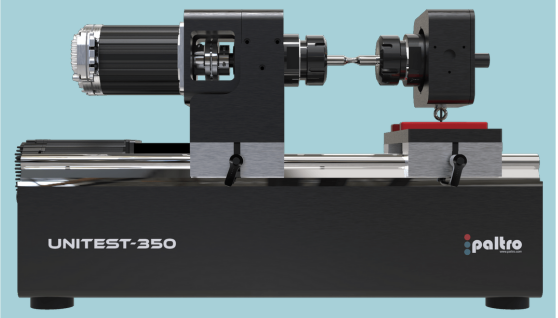
Building industry leading test platforms to automate sensing and improve measurements by reducing human errors.



UT 350

UniTest 350

The Paltro UniTest 350 (UT-350) is a compact, precision rotating beam fatigue testing system designed for the determination of fatigue properties of materials under fully reversed bending conditions. It is especially suited for evaluating modern materials and manufacturing processes, including additively manufactured (3D-printed) metals and polymers, which are increasingly deployed in bio-implants, space, aerospace, automotive, and advanced engineering applications.

The UT-350 applies a controlled bending moment to a rotating specimen, generating a constant amplitude, fully reversed stress state. This makes it ideal for generating S–N curves, comparing fatigue performance across material batches, and assessing the influence of process parameters such as print orientation, heat treatment, or surface finish.

The system integrates a high-precision servo drive, an automatic loading mechanism, and software-controlled test execution, enabling repeatable, operator-independent fatigue testing. The compact footprint and fully electric operation allow the UT-350 to be deployed in standard laboratory environments without special infrastructure.

Designed for long-duration testing, the UniTest 350 provides stable operation, accurate cycle counting, and automatic test termination upon specimen failure.

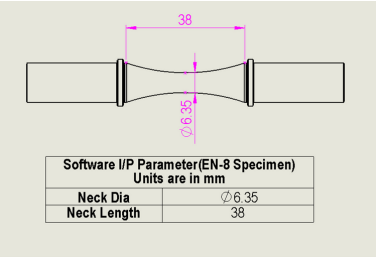
Features

- Designed for rotating beam fatigue testing under fully reversed bending
- Ideal for fatigue characterization of 3D-printed and conventionally manufactured materials
- Compact, benchtop form factor with high mechanical stiffness
- Automatic load application for consistent bending moment control
- High-precision servo motor for stable rotational speed
- Software-controlled test setup, execution, and monitoring
- Automatic cycle counting and failure detection
- Suitable for long-duration, unattended fatigue tests

Standards

- DIN 50113: Testing of Metallic Materials: Rotating Bending Fatigue Test
- ISO 1143: Metallic Materials: Rotating Bar Bending Fatigue Testing

UT 350
Technical Specifications



Software I/P Parameter(EN-8 Specimen) Units are in mm	
Neck Dia	Ø6.35
Neck Length	38

- Type: Cantilevered (4 Point Setup - Optional)
- Specimen Gripping Diameter: 7 to 12.7 mm (12.7 mm std)
- Specimen Length: 60 to 110 mm
- Bending moment: 10 – 55 Nm (Std Specimen)
- Loading Mechanism: Electromechanical (automatic)
- Speed: 500 to 3000 rpm
- Cycles:: 99,999,999 max

Power Requirements

- Electrical: 110–230 VAC, 50/60 Hz, 1 Ph

Applications

- Fatigue property assessment of metallic and polymer materials
- Evaluation of additively manufactured (3D-printed) components
- Comparative fatigue testing of build orientations and process parameters
- Pre-qualification of materials for bio-implants and medical devices
- Aerospace, space, and automotive materials research
- Quality control and R&D fatigue screening

Options

- 4 Point Test Setup
- Corrosion Cell
- Liquid Dispensing Pump

Weight & Dimensions

- Net dimensions: 400×260×1000 mm (15.8×10.2×39.4 in)
- Net weight: 50 kg (110 lb)

Continuing R&D may result in specifications, appearance changes