



THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

MOTOR MATERIAL COMPARATIVE DATA SHEET

Product Grades		TGC	APO-1	C109	C209	G-3	G-9	G-10	G-11	G-12	G-15	Magnohl™	GFlex™ YT510 Aramid Paper	N155	N180	N220	PET film	VARTM VIL	GFlex™ APA Flex Laminate
		NEMA	GPO-1	--	--	G-3	G-5 / G-9	G-10	G-11	G-12	G-15	--	--	GPO-1	GPO-1	GPO-1	--	GPO-1	--
		IEC	UPGM 202	--	EPGC 202	PFGC 201	MDGC 201	EPGC 201	EPGC 203	EPGC 308	EPGC 311	--	--	UPGM 201	UPGM 201	UPGM 201	--	UPGM 201/ EPGM 203	--
Construction		Glass Polyester		Semi-Conductive Glass Laminate	Semi-Conductive Glass Epoxy	Glass Fabric Laminate	Glass Melamine	Glass Epoxy	Glass Epoxy	Glass Epoxy	Glass Polyimide	Magnetic Glass Reinforced Laminate	Aramid Paper	High-Temp Glass Polyester	High-Temp Glass Polyester	High-Temp Glass Polyester	Polyester Film	Custom Molded Composite Material	Flex Laminate
Standard Thickness Available		in	0.031"- 2.000"	0.020"- 0.500"	0.008"- 4.000"	0.008"- 4.000"	0.008"- 4.000"	0.006"- 5.000"	0.006"- 5.000"	0.010"- 5.000"	0.016"- 3.500"	0.062"- 0.400"	0.002"- 0.030"	0.031"- 2.000"	0.031"- 2.000"	0.031"- 2.000"	0.001"- 0.020"	0.062"- 2.000"	0.007"- 0.021"
		cm	0.079 cm- 5.080 cm	0.051 cm- 1.270 cm	0.020 cm- 10.160 cm	0.020 cm- 10.160 cm	0.020 cm- 10.160 cm	0.015 cm- 12.700 cm	0.015 cm- 12.700 cm	0.015 cm- 12.700 cm	0.015 cm- 12.700 cm	0.157 cm- 1.016 cm	0.005 cm- 0.076 cm	0.005 cm- 0.076 cm	0.005 cm- 0.076 cm	0.005 cm- 0.076 cm	0.005 cm- 0.076 cm	0.079 cm- 5.080 cm	0.018 cm- 0.053 cm
Mechanical Properties		Units																	
Rockwell Hardness		M Scale	--	--	--	110	115	98	115	--	117	--	--	--	--	--	--	--	--
Tensile Strength,	LW	ksi	10	17	35	42	44	--	41	42	48	--	--	12.0	16.0	11.0	8.7	>30 >35	0.206
Lengthwise and Crosswise	CW		--	--	--	34	34	--	--	--	40	--	--	--	--	--	--	--	0.183
Compressive Strength		ksi	33	42	58	76	70	--	50	70	>60	46	--	40.0	46.0	32.0	--	>45 >50	--
Flexural Strength,	LW	ksi	20	30	57	18	61	63	80	80	>78	28	--	26.0	29.0	32.0	--	>41 >45	--
Lengthwise and Crosswise	CW		--	33	80	14	51	54	70	70	>73	--	--	22.0	32.0	--	--	--	--
Shear Strength		ksi	13	17	21	22	18	25	21	19	--	19	--	--	18.0	12.0	--	--	--
IZOD Impact Strength, LW		ft-lbs./in. ²	9	14	13	12	13	8.4 ¹	11	11	>17	--	--	9.5	12	11	--	--	--
Bonding Strength		lbs.	1200	850	920	1500	1900	2300	2200	2.2		1080	--	--	1080	1080	--	--	--
Electrical Properties		Units																	
Arc Resistance		Seconds	180	--	--	100	185	130	185	--	>180	--	--	150	180	180	--	>130 >130	--
Dielectric Strength		V/mil	450	--	--	15	540	485	485	485	>450	--	635	450	500	550	2	450 450	--
Breakdown Voltage		kV	>40	--	--	55	65	47 ²	>50	>50	>50	--	--	30	45	50	--	>45 >45	18.0
Surface Resistivity		Ohms/Sq.	--	--	--	--	>400	200	--	180	--	--	--	--	--	--	--	--	--
Physical Properties		Units																	
Water Absorption		%	--	--	--	--	0.6	0.13	0.01	0.01	<0.16	--	--	0.25	0.25	0.25	0.5	0.025 0.025	--
Specific Gravity		g/cc	0.066	0.054	0.03	0.068	--	0.067	0.069	1.9	1.81	0.108	--	0.66	0.690	0.61	0.0506	0.063 0.064	--
Thermal Properties		Units																	
Relative Temperature Index		°C	--	180	180	130/170	130	--	--	--	--	155	210	155	180	210	--	130 155	155 - 180
Flame Resistance		Class	UL 94 HB	--	--	UL 94 HB	UL 94 V-0	UL 94 HB	UL 94 HB	HB	HB	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 HB	E23105	--	UL 94 HB	--
Thermal Class		Class	--	--	--	--	B	--	F	--	--	F	R	F	H	--	--	--	--

¹: Material Property Cond. D48/50 at 3 mm Notched

²: Material Property Cond. A at 3 mm

Data supplied above are typical values and are not to be considered specification values. All of the information, suggestions and recommendations pertaining to the properties and uses of the products herein are based upon tests and data believed to be accurate; however, the final determination regarding suitability of any material described herein for the contemplated application, the manner of such use, and whether the use infringes any patents is the sole responsibility of the user. There is no warranty, expressed or implied, including, without limitation warranty of merchantability or fitness for a particular purpose. Under no circumstances shall we be liable for incidental or consequential loss or damage.