

3D CORE-BASED HIGH-LOFT REINFORCEMENTS

**SOLUTIONS FOR CLOSED
MOLD PROCESSES**



OUR CURIOSITY FUELS YOUR POSSIBILITY

Strong, lightweight, and versatile. Owens Corning® composite solutions have transformed industries. From construction to transportation to energy — there's no telling where our next innovation will reach.

We aren't just a world leader in glass science — we innovate productivity, performance, durability, and design flexibility. Our influential innovations are a powerful combination of understanding emerging needs and responsibly creating next-generation solutions.

Advances in glass-based technical fabrics provide a full range of woven, knitted, and nonwoven technologies to the global composites industry. A powerful combination of expertise in glass science and state-of-the-art facilities empowers our team to partner with customers for the development of glass-specific, custom technical fabric products. Supported by a worldwide manufacturing platform that spans three dozen manufacturing facilities and research and development centers, we deliver locally engineered, customized solutions.



FURNACE &
GLASS SCIENCE



INNOVATIVE
CHEMISTRY



LOCALLY
ENGINEERED



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 more 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

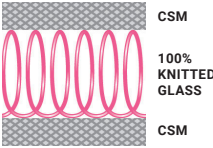
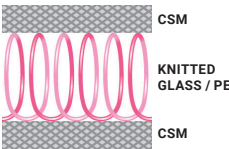
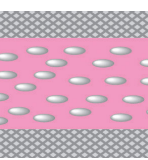
The most current closed mold processes are:

- Infusion
- Resin transfer molding (RTM)
- 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.



PRODUCT	CHARACTERISTICS AND FEATURES	END USE APPLICATIONS AND BENEFITS
Multimat® (G) 	<ul style="list-style-type: none"> Designed for RTM closed-mold applications. (For different closed mold processes, request the G900 series of products.) 100% glass three-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. 	<ul style="list-style-type: none"> 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. High glass content, along with the resin properties, will dictate the overall strength of the part.
	<ul style="list-style-type: none"> 100% glass fiber. One-layer laminates from 2 mm to 7 mm. Fast wet-out in RTM. Flexible and pre-formable. 	<ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> Three-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 stretchability 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. 	<ul style="list-style-type: none"> 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.
	<ul style="list-style-type: none"> 50% glass and 50% PE. One-layer laminates from 2 mm to 7 mm. High compression resistance core for fast wet-out. Flexible and pre-formable. 	<ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> Designed for closed cavity bag molding (CCBM) and RTM-Light (RTM-L). Combination of a nonwoven 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. 	<ul style="list-style-type: none"> 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.
	<ul style="list-style-type: none"> Fast wet-out. Excellent conformability. Variable part thickness capabilities. Multicompatible sizing chemistry. Easy handling and cutting. 	<ul style="list-style-type: none"> 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.

	Multimat®	Multimat®-Lite*	Multicore®
CORE TYPE	KNITTED GLASS	KNITTED GLASS/PE	PP VEIL
Mechanics overall	•••••	••••	•••
Flexural and tensile	•••••	•••	••
Impact	•••••	•••	••
Surface finish normal resin	•••	•••	•••
Preforming/drapability	••••	••	•••
100% glass – suitability for fire resistance	Yes	No	No

PROCESSING			
RTM	Yes	No	Yes
RTM-Lite	Yes	Yes	Yes
Infusion	No	Yes	Yes

* Only available in Europe.

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°C–870°C).



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