

# ISO 204:2018 (E)

## Metallic materials — Uniaxial creep testing in tension — Method of test

---

### Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Symbols and designations
5	Principle
6	Apparatus
7	Test pieces
7.1	Shape and dimensions
7.1.1	Shape and dimension of smooth test pieces
7.1.2	Shape and dimension of notched test pieces
7.2	Preparation
7.3	Determination of the original cross-sectional area
7.4	Marking of the original gauge length, $L_0$
7.5	Determination of the reference length, $L_r$
8	Test procedure
8.1	Heating of the test piece
8.2	Application of the test force
8.3	Test interruptions
8.3.1	Planned interruptions of the test
8.3.2	Multiple test piece machine with several test pieces in line
8.3.3	Combined test
8.3.4	Accidental interruption of the test
8.4	Recording of temperature and elongation or extension
8.4.1	Temperature
8.4.2	Elongation and extension
8.4.3	Elongation-time diagram or extension-time diagram
9	Determination of results
10	Test validity
11	Accuracy of the results
11.1	Expression of the results
11.2	Final uncertainty
12	Test report
Annex A	(informative) Information concerning drift of thermocouples
A.1	General
A.2	Consequences of drift
A.3	Drift data
A.4	Concluding remarks

- Annex B (informative) Information concerning methods of calibration of thermocouples**
- Annex C (normative) Creep testing using test pieces with V or blunt circumferential notches**
  - C.1 General**
  - C.2 V-notched test pieces**
  - C.3 Blunt circumferential notches**
- Annex D (informative) Method of estimating the uncertainty of the measurement in accordance with the Guide to the expression of uncertainty in measurement (GUM)**
  - D.1 General**
  - D.2 Purpose**
  - D.3 Statements of uncertainty**
    - D.3.1 Background**
    - D.3.2 Statement of uncertainty: creep testing**
  - D.4 A reference material for creep testing**
    - D.4.1 General**
    - D.4.2 Using the CRM 425 for assessing uncertainty**
  - D.5 Uncertainties in creep testing of single crystal nickel-base superalloy at 1 100 °C**
- Annex E (informative) Representation of results and extrapolation**
  - E.1 General**
  - E.2 Symbols for strength values and their calculation**
    - E.2.1 Strain**
    - E.2.2 Creep rupture strength**
    - E.2.3 Stress-to-specific-plastic-strain**
  - E.3 Creep testing in single test piece machines and/or multiple test piece machines**
  - E.4 Evaluation**
    - E.4.1 General**
    - E.4.2 Logarithmic creep diagram**
    - E.4.3 Creep rupture diagram**
    - E.4.4 Creep rupture elongation diagram**
    - E.4.5 Creep diagram with linear scales**
  - E.5 Extrapolation**
    - E.5.1 General**
    - E.5.2 Extrapolation and creep rupture diagram**
    - E.5.3 Extrapolation by means of time-temperature-parameters**
    - E.5.4 Other Extrapolation Methods**
  - E.6 Test report, recommended additional information**
- Annex F (informative) Computer compatible representation of standards**

Page count: 53