

Teacher
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Subject
Metric Fastener
Standards Comparison

Date
09/18/19

DIN 933/931 to ISO 4017/4014 Comparisons

Objectives:

- Viewers will compare the specific dimensional similarities and differences for DIN 933 to ISO 4017
- Viewers will compare the specific dimensional similarities and differences for DIN 931 to ISO 4014

Essential Questions:

- What are the differences, if any, between DIN 933 and ISO 4017?
- What are the differences, if any, between DIN 931 and ISO 4014?

Standards:

- DIN 933 -> ISO 4017
- DIN 931 -> ISO 4014

Lesson Plan:

Engage (30 sec)

- Let's start this vlog series with a moment of silence for DIN 933 and 931... just kidding, DIN standards for Hex Bolts are still going strong even though they were supposed to have been formally withdrawn in 1992 (after a 5 year transition period that started in 1986). Yes! They've found a way to stay relevant for 27 years! And people are still confused!
- So, repeat after me: 10, 12, 14, 22.
- Again: 10, 12, 14, 22
- One last time: 10, 12, 14, 22
- Just think about it like you were 18 when you had your first kid, and you were like "Oh, I done messed up now!" so you wait about 8 years before you start having more kids. Now, your oldest is 22, and then your 2nd, 3rd, and 4th children are 14, 12, and 10 respectively.

Explain (2 min)

- Why are we repeating those numbers? Well, those are the only sizes at which the DIN and ISO standards for the hex bolts are markedly different.
- As we already know, DIN 933 is a full thread hex head cap screw with coarse thread pitch, whereas DIN 931 is a partial thread hex head cap screw with coarse thread pitch.
- The same is true for ISO 4017 and 4014, both are hex head cap screws with coarse thread pitch, with the difference between them being that ISO 4017 is full thread, whereas ISO 4014 is partial thread.
- So what's the difference between DIN 933 and ISO 4017?
 - Well first off, ISO 4017 has larger nominal sizes available per standard than DIN 933. DIN 933 technically ranges from M1.6 to M52, whereas ISO 4017 ranges from M1.6 to M64.
 - Secondly, that's it really, the DIN 933 and ISO 4017 standards are the exact same with the exception of M10, M12, M14 and M22.
 - At those nominal sizes, the Width Across the Flats (WAF) is different.
 - For M10, M12, and M14 the WAF is slightly smaller for the ISO standard, whereas for M22 ISO standard the WAF is slightly larger.
 - For example M10 DIN 933 has a WAF of 17mm, whereas M10 ISO 4017 has a WAF of 16 mm.
 - The M22 DIN 933 has a WAF of 32mm, whereas the ISO 4017 has a WAF of 34mm.