

Tolerance Interval

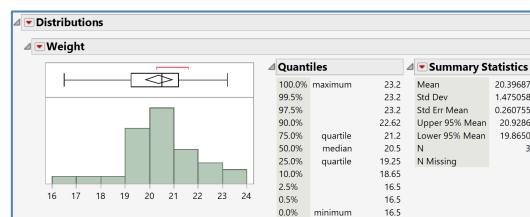
Use to produce an interval estimated to contain a specified proportion of a population.

Tolerance Interval for Proportion (Normal Distribution)

1. From an open JMP data table, select **Analyze > Distribution**.
2. Select one or more continuous variables from **Select Columns**, click **Y, Columns** (continuous variables have blue triangles), and click **OK**.
3. From the Distributions report window, select **Tolerance Interval** under the **red triangle** next to the variable name.
4. Select the **confidence level** and **specify proportion** of the population you desire the interval to cover. Choose **Two-sided** or one-sided interval. Here we chose **95% confidence**, **90% proportion to cover**, and **two-sided**.
5. Choose to **Assume Normal Distribution** if you believe that is an appropriate model to use to describe the distribution of the variable for the population. Click **OK**.

Note: A goodness-of-fit test (not shown) indicates that a normal distribution is appropriate.

Coating.jmp (Help > Sample Data Folder > Quality Control)



Tolerance Intervals - Weight

Computes an interval that contains at least the specified proportion of the population with (1 - Alpha) confidence.

Specify confidence (1 - Alpha): 0.95

Specify Proportion to cover: 0.9

Two-sided
One-sided lower limit
One-sided upper limit

Method
Assume Normal Distribution
Nonparametric

OK Cancel Help

JMP will add a table displaying the lower and upper bound of the Tolerance Interval based upon assumption of a normal distribution.

Interpretation:

It is estimated, with 95% confidence, that 90% of pins produced by this process that these data can be considered a sample from will have a Weight between 17.3 and 23.5.

Tolerance Intervals			
Proportion	Lower TI	Upper TI	1-Alpha
0.900	17.26538	23.52837	0.950

Tolerance Interval for Proportion (Non-Normal Distribution)

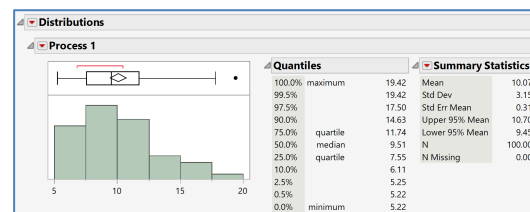
1. Follow steps 1-3 above.
2. In the Tolerance Interval Dialog box, choose **Nonparametric method**. Click **OK**.

Note: A goodness-of-fit test (not shown) indicates that a normal distribution is not an appropriate model to use.

JMP will add a table displaying the lower and upper bound of the Tolerance Interval for any continuous distribution.

Note: The actual confidence level achieved may be larger than the value specified. Here it's 97.6% confidence.

Process Measurements.jmp (Help > Sample Data Folder)



Nonparametric Tolerance Intervals				
Proportion	Lower TI	Upper TI	1-Alpha	Actual Confidence
0.900	5.233526	17.203	0.950	0.9763

Interpretation:

It is estimated, with 97.6% confidence, that 90% of this process that these data can be considered a sample from have values between 5.23 and 17.2.

Visit **Basic Analysis > Distributions > Options for Continuous Variables > Tolerance Intervals** in JMP Help to learn more.