Product Information

MINI | FP2

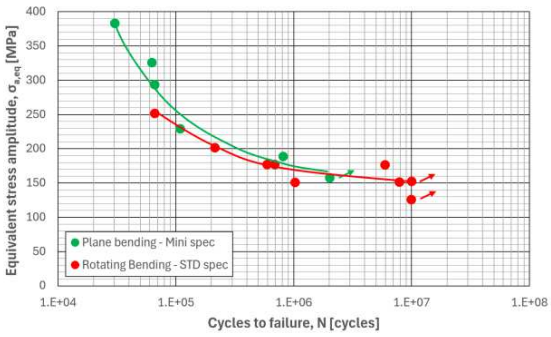
Desk-top machine for high-cycle fatigue testing of mini-specimens under cyclic plane bending

INTRODUCTION

Fatigue is the condition whereby a material cracks or fails because of repeated (cyclic) stresses applied below the ultimate strength of the material. Fatigue failure often occurs suddenly and catastrophically. Although fundamental for many industrial sectors, fatigue characterization of materials is typically time consuming and costly.

DESCRIPTION

MINI FP2 is a fatigue testing machine that implements a breakthrough approach based on specimen miniaturization and cyclic plane bending loading.
MINI FP2 operation is programmed and monitored via the MINI FP controller, a purpose-developed software that allows to test setup and monitoring and data acquisition. Connection to a PC is via USB cable.
MINI FP2 operates at a selectable test frequency up to 50Hz.
MINI FP2 stops automatically when test ends (either specimen failure or run-out condition reached) to save energy.
MINI FP2 generates S/N curves for smooth configurations that correlate with test results obtained using standard specimens.

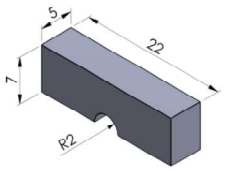


ADVANTAGES

- Minimal material consumption
- Minimal printing time (for AM)
- Minimal specimen production costs
- High usage flexibility

Mass of one mini-specimen is:

- 1/7 of rotating bending std specimen
- 1/70 of push pull std specimen



APPLICATIONS

- Expensive material of limited availability
- Direct extraction from thin-walled components
- Witness specimens for process control

KEY FEATURES

- Compact, low-noise desk-top testing machine, developed for laboratories and offices
- Low electrical power supply
- Miniature specimen geometry drastically reduces costs (critical for metal AM characterisation)
- Suitable for high cycle fatigue tests
- Continuous monitoring of force applied to specimen and number of loading cycles throughout the test
- Smooth or notched fatigue testing
- Selectable stress ratio R
- Test frequency: from 10Hz* up to 50Hz
- Cyclic max stress up to 800MPa* for testing high-performance materials (Inconel, Ti-alloys, …)
- Automatic stop when specimen breaks or run-out condition is reached
- Original software for test control and data management
- Test data acquisition via USB-to-PC connection
- Interlock system and autobraking motor for high operator safety
- CE marking

** : reachable values depend on specimens' stiffness and stress ratio*

TECHNICAL DATA

Bench area	500mm x 550mm
Weight	<50 kgf
Electrical supply	Single phase 230VAC@50Hz, absorbed power <500W
Operating range temperature	0°C to 40°C
Sound level	Lower than 70dB(A)
Standard features	Detailed User Guide Manufactured in accordance with Italian and EU directives (CE)
Tools included	Torque wrench, allenkeys, USB-cable, test control software, PC (optional)

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