DIN EN 10270-1:2017-09 (E)

Steel wire for mechanical springs - Part 1: Patented cold drawn unalloyed spring steel wire (includes Amendment A1:2017)

Contents

Page

European foreword 4

1 Scope 5

2 Normative references 5

3 Terms and definitions 6

4 Classification 6

5 Information to be supplied by the purchaser 6

6 Requirements 7
6.1 Material 7
6.1.1 General 7
6.1.2 Chemical composition 7
6.2 Form of delivery 7
6.3 Coating and surface finish 8
6.4 Mechanical properties 8
6.5 Technological properties 18
6.5.1 Coiling test 18
6.5.2 Simple torsion test 18
6.5.3 Wrapping test 18
6.5.4 Simple bend test 18
6.6 Supply conditions of wire on coils/reels and spools 19
6.6.1 General 19
6.6.2 Coil size 19
6.6.3 Cast of wire 19
6.6.4 Helix cast of wire 19
6.6.5 Other tests for cast of wire 20
6.7 Surface quality 20
6.8 Dimensions and dimensional tolerances 21
6.8.1 Dimensional tolerances 21
6.8.2 Out of roundness 24

7 Testing and inspection 24
7.1 Inspection and inspection documents 24
7.2 Extent of testing for specific inspection 24
7.3 Sampling 24
7.4 Test methods 24
7.4.1 Chemical composition 24
7.4.2 Tensile test 24
7.4.3 Coiling test 24
7.4.4 Wrapping test 25
7.4.5 Simple torsion test 25
7.4.6 Simple bend test 25
7.4.7 Surface defects 25
7.4.8 Decarburization 25
7.4.9 Diameter 25
7.4.10 Zinc and zinc/aluminium coating 26
7.4.11 Adherence of coating 26

7.5 Retests 26

8 Marking and packaging 26

Annex A (informative) Additional information 29

A.1 Definition of surface condition of the wire 29
A.1.1 Drawing condition 29
A.1.2 Surface treatment 29
A.1.3 Abbreviations 29
A.2 Physical characteristics at room temperature 30
A.2.1 Modulus of elasticity and shear modulus 30
A.2.2 Density 30
A.3 Accuracy of measuring instruments 30
A.4 Tensile strength formula 30
A.5 Indication for the use of cold drawn spring steel wire 31