

TeXtreme®

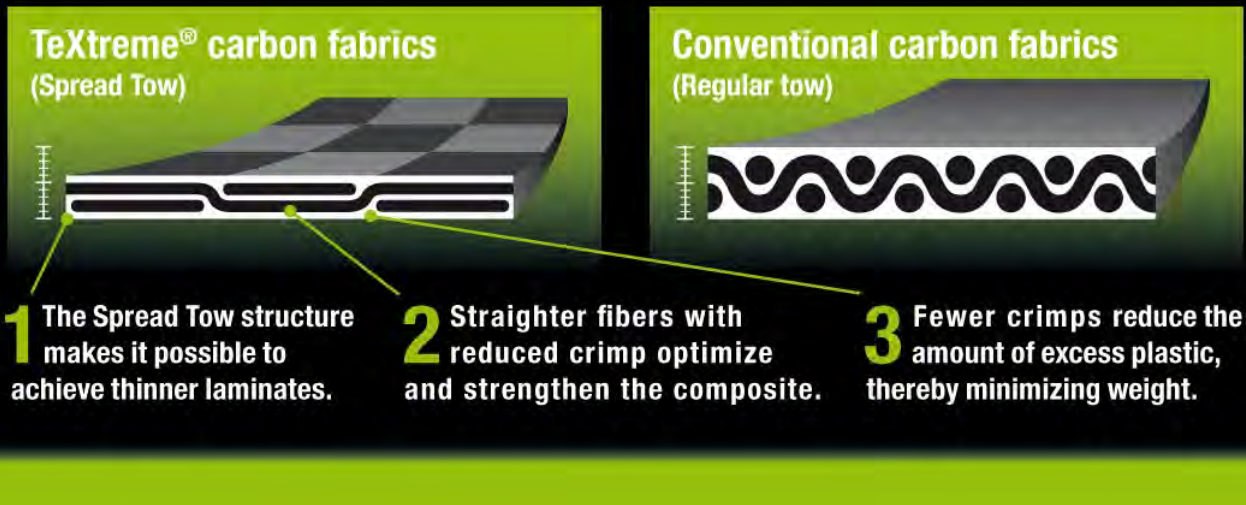
Spread Tow Fabrics for ultra light composites

