Liedtke Kunststofftechnik
Siemensstr. 32a /42551 Velbert/Germany (DE) • Tel. +49 2051 605 105

What is MF GC 201 (Hgw 2272)

MF GC 201 (Hgw 2272)

MF GC 201 acc. to EN 60893 / Hgw 2272 acc. to DIN 7735 – glass-fabric laminate with melamine resin, very high tracking resistance (CTI 600), flame retardant

MF GC 201 (Hgw 2272) is the tracking-resistance specialty material among glass-fabric laminates. With a melamine-resin matrix, MF GC 201 (Hgw 2272) achieves the highest attainable comparative tracking index (CTI 600) combined with flame-retardant behaviour (UL 94 V-0) – a property profile that phenolic or polyester-resin laminates cannot match.

CLASSIFICATION AND BASIC CHARACTER

MF GC 201 (Hgw 2272) belongs to the family of glass-fabric laminates (industrial laminates): glass-fabric layers are impregnated with melamine resin and pressed under heat and pressure into sheets or round bars. Compared with phenolic and polyester resin, melamine resin offers particularly high tracking resistance and a light, white colour that darker phenolic grades cannot achieve.

WHY MELAMINE RESIN? THE DIFFERENCE FROM MF CC 201 AND HGW 2372.1

Within Liedtke's melamine-resin grades, MF GC 201 (Hgw 2272) differs from MF CC 201 (Hgw 2282.5) in its reinforcing carrier: MF CC 201 uses cotton fabric and, as a pure cotton/melamine-resin laminate, is declared for food-adjacent applications, whereas MF GC 201 (Hgw 2272) is reinforced with glass fabric – this significantly increases mechanical strength and dimensional stability, but excludes the food-contact declaration, since glass-fibre-reinforced laminates are regarded as a technical electrical insulating material. Compared with Hgw 2372.1 (epoxy-resin glass fabric), MF GC 201 (Hgw 2272) has somewhat lower mechanical strength, but its tracking resistance (CTI 600 versus CTI 200-220 for standard epoxy resin) exceeds that of every other glass-fabric laminate in Liedtke's range.

HOW MF GC 201 (HGW 2272) IS MANUFACTURED AND PROCESSED

MF GC 201 (Hgw 2272) is produced by pressing melamine-resin-impregnated glass-fabric layers into sheets or round bars. From these semi-finished products we machine precision parts – sawing, milling, drilling and turning produce clean results with sharp, carbide-tipped or diamond-coated tools. Adequate dust extraction should be ensured during machining (resin/glass fibre dust, mechanical skin irritation from glass fibres possible; trace amounts of formaldehyde may be released).

MECHANICAL, ELECTRICAL AND THERMAL PROPERTIES

MF GC 201 (Hgw 2272) achieves typical values of around 340 MPa flexural strength, around 260 MPa tensile strength and around 240 MPa compressive strength, with a modulus of elasticity around 22,000 MPa and a density of 1.8-2.0 g/cm³. Electrically, the material impresses with the highest tracking resistance (CTI 600) among the laminate grades in Liedtke's range as well as flame-retardant behaviour (UL 94 V-0). The limiting temperature for continuous use is 130 °C.

WHEN MF GC 201 (HGW 2272) IS THE RIGHT CHOICE

- Insulating parts with high requirements for tracking and creepage resistance (terminals, sockets, connectors)
- Switchgear and low-voltage components requiring flame retardancy (UL 94 V-0)
- Components that need both mechanical strength and electrical insulation
- Applications where a light, white surface finish is desired
- Test and measurement technology requiring dimensionally stable, tracking-resistant insulating parts

Liedtke Kunststofftechnik, 42551 Velbert, Siemensstr. 32a, +49 2051 605 105, Info@liedtke-kunststofftechnik.de, www.liedtke-kunststofftechnik.de

WHEN MF GC 201 (HGW 2272) IS NOT THE RIGHT CHOICE

- Direct food contact – MF GC 201 (Hgw 2272) is not declared for this (unlike the cotton-reinforced MF CC 201)
- Applications requiring very high mechanical strength – Hgw 2372.1 is superior here
- Applications with very high continuous temperature (above 130 °C) – a silicone-resin laminate (Hgw 2572) is the better choice
- Reshaping or welding – not possible as a thermoset (machining only)
- Skin-sensitive applications without protective measures during machining (glass fibre dust)

WHAT DOES MF GC 201 (HGW 2272) COST?

MF GC 201 (Hgw 2272) is priced between the standard laminates (phenolic resin) and the high-performance grades (epoxy, silicone resin). 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

MF GC 201 (Hgw 2272) machines well – sawing, milling, drilling and turning produce clean, dimensionally accurate results with sharp, carbide-tipped or diamond-coated tools. During machining we ensure adequate dust extraction. This allows us to reliably manufacture tracking-resistant, flame-retardant 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)
- Flame retardant (UL 94 V-0)
- High mechanical strength
- Low water absorption
- Light, white surface

Disadvantages

- Not declared for direct food contact
- Lower limiting temperature than silicone-resin laminate (Hgw 2572)
- Lower mechanical strength than Hgw 2372.1
- Higher tool wear during machining (glass fabric)
- Higher price than standard phenolic-resin laminate

Typical Properties

- Very high tracking resistance (CTI 600)
- High mechanical strength
- Low water absorption
- Flame retardant (UL 94 V-0)
- Thermoset, dimensionally stable
- Colour white

Product Examples

- Terminals and sockets in low-voltage switchgear
- Insulating parts in connectors
- Components in switchgear and equipment construction
- Insulating parts in test and measurement technology
- Mechanically loaded insulating parts with tracking-resistance requirement

Typical Industries

- Electrical engineering and switchgear construction
- Low-voltage insulation technology
- Mechanical and plant engineering
- Jig, fixture and tool making
- Test and measurement technology

	Test Method	Unit	Value
Mechanical			
Flexural strength	DIN 53452	MPa	340
Tensile strength	DIN 53455	MPa	260

Liedtke Kunststofftechnik, 42551 Velbert, Siemensstr. 32a, +49 2051 605 105, Info@liedtke-kunststofftechnik.de, www.liedtke-kunststofftechnik.de

	Test Method	Unit	Value
Compressive strength	DIN 53454	MPa	240
Modulus of elasticity	DIN 53452	MPa	22000
Electrical			
Comparative tracking index CTI	IEC 112		600
Electric strength ‖	DIN 53481	kV	38
General			
Density	DIN 53479	g / cm^3	1.8-2.0
Limit temperature	VDE 0304	°C	130
Colour			white

MF GC 201 (Hgw 2272) is a glass-fabric laminate with melamine resin per DIN 7735 / EN 60893. The values stated are typical properties subject to normal manufacturing tolerances; they serve as an aid to material selection and do not constitute a legally binding guarantee of specific properties. Actual values may vary slightly depending on manufacturer and sheet thickness. MF GC 201 (Hgw 2272) is not declared for direct food contact.

Liedtke Kunststofftechnik, 42551 Velbert, Siemensstr. 32a, +49 2051 605 105, Info@liedtke-kunststofftechnik.de, www.liedtke-kunststofftechnik.de