**SURFACE PROFILE CONTROL**

**3g. Unequally Disposed Profile Modifier: (U).**

*What*: The ability is provided to specify unequally disposed Surface Profile tolerance zones without resort to graphic methods.

*Where* §8.3.1.1 & 8.3.1.2 and Figs. 8-1 through 8-4 p.159-161 & Fig. 8-25 p. 177

*Objectives*: To enable the specification of unequally disposed Surface Profile tolerance zones to be captured in code rather than merely visually in a drawing.

*Ratings*: usefulness [high] implementation [extremely poor]



Although not as clearly stated in the 2009 Standard as one might like, the default condition of a Surface Profile tolerance zone is that it be equally bilaterally distributed about the Basic (True) surface of the controlled feature as shown in Fig. 8-4 a) p.161.

When there are reasons to specify a unilateral or an unequal bilateral Surface Profile tolerance zone, the 1994 standard only made it possible to do so visually in a drawing – see Figs. 8-4 a) - d) p.161. The 2009 Standard however, provides symbolic means for doing so using the “Unequally Disposed Profile” modifier (U) as also shown in Figs. 8-4 a) - d) p.161. Unfortunately, the method chosen to do so makes it difficult for users to “decode”.

**DETAILS**

**Y14.5 2009 Implementation of the Modifier (U)**: As set forth in §8.3.1.2 p.159 and illustrated in the first set of Feature Control Frames below, when the modifier (U) is specified, the tolerance value preceding the (U) in the Feature Control Frame represents the total Surface Profile tolerance, and the value following the (U) represents the portion of the tolerance zone which lies on the in-space side of the Basic surface. As illustrated in accordance with the Y14.5 2009 specification, in the first instance, the total tolerance is 0.3 mm and the tolerance zone is unilaterally in-space. In the second case, the total tolerance is again 0.3 mm, but only 0.1 mm is in-space.


**A Possible Alternative Implementation of the Modifier (U)**: As can easily be made part of a corporate modification of the Standard, the following alternative is suggested for consideration, namely that the tolerance value preceding the (U) represent the in-space portion of the tolerance zone and be preceded by a “+” sign to emphasize the fact, and that the value following the (U) represent the in-material portion of the tolerance zone and be preceded by a “-“ sign to emphasize the fact. Since deviations in-space and in-material must be independently reported anyway, this method represents a far more functional, and far more easily decoded alternative. These two instances above are reformatted here:

