B-Class Epoxy Resin Glass Fabric Rigid Laminated sheet(G10)

B-class epoxy resin glass fabric rigid laminated sheet is made from electrical alkali-free glass fabric impregnated with epoxy `resin. It is made at high temperature and high pressure.

B-class epoxy resin glass fabric rigid laminated sheet has high mechanical and electrical properties.

B-class epoxy resin glass fabric rigid laminated sheet of the normal type (equivalent to EGPC1 or G10) is suitable for making insulating structural parts and components in B-class electric motor and electric apparatus.

Flame resistant epoxy resin glass fabric rigid laminated sheet (equivalent to EPGC2) is suitable for making insulating structural parts and components in B-class electric motor and electric apparatus with the requirement of flame resistance.

1 Technical requirements

1.1 Appearance

Its surface should be flat and smooth, free of bubbles, wrinkles and crackles and other defects such as scuffing, dent and uneven colors. Edges should show net cuts and be free from delamination and crackles.

1.2 Dimensions and tolerance

1.2.1 The dimension is no less than 950mm×1950mm, its nominal thickness and tolerance are as shown in Form 1

Form 1 mm

Nominal thickness	Tolerance	Nominal thickness	Tolerance
0.5，0.6	±0.15	10，12	±0.94
0.8，1.0	±0.18	14	±1.02
1.2	±0.21	16	±1.12
1.5	±0.25	20	±1.30
2.0	±0.30	25	±1.50
2.5	±0.33	30	±1.70
3.0	±0.37	35	±1.85
4.0	±0.45	40	±2.10
5.0	±0.52	45	±2.45
6.0	±0.60	50	±2.60
8.0	±0.72	60	±2.80
Note: The product of non-nominal thickness is settled upon negotiation between sellers and buyers, its deviation adopts the value of the next bigger nominal thickness.			

1.3 Bending deflection

As shown in Form 2

Form 2 mm

Thickness	Bending reflection
3.0～6.0	≤10
＞6.0～8.0	≤8
＞8.0	≤6

1.4 Machining

The laminated sheets should be free from crackles and scraps after being machined such as sawing, drilling, lathing and milling.

1.5 The mechanical, physical and electrical properties of the laminated sheets are shown in Form 3.

Form 3

No.	Properties	Units	Values	
			Normal type	Flame-resistant type
1	Density	g/cm^3	1.7～1.9	

2	Bending strength perpendicular to the laminations	MD	MPa	≥340	
		TD		≥250	
3	Charpy impact strength Gap		KJ/m^2	≥37	
4	Oxygen index		%	—	≥50
5	Flammability perpendicular to the lamination			—	FV_0
6	Bonding strength		N	≥6500	
7	Insulating resistivity	At room temp.	MΩ	$\geq 1.0\times10^4$	
		After 24h submerged in water		$\geq 1.0\times10^2$	
8	Dissipation factor（1MHz） After 24h submerged in water			≤0.04	
9	Breakdown voltage parallel to the laminations in transformer oil at 90℃±2℃ 1min		kV	≥35	
10	Volume resistivity At room temp.		MΩ •m	$\geq 1.0\times10^5$	
11	Dielectric strength perpendicular to the laminations in transformer oil at 90℃±2℃	0.5mm～1.0mm	MV/m	≥20	
		1.1mm～2.0mm		≥18	
		2.1mm～3.0mm		≥16	
Note: The other technical requirements are upon negotiation between sellers and buyers.					

2 Testing methods

2.1 Appearance

Visual method

2.2 Machining

As per *Machining Methods for Insulating Laminated Products*, Standard No.JB/Z141-79.

2.3 Density

As per Method A of GB1033-1985. Weight of specimen: 2g-50g.

2.4 The other items are as per GB 5130-1985.

3 Test, Marks, Package, Transportation and Storage

3.1 The inspection items are as per Clause 1.1,1.2,1.3 and Item 2,11 of Form 3 in Clause 1.5 (For testing flame-resistive type, Item 5 of Form 3 is also included) , the items in Clause 1.1,1.2,1.3 should be checked one by one.

3.2 The laminated sheet shall be placed on underlay plates with height of more than 5cm from the floor in a clean and dry storage room where the temperature is below 40℃. It should be far from fire and heat sources and sunshine. The storage life of the laminated sheet is 18 months after leaving factory. If the laminated sheets have been stored more than 18 months, they may still be used after being tested to be qualified according to the technical requirements.

3.3 The other items are as per GB 1305-1985.

4 Remarks

4.1 The laminated sheets have different properties compared with metal. The method of JB/Z 141-1979 must be adopted when the product is machined.

4.2 Thermal conductivity of the laminated sheets is small, so high cutting speed and small depth of cut should be adopted when the product is machined.

4.3 Smell and a lot of dust are produced when the laminated sheet is machined, so measures for labor protection should be taken.

4.4 The laminated sheet could suffer from humidity easity, insulating treatment is needed.

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