INTERNATIONAL STANDARD

ISO 8751

Third edition
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Spring-type straight pins — Coiled, light duty

Goupilles élastiques spiralées — Série mince

Reference number
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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 8751 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 10, *Product standards for fasteners*.

This third edition cancels and replaces the second edition (ISO 8751:1997), which has been technically revised.

Spring-type straight pins — Coiled, light duty

1 Scope

This International Standard specifies the characteristics of coiled light duty spring-type straight pins made of steel or of austenitic or martensitic stainless steel, with a nominal diameter, d_1, from 1,5 mm to 8 mm inclusive.

NOTE Spring-type straight pins, coiled, heavy duty, and spring type straight pins, coiled, standard duty, are the subjects of ISO 8748 and ISO 8750, respectively.

2 Normative references

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

ISO 286-2, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*

ISO 3269, *Fasteners — Acceptance inspection*

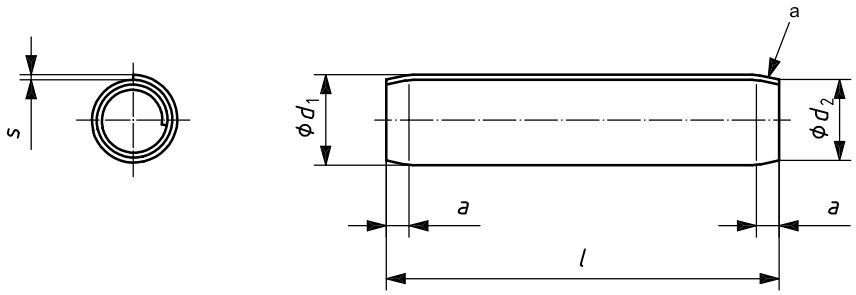
ISO 4042, *Fasteners — Electroplated coatings*

ISO 6507-1, *Metallic materials —Vickers hardness test — Part 1: Test method*

ISO 8749, *Pins and grooved pins — Shear test*

3 Dimensions

See Figure 1 and Table 1.



[a] Swaged chamfer at both ends.

Figure 1

Table 1 — Dimensions

Dimensions in millimetres

		nom.	**1,5**	**2**	**2,5**	**3**	**3,5**	**4**	**5**	**6**	**8**
d_1	before mounting	max.	1,75	2,28	2,82	3,35	3,87	4,45	5,5	6,55	8,65
		min.	1,62	2,13	2,65	3,15	3,67	4,20	5,2	6,25	8,30
d_2	before mounting	max.	1,4	1,9	2,4	2,9	3,4	3,9	4,85	5,85	7,8
a		≈	0,5	0,7	0,7	0,9	1	1,1	1,3	1,5	2
s			0,08	0,11	0,14	0,17	0,19	0,22	0,28	0,33	0,45
Minimum shear strength, double, kN		a	0,8	1,5	2,3	3,3	4,5	5,7	9	13	23
		b	0,65	1,1	1,8	2,5	3,4	4,4	7	10	18

l [c]		
nom.	min.	max.
4	3,75	4,25
5	4,75	5,25
6	5,75	6,25
8	7,75	8,25
10	9,75	10,25
12	11,5	12,5
14	13,5	14,5
16	15,5	16,5
18	17,5	18,5
20	19,5	20,5
22	21,5	22,5
24	23,5	24,5
26	25,5	26,5
28	27,5	28,5
30	29,5	30,5
32	31,5	32,5
35	34,5	35,5
40	39,5	40,5
45	44,5	45,5
50	49,5	50,5
55	54,25	55,75
60	59,25	60,75
65	64,25	65,75
70	69,25	70,75
75	74,25	75,75
80	79,25	80,75
85	84,25	85,75
90	89,25	90,75
95	94,25	95,75
100	99,25	100,75
120	119,25	120,75

Range of commercial lengths

[a] Applies to steel and martensitic corrosion resistant steel products.

[b] Applies to austenitic stainless steel products.

[c] For nominal lengths above 120 mm, steps of 20 mm.

4 Application

The diameter of the hole into which the spring pin is to be inserted shall be equal to the nominal diameter, d_1, of the mating pin and to tolerance class H12 in accordance with ISO 286-2.

5 Requirements and reference International Standards

See Table 2.

Table 2 — Requirements and reference International Standards

	Steel		Austenitic stainless steel	Martensitic stainless steel
	St		A	C
	All pin diameters	Alternative for pin diameters $d_1 > 12$ mm	Chemical composition limits (chemical analysis) %	
	Chemical composition limits (chemical analysis) %			
Material [a]	C ⩾ 0,64 Mn ⩾ 0,60 Si ⩾ 0,15 Cr [b] P ⩽ 0,04 S ⩽ 0,05	C ⩾ 0,38 Mn ⩾ 0,70 Si ⩾ 0,20 Cr ⩾ 0,80 V ⩾ 0,15 P ⩽ 0,035 S ⩽ 0,04	C ⩽ 0,15 Mn ⩽ 2,00 Si ⩽ 1,50 Cr 16 to 20 Ni 6 to 12 P ⩽ 0,045 S ⩽ 0,03 Mo ⩽ 0,8	C ⩾ 0,15 Mn ⩽ 1,00 Si ⩽ 1,00 Cr 11,5 to 14 Ni ⩽ 1,00 P ⩽ 0,04 S ⩽ 0,03
	Hardened and tempered to a Vickers hardness of 420 HV to 545 HV Hardness testing according to ISO 6507-1		Cold worked	Hardened and tempered to a Vickers hardness of 460 HV to 560 HV Hardness testing according to ISO 6507-1.
Surface finish	Plain, i.e. pins to be supplied in natural finish, treated with a protective lubricant, unless otherwise specified by agreement between customer and supplier.		Plain, i.e. pins to supplied in natural finish.	
	If pins are surface coated, appropriate plating or coating processes should be employed to avoid hydrogen embrittlement. Due to the risk of hydrogen embrittlement, pins should not be electroplated or phosphate-coated. If electroplating or phosphate coating is required for corrosion prevention, by agreement between customer and supplier, it is mandatory that the pins be baked immediately after plating to minimize the risk of hydrogen embrittlement, see also hydrogen embrittlement relief according to ISO 4042. Nevertheless, freedom from hydrogen embrittlement is not absolutely guaranteed. All tolerances shall apply prior to the application of a plating or coating.			
Workmanship	Pins shall be uniform in quality and free of irregularities or detrimental defects. No burrs shall appear on any part of the pin.			
Shear strength test	The test shall be in accordance with ISO 8749.			
Acceptability	The acceptance procedure shall be in accordance with ISO 3269.			

[a] Other materials as agreed between customer and supplier.
[b] Use of Cr is optional.

6 Designation

EXAMPLE 1 A spring-type straight pin, coiled, light duty, with nominal diameter d_1 = 6 mm and nominal length l = 30 mm, made of steel (St) is designated as follows:

Spring pin ISO 8751 - 6 × 30 - St

EXAMPLE 2 A spring-type straight pin, coiled, light duty, with nominal diameter d_1 = 6 mm and nominal length l = 30 mm, made of austenitic stainless steel (A) is designated as follows:

Spring pin ISO 8751 - 6 × 30 - A

Bibliography

[1] ISO 8748, *Spring-type straight pins — Coiled, heavy duty*

[2] ISO 8750, *Spring-type straight pins — Coiled, standard duty*