

## ***TUFNOL Rolled Laminated Fabric Tubes***

Cotton fabric laminate

Medium weave cotton/phenolic resin laminated plastic tubes

(SRBF - Synthetic resin Bonded Fabric)

### **Laminated cotton fabric tubes.**

TUFNOL Rolled Laminated cotton fabric tubes were developed to complement the range of moulded tubes. RL tubes have good mechanical strength, low water absorption and are resistant to weathering and to chemical attack by mild acids and alkalis. They are most commonly used to manufacture mechanical and wear resistance components for a wide range of engineering applications. They are strong and rigid, with good bursting strength and excellent wear resistance in lubricated applications.

Three grades are available:

- Grade RL F/1 – A fine weave fabric grade with good electrical and mechanical qualities. Machines well and is suitable for finer and more intricate components
- Grade RL F/2 – A fairly fine weave grade, developed mainly for its good mechanical strength, but suitable for low voltage electrical applications.
- Grade RL F/3 – A medium weave grade giving improved wear resistance where surface finish and intricate machining are not required. Suitable for low voltage electrical applications.

### **What are TUFNOL RL Cotton Fabric tubes used for?**

These materials are used for many applications where strong, rigid tubes are required for the manufacture of cylindrical components. Items include mechanical or wear resistant components, such as wear rings for hydraulic rams, lubricated bearings or ball race cages. Electrical insulation components are also made.

<b>TYPES AVAILABLE</b>	<b>Tubes</b>
Grade RL F/1 – natural colour	Yes
Grade RL F/2 – natural colour	Yes
Grade RL F/2 – molybdenum disulphide impregnated	Yes
Grade RL F/3 – natural colour	Yes

## SPECIFICATIONS for TUFNOL RL Cotton Fabric Tubes

BRITISH STANDARDS	Current Standards	Recent Standards (now obsolete)
Grade RL F/1 tube	BS EN 61212-3-1 Type PF CC 21	BS 6128 Part 8 Type PF CC 81
Grade RL F/2 tube	BS EN 61212-3-1 Type PF CC 22	BS 6128 Part 8 Type PF CC 82
Grade RL F/3 tube	BS EN 61212-3-1 Type PF CC 23	BS 6128 Part 8 Type PF CC 82 & 83

### PHYSICAL PROPERTIES

#### TUFNOL RL Cotton Fabric Tubes

PROPERTY	Grade RL F/1 Grade RL F/2 Grade RL P/3			UNITS
	TYPICAL RESULT	TYPICAL RESULT	TYPICAL RESULT	
Axial compressive strength	160	150	150	MPa
Cohesion between layers	150	150	130	MPa
Water absorption	2.6	2.9	3.1	mg/cm <sup>2</sup>
Insulation resistance after immersion in water	3 x 10 <sup>8</sup>	1 x 10 <sup>8</sup>	8 x 10 <sup>7</sup>	ohms
Loss tangent at 1 MHz	-	-	-	-
Permittivity at 1MHz	-	-	-	-
Axial electric strength in oil at 90°C	40	30	30	kV
Electric strength normal to axis in oil at 90°C				
- 1.6mm wall	-	-	-	MV/m

- 3.0mm wall	-	-	-	MV/m
Relative density	1.25	1.25	1.25	-
Maximum working temperature**				
- continuous	120	120	120	°C
- intermittent	130	130	130	°C
Thermal classification	Class E	Class E	Class E	-

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 Ltd.

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