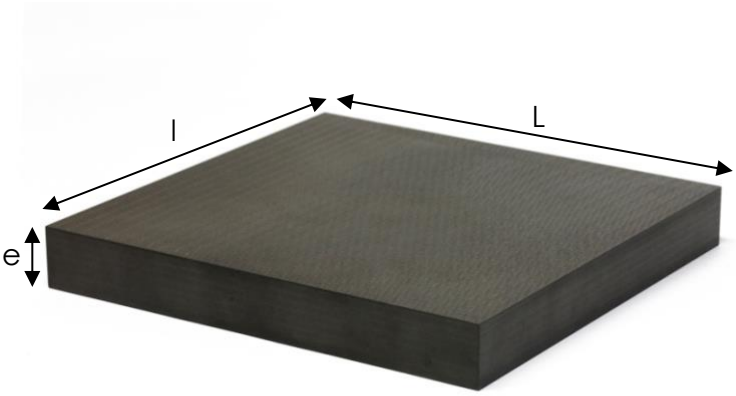
Product datasheet

Space Carbon Inserts

SPACE CARBON INSERTS



From carbon / epoxy raw material…

…to machined inserts

DESCRIPTION

Space Carbon Inserts are bonded into CFRP honeycomb panels. They allows weight savings, thermoelastic behaviour and stability.

Space carbon inserts are manufactured by MECANO ID from Carbon fabric / Epoxy resin using RTM (Resin Transfer Molding) plates as a raw material. Our own specific manufacturing process and tools ensure uniform and repeatable high quality level for each manufactured insert.

Inserts are machined depending on customers design and allows complex geometry. Their characteristics are adjustable with respect to specifications by choosing adapted basic materials and optimized fiber orientations. They could be manufactured individually or by batch.

They could be validated by performance tests.

These Carbon inserts are used and qualified in Space and Defence fields.

APPLICABLE DOCUMENTS

Current datasheet	1.1
Internal specification	-
Qualification file	MID-ZPB-RPT-001 1/0
Layout (dimensions, performances)	N/A

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GENERAL CHARACTERISTICS

Maximum dimensions of plates are:

- Length L x l : 600 x 600 mm
- Thickness e : from 2 to 52 mm

Current material (other material could be made on demand):

- Fiber: T300 G803 or IM7 46290
- Resin: RTM6 epoxy
- Standard layout: quasi-isotropic [0/45/90/-45…]

Usual mechanical properties:

- Strength: 550 MPa (up to 1200 MPa)
- Modulus E: 80 GPa (up to 200 GPa)
- Inter Laminar Shear Stress (ILSS): up to 60 MPa

Mechanical properties could be optimized following your needs. Specifications depend on used materials and chosen fiber orientation.

- Typical fiber volume ratio = 57%
- Void volume ratio VVR < 2%
- Qualified temperature range: -150°C /+180°C
- Thermal stability: CTE = 2.10^{-6} K^{-1} (following fiber orientation)
- Density: ρ = 1520 gr/m^3

Machining precision: such as metallic parts.

SPECIFIC FUNCTIONS

- Shaped surface geometry
- Included metallic insert such as Keensert
- Could be ordered individually
- Strong manufacturing reactivity (stock of raw material)

TESTS

- 3D geometric control and mechanical characterisation
- Ultrasonics tests and micrography
- Interlaminar shear stress test

MISCELLANEOUS

You need further sizes or mechanical properties? MECANO ID is specialized in design, sizing and manufacturing of high performance composite parts. For any specific need or any question, you could contact us at:

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