm ²]	≥ 50		ASTM D4475-02
Average shear strength	transversal	[N/mm ²]	≥ 185	_	ISO 10406-1
Characteristic short-term bond strength	for \geq C20/25	[N/mm ²]	≥ 9	_	RILEM RC6
Characteristic value of mean bond stress	for ≥ C20/25	[N/mm ²]	≥ 6	_	RILEM RC6
for $w_k = 0.15 \text{ mm}$ Characteristic resisting force		[kN]	55,3	_	ISO 10406-1
		[[[]]]	55,5		10-10-1
Further characteristic values		Unit	Value	Tolerance	
Cross-sectional force transmission at w _k = at 20°C for C50/60	= 0,1 mm	[N/mm ²]	-	-	
Delivery forms		Unit	Value		Tolerance
Bar (standard)	Length	[m]	6,0		-
Bar (maximum length)	Length	[m]	12,0		_



Measurement

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Processing information

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Ecology and health protection

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Legal information

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solidian REBAR D10-RRE

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Material					
Shape	Profiled round b	ar		Carlos and	
Surface structure	Additive profiling	g		A A	
Geometry of profiling	Rib		1		
Fiber material core	R (ECR-glass)				
Impregnant material	E (epoxy resin)				
Color	greenish				
Geometry and structure		Unit	Value	Tolerance	Standard
Nominal diameter		[mm]	10,0	-	-
Outer diameter		[mm]	11,5	± 0,5 mm	-
Static cross-sectional area		[mm ²]	78,54	-	-
Weight per meter		[g/m]	177	±2%	-
Fiber volume content		[%]	≥ 67	-	-
Material properties		Unit	Value	Tolerance	Standard
Bulk density of the fiber composite materi	al	[g/cm ³]	2,14	2,12 - 2,16	ISO 1183-1
`	longitudinal		ca. 6,1		10011001
Coefficient of thermal expansion	transversal	- [10 ⁻⁶ /K] -	ca. 19,5	-	-
	longitudinal	DA1// 103	ca. 0,8	-	
Coefficient of thermal conductivity	transversal	- [W/(m·K)] -	ca. 0,5	-	-
Glass transition temperature (DSC)		[°C]	≥ 110	-	DIN EN ISO 11357-
Residual strength rate (alkali resistance)		[%]	≥ 80	-	ISO 10406-1
Building material class		[-]	E	-	EN 13501-1
Mechanical properties		Unit	Value	Tolerance	Standard
Average short-time tensile strength re-		[N] /ma ma 2]	> 1200		ISO 10406-1
garding to nominal cross-sectional area		[N/mm ²]	≥ 1200	-	130 10406-1
Characteristic short-time tensile strength		[N/mm ²]	≥ 1050	_	ISO 10406-1
regarding to nominal cross-sectional area			2 1050		130 10400 1
Average modulus of elasticity regarding		[N/mm ²]	≥ 55000	-	ISO 10406-1
to nominal cross-sectional area					
Characteristic elongation at break		[%]	≥ 1,91	-	ISO 10406-1
Average shear strength	longitudinal	[N/mm ²]	≥ 50		ASTM D4475-02
5 5	transversal	$[N/mm^2]$	≥ 180	-	ISO 10406-1
Characteristic short-term bond strength Characteristic value of mean bond stress	for ≥ C20/25	[N/mm ²]	≥ 9	-	RILEM RC6
for $w_k = 0,15$ mm	for \geq C20/25	[N/mm ²]	≥ 6	-	RILEM RC6
Characteristic resisting force		[kN]	82,5	-	ISO 10406-1
Further characteristic values		Unit	Value	Tolerance	
Cross-sectional force transmission at $w_k =$ at 20°C for C50/60	0,1 mm	[N/mm ²]	ca. 100	-	
Delivery forms		Unit	Value		Tolerance
Bar (standard)	Length	[m]	6,0		-
		10 C C C C C C C C C C C C C C C C C C C	-/-		



Measurement

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Country-specific regulations

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Processing information

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Ecology and health protection

