
**Tools for pressing — Compression
springs with rectangular section —
Housing dimensions and colour coding**

*Outils de presse — Ressorts de compression à section
rectangulaire — Dimensions d'encombrement et code couleur*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 10243:2019](https://standards.iteh.ai/catalog/standards/sist/ad42212b-9235-4d46-a9a7-1ed4d29d8b01/iso-10243-2019)

<https://standards.iteh.ai/catalog/standards/sist/ad42212b-9235-4d46-a9a7-1ed4d29d8b01/iso-10243-2019>



iTeh STANDARD PREVIEW (standards.iteh.ai)

ISO 10243:2019

<https://standards.iteh.ai/catalog/standards/sist/ad42212b-9235-4d46-a9a7-1ed4d29d8b01/iso-10243-2019>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Technical specifications	1
4.1 General	1
4.2 Tolerances for free length, L_0	2
4.3 Light spring rate (green)	2
4.4 Medium spring rate (blue)	6
4.5 Strong spring rate (red)	10
4.6 Extra strong spring rate (yellow)	14
5 Designation	18
Bibliography	19

iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO 10243:2019](https://standards.iteh.ai/catalog/standards/sist/ad42212b-9235-4d46-a9a7-1ed4d29d8b01/iso-10243-2019)

<https://standards.iteh.ai/catalog/standards/sist/ad42212b-9235-4d46-a9a7-1ed4d29d8b01/iso-10243-2019>

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. This document was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 8, *Tools for pressing and moulding*.

This third edition cancels and replaces the second edition (ISO 10243:2010), which has been technically revised. It also incorporates the Amendment ISO 10243:2010/Amd 1:2011.

The main changes compared to the previous edition are as follows:

- some values of spring rate have been modified in [Table 2](#) to [Table 5](#);
- a column giving the force at maximum operating deflection has been added in [Table 2](#) to [Table 5](#).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Tools for pressing — Compression springs with rectangular section — Housing dimensions and colour coding

1 Scope

This document establishes the technical specifications for compression springs made from rectangular wires.

The parameters set in this document are applicable to springs which are set. This document does not attempt to specify the quality of the springs themselves, nor all of their dimensions (e.g. cross-section), their material or their length of life.

The springs are classified into spring rates: light, medium, strong and extra strong. For each spring rate, this document gives a colour code.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

spring rate

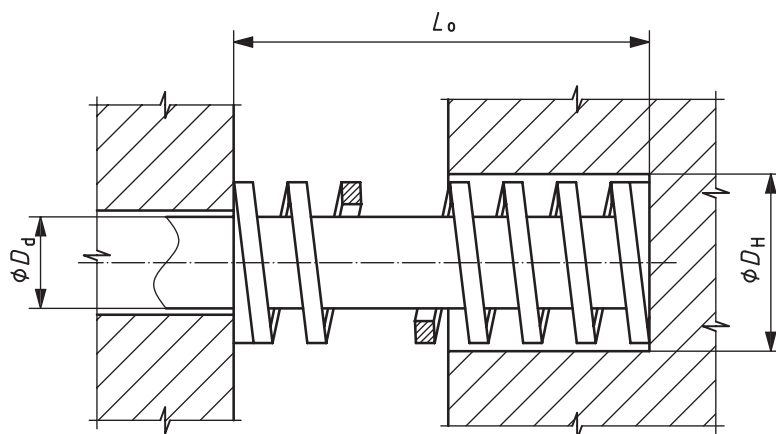
force required to deflect a compression spring by one unit of length

[SOURCE: : ISO 26909:2009, 5.21, modified — Limited the definition to compression spring.]

4 Technical specifications

4.1 General

Compression springs in accordance with this document shall comply with [Figure 1](#) and the provisions of [4.2](#) to [4.6](#).



Key

- L_o free length
- D_d rod diameter
- D_H hole diameter

Figure 1 — Compression springs

4.2 Tolerances for free length, L_o

The tolerances for free length, L_o , shall comply with [Figure 1](#) and [Table 1](#).

iTech STANDARD PREVIEW
(standards.iteh.ai)

Table 1 — Tolerances of free length

L_o mm	Tolerance
25	± 1 mm
32	
38	
44	
51	
64	
76	
89	
102	$\pm 1\% L_o$
115	
127	
139	
152	
178	
203	
254	
305	

4.3 Light spring rate (green)

Compression springs of light spring rate in accordance with this document shall comply with [Figure 1](#) and [Table 2](#).

Compression springs of light spring rate shall be green according to the colour code of this document.

Table 2 — Technical specifications of compression springs of light spring rate

Hole diameter D_H H15 mm	Rod diameter D_d h15 mm	Free length L_0 mm	Spring rate $\pm 10\%$ N/mm	Maximum operating deflection $40\% L_0$ mm	Force at maximum operating deflection N
10	5	25	11	10,0	110,0
		32	8,5	12,8	108,8
		38	6,8	15,2	103,4
		44	6	17,6	105,6
		51	5	20,4	102,0
		64	4,1	25,6	105,0
		76	3,6	30,4	109,4
		305	0,9	122	109,8
12,5	6,3	25	21	10,0	210,0
		32	16,4	12,8	209,9
		38	13,6	15,2	206,7
		44	12,1	17,6	213,0
		51	10,3	20,4	210,1
		64	7,6	25,6	194,6
		76	6,3	30,4	191,5
		89	5,4	35,6	192,2
16	8	25	29	10,0	290,0
		32	22,9	12,8	293,1
		38	19,3	15,2	293,4
		44	17,1	17,6	301,0
		51	14	20,4	285,6
		64	10,7	25,6	273,9
		76	9	30,4	273,6
		89	7,3	35,6	259,9
		102	6,8	40,8	277,4
		305	2,3	122	280,6

