

## ***Crow Brand TUFNOL***

Cotton fabric laminate

Medium weave cotton/phenolic resin laminated plastic

(SRBF - Synthetic resin Bonded Fabric)

A low cost general purpose grade for mechanical applications.

Crow Brand TUFNOL is a coarse weave grade for mechanical applications, where tough, rugged components are needed. It has excellent impact strength with good general toughness and wear resistance. It is suitable for electrical insulation at low voltages.

### **What is Crow Brand used for?**

Crow Brand is used for mechanical applications and general uses, particularly for large components, or where fine surface finish is not a prime requirement, e.g. for large gears, jigs, wearing components, large rollers, impact blocks and many heavy duty components.

## **TYPES AVAILABLE**

### **Crow Brand TUFNOL**

Types available.	Sheets	Rods	Tubes	Other sections	
Natural colour Crow Brand	Yes	Yes	Yes	Use Brand	Whale
Graphite-impregnated Crow Brand	Yes*	Yes*	Yes*		

\* Minimum order quantities may apply.

***SPECIFICATIONS for Crow Brand TUFNOL***

BRITISH STANDARDS	Current Standards	Recent Standards (now obsolete)
Sheet	BS EN 60893-3-4 Type PF CC 201	BS 2572 Type F3
Round Rod	BS EN 61212-3-3 Type PF CC 43	BS 6128 Part 2 Type PF CC 25
Rectangular Bar	BS 6128 Part 4 Type PF CC 45	
Hexagon Bar	BS 6128 Part 6 Type PF CC 65	
Round Tube	BS EN 61212-3-2 Type PF CC 34	BS 6128 Part 9 Type PF CC 94
Rectangular Tube	BS 6128 Part 13 Type PF CC 134	
<b>NEMA*</b>		
Sheet	NEMA LI-1-1983 Type C	

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

***PHYSICAL PROPERTIES*****Crow Brand TUFNOL Sheet**

PROPERTY	TYPICAL RESULT	UNITS
Cross breaking strength	130	MPa
Impact strength, notched, Charpy	13.5	kJ/m <sup>2</sup>
Compressive strength, flatwise	315	MPa

Compressive strength, edgewise	185	MPa
Shear strength, flatwise	90	MPa
Tensile strength	68	MPa
Young's modulus	6.3	GPa
Water Absorption		
- 1.6mm thk.	100	mg
- 3mm thk.	120	mg
- 6mm thk.	145	mg
- 12mm thk.	175	mg
Electric strength, flatwise in oil at 90°C		
- 1.6mm thk.	3.5	MV/m
- 3mm thk.	2.3	MV/m
- 6mm thk.	1.8	MV/m
Electric strength, edgewise in oil at 90°C	10	kV
Insulation resistance after immersion in water	in1x10 <sup>8</sup>	ohms
Relative density	1.36	-
Maximum working temperature**		
- continuous	120	°C
- intermittent	130	°C
Thermal classification	Class E	-
Thermal conductivity through laminae	0.35	W/(mK)
Thermal expansion in plane of laminae	2.2	X 10 <sup>-5</sup> / K

Specific heat	1.5	kJ/(kgK)
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Test methods as BS EN 60893-2, where applicable.

### **Crow Brand TUFNOL Round Tube**

PROPERTY	TYPICAL RESULT	UNITS
Axial compressive strength	160	MPa
Cohesion between layers	120	MPa
Water absorption	3.6	mg/cm <sup>2</sup>
Insulation resistance after immersion in 6x106 water		ohms
Relative density	1.35	-

Test methods as BS EN 61212-2, where applicable.

### **Crow Brand TUFNOL Round Rod**

PROPERTY	TYPICAL RESULT	UNITS
Flexural strength	130	MPa
Water absorption	3.8	mg/cm <sup>2</sup>
Insulation resistance after immersion in 6x106 water		ohms
Axial electric strength in oil at 90°C	3	kV
Relative density	1.35	-

Test methods as BS EN 61212-2, where applicable.

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