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solidian REBAR D12-RRE

nedia-resistant glass fiber reinforced	plastic				
Material				k	Contraction of the second seco
Shape	Profiled round b	ar		and the second s	
Surface structure	Additive profiling				
Geometry of profiling	Rib	2			
Fiber material core	R (ECR-glass)				
mpregnant material	E (epoxy resin)				
Color	greenish				
Geometry and structure		Unit	Value	Tolerance	Standard
Nominal diameter		[mm]	12,0	-	-
Outer diameter		[mm]	13,5	± 0,5 mm	_
Static cross-sectional area		[mm ²]	113,10	-	-
Weight per meter		[g/m]	257	± 2 %	-
Fiber volume content		[%]	≥ 67	-	-
Material properties		Unit	Value	Tolerance	Standard
Bulk density of the fiber composite materi	al	[g/cm ³]	2,14	2,12 - 2,16	ISO 1183-1
· · · · · ·	longitudinal		ca. 6,1		130 1103 1
Coefficient of thermal expansion	transversal	- [10 ⁻⁶ /K] -	ca. 19,5	_	-
Coefficient of thermal conductivity	longitudinal	D. 1 / / 103	ca. 0,8	-	
	transversal	- [W/(m·K)] -	ca. 0,5	-	-
Glass transition temperature (DSC)		[°C]	≥ 110	-	DIN EN ISO 11357-
Residual strength rate (alkali resistance)		[%]	≥ 80	-	ISO 10406-1
Building material class		[-]	E	-	EN 13501-1
Mechanical properties		Unit	Value	Tolerance	Standard
Average short-time tensile strength re-					
garding to nominal cross-sectional area		[N/mm ²]	≥ 1200	-	ISO 10406-1
Characteristic short-time tensile strength		[N/mm ²]	≥ 1050		ISO 10406-1
regarding to nominal cross-sectional area			≥ 1030	-	130 10400-1
Average modulus of elasticity regarding		[N/mm ²]	≥ 55000	_	ISO 10406-1
to nominal cross-sectional area					
Characteristic elongation at break		[%]	≥ 1,91	-	ISO 10406-1
Average shear strength	longitudinal	[N/mm ²]	≥ 47		ASTM D4475-02
	transversal	[N/mm ²]	≥ 170	-	ISO 10406-1
Characteristic short-term bond strength	for ≥ C20/25	[N/mm ²]	≥ 9	-	RILEM RC6
Characteristic value of mean bond stress for $w_k = 0,15 \text{ mm}$	for \geq C20/25	[N/mm ²]	≥ 6	-	RILEM RC6
Characteristic resisting force		[kN]	118,8	_	ISO 10406-1
5					
Further characteristic values Cross-sectional force transmission at w _k =	0.1 mm	Unit	Value	Tolerance	
at 20°C for C50/60	0,1 mm	[N/mm ²]	ca. 90	-	
Delivery forms		110:4	Value		Tolorance
Bar (standard)	Length	Unit [m]	Value 6,0		Tolerance
Bar (standard) Bar (maximum length)	Length	[m] [m]	12,0		-



Measurement

Specified values were determined on the product itself. Deviating properties may occur in the structural component or during processing. We recommend checking the values by suitable structural component tests with the concrete formulation used in each case.

Country-specific regulations

The use of the product is governed by the respective national regulations at the place of use, in Germany for example the building codes of the federal states, and the technical provisions based on these regulations.

The design is generally carried out in accordance with the applicable standards for reinforced concrete components, although adjustments must be made for fiber composite plastic reinforcements if applicable standards, guidelines, etc. for fiber composite plastic reinforcements are not available. Accordingly, the respective national standards and regulations must be taken into account in the design.

Processing information

All work must be carried out by trained/instructed personnel only. Damaged fiber bundles (resin spalling, brittle areas, etc.) must not be installed, as the specified load-bearing capacity cannot be guaranteed. The specified values of the product, in particular with regard to tensile strength, only apply if the product is used as intended.

For further information, please refer to the current Technical Information for our solidian REBAR reinforcement bars (www.solidian.com/downloads).

Ecology and health protection

REGULATION (EC) NO. 1907/2006 - REACH.

This product is an article as defined in Article 3 of Regulation (EC) No 1907/2006 (REACH). It does not contain substances that are released from the article during normal use. A safety data sheet according to Article 31 of the same regulation is not required to place this product on the market, to transport it or to use it. For safe use, follow the instructions from this data sheet. To our current knowledge, this product does not contain any SVHC (Substances of Very High Concern) according to Annex XIV of the REACH Regulation or substances published on the Candidate List by the European Chemicals Agency at concentrations above 0.1% (w/w).

