

FUSION M™

CRUISING MEMBRANE SAILS

FUSION M™ PERFORMANCE ADVANTAGE

Using Quantum's state-of-the-art iQ Technology® design process, each Fusion M Cruising sail is developed and optimized specifically for your boat and sailing challenges—whether you're cruising around the world or simply making memories with your kids. The custom sail design is developed using the most advanced membrane construction and shaping methods in the industry to guarantee infinitely repeatable and unprecedented shapes for maximum control. Fusion M Cruising sails are the easiest to trim and most versatile tailor-made sail for your adventure.



iQ TECHNOLOGY® DESIGN

Quantum's iQ Technology and design process are the result of more than 25 years of experience in the sailmaking business paired with the best sailors, sailmakers, and designers in the world. The technology and approach draw on this expertise and a comprehensive understanding of how to design and build the complex engineered structures that make up today's high-tech sails, as well as the rig-and-spar system that works in tandem with the sails achieves the perfect shapes. Together, the resulting sails give you a better experience and more confidence through control and ease of use. Data from all of Quantum's projects—from super yachts to dinghies—feed into the system's skills and knowledge database and enhance every sail we design.

BETTER BOAT HANDLING MEANS BETTER PERFORMANCE

iQ Technology enables Quantum sail designers to achieve optimal sail shapes for unmatched control and overall performance through better sail and boat handling in a large range of conditions.

- **Versatile Shapes:** iQ Technology's highly sophisticated Fluid Structure Interaction (FSI) tools integrate aerodynamics, and Finite Element Analysis (FEA) allows for the creation of custom fiber maps that account for the unique, ever-changing loads exerted on a sail in a large range of conditions.
- **Repeatable Shapes:** The optimized fiber matrix creates a structural system that supports the entire sail with nearly consistent stretch in all directions, preventing any one part of the sail from becoming overloaded or distorted. This improves boat handling and makes it easy to achieve efficient shapes over and over again and, ultimately, extends the functional life of the sail.

OPTIMIZED SAIL PLANS

iQ Technology studies are also used to evaluate the response of proposed sails in a variety of conditions to create the most versatile sail plan possible to meet your needs with the minimum number of sails. For more demanding adventures, similar studies can be used to analyze the effects of potential weather and wind conditions to ensure you have the sails necessary to ensure a safe, positive experience.

CUSTOMIZED SOLUTIONS, UNIVERSAL BENEFITS

Quantum's sail designers rely on iQ Technology to develop sailing solutions for a broad range of scenarios. While the objectives vary and deliverables are customized to each project, iQ speeds up the design work and delivers demonstrable results, including better performance and shorter project timelines (no "hit or miss" attempts at fitting sails).

iQ SAILING SOLUTIONS

OBJECTIVE	DESIGN ANALYSIS	BENEFIT
Refine sail structure for a particular application before the boat hits the water.	Observe stress and strain within the sail.	Deliver optimal structural performance (weight/resistance).
Optimize sail structure for a particular application and wind range before the boat hits the water.	Predict flying shapes and performance consequences.	Deliver out-of-the-bag performance with the best fit, size, shape, and structure.
Provide yacht designers and equipment vendors with essential information for finalizing deck layouts and hardware specifications.	Evaluate structural loads throughout the sail and at all attachment points.	Enable integrated and optimized boat performance with increased efficiency.

THE POWER OF FUSION M CONSTRUCTION

Quantum's Fusion M membrane sail construction process is based on tolerances measured in fractions of millimeters to ensure the advantages of the custom fiber matrix design. The result is a superior membrane with a longer structural and performance life that doesn't sacrifice ease of use and shape.

