

Pocket Holes in Small Carrier Tapes

A Guide for Choosing the Size

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Pocket Hole Sizes for Small Pockets

The EIA-481 standard calls out minimum pocket hole diameters based on carrier tape width. For 8mm wide, this D1 dimension is 1.0mm minimum, for 12-24mm wide it is 1.5mm min, and for 32 and above it is 2.0mm minimum. This is usually not an issue, except for pockets with Ao dimensions that are smaller, or only slightly larger than the pocket hole minimum size.

The use of the pocket hole can vary from not used, to access for a push pin, part-in-pocket verification, or application of vacuum to hold the device in place once the cover tape is lifted.

When a pocket hole is required by the users, and the pocket is too small to utilize a standard size pocket hole, then smaller holes would then be required. These holes should not take up more than 75% of the width (Ao) or length (Bo) of the pocket bottom and leave at least 0.10mm of pocket bottom space nominally on both sides of the hole, allowing for any P2 variations within the specification. In addition, they should be at least 0.10mm smaller than the smallest device dimension to prevent parts from falling through or sticking in the pocket hole. These guidelines should be based on nominal dimensions.

For example, a device that is 0.55 ± 0.05 would have a minimum dimension of 0.50, so a pocket hole should be no larger than 0.40mm. If the pocket size is 0.65 ± 0.05 , a 0.40mm pocket hole would take up 62% of the pocket bottom. Also, a 0.40mm hole would leave 0.10mm on each side of the hole to the pocket wall. This would meet all the criteria laid out above.

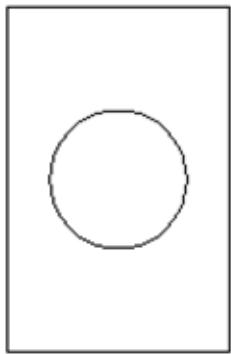
The small pocket hole sizes should be standardized as much as possible. Suggested sizes are:

- 0.75mm
- 0.50mm
- 0.40mm
- 0.30mm
- 0.20mm
- 0.15mm

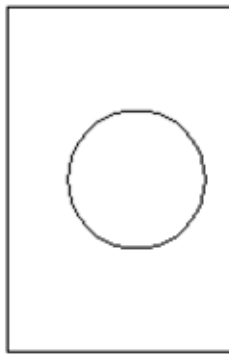
Since hole sizes are called out as a minimum in the EIA-481 standard, there is latitude to move up to a larger size hole as long as it leaves at least 0.10mm per side nominal, does not cover more than 75% of the pocket bottom in either Ao or Bo direction, and is at least 0.10mm smaller than the minimum device size.

When looking at a small pocket configuration, even a small amount of movement can appear to give a very large change in position of the pocket hole. The small offset is then exaggerated under magnification.

The below represents an enlargement of a 0.6mm x 1.0mm pocket with a 0.4mm pocket hole in a centered position and in a position offset by 0.05mm (the maximum allowed by the P2 tolerance)



Hole Centered



Hole Offset 0.05mm