



# Roller Furling Design & Sail Fabric Types 2020

By

Aaron Cole



*Aaron* has a huge amount of experience, both offshore and inshore high performance yacht racing, having competed in 18 Sydney to Hobart yacht races *Aaron* is regarded as one of Australia's top primary trimmers, racing regularly on many of the top big boats competing in the Australian circuit. On top of this he has had success in One-design career racing Farr 40's, J-111's, Farr 30's, Sydney 38's & S-80s classes in both international, State & National

## Roller Furling Design & Sail Fabric Types

Things you should consider when narrowing down your options:

- ◆ Your budget
- ◆ Your expectation for how long a sail should last
- ◆ Your expectation for how “perfect” a sail’s flying shape needs to be as the sail ages
- ◆ Your desire to have the sail weigh as little as possible while meeting the above criteria.

### North Sails Panelled Cloth

Sticking with upwind sail materials for now, and beginning with panelled sails (i.e. where sailcloth panels are cut from rolls of material) the starting point is woven polyester, often called “Dacron”. Polyester yarn is a good all-round performer on small to mid-size boats. It resists damage from environmental exposure. It is reasonably strong, and not excessively stretchy. And the price of a Dacron sail is at the low end of the range. Let’s summarize in bullet point form:

### Nordac Polyester CROSS-CUT – A Fill Oriented Cross-cut Dacron Sail

- ◆ **Budget:** when price has to be as low as possible, a Cross-Cut sail is the right choice.
- ◆ **Durability:** these sails stay in one piece, even after many seasons of hard use.
- ◆ **Sail Shape Perfection:** Decent when new, but flying shape will change a lot with age.
- ◆ **Weight:** Not light. Less of a problem on smaller boats, but very noticeable as LOA goes up.

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### RADIAN – Radian Warp-Oriented Dacron Sail ( NPC )

NPC RADIAN is an enhanced version of the panelled dacron sail. Panels are radially oriented in these sails which confers a measurable improvement in sail shape-holding. Radian is a great option for a small to mid sized cruising yacht that races in a twilight series or needs that little extra bit of performance & better shape life.

- ◆ **Budget:** Still relatively low in price, Radian prices just a bit higher than fill-oriented NorDac.
- ◆ **Durability:** These sails stay in one piece, even after many seasons of hard use.
- ◆ **Sail Shape Perfection:** Quite good when new, but expect some shape change with age.
- ◆ **Weight:** Not light – but lighter than a crosscut Dacron sail. Not available for longer LOAs.



### North Panelled Laminates. ( NPL )

Staying with upwind sail materials and paneled sails, the next tier of materials is laminated cloth (in Northspeak, NorLam). Laminates present the opportunity to reduce sail weight, improve shape holding, and incorporate high modulus (low stretch) and high tenacity (strong) fibers, along with polyester in both yarn and film form. When designed and manufactured correctly, laminated sailcloth is very durable, while helping keep sail weight reasonable, and resulting in very good sailshape performance.

### NPL TOUR Xi & TOUR ULTRA

Xi Cruise styles are aimed at mid-size cruising boats looking for both moderate price and enhanced sailing performance. Xi Cruise styles feature polyester woven outer plies surrounding polyester film and aramid (high modulus) fiber on the inside. The outer layers protect the aramid yarn, while the aramid high modulus content reduces bulk and stretch.

- ◆ **Budget:** Medium price level.
- ◆ **Durability:** Not quite as long lifespan as woven Dacron, but ages gracefully.
- ◆ **Sail Shape Perfection:** Very good when new, with moderate change over time.
- ◆ **Weight:** Medium – On bigger boats, the weight savings are very welcome compared to Dacron.

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### And Now... in 3D!

We recently codified a full line of 3Di products made expressly for cruising boats under the OCEAN group name. A key piece of identifying this line was the introduction of a new 3Di “material” type – 3Di OCEAN 370. Let’s dig a little deeper into what makes 3Di OCEAN ideally suited to cruising, in a similar materials based context to the panelled sail information above.

