New Symbols

New symbols in the 2009 Revision of the GD&T Standard[1]

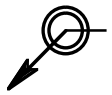
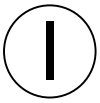
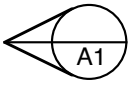
ALL OVER	
CONTINUOUS FEATURE	
SPOT FACE	
INDEPENDENCY	
UNEQUALLY DISPOSED PROFILE	
DATUM TRANSLATION	
MOVABLE DATUM TARGET SYMBOL	

Figure 3-1 New symbols used on prints

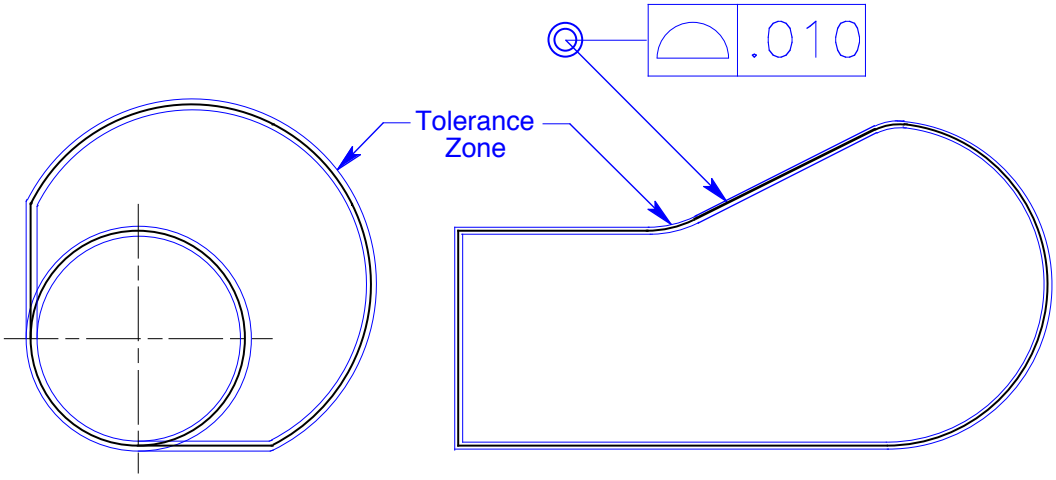


Figure 3-2 All Over symbol

The All over symbol, used with the profile control, consists of two small concentric circles placed at the joint of the leader connecting the feature control frame to the feature. Where the all over symbol is specified, the profile applies all over the three-dimensional surface of the part as shown in Fig. 3-2.

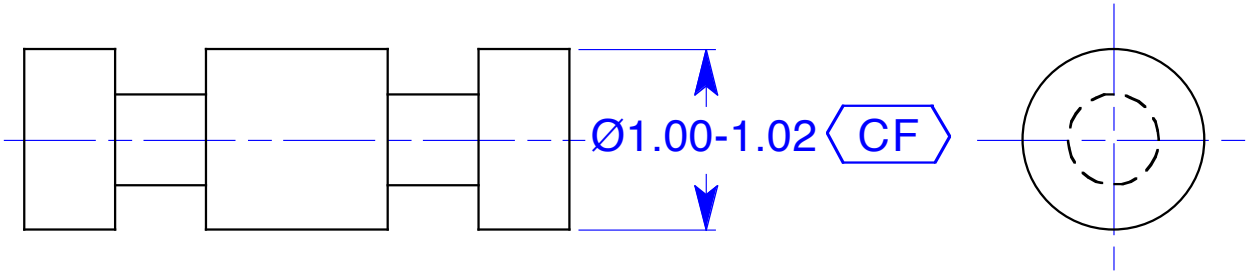


Figure 3-3 Continuous feature symbol

The Continuous feature symbol specifies that a group of two or more interrupted features of size are to be considered one single feature of size shown in Figure 3-3.

