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

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



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 10243 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 8, *Tools for pressing and moulding*.

This second edition cancels and replaces the first edition (ISO 10243:1991), which has been technically revised.

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

## 1 Scope

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

The parameters set in this International Standard are applicable to springs which are set. This International Standard 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 International Standard gives a colour code.

## 2 Technical specifications

### 2.1 General

Compression springs in accordance with this International Standard shall comply with the technical specifications given in Figure 1 and in 2.2 to 2.6.

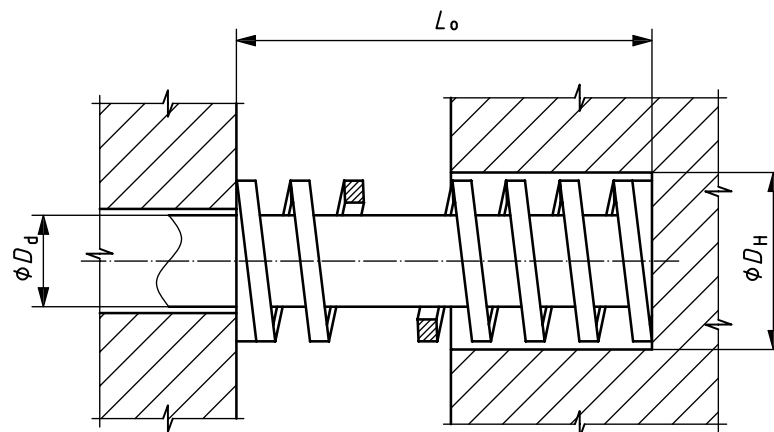


Figure 1 — Compression springs

### 2.2 Tolerances for free length, $L_0$

The tolerances for free length,  $L_0$ , shall comply with the indications of Figure 1 and Table 1.

Table 1 — Tolerances of free length

$L_0$ mm	Tolerance
25	±1 mm
32	
38	
44	
51	
64	
76	
89	
102	±1 %
115	
127	
139	
152	
178	
203	
254	
305	

## 2.3 Light spring rate

Compression springs of light spring rate in accordance with this International Standard shall comply with the technical specifications given in Figure 1 and Table 2.

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

**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 $L_o$ mm	Required force to deflect 1 mm  $\pm 10\%$ N	Maximum operating deflection  40 % $L_o$ mm
10	5	25	10	10,0
		32	8,5	12,8
		38	6,8	15,2
		44	6	17,6
		51	5	20,4
		64	4,3	25,6
		76	3,2	30,4
12,5	6,3	305	1,1	122
		25	17,9	10,0
		32	16,4	12,8
		38	13,6	15,2
		44	12,1	17,6
		51	11,4	20,4
		64	9,3	25,6
		76	7,1	30,4
16	8	89	5,4	35,6
		305	1,4	122
		25	23,4	10,0
		32	22,9	12,8
		38	19,3	15,2
		44	17,1	17,6
		51	15,7	20,4
		64	10,7	25,6
		76	10	30,4
		89	8,6	35,6
102	8	102	7,8	40,8
		305	2,5	122

Table 2 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $40\% L_o$ mm
20	10	25	55,8	10,0
		32	45	12,8
		38	33,3	15,2
		44	30	17,6
		51	24,5	20,4
		64	20	25,6
		76	16	30,4
		89	14	35,6
		102	12	40,8
		115	10,9	46,0
		127	9,5	50,8
		139	8,4	55,6
		152	7,5	60,8
		305	4	122
25	12,5	25	100	10,0
		32	80,3	12,8
		38	62	15,2
		44	52,9	17,6
		51	44	20,4
		64	35,2	25,6
		76	28	30,4
		89	24	35,6
		102	21,1	40,8
		115	18,7	46,0
		127	16,7	50,8
		139	15,3	55,6
		152	14	60,8
		178	12,5	71,2
		203	10,4	81,2
		305	7	122



Table 2 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $40\% L_o$ mm
32	16	38	94	15,2
		44	79,5	17,6
		51	67	20,4
		64	53	25,6
		76	44	30,4
		89	37,2	35,6
		102	32	40,8
		115	29	46,0
		127	25	50,8
		139	23	55,6
		152	21,5	60,8
		178	18,2	71,2
		203	15,8	81,2
		254	12,5	102
		305	10,3	122
40	20	51	92	20,4
		64	73	25,6
		76	63	30,4
		89	51	35,6
		102	43	40,8
		115	39,6	46,0
		127	37	50,8
		139	32	55,6
		152	28	60,8
		178	25,2	71,2
		203	22,7	81,2
		254	17	102
		305	14,8	122

Table 2 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $40\% L_o$ mm
50	25	64	156	25,6
		76	125	30,4
		89	109	35,6
		102	94	40,8
		115	81	46,0
		127	71	50,8
		139	66,5	55,6
		152	60	60,8
		178	52	71,2
		203	44	81,2
		254	35	102
		305	28,5	122
63	38	76	189	30,4
		89	158	35,6
		102	131	40,8
		115	116	46,0
		127	103	50,8
		152	84,3	60,8
		178	71,5	71,2
		203	61,7	81,2
		254	47	102
		305	38,2	122

## 2.4 Medium spring rate

Compression springs of medium spring rate in accordance with this International Standard shall comply with the technical specifications given in Figure 1 and Table 3.

