MTS’ testing solutions are engineered to meet the uptime demands for Quality Control testing and the required flexibility of advanced Research & Development labs.
Metals materials testing labs routinely need to test per international or tailored manufacturing standards, but they also need to be able to run tests that have never been performed before.

MTS supports a full range of static and dynamic mechanical test methods under a variety of environmental conditions for metal materials and products, including bars, round wires, tubes, sheets, plates, fasteners, welds and adhesives.
Learn More

Contact MTS and explore how versatile, high-performance MTS test system can enhance the accuracy and efficiency of your research and development or manufacturing quality testing programs.

- Universal, Electrodynamic & Servohydraulic Test Systems
- Versatile FlexTest® Digital Controllers
- Easy-to-use MTS TestSuite Software
- Fatigue-rated Force Transducers
- Durable Grips & Fixtures
- Precision Extensometers/Strain Measurement
- Accurate & Reliable Environmental Simulation
- Critical Load Frame Alignment Tools
- Unmatched MTS Service & Support

MTS TestSuite™ Application Software

Standards-Compliant Template Library

( ASTM, ISO, EN, and more)

Environmental Simulation Systems

Alignment Solutions

Strain & Crack Measurement

Automatic Extensometer for Tension & Compression Testing

COD Clip Gage & DCPD for Fracture Mechanics Testing

Non-contacting Optical & Video Extensometer for Tension, Compression & Fatigue Testing

Clip-on Axial & Cross-sectional Extensometers for Tension, Compression & Fatigue Testing

High-Temperature Axial Extensometers for Tension, Compression & Fatigue Testing
# Common Mechanical Metals Testing Standards

## General Test Standards

### STATIC & DYNAMIC

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Description</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tensile</strong></td>
<td>Ambient Temperature</td>
<td>ISO 6892-1, ASTM A48, ASTM A370, ASTM B657, ASTM E8, ASTM E111, ASTM E345, prEN 2002-1, GB/T 228.1</td>
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<tr>
<td></td>
<td>Elevated Temperature</td>
<td>ISO 6892-2, ASTM E211, prEN 2002-2, GB/T 228.2</td>
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<td></td>
<td>Low Temperature</td>
<td>ISO 6892-3, ISO 6892-4, GB/T 228.3, GB/T 228.4</td>
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<tr>
<td></td>
<td>High Strain Rate</td>
<td>ISO 26293-2, GB/T 30989.2, GB/T 37783</td>
</tr>
<tr>
<td><strong>Tensile Sheet Metal</strong></td>
<td>Plastic Strain Ratio</td>
<td>ISO 10113, ASTM E517, GB/T 5027</td>
</tr>
<tr>
<td></td>
<td>Strain Hardening Exp.</td>
<td>ISO 10275, ASTM E846, GB/T 5026</td>
</tr>
<tr>
<td></td>
<td>Biaxial</td>
<td>ISO 16942, GB/T 36024</td>
</tr>
</tbody>
</table>

### Compression

- ASTM E9, ASTM E111, ASTM E290, GB/T 7314

### Bend

- ISO 7438, ASTM 310, ASTM E290, ASTM E885, EN 485-2

### Shear

- ASTM E143, ASTM B831

### Torsion

- ISO 18938

## FATIGUE

### Strain-controlled (LCF)

- ISO 12108, ASTM E606, GB/T 26577

### Force-controlled (HCF)

- ISO 1099, ASTM 466, GB/T 3075

### Thermomechanical Fatigue (TMF)

- ISO 12111, ASTM E2388

### Variable Amplitude

- ISO 12110-1, GB/T 37306.1

### Torque

- ISO 1352

### Fracture Toughness

- K, J, R-Curve, J-R-Curve, or Crack Tip Opening Displacement (CTOD)
  - ISO 12135, ASTM E1820
- Plain Strain K<sub>0</sub> or K<sub>IC</sub>
  - ASTM E898
- Linear-Elastic Plain-Strain K<sub>IC</sub>
  - ASTM E846, ASTM E846, ASTM E399
- Reference Temperature (Elastic Plastic K<sub>J</sub>)
  - ASTM E1921
- K<sub>IC</sub>-Curve
  - ASTM E846, ASTM E561

### Fatigue Crack Growth

- ISO 12108, ASTM E647, prEN 3873, ASD-STAN prEN 4524, GB/T 6398

## Mechanical Fasteners Standards

### Tensile


### Compression

- ISO 898-2, ASTM F606, GB/T 3098.2

### Shear

- ISO 14589, ASTM B665, GB/T 3098.18

### Torsion

- ISO 898-1, ISO 898-7, ISO 2320, ISO 8839, GB/T 3098.9, GB/T 3098.10, GB/T 3098.22

### Fatigue

- ISO 3800

## Welds Standards

### Tensile

- ISO 4136, ISO 5178, ISO 9018, GB/T 2651, GB/T 26957

### Bend

- ISO 5173, ASTM E190

### Fracture Toughness

- ISO 15653, ASTM E2818