

Lathe Drawing

➡ Answers to questions:

1. It is an external thread dimension, where the $\varnothing 2.5$ is the nominal thread diameter, and the 10 is the number of the threads per inch
2. It defines the chamfer size as 0.025 width at 45 degrees
3. At the intersection of the front finished face and the spindle centerline
4. Mild steel of the 1020 series
5. It describes the stock size as a billet (not a bar) of $\varnothing 6.75$ diameter and 6.625 length, with no hole
6. Also by its nominal diameter (in mm), and the pitch of the thread, for example, M75x2
7. To the sharp corners (imaginary intersections)
8. Machinery's Handbook, charts - by using a common formula (*explained in Chapter 38 - Single Point Threading*)
9. From two horizontal dimensions: $1.25 - 1.0 = 0.25$
10. The top diameter is $\varnothing 2.5$, the recess diameter is $\varnothing 2.25$. The chamfer size is one half of the difference, or $0.125 \times 45^\circ$. 0.125 is also the depth of the recess.

➡ Bonus questions:

11. The maximum depth of grip for chucking will depend on length of the $\varnothing 6.5$ and the exact machining method. Typically, the job would have two operations. The first operation would face one end and make the $\varnothing 6.5$ longer than necessary, with a chamfer between them.

The second operation would have soft jaws clamped on this finished diameter, but the turning would also include run-off the R0.25. The run-off will end in the clear, above the part, but also closer to the jaws. The size of the run-off will have to be taken from the actual length of the $\varnothing 6.5$. This is always a situation to watch carefully.
12. Clamp stock material in hard jaws, face one end (minimum cleanup), turn the $\varnothing 6.5$, longer than its length, make a chamfer between the face and the diameter. Complete the first operation for all parts. Bore soft jaws, and clamp the $\varnothing 6.5$ in them, with a safe grip depth (*see answer 11*). Face to length, rough out the shape with one tool, finish the contour with another tool. **Note** - the recess groove may have to be machined separately, depending on the exact method selected. Make the recess groove and finish the part by threading it.