

Instron 8850 Biaxial (axial-torsion) versatile servohydraulic material testing system



Features:

Maximum dynamic load:	250 kN
Maximum static load:	300 kN
Maximum displacement:	100 mm
Maximum static torque:	2200 Nm
Maximum dynamic torque:	2400 Nm
Maximum rotation:	+45 °
Workspace:	1650x900 mm
Position of the actuator:	upper
Other features:	amplitude control, adaptive control, security test

Specifications:

The equipment can carry out static and tiring tests, and its console software provides full system control from a PC. The equipment has two actuators (an axial and a torsion), that can be controlled together and independently also. The actuator is in the upper crosshead. The T-slot table at the bottom of the equipment allows you to test even larger structures. The following quantities can be measured by tests: force, torque, displacement, rotation, axial and torsial strain, and transversal strain deformation.

The available temperature also depends upon the temperature tolerance of the clamp and the extensometer that is used in the test. In our climate chamber and high temperature furnace we are able

to carry out tests between -150 and +1200 °C temperature range.

In case of fatigue tests, the available maximum frequency is approximately 20 Hz in the axial direction, and approx. 10 Hz by rotation. The actual maximum in the frequency depends on the amount of displacements or rotation.

On the equipment, we can use three load cells with different measuring ranges, thereby we can measure from a very low load (from some Newton) to high loads as well (up to 300kN), ensuring the maximum accuracy available.

These cells are the following:

- 300 kN/2400 Nm cell
- 25 kN/100 Nm cell
- 5 kN cell

All the tests can be controlled and evaluated by the software. The measured values (time, force, torque, displacement, rotation, strain) can be stored, so they can be used for further evaluations.

Options for tests:

Static tests:

- Tensile tests
- Compression tests
- Shear tests
- Tests under load
- Torsion tests
- Torque measurement
- Biaxial tests(pull/push-torsion)

Fatigue tests:

- Large cycle fatigue tests (HCF) for pull/torsion
- Low cycle fatigue tests (LCF)
- Random fatigue
- Determination of fatigue limit for pull/torsion

Fracture mechanics tests:

- Determination of fracture toughness (KIC)
- Determination of J-integral (JIC)
- Determination of R-curve
- Determination of crack growth rate (dadN)
- Determination of the critical voltage intensity factors (DKth)

Technological tests:

- Bending tests

- Upsetting tests
- Tests of welded joints
- Fracture tests

Structural tests (up to 900x800x1500 mm):

- Load test
- Fatigue tests
- Fracture tests
- Bending tests