# INTERNATIONAL STANDARD

ISO 8751

Third edition 2007-04-15

## Spring-type straight pins — Coiled, light duty

Goupilles élastiques spiralées — Série mince

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
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#### **Foreword**

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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.

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### 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

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ISO 3269, Fasteners — Acceptance inspection

ISO 8751:2007

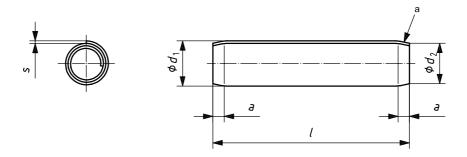
ISO 4042, Fastenershttps: Electroplated coatings: standards/sist/acee4188-cc51-4550-b35f-526709420a6a/iso-8751-2007

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.



<sup>a</sup> 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 5.5		max.	1,75	2,28	2,82	3,35	3,87	4,45	5,5	6,55	8,65
$d_1$ befo	re mounting	min.	1,62	2,13	2,65	3,15	3,67	4,20	5,2	6,25	8,30
$d_2$ befo	ore mounting	max.	1,4	1,9	2,4	2,9	3,4	3,9	4,85	5,85	7,8
а			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		а	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
			•		<u> </u>	<u> </u>		<u> </u>		<u> </u>	
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							7		
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32	31,5	30,5									
32 35	34,5	32,5 35,5								lenç	aths
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									

<sup>&</sup>lt;sup>a</sup> Applies to steel and martensitic corrosion resistant steel products.

<sup>&</sup>lt;sup>b</sup> Applies to austenitic stainless steel products.

For nominal lengths above 120 mm, steps of 20 mm.

### **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.

### Requirements and reference International Standards

See Table 2.

Table 2 — Requirements and reference International Standards

	S	teel	Austenitic stainless steel	Martensitic stainless steel				
		St	Α	С				
	All pin diameters	Alternative for pin diameters $d_1 > 12$ mm	Chemical composition limits (chemical analysis) %					
		mposition limits analysis) %						
	C ≥ 0,64 C ≥ 0,38		C ≤ 0,15	C ≥ 0,15				
	Mn ≥ 0,60	Mn ≥ 0,70	Mn ≤ 2,00	Mn ≤ 1,00				
NA.4. 1.12	Si ≽ 0,15	Si ≥ 0,20	Si ≤ 1,50	Si ≤ 1,00				
Material <sup>a</sup>	$Cr^{b}$ $Cr \geqslant 0.80$		Cr 16 to 20	Cr 11,5 to 14				
		V	Ni 6 to 12	Ni ≤ 1,00				
	P ≤ 0,04	P ≤ 0,035	P ≤ 0,045	P ≤ 0,04				
	s ≤ 0.051 ST	ANS 6,04D PR	S ≤ 0,03 V Mo ≤ 0,8	S ≤ 0,03				
	Hardened and tempered of 420 HV to 545 HV	ed to a Vickers hardness	Cold worked	Hardened and tempered to a Vickers hardness of				
l		ISO 8751:2007		460 HV to 560 HV				
		ding.togISO16507/41st/acee4		Hardness testing				
	5	26709420a6a/iso-8751-200	/	according to ISO 6507-1.				
Surface finish	coating processes shouly hydrogen embrittlement hydrogen embrittlement electroplated or phosphelectroplating or phosph for corrosion prevention customer and supplier, pins be baked immedia minimize the risk of hydrogen embrittle ISO 4042. Nevertheless embrittlement is not abstall tolerances shall app	e lubricant, unless agreement between ed, appropriate plating or all be employed to avoid to Due to the risk of the total plating in the total plating is required and the total plating to rogen embritlement, see ment relief according to so, freedom from hydrogen	Plain, i.e. pins to supplied in natural finish.					
	of a plating or coating.	and the small form of the state of						
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								
Acceptability	The acceptance procedure shall be in accordance with ISO 3269.							
	as agreed between custome							
b Use of Cr is option	=							

ISO 8751:2007(E)

#### 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 -  $6 \times 30$  - 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

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### **Bibliography**

- [1] ISO 8748, Spring-type straight pins Coiled, heavy duty
- [2] ISO 8750, Spring-type straight pins Coiled, standard duty

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