PERFORMANCE & STRUCTURAL LONGEVITY

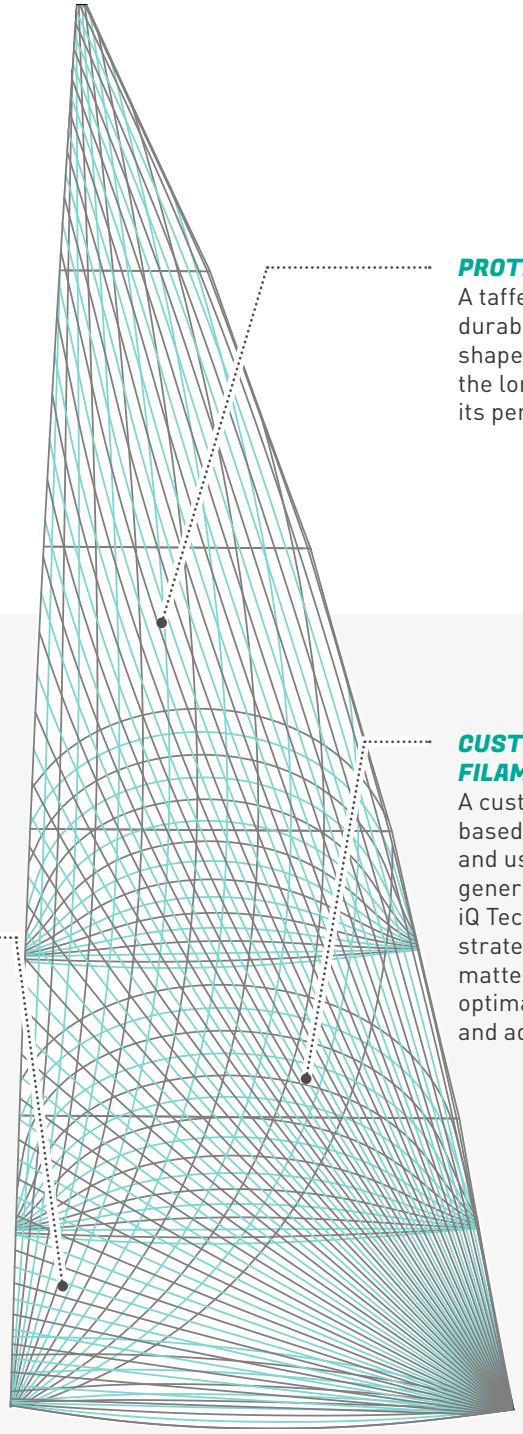
To achieve unmatched performance, Quantum uses a two-step construction process. It starts with vacuum bagging to lock the custom fiber matrix in place between the chosen skin material. Next, infrared heat and several tons of pressure are applied to spread the adhesive throughout the layers. The sail panels are completely cured before the shaping process begins to eliminate the effects of shrinkage and to guarantee the structural integrity and repeatability of the carefully optimized aerodynamic shape of the sail.

MULTIPLE FIBER & SKIN OPTIONS

Quantum works with suppliers around the globe to source and offer only the highest quality material options. Quantum sail consultants and designers will work with you to find the right fiber and skin combination based on boat size, sailing requirements, and the unique needs of your sailing goals.

COMMITMENT TO INNOVATION

Quantum has invested significant resources to develop the most efficient manufacturing process to minimize waste. Additionally, Quantum is committed to innovation and works closely with suppliers to reduce environmental impact through the research, development, and testing of new materials and production methods.



PROTECTIVE SKIN LAYER
A taffeta skin adds structural durability and enhances shape retention, increasing the longevity of the sail and its performance.

CUSTOM FIBER & FILAMENT MATRIX
A custom fiber matrix based on your unique boat and use requirements is generated with the help of iQ Technology®. Fibers are strategically run where it matters most to ensure optimal shape, ease of trim, and added strength.

ATTENTION TO DETAIL
Every detail is exquisitely engineered and refined. The sail is hand-finished with the highest attention to detail given to every construction element, including head and corner reinforcements, luff and leech cords, edge tapes, and reef points.

FUSION M ANATOMY

Fusion M's nearly isotropic structures provide perfect balance and shared loading. The iQ Technology designed fiber and filament matrix, durable skins, and the highest attention to hand-finished details translate into unparalleled shape-holding from the outset through the long haul.

QUANTUMSAILS®
TO THE NEXT CHALLENGE.

