

Multiaxial Thermomechanical Tension Compression Torsion Internal Pressure Test System

Key words

Multiaxial thermomechanical fatigue

Fields of application

Complex multiaxial thermomechanical testing of metals

Methodology and instrumentation

Servohydraulic test system for isothermal and thermomechanical stress or strain controlled fatigue tests in the low cycle fatigue regime with axial, torsional and internal pressure loading

Items tested

Solid, hollow, flat test pieces, metallic materials, max. size \varnothing 30 mm, length 900 mm

Quantities / characteristics tested

Axial force, axial stress, axial strain, torsional moment, shear stress, torsional angle, internal pressure, temperature, cyclic stress strain behaviour, fatigue life

Uncertainty / reliability of results

For all measurands ± 1 %

Qualification and quality assurance

With its particular equipment this test machine is unique in Germany. This concerns the additional possibility of internal pressure loading and the hardware equipment, enabling simultaneous and independent loading by tension/compression, torsion, internal pressure and temperature, at arbitrary phase positions. Long-term experience, numerous publications.

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Further information



Figure 1: Overview over the test system for axial, torsional and internal pressure loading

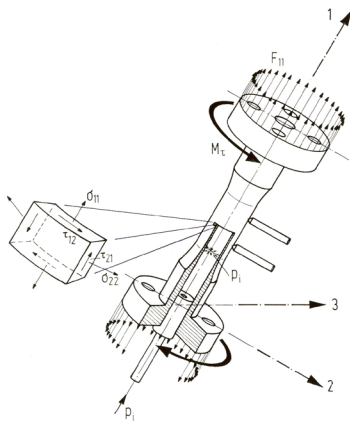


Figure 2: Schematic illustration of a tubular test piece under axial, torsional and internal pressure loading

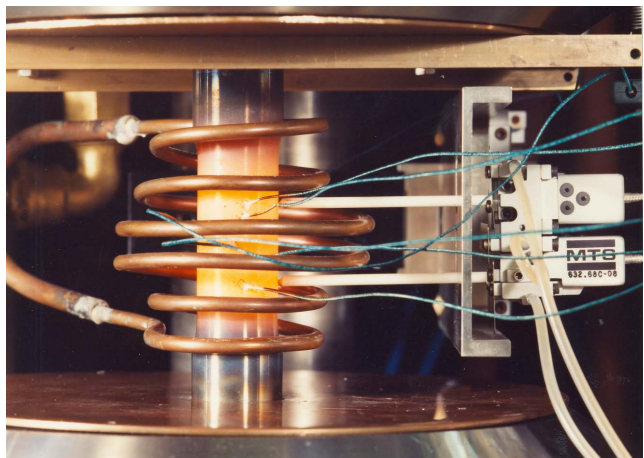


Figure 3: Strain controlled axial-torsional loading on a tubular test piece at high temperature with inductive heating facility

Literature

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