



# HERON BRAND

**SRBP Material**  
**Synthetic Resin Bonded Paper**

Phenolic Paper laminate  
Paper/phenolic resin laminated plastic

# SRBP Material. HERON BRAND.

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## High specification phenolic paper laminate.

Heron Brand TUFNOL is a first class electrical insulating material with very low moisture absorption. It 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 is designed to meet the highest electrical standard for phenolic paper materials in BS and IEC specifications. It machines well and can be hot punched in thicknesses up to 3.2mm.

## What is Heron Brand used for?

Heron Brand 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 have frequently been made. This grade has been largely superseded by the use of epoxy and other materials in such applications and is retained in our range for instances where it is needed for particular specification requirements.

## Types available

|                | Sheets | Rods | Tubes | Other Sections |
|----------------|--------|------|-------|----------------|
| Natural colour | Yes    | No   | No    | No             |

\*Minimum order quantities may apply.

## Specifications for HERON BRAND

| British Standards | Current Standards                 | Recent Standards (now obsolete) |
|-------------------|-----------------------------------|---------------------------------|
| Sheet             | BS EN 60893-3-4<br>Type PF CP 204 | BS 2572 Type P4                 |
| <b>NEMA*</b>      |                                   |                                 |
| Sheet             | NEMA LI-1-1983 Type XXXP          | -                               |
| <b>DIN*</b>       |                                   |                                 |
| Sheet             | Hp 2062.8 & Hp2063                | -                               |
| Rod from Sheet    | BS EN 60893-3-4:2012<br>PF CP 204 | -                               |

\*Testing and certification to these standards is subject to special enquiry. Standard quality testing is to British Standards.



## Physical Properties

| Property  | Typical Result       | Units                 |
|---|----------------------|-----------------------|
| Cross breaking strength                           | 146                  | MPa                   |
| Impact strength, notched, Charpy                  | 2.7                  | kJ/m <sup>2</sup>     |
| Compressive strength, flatwise                    | 350                  | MPa                   |
| Compressive strength, edgewise                    | 215                  | MPa                   |
| Resistance to flatwise compression                | 1.2                  | %                     |
| Shear strength, flatwise                          | 110                  | MPa                   |
| <b>Water Absorption</b>                           |                      |                       |
| - 1.6mm thk.                                      | 20                   | mg                    |
| - 3mm thk.  | 25                   | mg                    |
| - 6mm thk.  | 30                   | mg                    |
| - 12mm thk.                                       | 45                   | mg                    |
| <b>Electric strength, flatwise in oil at 90°C</b> |                      |                       |
| - 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    | 2 x 10 <sup>11</sup> | ohms                  |
| Loss tangent at 1 MHz                             | 0.035                | -                     |
| Permittivity at 1 MHz                             | 4.9                  | -                     |
| Relative density                                  | 1.36                 | -                     |
| <b>Maximum working temperature**</b>              |                      |                       |
| - continuous                                      | 90                   | °C                    |
| - intermittent                                    | 120                  | °C                    |
| Thermal classification                            | Class E              | -                     |
| Thermal conductivity through laminae              | 0.27                 | W/(mK)                |
| Thermal expansion in plane of laminae             | 1.7                  | x 10 <sup>-5</sup> /K |
| Specific heat                                     | 1.5                  | kJ/(kgK)              |

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.

Notes

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## Reliability in the field of engineering plastics & composites.

Tufnol is the byword for quality in laminated plastics and resin based materials for engineering applications. It was invented here in the UK and its development to meet modern engineering demands continues to keep it abreast of 21st century technology.

This type of material is known as 'synthetic resin bonded laminated plastic', and is made from layers of paper, cotton cloth or woven glass fibre cloth, dipped in resin, then compressed and bonded together in a hot press. It is a strong, hard material, made in a number of different grades with varying properties and uses.

Tufnol's reliability is key to the many sectors of engineering industry in which it serves.

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Tufnol warrants the materials it produces will conform to Tufnol specifications. It is entirely the customer's responsibility to make the final product choice and satisfy themselves of the suitability of the product for the intended application and carrying out testing where required. Tufnol does not warrant the conformity of its materials to these properties or the suitability of its materials for any particular purpose.

The values are "typical only" and are based on test results generally in accordance with Test methods BS EN 60893-2, where applicable.