PURE EXPERIENCE

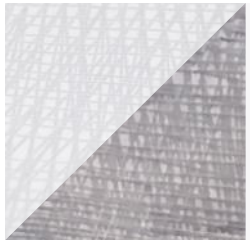






PROTECTIVE SKINS

Skins are an integral part of the layering system that holds the fiber-and-filament matrix in place and protects them from both the elements and the boat. The fiber-and-filament matrix is sandwiched between a thin film and covered with a skin to ensure softer handling, reduced shrinkage, increased shape retention, and enhanced durability.



TAFFETA

This tough, mostly opaque skin not only gives your sails a more classic look, but ensures they are up to whatever challenges you take on.

COLOR: White or Gray **OPTIONS:** Light or Offshore

COMPARE FIBERS

The fibers and filaments in the membrane sail enable the iQ Technology-perfected designs to come to life. A wide range of fiber combinations enable designers to create an optimal mix of pure performance and extreme durability to meet your unique needs.

HIGH-TENACITY CARBON

Maximum shape retention and strength for maximum performance. Ideal for large boats and offshore cruisers.

VECTRAN®

Strong option for more demanding sailing when performance really matters. Ideal for large boats and offshore cruisers.

ARAMID

High-performance blend of extreme shape retention and durability. Ideal for medium-sized boats and offshore cruisers.

HIGH-TENACITY POLYESTER

Highly versatile and affordable with great shape retention and durability. Ideal for smaller boats and day cruisers.

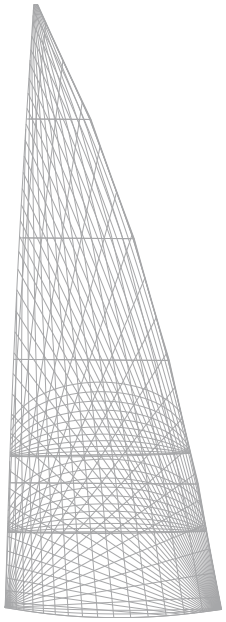
	HIGH-TENACITY CARBON	VECTRAN®	ARAMID	HIGH-TENACITY POLYESTER
SHAPE RETENTION	5	4	4	3
STRENGTH & DURABILITY	5	5	3	3
FLEXIBILITY & ELASTICITY	4	3	3	4

SAIL SERIES OVERVIEW

A wide range of fiber-and-filament packages, combined with the latest skin options, offers whatever balance between pure performance and ultimate durability you need. From ultimate strength-and-weight ratio to sails tough enough to go around the world, Quantum's Fusion M series has you covered.

All Fusion M sails are available in square-top or pin-head options.

FUSION M 4



The Fusion M 4 is designed for the small to mid-sized cruiser looking for Fusion M performance in a rugged, reliable sail. In this size range, lower loads allow for the use of polyester versus a more costly high-modulus fiber (carbon, aramid, etc). This sail delivers with the proven performance and durability of polyester fibers paired with easy-to-trim designs.

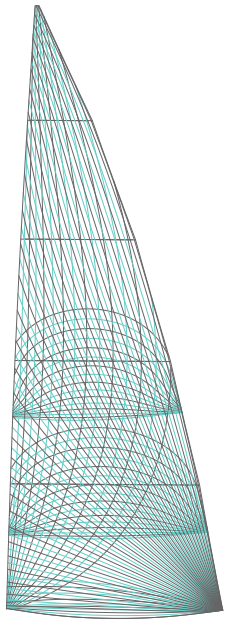
FUSION M 4

BOAT SIZE
24'-50' / 7m-15 m

COST
●●●●○

FIBER
— POLYESTER

FUSION M 6



The Fusion M 6 is made for the high-load demands of larger cruising boats, multihulls, and serious cruisers who refuse to compromise. A custom aramid/carbon fiber blend gives the Fusion M 6 the precision shape of a racing sail with the rugged reliability and long-term durability of a cruising sail. Fusion M 6 provides not only initial shape holding, but also dramatically increases shape life for superior performance, control of heel, ease of trim, and improved reefing and furling.

