



CRUISING MULTIHULLS

DOWNWIND SAIL GUIDE



Fast and fun off-wind sailing is what multihulls are all about. High speed, high stability and close wind angles require unique sail choices. Cruising multihulls in particular benefit from specialized sails that are versatile and easy to use. Understanding downwind sail types and selecting the right sail will help you achieve top performance from your boat and enjoy your time on the water.

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WIND ANGLES

Knowing the optimal wind angle for your boat is the first step to choosing the right downwind sail type. Wind angle is the single most important factor in downwind sail design, but the terminology can be confusing. Many sailors think in terms of true wind speed (TWS) and true wind angle (TWA). True wind combined with boat speed creates apparent wind, which is what really matters for downwind sail size and shape. You can find your boat's predicted apparent wind angle (AWA) and apparent wind speed (AWS) in the boat manufacturer's Polar Diagram, or ask your North Sails representative to calculate it for you.

Most cruising multihulls like to sail around 90° AWA in a range of true wind conditions. Faster boats will sail closer AWAs, while slower boats will sail wider AWAs. Your own experience will also help you figure out your boat's optimal AWA; just look up at your wind indicator when sailing in the "groove."

GEOMETRY

Multihulls offer unique opportunities for setting and sheeting downwind sails. The wide deck platform provides outboard sheeting points that makes downwind sails more efficient. Similarly, the windward hull provides a tack location when sailing deeper angles is desired.

The wide shroud base also creates some downwind sail sizing and sheeting restrictions. A fundamental characteristic of multihulls is that downwind sails are sheeted either inside or outside the main shroud. 'Inside' sails are generally optimized for AWA closer than 90°. 'Outside' sails are generally optimized for AWA greater than 90°.

DOWNWIND SAIL RANGE EXPLAINED

AWA RANGE

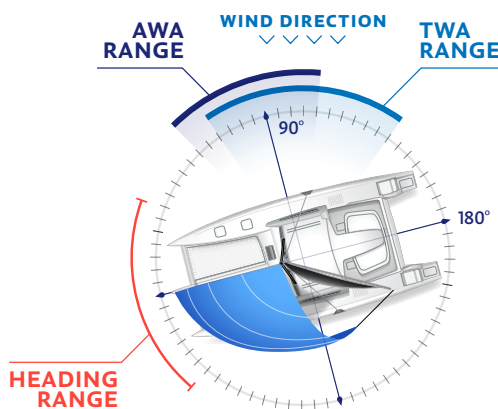
The Apparent Wind Angle (AWA) range for a given sail is the optimum wind angle for your sail's aerodynamic shape. Apparent Wind is the result of your true wind angle, true wind speed and boat speed. The faster you go, the closer your AWA.

TWA RANGE

The True Wind Angle (TWA) range is the expected range for your boat in relation to the true wind direction for any given sail. Because boat speed can vary greatly from boat to boat, this is only a guide to normal and expected use for a cruising multihull.

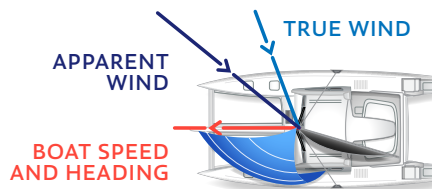
HEADING RANGE

The heading range is simply the TWA range projected forward of the boat. This is a way to visualize the steering range you may cover with your downwind sail.



TWA True Wind Angle
TWS True Wind Speed
BS Boat Speed
AWA Apparent Wind Angle
AWS Apparent Wind Speed

$$\text{TWA} + \text{TWS} + \text{BS} = \text{AWA \& AWS}$$



NORTH DOWNWIND MATERIALS

3Dⁱ DOWNWIND™ MOLDED COMPOSITE

Precisely shaped and smooth sail surface for optimized aerodynamics with high-resolution spread filament tape technology.

NP^L DOWNWIND™ PANELED LAMINATE

Exclusive range of low stretch, light weight and durable materials for stronger and firmer reaching sails.

