

laminates

EP 105

- ▶ **High Pressure Laminate for requirements between FR-3 and FR-4**
- ▶ **Good punchability at good mechanical properties**
- ▶ **Low water absorption**
- ▶ **Defined burning rate acc. to UL 94, class V0**

General description

EP 105 is a sandwich laminate based on epoxy resin glassfabric coverlayers and an epoxy paper core. Due to the special build up especially the flexural strength is substantially increased and electrical properties nearly reach FR-4 level. This quality usually is used for applications where mechanical properties of FR-3 are not sufficient, but high FR-4 level is not necessary. UL-listed under file no. E47629. Technical values were measured on a 1,5 mm sheet thickness.

Specifications

NEMA CEM-1

RoHS Directive

Hazardous products listed in the EU-directive 2002/95/CE (RoHS-directive), §4 section 1, are not used as ingredients in this material.

Colour

white

Application

Punched parts
Electrical insulation

Former denominations

Pertinax 61.150 / 61.160

Form of delivery

Sheet formats 1170 x 1070 mm and 2070 x 1070 mm
Tolerance of formats 0 / - 30 mm
Thickness in range of 0,8 to 30 mm
Thickness tolerances acc. to DIN EN 60893-3-2

Material also available as cut to size panels and machined parts.

Other dimensions and thicknesses on request.

Processing

Machining with carbide tools.
For water jet cutting we recommend to add silica sand to the water and to drill through-holes prior to machine.

	Value	Test norm
Mechanical properties		
Flexural strength	MPa 300	ISO 178
Modulus of elasticity	MPa 12000	ISO 178
Tensile strength	MPa 130	ISO 527
Physical properties		
Density	g/cm ³ 1.54 (1,5mm)	ISO 1183
Water absorption 24h 23°C	mg / % 10 / 0.15	ISO 62
Flammability	V0	UL 94
Electrical properties		
Relative permittivity at 1 MHz	4.0	IEC 60250
Comparative tracking index CTI	V 250	IEC 60112
Breakdown voltage //, 90°C in oil	kV 60	IEC 60243-1
Flatwise electric strength, 90°C in oil	kV/mm 9	IEC 60243-1
Insulation resistance after the immersion in water	Ω 1.00E+12	IEC 60167
Dissipation factor at 1 MHz	0.030	IEC 60250
Thermal properties		
Coefficient of linear expansion //	1.0E-6 / K 15	VDE 0304
Temperature index (TI)	°C 130	IEC 60216
Thermal conductivity	W/m.K 0.2	DIN 52612

The product properties set forth in this data sheet are based on the results of testing of typical material produced by the affiliated companies of Von Roll Holding Ltd. (underneath referred as Von Roll). Some variation in product properties is typical. Comments or suggestions relating to any subject other than product properties are offered only to call the end-user's or other person's attention to considerations which may be relevant in the independent determination of the use and/or manner of use of product. Von Roll does not claim or warrant that the use of its product will have the results described in this data sheet or that the information provided is complete, accurate or useful. The user should test the product to determine its properties and its suitability for the intended use. Von Roll expressly disclaims any liability for any damage, harm, injury, cost or expense to any person resulting directly or indirectly from that person's reliance on any information contained in this data sheet. Nothing contained in this data sheet constitutes representation or warranty as to any matter whatsoever. Von Roll makes no warranties whatsoever in this data sheet, expressed or implied, including any implied warranty or fitness for a particular use or purpose. Von Roll shall in no event be liable for incidental, exemplary, punitive or consequential damages.