First though, if you’re not clear on the differences between 3Di and paneled sails (or 3Di and “string membrane” products), please take a look at our material page for more information on the [difference in sail material types](#). 3Di represents a technology step-change in sailmaking. It is a more complex, and therefore more costly way to advance sail-making.

For cruisers, this complexity has straightforward benefits: better shape-holding in lighter weight sails with no decline in durability. Should every cruising sailor forget about paneled sails as an option given the engineering superiority of 3Di? No. Paneled sails remain a viable choice for all the reasons noted above depending on your priorities & budget.

### 3Di OCEAN 330

Retain the benefits of NORDAC polyester as described above, and enhance them with the technology of 3Di – that’s OCEAN 330. Originally called 3Di NORDAC, OCEAN 330 makes the most of polyester fiber in upwind sails.

- ◆ **Budget:** Medium price level by “dacron” sail standards, low by 3Di standards.
- ◆ **Durability:** Excellent.
- ◆ **Sail Shape Perfection:** Good (very good, if not excellent, by woven polyester sail standards).
- ◆ **Weight:** Medium (not light, a lot of fiber in filament form is packed into these sails).



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### 3Di OCEAN 370

OCEAN 370 brings UltraPE into the mix along with polyester, significantly boosting strength, while improving stretch performance. There's a size/load point with 100% polyester sails where the sails become just too bulky, and weight aloft really starts hurting boat performance. The sails are difficult to handle and store. OCEAN 370 steps up where OCEAN 330 is not viable – doing so cost effectively, while nicely balancing the attributes of sailing performance and extended lifespan.

- ◆ **Budget:** Medium.
- ◆ **Durability:** Excellent.
- ◆ **Sail Shape Perfection:** Very Good compared to directly competing cruising sail options.
- ◆ **Weight:** Medium

### 3Di OCEAN 700

OCEAN 700 is an ideal performance cruising solution for bigger boats with higher load sails. UltraPE is the primary filament/fiber type, with aramid judiciously introduced in maximum load zones of the sail. Tough, low in stretch, and engineered to provide many years of service, OCEAN 700 is the cruising reference standard for mid-size to superyacht scale boats.

- ◆ **Budget:** Medium. ( as compared to other products available to yachts in the size bracket )
- ◆ **Durability:** Excellent.
- ◆ **Sail Shape Perfection:** Very Good.
- ◆ **Weight:** Medium.



That describes our full lineup of upwind cruising sail choices. North Sails representatives have the expertise to guide you to the exact right sail from within this broad range.

## ROLLER FURLERS & UV SUNCOVERS:

### Understanding Your Furler and How it Works Will Prevent Disaster

.What happens if you furl your sail the wrong way? – with the sun cover on the inside instead of the outside of the furl? Unfortunately, we see the effects of this in our service lofts around the world. The result is UV damage to the sailcloth that has been left exposed to the sun, instead of being protected by the UV leech and foot cover.

Most often, this happens when a sail has a UV cover that is the same colour as the sail material. Such as a white cover on a white sail or a grey cover on a grey sail. When the sail is rolled around the headstay in the wrong direction – with the UV protection on the inside of the roll, it is not always obvious leaving the base sail material exposed.

In some cases, this can happen on a new sail that has been installed incorrectly – with the sail cover that is on the inside of the furl due to the direction the furling drum turns when furling – either clockwise or counter clockwise.

This also can happen seasonally when the boat is unrigged or mast is not stepped (assembled and placed vertical). If the furling line is re-rigged, it must be wound the correct direction around the furler, to be compatible with the sail. Fortunately, North Sails always have a sticker displayed as a visual reminder that the sail is furled the correct way based on what side the UV protection is applied.

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### ROLLER FURLERS & UV SUNCOVERS:

To avoid this mistake which may result in the need for a sail repair, here is a short checklist to ensure that your sail is installed with the UV protection on the outside:

Determine which side of the sail has the built in UV protection – for coloured UV materials this is easy – but not as much as matching colors. The UV cover is either on the Port or Starboard side of the sail. If there is any question regarding which side of the sail is protected please contact your local North Sails professional for assistance. There are many easy ways to tell which side your UV protection is attached.