NP^C DOWNWIND™ PANELED CLOTH

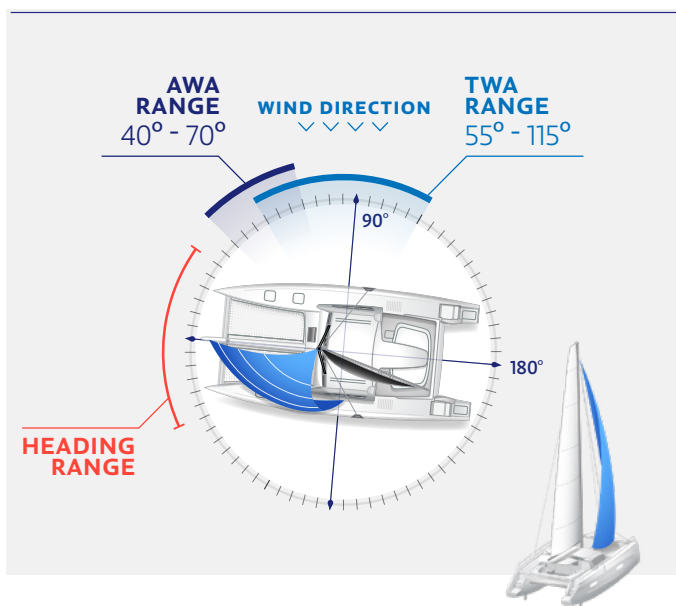
Strong and stable nylon and polyester spinnaker sailcloth to match a wide range of applications.



CODE SAILS

3Dⁱ DOWNWIND™ | **NPL^L DOWNWIND™**

Code Sails are flat, furling headsails that provide maximum power for light air and close reaching. Code Sails sheet inside the main shroud and are used at near upwind sailing angles. Code Sails require tough, low stretch and lightweight material for durability, shape holding, and ease of handling. If stored when furled, Code Sails may incorporate leech and foot covers. If your boat has a small upwind headsail and you need more power for upwind and very close reaching, a Code Sail could be a great addition. Code Sails can also be combined with 'outside' sails for a two-sail downwind inventory.



Sail Handling:
Structural Furlers,
Free Flying Furlers with
Anti-Torsion Luff Rope.

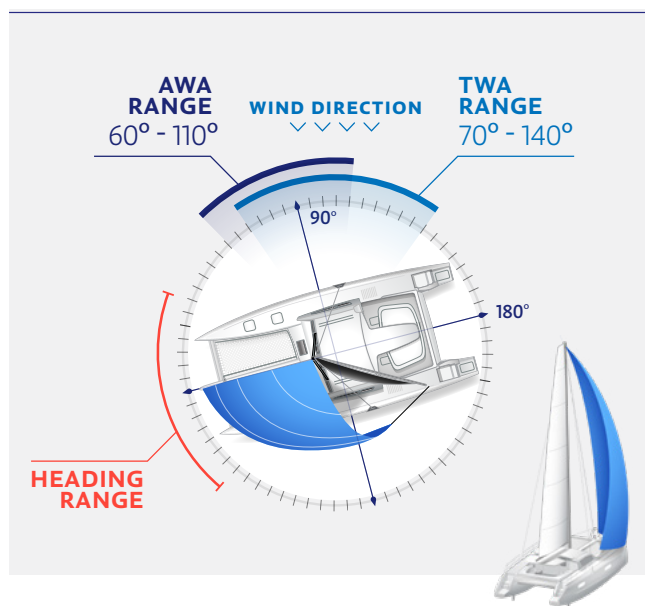
UV Material:
UV paint for select styles,
UV material for heavier
weight sails.



G ZERO GENNAKER

NPL^L DOWNWIND™ | **NPC^C DOWNWIND™**

G Zero Gennakers are the most popular cruising multihull downwind sail because they offer great versatility and cover a wide range of wind angles. G Zeros feature a deeper shape and wider girth compared to Code Sails, sheet outside the main shrouds, and excel at beam to close reaching. G Zeros are compatible with all furling systems or can be used with a snuffer. All cruising multihulls benefit from added downwind sail area, and the G Zero is optimized to provide easy to use sail power.



Sail Handling:
Free Flying Furlers with
Anti-Torsion Luff Rope,
Top Down Furlers,
Snuffers.

UV Material:
UV paint for select styles, UV
material for heavier sails. UV
covers are not available for nylon
or polyester spinnakers.



