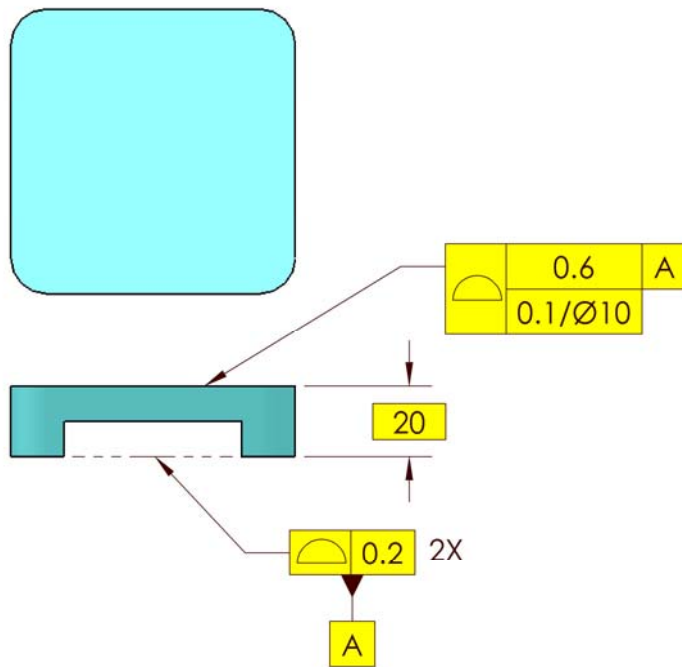


May 2009 Tip-of-the-Month

(in accordance with the ASME Y14.5-2009 standard)

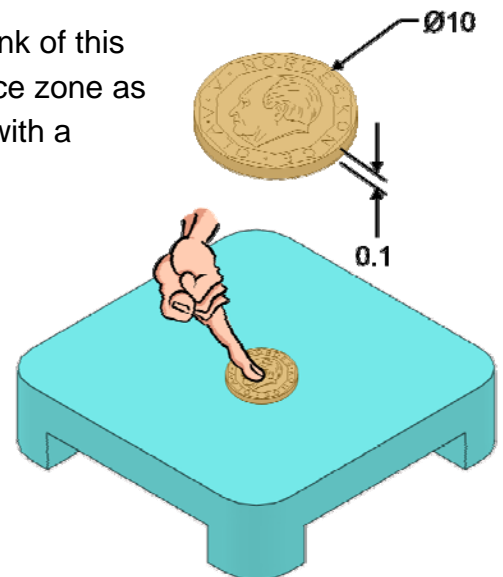
Smooth the Surface with Profile on a Unit Basis.

Past standards have shown straightness and flatness applications "on a unit basis". The purpose of applying a profile tolerance on a unit basis is to avoid abrupt changes in the surface. This revision of the Standard states that profile of a surface may be applied on a unit basis similar to straightness or flatness. [8.3.2.1]



The location of the top surface of this part is controlled by the 0.6 profile of a surface tolerance relative to the datum established by datum feature A. If this was the only tolerance applied to this surface, there could be steps in the surface as large as 0.6. The 0.1/Ø10 profile tolerance has been applied to avoid these abrupt steps in the surface. This tolerance means that any area within a diameter of 10 mm on the top surface must meet the profile tolerance of 0.1.

Think of this tolerance zone as a coin with a



diameter of 10 mm that is 0.1 mm thick. In this limited area the profile tolerance is the same as a flatness tolerance. The surface within this limited area must fit "inside" the coin. Now imagine that you can push the coin (tolerance zone) around on the surface. No matter where the coin is on the surface, that Ø10 area must be flat within 0.1.

Even though this is being shown on a flat surface, it can be applied to contours as well but you would need to imagine a flexible coin that could conform to the basic contour to visualize the tolerance zone.

Go to <http://www.tec-ease.com/tips/May-09.htm> to view a video clip of Don Day explaining this Tip. 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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