

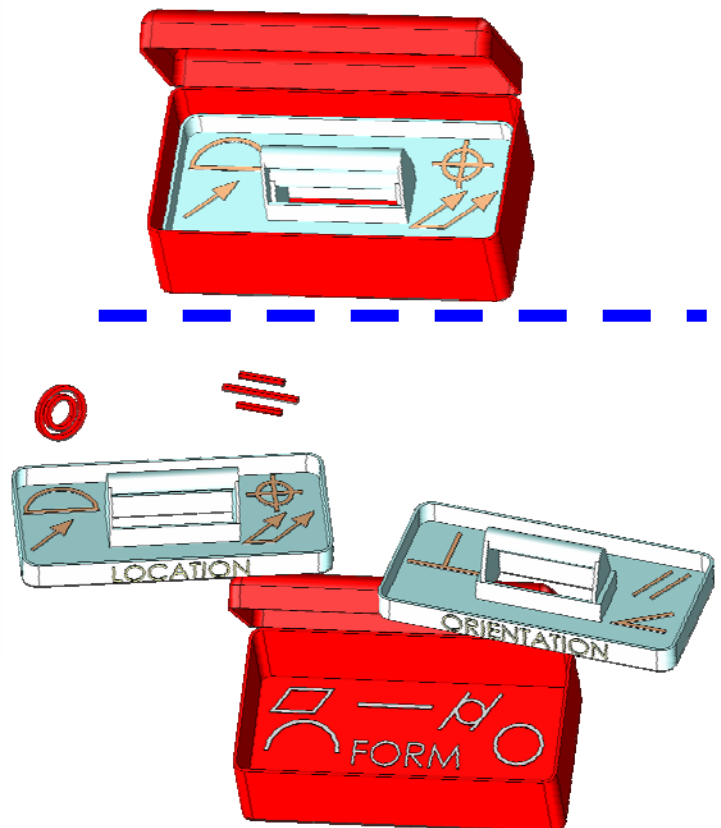
June 2008

Tip-of-the-Month

Pick Your GD&T Tools Wisely

I often refer to the GD&T controls as tools in your toolbox. Like any other tools they can be misused, abused and over used. In my toolbox in the garage there are two trays. I put the tools I use most often in the top tray—adjustable wrench, screw driver, gripping pliers, hammer and duct tape. I can fix most things using what I have in the top tray. The second tray has my socket set and the bottom of the toolbox contains the tools I rarely use. An analogy between my toolbox and the use of GD&T may be made.

Symbol	Name	Controls	Datum Referencing
—	Straightness	Form (Never Location)	Never
▭	Flatness		
○	Circularity		
∅	Cylindricity		
⊥	Perpendicularity	Orientation (Never Location)	Required
//	Parallelism		
∠	Angularity		
⌒	Profile of a Line	Location, Orientation, Size and Form	Optional
⌓	Profile of a Surface		
⊕	Position	Location and Orientation of Features of Size	Required
↗	Circular Runout	Location of Cylinders	
↘	Total Runout		
◎	Concentricity		
≡	Symmetry	Location of Derived Median Points	



Usually, on a drawing, you establish a datum reference frame, control the datum features and locate the other features on the part to the datum reference frame. So, the top tray of the GD&T toolbox has the best locating tolerances which are profile of a surface, position and the runouts. The second tray has the orientation controls which you get for free with location but may require refinement. In the bottom of the toolbox are the form controls which you get for free with the limits of size and the other location and orientation controls where they are applied to a surface. And, like the slide rule, the tools of concentricity and symmetry are not in my GD&T toolbox since they are not used much, if at all, any more.

Go to <http://www.tec-ease.com/tips/Jun-08.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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