

ISOVAL® 11 HKB

Temperature resistant epoxy laminate with excellent mechanical and thermal properties at high operating temperatures according to the following international standards:

IEC 60893	EP GC 306
	EP GC 308
DIN 7735	Hgw 2372.4
NEMA LI 1	G11

Composition

ISOVAL® 11 HKB is prepared from glasscloth impregnated with a special tracking resistant epoxy resin. Laminates exhibit excellent thermal and chemical resistance as well as high mechanical strength at elevated temperatures.

Application

ISOVAL® 11 HKB can be used as an electrical insulation material in electrical machines, switches and transformers, especially in those areas where high mechanical and electrical strength is required at temperatures up to 150°C. The excellent tracking resistance also enables application in those areas, where surface contamination occurs.

Machining recommendation

Due to the strength and hardness of the laminate and also the high glass content the tools used can be subject to a great degree of abrasion. We therefore advise that only diamond carbide tipped tools and high speed machinery are used.

Availability

Thickness: 0,8 - 70 mm
Thickness tolerances: according IEC 60893

Sheet size: 2140 x 1040 mm
1040 x 1040 mm
2800 x 1220 mm (up to 60 mm thickness)

Sheet size tolerance: +30/-0 mm

Colour: light green

Machined parts and cuttings are available on request.

Technical Data

Values in the table are mean values of our production. Values according to the standards are guaranteed.

Properties	Testmethod	Unit	Value
Density	ISO 1183/A	g/cm ³	approx. 2,0
Flexural strength at 23 / 120 / 150°C	ISO 178	MPa	450 / 400 / 300
Flexural modulus of elasticity 23 / 120°C	ISO 178	MPa	25 000/22 000
Impact strength (Charpy) parallel to laminations	ISO 179/3 C	kJ/m ²	50
Tensile strength	ISO 527	MPa	300
Compressive strength perpendicular to laminations 23 / 180 °C	ISO 604	MPa	500 / 400
Insulation resistance after immersion in water	IEC 167	Ohm	10 ¹⁰
Electric strength at 90°C in oil perpendicular to laminations (thickness 3mm)	IEC 893/ IEC 243	kV/mm	13
Breakdown voltage at 90°C in oil parallel to laminations	IEC 893/ IEC 243	kV	40
Permittivity at 50 Hz and 1 MHz	IEC 250	-	5,5
Dissipation factor at 50 Hz and 1 MHz	IEC 250	-	0,04
Comparative tracking index	IEC 112	-	CTI 600
Thermal endurance	IEC 216	T.I.	180
Flammability thickness ≥10 mm	UL 94	-	V0
thickness 8 mm to <10 mm			V1
Water absorption (thickness 10 mm)	ISO 62 / 1	mg	25