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What is MKHP+

MKHP+

MKHP+ – melamine-faced hard paper with glass fabric reinforcement, high tracking resistance (CTI 600)

MKHP+ is the upgraded, glass-fabric-reinforced variant of melamine-faced hard paper MKHP. In addition to the phenolic-resin-impregnated paper core and the decorative melamine resin cover layers, MKHP+ contains a glass fabric reinforcement layer that significantly increases mechanical strength – while maintaining the same very high tracking resistance (CTI 600).

Classification and basic character

Like standard MKHP, MKHP+ belongs to the melamine-faced hard paper laminates per DIN 7735 / EN 60893-3-4, but its construction additionally includes a glass fabric reinforcement layer. This combination of paper, glass fabric and melamine cover layers makes MKHP+ a more mechanically robust laminate that combines the decorative, tracking-resistant surface of MKHP with higher strength.

Why additional glass fabric? The difference from standard MKHP

Standard MKHP consists of a pure paper core; its mechanical strength is limited by the paper fibre. In MKHP+, an additional glass fabric layer reinforces the core and noticeably increases flexural strength (200 vs. 130 MPa), tensile strength (120 vs. 100 MPa), impact strength (20 vs. 15 kJ/m²), and in particular compressive strength perpendicular to the laminate plane (around 300 MPa). Tracking resistance (CTI 600) is preserved through the unchanged melamine cover layers. As a trade-off, MKHP+ absorbs somewhat more moisture than standard MKHP.

How MKHP+ is manufactured and processed

MKHP+ is produced by pressing resin-impregnated paper layers with an embedded glass fabric layer into sheets; the outer layers are impregnated with melamine resin. From these semi-finished products we machine precision parts – sawing, milling, drilling and turning with sharp, carbide-tipped tools, allowing for somewhat higher tool wear than with standard MKHP due to the glass fabric. During machining, adequate dust extraction must be ensured (resin/glass fibre dust).

Mechanical, electrical and thermal properties

MKHP+ achieves typical values of around 200 MPa flexural strength, around 120 MPa tensile strength and around 300 MPa perpendicular 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 dielectric strength further improved over standard MKHP (around 30 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 higher mechanical load capacity – for example:

- Mechanically higher-load insulating and partition panels in medium-voltage switchgear
- Fuse insertion plates and covers subject to increased impact/shock loading
- Components requiring high compressive strength perpendicular to the sheet plane
- Hospital furniture and medical technology cladding under higher mechanical load
- Front panels and cladding parts in harsh industrial environments

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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
- Pure cost optimisation without increased mechanical requirements – standard MKHP is sufficient here
- Reshaping or welding – not possible as a thermoset (machining only)
- Skin-sensitive applications without protective measures during machining (glass fibre dust)

What does MKHP+ cost?

MKHP+ is priced higher than standard MKHP, since the additional glass fabric layer requires 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, and we allow for the increased tool wear caused by the glass fabric reinforcement. During machining we ensure adequate dust extraction. This allows us to reliably manufacture tracking-resistant, mechanically robust insulating parts, 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)
- Significantly higher mechanical strength than standard MKHP
- High compressive strength perpendicular to the sheet plane
- Light-coloured, light-fast, weather-resistant surface
- Good electrical insulating properties

Disadvantages

- Not declared for direct food contact
- Higher water absorption than standard MKHP
- Higher tool wear during machining (glass fabric)
- Continuous use limited to approx. 120 °C
- Higher price than standard MKHP

Practical tip: MKHP+ is the right choice when tracking resistance needs to be combined with high mechanical load capacity – for example for shock-loaded insulating parts in switchgear construction. If the mechanical strength of standard MKHP is sufficient, it is the more economical choice.

Typical Properties

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

Product Examples

- Mechanically higher-load insulating and partition panels
- Fuse insertion plates under increased shock loading
- Components requiring high perpendicular compressive strength
- Hospital furniture (higher mechanical load)
- Front panels in harsh industrial environments
- Insulating parts in switchgear construction

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 (higher-load insulating parts)
- Fixture and insulation construction

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	Test Method	Unit	Value
Mechanical			
Flexural strength	DIN 53452	MPa	200
Tensile strength	DIN 53455	MPa	120
Compressive strength, perpendicular	DIN 53454	MPa	300
Flexural modulus	DIN 53457	MPa	7000
Electrical			
Tracking resistance CTI	IEC 60112		600
Dielectric strength	DIN 53481	kV	30
General			
Density	DIN 53479	g / cm³	1.4
Limit temperature	VDE 0304, T.2	°C	120
Colour			light grey

MKHP+ is an upgraded, glass-fabric-reinforced variant of melamine-faced hard paper per DIN 7735 / EN 60893-3-4. The values stated are typical properties, researched from common publicly available data sheet information for this product 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.

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