

# How can I use the STDEV.P function in Excel to calculate the standard deviation for a set of data?

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## RECOMMENDED CITATION

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The STDEV.P function in Excel is a useful tool for calculating the standard deviation of a set of data. Standard deviation is a measure of how spread out the data is and is commonly used to describe the variability or dispersion in a set of values. To use the STDEV.P function, simply input the range of data into the function and it will return the standard deviation for that set of data. This function is particularly helpful when analyzing large amounts of data, as it allows for quick and accurate calculations of the standard deviation. By utilizing the STDEV.P function, one can easily gain insights into the distribution of their data and make informed decisions based on the variability of their values.

Calculates standard deviation based on the entire population given as arguments (ignores logical values and text).

The standard deviation is a measure of how widely values are dispersed from the average value (the mean).

## Syntax

STDEV.P(number1,...)

The STDEV.P function syntax has the following arguments:

**Number1** Required. The first number argument corresponding to a population.

**Number2, ...** Optional. Number arguments 2 to 254 corresponding to a population. You can also use a single array or a reference to an array instead of arguments separated by commas.

## Remarks

STDEV.P assumes that its arguments are the entire population. If your data represents a sample of the population, then compute the standard deviation using STDEV.

For large sample sizes, STDEV.S and STDEV.P return approximately equal values.

The standard deviation is calculated using the "n" method.

Arguments can either be numbers or names, arrays, or references that contain numbers.

Logical values, and text representations of numbers that you type directly into the list of arguments are counted.

If an argument is an array or reference, only numbers in that array or reference are counted. Empty cells, logical values, text, or error values in the array or reference are ignored.

Arguments that are error values or text that cannot be translated into numbers cause errors.

If you want to include logical values and text representations of numbers in a reference as part of the calculation, use the STDEVPA function.

STDEV.P uses the following formula:

$$\sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

where  $\bar{x}$  is the sample mean AVERAGE(number1,number2,...) and  $n$  is the sample size.

## Example

Copy the example data in the following table, and paste it in cell A1 of a new Excel worksheet. For formulas to show results, select them, press F2, and then press Enter. If you need to, you can adjust the column widths to see all the data.

| Data             |   |             |
|------------------|---|-------------|
| <b>Strength</b>  |   |             |
| 1345             |   |             |
| 1301             |   |             |
| 1368             |   |             |
| 1322             |   |             |
| 1310             |   |             |
| 1370             |   |             |
| 1318             |   |             |
| 1350             |   |             |
| 1303             |   |             |
| 1299             |   |             |
| Formula          | Description   | Result      |
| =STDEV.P(A3:A12) | Standard deviation of breaking strength, assuming only 10 tools are produced. | 26.05455814 |