ISO 18338:2021-12 (E)

Metallic materials - Torsion test at room temperature

Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Symbols and designations ... **3**

5 Principle of test ... **4**

6 Test piece ... **4**
6.1 Shape and dimensions of test pieces ... 4
6.1.1 Cylinder test pieces ... 4
6.1.2 Tube test pieces ... 5
6.1.3 Preparation of test pieces ... 6

7 Determination of original cross-sectional dimensions ... **6**
7.1 Cylinder test pieces ... 6
7.2 Tube test pieces ... 6

8 Accuracy of the testing apparatus ... **6**
8.1 Testing machine ... 6
8.2 Troptometer ... 7

9 Conditions of testing ... **7**

10 Determination of the properties ... **8**
10.1 Calculations of shear stress and shear strain ... 8
10.2 Determination of the slope of linear portion of shear stress-shear strain curve ... 8
10.3 Torsional proof strength, plastic torsion ... 9
10.4 Upper torsional yield strength and the lower torsional yield strength ... 10
10.5 Determination of torsional strength ... 11
10.6 Determination of maximum plastic shear strain ... 12

11 Test report ... **12**

Annex A (informative) **Determination of the reference proof strength, plastic torsion and reference torsional strength** ... **13**

Bibliography ... **17**