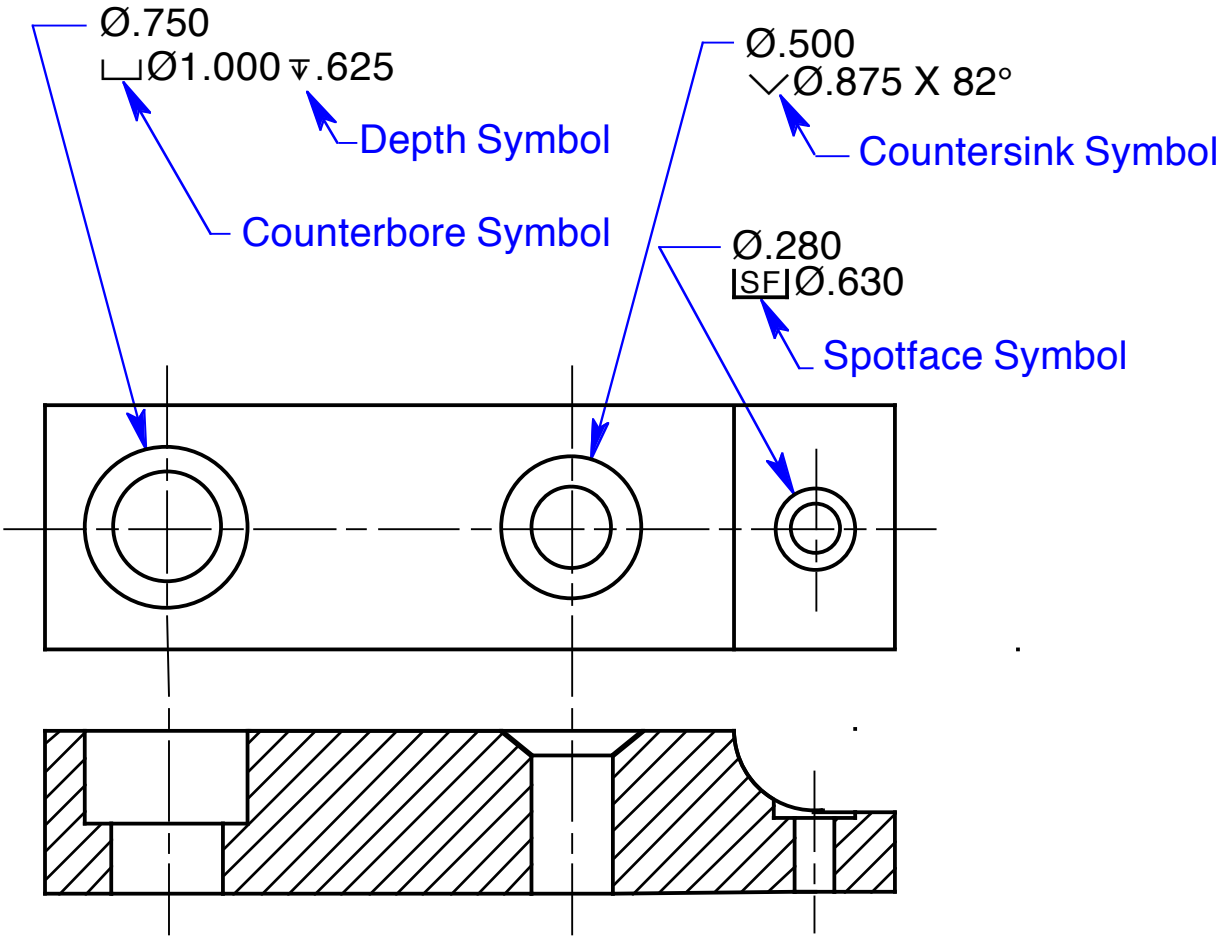


Figure 3-4 Spotface symbol

Where a **Spotface** is indicated, either the depth or the remaining thickness of the material may be specified. If no depth or remaining thickness is specified, the spotface is the minimum depth necessary to clean up the surface of the specified diameter.

