Draw a Bolt: Hex Head, Threaded Shaft, and Side-View Proportion

Ordinary topic reference / separately checked pixels



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Original worked example / unchanged complete key

Prompt: Draw a side-view bolt with shaft length L = 100 mm, shaft diameter 25 mm, head length 60 mm, head width 90 mm, and thread pitch 5 mm over a threaded length of 70 mm. Describe the construction and the expected thread mark count.

Answer: Draw a horizontal centerline. Mark a 100 mm shaft rectangle with 25 mm diameter. Centered on the same line, draw a 60 mm by 90 mm head rectangle and add chamfer lines at the outer corners. Mark the threaded portion from just after the head for 70 mm, leaving 30 mm unthreaded near the tip. With pitch 5 mm, the expected number of thread marks is 70 divided by 5, which equals 14. Darken outlines, add a tip centerline mark, and label using the x-height convention if needed. Check that head width 90 mm is greater than shaft diameter 25 mm and that thread marks are evenly spaced.