



# THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

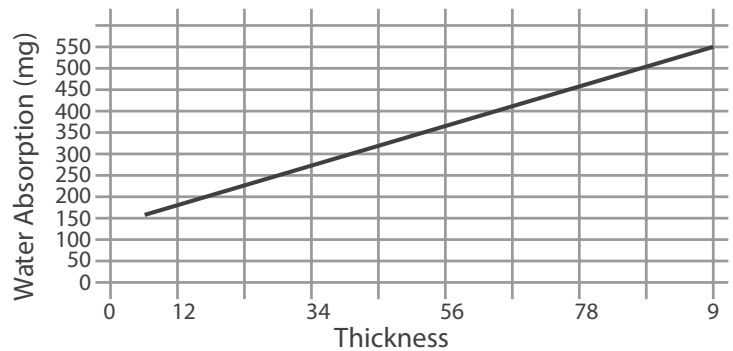
## HP1 & HP2

<b>Item:</b>	<b>HP1 &amp; HP2, Low Power Factor Paper Phenolic</b>		
<b>Description:</b>	HP1 & HP2 are manufactured as high pressure paper based laminates with a kraft paper substrate and special phenolic resin and an extremely low incidence of internal voids. Due to its excellent dielectric and low power factor properties, it is recommended for use in high voltage applications; such as oil filled transformers as tap changer boards and terminal boards.		
<b>Standards:</b>	NEMA LI-1: Grade XX, IEC 60893: PF CP 202 & 203	MIL-I-24768: /11-PBG, / DIN 7734: HP 2061.5 (HP1), HP 2064 (HP2)	
<b>Availability:</b>	<b>Laminate Sheets:</b>	Sheet Size:	English Units (in): 84 x 49 / 42 x 49 SI Units (cm/mm): 214 x 124 / 107 x 124 (cm)
		Thickness:	English Units (in): 0.125 to 2.0 SI Units (cm/mm): 0.3 to 50 (mm)
	<b>Fabricated Parts:</b>	The Gund Company custom fabricates insulation materials to the exact specifications and drawings specified by our customers.	

PF CP 202:

Key Characteristics	Test Method	Units	Typical Values
Flexural Strength	IOS 178	MPa	190
Electric Strength, oil $\perp$	ISO 243	kV/mm	16.7
Breakdown Voltage Oil 90°C $\parallel$	HP1	kV	45
	HP2		75

Limits for Water Absorption (mg) ISO 62



Additional Engineering Data:

Key Characteristics	Test Method	Units	Typical Values
Density	ASTM D-634	g/cm <sup>3</sup>	1.51
Flexural Strength	ASTM D-790	LW	33 (228)
		CW	23 (159)
Compressive Strength	ASTM D-604	ksi (MPa)	45 (310)
Tensile Strength	ASTM D-527	ksi (MPa)	21 (145)
IZOD Impact Strength	ASTM D-229	ft-lbs/in	2.00
Dissipation Factor (@ 60Hz)	ASTM D-150	%	3.5
Dielectric Strength	ASTM D-790	V/mil	680
Water Absorption	ASTM D-570	%	1.70
Bond Strength	ASTM D-229	lbs	950

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.