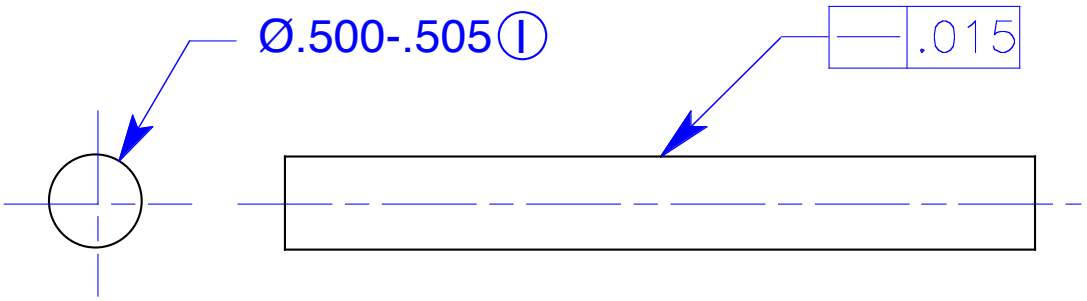


Figure 3-5 Independency Symbol

The **Independency** symbol, circle I, indicates that perfect form of a feature of size at MMC or LMC is not required. However, a supplementary form tolerance(s) may be required to limit excessive variations of form as shown in Fig. 3-5.

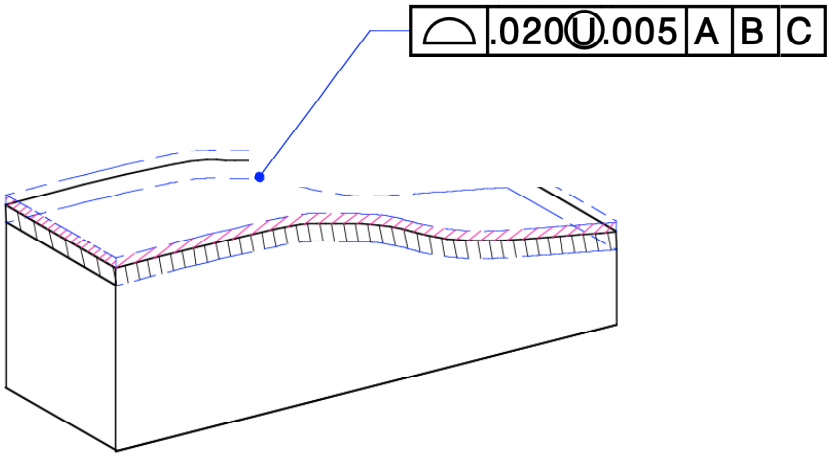


Figure 3-6 Unequally disposed profile symbol

The **Unequally Disposed Profile** symbol, circle U, indicates a unilateral tolerance or a tolerance unequally disposed about the true profile. This symbol shall be placed in the feature control frame following the tolerance value as shown in Fig. 3-6. The tolerance that would allow additional material added to the true profile is place after the circle U.

[1]Cogorno, Gene R., ***Geometric Dimensioning and Tolerancing for Mechanical Design, Second Edition***, McGraw-Hill, New York, 2011, pp. 24 and 117.