**A recommended guideline for how to
work with TeXtreme® Spread Tow Fabrics**

This guide will aid in learning to use TeXtreme® Spread Tow Fabrics effectively

TeXtreme®
Spread Tow Fabrics for ultra light composites

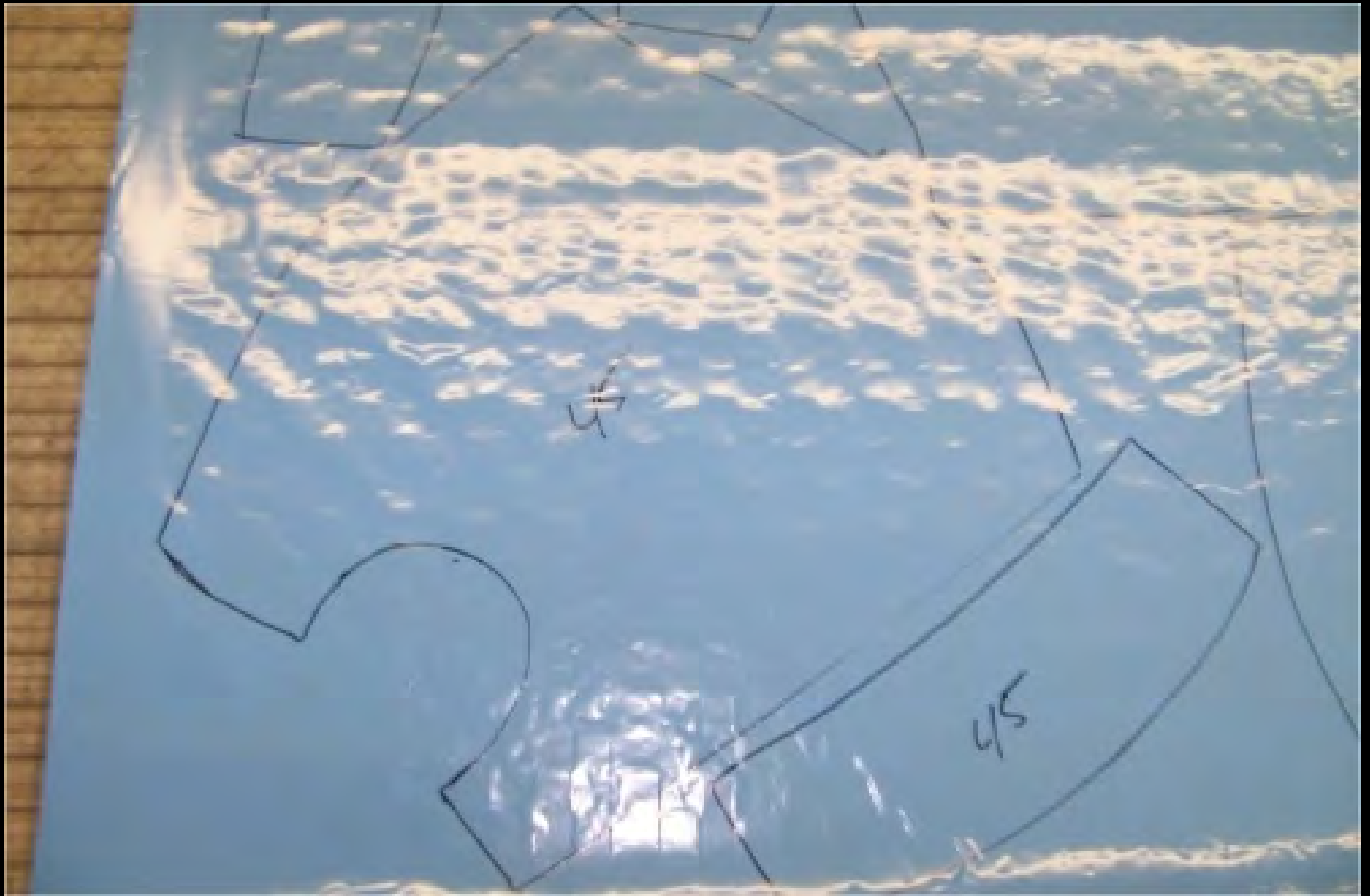
- 20% lighter than conventional carbon fabrics
- Tailor-made fabrics
- Unprecedented mechanical performance
- Superior surface finish



TeXtreme® Spread Tow Fabrics are based on Oxeon's Tape Weaving Technology that uses tapes instead of yarn. In any given area more fibers can be packed in tape form than in a yarn. A woven material comprising interlacing fibrous tapes, instead of yarns, displays a substantially reduced number of interstices/openings. This means that a tape woven structure presents less accumulation of matrix at the interstices and hence increased fiber volume fraction.



