



TRI-RADIAL CRUISING SAILS

TO THE NEXT CHALLENGE.

GUIDE TO TRI-RADIAL CRUISING SAILS

WHAT DOES PERFORMANCE MEAN FOR THE CRUISING SAILOR?

Sail performance is just as important to cruisers as it is to racers; it's simply defined differently. High-quality cruising sails must be rugged, reliable, and easy to maintain. Since changing sails is not usually an option, they must be versatile in a range of conditions. They must also be easy to handle and put you in control, helping to contain heel and weather helm. Above all, they should help you sail your boat with ease so you are free to enjoy the sheer pleasure of the sport.

ACHIEVING MAXIMUM CONTROL

Sail shape, along with minimizing stretch, are the key variables in delivering optimum upwind performance, reducing heel and weather helm. These factors also extend a sail's range before reefing or furling become necessary and have a big impact on the functionality of sail handling systems.

Tri-radial sails utilize panels of pre-made materials radiating from the three corners of the sail. The length, or "warp" fibers of the material are oriented to align with the primary load paths. Better alignment creates lower stretch improving shape holding. Tri-radials provide a performance upgrade for those who are looking for more than what a classic woven polyester sail can provide.

Sail shapes are custom-designed for your boat by Quantum's experienced sail designers based on expected usage and boat-specific constraints such as mast bend, displacement and righting moment.

QUALITY CONSTRUCTION MAKES THE DIFFERENCE

When it comes to sail quality, small details make a big difference. Excellence and attention to detail are hallmarks of every Quantum® sail.

THE RIGHT MATERIALS

There is a broad spectrum of material options for tri-radial sails ranging from simple woven materials to custom composites. In general, there are four categories:

WOVEN RADIAL

Woven polyester specially designed with strength in the long (warp) direction so it can be used in tri-radial panel configuration. Compared to cross-cut woven polyester, this material offers 10 to 20% less stretch due to the construction and efficiency of the panel layout. Works well on boats up to 40'.

SPECTRA® REINFORCED WOVEN RADIAL

Radial woven materials, reinforced with Spectra® or other high-modulus fibers, provide additional strength and durability under high loads. They offer performance similar to woven radial material with the added benefit of better performance under high loads, making them useful in boats up to 60'.

POLYESTER COMPOSITES

Composite construction featuring large, straight, untwisted polyester yarns (scrim) sandwiched between two layers of woven polyester taffetas. The fiber network does the work of resisting stretch, augmented by a layer of polyester film for balance, while the woven taffetas provide rugged protection against, UV, tear and chafe. Compared to cross-cut woven polyester, these materials offer as much as 40 to 50% better stretch resistance. Ideal for boats up to 55'.

HIGH MODULUS COMPOSITES

Identical to polyester composites except the fiber network consists of high-modulus fibers like Spectra®, carbon, or aramid, providing dramatically-reduced stretch. Depending on fiber type and compared to cross-cut woven polyester, these materials offer four to five times better stretch resistance. Ideal for larger boats up to 80 feet.



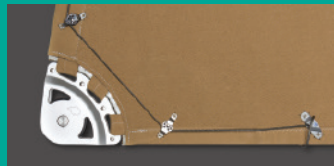
MAINSAIL HEADBOARD

Quantum's cruising mainsails feature an aluminum headboard fitted with webbing and reinforced stainless steel rings (not rivets) for strength, smoothness, weight savings and durability. The hand-sewn luff hardware, with double luff tapes and extensive "quilting" throughout the head section provide strong, reliable attachment in one of the most highly-loaded areas of the sail.



MAINSAIL REEF

Our mainsails feature oversized, multi-layer reef patches with quilted stitching for maximum strength and a smooth, flat, sail shape when reefed. The stainless steel rings, reinforced with webbing, provide reliable service for the long haul. Separate aluminum leech cord cleat with hand stitching.



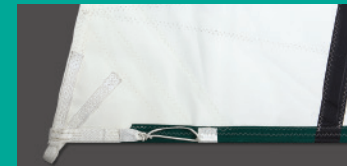
FURLING MAINSAIL CLEW BLOCK

The oversized clew block provides maximum strength and minimum outhaul friction for in-mast furling. The leech cord lead around the clew and along the foot optimizes access for easy adjustment (can be installed to go all the way to the tack). The UV cover protects the furled sail from harmful sunrays; even the clew block webbings are completely covered to insure long-term reliability and guard against sun damage.



FURLING HEADSAIL CLEW

High-strength, non-corrosive stainless rings with Spectra® chafe guard are anchored with webbings. This furling headsail features webbings and a protective pouch for the leech cord wrapped in Sunbrella® fabric to prevent UV damage—a feature which provides ultimate durability.



FURLING HEADSAIL TACK

Extended patching on the tack adds strength for partial furling. Roll-to-reference marks ensure repeatable settings. Tack webbings replace standard rings to allow for easier furling. A foot cord prevents flutter.

SAIL SELECTION CHART

TR 2800



TR 2600



TR 2200



	TR 2800	TR 2600	TR 2200
BOAT SIZE	40-80'	55' and under	45' and under
CONSTRUCTION	Tri-radial. Available as square-top or pin-head.	Tri-radial. Available as square-top or pin-head.	Tri-radial. Available as square-top or pin-head.
MATERIAL/FIBER	High modulus composites with carbon/aramid blends and taffeta exterior skins	Polyester composites with taffeta exterior skins.	Warp-oriented woven radial polyester or Spectra® reinforced woven radial.
SAIL COLOR	White with black internal fiber network	White	White
STRENGTH/WEIGHT RATIO	5	3	2
EASE OF TRIM	5	4	3
CONTROL OF HEEL	5	4	3
UPWIND PERFORMANCE	5	4	3
WIND RANGE VERSATILITY	5	4	3
UV RESISTANCE	2	3	3
REEFING	5	4	5
FURLING	5	4	3
DURABILITY	4	4	3
OPTIMAL SHAPE RETENTION	5	4	4
COST	5	3	2

THE QUANTUM® EXPERIENCE

It's one thing to make exceptional sails, but we go even further by making your challenges our own. With superior and personalized customer service, we're with you every step of the way as loyal advisors, friends and fellow sailors. It's about providing unparalleled customer service and serving as a trusted resource and partner for all your sail needs. Quantum's customer care services include:

1 EXPERT CONSULTATION

to guide you through choices of materials, construction options, hardware, sizing, sail handling systems.

2 DETAILED, ON-BOARD MEASUREMENT

to ensure a perfect, custom fit for your sails.

3 COLLABORATION

throughout the process to ensure your needs are being met and you know what you are getting and why.

4 NEW SAIL INSTALLATION AND INSTRUCTION

to fit, fine-tune, and instruct you in the use and care of your sails.

5 EXCELLENT PRODUCT WARRANTY

backed by sailing and service experts at more than 50 locations around the globe.

Quantum's service technicians provide a broad array of sail care services – from a simple repair to sail re-cuts. The first step for any project is an understanding of your needs and a sail evaluation so we can provide you with an accurate, up-front estimate of time and cost. Here are some of the services you can find at Quantum sail lofts around the world.

- Multipoint Inspections
- Sail Repairs
- Annual Sail & Canvas Maintenance
- Sail Removal & Installation
- Sail Pick-up & Drop-off
- Sail and Canvas Washing
- Sail Mildew Removal, Mitigation and Prevention
- Same Day/Overnight Repair Services
- Sail Re-Cuts
- Sail Conversions
- Sail/Hardware Upgrades
- Canvas Repair & Fabrication