Table 2 (continued)

Hole diameter	Rod diameter	Free length	Spring rate	Maximum operating deflection	Force at maximum operating deflection
D_H H15 mm	D_d h15 mm	L_0 mm	$\pm 10\%$ N/mm	40 % L_0 mm	N
20	10	25	55,8	10,0	558,0
		32	45	12,8	576,0
		38	36	15,2	547,2
		44	30	17,6	528,0
		51	24,5	20,4	499,8
		64	19,2	25,6	491,5
		76	16	30,4	486,4
		89	14	35,6	498,4
		102	12	40,8	489,6
		115	10,9	46,0	501,4
		127	9,5	50,8	482,6
		139	8,4	55,6	467,0
		152	7,5	60,8	456,0
		305	4	122	488,0
25	12,5	25	105	10,0	1 050,0
		32	80,3	12,8	1 027,8
		38	62	15,2	942,4
		44	52,9	17,6	931,0
		51	44	20,4	897,6
		64	35,2	25,6	901,1
		76	28	30,4	851,2
		89	24	35,6	854,4
		102	21,1	40,8	860,9
		115	18,7	46,0	860,2
		127	16,7	50,8	848,4
		139	15,3	55,6	850,7
		152	14	60,8	851,2
		178	12,5	71,2	890,0
		203	10,4	81,2	844,5
		305	7	122	854,0

Table 2 (continued)

Hole diameter	Rod diameter	Free length	Spring rate	Maximum operating deflection	Force at maximum operating deflection
D_H H15 mm	D_d h15 mm	L_0 mm	$\pm 10\%$ N/mm	40 % L_0 mm	N
32	16	38	98	15,2	1 490
		44	79,5	17,6	1 399
		51	67	20,4	1 367
		64	53	25,6	1 357
		76	44	30,4	1 338
		89	37,2	35,6	1 324
		102	32	40,8	1 306
		115	29	46,0	1 334
		127	25	50,8	1 270
		139	23	55,6	1 279
		152	21,5	60,8	1 307
		178	18,2	71,2	1 296
		203	15,8	81,2	1 283
		254	12,5	102	1 275
305	10,3	122	1 257		
40	20	150	92	20,4	1 877
		64	73	25,6	1 869
		76	63	30,4	1 915
		89	51	35,6	1 816
		102	45	40,8	1 816
		115	39,6	46,0	1 822
		127	36	50,8	1 829
		139	32	55,6	1 779
		152	28	60,8	1 702
		178	25,2	71,2	1 794
		203	21,8	81,2	1 770
		254	17	102	1 734
		305	14,8	122	1 806

Table 2 (continued)

Hole diameter D_H H15 mm	Rod diameter D_d h15 mm	Free length L_0 mm	Spring rate $\pm 10\%$ N/mm	Maximum operating deflection $40\% L_0$ mm	Force at maximum operating deflection N
50	25	64	156	25,6	3 994
		76	125	30,4	3 800
		89	109	35,6	3 880
		102	94	40,8	3 835
		115	81	46,0	3 726
		127	71	50,8	3 607
		139	66,5	55,6	3 697
		152	60	60,8	3 648
		178	52	71,2	3 702
		203	44	81,2	3 573
		254	35	102	3 570
		63	38	305	28,5
76	189			30,4	5 746
89	158			35,6	5 625
102	131			40,8	5 345
115	116			46,0	5 336
127	103			50,8	5 232
152	84,3			60,8	5 125
178	71,5			71,2	5 091
203	61,7			81,2	5 010
254	47			102	4 794
		305	38,2	122	4 660

4.4 Medium spring rate (blue)

Compression springs of medium spring rate in accordance with this document shall comply with Figure 1 and Table 3.

Compression springs of medium spring rate shall be blue according to the colour code of this document.

Table 3 — Technical specifications of compression springs of medium spring rate

Hole diameter	Rod diameter	Free length	Spring rate	Maximum operating deflection	Force at maximum operating deflection
D_H H15 mm	D_d h15 mm	L_0 mm	$\pm 10\%$ N/mm	$37,5\% L_0$ mm	N
10	5	25	16	9,4	150,4
		32	13	12,0	156,0
		38	11,9	14,2	169,0
		44	10,3	16,5	170,0
		51	8,9	19,1	170,0
		64	7,5	24,0	180,0
		76	6,2	28,5	176,7
		305	1,6	114	182,4
12,5	6,3	25	30	9,4	282,0
		32	24,8	12,0	297,6
		38	21,4	14,2	303,9
		44	18	16,5	297,0
		51	15,5	19,1	296,1
		64	12,1	24,0	290,4
		76	10,2	28,5	290,7
		305	2,4	114	273,6
16	8	25	49,4	9,4	464,4
		32	38,5	12,0	462,0
		38	33,9	14,2	481,4
		44	30	16,5	495,0
		51	26,4	19,1	504,2
		64	20,5	24,0	492,0
		76	17,8	28,5	507,3
		89	15,2	33,3	506,2
		102	13,5	38,2	515,7
		305	4,3	114	490,2