INTERNATIONAL STANDARD

ISO 13337

Second edition 2009-06-15

Spring-type straight pins — Slotted, light duty

Goupilles cylindriques creuses, dites goupilles élastiques — Série mince

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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 13337 was prepared by Technical Committee ISO/TC 2, Fasteners, Subcommittee SC 10, Product standards for fasteners.

This second edition cancels and replaces the first edition (ISO 13337:1997), which has been technically revised.

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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 can be fitted one into the other or combined with pins, heavy duty, in accordance with ISO 8752.

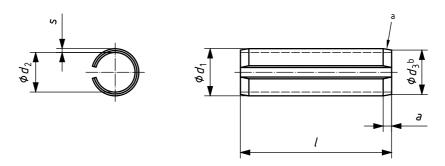
2 Normative references

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 3269, Fasteners — Acceptance inspection ARD PREVIEW
ISO 4042, Fasteners — Electroplated coatings (Standards.iteh.ai)
ISO 6507-1, Metallic materials — Vickers hardness test — Part 1: Test method
ISO 8749, Pins and grooved pins — Shear test
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3 Dimensions

See Figure 1 and Table 1.



^a For slotted spring-type straight pins with a nominal diameter $d_1 \ge 10$ mm, a single chamfer configuration is optional at the discretion of the supplier.

NOTE For non-interlocking slotted spring-type straight pins (slot type N), see Clauses 5 and 6.

Figure 1 — Slotted spring-type straight pins, light duty

b $d_3 < d_{1, \text{ nom}}$.

Table 1 — Dimensions

		nom.	2	2,5	3	3,5	4	4,5	5	6	8	10	12	
	h a fa a a	max.	2,4	2,9	3,5	4,0	4,6	5,1	5,6	6,7	8,8	10,8	12,8	1
d_1	before mounting	min.	2,3	2,8	3,3	3,8	4,4	4,9	5,4	6,4	8,5	10,5	12,5	1
d_2	before mounting ^a		1,9	2,3	2,7	3,1	3,4	3,9	4,4	4,9	7,0	8,5	10,5]
	mounting	may	0,4	0,45	0,45	0,5	0,7	0,7	0,7	0,9	1,8	2,4	2,4	_
a		max.							-					-
		min.	0,2	0,25	0,25	0,3	0,5	0,5	0,5	0,7	1,5	2,0	2,0	1
S			0,2	0,25	0,3	0,35	0,5	0,5	0,5	0,75	0,75	1,0	1,0	<u> </u>
Minimum			4.5			4.0			40.4	40		40	40	
strength, kN	double ^D		1,5	2,4	3,5	4,6	8	8,8	10,4	18	24	40	48	
	l c	ı												
nom.	min.	max.		1	ı	1	ı		1	1	1	ı	•	
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												1
14	13,5	14,5	iTe	eh S	TAI	VD.	ARI) P	RE	nge	W			
16	15,5	16,5	11.			_	_		Ra	nge	* *			
18	17,5	18,5		(star	ıda	rds.	iteh	.ai)					_
20	19,5	20,5		`					,					
22	21,5	22,5	-			ISO 1	3337:2	009						
24	23,5	24,5	tps://sta	ndards.i	teh.ai/ca			sist/8a5.	52e3e-2	thf8-4e	2-80ae-]
26 28	25,5	26,5 h	проглосс	ciddi doi:		977412				7010 10	0	<u>.</u>		
30	27,5 29,5	30,5			0174	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	10,20				0	T 		
		+												-
32 35	31,5	32,5 35,5												
40	34,5 39,5	40,5	-											
45	39,5 44,5	-											 	-
50	44,5	45,5 50,5	1											
		55,75	1				ļ		i					
55 60	54,25 59,25	60,75											-	-
65	64,25	65,75	1											
70	69,25	70,75	1											
75	74,25	75,75												1
80	79,25	80,75	1											
85	84,25	85,75	1							İ				
90	89,25	90,75											 	1
95	94,25	95,75	1											
100	99,25	100,75	1											
120	119,25	120,75												1
140	139,25	140,75	1											
160	159,25	160,75	1											
180	179,25	180,75												1
200	199,25	200,75	1										-	-
	forence only	200,10	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

^a For reference only.

