Datum Features of Size[1]

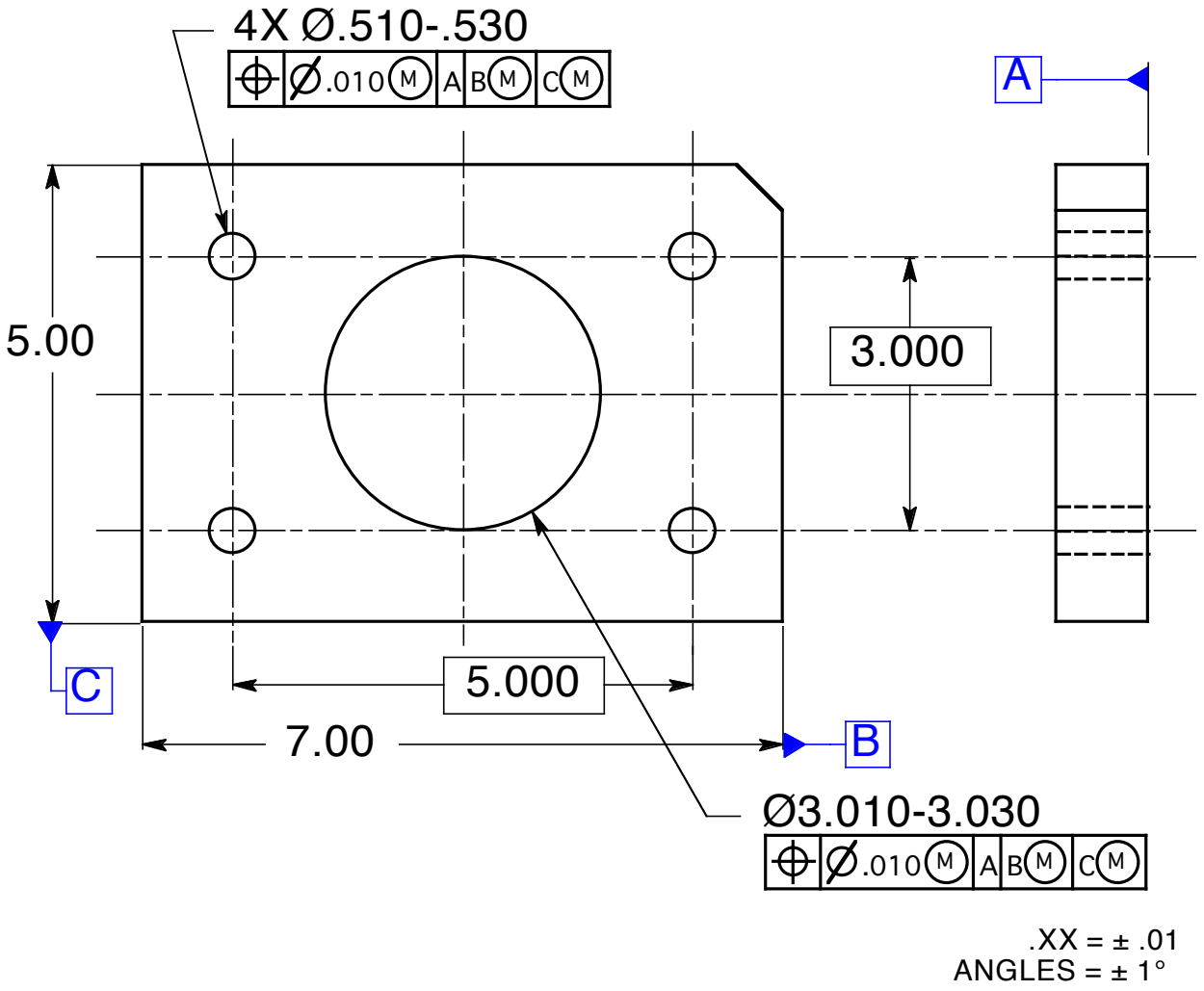

Figure 4-10 Features controlled to datum features of size

If a datum feature symbol is in line with a dimension line, such as datum features B and C in Fig. 4-10, the datum feature is the feature of size measured by that dimension. The 7-inch feature of size between the left and right edges is datum feature B and the 5-inch feature of size between the top and bottom edges is datum feature C. The 4-hole pattern and the 3-inch diameter hole are both located on the center planes of datum features B and C, as specified in the feature control frames.

[1]Cogorno, Gene R., ***Geometric Dimensioning and Tolerancing for Mechanical Design, Second Edition***, McGraw-Hill, New York, 2011, p. 58.

It is understood that the 4-hole pattern is located to the center planes of datum features B and C, and no dimensions are required from the center planes to the pattern. The axis of the 3-inch diameter hole is also located at the intersection of the center planes of datum features B and C. Since datum features B and C are specified at MMB, circle M, a shift tolerance is available in each direction as each datum feature of size departs from maximum material condition toward least material condition. For example, because there is a size tolerance of ± .010, datum feature B could be as small as 6.990 and as large as 7.010. Suppose datum feature B actually measures 7.002 wide. In this case, datum feature B is .008 smaller than maximum material condition (7.010 – 7.002). Both the center hole and the 4-hole pattern can shift from left to right within an .008 wide tolerance zone centered on the center plane of datum feature B. Shift tolerance for datum feature C applies in the same way.