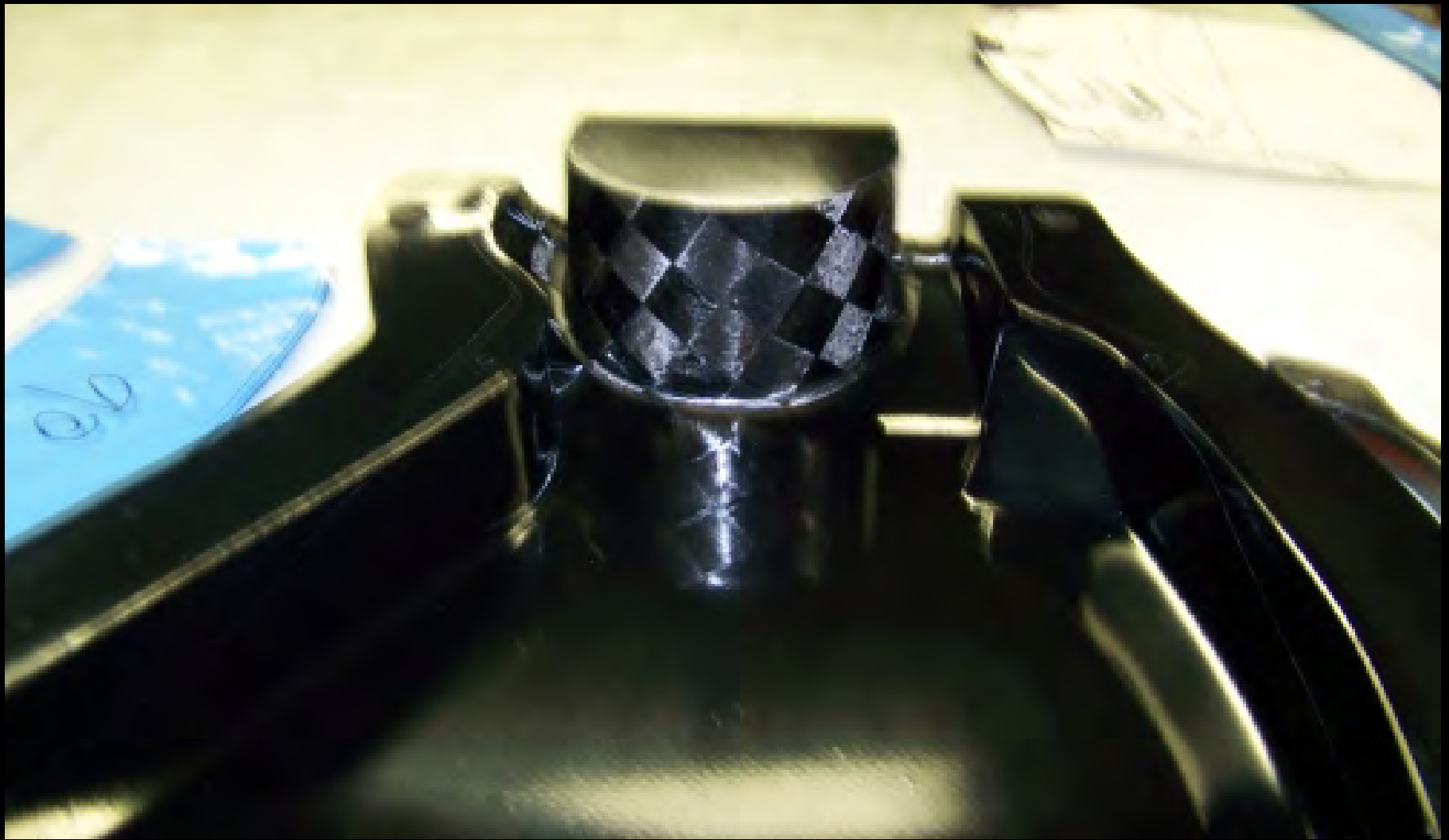
Tools to be used in this guide: Hairdryer, lamination tool, knife, scissors.



Take advantage of the distinct lines seen through release film when laying the patterns at 0-, 90- and +/-45 or other ply orientations.



Use tool surfaces that are polished and release agents with relatively high degree of slip.



Start with a ± 45 ply if possible which makes draping in the sharp corners easier with less spring back. Choose initial starting piece according to internal layup procedure/standard.



Start at the tightest section working towards larger less complicated areas.



Work along 45-degree direction and soften the resin by using a hair dryer or heat gun to allow the fabric to scew.



Use helping aids at tight corners, do not use any sharp metal objects. Bridging needs to be addressed to assure good definition in corners.



Make sure to evacuate all air before debulking so no air bubbles are present (highlighted section in the image).



Cut darts at complex geometries to avoid folds/creases.



Cut away excessive material to allow consolidation at all corners. This helps in reducing the risk of bridging.



Always debulk the first ply! Perforated release film is recommended during this step due to the dense nature of TeXtreme®.

TeXtreme®



Follow standard bagging techniques. To maintain consistent vacuum pressure, the breather should cover the entire laminate.



The vacuum valve should be positioned outside of the laminate with a breather connection to maintain vacuum flow.