^b Applies to steel and martensitic corrosion resistant steel products only. For austenitic stainless pins, no double shear strength values are specified.

^c For nominal lengths above 200 mm, steps of 20 mm.

Dimensions in millimetres

13	14	16	18	20	21	25	28	30	35	40	45	50
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
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
11	11,5	13,5	15,0	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	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	3,0	3,0	3,0	3,0	4,0	4,0	4,0
1,2	1,5	1,5	1,7	2,0	2,0	2,0	2,5	2,5	3,5	4,0	4,0	5,0
66	84	98	126	158	168	202	280	302	490	634	720	1 000
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	1100	or / Statistics				337-2009		.022				
			comm	ercial								
						len	l gths					
		<u> </u>				<u> </u>		<u> </u>			1	<u> </u>

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

			Austonitio	Martanaitia						
		Steel	Austenitic stainless steel	Martensitic stainless steel						
		St	A	C						
		Steel (St) at the supplier's discretion, either:		al composition limits						
		, ,	(check analysis) %							
		Plain carbon steel with	C ≤ 0,15	C ≥ 0,15						
		C ≥ 0,65 %	Mn ≤ 2,00	Mn ≤ 1,00						
		Mn ≥ 0,60 %	Si	Si						
		(check analysis)	Cr 16 to 20	Cr 11,5 to 14						
		Hardened and tempered to a Vickers	N 6 to 12	Ni ≤ 1,00						
		hardness of 420 HV to 520 HV or	P ≤ 0,045	P ≤ 0,04						
_		austempered to a Vickers hardness of	S ≤ 0,03	S ≤ 0,03						
Material ^a		500 HV to 560 HV.	Mo ≤ 0,8	0,03						
		or	₩							
	•	or Ch Silicon manganese steel with PR	FVIFXX							
	1	C ≥ 0,5 %	Cold worked	Hardened and tempered to						
		(ctein dewade itch		a Vickers hardness						
		(standa*ds.iteh.: Mn ≥ 0,7 %	11)	of 440 HV to 560 HV						
		(check analysis)								
	https	Hardened and tempered to a Vickers	2 2 2 1 P 1 of 20	20						
	nups	/hardnessof 420 i HV to 560 HV ards/sist/8a552e								
		819a977412a6/iso-13337-2009 Hardness testing in accordance with	,	Hardness testing in accordance with						
		ISO 6507-1.	ISO 6507-1.							
	Normal case Form and width of slot at the discretion of the supplier.									
Slot	Non-interlocking pins with a form and/or width of slot which guarantees no interlocking may									
	Type N	be supplied by special agreement between the								
		Plain, i.e. pins to be supplied in natural								
		finish, treated with a protective lubricant,								
		unless otherwise specified by agreement								
		between the customer and the supplier.								
		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								
Surface finish		phosphate coating is required for corrosion								
Guilace IIIIISII		prevention, by agreement between the								
		customer and the supplier, it is mandatory	Plain, i. e. pins to be supplied in natura							
		that the pins be baked immediately after	finish.							
		plating to minimize the risk of hydrogen								
		embrittlement; see also information on hydrogen embrittlement relief in ISO 4042.								
		Nevertheless, freedom from hydrogen								
		embrittlement is not absolutely guaranteed.								
		The state of the s								
		All tolerances shall apply prior to the								
		application of a plating or coating.								
Workmanshin		Pins shall be free of irregularities or detrimental	defects.							
Workmanship		No burrs shall appear on any part of the pin.								
Shear strength te	st	The test shall be in accordance with ISO 8749.								
Acceptability		The acceptance procedure is specified in ISO 3	3269.							
a For other mater	ials, as agreed betwe	een the customer and supplier.								
	,									

6 Designation

EXAMPLE 1 A slotted spring-type straight pin, 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 13337-6 × 30-St

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

Spring pin ISO 13337-6 \times 30-N-C

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