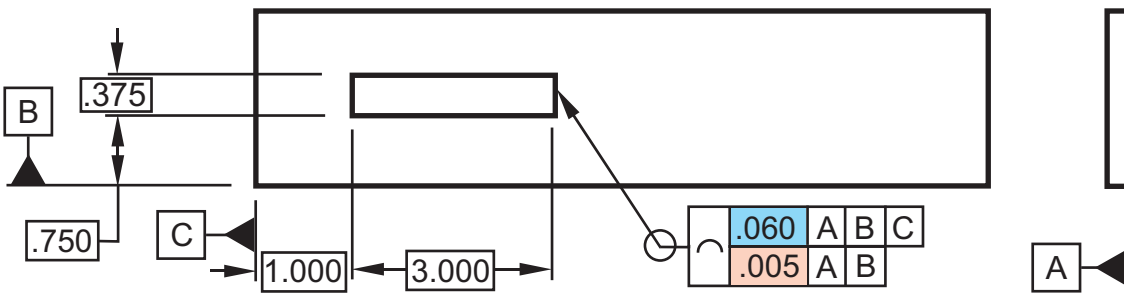
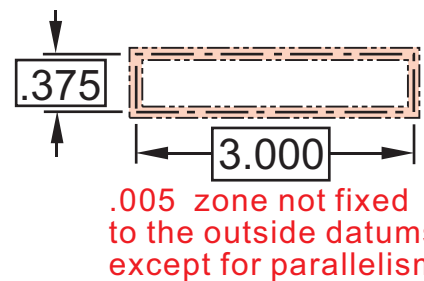
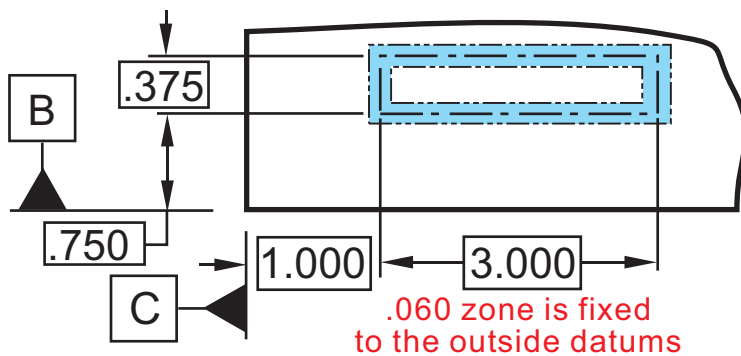


Figure 14

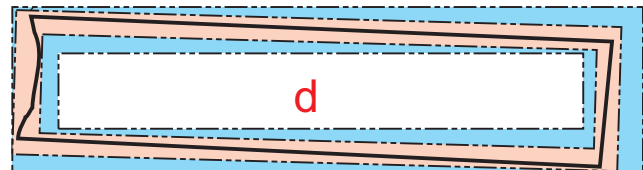
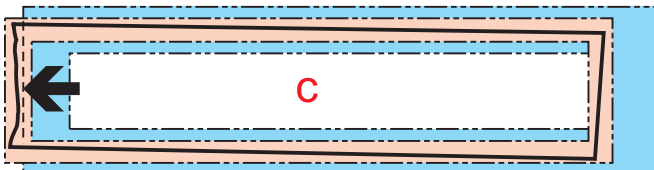
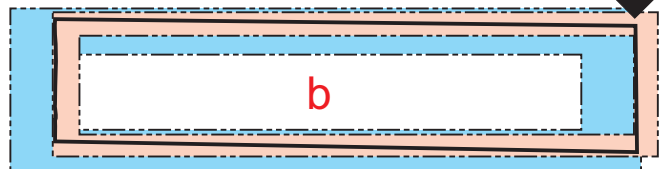
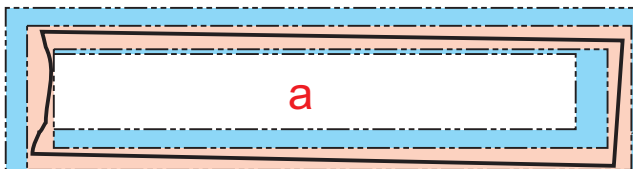
3.10 Composite Profile – Composite Profile is similar to Composite Position. The upper tolerance zone locates the lower tolerance zone loosely from the datum(s). The lower tolerance zone controls the surface condition for SIZE and ORIENTATION ONLY to the datum(s). In (a) and (b) of Figure 15, the example is correct because it shows that the .005 tolerance zone is parallel to datum –B–, and the surface of the rectangle falls in both tolerance zones. Example (c) is incorrect because the surface of the rectangle is outside of the .060 tolerance zone. Example (d) is also incorrect because the .005 tolerance zone is not parallel to datum –B–. Remember, tolerance zones are always perfect to their datums.



1. The upper zone is to locate the shape loosely from datums B and C.
2. The lower zone is to control the shape, size and orientation to Datums A and B.
3. The surface of the shape must fall within both zones.



OK as long as the surface falls within both tolerance zones



The surface did not fall within both tolerance zones.

The lower tolerance zone cannot tilt, it must be parallel to datum B.

Figure 15

3.11 Boundary Principle – Profile tolerance may be combined with positional tolerance where it is necessary to control the boundary of a non-cylindrical feature such as an access hole in order to permit insertion to align with another part. The basic dimensions and the profile tolerance establish a tolerance zone (shown in blue in Figure 16), which controls the shape and size of the feature. Additionally, the position tolerance (shown in red) establishes a theoretical virtual condition boundary shape (shown in yellow) to the basic profile shape. Using this concept, the term “BOUNDARY” is placed beneath the positional feature control frame. For an internal feature, the virtual condition boundary equals the MMC size of the profile tolerance minus the positional tolerance, and the entire feature surface must lie outside the virtual condition positional boundary. For an external feature, the