

ISOVAL® FR4

ISOVAL® FR4 is similar to the following international standards:
IEC 60893: EP GC 202

Composition

ISOVAL® FR4 is an epoxy glass laminate.

ISOVAL FR4 is UL-listed with file no. E236557. Detailed information can be found in the internet on <http://www.ul.com>.

Application

ISOVAL® FR4 is used for electrical and electronic insulation where low moisture absorption and high physical strength is needed. Not recommended for wear applications.

Availability

Thickness: 0,2 - 101.6 mm, Thickness tolerances according to IEC 60893
Standard sheet size: 2800+/-20 x 1220 +30/-10 mm
3180+/-20 x 1220 +30/-10 mm
Colour: light green.

Machined parts and cuttings, other sheet sizes and thicknesses are also available upon request.

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.

All information given here is based on currently available facts and on the results of experiments performed with all due care in our laboratories. It does not in any way reduce the responsibility of the user for carrying out further tests in order to ensure successful processing and use in specific applications.

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TECHNICAL DATA

Properties	Norm	Unit	Value
Density	ISO 1183/A	g/cm ³	approx. 2.0
Flexural strength at 23°C	ISO 178	MPa	340
Flexural modulus of elasticity at 23°C	ISO 178	MPa	approx. 21000
Tensile strength	ISO 527	Mpa	220
Compressive strength parallel to laminations	ISO 604	MPa	200
Compressive strength perpendicular to laminations	ISO 604	MPa	450
Impact strength (Charpy) parallel to laminations	ISO 173/C	kJ/m ²	42
Insulation resistance after immersion in water	IEC 60167	Ohm	5 x 10 ⁹
Electric strength at 90°C in oil perpendicular to laminations (thickness 3mm)	IEC 60243	kV/mm	10.2
Breakdown voltage at 90°C in oil parallel to laminations	IEC 60243	kV	40
Water absorption (thickness 10 mm)	ISO 62/1	mg	30
Comparative tracking index	IEC 112	-	CTI 200
Flammability thickness ≥0.8 mm	UL 94	-	V0
Thermal endurance	IEC 60216	TI	130

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