

इंटरनेट

मानक

Disclosure to Promote the Right To Information

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

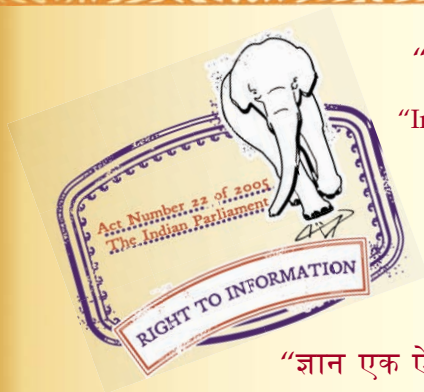
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

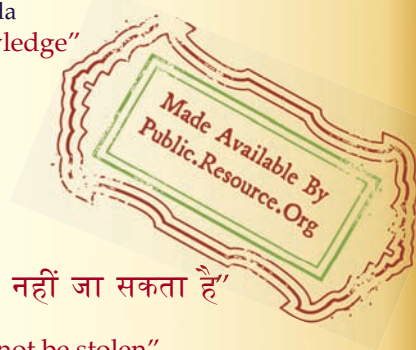
IS 10716-1 (1999): Technical Product Documentation - Springs, Part 1: Simplified Representation [PGD 24: Drawings]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS 10716 (Part 1) : 1999

ISO 2162-1 : 1993

भारतीय मानक

(Reaffirmed 2004)

तकनीकी उत्पाद प्रलेखन — स्प्रिंग

भाग 1 सरलीकृत निरूपण

(पहला पुनरीक्षण)

Indian Standard

TECHNICAL PRODUCT DOCUMENTATION —
SPRINGS

PART 1 SIMPLIFIED REPRESENTATION

(*First Revision*)

ICS 01.100.20; 21.160

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BUREAU OF INDIAN STANDARDS

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NEW DELHI 110002

August 1999

Price Group 3

NATIONAL FOREWORD

This Indian Standard (Part 1) (First Revision), which is identical with ISO 2162-1 : 1993 'Technical product documentation — Springs — Part 1: Simplified representation' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of Drawings Sectional Committee and approval of Light Mechanical Engineering Division Council.

This standard was originally published in 1983 by adopting ISO 2162 : 1973 'Technical drawings — Representation of springs'. ISO 2162 has since been revised in 1993 by splitting it into the following three parts, under the general title 'Technical product documentation — Springs'.

- Part 1 Simplified representation
- Part 2 Presentation of data for cylindrical helical compression springs
- Part 3 Vocabulary

In view of the above, the committee responsible for the formulation of this standard has also decided to revise IS 10716 : 1983 splitting into three parts by adopting the above three parts of ISO 2162 respectively.

This standard (Part 1) gives rules for the simplified representation of compression, extension, torsion, disc, spiral and leaf springs on technical drawings. Other parts of this series are given as follows.

- IS 10716 (Part 2) : 1999 Technical product documentation — Springs : Part 2 Presentation of data for cylindrical helical compression springs
- IS 10716 (Part 3) : 1999 Technical product documentation — Springs : Part 3 Vocabulary

The text of ISO has been approved as suitable for publication as Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is especially drawn to the following:

Wherever the words, 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated :

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 2162-2 : 1993	IS 10716 (Part 2) : 1999 Technical product documentation — Springs : Part 2 Presentation of data for cylindrical helical compression springs	Identical
ISO 5261 : 1981 ¹⁾	IS 10720 : 1983 Technical drawings for structural metal work	do

¹⁾ ISO 5261 : 1981 has been revised in 1995 and has been adopted as IS 10720 : 1999 'Technical drawings — Simplified representation of bars and profile sections (first revision)'.

Indian Standard

TECHNICAL PRODUCT DOCUMENTATION — SPRINGS

PART 1 SIMPLIFIED REPRESENTATION

(*First Revision*)

1 Scope

This part of ISO 2162 gives rules for the simplified representation of compression, extension, torsion, disc, spiral and leaf springs on technical drawings.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 2162. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 2162 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2162-2:1993, *Technical product documentation — Springs — Part 2: Presentation of data for cylindrical helical compression springs*.

ISO 5261:1981, *Technical drawings for structural metal work*.

3 General

In simplified representations, springs are represented as follows.

— Coiled wire springs: by a line following the axis of the spring wire.

— Other types of springs: by lines showing the characteristics of the respective type of springs and their elements.

The representations shown are examples only.

