

STRUCTURAL THERMOPLASTIC COMPOSITES – FILLING THE GAP BETWEEN STAMPED STEEL AND MOLDED COMPOSITES

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Abstract

For over 50 years the auto industry has been gradually replacing steel with plastics and molded composites. Substantial progress has been made, particularly in applications where substantial parts consolidation is possible using composites. The need is greater than ever for further substitution of composites for steel, but large performance gaps between steel and composites limit the rate of progress. Current gap factors include:

- stiffness and strength,
- molding thickness,
- process cycle time,
- ability to weld to steel,
- and cost.

This paper will address approaches for eliminating each of these gap elements for non-appearance parts using a systems approach based on new thermoplastic composite technologies.