

DIN EN ISO 20323:2021-11 (E)

Fine ceramics (advanced ceramics, advanced technical ceramics) - Mechanical properties of ceramic composites at ambient temperature in air atmospheric pressure - Determination of tensile properties of tubes (ISO 20323:2018)

Contents

| | Page |
|--|------|
| European foreword | 3 |
| Foreword | 4 |
| 1 Scope | 5 |
| 2 Normative references | 5 |
| 3 Terms and definitions | 5 |
| 4 Principle | 8 |
| 5 Apparatus | 8 |
| 6 Tubular test specimens | 12 |
| 6.1 Specimen specifications | 12 |
| 6.1.1 General | 12 |
| 6.1.2 Dimension | 12 |
| 6.1.3 Geometry | 12 |
| 6.1.4 Tolerances and variability | 13 |
| 6.2 Specimen preparation | 13 |
| 6.2.1 General | 13 |
| 6.2.2 As-fabricated | 14 |
| 6.2.3 Application-matched machining | 14 |
| 6.2.4 Customary practices | 14 |
| 6.2.5 Standard procedure | 14 |
| 6.3 End collars | 14 |
| 6.4 Test count and test specimens sampling | 16 |
| 7 Test procedure | 16 |
| 7.1 General | 16 |
| 7.2 Test mode and rates | 16 |
| 7.3 Testing technique | 17 |
| 7.3.1 Measurement of test specimen dimensions | 17 |
| 7.3.2 Instrumentation of test specimen | 17 |
| 7.3.3 Test specimen mounting | 17 |
| 7.3.4 Setting-up of strain measurement means | 17 |
| 7.3.5 Measurements | 18 |
| 7.3.6 Post-test analyses | 19 |
| 7.4 Test validity | 19 |
| 8 Calculation of results | 19 |
| 8.1 Test specimen origin | 19 |
| 8.2 Engineering stress and strain | 20 |
| 8.3 Tensile strength | 21 |
| 8.4 Strain at maximum tensile force | 21 |
| 8.5 Proportionality ratio or pseudo-elastic modulus, elastic modulus | 22 |
| 8.5.1 Stress-strain curves with a linear region | 22 |
| 8.5.2 Nonlinear stress-strain curves | 23 |
| 8.6 Poisson's ratio (optional) | 23 |
| 8.7 Statistics | 23 |
| 9 Test report | 24 |
| 9.1 General | 24 |
| 9.2 Testing information | 24 |
| 9.3 Test specimen and material | 24 |
| 9.4 Equipment and test parameters | 25 |
| 9.5 Test results | 25 |
| Annex A (informative) Gripping devices and load train couplers | 26 |
| Annex B (informative) Test specimen geometries | 31 |
| Bibliography | 32 |