



Fastener & Material Testing

Our experienced team of engineers and technicians have years of experience and the capabilities to support the full range of testing methods to military and commercial specifications.

Fasteners are used throughout industry to hold our world together. Their function under extreme conditions is dependent on the correct chemistry of the material, condition of the material, and quality manufacturing processes.

Our team can certify that your product meets all the appropriate specifications. We test to the applicable military and industry standards such as:

- **ASTM F 606 / F 606 M**,
Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, Direct Tension Indicators, and Rivets
- **NASM1312-8**,
Standard Practice, National Aerospace Standard, Fastener Test Methods; Method 18, Elevated Temperature Tensile Strength
- **NASM1312-8**,
Standard Practice, National Aerospace Standard, Fastener Test Methods, Method 8, Tensile Strength
- **ASTM E8**,
Tension Tests of Metallic Materials



Our in-house machining capability allows us to create custom fixturing to retrofit existing test machines to meet your project's needs. We are certified to evaluate mechanical, chemical and material properties.

Capabilities include the following:

FRACTOGRAPHY

Used during failure analysis of components as a tool in determining the cause of the fracture

SCANNING ELECTRON MICROSCOPE (SEM)

Nondestructive tool used in failure analyses to examine samples at extremely high magnifications, high resolution and with greater depth of field.

REAL-TIME RADIOGRAPHY

Nondestructive examination of components, assemblies, or materials for internal problems that would otherwise go undetected and lead to failure.

MICROHARDNESS TESTING

Microhardness testing is utilized on parts and components too small for conventional Rockwell hardness testing. It is often used to measure the hardness of a plating or of a very small component.

X-RAY FLUORESCENCE SPECTROSCOPY

Used as a quick tool to determine the percent composition of solder used on boards, plating thickness, and qualitative chemical analysis of elements during investigations.

OPTICAL EMISSION SPECTROSCOPY

Verifies the chemical composition of metals. This can be critical in ensuring that the correct alloy is being implemented in the design application for which it is intended.

BEND TEST

Determine the relative ductility of metal that is to be formed for the soundness and toughness of the metal.

METALLOGRAPHIC PREPARATION

Aids in determining whether the material has been processed correctly and is therefore a critical step for determining product reliability and why a material failed.

DOUBLE SHEAR

Verifies the ultimate strength of the part. These data are critical for the pyrotechnics design to ensure the proper energy is used to shear the pins in various applications.

HARDNESS TESTING

Used for quality control on metal heat treatment, incoming material inspection, weld evaluations in steels and other alloys, grade verification for hard plastics, and failure analysis.

TENSILE TESTING

Test specimen are submitted to verify/validate mechanical properties expected following heat treat operations. Fastener samples are submitted for Certification Validation Testing in accordance with NASA STD 6009.



For the benefit of all

For more information:

<https://www.nasa.gov/centers/johnson/partnerships/safety-risk-assessment-capabilities>

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