

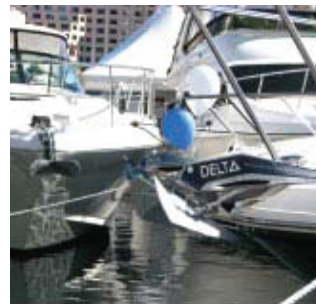


Visit any boat show and you will see serried rows of yachts, motor and sail, designed and built with the latest technology. Venture to the bow and you will be dismayed to discover that the anchors, mostly ploughs, date from a design and manufacturing process patented in 1933 (and some of the anchors will not even be accurate copies) or if you are lucky they might have a modern derivative – developed because it was cheaper to make, not that it's a particularly better anchor.

Occasionally you will find an anchor developed in the 1970s for the oil industry! Even this anchor was discarded for oil rigs decades ago.

If I am buying a new yacht I expect, obviously wrongly, that the people building/selling yachts will equip their yachts with the most up-to-date equipment. I expect 'e' for epoxy coatings to minimise osmosis, the latest in LED lighting, the most current means of propulsion, etc – so why these boats are equipped with anchors best viewed at the Maritime Museum defies logic.

If they cannot supply something as simple as a modern anchor maybe the other claims are so much hype? So what is new, not much, most of the developments have been around for some years (which is why the absence of decent anchors is so damning).



New motor yachts at the '07 Sydney Boat Show with 1933 style anchors.

Anchors come in four basic types:

1. Admiralty Standard Stockless, or Dreadnought – the type seen on most cargo ships and some big motor yachts.

Basically these are the only anchors that stow in a hawsepipe.



Cambria II carries 2 x 150kg Dreadnought type anchors and 2 x 150m of 5/8" chain. This is the only type of anchor that can be sensibly carried in a hawse pipe

The other three types are those seen on pleasure boats.

2. Plate anchors, Danforth was the original (1939), Fortress are excellent copies but there are many cheap versions with performances that do not match the original. The Wasi Bugel uses the positive attributes of the plate for its success.

3. Scoop anchors (think of a sugar scoop), the original was the Bruce (typically an efficiency range of 17-25), a design no longer used in the oil industry, but modern leisure yacht versions include the Rocna and Manson Supreme.

There are many copies of the Bruce, usually unbranded and thus minus any indication they might be made to the same design or even from the same steel quality.

4. Finally there are the ploughs, the CQR and Delta being reputable brand names. There are many copies, some backed by quality manufacturers (for example the Manson Plough) but cheap ones are in every chandler and again will not be supported by a specification.

In addition to these four basic designs, ASS, scoops, plates and ploughs, there are some weighted bent plates, the Spade and SARCA's being examples.



The German company Wasi introduced their Bugel anchor with a revolutionary roll bar to aid self righting. The original was only in stainless steel but was simple to copy and many galvanised versions exist. Very popular in Europe but almost unknown in Australia. This model is on a Beneteau.



An XYZ anchor made in America. The shape of things to come or an adventurous diversion? Testing so far has been equivocal but it certainly has high surface area!



A Spade anchor on a yacht at the '07 Sydney Boat Show. The shank is bolted to the fluke which can be a weak point. These anchors have a very high reputation in Europe but are seldom seen in Australia.

Finally there are a few very new anchors which may, or may not, fit these simple characterisations but for which there is insufficient test data to merit their inclusion in any detail, the XYZ is an (extreme) example.

In order to penetrate the seabed anchors need to have the toe, point or bill of the fluke presented to the seabed, once the toe

penetrates the anchor will align itself and develop holding power.

Anchor manufacturers have developed a number of techniques to ensure the correct and early toe presentation including the hinged design of the CQR, articulated flukes or plates of the ASS and Danforth types, the self-righting shanks of the Delta, Spade and Sarca Excel and the roll bars of the Rocna, Wasi Bugel and Super SARCA etc. Anchors with roll bars can be difficult to stow on some bow rollers and all anchors are difficult to stow in bow lockers, except some plate anchors that stow flat (or like the Fortress can be disassembled). It should be noted an anchor disassembled in a bow locker is not immediately available for use (and might be impossible to assemble on a dark, wet, windy night) and might never be used (so why carry it?).

A rather crude but effective judgement might be – if your wife, or 16-year-old daughter, cannot deploy an anchor – it's a waste of space and money.

