

SOLUTIONS FOR TODAY'S SAILORS

Beneteau 36.7



TUNING GUIDE



NORTH SAILS





We hope you enjoy your Beneteau 36.7 Tuning Guide. North class representatives and personnel have invested a lot of time to make this guide as helpful as possible for you. Tuning and trim advice offered here have been proven over time with top results in the class.

North has become the world leader in sailmaking through an ongoing commitment to making sails faster, lighter and longer lasting. We are equally committed to working as a team with our customers.

As always, if you have any questions or comments we would love to hear from you. Please contact your CSD class representative.

Sincerely,

Ken Read, President North Sails Group

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Updates

North Sails is constantly refining tuning techniques and rig settings as we and our customers gain experience in individual classes. This information is shared among North staff worldwide.

While this Tuning Guide provides a giant step toward achieving competitive speed in your class, be sure to contact your North representative:

Geoff Moore at geoff.moore@northsails.com

about the latest Beneteau 36.7 tuning developments.

Cover photo by Andreas Josenhans





Beneteau 36.7 Tuning Guide

The Beneteau 36.7 is a relatively light boat which makes it very receptive to positive trimming. It is imperative to have the sail trim spot on but also the fore and aft weight trim correct and whichever team does this the best will be rewarded with the best boat speed.

Having the weight in the right place is crucial. In simple terms, keep the weight out of the back of the boat both up and downwind, and hike very hard to see visible gains made on the water.

In up to 10 kts the Beneteau 36.7 is always looking for more power so keep the sails powered up, focus on building speed efficiently out of transitions (tacks, jibes, ducks and mark roundings) and don't over trim or you can easily kill the speed.

Rig Setup

Once the rig is tuned to our North Sails BASE setting (see Tuning Guide on page 7) you should be aiming to, at the bare minimum, change the headstay for the prevailing conditions each day. The top teams will adjust this between races. This will make a huge difference to your sail setup and ultimately your boat speed around the course.

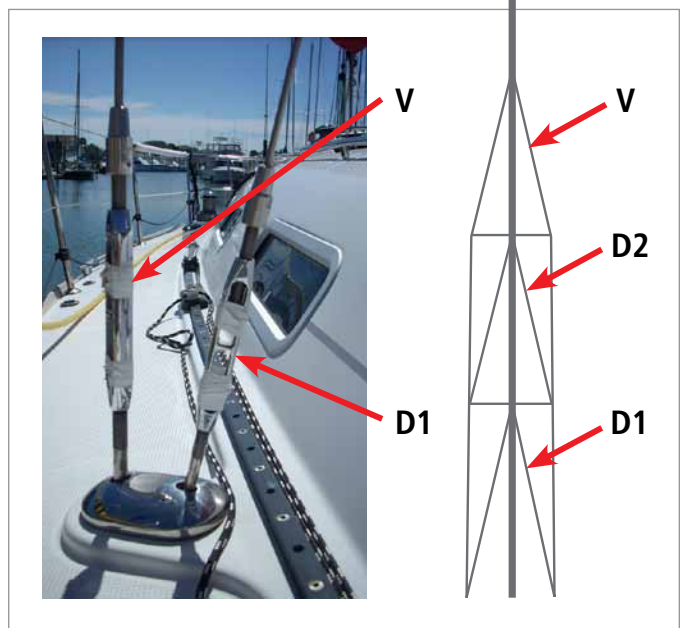
In heavy air winding the headstay shorter will enable you to get enough backstay on and bend the rig efficiently and in the light air lengthening it will enable you to keep depth in the sails to keep the power on.

Take your rig tune seriously. Keep whoever adjusts the rig the same from the beginning to the end and you will be far more accurate all season long. It is one item on our list we can get right before we leave the dock.

