



**FUSION M™ RACING MEMBRANE SAILS**

**TO THE NEXT CHALLENGE.**

# THE BENEFITS OF A FUSION M™ SAIL

Quantum's Fusion M™ sails are developed using the most technically advanced design, lamination, and shaping methods in the industry. Known as iQ Technology®, this integrated and proprietary process results in sail shapes that are fast, efficient, and infinitely repeatable...a feat no other sail maker can match.

## BETTER BOAT HANDLING WITH A BETTER SAIL SHAPE

Fusion M™ sails are engineered as full-size membranes and designed with a fully-integrated, custom, fiber network that addresses sail loading in all directions rather than along primary load paths only.

- This fiber map is developed using highly sophisticated fluid structure interaction (FSI) tools that integrate aerodynamics and finite element analysis (FEA), which recognize the ever-changing nature of sail loads and the need for adaptability.
- The resulting fiber network creates a structural system that supports the entire sail with nearly consistent stretch in all directions. This fiber matrix prevents any one part of the sail from becoming overloaded or distorted.
- The resulting sail shape lasts longer and is easy to trim through a wide range of conditions.

## LONGEVITY THROUGH SUPERIOR LAMINATION

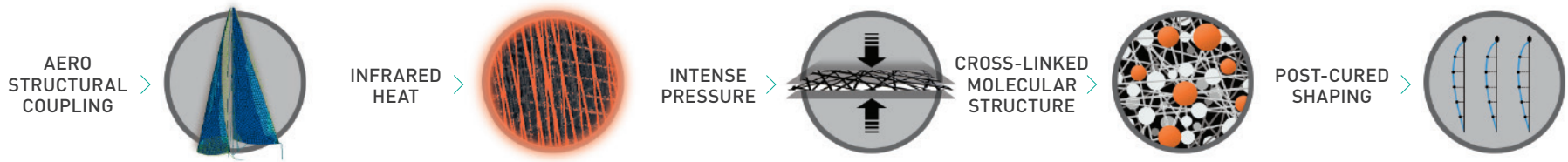
Our two-step lamination process starts with vacuum bagging to lock fibers in place between film layers. Next, infrared heat and several tons of pressure are applied to spread the adhesive throughout the layers. The result is a superior membrane that delivers a longer life compared to laminates made by single-step methods.

## REPEATABLE SHAPES

Unlike single-step lamination and shaping methods used by other sailmakers, Quantum's sail panels are completely cured before the shaping process begins. This process eliminates the effects of shrinkage and guarantees repeatability. The carefully optimized aerodynamic shape of a Quantum® sail is reliably provided to every client, every time.

## LIGHTWEIGHT FIBER OPTIONS TO FIT YOUR NEEDS

Multiple fiber types are offered, providing a range of options for different size boats and sailing requirements. As shown below, fiber properties are key in determining the right fiber for your sail. Quantum's sail consultants can help you make the right selection.



## COMPARE FIBERS

### MODULUS

The measure of a fiber's ability to resist stretch. This indicates how well the fiber will perform in terms of holding sail shape. The higher the rating, the less the fiber will stretch.

### TENACITY

The fiber's breaking strength. A good measure of a fiber's ultimate tensile strength. The higher the rating, the more load it takes to break the fiber.

### FLEX LIFE

A measure of strength lost due to bending, folding, or flogging. The fiber's ability to retain its strength after being folded back and forth over several cycles. The lower the rating, the better the flex life.

### UV RESISTANCE

Strength loss from exposure to the Sun's UV rays. This is a measure of the effect of sunlight on the modulus (strength) of the fiber. The higher the rating, the better the UV resistance.

### ELONGATION TO BREAK

A measure of the fiber's ability to resist shock loads; elastic stretch resistance. Analogous to the stiffness in a spring. Higher ratings mean more stretch and resistance to breakage.

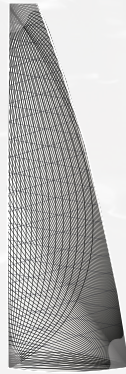
Fiber Type	MODULUS	TENACITY	FLEX LIFE	UV RESISTANCE	ELONGATION TO BREAK
HIGH TENACITY CARBON FIBER®	5	5	3	5	3
ARAMID	4	4	4	4	4
HIGH TENACITY POLYESTER	2	2	3	3	3

# SAIL SELECTION CHART

## FIBER KEY

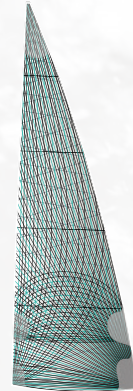
- CARBON
- ARAMID
- POLYESTER

**9000 SERIES**



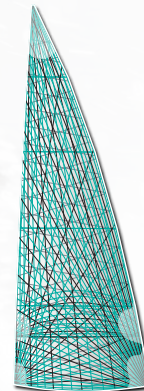
Top-of-the-line, grand prix sails for pros and the fiercely competitive at the national and international levels. Complete integration with Quantum's top racing and design experts. All carbon fiber sail delivers superior strength coupled with lightweight, low-stretch performance. Custom string X-ply base. Available as square-top or pin-head.

