

# CHALLENGE AIRCLOTH

## Warp-Drive

6.11, 8.11, 10.11 Pat. Pending

| WIDTH | FABRIC           |
|-------|------------------|
| 54"   | 6.11 Warp-Drive  |
| 54"   | 8.11 Warp-Drive  |
| 54"   | 10.11 Warp-Drive |

First conceived and practiced in the late 1990's Challenge's new patent pending **Warp-Drive** is the first heavy woven sailcloth with straight warp yarns and a tight weave.

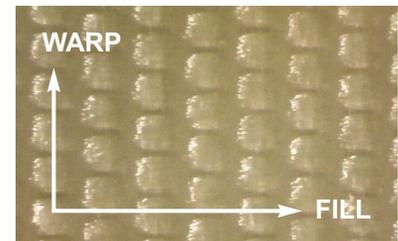
Traditional polyester crosscut sails have utilized sailcloth with relatively straight fill yarns and highly crimped warp yarns. This allows the sails to hold their shape very well when heavily loaded. Woven warp oriented sailcloth with straight warp yarns and highly crimped fill yarns was not available so crosscut sails have been the logical choice. Now low stretch, low warp crimp sailcloth is available. This makes the more efficient warp oriented radial sail construction the best choice for a high performance woven sail.

A major advantage of radial construction is that the warp yarns closely follow the load lines in the sail, so the stability of the air-foil depends much less on the bias strength of the cloth. This means that the sail doesn't rely on resin to maintain its camber, and as a result holds its shape much longer, long after the crosscut sail has been distorted. One can make a sail that holds its shape with a softer, easy to handle material.

Previously, reasonably good warp fabrics were available in lightweight 4 oz. sailcloth, but it was impossible to weave heavier low warp stretch sailcloth. Now 30, 40, 50, and 60' boats can have high performance radial sails made of durable woven polyester sailcloth.

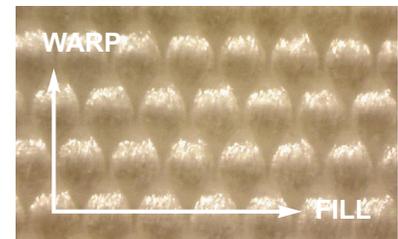
A sail of woven **Warp-Drive** sailcloth holds its shape far longer than a crosscut woven sail. It is more economical than a cruising laminate sail, and it won't mildew as will a laminated sail.

**Best Warp Dacron Ever**  
**– Straight Warp Fibers**  
**Very Low Warp Stretch**  
**– Tight Weave**



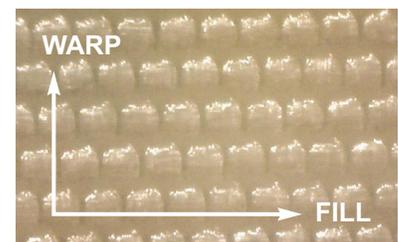
### WARP-DRIVE

*Warp-Drive, unlike other fabrics, has straight warp yarns with fill yarns crimped and woven tightly over and under them. For the first time ever, the fill yarns are on the surface.*



### OTHER WARP FABRIC

*Competing warp fabrics use large warp yarns, still crimped and thus stretchy, and looser constructions.*



### HIGH ASPECT HIGH MODULUS – PREMIUM CROSSCUT WOVEN

*Note that this looks just like the Warp Drive rotated 90°*

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