

INNOVATION IN COMPOSITE MATERIALS

FINALIST: Base Materials Ltd

Base Materials has developed a large-format 3D printing solution for composite tooling, combining its proprietary ProXtrude® thermoset printable paste with high-throughput robotic extrusion and a digital CAD-to-print workflow.

Unlike general-purpose additive manufacturing systems, ProXtrude® is specifically engineered for composite tooling, delivering structural strength, thermal stability, dimensional precision and machinability. The system produces near-net-shape tooling directly from CAD, requiring only light CNC finishing. This can reduce tooling lead times by up to 70% and material waste by up to 58% compared with traditional block-up and machining methods.

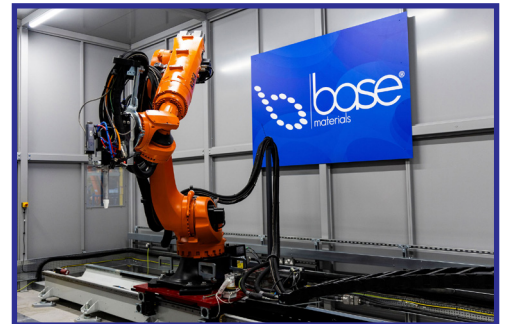
The technology is used in automotive, foundry and other applications to produce composite stock models for downstream manufacturing. It replaces labour-intensive processes involving large tooling-board block-ups, bonding and extensive machining, enabling faster production, lower costs and greater design freedom.

Development required specialist expertise in materials science, process engineering, additive manufacturing and composite tooling. Base Materials undertook iterative material formulation, testing and process optimisation, followed by application trials across different tooling sizes and geometries. The service launched in November 2025 and is now operational at the company's Birmingham facility.

The innovation addresses a key bottleneck in composite manufacturing by making tooling faster, more material-efficient and responsive to changing designs. It offers particular value for prototype and low-volume production where conventional tooling can be costly and time-consuming.

The long-term opportunity extends beyond the current service to supply ProXtrude® materials directly, develop additional material grades and expand into new industries and international markets. The project was delivered through Base Materials' internal R&D programme, combining materials, engineering, applications and commercial expertise, with ongoing customer engagement supporting validation and refinement.

Learn more at: www.base-materials.com



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