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

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

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm  $\pm 10\%$ N	Maximum operating deflection  $37,5\% L_o$ mm
10	5	25	16	9,4
		32	13	12,0
		38	11,9	14,2
		44	10,3	16,5
		51	8,9	19,1
		64	7,5	24,0
		76	5,3	28,5
		305	1,6	114
12,5	6,3	25	30	9,4
		32	24,8	12,0
		38	21,4	14,2
		44	18,5	16,5
		51	15,5	19,1
		64	12,1	24,0
		76	10,2	28,5
		89	8,4	33,3
		305	2,1	114
16	8	25	49,4	9,4
		32	37,1	12,0
		38	33,9	14,2
		44	30	16,5
		51	26,4	19,1
		64	20,5	24,0
		76	17,8	28,5
		89	15,2	33,3
		102	13,5	38,2
		305	4,8	114

Table 3 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $37,5\% L_o$ mm
20	10	25	98	9,4
		32	72,6	12,0
		38	56	14,2
		44	47,5	16,5
		51	41,7	19,1
		64	32,3	24,0
		76	25,1	28,5
		89	22	33,3
		102	19,8	38,2
		115	18,1	43,1
		127	16,6	47,6
		139	15,1	52,1
		152	13,2	57,0
		305	6,1	114
25	12,5	25	147	9,4
		32	118	12,0
		38	93	14,2
		44	80,8	16,5
		51	68,6	19,1
		64	53	24,0
		76	43,2	28,5
		89	38,2	33,3
		102	33	38,2
		115	28	43,1
		127	25,9	47,6
		139	23,2	52,1
		152	20,8	57,0
		178	17,8	66,7
		203	15,8	76,1
		305	10,2	114

Table 3 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $37,5\% L_o$ mm
32	16	38	185	14,2
		44	158	16,5
		51	134	19,1
		64	99	24,0
		76	80,5	28,5
		89	69,1	33,3
		102	58,8	38,2
		115	51,5	43,1
		127	44,8	47,6
		139	42,3	52,1
		152	37,8	57,0
		178	32,5	66,7
		203	28,9	76,1
		254	21,4	95,2
40	20	305	18,3	114
		51	182	19,1
		64	140	24,0
		76	108	28,5
		89	90,7	33,3
		102	81	38,2
		115	71,8	43,1
		127	62,7	47,6
		139	57,5	52,1
		152	51,6	57,0
		178	44,1	66,7
		203	36,7	76,1
		254	30,1	95,2
		305	24,6	114

Table 3 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $37,5\% L_o$ mm
50	25	64	209	24,0
		76	168	28,5
		89	140	33,3
		102	119	38,2
		115	106	43,1
		127	97	47,6
		139	87	52,1
		152	80	57,0
		178	69,5	66,7
		203	59,8	76,1
		229	50,9	85,8
		254	43,9	95,2
		305	38,6	114
63	38	76	312	28,5
		89	260	33,3
		102	221	38,2
		115	187	43,1
		127	168	47,6
		152	136	57,0
		178	114	66,7
		203	100	76,1
		229	89,2	85,8
		254	78,4	95,2
		305	64,7	114

## 2.5 Strong spring rate

Compression springs of strong spring rate in accordance with this International Standard shall comply with the technical specifications given in Figure 1 and Table 4.

Compression springs of strong spring rate shall be red according to the colour code of this International Standard.

**Table 4 — Technical specifications of compression springs of strong spring rate**

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $30\% L_o$ mm
10	5	25	22,1	7,5
		32	17,5	9,6
		38	17,1	11,4
		44	15	13,2
		51	12,8	15,3
		64	10,7	19,2
		76	7,5	22,8
12,5	6,3	305	2,1	91,5
		25	42,1	7,5
		32	33,2	9,6
		38	29,3	11,4
		44	24,6	13,2
		51	19,6	15,3
		64	15	19,2
		76	13,2	22,8
16	8	89	11,4	26,7
		305	2,8	91,5
		25	75,7	7,5
		32	52,8	9,6
		38	48,5	11,4
		44	42,8	13,2
		51	37,1	15,3
		64	30,3	19,2
		76	25,7	22,8
		89	21,7	26,7
102	8	102	19,3	30,6
		305	7,1	91,5

Table 4 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm  $\pm 10\%$ N	Maximum operating deflection  $30\% L_o$ mm
20	10	25	216	7,5
		32	168	9,6
		38	129	11,4
		44	112	13,2
		51	94	15,3
		64	72,1	19,2
		76	59,7	22,8
		89	50,5	26,7
		102	44,2	30,6
		115	38,4	34,5
		127	34,1	38,1
		139	31	41,7
		152	28,2	45,6
		305	15	91,5
25	12,5	25	375	7,5
		32	297	9,6
		38	219	11,4
		44	187	13,2
		51	156	15,3
		64	123	19,2
		76	99	22,8
		89	84	26,7
		102	73	30,6
		115	65	34,5
		127	57,7	38,1
		139	52,7	41,7
		152	47,8	45,6
		178	41	53,4
203	35,8	60,9		
305	22,9	91,5		



