

UK-HALSEY TAPE-DRIVE®

DESIGNED FOR SPEED — ENGINEERED TO LAST



Speed. Durability. Versatility. At UK-Halsey Sailmakers, we have been dedicated for over two decades to improving and refining what are now the fastest and most durable sails on the market: Tape-Drive®. Depending upon design shape and materials specified, Tape-Drive can be the ultimate choice for racing, for cruising, and – for some sailors – both! Advances in design, construction and materials have made Tape-Drive increasingly versatile.

WHAT IS TAPE-DRIVE®?

Tape-Drive is a two-part construction process in which the structural strength of the sail and the skin that defines the sail's three-dimensional shape are discreet elements. In this unique process, Tape-Drive marries a grid of high strength, low stretch tapes – the structural strength – to a three-dimensionally shaped membrane – the "skin" – made up of broad-seamed cross-cut laminate panels. The grid carries the primary structural loads of the sail, while the skin produces aerodynamic lift. The tapes, with a breaking strength up to 1900 pounds, radiate across the sail with a heavier concentration at the computer predicted high load areas – the corners and the leech.



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Above: Kevlar laminate with Carbon tapes. **Right:** One-Design class sail with Pentex laminate and Pentex tapes.



modulus yarns such as carbon fiber or aramids like Dupont's Kevlar® and Teijin's Twaron® have very low stretch and very high strength. For the best performance, we use these high modulus yarns in our Tape-Drive tapes, meaning the frames that carry the loads on the sail are stronger than ever.

Laminates made with polyester yarns are

TAPE-DRIVE: LIGHTER & STRONGER

Tape-Drive is the only high-tech construction method in which the materials can be varied to suit the specific use of the sail. Depending on the size of your boat and its sail requirements, we select the appropriate membrane material from a wide variety of custom designed laminates using scrims of carbon, aramid, Spectra®, Pentex®, or polyester yarns.

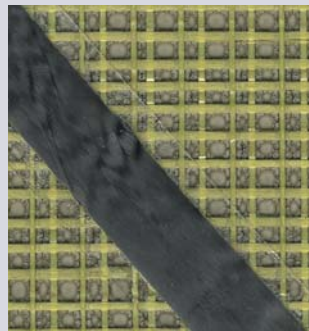
The purpose of the membrane is to:

- Provide shape to the sail
- Prevent passage of air from the windward to the leeward side of the sail thereby creating lift
- Provide a surface on which to attach the grid of high strength tapes

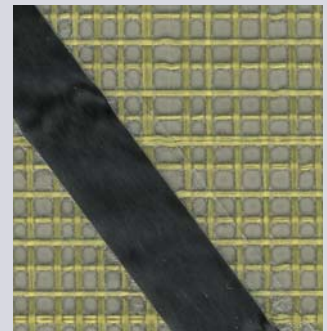
The purpose of the yarns or scrim in the membrane laminate is to:

- Absorb secondary, local aerodynamic and off tape line loads
- Prevent tearing of the membrane
- Increase durability and physical life of the laminate

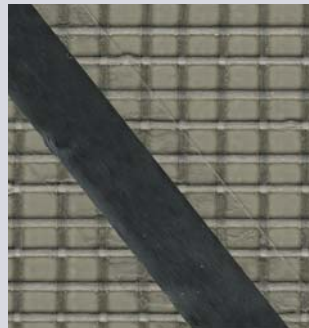
For example, sails made with laminates of high



Heavy Aramid Laminate with smoke colored UV protection.



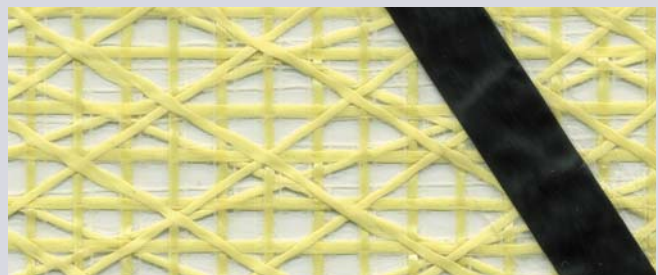
Light Aramid Laminate with smoke colored UV protection.



