



HexMC®-i Moulding Concept

Carbon Epoxy HexMC®-i / C / 2000 / M81

Product Data

Description

HexMC®-i is a high performance carbon moulding composite, specifically designed for compression moulding. The epoxy matrix and high carbon fibre volume content enable components to be moulded for a wide range of applications.

Overall features

- Competitive alternative to lightweight metal alloys (Al, Mg, Ti).
- Designed for compression moulding.
- Rapid processing cycles.
- Complex shapes.
- Moulded-in inserts.
- No material waste.
- Elevated temperature performance (Tg up to 210°C).

Presentation

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Form: Roll

Roll width: 460mm

Shelf life at -18°C: 12 months

Shelf life at RT 23°C: 3 weeks

Material density: 1.55 g/cm³

Typical cure temperature: 180°C

Areal weight: 2000 g/m²

Fibre length: 50 mm

Fibre: HS Carbon

Nominal fibre volume: 57%

Typical cure time: 20 minutes

Recommendations for use

- Remove HexMC®-i from freezer. Allow it to warm up to room temperature for easier handling.
- Clean the mould with appropriate solvent to remove all impurities.
- Apply external release agent.
- Heat the mould to 180°C. HexMC®-i curing time varies according to part thickness.
- Set press pressure to 80 bars. Modify pressure up or down according to the complexity of the part.
- Remove the protective film.
- Determine the part weight. Cut HexMC®-i to size accordingly.
- Staging step has to be done in oven to minimize resin/fibre separation and optimize the flow: 10 minutes at 180°C (can be adapted accordingly to part design) and then cool down the product to room temperature.
- Load the product into the mould. It is recommended that approximately 80% of the mould area is covered.
- Close the mould and apply pressure.
- Hold the pressure for the appropriate cure time.
- After curing, open the hot mould and release the part. A mould equipped with ejector pins is recommended to help demoulding.



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Note: HexMC[®]-i flow is greatly improved with temperature advancement, typically by heating in an oven. Heat can be applied to HexMC[®]-i as it comes off the roll, after patterns are cut, or as preforms are made. The material is highly formable right after staging but becomes very stiff after cooling. Recommended staging and the complementary cure cycle for a 3mm thick panel is as follows:

Staging: 10 minutes at 180°C (can be adapted accordingly to part design) and then cool down the product to room temperature.

Typical cure cycle: 20 minutes at 180°C (can be adapted accordingly to part design).

Mechanical properties

Data is the result of several tests on cured laminates. Some of the values achieved will have been higher and some lower than the figure quoted. These are nominal values.

	Tensile	ILSS	Compression
Strength (MPa)	300	80	325
Modulus (GPa)	42	-	35
Standards	ASTM D3039*	ASTM D5379	EN 6036*

* With specimen width of 32mm

Note: These are typical values obtained with samples cut from 4mm thick moulded plate, cured 20 min at 180°C and post cure 2 hours at 180°C.

The glass transition temperature is:

165°C (DMA onset, 5°C/min, 1Hz, 15µm) for 20 minutes at 180°C.

210°C (DMA onset, 5°C/min, 1Hz, 15µm) for 20 minutes at 180°C + post cure 2 hours at 180°C.

Storage and handling

Store the product in its original (or equivalent) sealed packaging at -18°C. Leave product to reach room temperature before unrolling, to prevent condensation. The usual precautions when handling uncured synthetic resins and fine fibrous materials should be observed, and a Safety Data Sheet is available for this product. The use of clean disposable inert gloves provides protection for the operator and avoids contamination of material and components.

Important

All information is believed to be accurate but is given without acceptance of liability. Users should make their own assessment of the suitability of any product for the purposes required. All sales are made subject to our standard terms of sale which include limitations on liability and other important terms.

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