

Teacher
London Penland

Subject
Metric Fastener
Standards Comparison

Date
10/30/19

Comparing Small Series Washers DIN 433 to ISO 7092

Objectives:

- Viewers will review the information from the previous episodes on general differences between DIN and ISO washers
- Viewers will apply information from previous episodes to DIN 433 / ISO 7092

Essential Questions:

- How do small series washers compare to normal plain washers?
- How does DIN 433 compare to ISO 7092?

Standards:

- DIN 433 -> ISO 7092

Lesson Plan:

Engage (1 min)

- Welcome back to Episode 7 of the metric fasteners comparison vlog!
- So far in this series, we have discussed how DIN 125 A compares to ISO 7089, DIN 125 B compares to ISO 7090, and DIN 9021 compares to ISO 7093 (well technically... DIN 9021 A compares to ISO 7093 Part 1 and DIN 9021 B compares to ISO 7093 Part 2... but don't let that distinction confuse you at all, because, as we discussed, it's not necessarily an important distinction).

Explain (2 min)

- We've seen that the biggest difference between the washers' standards is the hardnesses that are available from stock, with the ISO versions being available at 200 and 300 HV hardnesses, with 200 HV for steel up to and including class 8.8 steel and 300 HV for steels over 8.8 (so mainly 10.9 and 12.9), whereas DIN 125 and DIN 9021 is only available in 140 HV (or 100 HV at some sizes).
- We also learned that the large series washer has an outer diameter approximately 3x's larger than the inside diameter, which is how it is different from the DIN 125 plain washers.
- The difference in OD relative to ID is the difference between the DIN 125 and DIN 433 as well, with DIN 433s having an OD that is smaller relative to the ID than DIN 125s (i.e. why they are called small series washers).
- The ISO counterpart to DIN 433 is ISO 7092. There are no dimensional differences between DIN 433 and ISO 7092 at any diameter.
- The only differences between DIN 433 and ISO 7092, as with the other washers so far in our washers episodes, is the hardnesses, with DIN 433 being available from stock in the 140 HV 433, while ISO 7092 is available in 200 HV and 300 HV hardness, and the range of diameters, as ISO 7092 omitted the M1, 1.3 and 1.5 sizes.
- This means that the range for ISO 7092 is M1.6 to M36 inclusive.
- Another thing I'd like to point out here that can be very helpful is how the DINs and ISOs are often labelled. For whatever reason, the DINs are often labelled by the ID, therefore an M6 DIN 433, will be called a M6.4, whereas an M6 ISO 7092, is simply an M6 ISO 7092.
- I'll give you another example. Take say you request a M20 DIN 433, you'll probably be offered a M21 DIN 433, as that is the washer made for M20 bolts, but because it is to the DIN spec, they are labelled via the ID, whereas if you get an M20 ISO 7092, it'll probably just be labelled an M20 ISO 7092.

Extend (1 min)

- So, that's it for today!

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- The takeaway from today's lesson is that for your main plain washers, the difference between the DIN and ISO is generally just the hardnesses, with some differences in availability (either in material or diameters) and that the DINs are generally labelled with their ID, whereas the ISOs are labelled with the size bolt they are meant to fit.
- Next time we will take about the "washed up washers" (i.e. DINs with no ISO counterparts, that have mostly been withdrawn).
- As always, feel free to contact me personally at london@eurolinkfss.com with any questions or, of course, requests for quotes and check out the Eurolink website to view other metric fastener comparison videos and/or download the lesson plans.



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