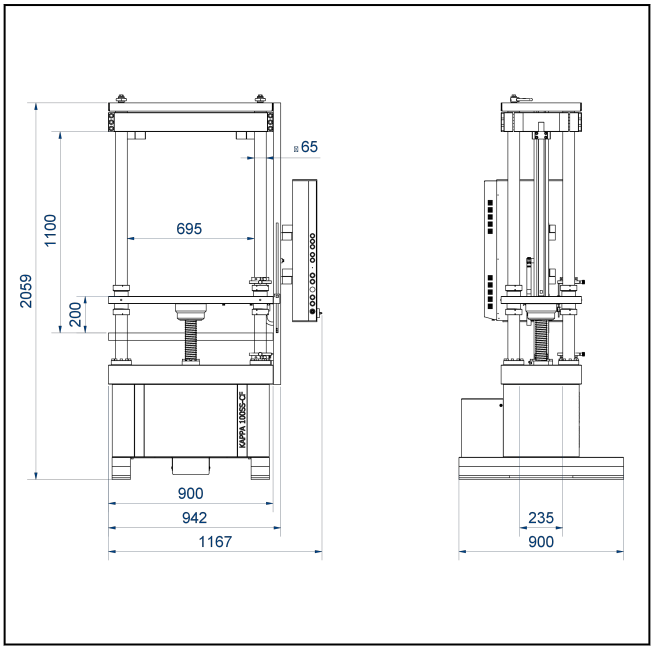
Zwick / Roell

Product Information

Electromechanical Creep Testing Machine Kappa SS-CF

CTA: 219137 179371

Kappa 100 SS-CF with videoXtens 1-32 HP/TZ and alternatively with contact-type extensometer



Kappa 50 / 100 SS-CF

Applications

This patented electromechanical fatigue testing machine with backlash-free zero crossing features a central lead screw and is ideal for force and strain controlled creep fatigue tests. The Kappa SS-CF provides extremely high flexibility, covers the complete range of creep testing applications and is ideal for a wide range of tests with alternating load at both ambient and high-temperature conditions.

- Force and strain controlled creep fatigue tests with alternating load (through zero) e.g. CF, LCF and TMF
- Advanced creep tests:
  - Strain modeling (e.g. determination of creep curve at different loads)
  - Creep ductility
  - Creep test with slow strain rates (SSRT)
  - Creep data from components tests
- Static (CCG) and cyclic crack growth/widening test (CFCG)
- Determination of hydrogen embrittlement
- Relaxation tests
- Classic creep tests:
  - Creep, creep rupture
  - Stress rupture
- Short-term tensile, compression and flexure tests can also be performed with this testing machine

Advantages and features

Specific machine design

- Specially designed and patented for fatigue tests
- Load frame with backlash-free central lead screw drive and precision guidance via four steel columns for precise axial loading
- Manually adjustable crosshead for maximum flexibility of testspace-height
- High drive control frequency of 1000 Hz. This allows for precise force and strain control for a wide range of applications.
- High-resolution force and travel measurement for optimum control properties, especially at very low test speeds
- Precise loading rate with tolerance of ± 0.1 % of the set speed in the measurement range of 1µm/h to nominal speed, unloaded or under constant load
- Precision testing machine to DIN EN ISO 7500-1

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Axial alignment

- Central lead screw for axial alignment to ASTM E292
- Accessory: Fixed load string for tensile/compression alternating load with optimal alignment properties to ASTM E1012
- Option: Alignment fixture for axial alignment to ISO 23788:2012 and NADCAP requirements (± 5% flexural stress)

Technical data

Typ	Kappa 50 SS-CF	Kappa 100 SS-CF	Kappa 250 SS-CF
Test load, max. Fmax	50 kN	100 kN	250 kN
Test frame dimensions			
Width	942 mm	942 mm	942 mm
Depth	900 mm	900 mm	900 mm
Height	2059 mm	2059 mm	2395 mm
Test area depth	nlimited	nlimited	nlimited
Test area width between the lead screws	695 mm	695 mm	680 mm
Test area height, max.	1100 mm	1100 mm	1150 mm
Crosshead travel	200 mm	200 mm	250 mm
Lateral guidance of the moving crosshead via precision bearings on four hard-chromed guide columns	Diameter 65 mm	Diameter 65 mm	Diameter 80 mm
Test speed range	0,001 mm/h to 250 mm/min		
Test speed accuracy (measured over an interval of min. 5 s or 10 mm travel))	< ± 0,1 %		
Position transducer travel resolution	0,14 nm	0,14 nm	0,14 nm
Weight	1200 kg	1200 kg	1500 kg

All data at ambient temperature.

