

# Sewing

Commercially available, heavy duty sewing machines capable of sewing through polycarbonate are recommended. See machine supplier for brand and model.

## General sewing recommendations:

**Sewing machine speed:** Use a slow feed rate. Top feed preferred – bottom feed will build up polycarbonate plugs/chips dislodged by the needle.

**Stitch rate:** Average (4) stitches per inch. A faster feed will add excess heat to the sewing needle.

**Stitch:** Square Feet or Step Stitch are commonly used. Distance from edge of sheet should be  $>1/2"$ .

**Seams:** The most popular seams used in canvas tops and covers are: the overlapping seam, the semi-flat felled seam, and the full flat felled seam. Seams can be waterproofed by using acrylic or Mylar® film basting tape. This double-sided adhesive tape bonds well with coarse canvas fabric. Use a soapstone pencil to mark stitching lines. Lines wash away when exposed to water.

**Motor:** A servo motor instead of a DC stepper/clutch motor will allow for a more controlled sewing feed rate.

**Needles:** Groz Beckert needle points – Tripoint size 22, 23 or Groz Beckert San 5.2 double grooved. Although diamond tip needles are capable of sewing through polycarbonate (size 20, 21, 22), they may abrade the weave of the fabric more than tripoints. A more roundly pointed needle will move between fabric fibers versus physically cutting the weave, which may eventually cause the fabric to fray.

**Needle Cooling:** Using a mini-cooler to blow cold air over the needle will keep it from overheating during long runs.

**Thread:** Standard choices include Solarfix® and Tenara® PTFE thread.\* PTFE thread is commonly used due to the heat buildup in the needle from the sewing process.

\*Fabricator is responsible for evaluating thread brand.

