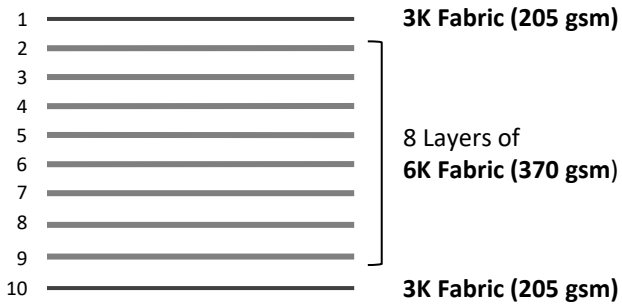
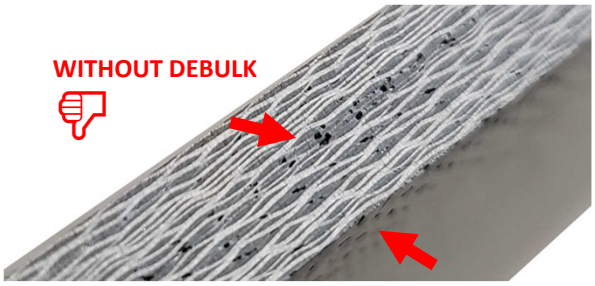
Supercomp™

SAVES COMPOSITE TOOLING COSTS

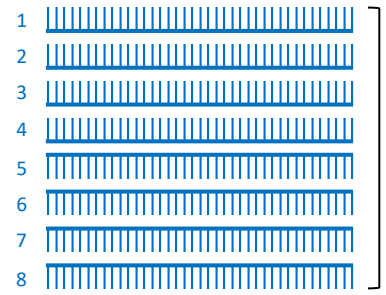
Demonstration of how Supercomp reduces the cost and complexity of composite tooling while providing consistently high surface finish

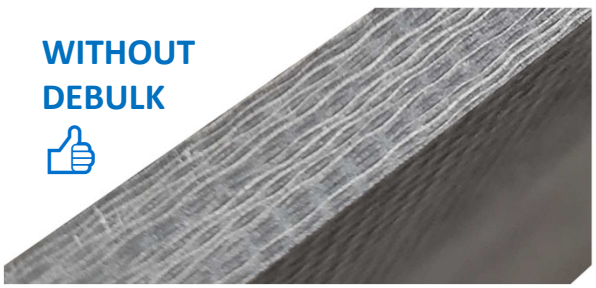
Conventional Tool (1-8-1)





Supercomp Tool (0-8-0)





WHAT IS THE PROBLEM?

- Producing composite tooling can lead to **cost overruns**
- Complex layup steps can be **challenging for new operators**

IMPACT OF THE PROBLEM

- Lower-cost heavy fabrics introduce fiber print-through and low drapability, which reduce surface finish
- Labor and complexity is increased by using different surface and bulk prepregs
- Time-consuming debulking steps are needed to reduce internal voids and get a consistent surface finish
- Using chopped fiber materials requires changes to tooling designs due to lower stiffness & impact strength

WHAT IS MISSING?

- Tooling prepreg that combines the drape & finish of 3K fabrics with the cost & thickness of 6K fabrics
- Method to make composite tooling without debulking

SUPERCOMP SAVES TOOLING COSTS

Supercomp 1015 Bi-Axial is a 3K woven fabric that is coated with Z-axis milled carbon fiber to add "non-crimp" bulk and then prepregged with a tooling epoxy resin. The areal weight of a typical 6K prepreg can be matched at **25% lower cost** by tuning the loading of the milled fiber. The Supercomp tooling prepreg can take **very tight radii**, as low as 1/32" or 0.8mm.

A single-material Supercomp "0-8-0" tooling plate was made with **20% fewer layers** than a conventional 1-8-1 tooling plate. The Supercomp tooling plate had similar thickness and equivalent flexural stiffness & impact strength as the conventional tooling plate.

Debulking steps were skipped for both tooling plates. The Supercomp tooling plate had no visible internal porosity or surface defects even **without debulking**. Conversely, the conventional tooling plate had severe internal porosity and surface defects (marked by the red arrows).

Boston Materials, Inc.
23 Crosby Drive, 100B
Bedford, MA 01730

P: +1 (617) 227-2422
W: www.bomaterials.com
E: info@bomaterials.com