ISO 26843:2015-12 (E)

Metallic materials - Measurement of fracture toughness at impact loading rates using precracked Charpy-type test pieces

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Symbols 1

4 Principle 3

5 Test specimens 5

6 Testing machines 6

7 Test procedures and measurements 6
7.1 General 6
7.2 Impact velocity 7
7.3 Time to fracture 7
7.4 Multiple specimen tests 7
7.5 Single-specimen tests 7
7.6 Post-test crack length measurements 8

8 Evaluation of fracture mechanics parameters 8

9 Test report 9
9.1 Organization 9
9.2 Specimen, material, and test environment 9
9.2.1 Specimen description 9
9.2.2 Specimen dimensions 9
9.2.3 Material description 9
9.2.4 Test environment 10
9.3 Fatigue precracking conditions 10
9.4 Test data qualification 10
9.4.1 Limitations 10
9.4.2 Crack length measurements 10
9.4.3 Fracture surface appearance 10
9.4.4 Resistance curves 10
9.4.5 Checklist for data qualification 10
9.5 Test results 11

Annex A (normative) Test machines suitable for each test procedure 12

Annex B (informative) Estimation of strain rate 13

Annex C (normative) Dynamic evaluation of fracture toughness 14

Annex D (normative) Determination of resistance curves at impact loading rates by multiple specimen methods 19

Annex E (normative) Estimation of Jd-a R-curves using the normalization method 21

Annex F (normative) Determination of characteristic fracture toughness value J0,2Bd 24

Annex G (normative) Validity criteria 25

Annex H (normative) Determination of fracture toughness in terms of J-integral 27

Annex I (informative) Example test reports 29

Bibliography 34