

ISO 12108:2012-08 (E)

Metallic materials - Fatigue testing - Fatigue crack growth method

Contents	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	3
4.1 Symbols	3
4.2 Abbreviated terms for specimen identification	4
5 Apparatus	5
5.1 Testing machine	5
5.2 Cycle-counter	5
5.3 Grips and fixtures for CT specimens	5
5.4 Grips and fixtures for CCT/SENT specimens	7
5.5 Grips and fixtures for the SENB specimens	11
5.6 Crack length measurement apparatus	11
6 Specimens	12
6.1 General	12
6.2 Crack plane orientation	16
6.3 Starter notch precracking details	18
6.4 Stress-intensity factor	20
6.5 Specimen size	21
6.6 Specimen thickness	22
6.7 Residual stresses	23
7 Procedure	23
7.1 Fatigue precracking	23
7.2 Crack length measurement	23
7.3 Constant-force-amplitude, -increasing, test procedure for $da/dN > 10^{-5}\text{mm/cycle}$	24
7.4 K-decreasing procedure for $da/dN < 10^{-5}\text{mm/cycle}$	25
8 Crack length measurement	27
8.1 Resolution	27
8.2 Interruption	27
8.3 Static force	27
8.4 Measurement interval	27
8.5 Symmetry	28
8.6 Out-of-plane cracking	28
8.7 Crack tip bifurcation	28
9 Calculations	28
9.1 Crack-front curvature	28
9.2 Determining the fatigue crack growth rate	28
9.3 Determination of the fatigue crack growth threshold	29
10 Test report	29

10.1	General	29
10.2	Material	29
10.3	Test specimen	30
10.4	Precracking terminal values	30
10.5	Test conditions	30
10.6	Test analysis	31
10.7	Presentation of results	31
Annex A(informative) Non-visual crack length measurement methodology -- Electric potential difference [18] [24] [33]		38
Bibliography		41