

Weak Link Strength**Originated by Brandy Murphy (U. Washington) on September 6, 2011****Originated from: Brandi Murphy on Tue, 06 Sep 2011**

Hi,

I have a basket full of unused bolts of various materials, one box of 5/16 and one box of 3/8 for weak links.

I can not however, seem to find any documentation on what the breaking strength of these various bolts is. I tried some fruitless Google searching.

Does anyone happen to have a handy table of bolt material, size and breaking strength? Or any other form of this information?

Thanks!

Brandi Murphy

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Brandi Murphy

Marine Technician

Univ of WA, Oceanography

From: Brandi Murphy (U. Washington) on Tue, 06 Sep 2011

Lots of advice on getting new ones or the lot tested, all of which I agree with, but that leaves me with, what strength do we need and how strong is each alloy?

What about ball park figures for each alloy? I would hate to get a lot of SS to get them tested, find out they are too strong and need to start all over again with another alloy.

Thanks for all your responses so far.

Brandi

Reply From: Meghan K. Donohue (UCSD) on Tue, 06 Sep 2011

Hello Brandi~

The bolts all have various ratings based on the lot they were manufactured with. After we get the bolts we send 3 bolts from each lot to a local lab to find out what range they break at.

We use Decisive Testing Inc. 4735 Myrtle Ave 92105 Tel 619-285-9006 Fax 619-285-9930.

~Meghan

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Reply From: Robert Hagg (WHOI) on September 10, 2011

Hi Brandi,

Sorry for the delay in getting back to you. I'm currently at sea.

The calibration sheets for the lot of bolts we have on the Thompson should be in the 'Dredge Book'. The Dredge Book is an old looking black 3 ring binder labeled, Dredge Book, or something similar. At one time kept on the bookshelf above the plotter.

The 'old' Dredge book/binder is a collection of technical information on dredging compiled over the past 20 years or more. From an SSSG point of view, it's probably the 3rd most important binder on the boat.

A random selection of three or four bolts of each bolt type in the lots purchased, were tested to determine where they shear. The official results from the lab were once kept in the dredge book, since that's the primary use for the weak links. Each bolt can be identified by markings on the head of the bolt. For reference, The little hash marks on the head of the bolt indicates it's grade.

The bolt you select for your weak-link will depend on a number of factors. The primary ones are the depth (used with wire weight/meter) at which you anticipate dredging, (operating), and whether you are rigging the primary or secondary weak-links. Detailed instructions on picking the proper bolt and examples of the calculations can be found in the 'dredge book'. If for some reason this 'old looking' binder was pitched, I can send you documents explaining the use, and method of calculating the proper bolt for use in the single bolt style weak-links.

If you are unable to find the original certifications, I would first check the Wire Log book. Perhaps someone moved them to the section for wire break tests. If you're unable to find them there, I would then contact Washington Chain and Supply in South Seattle.

Washington Chain and Supply has a calibrated test facility we use on the Thompson to pull test our wires, and the bolts used for the weak links. I expect they have an archive of all the calibrations they performed and can quickly forward you a copy of the cals used for the lot of bolts you currently have for use with the weak links.

Washington Chain and Supply, Inc.
PO Box 3645, Seattle, WA. 98124
Phone 206 623-8500
<http://www.wachain.com/index.htm>

I can check my notes for a specific person to contact if needed.

You also have the old style of weak link held by a number of small dowel rods of different alloys. Detailed information on how to set these weak-links can also be found in the 'Dredge Book'. However,

the new 'single pin' weak links have pretty much replaced the use of the older style.

Feel free to contact me any time if you have questions. I'll try responding a bit quicker next time. Hope finding the certifications didn't delay a deployment.

Cheers,

Robb Hagg
SSSG/WHOI