

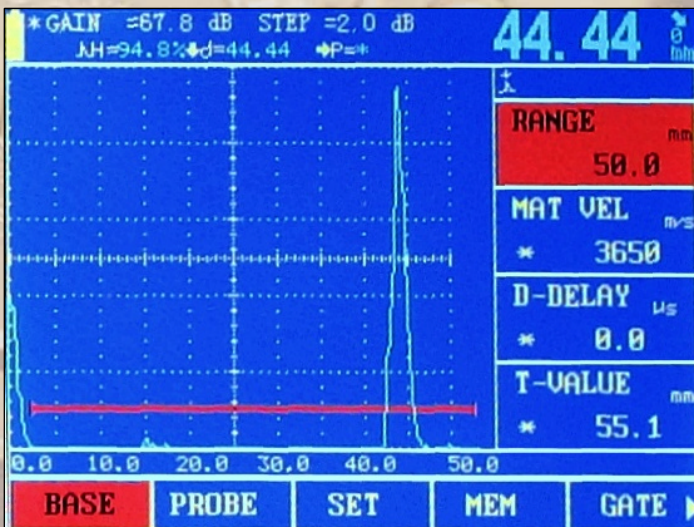
Precious Metal Testing Set AuroTest - ATS 5000

The precious metal testing set AuroTest ATS 5000 is an ultrasonic expert system for the rapid and reliable serial authenticity testing of larger precious metal bars and coins and is particularly suitable for bar quality control at banks, refineries and precious metal dealers. Beside its capabilities to show any inclusions of fake materials it also provides a detailed picture about inhomogeneities due to less than optimal casting or the new extrusion process of gold or silver granulate for minted bars or recent bullion type rods. It excels in testing large quantities of 100 to 1000 g/10 tola/100 oz. gold-, silver, platinum and palladium bars, 5 kg silver investment bars, 400 oz. gold bars as well as 15 kg silver bars.



ATS 5000 with intermediate size sound probe attached to a 1 kg Umicore gold bar; other bars up to 5 kg silver or 100 oz in preparation for testing

The ATS 5000 can be adjusted to almost any specific ultrasonic inspection task due to a selection of 4 different standard ultrasonic probes covering the a possible thickness range of about 1 mm to 75 mm. The display of the results is made in a 1D/2D ultrasonic reflection spectrogram, showing internal and boundary echo intensities from different depths inside the material. This testing set can also be used for the authenticity testing of typical investor coins and bars starting at a thickness of about 1.5 mm. The homogeneity testing - i.e. the absence of foreign inserts in coins and bars - is possible even through thin plastic foils for such samples when using specific sensors and techniques included in the ATS 5000.



1D ultrasonic spectrogram of a 5 kg silver bar with a thickness of 44.4 mm with a strong rear side echo

Since several years an increasing number of counterfeit gold bars - mainly originating from Asia - have been spotted on the international precious metal markets. Such fake gold bars may contain a deeply hidden tungsten core or a set of tungsten alloy rods, or have been produced simply from silver or tungsten by gold plating. It has been found that also a certain percentage also of legacy bars made of silver had been adulterated with lead or lead alloys. Bullion trading banks have been affected by the purchase of fake gold bars already. But also fake palladium bars with substituted cores have been detected since that time.

For the ambitious precious metals investor the ATS 5000 makes an end on any doubts about possible fake bars and coins in his precious metals portfolio. For a bank, a large scale precious metals dealer, or an investment company this testing set offers the capability to check the genuineness of precious metal bars and coins for purchase, storage in custody or sales within a few seconds. All imitates can be easily detected and excluded from dealing. The pricing of the testing set is still very favorable in relation to the incurred financial loss by a single counterfeited gold or platinum bar when initially undetected.

The testing set AuroTest ATS 5000 consists of:

- a user friendly digital ultrasonic velocity measuring and 1D/2D homogeneity scanning device, with a measuring range of 1000 to 12500 m/s (± 5 m/s), and a measuring precision of 0.5 %; including four different ultrasonic sensors to cover the sample thickness between 1.5 mm (1 oz. coins) and approx. 75 mm (e.g. 15 kg silver bars); for coins and bars with at least 6 mm diameter *)
- 2x Lithium-Ion batteries >4500 mAh for full working day use in (closed) vault environments, primary power supply: 100 to 240 VAC, 50 to 60 Hz
- a set of two digital calipers, with different measuring tips, also suitable for thickness determinations on bars with a center solidification depression, with a total measuring range between 0 to 150 mm (thickness resolution: ± 0.01 mm)
- accessories for the decoupling of the measuring ultrasonic field from the table surface
- accessories for the ultrasonic measurements through closed bar foils
- 2x dosing bottles with ultrasonic coupling gel for fine and coarse dosing of the gel
- software package on CD-ROM, compatible to MS Excel and similar programs, running under MS Windows (2000/XP/Vista/7), Mac OS, Android, or Linux for making printouts of the ultrasonic measurement protocol by an OS compatible printer,
- a set of reference tables about the ultrasonic velocity and density data of gold and all common gold alloys for coins; platinum, palladium & silver alloys; and the most important precious metals imitates (including all common tungsten alloys)
- an illustrated user manual about the handling of the ultrasonic velocity measuring instrument, including a set of measurement protocols (all data are also contained on the CD-ROM as PDF files)
- lockable aluminum transportation case (6,2 kg total weight, size: 46x33x15 cm, suitable also for air plane passenger cabin transportation)

*) optional polished calibration billets made of gold coated 1 kg tungsten bars are available on further request

Technical data of the ATS 5000 set:

Measuring range ultrasonic velocity:	1000 to 12500 m/s (± 5 m/s), precision: 0.5 % for 1.5 mm to 75 mm thickness (up to 400 oz./15 kg)
Number of ultrasonic sensors:	4 different sensors (6, 10, 14, 20 mm diameter)
Signal gain range:	0 db to 110 dB (fine adjustable to 0.1 dB steps)
Bar/coin measuring range weight:	1 oz. to 15000 g precious metals weight, including 400 oz. LGD industry gold bars
Instrument weight & dimensions:	1.6 kg, 24 x 15 x 5 cm
Measurable precious metals:	Fine gold and gold alloys, Fine silver and silver alloys, Fine platinum and fine palladium and their alloys, rhodium, iridium, ruthenium, osmium Brass (tombac), bronze, red brass, copper, lead, zinc, tin, nickel, iron/steel, tungsten and tungsten alloys, tantalum, molybdenum, titanium, aluminum and many others including gold layers and thicker gold platings on these materials
Following materials can be distinguished against compact precious metals:	

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