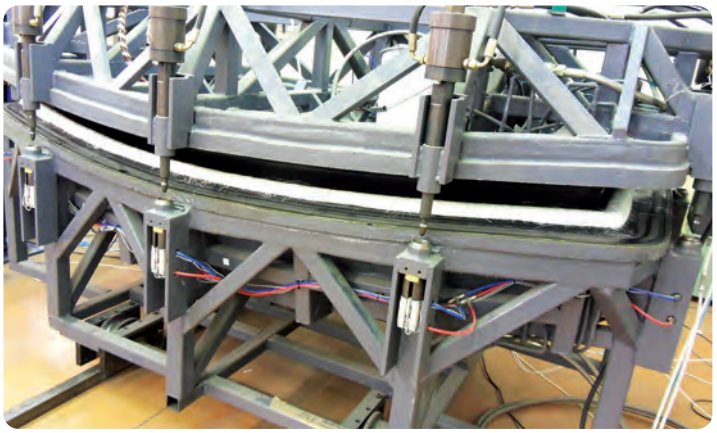
OWENS CORNING®

INNOVATIONS FOR LIVING®

3D Core-Based High-Loft Reinforcement Solutions for Closed Mold Processes



Owens Corning is redefining product performance to provide composite solutions that help our customers win.

As a world leader in glass science, Owens Corning possesses a proud heritage of developing many influential innovations in the history of the glass fiber industry including E-glass, the Advantex® brand, and an array of high-performance glasses.

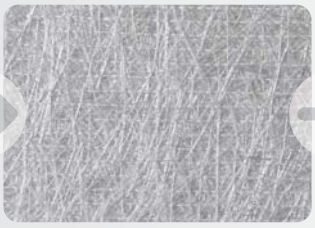
Owens Corning is also a world leading supplier of glass-based technical fabrics providing a full range of woven, knitted, and non-woven technologies to the global composites industry.

This powerful combination of expertise in glass science and chemistry, and state-of-the-art facilities enables our team to work in partnership with our customers to develop glass-specific, tailor-made technical fabric solutions for a wide range of applications. These efforts are supported by a worldwide manufacturing platform spanning more than 30 facilities and 6 research and development centers ensuring proximity of locally engineered and tailored solutions for our customers.

Furnace & glass science

Innovative chemistry

Reinforcement solutions



Global platform

Redefining 3D Core-Based High-Loft Technical Fabrics

3D core-based or high-loft technical fabrics from Owens Corning are available in various constructions with either glass-specific or glass/TP yarn-specific formulations. These fabrics can be tailor-made to meet individual requirements.

3D high-loft fabrics feature glass fibers and/or TP yarns, which are intertwined in longitudinal (X), cross (Y) and, importantly in the third, vertical (Z) and voluminous dimension of the overall laminate thickness. This combination of properties enables a single system solution.

Due to their integrated construction, these sophisticated, technical fabric systems provide versatile physical and structural attributes for a wide range of end-use applications and offer the possibility of modifying and influencing key properties such as shear strength, dimensional stability and impact resistance.

Closed Mold Processes

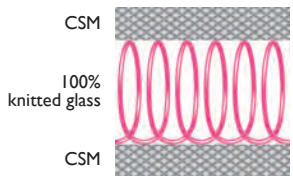
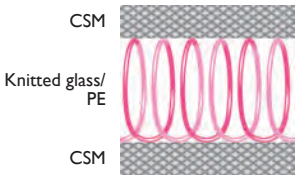
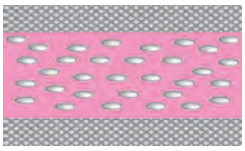
The most current closed mold processes are:

- Infusion
- RTM (Resin Transfer Molding)
- RTM-Lite

They are called 'closed mold' processes, as opposed to Hand Lay-Up and Spray-Up 'open mold' processes, because resin is not in direct contact with the workshop air but is processed only when the mold is tightly closed. As a result, no Volatile Organic Compound (VOC) or Styrene is released in the air.

