



Mechanical & Special Testing

We Take A Closer Look

Mechanical Testing Services

ATS offers a complete range of mechanical testing services. A well-equipped in-house machine shop provides timely preparation of test specimens or any special fixturing. Our experienced test engineers can also help you design custom special testing programs to test your products.

Whether it is life cycle testing of playground slides or performance testing of automotive steering pumps, ATS has the experience and capabilities to satisfy your needs.

Applied Technical Services offers a comprehensive list of mechanical testing services. Our well-equipped in-house machine shop provides timely preparation of test specimens or any special fixturing that may be required for special test set-ups. Furthermore, ATS' experienced mechanical testing staff can help clients design custom testing programs to evaluate their products.

We serve various industries, including but not limited to the automotive, aerospace, nuclear, construction, manufacturing, steel, power generation, toy, textile and insurance.

- Charpy Impact Testing
- Fatigue Testing
- Field Testing
- Hardness Testing
- Hydrogen Embrittlement
- Strain Gage Testing

Applied Technical Services

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INDUSTRIES SERVICED

ADDITIVE MANUFACTURING - AEROSPACE - AUTOMOTIVE - CHEMICAL
COMMERCIAL PROPERTIES - CONSTRUCTION - DEFENSE/MILITARY
INSURANCE/LEGAL - MANUFACTURING - MEDICAL - NUCLEAR
OIL & GAS - POWER GENERATION - PULP & PAPER - MANY MORE

Fatigue Testing

Tests resistance to cyclic loading under various frequencies, loads, and environmental conditions. Fatigue tests are usually conducted to determine the number of cycles to failure.

ASTM Specification Capabilities:

- ASTM E466 – Fatigue Testing of Metallic Materials
- ASTM E399 – Linear-Elastic Plane-Strain Fracture Toughness (K_{IC}) of Metallic Materials
- ASTM E1290 – Crack-Tip Opening Displacement (CTOD) Fracture Toughness Measurement
- ASTM E606 – Strain-Controlled Fatigue Testing • ASTM E1820 – Measurement of Fracture Toughness (JIC-CTOD Measurement)

Hardness Testing

Determines a material's resistance to indentation. Hardness testing measures the indentation's permanent depth while using a predetermined force and indenter. A variety of scales, each representing a specific indenter type and load combination, are used.

Common Hardness Testing Standards

- ASTM E10
- ASTM A370
- ASTM E92
- EN 1043-1
- ISO 6506-1
- ASTM E18
- ASTM E384
- ASTM A956
- EN 1043-2
- ISO 6507-2



Impact Testing

The two main types of impact tests are Charpy and Izod; where Charpy mainly evaluates metallic materials and Izod primarily tests plastics. These methods assess impact properties such as toughness, ductility, and brittleness by using a pendulum type striker to swing and strike the material. The energy absorbed by the samples are measured to evaluate material toughness. Tests can also be conducted at various temperatures to evaluate influence of service environment on material behavior.

Hydrogen Embrittlement Testing

Common HE Testing Standards:

- ASTM F519 – Standard Test Method for Mechanical Hydrogen Embrittlement Evaluation
- ASTM F606 – Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, Direct Tension Indicators, and Rivets
- SAE J81 – Thread Rolling Screws
- And many other sustained load tests

Services Offered in the Mechanical Lab:

- Hardness
- Fatigue
- Tensile
- Fastener Testing
- Impact – Charpy, Izod, Drop Weight
- Bend
- Anchor Pull
- Macro Examination
- Load Testing
- Pressure
- Strain Gauging
- Helium Leak
- Consumer Products

ATS – Your Preferred Testing Service Provider

Whether it is life cycle testing of playground slides or performance testing of automotive steering pumps, ATS has the experience and capabilities to satisfy your needs. Our lab holds ISO 17025 (A2LA) accreditations for a variety of mechanical tests.