

Answer on Question#53177 – Math – Statistics and Probability

Question. A screw manufacturer makes specialized tiny screws that are 15mm long. The manufacturing process does not make every screw exactly 15mm long. Suppose we know that the lengths of the screws have population mean 15mm and population standard deviation 0.04mm. To test for quality control, 100 screws are to be measured. What is the distribution of the sample means for samples of size 100?

Solution. Due to the Central Limit Theorem the sample means have a Normal distribution with the next parameters: $\mu = 15\text{mm}$ and $\sigma = \frac{s}{\sqrt{n}} = \frac{0.04}{\sqrt{100}} = 0.004\text{mm}$.

Answer. $N(15; 0.004)$.

www.AssignmentExpert.com