Next, you want to check that the furling line has been loaded into the drum so that the sail will roll with the UV on the outside. An easy rule to follow is that the furling line needs to enter/exit the drum on the opposite side than the UV protection. i.e if the UV is on the PORT side of the sail, then the furling line needs to exit the **STARBOARD** side of the furling drum.

Normally, it is a very easy fix to re-rig your furling line, by unwinding it completely, then re-winding it in the **opposite direction**.

Once you are certain that your furling direction is in sync with your UV protection, you can be confident in leaving your sail hoisted and furled for extended periods of time. Please note, the type of UV material and your latitude make a substantial difference in the length of time and level of protection you can expect from your UV leech and foot covers.

### Cruising Headsail Design Features Luff Rope padding - Vertical Battens - Roller Reefing Sail Structure

The ease & convenience of having a furling headsail is that pretty much whatever the conditions we face, we can furl in & out depending on the amount of sail we need for the given conditions.

However, this convenience can come at a cost to the performance & longevity of the sail if it is not specified with some of these little extras & structure to make sure the sail flies correctly and has adequate reinforcement. Other things that can help make sure the sail flies the best it can are hardware features like a tack swivel on the furler, An adjustable backstay & adjustable Genoa track leads.

See below some dot point features explained and the benefit these offer to the sailor.

#### RopeLuff reefing pad

This is a flattening feature we can add to the luff of a sail to help roll away some of the shape when the sail is part furled, i.e. In stronger conditions. Increased Forestay sag combined with the head & tack patches being thicker than the middle sections of the luff combine to create a sail that tends to get deeper in shape as the sail is reefed.... the opposite of what we want in reality!!

Solution.... Add the RopeLuff and watch the baggy reefed sail transform to a flatter sail with less drag & heeling force... sounds much more comfortable!

Radian #2 Genoa with RopeLuff fully Unfurled.



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The same Radian #2 Genoa Part furled, note the trim stripe sections are a little flatter & the sail still smooth

### Roller Reefing Sail Structure.

- ◆ Reefing structure is the additional patching that is extended across the foot and down the leech to provide the sail with adequate panel strength for when the sail is part rolled, and the tack & head point is moved away from the normal corner loading. North Sails designs for a range of about 20% of the foot length to be covered by this extra reinforcement.



Roller Reef tack patch structure. Note the horizontally extended tack patch with reef position indicators along the foot for repeatable reefing amounts & to assist with matching the reefed clew position to a car setting marked on deck to match the new furled size.



This is a 3Di Ocean 330 RF non overlapping jib with Vertical Battens to increase area. Note the fuller design shape to improve light wind performance.

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### Vertical Battens & Roller Furling Jibs.

The modern cruising yacht of recent design times tends to have a mast position further aft, a wide shroud base and non-overlapping jib or in some cases a Self-tacking Jib for super easy sail handling. While these new design features make a more modern looking sail plan & does simplify the sail handling, they sometimes leave the yacht a little under-powered if the sail area of the jib is not maximized, especially if you have some racing in mind!

To gain back area & design a powerful jib shape, North Sails custom measure the rig carefully to maximize the jib foot length relative to the Lower Diagonal shroud & jib track position, then incorporate "Vertical Battens" with RopeLuff & Reef patch structure as discussed above to create a powerful jib design that increases the lighter air & upwind performance of the yacht. (Vertical Battens help us increase the area of the jib through reducing the amount of hollow in the vertical shape of the leech by supporting this leech area with evenly spaced battens parallel to the forestay to allow furling.) The designed extra fullness for improved light wind performance can be flattened & the area reduced by furling the sail and letting the RopeLuff & Structure do the flattening! **See Previous Page.**

**If you have any questions for Aaron:**

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### **Past RBYC member Beverlie Asprey sadly passed away on August 1st.**

Bev was a keen Cruising Group member and our Club Librarian for many years.

When the library was relocated from downstairs (where the office is now) to its current position upstairs she was instrumental in setting it up and creating a database of books. On Wednesday and Saturday mornings Bev could regularly be found manning the library for queries or borrowing.

Bev and husband David enjoyed racing and bay cruising on their Phantom 33 'Rusalka'.

