

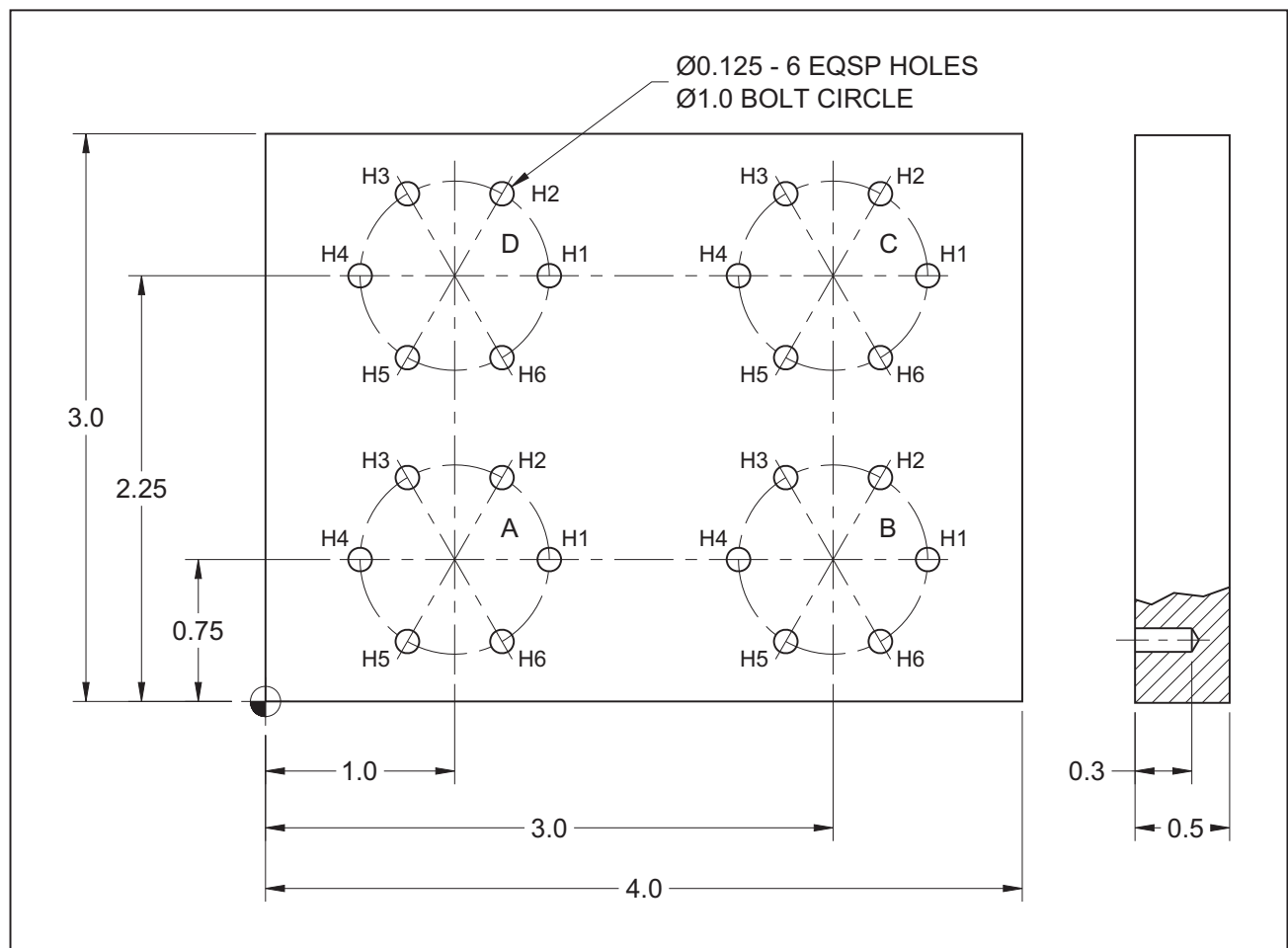
Bolt circles are one of the most common patterns for machining holes. A typical bolt circle is defined by its XY center, the bolt circle diameter, and the number of equally spaced holes. Detailed dimensions of the holes are also defined in the drawing and, in many cases, the angular orientation of the bolt circle is also shown.

Bolt Circle Diameter is often abbreviated as *BCD* or *B.C.D.*, and even as *PCD* - *Pitch Circle Diameter*.

➔ Objective:

In this project, use the subprogram method to develop a part program for the four patterns of identical bolt circles shown below, in the order of *A-B-C-D* for the patterns and *H1-H2-H3-H4-H5-H6* for the holes. Each hole requires a 0.012 x 45° chamfer. For the purposes of this exercise, use 70 ft/min surface speed and 6.0 in/min feedrate with only two tools:

- ❑ T05 - Ø 0.5 - 90° Spot drill (located in the spindle when the setup is completed)
- ❑ T19 - Ø 0.125 Drill



There are several methods that can be used to complete the project. Two common methods are explained in the *Solutions* section.