

DATA SHEET

GLASS EPOXY NEMA GRADE FR-4

BASE MATERIAL	Glass Fibric
RESIN	Epoxy
MILITARY SPECIFICATION	MIL-P-18177
MIL-SPEC TYPE	GEE
TENSIL STRENGTH	
Lengthwise	45,000
Crosswise	40,000
COMPREHENSIVE STRENGTH (psi)	
Flatwise	60,000
Edgewise	
FLEXURAL STRENGTH, MIN FOR 1/8 -ILN SPECIMEN (psi)	
Lengthwise	50,000
Crosswise	40,000
MODULUS OF ELASTICITY, FLEXURAL	
Lengthwise	
Crosswise	
SHEAR STRENGTH (psi)	19,000
IZOD IMPACT, MIN (ft-lb per in.of notch)	
Flatwise	7
Edgewise	5.5
HARDNESS, ROCKWELL (M - scale)	110
SPECIFIC GRAVITY	1.82
COEFFICIENT OF THERMAL EXPANSION (per deg C)	
WATER ABSORPTION, MAX IN 25HR (%)	
1/16 in.	.35
1/2 in.	.1
DIELECTRIC STRENGTH, PERPENDICULAR TO lamination, shor-time test (v-mil)	
1/16 in.	500
1/8 in.	
DISSIPATION FACTOR, MAX 1 MC, ASTM D-150, Condition A	.025
DIELECTRIC CONSTANT, MAX 1 MC, ASTM D-150, Condition A	5.2
INSULATION RESISTANCE, 96 HR, 90 PERCENT RH, 95 (megohms)	200,000
BONDING STRENGTH, MIN (lb)	2,000
THERMAL CONDUCTIVITY (cal-cm/sec-sq cm-deg C)	
MAX. OPERATING TEMP. °F.	285
Machine Design, June 16, 1966	



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