Our sincere condolences go to David and family. **Pam Merritt**



## *Difficult Anchorages*

*Barbara Burns*

While spending a few months at RQYS last year, we had a free weekend, and decided to explore the Brisbane river. We thought we would enjoy anchoring opposite the Botanical Gardens as we had walked on the boardwalk many times and thought it would be fun to look at the gardens from the river, rather than look out to the river from the land. Also we could meet with Geoff's daughters and grandchildren for lunch and coffee.

The wind was light, so we motor sailed from the RQYC. Entering the river mouth requires attention as the cargo ships are entering as well, and they come in at a fast clip.

We managed to negotiate our way through, and soon we were motoring up the river. It is a lovely river to visit as there are lots of interesting things to see, and a few large bridges to go under.

It is a long river and takes quite a few hours to navigate the many curves and obstacles i.e. yachts that line its edges.

Finally we arrived at our destination, and found that there were quite a number of yachts anchored, with many permanent long time liveaboards. A lot of them are in rather a sad state of disrepair. All their dinghies are tied up next to the jetty near the edge of the shops, so there is quite a gaggle of them, .

We finally found a large gap in the centre of these yachts that looked suitable for anchoring, out of the fast running centre of the river where the ferries whiz up and down.

We dropped anchor, and sat around waiting for 20 minutes or so to see if the anchor was holding...yep it was, so we lowered the dingy with the outboard on....leaving the cat on board to mind the boat, as her job was to let us know if there were any problems developing.

We motored to where all the other dinghies were tethered next to the jetty .

We padlocked our dingy to a pole on the jetty, and then clambered over a few dinghies all jiggling around from the wake of the ferries travelling along the river. Geoff and I decided to walk along the river boardwalk and look at our yacht anchored in the river, however as we walked along and looked for our yacht it wasn't there!. Interesting when you can't see an object which you are sure is there , your mind struggles to accept that it is missing.

As we looked further down the river there was our boat which had managed to drag her anchor and get into the centre of the river, travelling very briskly along, heading for a low bridge that would have taken everything above deck height off.

Helpless we were. Then amazingly our boat gently entangled herself with another yacht that was anchored nearly in the middle of the river, and she stopped. We saw a frantic figure start leaping about trying to stop our boat going further. At this point Geoff took off most of his clothes and leapt into the river. Stuff the bull sharks!

He is a good swimmer which stood him in good stead as the boat was a fair way off. All I could do was stand on the shore and wring my hands, which I did.

Fortunately we had left the swim ladder down, which meant Geoff could easily clamber on board. The very nice man from the other yacht ( steel yacht) which left our boat with a few dings and scratches, helped Geoff tether Saffron to his boat, which was a great relief. He then rowed Geoff to our tied up

dinghy, so I could be picked up and we could go back to our boat. Undoing the padlock was no easy task.

The cat had slept through the whole drama. After we disentangled ourselves from the other yacht, minus a few safety rails., we skedaddled away from the treacherous anchorage , quite traumatised .We motored up the river until we found a nice safe mooring, and settled in for the night, watching the lights of the city come on as the evening settled in, feeling safe and secure, and enjoying a few stiff whiskies...



## Orphelias Travels

Allan Haddow

March 20, 2020 was the cut off date to arrive in Tasmania without isolating so I brought forward my ferry booking to overnight 19-03-2020 to Devonport, said goodbye to my family & headed off. I ended up sharing the cabin with 2 other dudes. I stayed on the mooring for 1 month until it was too cold, then moved to outside of the pontoon (Mersey YC) with 240v & heater & numerous noisy days/nights from the cyclic NW winds slamming Ophelia into the pontoon. After 4 weeks Mersey YC made a spot available on the inside of the pontoon in a deeper spot out of the wave action. This was enjoyable although I could not get out at low tide (too shallow at end of pontoon) or when tide was flowing – only at high tide slack. I could not pull up the anchor, due to broken ribs, until end of May so was boat bound. I bought a push bike to get around more easily.

In Early June friends who rescued me from my two mishaps, heart attack & broken ribs, took me for a drive to Wynyard, Smithton & Stanley where we climbed the Nut. I noticed the terrible noxious imported weed gorse with prickly long spikes taking hold of the plateau. Some had been sprayed but was growing again. This weed, imported from England, is in NZ as well & also on many farms between Wynyard & Smithton. I was hoping to sail to all three places but never got there.

