



Tall Ships Fabrics

Demands placed on sailcloth used in sails for Tall Ships, whether they are square, gaff or marconi rigged, are among the most extreme in the world of sailing. The sails must withstand huge forces that only a heavy, stable tall ship can generate. To this end, Challenge has developed its own fibers and fabrics to ensure the best UV resistance, tear strength, abrasion resistance and tensile breaking strength. Challenge carefully tests all of cloth to ensure that it meets the stringent standards of the most demanding projects a sailmaker may have. Please see below for tables and graphs of these specifications.

Tall Ships fabrics are so tightly woven that they can be finished with nearly no resin. During the finishing process the cloth is heat-set at high temperature to further tighten the weave. As a result, Challenge Tall Ships fabrics have good bias stability for their large yarn construction, but at the same time have a soft hand that enables easy handling.

Challenge has made fabric for hundreds of Tall Ships and Schooners for over twenty-five years. Some Tall Ships whose sails have been made of Challenge Tall Ships Fabrics include Star Clipper, Royal Clipper, Libertad, Cisne Branco, Esmeralda, Gloria, Guayas, Cuauhtémoc, Capitán Miranda, Simón Bolívar and Juan Sebastián de Elcano (pictured below).

High-Tech
Woven
Sailcloth



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860 871 8030

USA – CAL
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(2) 9832 7000

France
(0) 5468 78480

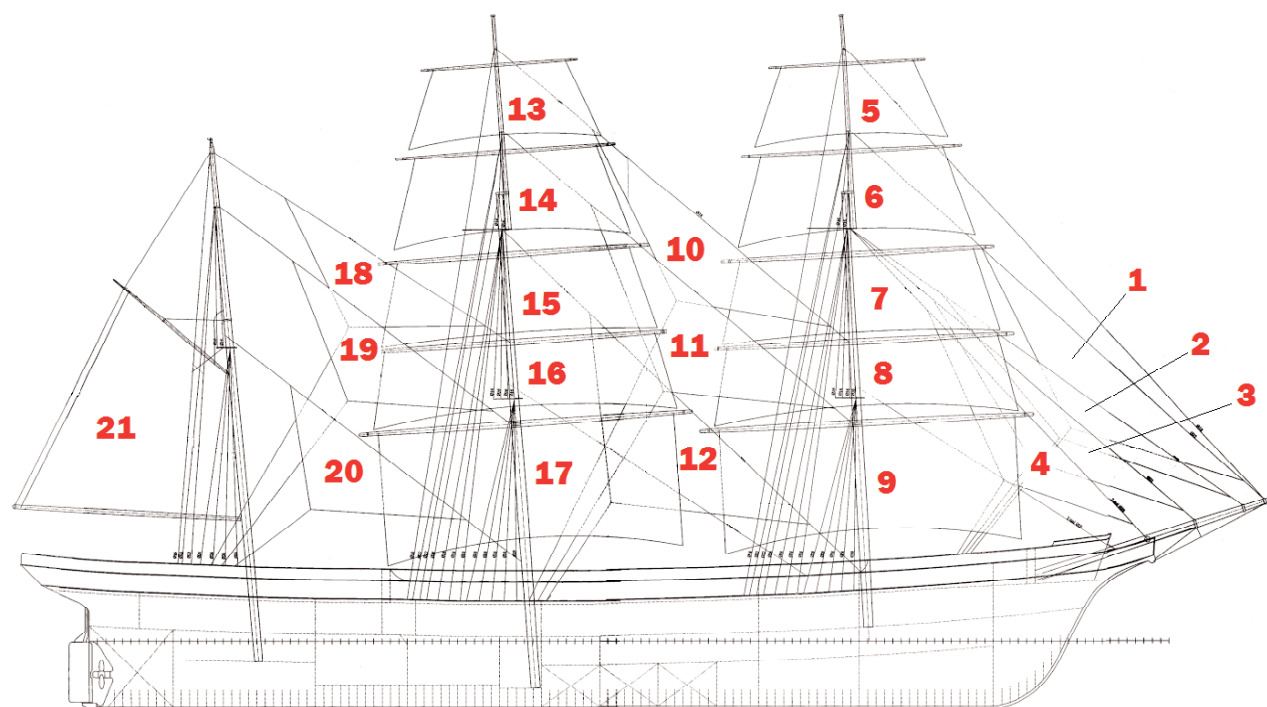
Germany
(0) 2654 987718 0

Italy
(0) 187630603

Norway
67 10 25 60

United Kingdom
(0) 1489 581 696

Common Applications



While every sailmaker and ship captain will have their own opinions regarding which weight of cloth to use for which sail based on their own experiences, Challenge can provide general guidance for how their Tall Ships Fabrics can be used. Please see the diagram below for possible uses on three different size ranges of square-rigged ships. Challenge encourages the sailmaker to carefully consider where a tall ship is primarily sailed and the type of use that it sees when determining fabric weights. The below cloth possibilities are to be considered only a basic guide for the beginning stages of project planning.



Possible Fabric Choices for Square-Rigged Tall Ships

No.	Sail Name	Length in Feet		
		100 – 150	150 – 200	200+
1	Flying Jib	7.38	7.88	7.88
2	Outer Jib	7.88	7.88	8.88
3	Inner Jib	7.88	9.88	11.88
4	Fore Topmast Staysail	11.88	11.88	11.88