Industrial safety and health

Protective measures must be observed during all work with cutting equipment, such as wearing cut-resistant gloves, safety goggles and a dust mask. The actual handling of fiber composites should be based on the Technical Rules for Hazardous Substances (TRGS) of the German Federal Institute for Occupational Safety and Health (baua). Furthermore, we refer to the DGUV information "Machining of CFRP materials - Guidance for protective measures" (FB-HM 074, issue 10/2014).

Legal information

The above information is based on our knowledge and experience under normal conditions, provided that the product has been transported, stored, used and processed properly and in accordance with the specifications in this Product Data Sheet and the Technical Information for our solidian REBAR reinforcement bars. The work results that can be achieved with our products depend in particular on their use and processing. The suitability of the product for the specific application must be checked in advance on your own responsibility.

Since non-metallic reinforcements are not yet regulated by building authorities in most countries, planners, specialist planners, building authorities, structural engineers, experts, etc. must be consulted for load-bearing components and country-specific regulations must be observed (e.g. approvals in individual cases).

We reserve the right to make changes to the product specifications. Third-party industrial property rights must be observed. In all other respects, our respective terms and conditions of sale and delivery shall apply. The latest technical product data sheet at the time of purchase of our products shall apply.

Date: 01.03.2023 Version: 2303 solidian REBAR D12-RRE Technical Product Data Sheet v2303.docx

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solidian REBAR D14-RRE

nedia-resistant glass fiber reinforced	plastic				and the second s
Material					
Shape	Profiled round b	ar		6	
Surface structure	Additive profiling	а а			
Geometry of profiling	Rib	<u></u>		100	
Fiber material core	R (ECR-glass)				
mpregnant material	E (epoxy resin)				
Color	greenish				
Geometry and structure	-	Unit	Value	Tolerance	Standard
Nominal diameter		[mm]	14,0	-	-
Outer diameter		[mm]	16,2	± 0,5 mm	-
Static cross-sectional area		[mm ²]	153,94	-	-
Weight per meter		[g/m]	362	± 2 %	-
Fiber volume content		[%]	≥ 67	-	-
Material properties		Unit	Value	Tolerance	Standard
Bulk density of the fiber composite materi	al	[g/cm ³]	2,14	2,12 - 2,16	ISO 1183-1
Coefficient of thermal expansion	longitudinal		ca. 6,1	-	
	transversal	- [10 ⁻⁶ /K]	ca. 19,5	-	-
	longitudinal	DA4/4 103	ca. 0,8	-	
Coefficient of thermal conductivity	transversal	- [W/(m·K)] ·	ca. 0,5	-	-
Glass transition temperature (DSC)		[°C]	≥ 110	-	DIN EN ISO 11357-
Residual strength rate (alkali resistance)		[%]	≥ 80	-	ISO 10406-1
Building material class		[-]	E	-	EN 13501-1
Mechanical properties		Unit	Value	Tolerance	Standard
Average short-time tensile strength re-		[]] /	> 1200		150 10406 1
garding to nominal cross-sectional area		[N/mm ²]	≥ 1200	-	ISO 10406-1
Characteristic short-time tensile strength		[N/mm ²]	≥ 1050	_	ISO 10406-1
regarding to nominal cross-sectional area			2 1050		150 10400 1
Average modulus of elasticity regarding		[N/mm ²]	> 55000	_	ISO 10406-1
to nominal cross-sectional area					
Characteristic elongation at break		[%]	≥ 1,91	-	ISO 10406-1
Average shear strength	longitudinal	[N/mm ²]	≥ 47		ASTM D4475-02
	transversal	[N/mm ²]	≥ 170	-	ISO 10406-1
Characteristic short-term bond strength	for ≥ C20/25	[N/mm ²]	≥ 9	-	RILEM RC6
Characteristic value of mean bond stress	for \geq C20/25	[N/mm ²]	≥ 6	-	RILEM RC6
for $w_k = 0,15 \text{ mm}$ Characteristic resisting force		[kN]	161,6		ISO 10406-1
5		[KIN]	101,0	-	130 10400-1
Further characteristic values		Unit	Value	Tolerance	
Cross-sectional force transmission at $w_k =$ at 20°C for C50/60	0,1 mm	[N/mm ²]	-	-	
Delivery forms		Unit	Value		Tolerance
Bar (standard)	Length	[m]	6,0		-
Bar (maximum length)	Length	[m]	12,0		



Measurement

Specified values were determined on the product itself. Deviating properties may occur in the structural component or during processing. We recommend checking the values by suitable structural component tests with the concrete formulation used in each case.

