

EXEL ARCHERY LAMINATES



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 archery products, skis, snowboards, ice hockey sticks, kiteboards, wakeboards and skateboards.

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 combined with high fiber content to achieve the optimal mechanical properties for archery products.

Transparent Laminate	U1-OSG-Transparent 1.00 mm
Black Glass Laminate	R1-200-P-Black 1.00 mm
White Glass Laminate	R1-200-P-White 1.00 mm
100 % Carbon Laminate	CUG1-OSG-Full Carbon 0.50 mm
50 % Carbon laminate	CU-Carbon Archery-Black 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. Widths available range from 14 mm up to 1220 mm. The minimum quantity for standard archery widths is 2000 meters/laminate type.



PRODUCT SPECIFICATION

U1-OSG-Transparent 1.00 mm	R1-200-P-Black 1.00 mm	R1-200-P-White 1.00 mm	CUG1-OSG-FULL CARBON 0.50 mm	CU-CARBON ARCHERY-BLACK 0.70 mm	XU1-460-OSG 0.85 mm
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REINFORCEMENTS	UNIDIRECTIONAL GF	UNIDIRECTIONAL GF WITH SUPPORT FABRIC	UNIDIRECTIONAL GF WITH SUPPORT FABRIC	UNIDIRECTIONAL CF WITH SUPPORT FABRIC	UNIDIRECTIONAL GF AND CF	UNIDIRECTIONAL GF WITH ± 45° FABRIC
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Matrix	EP	Black EP	White EP	EP	Black EP	EP
Tg	120±5°C	120±5°C	120±5°C	120±5°C	120±5°C	120±5°C

LAMINATE PROPERTIES

Areal Weight	g/m ²	1960±100	1950±100	1950±100	790±40	1200±80	1600±100
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
Fibre content of carbon	m-% %	75±4	70±5	70±	64±4	74±5	70±5
		N/A	N/A	N/A	100	50	N/A

MECHANICAL PROPERTIES

Tensile E-Modulus (0°)	Gpa	45±3	41±5	41±5	110±15	80±5	27±4
	ksi	6526±435	5946±725	5946±725	15954±2175	11603±725	3916±580
Tensile strength (0°)	Mpa	1100±200	850±200	850±200	1900±250	1400±200	650±200
	ksi	159±29	123±29	123±29	275±36	203±29	94±29
Tensile E-Modulus (90°)	Mpa	N/A	1500±500	1500±500	1500±500	N/A	7000±1500
	ksi	N/A	217±72	217±72	217±72	N/A	1015±217
Tensile strength (90°)	Mpa	N/A	35±15	35±15	35±15	N/A	120±20
	psi	N/A	5076±2175	5076±2175	5076±2175	N/A	17404±2900

SURFACES

Top side	Unsanded	Black paper, unsanded	White paper, unsanded	Unsanded	Unsanded (CU1-OSG) or as below (CU2)	Unsanded
Gluing side	Sanded thoroughly. Grit 40 by default, 100 or 150 optional					

USED ABBREVIATIONS

EP = Epoxy	Gpa = kN/mm ²	OSG = One Side Grinded
CF = Carbon Fiber	Mpa = N/mm ²	P = Opaque Paper Top
GF = Glass Fiber	Tg = Glass transition temperature	