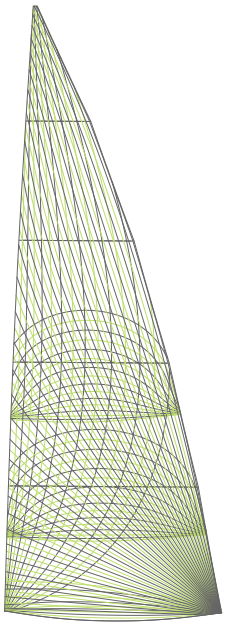
FUSION M 6

BOAT SIZE
35'-80' / 10m-24m

COST
●●●●●

FIBER
— CARBON
— ARAMID

FUSION M 8



Fusion M 8 is designed specifically for super yachts. This totally customized product is tailored to the unique demands of the world's ultimate sailing machines. The ultra high-performance fiber-and-filament package features a customized blend of carbon and aramid or Vectran® and aramid to maximize performance and longevity. The Quantum super-yacht design team works hand-in-hand with each project from start to finish.

FUSION M 8

BOAT SIZE
50'+ / 15m+

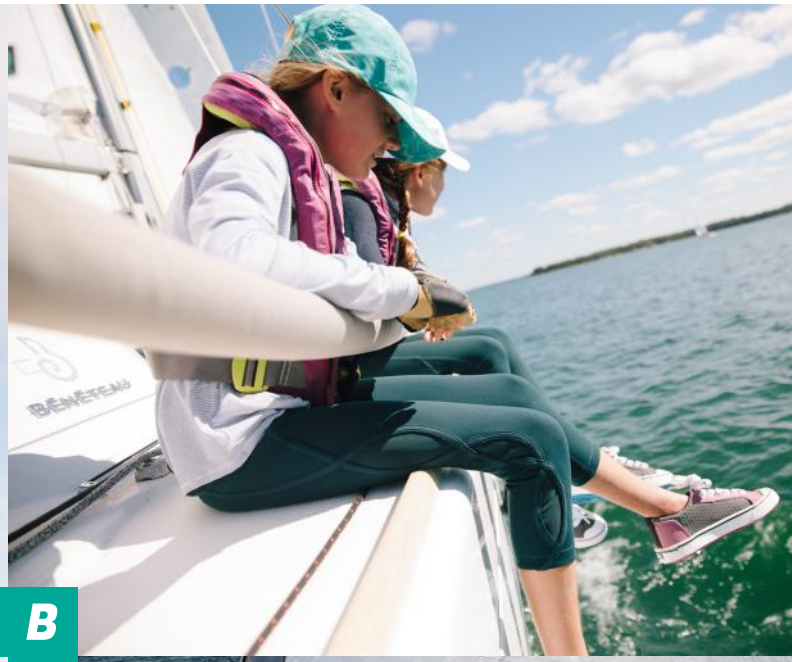
COST
●●●●●

FIBER
— CARBON
— ARAMID

— VECTRAN
— ARAMID


BENETEAU 473

FOR EVERY ADVENTURE





A BENETEAU 473
Coastal Cruising - Fusion M 6 White

B BENETEAU 36.7
Family/Day Cruising - Fusion M 4 White

C SWAN 56
Offshore Cruising - Fusion M 6 White



D OYSTER 82
Offshore/Coastal Cruising - Fusion M 8 Gray

E J/122
Day Cruising/Racing - Fusion M 6 White

F SOLARIS 58
Day/Coastal Cruising - Fusion M 6 Gray





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**
Guides you through choices of materials, construction options, hardware, sizing, sail handling systems.

2 **DETAILED, ON-BOARD MEASUREMENT**
Ensure a perfect, custom fit for your sails.

3 **COLLABORATION**
Throughout the process, collaboration ensures your needs are met and you know what you are getting and why.

4 **NEW SAIL INSTALLATION AND INSTRUCTION**
Quantum will 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.

MAKING YOUR CHALLENGES OUR OWN


Fusion M 6 White

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 Mildew Removal, Mitigation and Prevention
- Sail and Canvas Washing
- Same Day/Overnight Repair Services
- Sail Re-Cuts
- Sail Conversions
- Sail/Hardware Upgrades
- Canvas Repair & Fabrication

QUANTUMSAILS®
TO THE NEXT CHALLENGE.

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