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Practice: Designing a Gauge Study

In the previous videos, we described a measurement system involving hand micrometers. The characteristic is the outside diameter of metal bearings. We designed an MSA, including one micrometer to study repeatability and reproducibility variation.

Let's say that there are multiple micrometers and that you decide to include two micrometers in the study.

Your design includes the following:

- two micrometers
- three quality inspectors
- a random sampling of 10 parts
- two repeats (Each inspector will measure each part twice.)

1. Use the **Gauge Study Design** script to create a gauge study worksheet for this MSA. Use this worksheet to answer the questions below. (Hint: You can confirm your answers with the Distribution platform.)

    a. How many total measurements will be made on each part?

    b. How many total measurements will each inspector make?

    c. How many measurements will be made in each set (or repeat)?

    d. How many measurements will be taken in all?

    a. Each part will be measured by each inspector twice with each gauge: 2 repeats x 3 operators x 2 gauges = 12

    b. Each inspector will measure each part twice with each gauge: 2 repeats x 10 parts x 2 gauges = 40

    c. Within a set, each operator will measure each part with each gauge: 3 operators x 10 parts x 2 gauges = 60

    d. 2 gauges x 3 inspectors x 10 parts x 2 repeats = 120

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