Country-specific regulations

The use of the product is governed by the respective national regulations at the place of use, in Germany for example the building codes of the federal states, and the technical provisions based on these regulations.

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Processing information

All work must be carried out by trained/instructed personnel only. Damaged fiber bundles (resin spalling, brittle areas, etc.) must not be installed, as the specified load-bearing capacity cannot be guaranteed. The specified values of the product, in particular with regard to tensile strength, only apply if the product is used as intended.

For further information, please refer to the current Technical Information for our solidian REBAR reinforcement bars (www.solidian.com/downloads).

Ecology and health protection

REGULATION (EC) NO. 1907/2006 - REACH.

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Industrial safety and health

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Legal information

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solidian REBAR D16-RRE

Inidirectional reinforcement bar mae					
nedia-resistant glass fiber reinforcec	l plastic				and a state of the
Material					
	Profiled round ba			A	
Shape Surface structure	Additive profiling				
Geometry of profiling	Rib				
Fiber material core	R (ECR-glass)				
Impregnant material	E (epoxy resin)				
Color	greenish				
Geometry and structure		Unit	Value	Tolerance	Standard
Nominal diameter		[mm]	16,0	-	-
Outer diameter		[mm]	18,4	± 0,5 mm	_
Static cross-sectional area		[mm ²]	201,06	-	_
Weight per meter		[g/m]	476	± 2 %	_
Fiber volume content		[%]	≥ 67	-	-
Material properties		Unit	Value	Tolerance	Standard
Bulk density of the fiber composite mater	ial	[g/cm ³]	2,14	2,12 - 2,16	ISO 1183-1
· · · ·	longitudinal		ca. 6,1	-	
Coefficient of thermal expansion	transversal	[10 ⁻⁶ /K] -	ca. 19,5	-	-
Coefficient of thermal conductivity	longitudinal	BA4/4 103	ca. 0,8	-	
	transversal	[W/(m·K)] -	ca. 0,5	-	-
Glass transition temperature (DSC)		[°C]	≥ 110	-	DIN EN ISO 11357-2
Residual strength rate (alkali resistance)		[%]	-	-	ISO 10406-1
Building material class		[-]	E	-	EN 13501-1
Mechanical properties		Unit	Value	Tolerance	Standard
Average short-time tensile strength re-		[N/mm ²]	≥ 1100	-	ISO 10406-1
garding to nominal cross-sectional area Characteristic short-time tensile strength					
regarding to nominal cross-sectional area		[N/mm ²]	≥ 1000	-	ISO 10406-1
Average modulus of elasticity regarding					
to nominal cross-sectional area		[N/mm ²]	≥ 55000	-	ISO 10406-1
Characteristic elongation at break		[%]	≥ 1,82	_	ISO 10406-1
	longitudinal	[N/mm ²]	≥ 47		ASTM D4475-02
Average shear strength	transversal	[N/mm ²]	≥ 155	-	ISO 10406-1
Characteristic short-term bond strength	for ≥ C20/25	[N/mm ²]	≥ 9	-	RILEM RC6
Characteristic value of mean bond stress for $w_k = 0,15$ mm	for ≥ C20/25	[N/mm ²]	≥ 6	-	RILEM RC6
Characteristic resisting force		[kN]	201,0	-	ISO 10406-1
Further characteristic values		Unit	Value	Tolerance	
Cross-sectional force transmission at w _k = at 20°C for C50/60	0,1 mm	[N/mm ²]	ca. 74	-	
Delivery forms		Unit	Value		Tolerance
Bar (standard)	Length	[m]	6,0		_
x /	Length	r .1	12,0		



Measurement

Specified values were determined on the product itself. Deviating properties may occur in the structural component or during processing. We recommend checking the values by suitable structural component tests with the concrete formulation used in each case.

