

Grades G-11 F, G-11 H and Slot Wedge High-Strength/High-Temperature Laminates

Grade G-11 F High-Strength Laminate for Class F Applications

Woven glass cloth with epoxy resin. G-11 F is specified for its extremely high strength and high dimensional stability over temperatures up to 155°C.

	ASTM	Imperial Units	Metric Units
General Information			
Color, Standard	–	Olive	Olive
NEMA Grade Li 1-1989	–	G11	G11
Mechanical Properties			
Tensile Strength at 77°F (25°C) in Psi (Mpa)	ASTM D 638	45,000	310
Tensile Modulus at 77°F (25°C) in Psi. 1×10^6 (Mpa)	ASTM D 638	3.1	0.021
Flexural Strength at 77°F (25°C) in Psi (Mpa)	ASTM D 790	57,000	393
Comp. Strength, Vertical at 77°F (25°C) in Psi (Mpa)	ASTM D 695	80,000	550
IZOD Impact Strength in Ft.Lb./In. (J/cm)	ASTM D 256	15	8
Specific Gravity	ASTM D 792	1.85	1.85
Electrical Properties			
Electrical Strength, Perpendicular S/T in Air, Vpm (V/mm)	ASTM D 149	400	10
Electrical Strength, Parallel S/S in Oil, kV	ASTM D 149	45	45
Permittivity, 60 Hz	ASTM D 150	5.3	5.3
Dissipation Factor, 60 Hz	ASTM D 150	0.025	0.025
Flame Resistance Properties			
UL Subject 94	UL 94	HB	HB
Class	–	F	F
Thermal Properties			
UL Temperature Index			
Electrical, °C	UL746B	155	155
Mechanical, °C	UL746B	155	155





Grade G-11 H High-Strength Laminate for Use in Generators

Woven glass with epoxy resin. G-11 H is specified for its extremely high strength and high dimensional stability over temperatures up to 180°C.

	ASTM	Imperial Units	Metric Units
General Information			
Color, Standard	–	Lt. Green	Lt. Green
NEMA Grade Li 1-1989	–	G-11	G-11
Mechanical Properties			
Tensile Strength at 77°F (25°C) in Psi (Mpa)	ASTM D 638	44,000	300
Tensile Modulus at 77°F (25°C) in Psi. 1×10^6 (Mpa)	ASTM D 638	2.5	0.017
Flexural Strength at 77°F (25°C) in Psi (Mpa)	ASTM D 790	64,500	445
Comp. Strength, Vertical at 77°F (25°C) in Psi (Mpa)	ASTM D 695	80,000	550
IZOD Impact Strength in Ft.Lb./In. (J/cm)	ASTM D 256	12	6.4
Specific Gravity	ASTM D 792	2	2
Electrical Properties			
Electrical Strength, Perpendicular S/T in Air, Vpm (V/mm)	ASTM D 149	450	17
Electrical Strength, Parallel S/S in Oil, kV	ASTM D 149	45	45
Permittivity, 60 Hz	ASTM D 150	5.3	5.3
Dissipation Factor, 60 Hz	ASTM D 150	0.025	0.025
Flame Resistance Properties			
UL Subject 94	UL 94	HB	HB
Class	–	H	H
Thermal Properties			
UL Temperature Index			
Electrical, °C	UL746B	180	180
Mechanical, °C	UL746B	180	180

Slot Wedge Insulation

A glass mat based laminate with epoxy resin. Slot Wedge has excellent mechanical and thermal properties at elevated temperatures up to 180°C.

	ASTM	Imperial Units	Metric Units
General Information			
Color, Standard	–	Natural	Natural
Mechanical Properties			
Tensile Strength at 77°F (25°C) in Psi (Mpa)	ASTM D 638	34,000	230
Flexural Strength at 77°F (25°C) in Psi (Mpa)	ASTM D 790	50,000	345
Comp. Strength, Vertical at 77°F (25°C) in Psi (Mpa)	ASTM D 695	80,000	550
IZOD Impact Strength in Ft.Lb./In. (J/cm)	ASTM D 256	11	5.8
Water Absorption in % by weight	ASTM D 570	0.1	0.1
Specific Gravity	ASTM D 792	1.85	1.85
Electrical Properties			
Electrical Strength, Perpendicular S/T in Oil, Vpm (kV/mm)	ASTM D 149	350	13
Electrical Strength, Parallel S/S in Oil, kV	ASTM D 149	55	55
Permittivity, 60 Hz	ASTM D 150	5	5
Dissipation Factor, 60 Hz	ASTM D 150	0.03	0.03
Flame Resistance Properties			
UL Subject 94	UL 94	HB	HB
Class	–	H	H
Thermal Properties			
UL Temperature Index			
Electrical, °C	UL746B	180	180
Mechanical, °C	UL746B	180	180

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