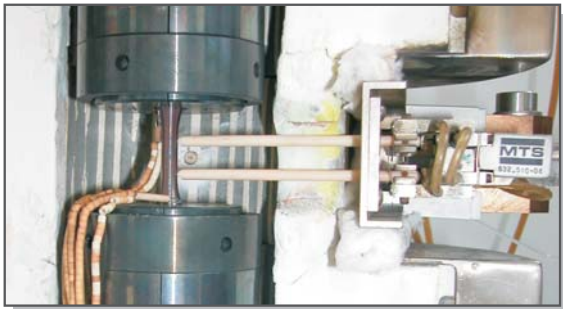


# Materials Testing Services for Aerospace Materials

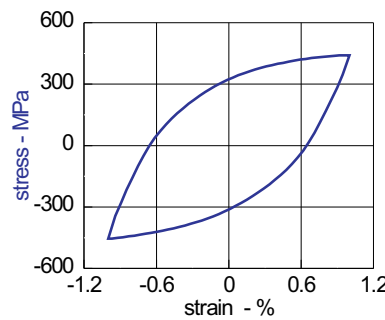
## Mechanical Testing

- Room temperature and elevated temperature tensile testing
- Stress rupture, creep and cyclic rupture
- Low cycle fatigue (LCF)
- High cycle fatigue (HCF)
- Thermo-mechanical fatigue (TMF)
- Impact
- Fracture toughness
- Young's modulus
- Hardness (Brinell, Rockwell, Vickers)

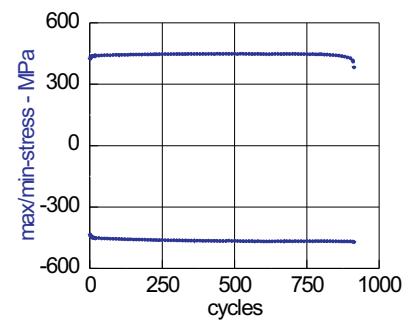
Accreditation according to DIN EN 17025 and Nadcap.



Low cycle fatigue test setup for high temperature materials, e.g. superalloys.

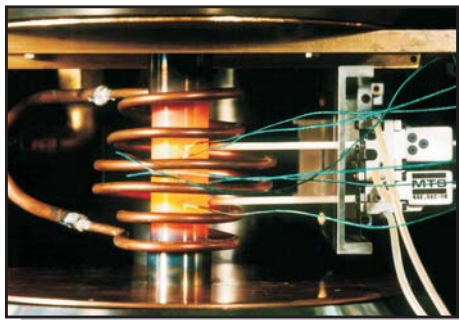


Stress-strain diagram for one cycle (IN 738).

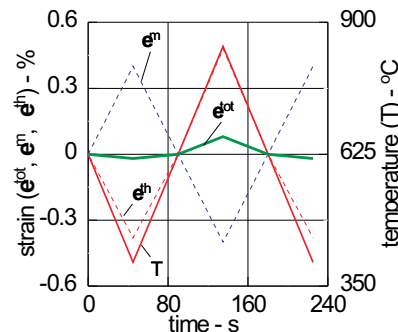


Max./min. stress vs. number of cycle (IN 738).

## Thermo-Mechanical Fatigue Testing (TMF)



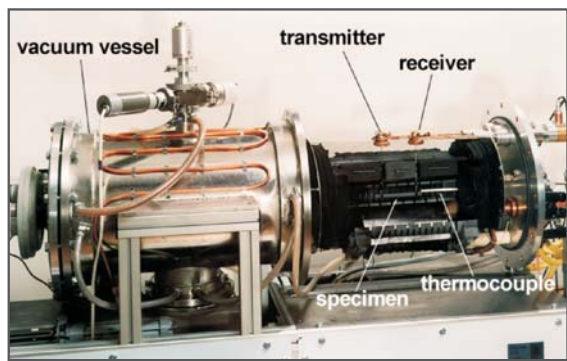
TMF test setup. Glowing sample with induction heating coils and extensometer.



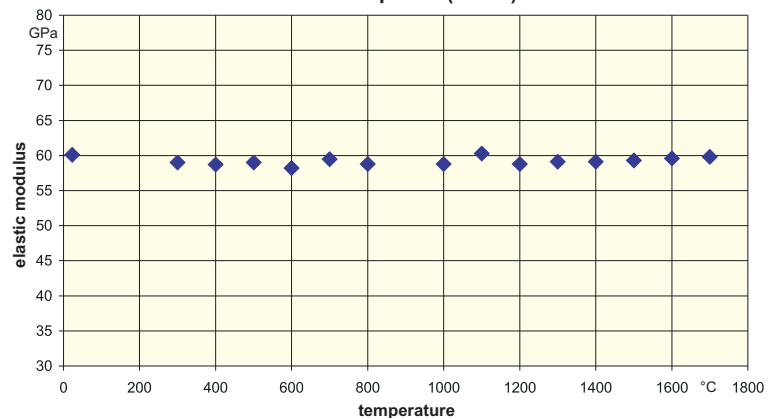
Example of TMF set point sequence:  
 $e^{tot} = e^m + e^{th}$

## Measurement of Young's Modulus by Resonance Technique (20° to 1900 °C)

C/C-composite (0°/90°)



Elastotron 2000 (HTM Reetz GmbH, Berlin).



Temperature dependence of Young's modulus of C/C-composite.