Equipment Requirements

- Loos Gauge RT-11 (V1 and D1 shrouds)
- 30 m (100') tape measure (headstay pin-to-pin)
- 5 m (16') steel tape measure (mast heel)
- Rig spanners (adjustments)

Shroud Terminology



The upper shrouds (Caps or Vs), intermediates (D2s) and lowers (D1s) must be adjusted so the mast is perfectly straight side to side.

Development

North Sails began working on Beneteau 36.7 sails as soon as the first boat was launched in 2001. Since then we have continuously refined our shapes through incremental improvement.

North Sails will out perform all others, but to get the most out of them they need to be set properly. Sail development does not happen in isolation. It evolves in tandem with a mast tuning strategy. By contorting mast bend and headstay sag you can enhance, or degrade, your boat's performance. Different conditions require different optimal rig settings. Proper rig tune is essential, every bit as important as puffs or wind shifts.



Tuning Strategy

If we imagine that there are no leeward shrouds while sailing upwind we can picture how the caps (Vs) and diagonals (Ds) affect the side bend of a mast. The caps travel through the spreader tips to the top of the mast. As the windward V is tightened it tends to push the spreader to leeward and pull the tip of the mast to windward (called spooning).

As the Ds are tightened they do the opposite. They pull the middle of the mast up to windward. If the Ds are over tightened they will pull the mid-mast too far to windward and dump the tip to leeward (called tip fall off). A good guide for general shroud tension is that the leeward V should just go slack in all but the heaviest of wind conditions and the Ds should keep the mast “in column” side to side. This insures that we don’t have unnecessary compression on the mast and that the mast is not leaning to leeward.

However, the addition of backstay tension will upset things. Adding backstay causes two noticeable affects on your shroud tensions. As the mid-mast bends forward the total mast height will be reduced. This will cause the Vs to loosen. Also, as the mid-mast moves forward and away from the chain plates the Ds will get tighter. The result is that when we apply backstay, the tighter Ds pull the mid-mast too far to windward and the looser Vs allow the mast tip to sag to leeward. Therefore, every backstay increment requires a corresponding set of shroud tensions to keep the mast in column. Of course that is not a practical solution because the backstay has infinite adjustment between all the way off and all the way on.

So our goal is to cover the backstay range with four sets of corresponding shroud tensions. We pick a setting dependent on how much backstay we might use during the race. Since we start useful backstay tension at around 12-14 knots, we include a fifth set of tensions for use during very low wind speeds. At those light air settings our focus switches towards inducing headstay sag and compressing the slot by spooning the mast.

BASE Rig Set-Up

Mast Butt Proper mast butt location is the first critical step. A good starting point is to place the mast butt so that the forward edge of the mast is 26 cm (10.24") from the bulkhead. This should be one hole aft of max forward on the step, but check the bulkhead measurement to be sure. You may need to slightly modify the floorboards that sit around the mast.

Headstay Length The headstay length controls both the tilt of the mast (mast rake) and the bend of the mast

around the partners (pre-bend). Use the ARC method described in the tuning matrix to set your headstay length.

Center the Mast

1. Put a mark on the rail of the boat on one side even with the chain plates. Measure from this mark to the center of the headstay attachment on the bow.
2. Put a corresponding mark on the other side, the same distance from the headstay.
3. Set the upper shroud (Caps or Vs) tension to a few turns tighter than hand tight. The intermediates (D2s) and the lowers (D1s) should be totally loose, with lots of sag.



The rig tune is working well here. The crew are all hiking and the boat sailing at optimal heel angle with the sails sheeted in nicely.

4. Hoist the tape measure to the top on the centerline jib halyard. Measure to the marks on either side and adjust the caps until they are equal. Put your eye close to the mast track on the aft side of your mast. Look up the mast track. There might be a slight fore and aft bend, but the mast should be straight, side to side. If it is not perfectly straight side to side then repeat step 3. If it is still not straight then it may be that the mast butt, the partners and/or the hounds (upper termination of the upper shrouds) may not be on the same plane. If one of them is slightly out of line a slight mast bow to one side will be the symptom.
5. Adjust one of the three nodes until the mast is perfectly straight side to side.