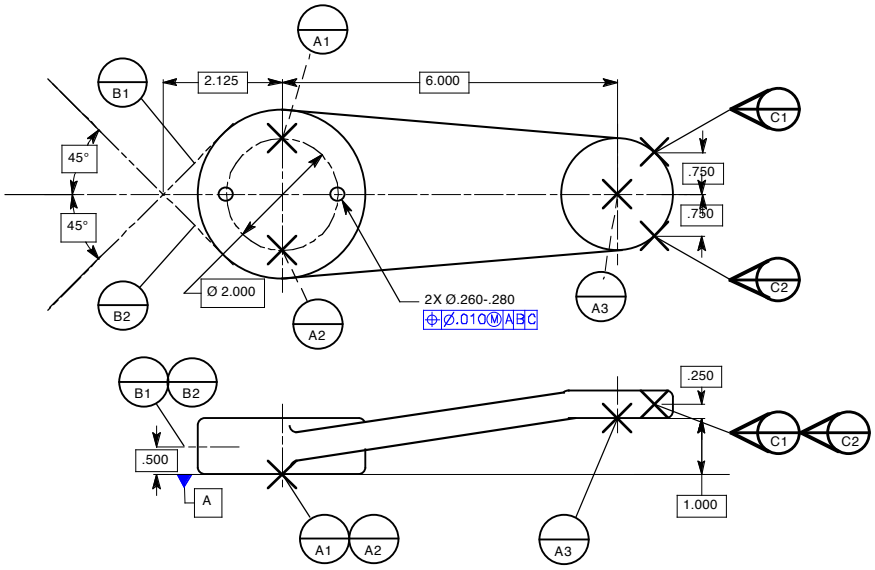


Figure 4-8 Movable Datum targets equalizing datum features

The **Movable Datum Target** symbol indicates that a datum target is not fixed at its basic location and is free to translate.

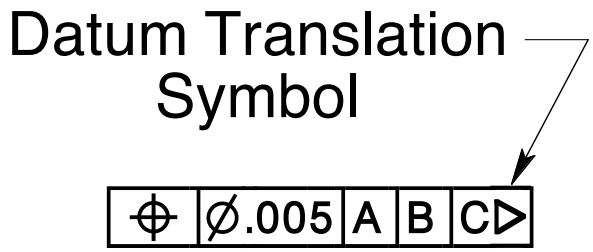
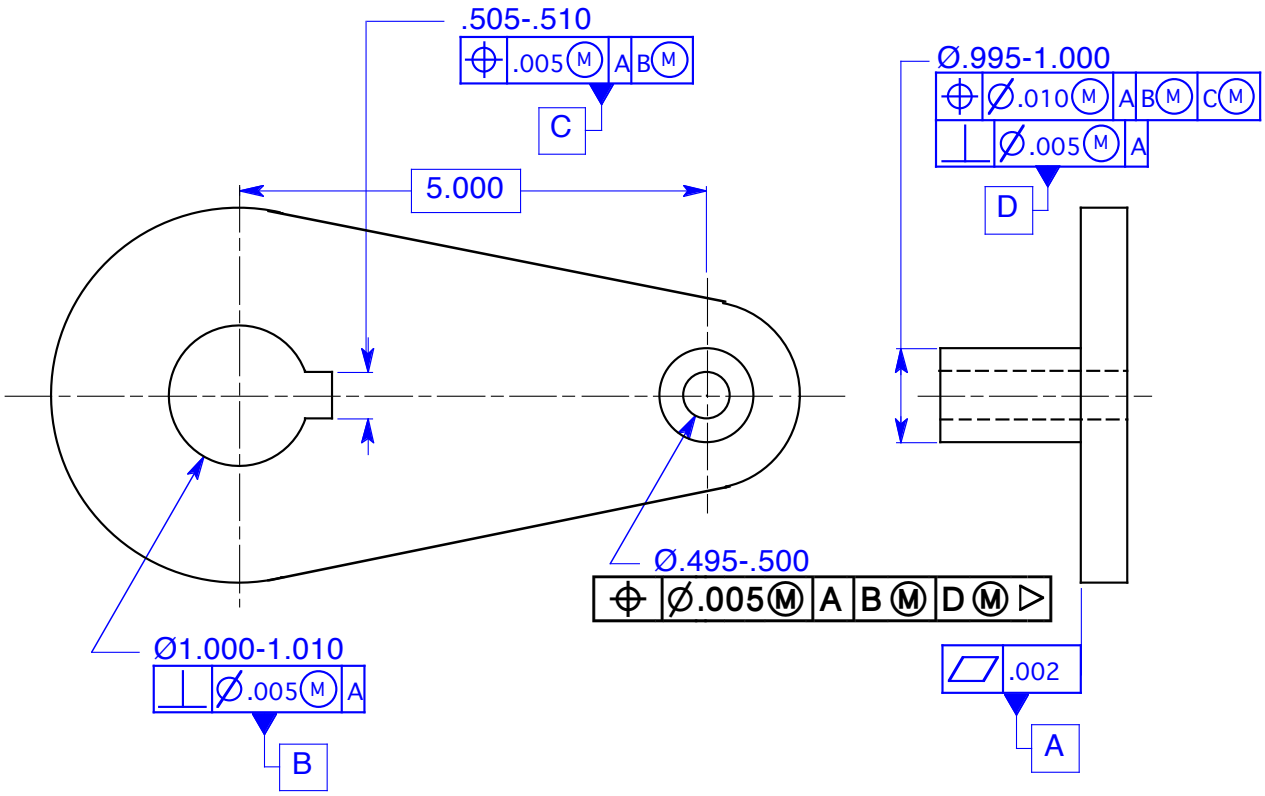