**7000 SERIES**



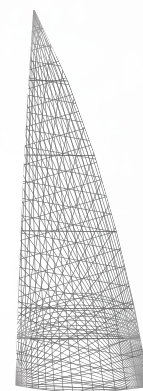
Top-performing sails for highly competitive teams at the regional and national levels. Access to Quantum's top racing experts. Multiple fiber options provide excellent strength-to-weight ratio and stretch resistance for optimal shaping and ease of trim. Excellent heel control and upwind performance. Available as square-top or pin-head.

**5000 SERIES**



High-performance sails for mid-size boats competing at the local and club levels. Access to Quantum's customer service and support teams. The 5000 series sails offer excellent versatility in a broad range of wind speeds and are easy to trim. Choose from carbon/aramid blend or all aramid. Available as square-top or pin-head.

**3000 SERIES**



Affordable, high-quality membrane sails for small to mid-size racers. Access to Quantum's customer service and support teams. The 3000 series sails are versatile, durable and easy to trim. Available as square-top or pin-head.

	40'-80'	35'-80'	25'-45'	20'-35'
BOAT SIZE	40'-80'	35'-80'	25'-45'	20'-35'
CONSTRUCTION	Membrane	Membrane	Membrane	Membrane
MATERIAL/FIBER	All carbon; matte film	Blend of carbon/aramid; matte film	Blend of carbon/aramid; matte film	All black polyester; matte film
SAIL COLOR	All black fiber	All Black Fiber	All Black Fiber	All Black Fiber
STRENGTH/WEIGHT RATIO	<div style="width: 100%; background-color: teal;"></div> 5	<div style="width: 100%; background-color: teal;"></div> 5	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 40%; background-color: teal;"></div> 2
EASE OF TRIM	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 100%; background-color: teal;"></div> 5	<div style="width: 100%; background-color: teal;"></div> 5	<div style="width: 100%; background-color: teal;"></div> 5
CONTROL OF HEEL	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 100%; background-color: teal;"></div> 5	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 60%; background-color: teal;"></div> 3
UPWIND PERFORMANCE	<div style="width: 100%; background-color: teal;"></div> 5	<div style="width: 100%; background-color: teal;"></div> 5	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 60%; background-color: teal;"></div> 3
WIND RANGE VERSATILITY	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 100%; background-color: teal;"></div> 5	<div style="width: 80%; background-color: teal;"></div> 3
UV RESISTANCE	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 60%; background-color: teal;"></div> 3	<div style="width: 80%; background-color: teal;"></div> 3
FIBER RESISTANCE TO FLOGGING	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 60%; background-color: teal;"></div> 3	<div style="width: 80%; background-color: teal;"></div> 3
DURABILITY	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 100%; background-color: teal;"></div> 4
OPTIMAL SHAPE RETENTION	<div style="width: 100%; background-color: teal;"></div> 5	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 60%; background-color: teal;"></div> 3	<div style="width: 40%; background-color: teal;"></div> 2
COST	<div style="width: 100%; background-color: teal;"></div> 5	<div style="width: 80%; background-color: teal;"></div> 4	<div style="width: 60%; background-color: teal;"></div> 3	<div style="width: 40%; background-color: teal;"></div> 2

SAILS IN SERIES **MR 9000** Boat Length: 40'+  
Fiber: Carbon

**MR 7900** Boat Length: 40' - 80'  
Fiber: Carbon

**MR 7600** Boat Length: 40' - 80'  
Fiber: Predominately carbon with aramid

**MR 7300** Boat Length: 30' - 60'  
Fiber: Blend of carbon/aramid

**MC 7000** Boat Length: 25' - 55'  
Fiber: All aramid

**MR 5300** Boat Length: 25' - 40'  
Fiber: Blend of carbon and aramid; non-aligned

**MR 5000** Boat Length: 25' - 40'  
Fiber: All aramid; non-aligned

**MR3000** Boat Length: 20' - 35'  
Fiber: All black polyester; non-aligned

# THE QUANTUM® EXPERIENCE

## MAKING YOUR CHALLENGES OUR OWN

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

on materials, design, sail optimization, engineering, hardware, etc. Every sail is customized to your needs.

### 2 ACCESS TO QUANTUM'S

team of racing experts.

### 3 DETAILED, ON-BOARD MEASUREMENT

to ensure a perfect, custom fit for your sails.

### 4 COLLABORATION THROUGHOUT THE PROCESS

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

### 5 NEW SAIL INSTALLATION

and instruction to fit, fine-tune and ensure peak performance.

### 6 EXCELLENT PRODUCT WARRANTY

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

## PROFESSIONAL SAIL CARE SERVICES

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