

MEPNN Supplier Scouting Opportunity Synopsis

Section 1: General Information

Scouting Number	2025-352
Item to be Scouted	Double Belt Continuous Thermoplastic Composite Consolidation
Days to be scouted	30
Response Due By	10/17/2025
Description	The subject product is a patented thermoplastic prepreg composite engineered for the custom fabrication of orthotic components, complete clinical devices, and bespoke prosthetic sockets. Its present manufacturing paradigm is a large

Section 2: Technical Information

Type of supplier being sought	Manufacturer
Reason	The initiative is to transition the consolidation technique to a continuous processing system utilizing an industrial double belt press. This advanced manufacturing system will enable the product to meet tighter dimensional tolerances and significantly enhance throughput, thereby supporting market scalability and improved process repeatability.
Describe the manufacturing processes (elaborate to provide as much detail as possible)	The consolidation process will leverage a double belt press—either with stainless steel belts or a hybrid stainless/PTFE interface—to thermally fuse polypropylene and carbon veil plies in heavy gauge prepreg configurations. Inline cutting modules will be integrated for edge trimming and product sizing to specification. The process is capable of fabricating laminates with variable ply counts (5–9), alternating layers of carbon fiber veil and polypropylene, and accommodating roll stock widths up to 50in. This continuous operation is poised to support mass customization and modular product architectures.
Provide dimensions / size / tolerances / performance specifications for the item	The composite consists of a 5-ply laminate architecture. Interlaminar adhesion is tightly controlled to ensure optimal load transfer and mechanical stiffness. For precision clinical fabrication, a thickness tolerance between 0.005–0.01in is targeted, achievable using the double belt continuous consolidation method. Commercial offerings include four nominal gauges: 1/8in, 5/32in, 3/16in, and 1/4in. Anticipated production volume for 2025 exceeds 40,000lb, reflecting increased demand within specialized medical markets.
List required materials needed to make the product, including materials of product components	Polypropylene and carbon veil plies, fabricating laminates with variable ply counts (5–9), alternating layers of carbon fiber veil and polypropylene.
Are there applicable certification requirements?	No
Are there applicable regulations?	No
Are there any other standards, requirements, etc.?	Yes
Details	As of now, there are no mandatory third-party certifications. The material is designated for use in FDA Class I medical devices, implicating compliance with basic safety and biocompatibility standards. The core market application is orthotics and prosthetics.
Additional Technical Comments	The double belt output laminate constitutes the finished product. Sheet stock is distributed as a raw material, explicitly guiding custom fabrication workflows within orthotic and prosthetic clinical practices.

Section 4: Business Information

Estimated potential business volume	The U.S. orthotic and prosthetic materials segment represents an annual market size of roughly 4Mlb. The described composite system is a specialized subset, aligned to current market needs and regulatory requirements. Notably, the sector has posted a 12% compound annual growth rate over the past two years. The anticipated dimensional uniformity achieved with the continuous double belt process will elevate the product's eligibility for CE marking, thereby broadening its potential for European market entry.
Estimated target price / unit cost information (if unavailable explain)	The prepreg composite system is positioned against commodity food grade extruded heavy gauge polypropylene sheets. Continuous consolidation offers a pronounced cost advantage and enhanced product uniformity. Retail price comparisons reveal a range from \$21.15 to \$51.84 per 1/8in x 30in sheet, covering both commodity and advanced prepreg options.
When is it needed by?	Estimated duration for infrastructure deployment and process optimization is 6–8 months.
Describe packaging requirements	Finished sheets are to be cut in a 32in x 48in format and efficiently palletized for logistical throughput.
Where will this item be shipped?	Distribution operations will be based in Rhode Island, servicing both domestic (USA) and international client bases.

Additional Comments

Is there other information you would like to include?	The program benefits from co-principal investigators with deep domain expertise: a clinical PI with 44 years in orthotics/prosthetics and who founded his professional society's fabrication sciences division, and a process engineering PI holding a PhD in mechanical engineering with specialization in polymer processing and composite manufacturing. He currently is a plastics engineering faculty member.
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