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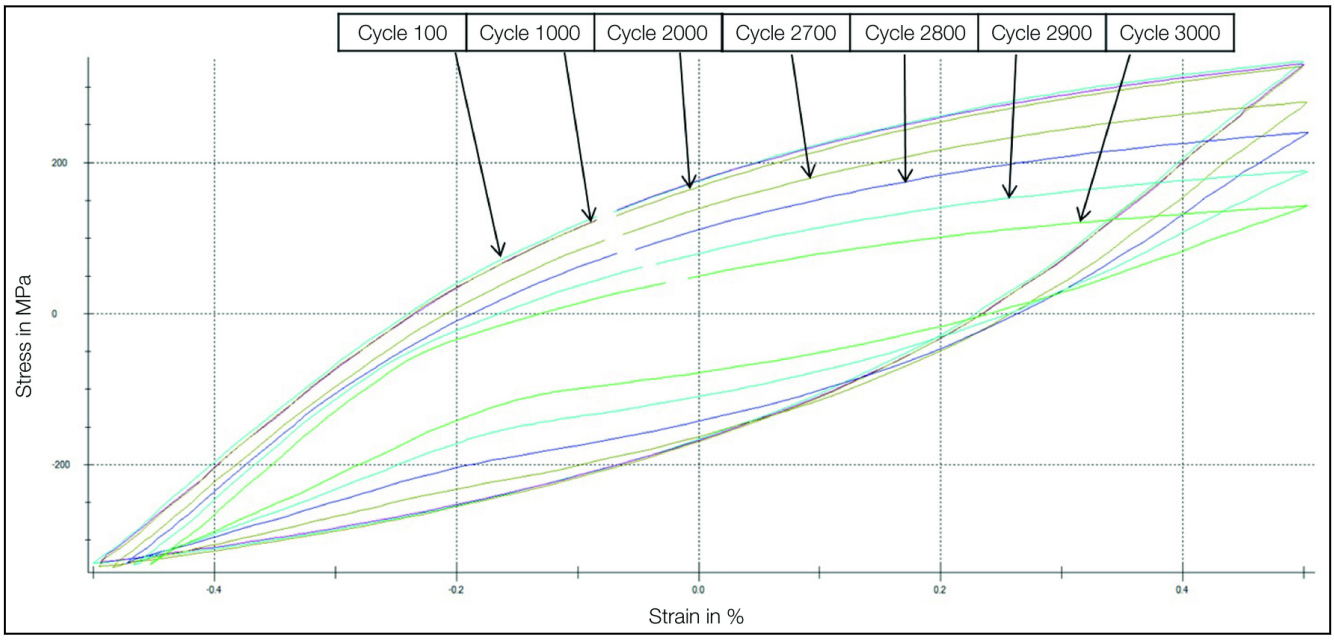
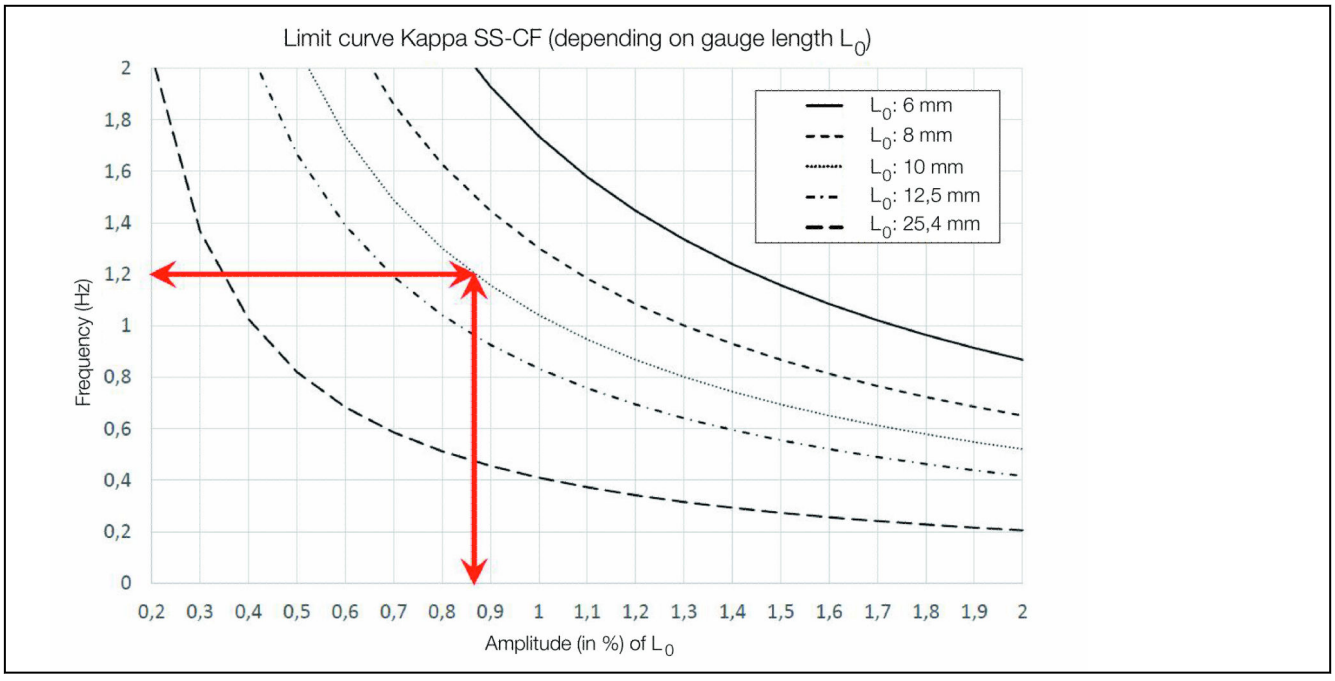
CTA: 217030



Stress-strain curve

CTA: 217029



Dependency between alternating stress and amplitude

Example: for a gauge length of 10 mm and a frequency of 1.2 Hz, the max. amplitude is 0.87% (= 0.087) of the initial gauge length and vice versa. The application range is below the limit curve.

