

Hi Alan, Thank you for asking. I did not post to the user group because it would be way too commercial, but I am pleased to answer any questions privately.

The differences are subtle but do cause each anchor to behave differently. You can download off our website our anchor study that I pass out at the boat shows.

<http://quickline.us/images/AnchorCharacteristics.pdf>

At the Annapolis boat shows last month I demonstrated how the different anchors work. At the shows I had 2 boxes, one of fine sand and another of coarser gravel that simulates broken coral, shells or loose unconsolidated bottom conditions(both filled with water to be as representative of a sea floor condition as possible). It is a very informative presentation and afterwards many people perform tests of the different anchor models to see how they perform in the different bottom conditions and learn how their anchors work. It is a very open and informative forum to talk about experiences. I have learned quite a lot from the visitors to the booth. Most people see their anchor go over the side and they really do not know what is happening on the sea floor. Hopefully you will be able to stop by our booth at the Seattle Show in January or the Miami show in February to test the different anchors yourself.

The 4 anchors you question are all third generation anchors. They all use a flat or concave type surface that opposes the direction of pull to establish their holding power(vs. the second generation of plow type: CQR, Delta and Bruce types) The flat cross section is what makes the Danforth style anchor have such high holding power in sand type materials. These anchors develop a wedge of soil on the face of their flukes that must move through the bottom material for the anchor to slip. The resistance to shearing of the soil on the edges of this wedge is what gives the flat/concave anchors their holding power. In a plow type anchor, because of the aerodynamic shape, the soil slides on the face of the steel fluke which has a lower coefficient of friction(than soil) so the plow type slips easier. Flat type anchors have 30 to 40 % more holding power than plow type of the same cross sectional area.

Because the 4 anchors you mentioned are similar in cross-sectional configuration it is really a question of which anchor sets the easiest and penetrates the deepest to develop holding power in the most different bottom conditions. (I am not including the flat Danforth style which is very difficult to set in anything but a material such as sand)

The Ultra is the quickest setting and highest holding because it is able to penetrate all bottom conditions because of its fine point and location of center of gravity. The Ultra is only made from stainless steel because we can do things with stainless that can not be done with an anchor that must be galvanized. The shank is hollow, the base is filled with lead. Because of the buoyancy of the shank, this puts the center of gravity right at the tip of the anchor so that when the anchor hits the sea floor it is resting in the attach position with the tip already penetrating. The first movement of the Ultra when the vessel falls back on the anchor to set it is for the tip to dig in. The other anchors have to right themselves so that their mass moves up over the tip of the anchor for them to use their weight and configuration to start to dig in.

The Rocna and Buegel depend on the weight of their shank, the weight of the hoop of the Buegel and weight of their fluke to get penetration. This puts their center of gravity high which means when they hit the seafloor on deployment they maybe on their side not ready to dig in. They must roll over or up right themselves in order to gain penetration. In a hard pan or weeds the anchor may slide over the bottom before it rolls over enough to catch. The idea of the hoop is to facilitate the roll over. Unfortunately after the Rocna and Buegel start to set, the hoop provides resistance to penetration in unconsolidated soils so that the anchors do not penetrate deep enough to the higher density layers of soil underneath the loose top layers. They basically stop penetrating at or just below the surface and do not continue to dig deeper to the denser higher holding power soils that the Ultra and the Spade reach. This may cause them to basically float in the soil and not penetrate deep enough.

The Ultra and Spade are similar in that they both weight the tip of the anchor with a lead filled base. But there are additional differences that make the Ultra perform better than the Spade. The Spade has a solid shank so that it does not benefit from the shift in the center of gravity (in water) to the tip that the Ultra gets because of the buoyancy in the Ultra's shank. The Ultra puts more of its weight on the tip. The Spade has a concave surface where the Ultra is mostly concave but has a reverse curve at the tip that causes the Ultra to dig in quicker, much like a carpenter's chisel. This means the Ultra will set at a lower scope than any of the other anchors in this group which means it sets quicker. The Spade shank is configured so that the anchor rode can be fouled if too much chain is dropped on top of the anchor before the vessel falls back to set the anchor. The Ultra has a reinforcing bar at the head that keeps the anchor line from fouling the shank. There also have been some manufacturing problems with the newer Spade Anchors since the inventor, Alain Poiraud, sold out and moved to South America. The new owners seem to be more interested in mass producing as many as possible, as cheaply as possible cutting corners and do not have the attention to detail that Alain had. We have never had a failure of an Ultra Anchor, where as there have been several failures of the Spade from splintered or bent shanks to broken or lost retaining bolts.

Additional features of the Ultra that make it a superior anchor above all the others include but is not limited to:

- The Ultra is manufactured from 316L Stainless steel, anchor can be easily polished, the Spade can not be easily repaired because the lead melts during the galvanization process. The Ultra will provide many years of corrosion free service with out the need to re-galvanize.
- The lead filled base of the Ultra is totally encapsulated so no dissimilar metals are exposed to sea water.
- The Ultra's unique shape and concentration of weight causes it to set the quickest in a broader range of bottom conditions.
- The Ultra has a large surface above the shank that provides a bearing surface for the anchor to pivot against to make recovery easier when pulling straight up on the Ultra Anchor. The Buegel and the Rocna do not have much of a bearing surface to assist in recovery. Fortunately they do not dig in as deeply as the Ultra and do not hold as well.
- The tubular structural shape of the shank of the Ultra provides a stronger resistance to bending than any of the solid shank other anchors.
- The Ultra will set its self within its own length and will continue to stay buried when the current or wind shifts. If the Ultra needs to reset it will set quicker than any of the others.

I hope this answers your questions. Please feel free to call or email me again. There are several videos on our web site that shows how the different anchors perform in test beds. Of interest I received a call this last Friday from a customer that purchased a 99 pound Ultra for his new Offshore 56. They were anchored off San Quintin about 200 miles south of the Border. He called to tell me how thrilled he was with the anchor and that they were on their way to Cabo. I will be typing up his comments for a testimonial for the web page. He liked how it fit on his pulpit and how it handled. He said he dropped it, it set, they had a great nights sleep and he was thrilled.

I hope to see you in January at the Seattle show.

Sincerely,
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----- Original Message -----

From: [Alan Hughes](#)
To: randy@quickline.us
Sent: Sunday, November 04, 2007 11:43 AM
Subject: Ultra Anchor

Hi Randy,

A while back you posted a message on the Catana Owner's Group and offered to describe the differences / advantages of the Ultra anchor in comparison to Rocna v. Buegel v. Spade anchors.

If you posted the advantages, I didn't see the posting and could not find it on the web site. Would you share the differences and advantages with me please???

Thanks,
Alan

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Vancouver, WA - USA

Mark Twain:

"Twenty years from now you will be more disappointed by the things you didn't do than by the ones you did do....Sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream. Discover."

Gandhi

"Almost anything you do will be insignificant, but it is very important that you do it."

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