

MAGNETIC BULLION TESTER

Magnetic susceptibility test
to identify real bullion from fake.

Home ▶ Testing Lab ▶ Magnetic Bullion Tester

DUX Testing	>
Precious Metal Verifier	>
Magnetic Bullion Tester	>

Magnetic Bullion Tester

Precious metals have distinctly different magnetic susceptibility to other metals which can be easily detected using a rare earth magnet. For example, even though the densities of gold and tungsten are very similar, they have very different magnetic susceptibility. Gold and silver are diamagnetic metals, which means they are repelled by magnets. On the other hand, tungsten is a paramagnetic metal - it attracts magnets albeit that the attraction force is weaker than ferromagnetic metals such as iron or nickel.

Magnetic Bullion Tester is a portable handy tool to test the difference in magnetic susceptibility of metals to identify real bullion from fake. Use the Tester together with two other types of tests (e.g. density, ultrasound or electrical conductivity) for best results. Never rely on a single type of test.

Magnetic Bullion Tester



The key features of this Magnetic Bullion Tester:

- ✔ Fast - one-second result
- ✔ User-friendly - easy to use
- ✔ Portable - small form factor with hard case
- ✔ Versatile - can test gold and silver
- ✔ Non-destructive test - no chemicals, drilling or scratching required
- ✔ Detect counterfeit precious metal coins and small bars
- ✔ Measure underneath the surface of coins and small bars, and test the metal in the interior



For more than a decade, Mega Solution Security has been the major provider for safe deposit boxes and segregated or allocated bullion storage. We are committed to conducting business with honesty, integrity and professionalism, being fully compliant to all our obligations to relevant authorities.


Useful Links


- > Bullion Storage ([bullion-storage.php](#))
- > Safe Deposit Boxes ([safe-deposit-boxes.php](#))
- > Cryptocurrency Storage ([cryptocurrency-storage.php](#))
- > Other Valuables Storage ([other-valuables-storage.php](#))

> [DUX Testing \(dux-testing.php\)](#)

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DUX TESTING

A three-pronged, reliable non-destructive testing process in making sure that your bullion is genuine.

Home ▶ Testing Lab ▶ DUX Testing

DUX Testing >

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Magnetic Bullion Tester >

DUX Testing and making sure it is PURE

All the bullion deposited or transferred in by clients are tested for authenticity. Our unique and primary testing mechanism is DUX, a reliable non-destructive testing methodology

- ⊙ Density
- ⊙ Ultrasound
- ⊙ X-ray Fluorescence

We achieve high testing reliability by combining these three tests which measure different physical characteristics of the bullion. Counterfeit bullion might pass an individual test but not a combined DUX tri-standard tests.



Density Test

The first test we carry out on the bullion is Density / Mass. The reason why we carry out this test first is because most fake bullion out in the market deviate from the genuine ones by mass. Through precision weighing, we can reliably and quickly screen out 95% of the fakes that are out there in the market.

This is very rare, however it is also possible for genuine bullion to be slightly below its stated mass due to excessive polishing or scratching which can result in very small mass loss.



Ultrasound Test

Despite precision mass measurement, test results can be misled by high-quality fakes made of advanced composite bars and alloys. These high-quality fakes can have masses that measure exactly the same as genuine bullion items. However, metals with similar densities can exhibit very different ultrasonic properties, therefore making ultrasonics an excellent complement to the density test. By complementing precision weighing and **Ultrasonic Thickness Measurement (UTM)**, it is extremely difficult for a fake bar to pass both tests.

Ultrasonics tests measure a whole range of properties. The property that we focus on is called "Celerity". Celerity is the velocity at which sound waves travel through the metal. The Celerity of every element is characteristic to that element and can vary greatly



X-Ray Fluorescence Test

X-Ray Fluorescence (XRF) Spectrometry is a technology used to reliably and quickly identify the metals present in a sample as well as measure its purity. Reliable results can be obtained within 20 seconds of testing with up to 0.01% accuracy.

In this test, the metal is being exposed to broad-spectrum X-Rays emitted by the spectrometer. The metal will then interact with the X-Rays and emit X-Rays of characteristic wavelengths/energies. The detector present in the spectrometer will analyse these X-Rays and provide the detailed composition of the metal sample.

It is important to note that XRF spectrometry is a surface composition analysis. It cannot penetrate beyond the immediate subsurface. This test can be used to detect gold plating but not strong enough to detect advanced hollowed out gold bars.

XRF Spectrometry is not enough to reliably test bullion, but in conjunction with Density and Ultrasonic Thickness Measurement Tests, this combined DUX tri-standard is very reliable and non-invasive bullion testing.



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