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Demo: Conducting a Capability Analysis Using the Control Chart Builder

In this video, we show how to compute capability indices for the Metal Parts example using the Control Chart Builder.

First, we select Control Chart Builder from the Analyze menu under Quality and Process.

We drag the column Thickness into the Y drop zone. Then we drag and drop Hour over the range chart to create an X-bar and R chart for Thickness.

To conduct a capability analysis, we right-click over the control chart, and select Limits and then Add Spec Limits.

Our lower spec is 35, the target is 40, and the upper spec is 45.

The target is added to the control chart, and a Capability Analysis report is produced.

Note that the spec limits are also added to the control chart. Spec limits should not be plotted on an X-bar chart. To remove the spec limits, clear the Spec Limits box under Limits[1].

The graph shows the spec limits and the target, along with the distribution of thickness measurements.

JMP provides summary statistics for the analysis, along with short-term (or within) and overall estimates of process capability.

For this process, we can see that the mean is shifted off target toward the upper spec limit.

Both C_{pk} and P_{pk} are well under 1.0, indicating that the process is not capable. We can see that some thickness measurements fall beyond the upper spec limit.

Note that if you want to automatically run the capability analysis, you can add the spec limits as a column property.

To do this, we return to the data table. Then we right-click on the column, select Column Properties, and then select Spec Limits from the list.

Now, when we create a distribution of Thickness in the Distribution platform, or when we create a control chart using the Control Chart Builder, the capability analysis is automatically provided.

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