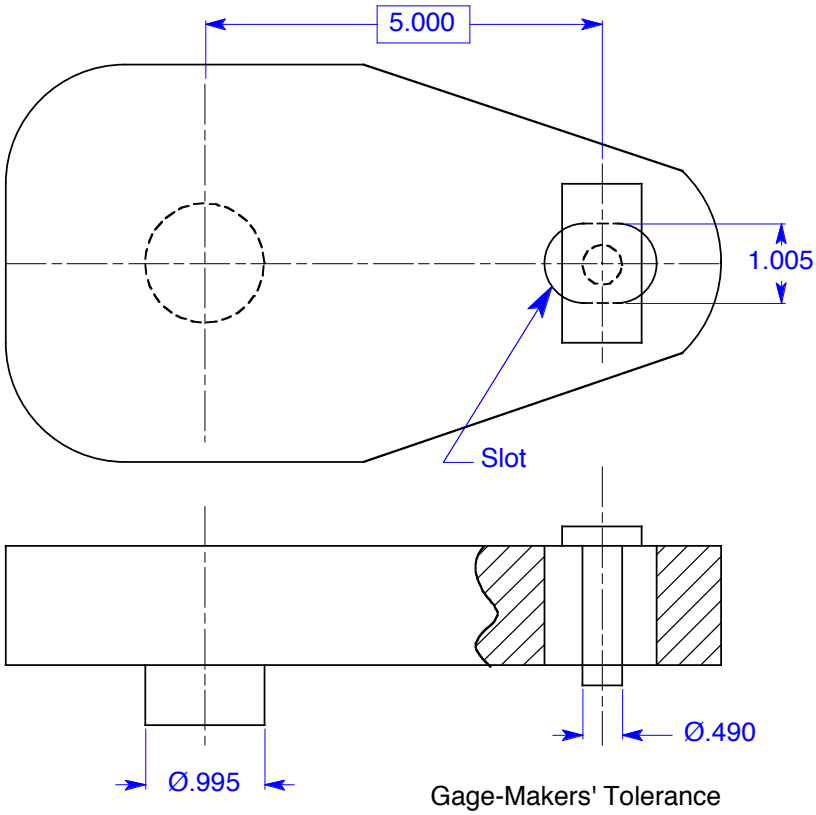
Figure 3-7 Datum Translation symbol

The **Datum Translation** symbol indicates that a datum feature simulator is not fixed and is free to translate within the specified geometric tolerance to fully engage the feature.

The maximum material boundary of a datum feature applies at its virtual condition with respect to the previous datum feature. In the drawing on the next page, datum feature D is specified with a datum translation symbol. The datum translation symbol allows datum feature D to translate with respect to datum feature B. Consequently, datum feature B is no longer part of the location equation; the maximum material boundary of datum feature D is 1.005, which is the virtual condition of datum feature D with respect to datum feature A. The gage, shown below, must first mate with datum feature A and then with datum feature B. But the translation symbol allows datum feature D to translate back and forth with respect to datum feature B. In this case, datum feature simulator D is not located to datum feature simulator B. Datum feature simulator D is a slot whose width is produced 1.005 wide, the virtual condition of datum feature D with respect to datum feature A. Datum feature simulator D controls clocking about datum feature B.



Part



Gage-Makers' Tolerance

Gage