This page provides information on creating a variability chart and performing a continuous gauge R&R (Repeatability and Reproducibility) measurement system analysis (MSA). For information on using the EMP (Evaluating the Measurement Process) method, see the page MSA Continuous Data – EMP Method.

Measurement Systems Analysis: Variability Chart

2. Select Variability under Chart Type.
3. Click on a continuous variable from Select Columns, and click Y, Response (continuous variables have blue triangles).
4. Select one or more grouping variables and click X, Grouping.
5. Select a part or sample variable and click Part, Sample ID.

By default, JMP displays two plots:

- The Variability Chart for Y shows the individual measurements and range bars for each combination of the part and the grouping variables. To better visualize sources of variation, select Connect Cell Means, Show Group Means and Show Grand Mean from the top red triangle.
- The standard deviations plot shows the standard deviation for each combination of the part and the grouping variables.

Performing a Gauge R&R:

1. Select Gauge Studies > Gauge RR from the top red triangle.
2. In the Variability Model pop-up window, select the model type and click OK (the default is Crossed).
3. If specs are available, choose the tolerance entry method, enter either the Tolerance Interval or the Spec Limits, and click OK.

The resulting Gauge R&R and Variance Components for Gauge R&R reports quantify sources of measurement system variation.

Interpretation (for this example – USL–LSL = 100):

1. The % Gauge R&R is 33.96: Measurement system (Gauge Repeatability and Reproducibility) variation accounts for 33.96% of the tolerance.
2. The Precision/Tolerance Ratio (or the P/T Ratio) is 0.3396.
3. Variance Components for Gauge R&R: The measurement system (Gauge R&R) accounts for 5.69% of the total variation in the study.

Notes: To conduct Bias and Linearity studies, specify a standard (or reference column) in the dialog window. Additional options are available from the top red triangle. For more details, search for “gauge” or “variability charts” in the JMP Help or in the book Quality and Process Methods (under Help > Books).