5	Fore Upper Topgallant Sail	7.88	8.88	9.88
6	Fore Lower Topgallant Sail	8.88	9.88	11.8
7	Fore Upper Topsail	9.88	11.8	12.8
8	Fore Lower Topsail	11.8	12.8	17.0
9	Fore Course	12.8	17.0	17.0
10	Main Royal Staysail	7.88	8.88	9.88
11	Main Topgallant Staysail	8.88	9.88	11.8
12	Main Topmast Staysail	11.8	11.8	11.8
13	Main Upper Topgallant Sail	7.88	8.88	9.88
14	Main Lower Topgallant Sail	8.88	9.88	11.8
15	Main Upper Topsail	9.88	11.8	12.8
16	Main Lower Topsail	11.8	12.8	17.0
17	Main Course	12.8	17.0	17.0
18	Mizzen Royal Staysail	7.88	7.88	8.88
19	Mizzen Topgallant Staysail	8.88	8.88	9.88
20	Mizzen Topmast Staysail	11.8	11.8	11.8
21	Spanker	11.8	12.8	17.0

– Skysail and Moonraker can be same or one weight lighter than Upper Topgallant –

Technical Specifications

Challenge Sailcloth is the Highest Tenacity Sailcloth



The Warp yarns are the most important fiber for fabric durability. In the weaving process, sets of warp yarns alternate up and down in the loom, and the fill yarns are shot in between by a shuttle, airjet, waterjet, or rapier. The result is that the warp yarns wrap over and under the fill yarns, almost completely encapsulating them. The fill yarns lie in the tunnels made by the warp yarns. As a result, the warp yarns are the most exposed to the sun's UV rays and chafe. They largely protect the fill yarns. After researching nearly every possible polyester fiber made, Challenge determined there was none with high enough standards. With a partner in the fiber industry we invented and pioneered Fiber 104, the best sailcloth yarn ever made and the second one designed solely for sailcloth. (The first was Dacron 52 which no longer exists with its fine properties from the past.) Fiber 104 has the best properties available for weaving into sailcloth. The other fiber that Challenge weaves is 1W70. This fiber is very nearly as good, and superior to all other fibers we've seen outside of Fiber 104.

Fabric	Warp Denier	Fill Denier	Warp DPI	Fill DPI
17.0	1000	2000	60000	66000
12.8	1000	1300	60000	42900
11.8	1000	1000	60000	33000
14.77	750	1500	58500	49500
11.88	500	1300	52000	50700
10.88	500	1000	48000	30000
9.88	500	840	50000	31080
8.88	500	750	53000	30000
7.88	500	650	54000	27950
7.38	300	500	36000	21500

Challenge has three fabrics with a very large 1000 denier warp, another with a 750 warp, and several with 500 denier warps. For every cloth weight, Challenge offers the possibility of a large fiber to resist the elements and heavy use. The large yarns used are of the best fiber types available.

