

EXEL ARCHERY LAMINATES AND LIMBS



THE DIFFERENCE
IS CLEAR

FIBRE REINFORCED LAMINATES FOR SPORTING GOODS

Exel Composites has over 40 years' experience in the sporting goods industry, e.g. ski poles, windsurfing masts and floorball sticks. We are also specialized in designing and manufacturing special FRP laminates for the sporting goods. Typical application areas for Exel laminates are skis, snowboards, ice hockey sticks, kiteboards, wakeboards and archery products.

OPTIMUM PERFORMANCE

Glass fibre and carbon fibre composites are ideal materials for archery products because of their superior strength and fatigue properties. Also stiffness and weight are beneficial when designing such high tech products such as bows. Exel Composites is using an advanced continuous lamination process to produce FRP laminates for the archery applications

Depending on performance requirements we can design the laminate structure based on carbon-, glass- or carbon/glass hybrid continuous fibres or fabrics. Other fibres are also possible. In all archery laminates Exel Composites is using special epoxy resin systems giving the best possible mechanical properties for the products.

EXEL ARCHERY LAMINATES

Exel Composites is using special epoxy resin systems to achieve the best possible mechanical properties for the products.

Transparent Laminate	U1-Transparent-OSG 1.0 mm
Black Glass Laminate	R1-200-P-Black-OSG 1.0 mm
White Glass Laminate	R1-200-P-White 1.0 mm
100 % Carbon Laminate	CUG1-Full-Carbon-OSG 0.5 mm
50 % Carbon laminate	CU1-Carbon-Archery-Black-OSG 0.7 mm
0.70 mm ±45° Laminate	XU1-460-OSG 0.85 mm

Product specifications for above laminate types are available

LAMINATE WIDTHS

Most commonly used widths for the archery laminates are 38 mm, 45 mm and 50 mm. The laminates can be delivered in coils or cut according to customer lengths (from 14 mm up to 1220 mm). The minimum quantity is 2000 meters/ laminate type.

Ordering and contact information

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PRODUCT SPECIFICATION

U1-Transparent-OSG 1.00 mm

Laminate is a glass fiber/ special transparent epoxy product. The laminate is available in a roll or ready cut to the length required. The widths are 14-1220 mm.

R1-200-P-Black 1.00 mm (black resin and paper)

Laminate is a carbon/ epoxy product. The laminate is available in roll or ready cut to the length required. The widths are 14-1220 mm.

R1-200-P-White 1.00 mm (white resin and paper)

Laminate is a glass/ epoxy product. The laminate is available in a roll or ready cut to the length required. The widths are 14-1220 mm.

CUG1-Full-Carbon-OSG 0.50 mm

Laminate is a carbon fibre / epoxy product with special supporting fabric. The laminate is available in a roll or ready cut to the length required. The widths are 14-990 mm.

Carbon-Archery-CU2-Black-0.70 mm Carbon-Archery-CU1-Black-OSG-0.70 mm

Laminate is a carbon and glassfibre / epoxy product. The laminate is available in a roll or ready cut to the length required. The widths are 14-1100 mm.

XU1-460-OSG 0.85 mm

Laminate is a glass fibre / epoxy product. The laminate is available in a roll or ready cut to the length required. The widths are 14-1220 mm.

REINFORCEMENTS

Reinforcement	Unit	U1	R1-Black	R1-White	CUG1	CU2/CU1	XU1
Glass fibres	g/m ²	1430±70	-	1330±100	-	525±90	1100±100
Carbon fibres	g/m ²	-	1330±100	-	460±30	340±30	-
Support fabric	g/m ²	-	-	-	40±10	-	-
Biaxial Fabric ±45°	g/m ²	-	-	-	-	-	460

MATRIX

Matrix Property	Unit	U1	R1-Black	R1-White	CUG1	CU2/CU1	XU1
Epoxy resin	°C	X	X	X	X	-	X
Black Epoxy resin	°C	-	-	-	-	X	-
Glass transition temperature	°C	120±5	120±5	120±5	120±5	120±5	120±5

LAMINATE (AFTER GRINDING)

Laminate Property	Unit	U1	R1-Black	R1-White	CUG1	CU2/CU1	XU1
Weight	g/m ²	1960±100	1900±100	1900±100	790±40	1200±80	1600±100
Fibre content	w-%	75±4	70±5	70±5	-	-	70±5
Thickness	mm	1.00±0.05	1.00±0.05	1.00±0.05	0.50±0.05	0.70±0.05	0.85±0.05
Total fibre content	w-%	-	-	-	64±4	-	-
Carbon fibre content	w-%	-	-	-	58±3	28±3	-
Glass fibre content	w-%	-	-	-	-	44±5	-
Grinding	U1 OSG	-	-	-	One side sanded with grit 40, 100 or 150	-	-

MECHANICAL PROPERTIES

Mechanical Property	Unit	U1	R1-Black	R1-White	CUG1	CU2/CU1	XU1
E-Modulus (0°)	GRa	-	41±5	41±5	> 95	> 75	25±4
Tensile strength (0°)	MPa	-	> 600	> 600	> 1650	> 1100	> 600
E-Modulus (90°)	MPa	-	> 1000	> 1000	-	-	> 5000
Tensile strength (90°)	MPa	-	> 20	> 20	> 20	-	> 100

SURFACE

Surface Property	Unit	U1	R1-Black	R1-White	CUG1	CU2/CU1	XU1
Top surface decorative paper	g/m ²	-	80	80	-	-	-
Gluing side grinded	Grit	-	40, 100 or 150	40, 100 or 150	-	-	40, 100 or 150

SANDING

Sanding Property	Unit	U1	R1-Black	R1-White	CUG1	CU2/CU1	XU1
CU2	-	-	-	-	-	Both sides grit 40, 100, 150 or combination of these	-
CU1-OSG	-	-	-	-	-	One side grit 40, 100 or 150	-