How do anchors work? A bit of theory. ASS work largely by weight and by the weight of their chain. However, they are not expected to be used in a storm, as the *Pasha Bulker* illustrated, and in such circumstances the vessel will up anchor and, if lucky, ride out the storm at sea.



Three of Josephine's anchors, a genuine long shank 10kg CQR, a 22kg Manson Plough and a 13kg SARCA Excel. Note the high surface area of the Excel which is 60% of the weight of the plough but has a higher surface area, sharper toe and thinner shank.

Anchoring theory, developed by the offshore oil rig anchor manufacturers – who do their testing on 10kg anchors before moving upscale, concludes that surface area is the primary facet to determine anchor performance. Of two anchors the one with the higher surface area will have the higher holding power but with two anchors of similar surface area then the heavier will perform better.

To develop holding power an anchor must have surface area (and it's the surface area resisting dragging or breakout – not surface area per se), strength, ability to penetrate and must be streamlined. In general anchors work at their best with the pull horizontal, ie the chain pulling along the seabed.

Unsubstantiated information suggests that recently the US Navy and US Coastguards are also concluding that holding power of anchors for vessels smaller than 63ft is a function of surface area and that weight simply provides a false sense of security – though the anchoring vessel lacks the motive power to dislodge a heavy anchor its 'power' in a wind is easily sufficient to overcome the maximum holding power of a heavy, lower surface area, anchor – ie it drags.

Apocryphal evidence suggests stainless anchors are more efficient than equivalent galvanised anchors, their smooth surface aids seabed penetration. I am happy to concur that new, polished, stainless could be better than a new galvanised anchor but remain to be convinced that an old, scored, stainless anchor is any better than an old, polished, galvanised anchor and considering the cost differential if I were concerned I would buy the next size up galvanised anchor (stainless is for a coffee table and for flash yachts that do not anchor except for canapes).

We, on *Josepheline*, a Lightwave catamaran, have been motivated to improving our anchor wardrobe as best we can and we have researched as many independent anchor tests as possible, talked with local and overseas anchor manufacturers, talked with other independent anchor testers, actually watched Australian testing (where our own anchors were included in the test procedures) and have trialled many of the anchors mentioned below.

Our anchor wardrobe, all galvanised, now consists of a 15kg SARCA Excel, a 10kg genuine CQR, a small Danforth and a grapnel (all of which we have used). We may replace the CQR with a smaller, 10kg, Excel but remain committed to trying any new designs, if they become available. In terms of what they secure, anchors are cheap – and if we can find a better one we will not hesitate to discard anything. We are motivated, we have now cruised to Tasmania annually for three years and though it is not the monster to be avoided it might need some respect.

Why do we carry a SARCA Excel? We had read most of the anchor testing articles commonly available in the international yachting press and simultaneously became involved, as observers, in the Australian National Maritime Safety Committee initial testing of anchors – and seeing is believing.

The testing simply underlined what the international yachting press had been saying for some years (and boat dealers and most journals here have been ignoring) – that there were much better anchors available than the ploughs.

Our initial idea was to buy a Rocna, Manson Supreme or SARCA (which has been developed further to become the Super SARCA) but for us this necessitated completely re-designing our



Tony Mowbray relied on SARCA on Commitment for use in an environment more taxing than most of us will ever experience.

bow roller. The alternative option was a Spade, which has a highly regarded performance but comes in two parts, and anchors that are assembled introduce weak points at the joint.

However, our problems were not unique and local windlass companies had been encouraging anchor manufacturers to equal the performances of the roll bar anchors with something that did not have a roll bar. For us the timing was fortuitous – the Excel exceeded all expectations and has continued to improve. We bought and trialed in Tasmania an early model Excel, which we have since lent out, we had a short period when we used a 13kg Excel and are now proud owners of a standard production 15kg model.

Finally there is nothing jingoist in our buying an Australian anchor. Our Excel is backed by independent performance data, we have used it and it works, and from our research is as good as anything produced anywhere worldwide – it just ‘nice’ that it is also made in Australia.

****Jonathan Neeves** raced a 10m LDB but now sails Pittwater with his wife Josephine on board their Lightwave catamaran, Josepheline. Their cruising ground was The Reef but for the last three years have found better sailing, and less crowds, in Tasmania. Jonathan previously wrote for Cruising Helmsman but now writes for the UK magazine Sailing Today.*