Closed Mold processes are used to manufacture a wide range of parts for end-use applications such as wind turbine blades, marine, automotive, transportation, infrastructure, storage, sports and leisure, and other applications.

Owens Corning 3D Core-Based High-Loft Fabrics Range for Closed Mold Processes

Product	Characteristics and Features	End-Use Application and Benefits
Multimat® (G)  	• Designed for RTM closed mold applications. (For different closed mold processes, request the G900 series of products). • 100% glass 3-Dimensional complex combination of a knitted glass fiber core that is stitch bonded between two layers of binder free chopped glass. • The glass fiber core provides enhanced flow properties and contributes to the overall mechanical performance. • 100% glass fiber. • One layer laminates from 2mm to 7mm. • Wets out fast in RTM. • Flexible and pre-formable.	• Designed to be used as single-layer reinforcement. • Unique 100% glass fiber construction offers great resistance to delamination. • 100% glass is ideal for applications where there are flame, smoke and toxicity requirements. • Parts can be laminated and post-cured with phenolic resins. • A strong bond between the glass and resin throughout the laminate maximizes its service life. • The high glass content along with the resin properties will dictate the overall strength of the part. • High mechanical properties. • One product for multiple parts. • Fast fill and cycle time. • Results in less time to load the part. • Thickness consistency.
Multimat® Lite (GP)  	• 3-Dimensional complex composed of a knitted core made of 50% glass and 50% polyethylene (PE) TP filaments stitch bonded between two layers of binder-free chopped glass. • Specially designed to better fit compression requirements in RTM Light, Injection and Infusion processes. • Glass/PE fiber core provides enhanced flow properties and contributes to the overall mechanical performance of laminates. • Remarkable stretch-ability and capacity to adapt to complex molds. • Outstanding resistance to compression allowing the resin to flow easily even when the composite mold is soft and tends to deflect under vacuum conditions. • 50% glass 50% PE. • One layer laminates from 2mm to 7mm. • High compression resistance core for fast wet out. • Flexible and pre-formable.	• Designed to be used as single-layer reinforcement. • Unique knitted core construction offers great resistance to delamination. • Parts can be laminated and post-cured with any thermoset resin. • A strong bond between the glass and resin throughout the laminate maximizes its service life. • The high glass content along with the resin properties will dictate the overall strength of the part. • High mechanical properties. • One product for multiple parts. • Fast fill and cycle time. • Results in less time to load the part. • Thickness consistency. • Good surface finish.
Multicore® (PP) 	• Designed for Closed Cavity Bag Molding (CCBM) and Lite Resin Transfer Molding (RTM-L). • Combination of a non-woven synthetic core stitch-bonded between two layers of binder-free chopped glass. • Synthetic core provides enhanced flow properties while the glass provides strong mechanical properties. • Fast wet out. • Excellent conformability. • Variable part thickness capabilities. • Multi-compatible sizing chemistry. • Easy handling and cutting.	• Designed to be used as single-layer reinforcement. • No preforming is required for placement in the mold. • Thickness of the finished part and the required glass content are the deciding factors in choosing the proper material. • The glass content along with the resin properties will dictate the overall strength of the part. • High flow rate and quick cycle time. • Conforms easily to mold contours. • One product for multiple parts. • Can be used in Polyester (PE), Vinyl-ester (VE) and Epoxy (EP). • Results in less time to load the part. • Good surface finish.

Note: All Owens Corning products are manufactured with Advantex® corrosion resistant E-CR glass, which also has a higher softening point (916°C) versus standard E glass materials (850-870°C).

	Multimat®	Multimat®-Lite	Multicore®
Core type	**Knitted glass**	**Knitted glass/PE**	**PP Veil**
Mechanicals overall	●●●●●	●●●●	●●●
Flexural & tensile	●●●●●	●●●	●●
Impact	●●●●●	●●●	●●
Surface finish normal resin	●●●	●●●	●●●
Preforming/drapability	●●●●	●●	●●●
100% glass – suitability for fire resistance	Yes	No	No
Processing			
RTM	Yes	No	Yes
RTM-Lite	G900 only	Yes	Yes
Infusion	No	Yes	Yes

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