

Electronic Tool Tip #24 – QRPme Toroid EZ Tools

Have you ever built a circuit of some sort that required the use of toroidal coils? I know that I have certainly done so. Some of them were large and more easily handled, but some of them were quite small, which made them very difficult to hang onto and even harder to wind accurately.

I have tried all sorts of holding devices, ranging from modified carry-out wooden chopsticks to an “axle” of folded-over 10AWG solid copper wire held in a hemostat, which was in turn clamped into a small benchtop vise. The problem, in almost any method tried, was that either the “axle” inserted into the bore of the toroid had to be removed each time the magnet wire was to be passed through the bore of the toroid, or else the device used to clamp onto and hold the toroid would itself damage or destroy the toroid. Enter the QRPme Toroid EZ Tool (Figure 1) and *voilà!* Problem solved!

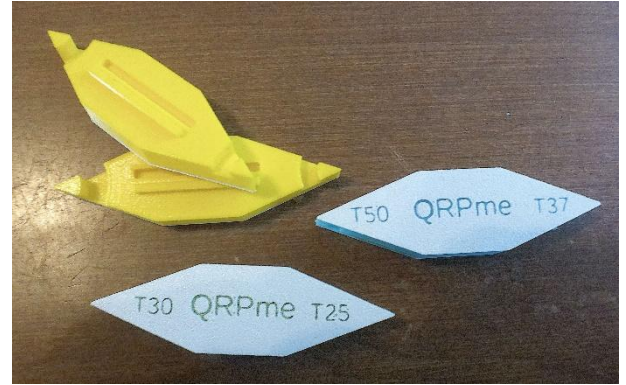


Figure 1 - QRPme Toroid EZ Tool set

The tool is actually three dual-use tools sold as a set. Each tool will fit two different toroid sizes as follows:

- green – fits T25 toroids on one end, and fits T30 toroids on the opposite end;
- blue – fits T37 toroids on one end, and fits T50 toroids on the opposite end; and
- yellow – fits T80 toroids on one end, and fits T106 toroids on the opposite end.



Figure 2 - Tools are all the same size

These tools are high-quality 3-D printed devices with accurate arced grooves in each end. Each tool is comprised of two identical halves that snap together to form a complete holding fixture for the toroids that it is sized to fit, and the tool itself can then be clamped into a bench vise to free up both of your hands for the winding task, though I generally just hold it in one hand while feeding the

wire with my other hand. The tools are externally identical in size and shape (Figure 2) except for the thickness or height of each tool; the larger the toroid for which the tool is intended, the taller the tool is. When installed on a toroid, the tool occupies approximately a 45° wedge of the toroid, leaving the optimum angular remainder occupied by wire for most finished toroidal coils. Measuring the tools that I have, the “pointed” end of each tool forms an isosceles triangle with a base dimension of 0.8” and a height dimension of 1.0”. Applying some basic mathematics, some geometry, and some trigonometry will yield the data that the base angles are each 66.42°, leaving 47.156° as the apex angle, close enough to 45° for my needs.

Experience has shown that if you choose to hold the tool rather than clamping it into a vise, you would be well-served by placing a wrap of tape around the tool to hold its two halves together while you are winding the coil. This will prevent fatigued and cramping fingers, especially when working with small toroids.

This tool is available online from [qrpme.com](https://www.qrpme.com) at a price of \$30.00 (USD) plus shipping. It should be noted that as described on the item page, the kit includes two tools; in actuality three tools are now included in the set. Of course, the government has to get its share, so tax will also be applied. Point your browser to <https://www.qrpme.com/?p=product&id=PT2> if you want to investigate this item for yourself.