ASYMMETRIC SPINNAKERS



SYMMETRIC SPINNAKER

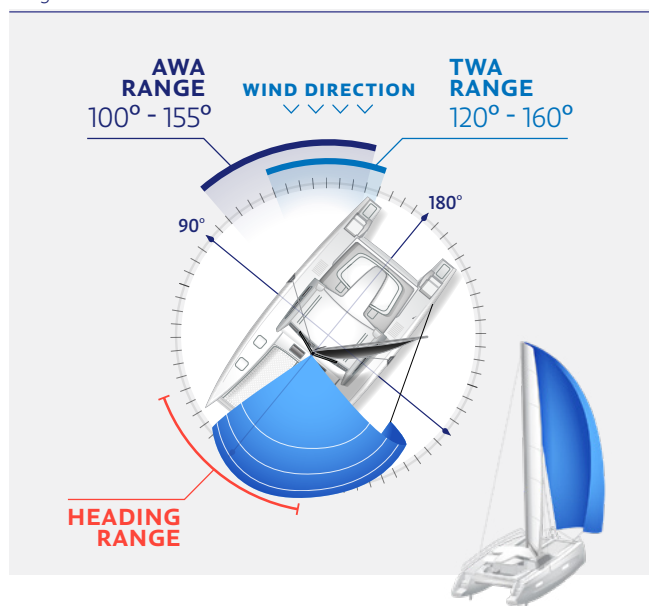
NPL DOWNWIND™ / **NPC** DOWNWIND™

For cruisers looking to optimize for more specific wind angles or intending to carry more than one downwind sail, North Sails offers a variety of other asymmetric spinnaker sail types in a range of sail shapes and sizes. For example, the A4 spinnaker provides broad shoulders and maximum sail area, while an A1.5 is designed to generate optimal downwind VMG.

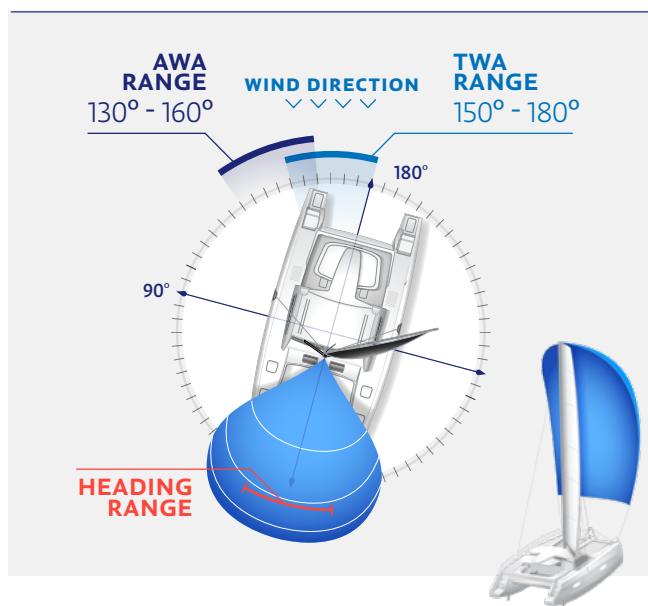
NPC DOWNWIND™

A tried and true method for dead downwind sailing offshore in trade winds is to use a symmetric spinnaker sheeted to the bows. A symmetric spinnaker used in this way provides a stable and extremely safe form of downwind sail power, self-correcting directional course stability, and better alignment with offshore swells

Ranges Based on A2



Sail Handling:
Top Down Furlers, Snuffers.



Sail Handling:
Snuffers.

MATERIAL SCIENCE

North Sails engineers partner with fiber and resin manufacturers to develop unique application of industrial materials. Our patented 3Di composite sail structures combine fiber types into hybrid prepreg tapes that are not found anywhere else in the world. In the paneled sail space, our in-house laminator affords us the most flexible fiber insertion techniques in the world.

DESIGN

North Design Suite™ is proprietary software developed by North Sails design experts. It is an integral part of how we make all our sails and allows North Sails designers to link design of a sail to that of a rig, and measure how sails impact boat performance. Remaining at the forefront of design is possibly the clearest example of how Lowell North's core values position North Sails as the undisputed world's leader in understanding aerodynamics and optimizing performance, and powering the engine above the deck.

MANUFACTURING

North Sails employs industrial designers and expert sailmakers who develop the most innovative, vertically integrated manufacturing processes to produce the best sails. Our global manufacturing strategy reflects a commitment to investment, R&D, quality control and knowledge-sharing. All North sails are produced in North-owned facilities according to the manufacturing standards documented in the North Sails Blue Book™.

SALES + SERVICE

North Sails Sales and Certified Service professionals offer sailors and yacht owners the benefits of superior technology and experienced personnel through a worldwide network of lofts. With the most knowledgeable and talented team in sailmaking, North Sails is uniquely qualified to deliver a sailing experience that is beyond ordinary. Our field representatives are boat speed experts and they bring invaluable feedback to the engineering and design team, creating a continuous loop of product improvement a continuous loop.

