

A Hex Wrench Gage, Version 1.0

By R. G. Sparber

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The ultimate goal of making this gage is to throw it away.



Initially, I will use it to measure the hex holes in Socket Head Cap Screws (SHCSs) so I don't need to make multiple trips to my set of hex wrenches² before finding the right one.

Eventually, I hope this gage will help me train my eye so I can look at any SHCS and pick out the correct hex wrench the first time. I can identify SAE screws, so there is hope.

You may notice that the right three SHCSs shown above use the same hex wrench yet have different outside diameters. This demonstrates that looking only at the OD is not a good indicator of the needed hex wrench.



To use the gage, I place the gap over the hex hole and then read off the number of 64ths. In this example, I need a $\frac{10}{64}$ inch = $\frac{5}{32}$ inch hex wrench.

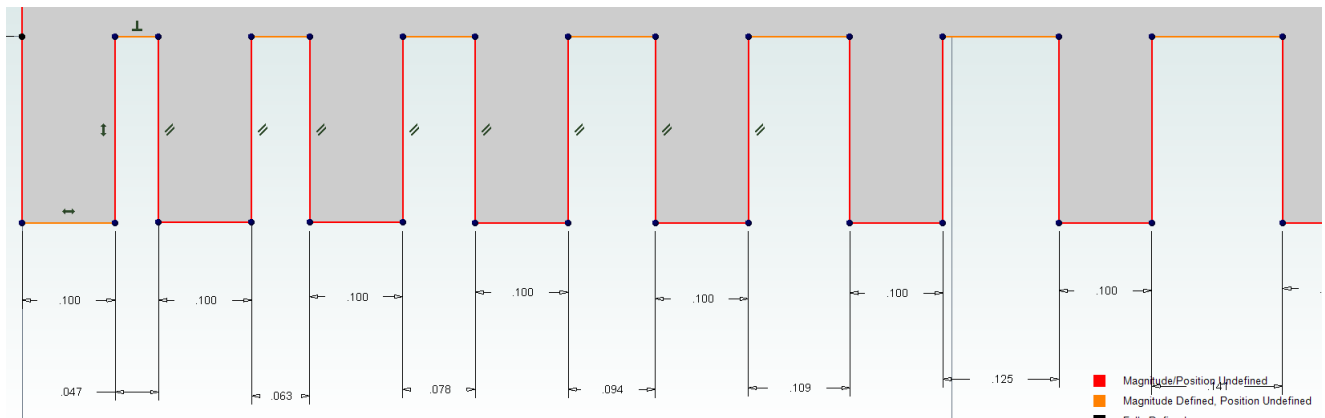
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² I prefer to call them Allen Keys or Allen wrenches but this confuses some people.

Design Details



There isn't anything earth-shaking about this gage, but it does have a few features worth mentioning.



I used Alibre as my CAD tool and then 3D printed it using my Prusa printer with PLA at a 20% fill. The outside dimensions are 0.05" thick, 1" tall, and almost 7" long. The gage could have been made out of stiff paper or thin plastic.

I detest fractions, so I only display the number of 64ths for the odd-numbered gaps. This side steps the mess of reducing the fraction for even numbers and gives me a cleaner look.

The space between gaps is a constant 0.1". This is strong enough for normal handling. If I start to have trouble with fingers breaking off, I will print the gage again with a thickness of 0.1". I think this will make it slightly harder to compare the gap to the hex hole.

Acknowledgments

I welcome your comments and questions.

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