Pentex Laminate with smoke colored UV protection.



Spectra Laminate with taffeta on one side and carbon tape.



Aramid laminate with yarns running in six axes.

less expensive than the high modulus yarns. Laminates made with Pentex yarns have better performance than polyester yarns, but are only slightly less expensive than laminates made with much better performing aramid yarns. Pentex laminates are only used when one-design class rules do not allow aramid fibers.

SPECTRA TAPE-DRIVE: THE ULTIMATE CRUISING SAIL

For the ultimate performance cruising sail, we make Tape-Drive sails with laminates using Spectra yarns, which makes a cruising sail that is durable, strong, lightweight as well as holds its designed shape well. These sails have been tested on club cruises, across oceans and around the world. These sails are more expensive than sails made with aramid laminates, but they stand up to the rigors of cruising. Spectra does not break down from flogging, folding or the sun's UV rays. Many boat owners use the same set of sails for their racing as well as cruising needs. Thus, they don't have to deal with the hassle of unrigging one set of sails and then re-rigging with another set. Others have reported Spectra Tape-Drives lasting up to 10 years.

TAPE-DRIVE E-X-T-E-N-D-S WIND RANGE

A sail's wind range is a function of two things; its ability to lift and fill in light air and its ability to hold its designed shape when highly loaded. The lightness and strength of Tape-Drive sails not only widens their wind range and reduces frequency of headsail changes but also decrease pitching and heeling. They also tack faster and are easier to handle.

THE FAST THAT LASTS

In Tape-Drive sails, the skin laminate is uniform throughout the sail. There is no differential stretch or shrinkage from panel to panel, so common in tri-radial sails. Also, there are no load-bearing seams to creep, distort or worse yet, fail. The result is a sail, which holds its designed shape and stays smooth longer than any other high tech sail on the market. In fact, Tape-Drive is



Above: J/133 with a Spectra Tape-Drive main. **Below:** The Oyster 68 Paper Moon crossing the Atlantic: sails are Spectra with carbon tapes.



A Spectra Tape-Drive Testimonial

"Our boat has just returned from the United States to Europe and, despite over two years exposure to harsh sunlight, there has been no deterioration at all in the sailcloth and they have retained their original shape perfectly. They are very easy to trim and fast in all wind conditions and points of sail.

"I confess that, at the time of ordering the sails from you, I did have some misgivings as to whether the extra cost could be justified on a very heavy, sixty-eight foot cruising boat.

"These misgivings proved totally without foundation and I have to report that after more than two years hard use, I have a set of sails that still look and perform like brand new. They have proved to be a very worthwhile investment and I would heartily recommend Tape-Drive sails to any cruising boat owner."

— Phil Lever, owner, Oyster 68 ABSOLUTELY!!



Above: A Farr Pilot House 63 with Spectra Tape-Drive sails and aramid fiber tapes. **Left:** The close-up shot clearly shows the Rip-Stop grid created by Tape-Drive; this sail is carbon tapes on the smoke-colored laminate. **Bottom:** A Seawind 1000 with Tape-Drive fathead main.

the only sail that comes with a guarantee against catastrophic failure.

WHEN REPAIRS ARE LESS EXTENSIVE, THEY ARE LESS EXPENSIVE

The Tape-Drive construction system creates a unique "Rip Stop" layout, which prevents accidental tears from becoming catastrophic failures. In the highest load areas of the leech and the luff, the cross-cut panels are laid out approximately perpendicular to the tapes, dividing the sail into a series of boxes bordered by tapes and seams. Damage to the skin fabric, if it tears beyond the yarns in the membrane, migrates only to the nearest tape or seam. Tears stay small! Most repairs can be made right on the boat with sticky-back Dacron® or duct tape.



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