

3M

Infusion Core

Technical Data

November, 2011

Product Description

3M™ Infusion Core is a core material possessing three dimensional fiberglass reinforcement composed of a layer of rigid urethane or phenolic foam covered with a reinforcing fiber layer on each side. The core's three elements are stitched together by glass fiber bridging strands which pass through them obliquely and form triangulations in the mechanical sense. Typical reinforcing materials used are woven and non-woven glass, carbon or aramid fiber fabrics, although additional reinforcements are available as custom. Infusion Core allows for rapid infusion of resin without the use of resin transfer media at a very affordable cost. Compared to unstitched sandwich panels, stitched panels exhibit significantly increased stiffness and ultimate stress under bending, as well as much greater resistance to core shear and flat-wise compression. The percentage of gain depends on the structural parameters (angle and step size) of the stitched sandwiches. Thus for the high stitch density (step of 12.5 mm) performance improvements can reach 250% for bending rigidity and 1,000% for shear failure stress.

Product Highlights

- Allows variable sandwich thickness range of 5 to 40 mm.
- Better suited for flat panel applications or gentle curves.
- Can be cut with an abrasive disc.
- Used in the low pressure with or without vacuum, Resin Transfer Molding (RTM) or RTM Light infusion process.
- Can be notched with a sharp blade to install inserts.
- Product is approved by:



Application Ideas

- Transportation Industry – floorboards, truck decks
- Marine parts – flat panels
- Industrial cowlings

Typical Physical Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Units	Metric	English	Metric	English
Step	20mm	0.8 inches	40mm	1.6 inches
Flexural Strength (ISO 14125)	35 Mpa	5,076 psi	18 Mpa	2,611 psi
Flexural Modulus	5,000 Mpa	725,189 psi	3,500 Mpa	507,632 psi
Shear Strength (ASTM 273)	1.4 Mpa	203 psi	0.75 Mpa	109 psi
Shear Modulus	20 Mpa	2900 psi	15 Mpa	2,175 psi
Compressive Strength (ASTM 365-03)	2.5 Mpa	360 psi	1.4 Mpa	203 psi
Compressive Modulus	120 Mpa	17,405 psi	70 Mpa	10,153 psi
Final Core Density after Impregnation	71 kg/m ³	4.43 lb/ft ³	52 kg/m ³	3.25 lb/ft ³

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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ISO 9001:2008

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2008 standards.



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