4 Helical compression springs

The following requirements shall be applied for the indication of the geometrical characteristics of wire-made springs on a simplified representation.

a) Cross-section of the material

Cylindrical: the appropriate graphical symbol in accordance with ISO 5261 ($\emptyset$) need not be indicated.

Other than cylindrical: the appropriate graphical symbol in accordance with ISO 5261 shall be indicated (e.g. , ).

b) Direction of helix

Right-hand: assumed as normal and the designation RH need not be indicated.

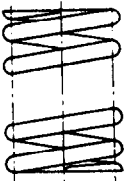
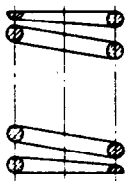
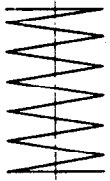
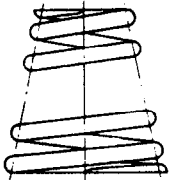
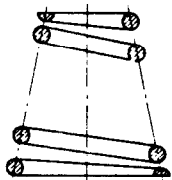
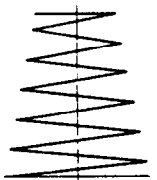
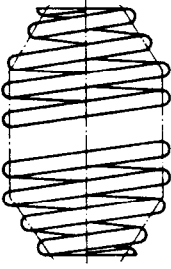
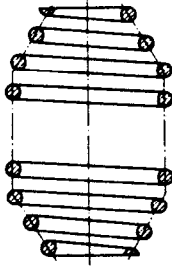
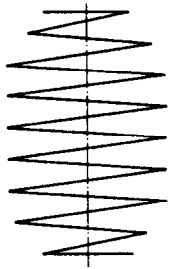
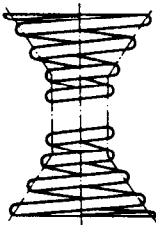
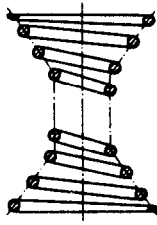
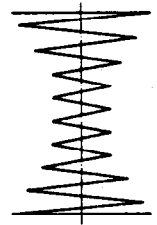
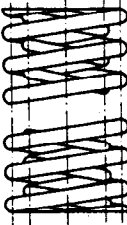
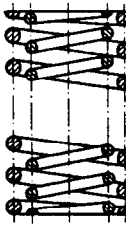
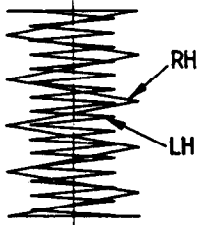
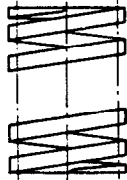
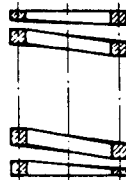
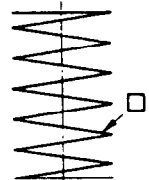
Left-hand: exceptional and the designation LH¹⁾ shall be indicated.

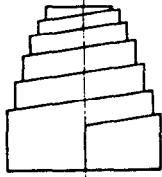
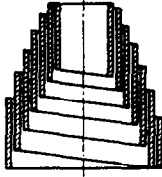
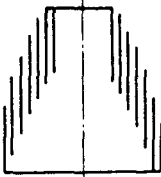
c) Shape of ends

Ground: no indication is necessary.

Other than ground: the type shall be specified on the drawing, with dimensions if necessary (see ISO 2162-2).

1) In accordance with the rules given for the indication of left-hand screw threads (see ISO 5884:1978, *ISO inch screw threads — Allowances and tolerances*, clause 11).

No.	Type of spring	Representation		
		View	Section	Simplified
4.1	Cylindrical helical compression spring			
4.2	Conical helical compression spring			
Combinations of cylindrical (4.1) and conical (4.2) helical compression springs.				
4.3	Double-conical helical compression spring Barrel spring			
4.4	Double-conical helical compression spring Waisted spring			
4.5	Spring nest of, for example, two cylindrical helical compression springs			
4.6	Cylindrical helical compression spring of material having square cross-section			

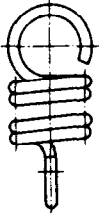
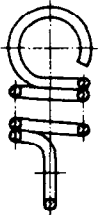
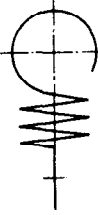
No.	Type of spring	Representation		
		View	Section	Simplified
4.7	Conical helical compression spring of strip having rectangular cross-section Volute spring			

5 Helical extension springs

The requirements for the indication of the cross-section of the material and direction of helix are identical to those given in clause 4.

