

TUFNOL Grade 1P/13

Phenolic Paper laminate

Paper/phenolic resin laminated plastic

(SRBP - Synthetic Resin Bonded Paper)

An economical commercial paper grade

Tufnol Grade 1P/13 is a low cost commercial paper based laminate, produced to meet the need for an economical material where electrical requirements are moderate. As a good basic, low voltage insulation material, this grade has a higher mechanical strength than the other grades in our phenolic paper range and greater impact strength. It can be machined readily and components can be hot punched in thicknesses up to 3.2mm.

What is Grade 1P/13 used for?

This material is used for many electrical components where low voltage insulation is required. In addition, the low cost and all round properties of Grade 1P/13 make it a popular choice for many less demanding mechanical duties. Consequently, it is used for a multitude of different engineering parts, such as spacers, base plates, side plates, and simple jigs and fixtures, in addition to the usual range of electrical insulation components.

TYPES AVAILABLE

Sheets

Natural colour Grade 1P/13

Yes

Black Grade 1P/13

Yes*

* Minimum order quantities may apply.

SPECIFICATIONS for TUFNOL Grade 1P/13**BRITISH STANDARDS****Current Standards****Recent Standards****(now obsolete)**

Sheet

BS EN 60893-3-4 Type PF CP 201

BS 2572 Type P1

Standard quality testing is to British Standards.

PHYSICAL PROPERTIES**TUFNOL Grade 1P/13 Sheet**

PROPERTY	TYPICAL RESULT	UNITS
Cross breaking strength	175	MPa
Impact strength, notched, Charpy	3.9	kJ/m ²
Shear strength, flatwise	100	MPa
Tensile strength	164	MPa
Youngs modulus	10.4	GPa
Water Absorption		
- 1.6mm thick.	65	mg
- 3mm thick.	80	mg
- 6mm thick.	100	mg
- 12mm thick.	150	mg
Electric strength, flatwise in oil at 90°C		
- 1.6mm thick.	10	MV/m
- 3mm thick.	6.2	MV/m
- 6mm thick.	4.0	MV/m
Electric strength, edgewise in oil at 90°C	25	kV
Insulation resistance after immersion in water	in5x10 ⁸	ohms
Loss tangent at 1 MHz	0.04	-

Permittivity at 1 MHz	5.4	-
Relative density	1.36	-
Maximum working temperature**		
- continuous	90	°C
- intermittent	120	°C
Thermal classification	Class E	-

Test methods as BS EN 60893-2, where applicable.

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