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**Leaf springs — Technical
specifications**

Ressorts à lames — Spécifications techniques

Sample Document

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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 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

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

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Leaf springs — Technical specifications

1 Scope

This International Standard specifies the technical specifications for leaf springs.

This International Standard is applicable to leaf springs for road vehicle (hereinafter simply “springs”). The leaf springs for other vehicle may refer to this International Standard.

2 Normative references

The following referenced 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 683-14, *Heat-treatable steels, alloy steels and free-cutting steels — Part 14: Hot-rolled steels for quenched and tempered springs*

ISO 3887, *Steels — Determination of depth of decarburization*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

ISO 16249, *Springs — Symbols*

ISO 18265, *Metallic materials — Conversion of hardness values*

ISO 26909, *Springs — Vocabulary*

ISO 26910-1, *Springs — Shot peening — Part 1: General procedures*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 26909 and [Table 1](#) apply.

4 Symbols

For the purposes of this document, the symbols and units given in ISO 16249 and [Table 1](#) apply.

Table 1 — Terms, symbols and units

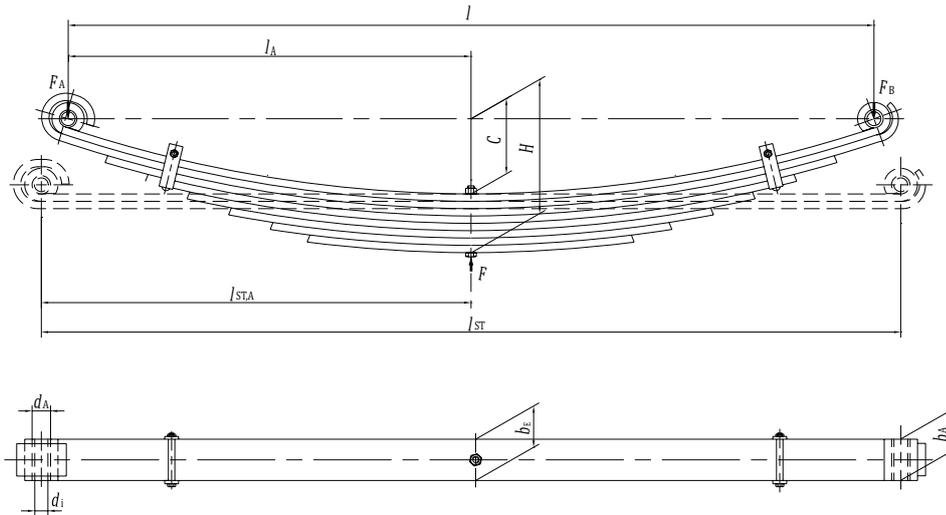
Term	Symbol	Unit	Meaning
Spring end width	b_A	mm	Width of the spring eye or sliding end.
Assembled spring width	b_E	mm	Width of the assembly in the range of U-clamping.
Camber	C	mm	Perpendicular distance from the surface where tensile stress is generated in use, of the uppermost leaf at the centre pin or the centre bolt, to the straight line connecting the centers of both eyes or connecting the load-supporting points of the spring.
Free camber	C_0	mm	Camber when free or at zero load.
Design camber	C_d	mm	Camber under design (nominal) load.

Table 1 (continued)

Term	Symbol	Unit	Meaning
Eye inner diameter	d_A	mm	Inner diameter of the spring eye.
Eye bush inner diameter	d_i	mm	Inner diameter of the spring eye bush.
Load	F	N	Total spring force.
Design load	F_d	N	Design (nominal) load of the spring.
Maximum test load	$F_{\max,t}$	N	Maximum test force of the spring.
Height	H	mm	The overall height of the spring.
Free height	H_0	mm	Height when free or at zero load.
Design height	H_d	mm	Height under design (nominal) load.
Span	l	mm	Distance between the load-supporting points of the spring.
Free Span	l_0	mm	Span when free or at zero load.
Fixed half span	l_A	mm	Length of the span between the fixed end and the centre.
Straight span	l_{ST}	mm	Length of the span between the load-supporting points of the spring when the first leaf is straight.
Fixed half straight span	$l_{ST,A}$	mm	Length of the span between the fixed end and the centre when the first leaf is straight.
Spring rate	R	N/mm	Force required to deflect the spring by one unit of deflection.
Deflection	s	mm	Change of the vertical position of the centre pin or the centre bolt against the line connecting the centers of both eyes or connecting both load-supporting points of the spring.
Design deflection	s_d	mm	The deflection under the design load.
Maximum test deflection	$s_{\max,t}$	mm	The deflection under the maximum test load.
Flank bending	δ	mm	Side bending deformation of the leaf.

5 Spring types

The most common spring types are shown in the following.



Key

- | | |
|-------------------------------|------------------------------------|
| b_A spring end width | F total spring load |
| b_E assembled spring width | F_A, F_B loads at eye A or eye B |
| C camber | l span |
| d_A eye inner diameter | l_A fixed half span |
| d_i eye bush inner diameter | l_{ST} straight span |
| H height | l_{STA} fixed half straight span |

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Figure 1 — Multi-leaf spring with eyes

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