

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 |