BS ISO 16249:2013

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Springs — Symbols

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National foreword

This British Standard is the UK implementation of ISO 16249:2013.

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A list of organizations represented on this committee can be obtained on request to its secretary.

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INTERNATIONAL STANDARD

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Springs — Symbols

Ressorts — Symboles

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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The committee responsible for this document is ISO/TC 227, *Springs*.

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Introduction

Several spring symbols related to cylindrical helical compression springs specified in ISO 2162-2 have been quoted according to this International Standard.

In this International Standard, existing spring symbols that have been used globally and customarily among several nations or regions are adopted without major alteration.

Existing spring symbols that have been used locally or in a limited nation/region have been redesigned in a logical way according to a particular rule for creating new spring symbols.

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INTERNATIONAL STANDARD ISO 16249:2013(E)

Springs — Symbols

1 Scope

This International Standard specifies general principles for the creation of symbols of physical quantities, coefficients, and parameters for metal springs. It specifies the presentation of basic characters, subscripts, and application symbols for use in the field of helical compression springs, helical extension springs, helical torsion springs, flat springs, and leaf springs with attention to technical product documentation, especially for describing and ordering.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 26909, *Springs — Vocabulary*

ISO 80000-1, *Quantities and units — Part 1: General*

ISO 80000-4, *Quantities and units — Part 4: Mechanics*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 26909 and the following apply.

3.1
basic character
main part of spring symbols representing physical quantities, coefficients, and parameters of springs

3.2
subscript
second part of spring symbols that follows basic characters in order to modify the physical quantities, coefficients, and parameters with respect to properties, feature, numbering, etc.

3.3
application symbol
combination of basic character and subscript

EXAMPLE Application symbol

D_e

Basic character — Subscript

4 Composition of spring symbols

4.1 General

Simple spring symbols consist of basic characters alone. Subscripts may be added to these basic characters to create more complex symbols.

Quantities and units used are specified in accordance with ISO 80000-1 and ISO 80000-4.

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For the purpose of international applicability, all basic characters and subscripts should be derived from English words, and designations used in technical literature up to the time of publication of this International Standard are adopted as far as possible. Wide conformity of the symbols for springs has been attempted.

The characters that are permitted to be used for spring symbols are Latin letters (upper case or lower case), Greek letters (upper case or lower case), and Arabic numbers.

NOTE 1 As there is a risk of confusion with the Arabic number 0, the following Latin letters have not been specified: *O* (upper case letter), *o* (lower case letter).

NOTE 2 As there is a risk of confusion with Latin letters, the following Greek letters have not been specified: *A*, *B*, *E*, *Z*, *H*, *I*, *K*, *κ*, *M*, *N*, *O*, *o*, *P*, *T*, *Y* and *X*.

4.2 Basic characters

Basic characters consist of one upper case letter or lower case letter written in Latin or Greek alphabet.

The letter should be derived from the corresponding spring term or designation in English.

Variables shall be in italic typeface.

EXAMPLES D for coil diameter, τ for torsional stress

4.3 Subscripts

Subscripts consist of one, two or three letters, digits, or letter/digit combinations of Latin letters, Greek letters or Arabic numbers.

EXAMPLE 1 D_{e} (e: one letter)

EXAMPLE 2 A_{L0} (*L0*: two letters)

EXAMPLE 3 d_{max} (max: three letters)

Subscripts should be as short as possible. A single letter/digit is preferable; however, when the symbol of a single letter/digit overlaps with an existing symbol or if it is difficult to describe the meaning with a single letter/digit, two or three letters/digits are acceptable.

EXAMPLE 4 A_M (*M*: one letter taken from “moment”)

EXAMPLE 5 d_{max} (max: three letters taken from “maximum”)

The letters should be derived from the corresponding spring terms or designation in English.

Subscripts that represent physical quantities shall be printed in italic typeface. Others shall be printed in roman typeface. Subscripts of Arabic numbers should be printed in roman typeface. However, running numbers are generally printed in italic typeface.

EXAMPLE 6 A_{L0} (*L0*: free length: italic type)

EXAMPLE 7 l_{A} (A: length at leg A: roman type)

EXAMPLE 8 L_1 (*1*: running number: italic type)

Up to two sets of subscripts are permitted in one spring symbol. In this case, they shall be separated by means of a comma (,) but without a space between them.

EXAMPLE 9 $r_{\mathrm{w,A}}$ (w,A: effective working radius of leg A)

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