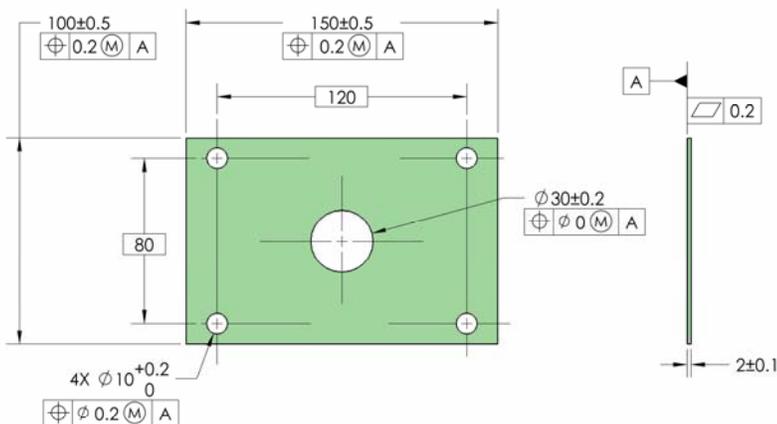
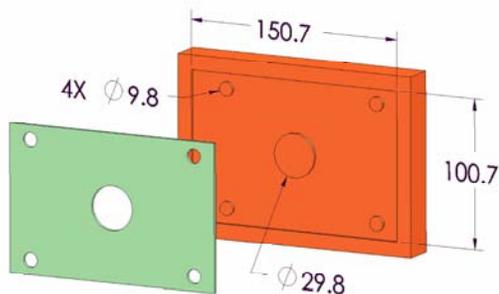
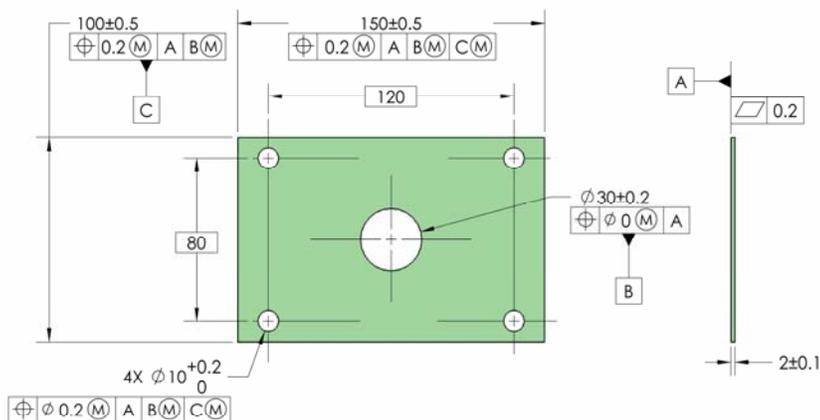


December 2007 Tip-of-the-Month

Don't Forget Simultaneous Requirements.

When feature and patterns of features have the same datum reference, they are considered to be a pattern. This rule is not well understood, but it is a rule.



The drawing on the top has three datum features which is pretty common. A lot of folks think this is necessary to completely control a part. Below the drawing is a possible gage that could be used to verify that the part meets the drawing. Of course, the gage shown is theoretical. A real gage would have to allow for gage tolerance and perhaps even gage wear allowance. Once you have convinced yourself that this gage would work, take a look at the lower drawing.

The lower drawing has only one datum referenced. In spite of that the part is controlled as well as the first drawing. This is the concept of simultaneous requirements. Since all features reference datum feature A, they are all a pattern and must meet their tolerances simultaneously. A gage for this part would be identical to the one shown.

Using simultaneous requirements works well when parts are to be inspected using an overlay on an optical comparator or a hard gage. However, if a CMM or layout inspection is to be used, simultaneous requirements can be very difficult to inspect.

Since the design intent didn't change and both drawings have the same meaning, the person making the drawing should definitely take into consideration how the part will be inspected.

Go to <http://www.tec-ease.com/tips/Dec-07.htm> to view a video clip of Don Day explaining this Tip.

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

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