Backstay Tension If there is any backstay tension release the backstay all the way until the backstay sags. It may mean that you have to unshackle the backstay purchase to lengthen the backstay.

1. **ARC measurement.** Pull the centerline genoa halyard past the black band at the gooseneck.

Close the halyard clutch so it won't slip, Put some weight/pressure on it and mark the halyard at the top of the mast lower band at the gooseneck.

Swing the halyard out to the headstay and make a mark on the headstay using the same weight/pressure as previously used.

Measure down from the mark on the headstay to the deck at the headstay intersection.



This is how the RT-11 Loos Gauge works.

This measurement should be our BASE number of 2.13 m (6.99'). Adjust the headstay until this number is achieved.

2. **Tension the upper shrouds.** This is not your BASE setting! This is just to give the shrouds enough tension so that the Loos Gauge will work properly. Tension the Vs until they reach 42 units on the Loos RT-11 Gauge.
3. **Tension the lower shrouds (D1s)** until they reach 10 units on the Loos RT-11 Gauge.
4. **Tighten the intermediate shrouds (D2s)** to hand tight so that all the slack is removed. Then add three additional full turns. The D2s are on top of the spreaders and are difficult to adjust. **DO NOT ROTATE THE ROD RIGGING!** It only takes a few rotations of the rod to crack the D2s.

Hold the barrel of the turnbuckle and turn the threaded stud below the barrel. Use the appropriate tools.

5. **Check to see if the Vs and D1s are still at 42 and 10 respectively.** Adjust symmetrically if needed. Also check to see if the mast is still straight side to side or "in column." If it is badly out of column start over with centering the mast. (Someone probably turned one of the turnbuckles the wrong way.) If it is only slightly out of column then maybe a half turn on the appropriate D1 or a few turns on the D2s will pull it back to straight side to side. Again, this is not your BASE setting! Use the tuning matrix to set for the appropriate wind range.



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6. Go sailing, preferably in wind strong enough to pressurize the rig, but not so much that you need to apply a lot of backstay tension (ideally 12-14 knots). While sailing upwind in “race mode,” with the crew hiking, etc., sight up the mast. The D2s may need to be adjusted either way to maintain the mast in column. New rigging will stretch a surprising amount, so recheck and adjust often as needed. Eventually the rod rigging will settle down and the D2s will not have to be adjusted further.

Record the Gap Distance With a small ruler or caliper record the gap distance between the threaded studs inside the various turnbuckles (Vs, D1s and headstay). Record the gap distances in the space provided in the North Sails Tuning Guide on page 7 (white boxes). Adjust the turnbuckles up and down the matrix to the various settings and record the gap distances in the boxes provided.

Heel Angle and Crew Weight



At the Chicago Nationals we learned it is very important to sail the 36.7 downwind with minimal heel angle and crew weight forward to reduce wetted surface area.





North Sails Tuning Guide

BASE Setup for 10-12 kts

Mast Butt	Headstay	Caps / Uppers / Vs	Lowers / D1s	Intermediates / D2s
26 cm (10.24") from bulkhead to front of mast = 1 hole aft of max forward	ARC = 2.13 m (6.99')	34 (RT-11 Loos Gauge)	Loose, Swing	Loose, Swing
		Port Turnbuckle Gap =	Port Turnbuckle Gap =	Port Turnbuckle Gap =
		Starboard Turnbuckle Gap =	Starboard Turnbuckle Gap =	Starboard Turnbuckle Gap =

