

What is MKHP

MKHP

MKHP – melamine-faced hard paper per DIN 7735 / EN 60893-3-4, high tracking resistance (CTI 600)

MKHP (melamine-faced hard paper) is a thermoset laminate based on cellulose paper: a phenolic-resin-impregnated paper core faced on both sides with decorative, light-fast melamine resin cover layers. The melamine surface gives the material a very high tracking resistance (CTI 600) and makes it the standard material for medium-voltage switchgear as well as decorative cladding in medical technology and laboratories.

Classification and basic character

MKHP belongs to the family of industrial laminates: paper layers are impregnated with phenolic resin and pressed under pressure and temperature into sheets; the outer cover layers additionally consist of melamine resin. Unlike thermoplastics, the cured thermoset does not melt but remains dimensionally stable, hard and mechanically robust. The melamine cover layers provide a light-coloured, light-fast, scratch-resistant surface and the material's characteristic high tracking resistance.

Why melamine cover layers? Tracking resistance and appearance

Plain phenolic-bonded hard paper (PF CP) is brown and achieves only a CTI of around 100 – insufficient for many electrical engineering applications. The additional melamine resin cover layers raise the tracking resistance to CTI 600, enabling use in medium-voltage switchgear up to 30 kV. At the same time, the light, smooth melamine surface is weather- and light-resistant – an advantage for visible components in medical technology, laboratory and sports facility construction.

How MKHP is manufactured and processed

MKHP is produced by pressing resin-impregnated paper layers into sheets; the outer layers are impregnated with melamine resin. From these semi-finished products we machine precision parts – sawing, milling, drilling and turning produce clean results with sharp, carbide-tipped tools. Prior to machining the material should be at room temperature. During machining, adequate dust extraction must be ensured (resin/paper dust).

Mechanical, electrical and thermal properties

MKHP achieves typical values of around 130 MPa flexural strength, around 100 MPa tensile strength and around 150 MPa compressive strength, with a flexural modulus of around 7,000 MPa and a density of about 1.4 g/cm³. Electrically, the material impresses with very high tracking resistance (CTI 600) and good dielectric strength (around 20 kV, 1-minute test voltage, parallel). The limit temperature for continuous use is 120 °C.

When MKHP is the right choice

MKHP is worthwhile whenever tracking resistance needs to be combined with a light, decorative surface – for example:

- Insulating and partition panels in medium-voltage switchgear (up to 30 kV)
- Fuse insertion plates and covers in switchgear construction
- Hospital furniture and medical technology cladding
- Laboratory and sports facility fittings
- Front panels and visible cladding parts

When MKHP is NOT the right choice

Equally important are the limits of the material:

- Direct food contact – MKHP is not declared for this
- Continuous use above approx. 120 °C
- Highest mechanical strength/toughness – glass-fibre-reinforced MKHP+ or a glass-fabric laminate is better suited
- Reshaping or welding – not possible as a thermoset (machining only)
- Permanently damp environments without further surface testing

What does MKHP cost?

MKHP is priced higher than plain, unfaced hard paper (PF CP), since the additional melamine resin cover layers and higher tracking resistance require a more elaborate construction. The component price is determined mainly by sheet thickness, dimensions, material utilisation (offcuts), machining effort and batch size. We are happy to provide binding prices on request based on your drawing.

Machining at Liedtke

MKHP machines well – sawing, milling, drilling and turning produce clean, dimensionally accurate results with sharp, carbide-tipped tools. During machining we ensure adequate dust extraction. This allows us to reliably manufacture tracking-resistant insulating parts and decorative cladding, from single items to series production.

Advantages and disadvantages at a glance

An honest assessment – and how the disadvantages can be mitigated in practice:

Advantages

- Very high tracking resistance (CTI 600)
- Light-coloured, light-fast, weather-resistant surface
- High mechanical strength and dimensional stability
- Good electrical insulating properties
- Machines well

Disadvantages

- Not declared for direct food contact
- Continuous use limited to approx. 120 °C
- Thermoset – cannot be reshaped or welded (machining only)
- Higher price than plain, unfaced hard paper

Practical tip: MKHP is the right choice when tracking resistance and a light, decorative surface are required – for example in medium-voltage switchgear construction or for visible cladding in medical technology and laboratories. For higher mechanical requirements, glass-fibre-reinforced MKHP+ is preferable; for pure cost optimisation without tracking-resistance requirements, plain hard paper (PF CP) is sufficient.

Typical Properties

- Very high tracking resistance (CTI 600)
- Good moisture and weather resistance
- High mechanical strength
- Good electrical insulating properties
- Thermoset, dimensionally stable
- Good machinability
- Light-coloured, light-fast melamine surface
- Colour light grey (RAL 7035)

Product Examples

- Insulating and partition panels in switchgear
- Fuse insertion plates and covers
- Hospital furniture
- Laboratory and sports facility fittings
- Front panels
- Decorative cladding parts

Typical Industries

- Electrical engineering and switchgear construction (medium voltage)
- Medical technology (hospital furniture)
- Laboratory and sports facility construction
- Front panel cladding
- Mechanical and plant engineering
- Fixture and insulation construction

	Test Method	Unit	Value
Mechanical			
Flexural strength	DIN 53452	MPa	130
Tensile strength	DIN 53455	MPa	100
Compressive strength, parallel	DIN 53454	MPa	150
Flexural modulus	DIN 53457	MPa	7000
Electrical			
Tracking resistance CTI	IEC 60112		600
Dielectric strength	DIN 53481	kV	20
General			
Density	DIN 53479	g / cm ³	1.4
Limit temperature	VDE 0304, T.2	°C	120
Colour			light grey

MKHP is a melamine-faced hard paper laminate per DIN 7735 / EN 60893-3-4. The values stated are typical properties, researched from common publicly available data sheet information for this standard type; they serve as an aid to material selection and do not constitute a legally binding guarantee of specific properties. Actual values may vary somewhat depending on manufacturer and sheet thickness. MKHP is not declared for direct food contact.