Materials Testing and Characterisation Equipment

- **Instron 8501**: servo-hydraulic fatigue testing machine (100kN, ±50kN dyn).
- **Instron 8503**: servo-hydraulic fatigue testing machine (600kN stat, ±100kN dyn).
- **Instron 1255**: servo-hydraulic fatigue testing machine (500kN stat, ±250kN dyn).
- **Instron 8562**: digital-controlled testing machine (100kN, ±100kN capacity). Tests -196° to 300°C.
- **2x Instron 8561**: digital-controlled testing machines (100kN, ±100kN capacity). Tests 20°C to 1500°C.
- **Laser extensometer** system for non contact, high precision dimensional measurement during testing.
- **Various environmental chambers** for mechanical testing in air from -150 to 800°C and in controlled atmosphere from 20 to 1500°C.
- **Charpy impact testing**, 326 J capacity.
- **Screw-driven tensile machines** of 5 and 100 kN capacity (3 Instrons,).
- **Schenk push/pull fatigue machine** (3kN capacity, variable frequency 1 to 50 Hz).
- **Reverse-bending fatigue machine** controlled atmosphere to 750°C (16Hz).
- **Repeated thermal shock testing machine** 20/1200°C.
- **Mand high sensitivity creep machine** of 50 kN capacity for testing up to 850°C in vacuum.
- **Unisteel four strand stress rupture machine** of 30kN capacity for tests in air or argon to 900°C.
- **6 x lever arm creep testing machines** of 30kN capacity for testing to 750°C in argon.
- **9 x direct-loading creep machines** for testing miniature specimens in vacuum to 800°C.
- **Lever arm computer controlled creep machine** for testing of miniature specimens in vacuum up to 900°C.
- **Compression creep testing machine** to 1250°C.
- **Bi-axial flexure testing** to 1250°C.
- **Modulus of rupture testing** vacuum and inert atmosphere to 1400°C.
Materials Testing and Characterisation Equipment

- **Modulus of elasticity**, Grindasonic (Impulse excitation technique)
- **Hardness testing**: portable and laboratory. Vickers and microhardness
- **Strain gauging** - multichannel computer controlled system
- **Fully equipped metallography laboratory** including quantitative image analysis system and XRD analysis.
- **Nanohardness tester** for ultra low load hardness testing
- **Electropol and Transpol** electrolytic and mechanical polishers respectively for on site replication.
- **Atomic Force Microscope**
- **2x JEOL 2000FX** (200kV) transmission electron microscopes with energy dispersive X-ray analysis.
- **1 JEOL JSM 6300** scanning electron microscope with energy dispersive X-ray analysis.
- **1 JEOL JSM 6400** scanning electron microscope with energy and wavelength dispersive X-ray analysis.

**Common Test Types:**
- Creep: Creep rupture, creep rate, stress relaxation
- Tensile testing: miniature and full size at all temperatures
- Toughness: J_{IC} and K_{IC} (CT/SENB), K_{IV}, Small Punch
- Fatigue: Constant-stress intensity fatigue-crack growth, high and low cycle fatigue testing.

**For more information please contact**

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