

## Demo: Creating 3-Way Control Charts

In this video, we show how to create a 3-way control chart for the Vial Fill Weights data using the Control Chart Builder.

A version of this file is available in the Sample Data Library in JMP under the Help menu, within the Quality Control folder.

In this example, we are studying the fill weight of vials of a chemical. A subgroup is a sample of six vials measured per batch over the course of several days

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

We drag the column Fill Weight into the Y drop zone.

Because a target and specification limits for Fill Weight have been added as a column property, JMP also produces a capability analysis. We close this outline for this video.

We'll drag Batch to the range chart. This produces an X-bar and R chart.

Many of the points on both charts are outside the control limits. This tells us that the control limits aren't constructed properly for these data. The control limits for the X-bar chart are too narrow relative to the variability between subgroups.

To account for this, we'll create a 3-way control chart. This adds a third control chart that plots the between subgroup variability.

There are a couple of ways to create a 3-way chart. We can right-click over either graph and select Add Dispersion Chart.

Or we can click the 3-Way Chart button at the bottom of the control panel.

We click Done to close the control panel.

The control limits for the X-bar chart now take into consideration the between-subgroup variability.

These control limits are now much more reasonable and enable us to proceed to interpret the X-bar chart.