

Heron Brand TUFNOL

Paper based laminate

- Resin: Phenolic resin.
- Reinforcement: Kraft paper
- Description: A first class electrical insulating material with very low water absorption, Heron Brand is especially suitable for use in humid or tropical environments, where its electrical properties are retained to a high degree. It has excellent electric strength, very high insulation resistance after immersion in water, and it is designed to meet British Standard BS 2572 Type P4. It machines well and components can also be produced by hot punching in thickness up to 3.2mm (1/8").
- Typical Uses: Heron Brand TUFNOL is used in electrical applications, where high insulation performance is required, with stable properties in a moist or humid environment. Items such as terminal boards, mounting plates, cover plates and insulating spacers are frequently made.
- Types available: Available in natural colour and in sheet only.
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SIZE RANGE

Sheet

Thickness: 1.6 to 25.4mm (1/16" to 1")

Sheet Sizes: 1220 x 1220mm approx.
1600 x 1220mm approx.

For guaranteed minimum sheet sizes, refer to TUFNOL Ltd.
For 1600 mm long sheets, minimum order quantities may apply.

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SPECIFICATIONS

BRITISH STANDARDS

Sheet BS 2572 Type P4

NEMA

Sheet NEMA LI-1-1983 Type XXXP

MIL

Sheet MIL-I-24768

DIN

Sheet Types Hp 2062.8
and Hp2063

Certification to these standards is subject to special enquiry.
Standard quality testing is to British Standards.

APPROXIMATE WEIGHTS

Sheets

Sheet size 1220 x 1220 approx.
Approx. weight in kg = 2.10 x thickness in mm

Sheet size 1600 x 1220 approx.
Approx. weight in kg = 2.76 x thickness in mm

Due to slight variations in density and nominal dimensions, weight cannot be calculated precisely.

Weight Formulae

Cut pieces:

Weight in kg = $\frac{1.40 \times \text{Length} \times \text{Width} \times \text{Thickness}}{1,000,000}$ (all in mm)

PHYSICAL PROPERTIES OF HERON BRAND

SHEET

PROPERTY	TYPICAL RESULT	UNITS
Cross breaking strength	140	MPa
Impact strength, notched, Charpy	2.6	kJ/m ²
Compressive strength, flatwise	350	MPa
Compressive strength, edgewise	215	MPa
Resistance to flatwise compression	1.2	%
Shear strength, flatwise	110	MPa
Water absorption		
1.6mm thk	20	mg
3mm thk.	25	mg
6mm thk.	30	mg
12mm thk.	45	mg
Electric strength, flatwise in oil at 90° C		
1.6mm thk.	19	MV/m
3mm thk.	15	MV/m
6mm thk.	10	MV/m
12mm thk.	7	MV/m
Electric strength, edgewise in oil at 90°C	60	kV
Insulation resistance after immersion in water	2x10 ¹¹	ohms
Loss tangent at 1 MHz	0.035	-
Permittivity at 1 MHz	4.9	-
Relative density	1.36	-
Maximum working temperature**		
continuous	90	°C
intermittent	120	°C
Thermal classification	Class E	-
Thermal conductivity through laminate	0.27	W/(mK)
Thermal expansion in plane of laminae	1.7	x 10 ⁻⁵ /K
Specific heat	1.5	kJ/(kgK)

Test methods as BS2572, where applicable.

**Users of highly stressed components at temperatures approaching the maximum are recommended to seek further advice from TUFNOL Ltd.

The information in this leaflet is believed to be correct, but completeness and accuracy are not guaranteed. The user shall be fully responsible for determining the suitability of products for the intended use. TUFNOL is a Registered Trade Mark.

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A full machining service is available for this and many other engineering plastics and composites.

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BS 5750 Part 2
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