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**Spring-type straight pins — Slotted, light  
duty**

*Goupilles cylindriques creuses, dites goupilles élastiques — Série mince*

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[ISO 13337:1997](https://standards.iteh.ai/catalog/standards/sist/aa8afbea-4048-4cef-af7e-e5eb9ddb7722/iso-13337-1997)

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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.

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.

International Standard ISO 13337 was prepared by Technical Committee ISO/TC 2, *Fasteners*.

Annex A of this International Standard is for information only.

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# Spring-type straight pins – Slotted, light duty

## 1 Scope

This International Standard specifies the characteristics of slotted spring-type straight pins, made of steel or of austenitic or martensitic stainless steel, light duty with nominal diameter,  $d_1$ , from 2 mm to 50 mm inclusive.

NOTE — The nominal diameters have been chosen in such a way that pins may be fitted one into the other or combined with pins, heavy duty in accordance with ISO 8752.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard 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 3269:1988, *Fasteners – Acceptance inspection.*

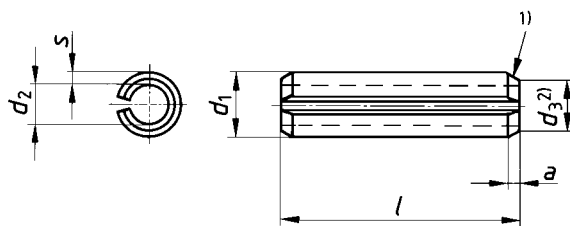
ISO 13337:1997

ISO 4042:—<sup>1)</sup>, *Fasteners – Electroplated coatings.*

ISO 8749:1986, *Pins and grooved pins – Shear test.*

## 3 Dimensions

See figure 1 and table 1.



- 1) For spring pins with a nominal diameter  $d_1 \geq 10$  mm a single chamfer configuration is optional at the discretion of the supplier
- 2)  $d_3 < d_{1, \text{nom}}$

NOTE — For non-interlocking spring-pins (slot type N) see clauses 5 and 6.

Figure 1

1) To be published. (Revision of ISO 4042:1989)

Table 1 — Dimensions

	nom.	2	2,5	3	3,5	4	4,5	5	6	8	10	
$d_1$	before mounting	max.	2,4	2,9	3,5	4,0	4,6	5,1	5,6	6,7	8,8	10,8
		min.	2,3	2,8	3,3	3,8	4,4	4,9	5,4	6,4	8,5	10,5
$d_2$	before mounting <sup>1)</sup>		1,9	2,3	2,7	3,1	3,4	3,9	4,4	4,9	7	8,5
$a$		max.	0,4	0,45	0,45	0,5	0,7	0,7	0,7	0,9	1,8	2,4
		mín.	0,2	0,25	0,25	0,3	0,5	0,5	0,5	0,7	1,5	2,0
$s$			0,2	0,25	0,3	0,35	0,5	0,5	0,5	0,75	0,75	1
Minimum shear strength, double <sup>2)</sup> kN			1,5	2,4	3,5	4,6	8	8,8	10,4	18	24	40
		$l^{3)}$										
	nom.	min.	max.									
	4	3,75	4,25									
	5	4,75	5,25									
	6	5,75	6,25									
	10	7,75	8,25									
	12	9,75	10,25									
	14	11,5	12,5									
	16	13,5	14,5									
	18	15,5	16,5									
	20	17,5	18,5									
	22	19,5	20,5									
	24	21,5	22,5									
	26	23,5	24,5									
	28	25,5	26,5									
	30	27,5	28,5									
	32	29,5	30,5									
	35	31,5	32,5									
	40	34,5	35,5									
	45	39,5	40,5									
	50	44,5	45,5									
	55	49,5	50,5									
	60	54,25	55,75									
	65	59,25	60,75									
	70	64,25	65,75									
	75	69,25	70,75									
	80	74,25	75,75									
	85	79,25	80,75									
	90	84,25	85,75									
	95	89,25	90,75									
	100	94,25	95,75									
	120	99,25	100,75									
	140	119,25	120,75									
	160	139,25	140,75									
	180	159,25	160,75									
	200	179,25	180,75									
		199,25	200,75									

1) For reference only.  
 2) Applies to steel and martensitic corrosion resistant steel products only. For austenitic stainless pins no double shear strength values are specified.  
 3) For nominal lengths above 200 mm, steps of 20 mm.

Dimensions in millimetres													
12	13	14	16	18	20	21	25	28	30	35	40	45	50
12,8	13,8	14,8	16,8	18,9	20,9	21,9	25,9	28,9	30,9	35,9	40,9	45,9	50,9
12,5	13,5	14,5	16,5	18,5	20,5	21,5	25,5	28,5	30,5	35,5	40,5	45,5	50,5
10,5	11	11,5	13,5	15	16,5	17,5	21,5	23,5	25,5	28,5	32,5	37,5	40,5
2,4	2,4	2,4	2,4	2,4	2,4	2,4	3,4	3,4	3,4	3,6	4,6	4,6	4,6
2,0	2,0	2,0	2,0	2,0	2,0	2,0	3,0	3,0	3,0	3,0	4,0	4,0	4,0
1	1,2	1,5	1,5	1,7	2	2	2	2,5	2,5	3,5	4	4	5
48	66	84	98	126	<sup>1</sup> 58	168	202	280	302	490	634	720	1 000

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**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.

When mounted in the smallest permitted hole the slot shall not fully close.

**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
Material <sup>1)</sup>	Steel (St) at the supplier's discretion, either:  Plain carbon steel with  C ≥ 0,64 % Mn ≥ 0,60 % (check analysis)  Hardened and tempered to a Vickers hardness of 420 HV30 to 520 HV30 or austempered to a Vickers hardness of 500 HV30 to 560 HV30.  or  Silicon manganese steel with  C ≥ 0,5 % Si ≥ 1,5 % Mn ≥ 0,7 % (check analysis)	Chemical composition limits (check analysis) %  C4 ≤ 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	
	Hardened and tempered to a Vickers hardness of 420 HV30 to 560 HV30.	Cold worked	Hardened and tempered to a Vickers hardness of 440 HV30 to 560 HV30
Slot	Normal case	Form and width of slot at the discretion of the supplier.	
	Type N	Non-interlocking pins with a form and/or width of slot which guarantees no interlocking may be supplied by special agreement between customer and supplier.	
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 be supplied in natural finish.	
	If pins are surface coated appropriate plating or coating processes should be employed to avoid hydrogen embrittlement. When pins are electroplated or phosphate-coated, they shall be suitably treated immediately after plating or coating to obviate detrimental hydrogen embrittlement although freedom from hydrogen embrittlement is not absolutely guaranteed (see ISO 4042).  All tolerances shall apply prior to the application of a plating or coating.		
Workmanship	Pins shall be 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 is covered in ISO 3269.		
1) Other materials as agreed between customer and supplier.			

## 6 Designation

### EXAMPLE 1

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

**Spring pin ISO 13337 – 6 × 30 – St**

### EXAMPLE 2

A martensitic stainless steel (C), non-interlocking slotted spring-type straight pin (N), light duty, with nominal diameter  $d_1 = 6$  mm and nominal length  $l = 30$  mm is designated as follows:

**Spring pin ISO 13337 – 6 × 30 – N – C**

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**Annex A**  
(informative)

**Bibliography**

[1] ISO 8752 :1997, *Spring-type straight pins – Slotted, heavy duty.*

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ISO 1337:1997

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