Table 4 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $30\% L_o$ mm
32	16	38	388	11,4
		44	324	13,2
		51	272	15,3
		64	212	19,2
		76	172	22,8
		89	141	26,7
		102	122	30,6
		115	107	34,5
		127	93	38,1
		139	86	41,7
		152	78	45,6
		178	67,2	53,4
		203	59,1	60,9
		254	46,4	76,2
		305	38	91,5
40	20	51	350	15,3
		64	269	19,2
		76	219	22,8
		89	190	26,7
		102	163	30,6
		115	142	34,5
		127	128	38,1
		139	115	41,7
		152	105	45,6
		178	89	53,4
		203	77	60,9
		254	61	76,2
		305	51	91,5

Table 4 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $30\% L_o$ mm
50	25	64	413	19,2
		76	339	22,8
		89	288	26,7
		102	245	30,6
		115	215	34,5
		127	192	38,1
		139	168	41,7
		152	154	45,6
		178	134	53,4
		203	117	60,9
		254	89	76,2
		305	73	91,5

## 2.6 Extra strong spring rate

Compression springs of extra strong spring rate in accordance with this International Standard shall comply with the technical specifications given in Figure 1 and Table 5.

Compression springs of extra strong spring rate shall be yellow according to the colour code of this International Standard.

**Table 5 — Technical specifications of compression springs of extra strong spring rate**

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_0$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $25\% L_0$ mm
10	5	25	36,8	6,2
		32	27,9	8,0
		38	23,7	9,5
		44	19,2	11,0
		51	16,5	12,7
		64	13,2	16,0
		76	10,9	19,0
		305	2,6	76,3
12,5	6,3	25	58,5	6,2
		32	43,9	8,0
		38	36	9,5
		44	30,3	11,0
		51	26,2	12,7
		64	21,2	16,0
		76	17,1	19,0
		89	14,5	22,2
		305	4,3	76,3
16	8	25	118	6,2
		32	89	8,0
		38	72,1	9,5
		44	60,9	11,0
		51	52,3	12,7
		64	41,2	16,0
		76	34,1	19,0
		89	29,5	22,2
		102	25,6	25,5
		305	8,4	76,3

Table 5 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $25\% L_o$ mm
20	10	25	293	6,2
		32	224	8,0
		38	177	9,5
		44	149	11,0
		51	128	12,7
		64	99	16,0
		76	81,7	19,0
		89	69,5	22,2
		102	60,6	25,5
		115	53	28,7
		127	47,5	31,7
		139	43	34,7
		152	39	38,0
		305	21,2	76,3
25	12,5	32	374	8,0
		38	300	9,5
		44	244	11,0
		51	208	12,7
		64	161	16,0
		76	131	19,0
		89	111	22,2
		102	96,3	25,5
		115	85,7	28,7
		127	76,3	31,7
		139	66	34,7
		152	63,5	38,0
		178	53,9	44,5
		203	47	50,7
305	30,9	76,3		

Table 5 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $25\% L_o$ mm
32	16	38	480	9,5
		44	390	11,0
		51	320	12,7
		64	269	16,0
		76	219	19,0
		89	180	22,2
		102	155	25,5
		115	140	28,7
		127	124	31,7
		139	112	34,7
		152	102	38,0
		178	88,2	44,5
		203	76	50,7
		254	60,8	64,0
		305	49	76,3
40	20	51	628	12,7
		64	487	16,0
		76	379	19,0
		89	321	22,2
		102	281	25,5
		115	245	28,7
		127	221	31,7
		139	171	34,7
		152	168	38,0
		178	132	44,5
		203	132	50,7
		254	107	64,0
		305	87,8	76,6

Table 5 (continued)

Hole diameter $D_H$ H15 mm	Rod diameter $D_d$ h15 mm	Free length $L_o$ mm	Required force to deflect 1 mm $\pm 10\%$ N	Maximum operating deflection $25\% L_o$ mm
50	25	64	709	16,0
		76	572	19,0
		89	475	22,2
		102	405	25,5
		115	352	28,7
		127	316	31,7
		139	289	34,7
		152	239	38,0
		178	215	44,5
		203	187	50,7
		254	153	64,0
		305	127	76,3

### 3 Designation

A compression spring in accordance with this International Standard shall be designated by:

- a) "Compression spring";
- b) a reference to this International Standard, i.e. ISO 10243;
- c) the hole diameter,  $D_H$ , in millimetres;
- d) the free length,  $L_o$ , in millimetres;
- e) the spring rate (light, medium, strong, extra strong);
- f) the colour code.

**EXAMPLE** A compression spring with hole diameter,  $D_H = 10$  mm, free length,  $L_o = 25$  mm, of light spring rate and of colour code green, is designated as follows:

**Compression spring ISO 10243 – 10 × 25 – light – green**

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**ICS 01.070; 25.120.10**

Price based on 18 pages