

application *focus*

Aerospace industry



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Modeling and Tooling	Aircraft Manufacturers Produce Large, Accurate Models and Tools with Huntsman Advanced Materials CNC-machinable Boards and Pastes
Application Summary	Large, dimensionally accurate master models and stretchform dies for aircraft parts such as wing-to-body fairings and tailcones are now being CNC-machined from Huntsman Advanced Materials products to reduce costs and save time. RenShape® boards and RenPaste® seamless modeling pastes are designed to hold the close tolerances required for oversize aircraft parts and provide long-lasting performance and durability.
Products used	<ul style="list-style-type: none"> • RenShape® 5008 intermediate-temperature epoxy board • RenShape® 5166 metalforming board • RenPaste® 4503R/Ren® 4503H seamless modeling paste • RenPaste® 4569-1R/Ren® 4569-1H seamless modeling paste • RP 4040 patties for the Low-Cost Tooling for Composites (LCTC) process
Process used	RenShape® boards are bonded together to form a machinable block. Models and metalforming tools are then CNC-machined directly from CAD data, ensuring precision accuracy. RenPaste® seamless epoxy modeling pastes and the RP 4040 patty used for the LCTC process are applied to an undersized substructure. Once cured, the epoxy surfaces are machined to final dimensions.
Main characteristics	RenShape® boards are easy to machine with carbide cutters to build models and tooling with a high flexural modulus, good compressive strength, and a glass transition temperature in the 228°F to 287°F (109°C to 142°C) range. RenPaste® 4503R/Ren® 4503H and RenPaste® 4569-1R/Ren® 4569-1H seamless modeling pastes are Shore 60D and 80D hardness materials that cure to a compressive strength of 2,100 psi and 8,200 psi respectively. RP 4040 patties have a compressive strength of 20,500 psi, flexural strength of 8,140 psi and a low 10×10^{-6} coefficient of thermal expansion.

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