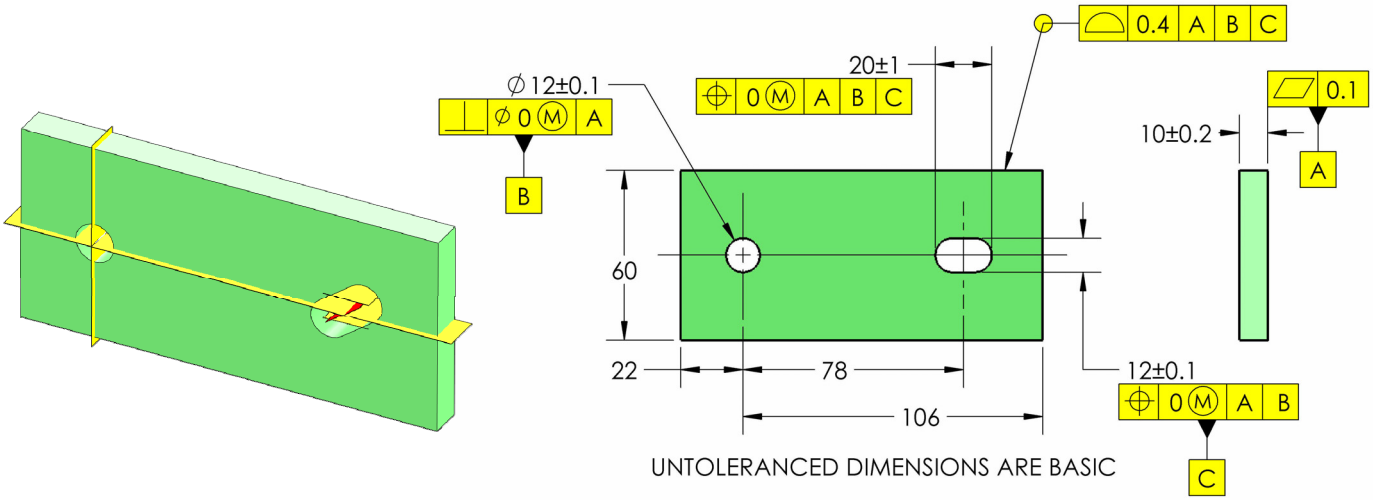
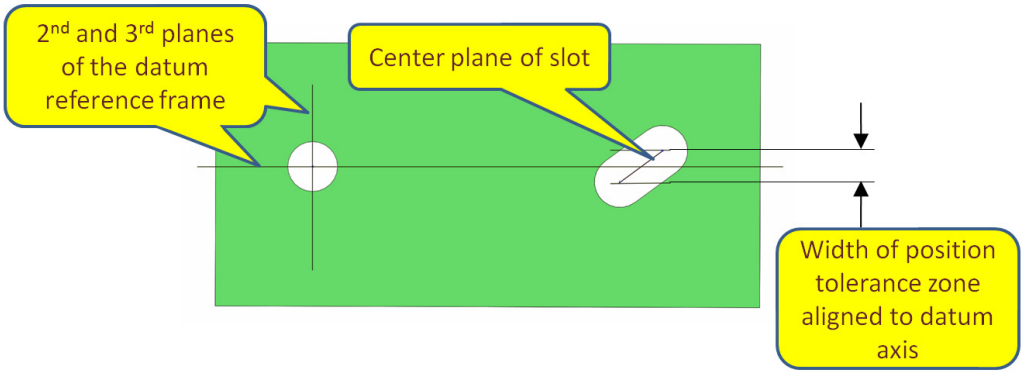
May 2011
Tip-of-the-Month
Hole and Slot as Datum Features – Part I

A very robust method of locating a part in an assembly is to use a hole and slot as alignment features. A couple of bullet-nosed bosses or fasteners may be used to mate with the hole and slot. These features often become the secondary and tertiary datum features as is illustrated here. I am often questioned regarding how to geometrically tolerance the slot. The width of the slot should have a position tolerance with respect to the primary and secondary datum features. The two questions I receive most often are: "How can the position tolerance be inspected?" and "How is the part aligned for inspection?" In Parts I and II of this Tip I will address the two questions.

The answer to the first question really depends on what sort of inspection equipment you have available. No matter what you use, the intent is to establish the first datum plane which is a tangent plane contacting datum feature A. A datum axis is then established using the related actual mating envelope (something like the largest pin that will fit datum feature B that is at right angles to the first datum plane). The part is free to rotate about the datum axis in order to fit the center plane of the slot within the position tolerance zone.





http://www.tec-ease.com/tips/May-11.htm to view a video clip of Don Day explaining this Tip.

The video on our Premium Site will provide animations that will explain this Tip in more detail.

Please email us any suggestions or topics that you would like to see covered in our Tip-of-the-Month series.

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