Country-specific regulations

The use of the product is governed by the respective national regulations at the place of use, in Germany for example the building codes of the federal states, and the technical provisions based on these regulations.

The design is generally carried out in accordance with the applicable standards for reinforced concrete components, although adjustments must be made for fiber composite plastic reinforcements if applicable standards, guidelines, etc. for fiber composite plastic reinforcements are not available. Accordingly, the respective national standards and regulations must be taken into account in the design.

Processing information

All work must be carried out by trained/instructed personnel only. Damaged fiber bundles (resin spalling, brittle areas, etc.) must not be installed, as the specified load-bearing capacity cannot be guaranteed. The specified values of the product, in particular with regard to tensile strength, only apply if the product is used as intended.

For further information, please refer to the current Technical Information for our solidian REBAR reinforcement bars (www.solidian.com/downloads).

Ecology and health protection

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Industrial safety and health

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Legal information

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solidian REBAR D20-RRE

Inidirectional reinforcement bar ma	de of				
nedia-resistant glass fiber reinforced	l plastic				
					and the second second
Material				A	
Shape	Profiled round b	ar		6	
Surface structure	Additive profiling]			
Geometry of profiling	Rib				
Fiber material core	R (ECR-glass)				
Impregnant material	E (epoxy resin)				
Color	greenish				
Geometry and structure		Unit	Value	Tolerance	Standard
Nominal diameter		[mm]	20,0	-	-
Outer diameter		[mm]	22,9	± 0,75	-
Static cross-sectional area		[mm ²]	314,16	-	-
Weight per meter		[g/m]	725	± 2 %	-
Fiber volume content		[%]	≥ 67	-	-
Material properties		Unit	Value	Tolerance	Standard
Bulk density of the fiber composite mater	ial	[g/cm ³]	2,14	2,12 - 2,16	ISO 1183-1
	longitudinal		ca. 6,1		130 1103 1
Coefficient of thermal expansion	transversal	- [10 ⁻⁶ /K] -	ca. 19,5	_	-
	longitudinal		ca. 0,8	_	
Coefficient of thermal conductivity	transversal	- [W/(m·K)] -	ca. 0,5	-	-
Glass transition temperature (DSC)		[°C]	≥ 110	-	DIN EN ISO 11357-
Residual strength rate (alkali resistance)		[%]	-	-	ISO 10406-1
Building material class		[-]	E	-	EN 13501-1
Mechanical properties		Unit	Value	Tolerance	Standard
Average short-time tensile strength re-					
garding to nominal cross-sectional area		[N/mm ²]	≥ 1050	-	ISO 10406-1
Characteristic short-time tensile strength		[]] /	> 050		100 10400 1
regarding to nominal cross-sectional area	1	[N/mm ²]	≥ 950	-	ISO 10406-1
Average modulus of elasticity regarding		[N/mm ²]	≥ 55000		ISO 10406-1
to nominal cross-sectional area			2 33000	-	130 10400-1
Characteristic elongation at break		[%]	≥ 1,73	-	ISO 10406-1
Average shear strength	longitudinal	[N/mm ²]	≥ 47		ASTM D4475-02
	transversal	[N/mm ²]	≥ 140	-	ISO 10406-1
Characteristic short-term bond strength	for ≥ C20/25	[N/mm ²]	≥ 9	-	RILEM RC6
Characteristic value of mean bond stress	for ≥ C20/25	[N/mm ²]	≥ 6	-	RILEM RC6
for $w_k = 0,15$ mm	-				
Characteristic resisting force		[kN]	298,5	-	ISO 10406-1
Further characteristic values		Unit	Value	Tolerance	
Cross-sectional force transmission at w _k = at 20°C for C50/60	= 0,1 mm	[N/mm ²]	-	-	
Delivery forms		Unit	Value		Tolerance
Bar (standard)	Length	[m]	6,0		-
Bar (maximum length)	Length	[m]	12,0		



Measurement

Specified values were determined on the product itself. Deviating properties may occur in the structural component or during processing. We recommend checking the values by suitable structural component tests with the concrete formulation used in each case.

Country-specific regulations

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Ecology and health protection

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