The shape of the ends shall be specified on the drawing, with dimensions if necessary.

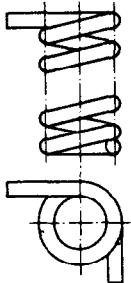
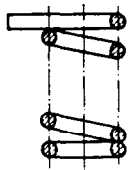
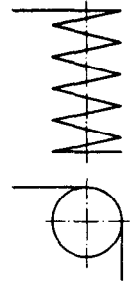
The spring and its ends usually have the same diameter.

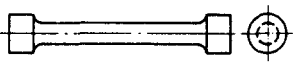
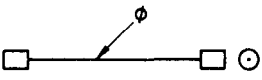
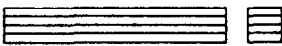
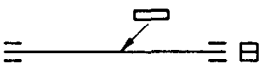
No.	Type of spring	Representation		
		View	Section	Simplified
5.1	Cylindrical helical extension spring			

6 Torsion springs

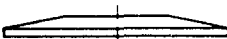
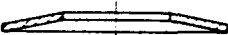
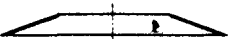
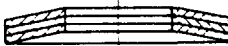
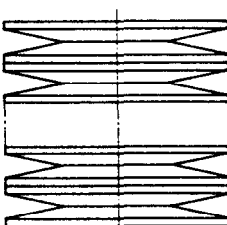
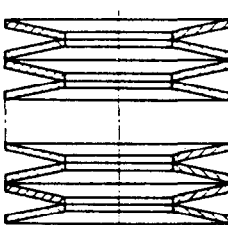
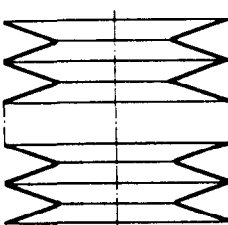
The requirements for the indication of the direction of helix and the cross-section of the material for 6.1 are identical to those given in clause 4. For 6.2 and 6.3, the cross-section of the material shall be indicated.

The shape of the ends shall be specified on the drawing, with dimensions if necessary.

No.	Type of spring	Representation		
		View	Section	Simplified
6.1	Cylindrical helical torsion spring			

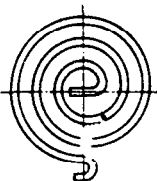
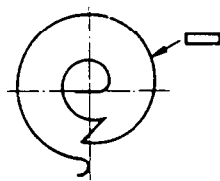
No.	Type of spring	Representation	
		View	Simplified
6.2	Torsion bar spring having circular cross-section		
6.3	Stacked laminated torsion bar spring of strips having rectangular cross-section		

7 Disc springs (Belleville)

No.	Type of spring	Representation		
		View	Section	Simplified
7.1	Disc spring, single			
7.2	Multi-disc spring (disc laminated in parallel)			
7.3	Multi-disc spring (disc laminated in series) Disc spring column			

8 Spiral springs

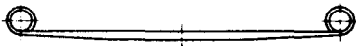
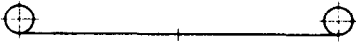
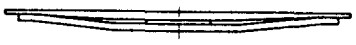
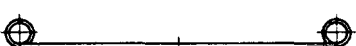
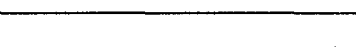
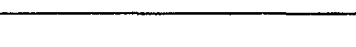
The cross-section of the material shall be indicated (see example in 8.1). In cases 8.1 and 8.2 the shape of the ends needs to be indicated.

No.	Type of spring	Representation	
		View	Simplified
8.1	Spiral spring of strip having rectangular cross-section		

No.	Type of spring	Representation	
		View	Simplified
8.2	Constant force extension spring		
8.3	Constant force spring — A-Motor		
8.4	Constant force spring — B-Motor		

9 Leaf springs

No.	Type of spring	Representation	
		View	Simplified
9.1	Laminated leaf spring without eyes		
9.2	Laminated leaf spring with eyes		
9.3	Laminated leaf spring with eyes and helper spring		
9.4	Laminated leaf spring with eyes and auxiliary spring		

No.	Type of spring	Representation	
		View	Simplified
9.5	Parabolic single-leaf spring with eyes		
9.6	Parabolic multi-leaf spring without eyes		
9.7	Parabolic multi-leaf spring with eyes		
9.8	Parabolic multi-leaf spring with eyes and helper spring		
9.9	Parabolic multi-leaf spring with eyes and auxiliary spring		

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards : Monthly Additions'.

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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