

Teacher
London Penland

Subject
Metric Fastener
Standards Comparison

Date
10/23/19

Comparing Large Series Plain Washers DIN 9021 to ISO 7093

Objective:

- Viewers will learn about the dimensional and hardness differences between DIN 9021 and ISO 7093

Essential Questions:

- How does DIN 9021 compare to ISO 7093?

Standards:

- DIN 9021 -> ISO 7093

Lesson Plan:

Engage (30 sec)

- I like big washers and I cannot lie, all the other beards can't deny, when someone's looking for a itty bitty ID and a big OD for that space, I get rung!...
- Okay... I promise I'm not turning into the Joker over here... but these DIN 9021s do have my head spinning a bit. Let's discuss...
- In the last video, before I took a week off for my one-year marriage anniversary vacation, we talked about how DIN 125 A and DIN 125 B compare to ISO 7089 and ISO 7090, respectively, and it essentially boiled down to hardness. If you remember correctly, DIN 125s are generally stocked at 140HV, whereas ISO 7089 and 7090 are stocked at 200HV and 300HV.
- Do you remember which hardness is supposed to go with which classes of steel? I'll give you a sec... Okay, 200HV hardness is for steel up to and including class 8.8, whereas 300HV hardness is for steel over 8.8, therefore 300HV would go with class 10.9 or 12.9.
- Today, we are looking at how DIN 9021 compares to its ISO standard counterpart ISO 7093.

Explain (2 min)

- So how do these standards compare? Well... there's a reason my head is spinning a bit on this one, because the answer is simultaneously simple and somewhat difficult (yah, I know...).
- First of all, a DIN 9021 is a Large Series Flat Washer. This means that the outside diameter is approximately 3x larger than the inside diameter (so the diameter of the entire washer is about 3x bigger than the diameter of the center hole).
- Secondly, DIN 9021 is essentially equivalent to ISO 7093, with the exception of the hardnesses (just like in the previous episode). So, yet again, DIN 9021 is usually 140 HV (though at IDs above 17mm, they are actually 100 HV), whereas its ISO equivalent, 7093, has the option of 200 HV and 300 HV.
- So again, if you are looking for a large series plan washer for applications with bolts class 8.8 steel or below, then you'll want 200HV, or if you are looking for applications with bolts above 8.8 steel (so 10.9 and 12.9), then you'll want 300HV.
- This actually kinda simplified the washers, in that, rather than the hardness being based on diameter, there are simply two options of hardness for all diameters.
- Other than that, ISO 7093 is stocked in A5 stainless steel, whereas DIN 9021 is not.
- For the alloy steels, ISO 7093 is available in plain finish, zinc plated, yellow zinc plated and hot dip galvanized, just like its DIN 9021 counterpart.
- Now, I'm going to hint at why it's somewhat difficult, but I'm not going to dig into this topic. Just know there is a such thing as DIN 9021 A and DIN 9021 C and there is a such thing as 7093-1 and 7093-2. As you might guess, DIN 9021 A is equivalent to ISO 7093-1 and DIN 9021 B is equivalent to ISO 7093-2.

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- Maybe someone watching knows the answer to this, because I'll admit, I do not, but from my research there doesn't appear to be any applicable difference between the two types. So much so that many suppliers do not distinguish between DIN 9021 Type A or B or between ISO 7093-1 and 7093-2. It appears that if they do distinguish between them, then they generally stock the DIN 9021 Type C and ISO 7093-1. The only 7093-2 that I've seen in stock in Europe is in brass. This is a topic that I hope to have a better answer on in one of our future series, when we intend to revisit some of these episodes at a more advanced level of content knowledge.

Extend (30 sec)

- So, that's it for today.
- As always, feel free to contact me personally at london@eurolinkfss.com with any questions or, of course, requests for quotes.
- Also, as I said in our previous episode, you can now download the lesson plans for these videos from our website.
- Something new though, we have actually changed the format of the vlog portion of our website to be a bit more user friendly for searching for specific topics.
- And finally, also as I said in the previous episode, a portion of all our sales for the month of October is going to the National Breast Cancer Foundation and you can even get a cool breast cancer T-shirt if you donate \$25 or more (while supplies last!), only 1 week left!



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All Proceeds Go To

National Breast Cancer Foundation

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The advertisement features two white t-shirts against a black background. The first t-shirt has the text 'WOMEN OF STEEL' in pink and black. The second t-shirt has a pink ribbon graphic and the text 'I CAN DO ALL THINGS THROUGH CHRIST WHO GIVES ME STRENGTH.' in pink and black. A small pink ribbon logo is in the top right corner.