TUFNOL



CARP BRAND

SRBF Material
Synthetic Resin Bonded Fabric

Cotton fabric based laminate
Fine weave cotton/phenolic resin laminated plastic

SRBF Material. CARP BRAND.

A top quality grade for mechanical and electromechanical applications.

Carp Brand TUFNOL is a top quality grade for mechanical and electromechanical applications. It is made from a premium quality fine weave cotton fabric which has been specially treated to enhance the machinability and other properties. Strong, with good wear resistance, it has excellent machining qualities and low water absorption, with good dimensional stability. Electrical properties are excellent for this class of material. Resistance to high impact, however, is slightly less than the coarser weave grades of Tufnol.

What is Carp Brand TUFNOL used for?

Carp Brand is used for a wide variety of components where premium quality is required. It is often chosen for components with intricate features which need accuracy and a fine machined finish. Typical components include fine toothed gears, cams, geneva wheels, seal retaining rings, actuating arms, insulating sleeves and bushes, components for use at cryogenic temperatures, insulation for low and medium voltages and a wide range of other precision machined parts.

Types available

	Sheets	Rods	Tubes	Other Sections
Natural colour	Yes	Yes	Yes	Yes
Black Carp Brand	Yes*			
Graphite-impregnated Carp Brand	Yes*	Yes*	Yes*	Yes*

*Minimum order quantities may apply.

Specifications for CARP BRAND

British Standards	Current Standards	Recent Standards (now obsolete)
Sheet	BS EN 60893-3-4 Type PF CC 305	BS 2572 Type F1
Rod from Sheet	BSEN 60893-3-4:2012 PF CC 305	-
Rectangular Bar	BS 6128 Part 4 Type PF CC 41 & 42	(BS 6128 is now obsolete.)
Hexagon Bar	BS 6128 Part 6 Type PF CC 61 & 62	-
Round Tube	BS EN 61212-3-2 Type PF CC 31	-
Rectangular Tube	BS 6128 Part 13 Type PF CC 131	-
NEMA*		
Sheet	NEMA U-1-1983 Type LE	-
DIN*		
Round Rod and Tube	DIN 7735 TYPE Hgw 2088 & 2089	-

*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	150	MPa
Impact strength, notched, Charpy	8.6	kJ/m²
Compressive strength, flatwise	350	MPa
Compressive strength, edgewise	200	MPa
Resistance to flatwise compression	1.4	%
Shear strength, flatwise	105	MPa
Tensile strength	68	MPa
Young's modulus	6.5	GPa
Water Absorption		
- 1.6mm thk.	55	mg
- 3mm thk.	70	mg
- 6mm thk.	90	mg
- 12mm thk.	125	mg
Electric strength, flatwise in oil at 90°C		
- 1.6mm thk.	7.2	MV/m
- 3mm thk.	4.9	MV/m
- 6mm thk.	4.0	MV/m
Electric strength, edgewise in oil at 90°C	23	kV
Insulation resistance after immersion in water	7x109	ohms
Relative density	1.36	-
Maximum working temperature**		
- continuous	120	°C
- intermittent	130	
Thermal classification	Class E	-
Thermal conductivity through laminae	0.37	W/(mK)
Thermal expansion in plane of laminae	1.9	x 10-⁵/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.

CARP BRAND
Round Tube

Property	Typical Result	Units
Axial compressive strength	180	MPa
Cohesion between layers	140	MPa
Water absorption	2.4	mg/cm²
Insulation resistance after immersion water	5 x 108	ohms
Relative density	1.35	-

Test methods as BS EN 61212-2, where applicable

CARP BRAND
Round Rod

Property	Typical Result	Units
Flexural strength	170	MPa
Water absorption	2.5	mg/cm²
Insulation resistance after immersion in water	5 x 108	ohms
Axial electric strength in oil at 90°C	15	kV
Relative density	1.35	-

Test methods as BS EN 61212-2, where applicable



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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

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.