All data at ambient temperature.

We reserve the right to make technical changes in the course of ongoing development.

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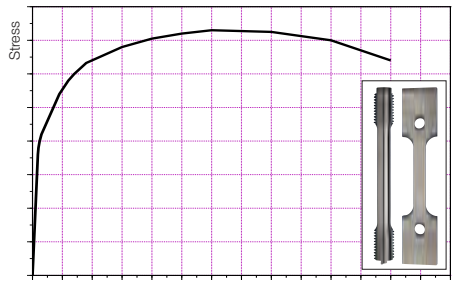
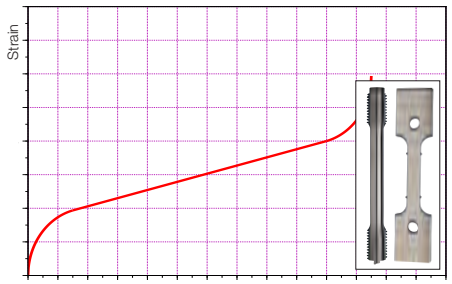
Electromechanical Creep Testing Machine Kappa SS-CF

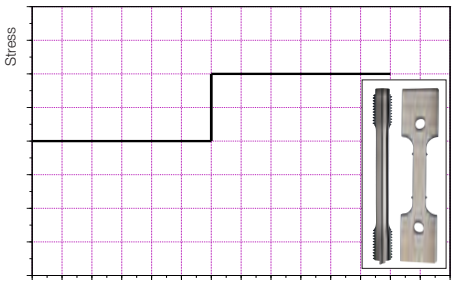
Overview of the Kappa SS-CF range of application



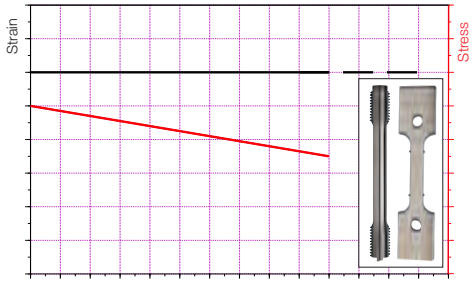
High-temperature tensile test



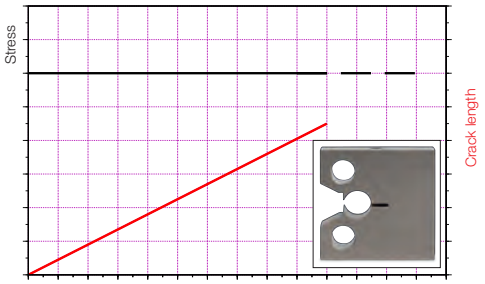
Creep test



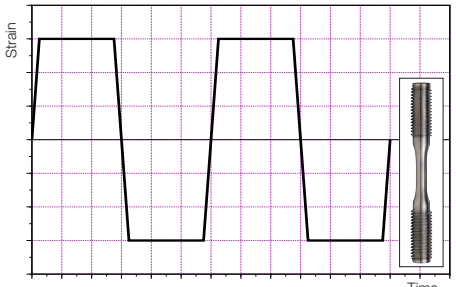
Strain modelling



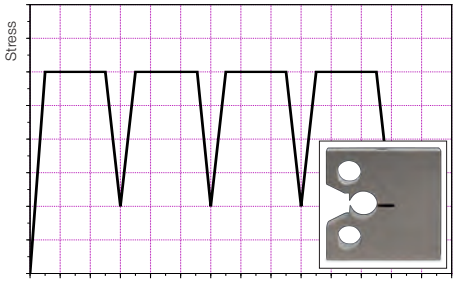
Relaxation test



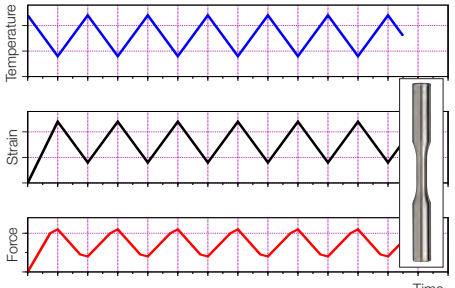
Creep crack growth test



Creep fatigue test (CF)



Creep fatigue crack growth test (CFCG)



Thermo-mechanical fatigue test (TMF)

All data at ambient temperature.

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