

## 131AT Axial Torsion Test Machine

Forces up to 2.2 kN (500 lbf) and Torque Rating to 10 Nm (89 in-lb)

### Overview

The 131AT axial torsion test machine is modular and provides the flexibility you need to perform a wide variety of applications. The 131AT Family is one of the most affordable axial torsional test machines available. The 131AT features a torsion motor mounted on one side of the test sample, and a linear actuator mounted on the other side, each controlled by Newton with axial torsional software, a two channel power pack, encoders for linear and angular position feedback, and a multiaxial load cell to measure force and torque. Systems typically include special biaxial test fixtures engineered to match your test samples.

The 131 frame can be placed vertically or horizontally on a table. Test frames can be made to requirements. The 131 is ideal in cramped lab spaces where space is a premium.

### Features

- Either electromechanical (for static apps) or electrodynamic (for dynamic apps) linear actuators and rotary motors.
- Ideal solutions for test labs where both tension, compression and torsion tests are required.
- Monotonic and Cyclic modes
- Choice of software package:
  - Universal Materials & Products Software Package
  - Torsion Software Package
  - Axial Torsional Static Software Package
  - Axial Torsional Fatigue Software Package
- High accuracy, high resolution and high speed data capture
- Measurement and control of axial load, torque, axial displacement, and angular displacement. Strain channels are available.
- Software options for machine control, data plotting, analysis and data export.
- Multiaxial cells available in multiple force/torque ranges.



The 131AT frame can be placed horizontally or vertically on a table



### Load Frame

Family	Frame Type	Footprint	Frame Capacity
131AT	Tabletop Single Column	Vertical 300 mm x 300 mm (12 in x 12 in) or Horizontal 900 mm L x 280 mm W x 150mm T (36 in L x 11 in W x 6 in T)	2.2 kN (500 lbf)

### Linear Actuators

Model	Axial Capacity	Axial Stroke	Speed	Applications
131AT-500	2.2 kN (500 lbf)	150 mm (6 in)	12 inches per min	Static & Cyclic
131AT-E2	1.5 kN (350 lbf)	150 mm (6 in)	8 inches per sec	Dynamic & Fatigue

### Torsion Motors

Model	Torque Capacity	Rotary Stroke	Speed	Applications
131-T1	1 Nm (9 in-lb)	CW/CCW/Continuous	3000 rpm	Dynamic & Fatigue
131-T10	10 Nm (89 in-lb)	CW/CCW/Continuous	19 rpm	Static

*Note: All specifications reflect maximum performance limits. System low force range is based on selected multi-axial load/torque cell. The lowest rated standard axial torsion load cell is 0.2 Nm (50 lbf).*

### Applications

- Biomedical
  - Luer fittings - leakage and separation forces (ISO 80369, ISO 594)
  - Metallic Medical Bone Screws (ASTM F543]
  - Syringes (ISO 7886-1, ISO 8537-C, ISO 11040-4, ISO 11608-5)
  - Child-Proof Pharmaceutical Bottles (ASTM D7860)
  - Adhesive properties of biomaterials
  - Orthopaedic Medical Devices
  - Intravascular devices
- Engineering Teaching
  - Constitutive modeling
  - Thin walled tubing
  - Engineering Mechanics
  - Biomedical
- Wire
- Tools
- Fasteners
- Shafts
- Consumer Products
- Electronics
- Research labs and applications
- Simulating real life multi-axial stresses
- Product durability under biaxial loading
- Combining different test modes to speed development

**Newton Axial Torsion Controls** serve a broad set of diverse needs in axial-torsional, and other biaxial actuator testing applications. The following software packages are supported with controller hardware that can be configured for up to four actuators, including 5000 hz data acquisition rates, multiple encoder channels, 24 bit wheatstone bridges, automatic load sensor recognition, with a convenient operator pendant for local control of the test machine.



### Newton Software Package Options

**Universal Materials & Products Software** serves the full range of static and cyclic uniaxial tension and compression tests. This entry level package performs common two step tests, with a wide range of analyses, and ISO and ASTM standard test methods.

**Torsion Software** converts the same controller hardware and controls and measures data from the torsion channel, making it possible to perform torsion only tests. This path enables torsion testing using an axial universal test frame equipped with a torsion motor and torque cell.

**Axial Torsional Static Software** for static test machines - enables all test modes: axial, torsion, and combined axial torsion loading.

**Axial Torsional Fatigue Software** for fatigue test machines - enables all test modes: axial, torsion, and combined axial torsion loading - both static and fatigue.

### Popular Axial Torsion Software Add-on Options

- **TestVideo** Module video capture and playback of tests with data synchronization.
- **TestCreator** Module creates custom multiple segment profiles for product and component testing.
- **TestCalc** Module helps create custom analyses and calculations.
- **TestComply** Module ensures compliance to FDA Title 21 CFR for compliance requirements (IQ/OQ/PQ)
- **Newton Expansion Card** Expand to meet instrumentation requirements including wheatstone bridges, data acquisition channels, and analog outputs.

\*Specifications are subject to change at any time.