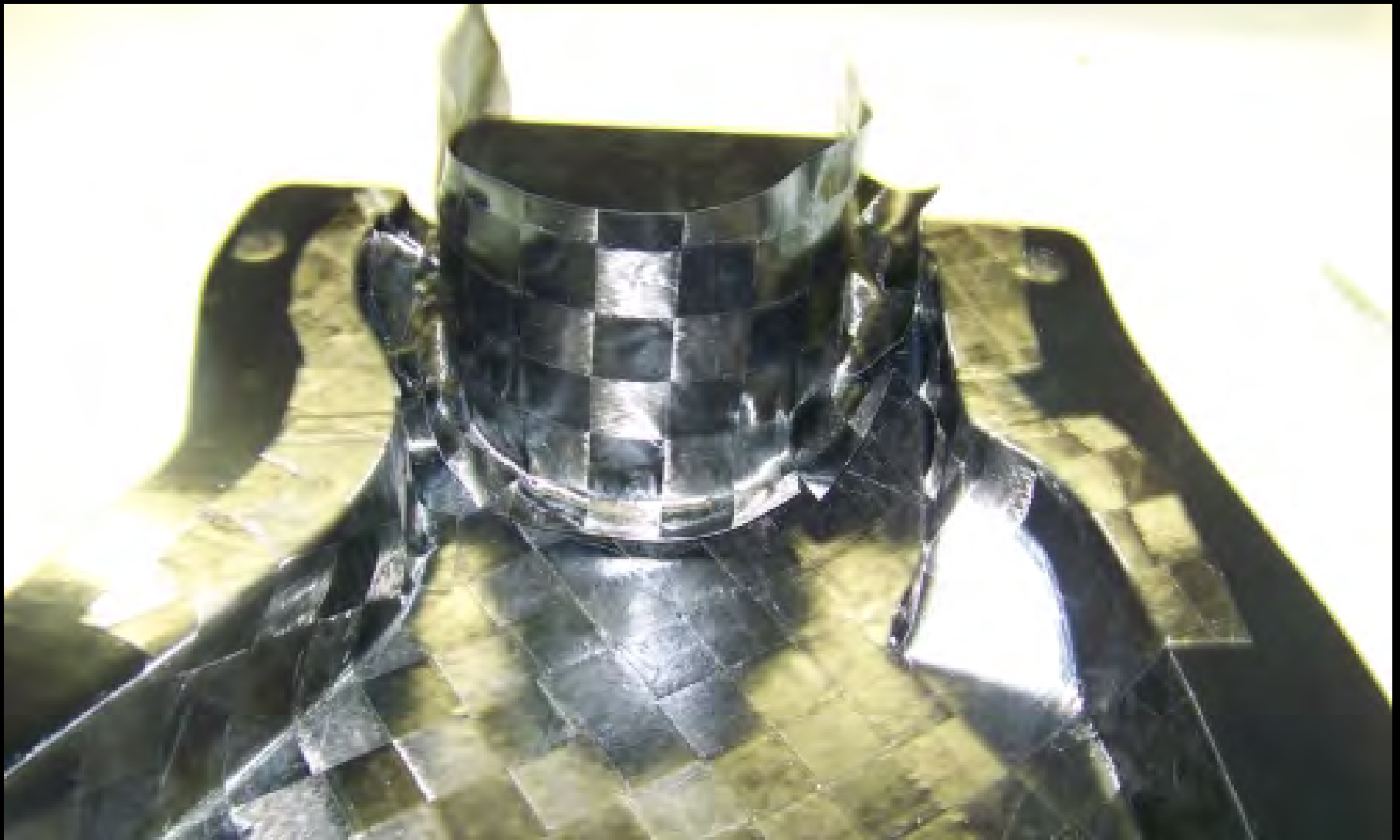
Ensure that the bag is not bridging at any corners, be careful not to cause a tear or puncture of the bag.



