

DIN 2093



ICS 21.160

Supersedes  
DIN 2093:1992-01

**Disc springs –  
Quality specifications –  
Dimensions**

Tellerfedern –  
Qualitätsanforderungen –  
Maße

zurückgezogen - withdrawn

Document comprises 18 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original should be consulted as the authoritative text.



## Foreword

This standard has been prepared by the *Ausschuss Federn* (Springs Standards Committee).\*)

## Amendments

This standard differs from DIN 2093:1992-01 as follows:

- a) Examples of designation for springs produced by turning (G) and for springs produced by fine blanking (F) are no longer included (see clause 4).
- b) Clause 4 now includes the assignment of springs to series A, B or C based on the  $h_0/t$  ratio.
- c) In clause 7, new values of  $F_t$  and of stresses  $\sigma_{II}$ ,  $\sigma_{III}$  and  $\sigma_{OM}$  have been specified.
- d) The standard has been editorially revised to take account of the new style rules for standards. Symbols, units and quantities have been aligned with the International System of Units (SI) as in ISO 31.

## Previous editions

DIN 2093: 1957-07, 1967-04, 1978-04, 1990-09, 1992-01

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\*) This English translation also includes amendments from Corrigendum DIN 2093:2006-03 Ber 1:2007-08. These are identified by a footnote.

## 1 Scope

This standard specifies requirements for the materials, manufacturing process, dimensions and tolerances for disc springs. It includes graphs showing the permissible relaxation and the fatigue life of such springs, as a function of stress.

All requirements specified here are minimum requirements.

This standard covers three dimensional series of disc springs.

## 2 Normative references

The following reference documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DIN 2092:2006, *Disc springs — Calculation*

DIN 50969, *Testing of high-strength steel building elements for resistance to hydrogen-induced brittle fracture and advice on the prevention of such fracture*

DIN EN 1654, *Copper and copper alloys — Strip for springs and connectors*

DIN EN 10083-1, *Quenched and tempered steels — Technical delivery conditions for special steels*

DIN EN 10083-2, *Quenched and tempered steels — Technical delivery conditions for unalloyed quality steels*

DIN EN 10083-3, *Quenched and tempered steels — Technical delivery conditions for boron steels*

DIN EN 10089, *Hot-rolled steels for quenched and tempered springs — Technical delivery conditions*

DIN EN 10132-4, *Cold-rolled narrow steel strip for heat treatment — Technical delivery conditions — Part 4: Spring steels and other applications*

DIN EN 10151, *Stainless steel strip for springs — Technical delivery conditions*

DIN EN ISO 3269, *Fasteners — Acceptance inspection*

DIN EN ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method*

DIN EN ISO 6507-2, *Metallic materials — Vickers hardness test — Part 2: Verification and calibration of testing machines*

DIN EN ISO 6507-3, *Metallic materials — Vickers hardness test — Part 3: Calibration of reference blocks*

DIN EN ISO 6507-4, *Metallic materials — Vickers hardness test — Part 4: Tables of hardness values*

DIN EN ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)*

DIN EN ISO 6508-2, *Metallic materials — Rockwell hardness test — Part 2: Verification and calibration of testing machines (scales A, B, C, D, E, F, G, H, K, N, T)*

DIN EN ISO 6508-3, *Metallic materials — Rockwell hardness test — Part 3: Calibration of reference blocks (scales A, B, C, D, E, F, G, H, K, N, T)*

## 3 Terms and definitions

Disc springs are annular coned elements that offer resistance to a compressive load applied axially. They may be designed as single disc springs or as disc springs stacked in parallel or in series, either singly or in multiples. They may be subjected to both static and fatigue loading, and may have flat bearings.