

How to draw threads, bolts and nuts in AutoCAD; the main concept

In the following Figure is shown a bolt thread with its dimensions.

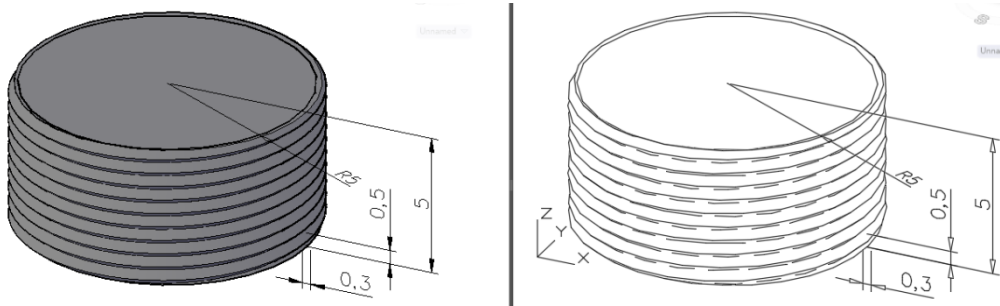


Figure 1: A bolt thread.

In order to draw this 3D drawing, first we create the cylinder with R5 and height 6. Next step is to create a helix R5, height 6 and turn height 0.5. After that draw the isosceles triangle with base 0.5 and height 0.3 (which is the depth of the tread), as shown in Figure 2.

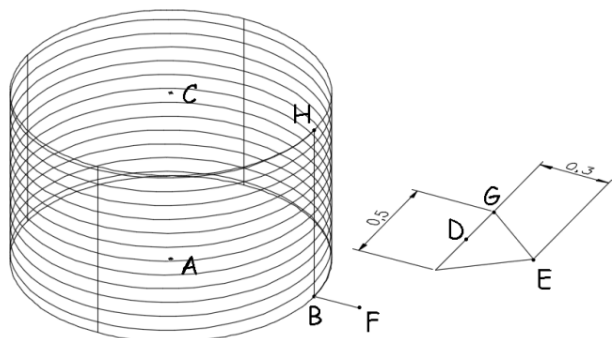


Figure 2: A cylinder, a helix and a triangle.

Align the triangle perpendicular to XY level and parallel to XZ level, as shown in Figure 3.



Figure 3: The triangle aligned to the helix.

Extrude the triangle by using as path the helix. The final result must be sliced on the top and at the base in order to be like in Figure 1.

If final bolt or a nut is the combination of the previous thread and the bolt head shown in Figure 4 with some arbitrary dimensions.

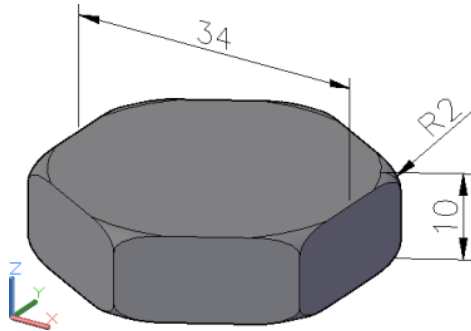


Figure 4: A hexagonal bolt head.

The concept of creating this bolt head is to combine a hexagonal solid with a filleted cylinder as shown in Figure 5. And the final result (as shown in Figure 4) is achieved as the intersection of the two solids.

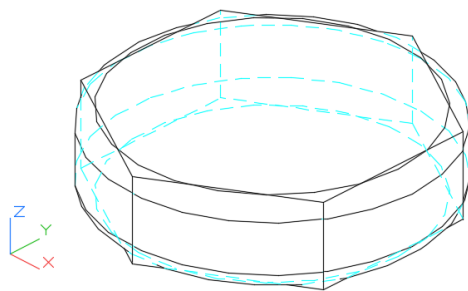
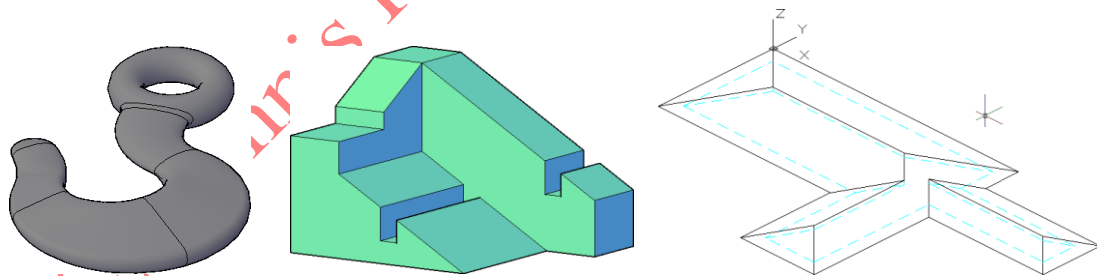


Figure 5: A hexagonal bolt head.

If you need a more detailed instruction you can find it in my book "[Practising AutoCAD](#)".

Also in the same book you can find exercises how to draw 3D drawings as in the next Figures.



For the theory of AutoCAD and for more complicated examples see my book "[The Art of Applied AutoCAD for Surveyors, Architects and Civil Engineers](#)".

Also you can visit my web site www.kappos.gr.