

Display Descriptive Statistics

A quality control engineer needs to ensure that the caps on shampoo bottles are fastened correctly. If the caps are fastened too loosely, they may fall off during shipping. If they are fastened too tightly, they may be too difficult to remove. The target torque value for fastening the caps is 18. The engineer collects a random sample of 68 bottles and tests the amount of torque that is needed to remove the caps.

As part of the initial investigation, the engineer calculates descriptive statistics for the torque data.

1. Open the sample data, [CapTorque.MTW](#).
2. Choose **Stat > Basic Statistics > Display Descriptive Statistics**.
3. In **Variables**, enter *Torque*.
4. In **By variables (optional)**, enter *Machine*.
5. Click the **Graphs** button, and then select **Boxplot of data**.
6. Click **OK** in each dialog box.

Interpreting the results

The mean torque value for Machine 1 is closer to the target of 18 than the mean torque value for Machine 2. The mean torque required to remove caps from Machine 1 is 18.667, and the mean torque required to remove caps from Machine 2 is 24.19. The distribution of data from Machine 1 also is less variable. The standard deviation is 4.395 for Machine 1 and is 7.12 for Machine 2.

The graph also shows that there is a difference in the mean torque values for the two machines. To determine whether a significant difference exists, the engineer could do a 2-sample t-test.

Statistics

Variable	Machine	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Torque	1	36	0	18.667	0.732	4.395	10.000	15.250	17.000	21.750	30.000
	2	32	0	24.19	1.26	7.12	14.00	17.50	24.00	31.00	37.00

