



BASFIBER® ROVING

Basfiber® roving of this series is mainly recommended for filament winding, pultrusion, processing into woven fabrics, UD tapes and multiaxial fabrics, prepregs and other products based on polyester, vinyl ester and epoxy or polyurethane resins.

NOMENCLATURE

Our nomenclature is based on three letter followed by three numbers split by dot and dashes.

Example: RDR-13.1200-11

The first letter will be always R which stands for our Rovings products. The following letters AS – GN – DR represent the roving type:

AS - Assembled Roving: External unwinding bobbin roving with on a tube or Internal unwinding (tubeless).

GN - Gun Roving: Internal unwinding (tubeless)

DR - Direct Roving: Direct Unwinding

APPLICATIONS

High pressure vessels, CNG cylinders, boat building, bridge profiles, concrete reinforcing bars, fabrics for sound and heat insulation and for corrosion applications.

MECHANICAL PROPERTIES:

Nomenclature	Monofilament diameter, µm	Linear density, tex (g/km)	Tensile strength, MPa,		E-modulus, GPa,	Tensile strength, mN/tex, ASTM
			ASTM D2343	D3822		
RDR-10.90	10 ±0.5	90 ±5.0%	2900-3200	90-94	90-94	≥750
RDR-11.110	11 ±0.5	110 ±5.0%	2900-3200	89-93	89-93	≥750
RDR-13.150	13 ±0.5	150 ±5.0%	2900-3200	88-92	88-92	≥700
RDR-17.250	17 ±1.0	250 ±5.0%	2900-3200	86-90	86-90	≥650
RDR-17.600	17 ±1.0	600 ±5.0%	2900-3200	86-90	86-90	≥650
RDR-19.600	19 ±1.0	1200 ±5.0%	2900-3200	86-90	86-90	≥650

OTHER MECHANICAL PROPERTIES:

	10	13	17
Monofilament diameter, µm	10	13	17
Tensile test according ASTM D-3822 (dry fiber), tensile strength, mN/tex	≥ 700	≥ 650	≥ 600
Tensile test according ASTM D-2343 (in epoxy impregnated strand), tensile strength, MPa	3200	3100	2900
Tensile test according ASTM D-2343 (in epoxy impregnated strand), tensile modulus, GPa	90-94	88-92	86-90
Tensile test according ASTM D-2101 (Basalt monofilament), tensile strength, MPa	4300	4200	4000
Tensile test according ASTM D-2101 (Basalt monofilament), tensile modulus, GPa	95	93	92

SIZING COMPATIBILITY

No. OF SIZING	TYPE	COMPATIBILITY	SIZING CONTENT, % WEIGHT	MOISTURE, % WEIGHT	SINGLE-END	MULTI-END
10	Silane	EP, PF, PP*, acrylate, PA	0,4-0,8	<0,1	10-22 µm, 90- 600 tex	10-22 µm, 270- 4800 tex
11	Silane	UP, VE, EP	0,4-0,8	<0,1	10-22 µm, 90- 600 tex	10-22 µm, 270- 4800 tex
12	Silane	EP, PF	0,4-0,8	<0,1	10-22 µm, 90- 600 tex	10-22 µm, 270- 4800 tex
13	Silane	concrete, EP, PF, acrylate	0,4-0,8	<0,1	11-19 µm, 90- 750 tex	13-17 µm, 300- 4800 tex
42	Silane	Epoxy and Polyurethane	0,4-0,8	<0,1	19 µm 600-1200 tex	19 µm, 600-1200 tex

THERMAL OPERATION RANGE OF BASFIBER®

Thermal load duration	Temperature range
Permanent	From -260 up to +400 °C
(1) Stage 1: amorphous fiber with sizing on the fiber surface	Up to +200 °C
(2) Stage 2: burning of sizing (10-15 minutes), amorphous fiber	From +200 up to +350 °C
(3) Stage 3: amorphous fiber without sizing on the fiber surface	From +350 up to +400 °C
Short term (few minutes)	From +400 up to +850 °C
(4) Stage 4: transition of FeO into Fe2O3 and beginning of crystallization	From +400 up to +850 °C
Short term (few seconds)	From +850 up to +1250 °C
(5) Stage 5: all the Fe2O3 is in crystal form, the material is extremely brittle, its mechanical properties are extremely poor but without stress and vibration it continues working as thermal insulation pretty good	From +850 up to +1050 °C
(6) Stage 6: sintering temperature	From +1050 up to +1250 °C

PACKAGING INFORMATION

Rovings are supplied on a 120x80 cm pallet with 2-4-6 layers, each bobbin wrapped in thermal retractable film.

LINEAR DENSITY, TEX	DIAMETER	HEIGHT	NET WEIGHT BOBBIN, KG			
90	200mm	255mm	3	4	-	-
110-350	200mm	255mm	3	4	5	-
350-840	200mm	255mm	3	4	5	8
On a 4-layered pallet could be supplied			60 bobbins - ca. 180 kg	60 bobbins - ca. 240 kg	56 bobbins - ca. 280 kg	44 bobbins - Ca. 352 kg
On a 6-layered pallet could be supplied			90 bobbins - ca. 270 kg	90 bobbins- ca. 360 kg	84 bobbins - ca. 420 kg	66 bobbins - ca. 528 kg
Bobbin SE-, AE-roving	76mm	260mm	3	5	-	9
Tube by SE - roving	76mm	270mm	3	5	8	-
On a 4-layered pallet could be supplied			192 bobbins – ca. 576 kg	140 bobbins – ca. 700 kg	96 bobbins – ca. 768 kg	88 bobbins – ca. 792 kg

TENSILE STRENGTH CHANGE BY THE HEATING OF BASFIBER®

Temperature	+20°C	+200°C	+400°C
Tensile Strength Change	100%	95%	80%

PROPERTY	DESCRIPTION
Type of fiber	Basfiber®
Monofilament diameter [µm]	From 10 to 22
Linear density [tex]	270-4800
Type of sizing	11, 12, 13, 15 and 42.
Sizing content (% wt.)	≥0.4
Resin compatibility	Polyester, vinyl ester, epoxy polyurethane
Moisture content (% wt.)	<0.1

THERMAL PROPERTIES

Melting Range:	1460-1500°C
Crystallization temperature:	1250 °C
Sintering Temperature:	1050 °C
Thermal Conductivity, W/(m·K)	0.031-0.038

CHEMICAL STABILITY

	Cem FIL	Basfiber®	E-glass
Weightlessness:	-	0.2%	-
3-hour boiling in water	-	0.2%	-
3-hour boiling in saturated cement solution (pH 12,9)	0.15%	0.35%	4.5%
3-hour boiling in 2N solution HCl (hydrochloric acid)	-	2-7%	38.5%
3-hour boiling in 2N solution NaOH (sodium hydroxide)	-	6%	-
30 minutes and in 180 minutes in H2SO4 (sulphuric acid)	-	2% - 6%	14% - 22%



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