Loos Gauge Readings

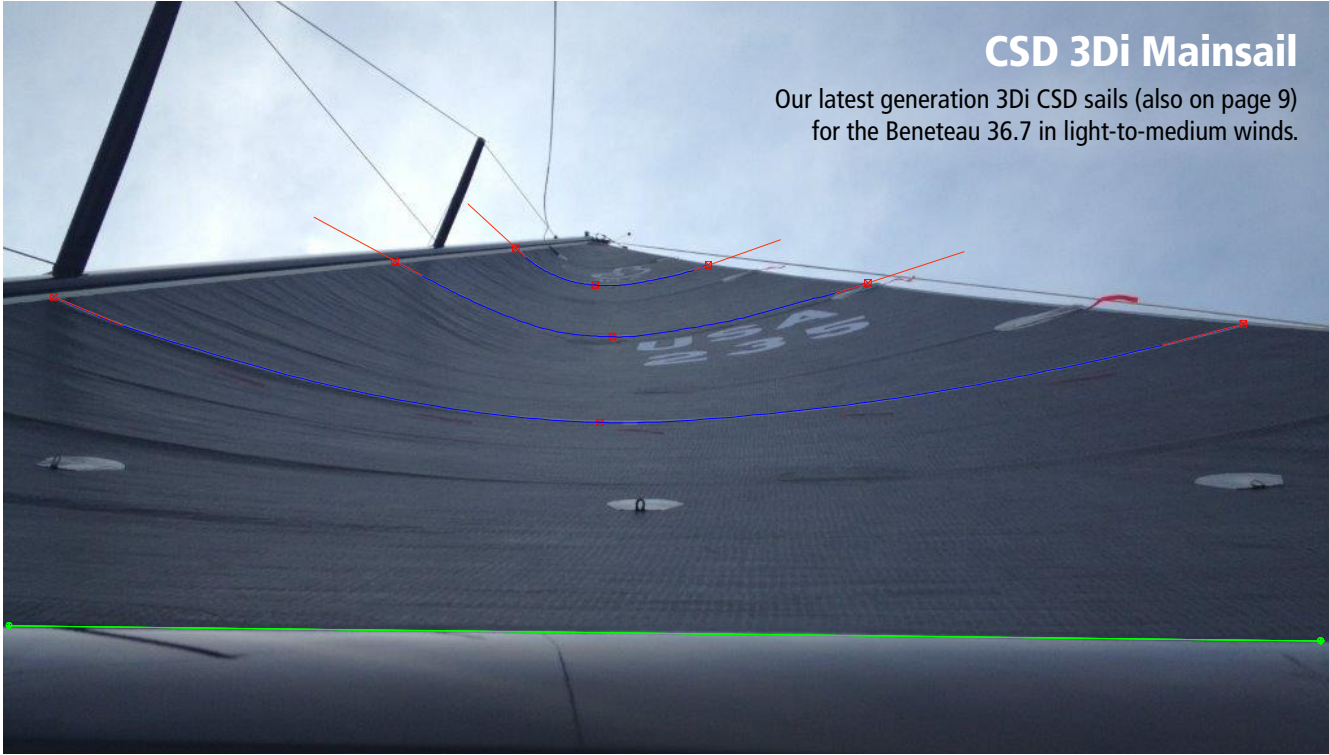
TWS	Headstay	Caps / Uppers / Vs	Lowers / D1s	Intermediates / D2s
4-8 kts	ARC = 2.13 m (6.99')	31	Loose, Swing	Loose, Swing
BASE 8-12 kts	ARC = 2.13 m (6.99')	34	Loose, Swing	Loose, Swing
12-16 kts	ARC = 2.12 m (6.96')	37	1 = Snug to the hand	Snug to the hand
16-22 kts	ARC = 2.10 m (6.89')	42	10	3 Turns past hand tight / BASE
22+ kts	ARC = 2.08 m (6.82')	46	20	No adjustment. Set D2s at the 16-22 kts setting

