

# What is the Difference between Accuracy and Precision Measurements?



The terms Accuracy and Precision are critical within science and their meanings are constantly being used incorrectly or misunderstood to mean the same thing.

At Precisa, our work is centred on the production of Precision measurements. This article therefore aims to clear up the confusion, exploring the difference between precision and accuracy and the correct way to use each term, using the example of a dart board to demonstrate.

## What is Accuracy?

Accuracy is defined as ‘the degree to which the result of a measurement conforms to the correct value or a standard’ and essentially refers to how close a measurement is to its agreed value.

## What is Precision?

Precision is defined as ‘the quality of being exact’ and refers to how close two or more measurements are to each other, regardless of whether those measurements are accurate or not. It is possible for precision measurements to not be accurate.

## What is the difference between Accuracy and Precision?

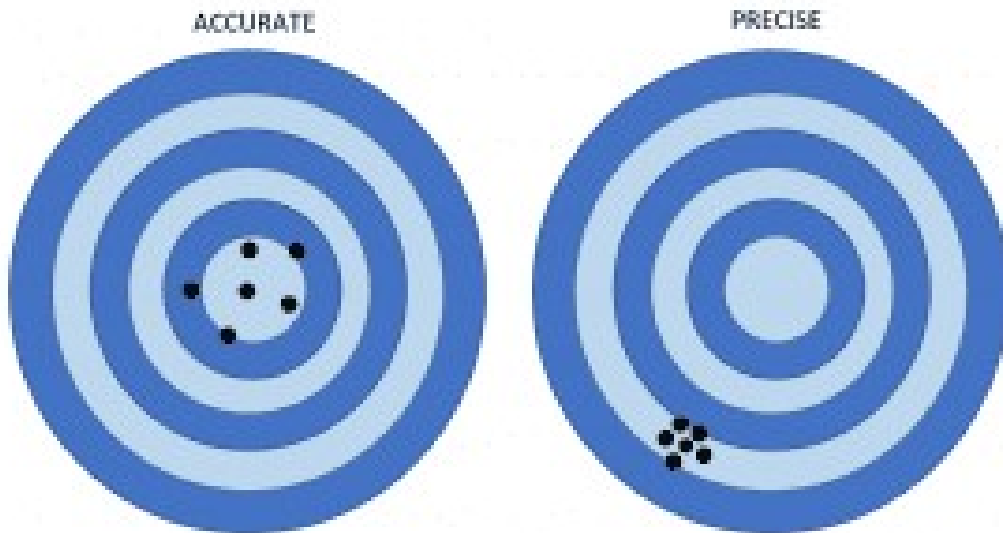
Both accuracy and precision reflect how close a measurement is to an actual value, but they are not the same. Accuracy reflects how close a measurement is to a known or accepted value, while precision reflects how reproducible measurements are, even if they are far from the accepted value.

Measurements that are both precise and accurate are repeatable and very close to true values.

## Example of the difference between Accuracy and Precision...

The example of a darts board is often used when talking about the difference between accuracy and precision.

Accurately hitting the target means you are close to the centre of the target, even if all the marks are on different sides of the centre. Precisely hitting a target means all the hits are closely spaced, even if they are very far from the centre of the target.



## How can Precisa help you with your Precision Measurements?

At Precisa, ensuring the precision of your measurements is our top priority.

Not only do we produce analytical and precision balances which measure up to 0.1 mg, but we also offer calibration services across the UK which guarantee that your readings are 100% precise and accurate.

Please browse [our range of precision measurement products](#) here and find out how our door to door [UKAS accredited calibration services](#) can give you a piece of mind.

Source: Precisa Gravimetrics AG

[https://www.precisa.co.uk/difference-between-accuracy-and-precision-measurements/?fbclid=IwAR0ELXTLJ9TroPq4pdXDD7bJpyzLz5Z2leVSjRqcs1\\_M2e--7WJec83bAu4](https://www.precisa.co.uk/difference-between-accuracy-and-precision-measurements/?fbclid=IwAR0ELXTLJ9TroPq4pdXDD7bJpyzLz5Z2leVSjRqcs1_M2e--7WJec83bAu4)