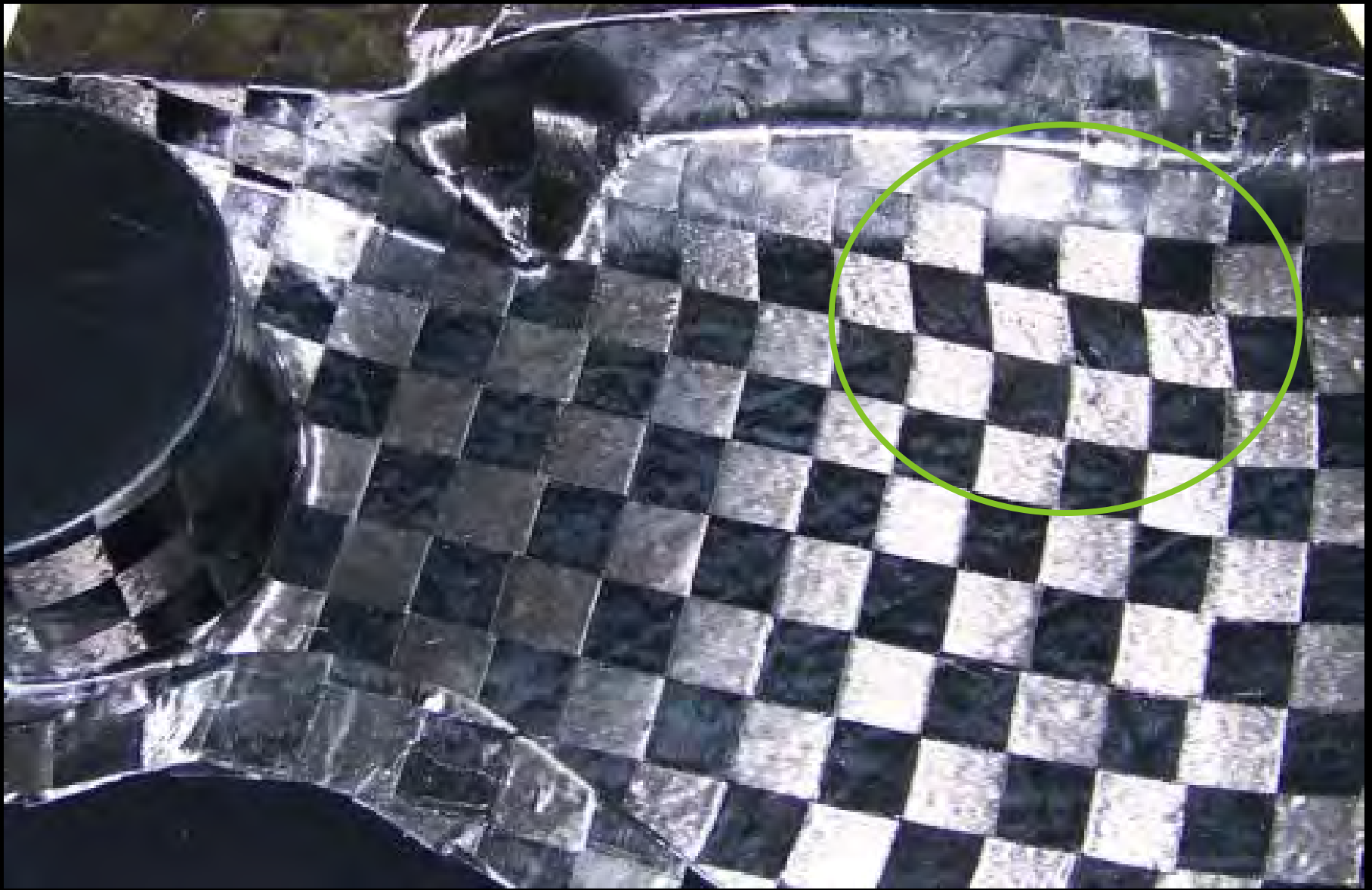
Envelope bag the tool when possible to avoid tool leakage leading to poor air evacuation.



Vent possible bubbles to avoid trapping air at tool surface using needle or similar being careful not to scratch the mold surface.



Start 2nd ply using the same sequence as the first, making darts where needed.



By using a hair dryer or heat gun the TeXtreme® fabric can be scewed where needed (highlighted in the image above).



Stagger ply drop-offs at stiffened sections. There is no need to repeatedly debulk unless six layers or more are being used or otherwise recommended by prepreg manufacturer(s).



Use release films recommended by the prepreg manufacture(s).



Follow standard bagging procedure.



Use thermocouple that measures the temperature at the tool and not in the air. Following the prepreg manufacturer's cure cycle is important to achieving a high quality surface smoothness.



Some resin will bleed, as normal for fiber reinforced composites.



Demold the part. Notice well defined tight corners with no bridging on the relatively complex geometry of the finished part.



An ultra light composite has now been produced.