

Non-Standard 1/4-20 Nuts, Version 1.0

By R. G. Sparber

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Have you ever needed a 1/4-20 nut but had little room for it?

On the far left is a standard 1/4-20 nut. In the middle are two 10-32 nuts. The one at the top was drilled with a #4 drill and tapped 1/4-20.

On the right are a pair of 6-32 nuts. The one on the top has also been drilled and tapped 1/4-20.

You give up some “meat” by re-tapping these smaller nuts, but if your application doesn’t require the strength, this approach might someday bail you out.

If you drill clearance holes, you get very thick washers that happen to have a hex outline.

But wait, there’s more!

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If you need an oversized nut, you can fill the center with a section of threaded rod and drill it for the required tap hole.



I threaded a short length of 3/8-16 rod onto a nut and chucked it into my drill press.



Then I lowered it into my vise and locked the jaws. Next, I locked down the vise to the drill press table.

The center of rotation of the drill press is now fairly² well aligned with the center of the nut.



Without disturbing the vise, I loosened the chuck and raised it.



I unscrewed the rod, screwed in a shorter length, and fitted my chuck with a spotting drill.

I planned to drill a starter hole and then go in with my #4 drill before tapping 1/4-20.

I did not anticipate this was a very hard screw, so drilling was slow and difficult. Tapping would have been worse. However, I believe this approach is valid if you use mild steel threaded rod rather than a piece of grade-8 bolt.

The result would have been a center drilled and tapped piece of 3/8-16 rod³. I would silver braze it into the nut and faced the ends on my belt sander to give me a 3/8-16 nut that fits on a 1/4-20 bolt.

² There is play in the threads so it won't be at dead center. Yet, in this application, it should meet the requirements.

³ Yes, I know that this could be easily done on a lathe but not everyone owns one.

I have no idea why you would want to do this, but you could take a 1/2-20 nut and perform the above procedure, blind drilling with a #43 drill and then running a 4-40 tap. Loctite or silver brazed the rod in place and clean up the faces.

Then you could use a 4-40 nylon bolt to secure it. You get the illusion of security, but it would easily pull off.

You may never need any of these tricks, but hopefully, it will get you thinking in new directions.

I welcome your comments and questions.

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Rick Sparber
Rgsparber.ha@gmail.com
Rick.Sparber.org