Number of Full Turns from BASE

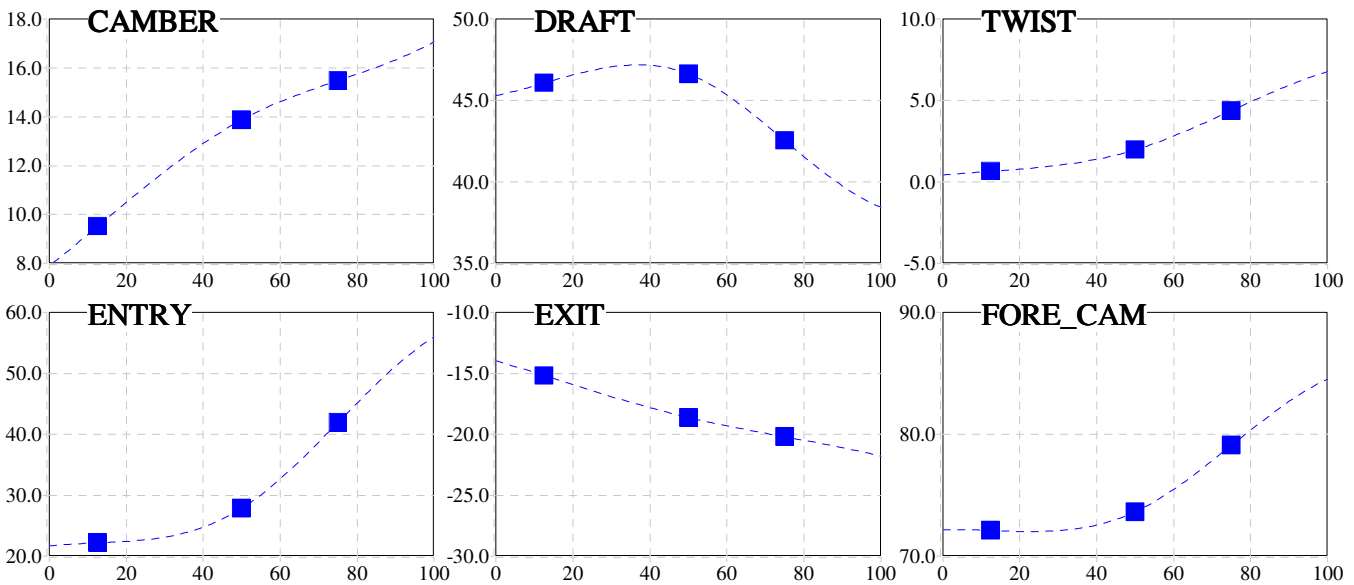
TWS	Headstay	Caps / Uppers / Vs	Lowers / D1s	Intermediates / D2s
4-8 kts	No Adjustment	-1.5 Turns	-1.5 Turns	No Adjustment Same Gap as BASE
	Turnbuckle Gap =	Port Gap =	Port Gap =	
		Starboard Gap =	Starboard Gap =	
BASE 8-12 kts	ARC = 2.13 m (6.99')	34 Loos Same Gap as BASE	Loose, Swing Same Gap as BASE	No Adjustment
12-16 kts	+3 Turns	+1.5 Turns	+1.5 Turns	No Adjustment
	Turnbuckle Gap =	Port Gap =	Port Gap =	
		Starboard Gap =	Starboard Gap =	
16-22 kts	+9 Turns	+3.5 Turns	+3.5 Turns	+3 Turns from Hand Tight THIS IS D2 BASE
	Turnbuckle Gap =	Port Gap =	Port Gap =	
		Starboard Gap =	Starboard Gap =	
22+ kts	+16 Turns	+5.5 Turns	+5.5 Turns	No Adjustments
	Turnbuckle Gap =	Port Gap =	Port Gap =	
		Starboard Gap =	Starboard Gap =	



