The most basic structural material in building a composite aircraft is glass cloth. The use of glass in aircraft structures, particularly structural sandwich composites, is a recent development. Glass cloth is available commercially in hundreds of different weights, weaves, strengths and working properties. Very few of these, however, are compatible with aircraft requirements for high strength and light weight. Even fewer are suitable for the hand-layup techniques developed by Burt Rutan for the homebuilder. The glass cloth featured here has been specifically selected for the optimum combination of workability, strength and weight. Two types of glass cloth, UNIDIRECTIONAL (RA7715, UND) and a BIDIRECTIONAL cloth (RA7725BID), are used. BID cloth has half of the fibers woven parallel to the selvage edge of the cloth and the other half at right angles to the selvage, giving the cloth the same strength in both directions. UNID cloth has 95% of the glass fibers woven parallel to the selvage, giving exceptional strength in that direction and very little at right angles to it. BID is generally used for pieces which are cut at a 45° angle to the selvage, a bias cut, which enables the builder to lay BID into contours with very little effort and provides the needed shear and torsion stiffness for flying surfaces. UND is used in areas where the primary loads are in one direction, such as wing skins and spar caps. Multiple layers of glass cloth are laminated together to form the aircraft structure. Each layer of cloth is called a “ply”.

**UNIDIRECTIONAL** P/N RA7715

7 Oz. 38” Width  Threads per inch: 80L x 18W $8.90 Lineal Yd.

**BIDIRECTIONAL** P/N RA7725

8.8 Oz. 38” Width Threads per inch: 54L x 48W $7.85 Lineal Yd.

Quantity Discount: 15% on 500 Yds. or more. Yardage must be on one fabric for discount, not combined. Discount on larger quantities quoted on request.

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**Kevlar 49** is a recent development. Glass cloth is available commercially in hundreds of different weights, weaves, strengths and working properties. Specifically constructed to enhance the wet-out behavior of Kevlar 49, for example, weights about 14 pounds, is compatible with the epoxy system is used to bond Kevlar 49 to Kevlar 49 in structural sandwich panels. Although all of the processes used are compatible with Kevlar 49, very few of these are available commercially.

Kevlar 49 is a light weight fabric, weight #281 and #285 are identical except for the weaving pattern. Other weights and weaves of Kevlar 49 are available on a special order basis. Be sure to specify the Kevlar style when ordering.


<table>
<thead>
<tr>
<th>Style</th>
<th>Part No.</th>
<th>Oz./ Sq.Yd</th>
<th>Weight Width</th>
<th>Thickness</th>
<th>W x F</th>
<th>Weave</th>
<th>Breaking Strength Lbs/Inch</th>
<th>Price Per Lineal Yd</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>01-38100</td>
<td>1.8</td>
<td>38”</td>
<td>.005”</td>
<td>34 x 34</td>
<td>Plain</td>
<td>260</td>
<td>$28.55</td>
</tr>
<tr>
<td>281</td>
<td>281-38</td>
<td>5.0</td>
<td>38”</td>
<td>.010”</td>
<td>17 x 17</td>
<td>Plain</td>
<td>625</td>
<td>$33.75</td>
</tr>
<tr>
<td>285</td>
<td>285-38</td>
<td>5.0</td>
<td>38”</td>
<td>.010”</td>
<td>17 x 17</td>
<td>Crow</td>
<td>630</td>
<td>$33.65</td>
</tr>
</tbody>
</table>

**PRECISION SCISSORS**

- Straight-edge blades easily slide through the fabric and are sharpened to the tip for smaller or applique cuts.
- Grabs the fabric and cuts cleanly, with no material folding over the blade - even when cutting left-handed. Blades fully extend into the handles for durability and better cutting stability and pressure distribution.
- Exceptional accuracy and retains smooth blade movement, even in heavy-use environments.
- Blades made of stainless steel (Blades are not serrated).
- Good for cutting stitchwork, thread, cloth, leather, fabrics, films, sign and graphics material, vehicle wraps, and more.

**INDUSTRIAL FABRIC SHEARS**

- Wiss No. 20W heavy-duty shears, ideal for cutting fiberglass cloth and all fabrics.
- Hot drop-forged steel.
- **Right Hand Shears**: P/N 00-00397 $28.60
- **Left Hand Shears**: P/N 00-00398 $27.95

**FEATHERWEIGHT SCISSORS**

- Lightweight, durable, and reliable Gingher® Scissors are lightweight, extremely sharp and comfortable. These 2-1/2 oz. scissors are perfect for use during the lay-up for a variety of purposes and can be used in an oven for easy clean up. We recommend saving one pair for only cutting Kevlar® and keeping a second pair for general use.

**OFFSET KEVLAR CUTTING SHEARS**

- Although Kevlar has many advantages over conventional fiberglass weaves, it is very difficult to cut. Special scissors have been developed to facilitate cutting. These scissors have a wear resistant coating which is metallurgically bonded to the steel substrate. The coating will not chip or peel off and can be sharpened. Model WR-10E-4 $78.50

**AROMATIC FABRIC**


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**COMPOSITE MATERIALS**