In mid June I did get to motor one weekend 4hr west & anchored off Penguin for the night before returning near Devonport for another night, wind was very slight South. During the second night a slight NE swell came in with Ophelia side on – not much sleep that night. It was rather cold.

Early July saw me with 'itchy feet' to get moving so once I received my \$750 pension money, I purchased & installed an air 5kw diesel heater. I spent \$194 on it plus another \$350 for incidentals, longer exhaust pipe, skin fitting, insulation, s/s fitting, s/s 3mm thick base plate. I connected it to the main diesel tank. Wow at 1kw the cabin is 23°, at 5kw it would be like Darwin. Works fantastic.

So on 02-08-2020 I tried to leave Devonport, but returned 10 min. later due to a very metallic sound from the prop. I believe a piece of wood was jammed in the propeller which resulted in the 4 bolts clamping the coupling to the prop shaft stripping their threads so the coupling was turning around the prop shaft. I replaced the bolts & set off again on 04-08 arriving in Port Sorell 3hr later on a mooring. Then smelt diesel – this time diesel was leaking from the tip of the injector at the high pressure inlet pipe. Same problem happened in Mandurah 2yr ago. I am waiting for a replacement pipe from Sydney. Once that is fixed I will be waiting for a weather window to get around NE corner of Tassie & onto St. Helens. The mooring is exposed to north & south winds with wind against tide conditions, but ever so quiet. Devonport is very noisy with road traffic from 5am, train horns all night, docked ships unloading fertiliser, forklift operations at the ferry terminals from 6am & car hoons. But the club members were fantastic helping me while my ribs were mending. I am very grateful to them.



# NOTICEBOARD

## MEMBER NEWS



Rob & Sue Hurrell are grandparents again, 3rd son to Ben & Amy....  
Brooks Benjamin Saward, 26 July 2020, 3.9 kgs.  
All doing well.

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### Cruisers out Playing before lock down

It is important to note that this was not organised by the club or the cruising group. It was purely coincidental. As it turned out the conditions for sailing were very pleasant, with a steady North to North West breeze around 10 kts on a relatively flat sea and sunshine. Who would have known that stage 4 restrictions were about to be enforced in the following days for six weeks?

The boats who were out enjoying this lovely day were:

- Sunkiss
- Chakana
- Andalucia
- Thunder
- KathleenB
- Favourite Child
- Nimrod II



## Captain Bully's Blog

It may be a sign of the times but the explosion of breweries and distilleries throughout Australia in the recent years may indicate the impact of these challenging times but also when we Aussies take an on a subject which is of great interest we do it well. So it would seem with alcohol, with so many of these relatively new ventures winning awards globally for excellence in spirit distilling. A little research discovers there are now here in our own country 293 distilleries across all states, over 200 producing whisky, 273 gin and 67 rum. Not being a cool cat in the fast lane of life, it has even filtered down to me that Gin is globally now achieved cult following especially in groovy London where even the brand of tonic is critical for status. The latest bulletin on the subject may be even closer to home in that the BBC suggests that Rum may be the new Gin amongst the hip crowd.

<https://www.bbc.com/news/business-53320176>

On the subject, for those who were not able to visit our Club's recent refurbishment of the bar and library in the brief respite between lockdowns, the Commodore has on the web site and Facebook a guided tour showing all the upgrades.

The design was done by a daughter of a family friend, Kathleen Kopeitz, a Master of Architecture and an award-winning artist, with magical interior design input from Hannah and amazing careful detail construction from our talented maintenance manager Brendon. Hannah has already stocked the bar with many of the brilliant award-winning local spirits, especially gins. My little fantasy is that our now "Best Bar in Bayside" will be a showcase for Australian excellence in spirits and wines. Hannah has been working with expert industry consultant Steven Todhunter to plan the long-term excellence in wines and spirits for our Club. Looking forward to when we can all gather again in our beautiful bar and taste responsibly some of these amazing Aussie spirits.