Advanced CSD Sail Analysis



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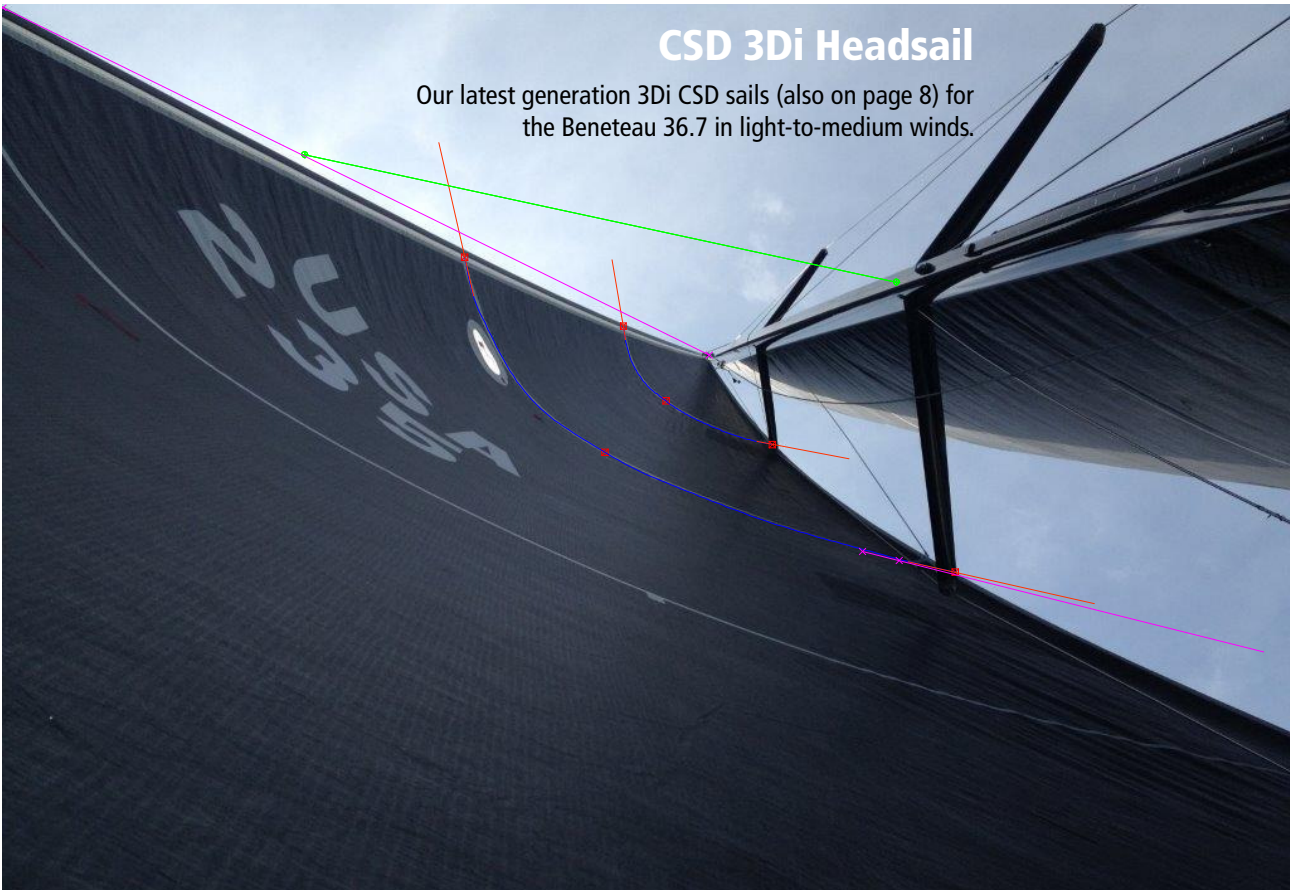
SailType; MAIN

Height	CAMBER	DRAFT	TWIST	ENTRY	EXIT	Blue ... Actual FORE_CAM	BACK_CAM
12.5	9.5	46.1	0.7	22.2	-15.2	72.1	68.8
50.0	13.9	46.6	2.0	27.9	-18.6	73.6	63.3
75.0	15.5	42.5	4.4	41.9	-20.2	79.1	67.5

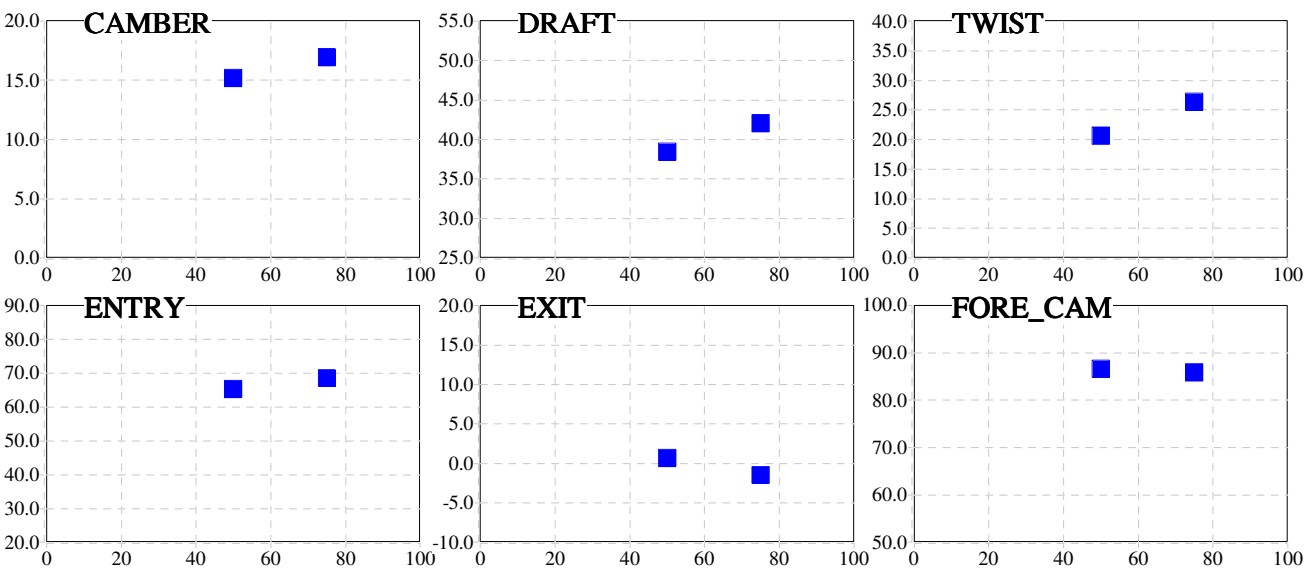




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SailType; HEAD

Height	CAMBER	DRAFT	TWIST	ENTRY	EXIT	Blue ... Actual FORE_CAM	BACK_CAM
50.0	15.2	38.4	20.5	65.2	0.7	86.6	64.8
75.0	16.9	42.0	26.3	68.5	-1.5	85.8	70.5



Worldwide Sail Care

At North Sails, we view each sail purchase as the beginning of a long and rewarding relationship. We base this expectation on a strong service commitment that includes preventive maintenance, sound advice, education and expert repairs. Your nearby North loft offers a wide range of services including...

- Annual checkover
- Winter storage
- Retrofitting
- Educational resources
- Sail washing
- Sail tune-up
- Seminars

North Sails is a network of more than 100 lofts in 34 countries around the world. Each offers knowledgeable, friendly, personal sales and service. Our size and worldwide reach also means North has the world's most expansive sailmaking database. It would be hard to find a sailboat for which we cannot make a fast, durable and long lasting sail.



NORTH SAILS

www.northsails.com



Visit the North Sails Class Sail Development website at:

<http://na.northsails.com/CSD.aspx>

Beneteau 36.7 Class website: www.beneteaufirst367.org