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मानक



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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

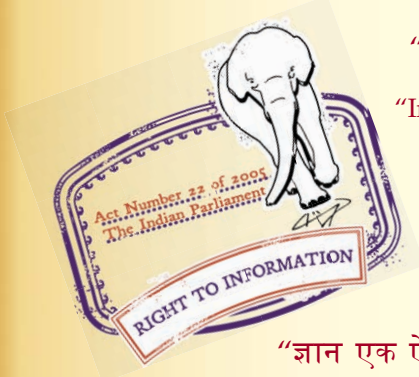
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 5988 (1970): Spring dowel sleeves (light and heavy patterns) for use in foundries [MTD 14: Foundry]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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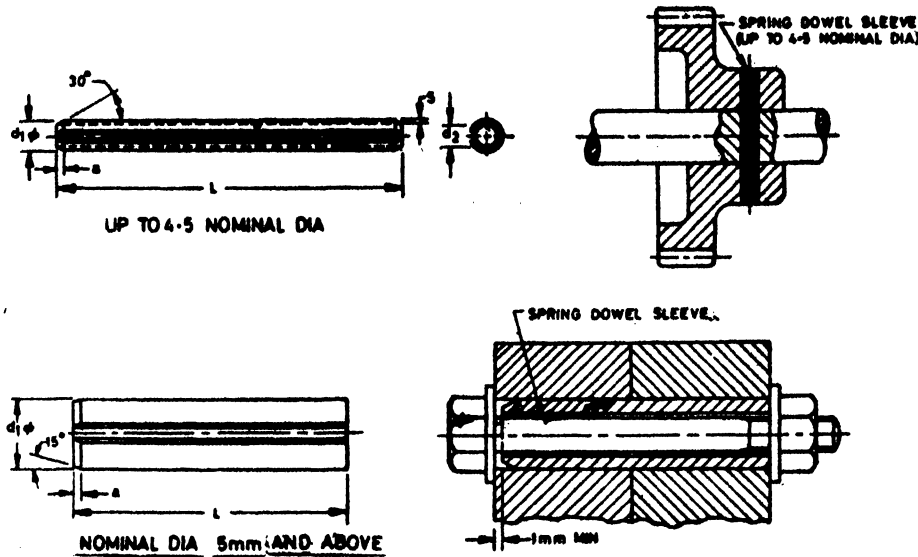
Indian Standard

SPECIFICATION FOR SPRING DOWEL SLEEVES
(LIGHT AND HEAVY PATTERNS) FOR USE IN FOUNDRIES

1. **Scope** — Requirements for spring dowel sleeves for use in foundries. Also used as spring dowel pins.

2. **Dimensions and Tolerances**

2.1 As given in Tables 1 to 4 and in Fig. 1.



All dimensions in millimetres.

FIG. 1 SPRING DOWEL SLEEVES

TABLE 1 DIMENSIONS FOR SPRING DOWEL SLEEVES (LIGHT PATTERN)

Nominal Diameter mm	S	a	Before Fitting			For Bolt Size [IS : 4218 (Part VI)-1967*] &g	Corresponding Washer (IS : 2016-1967†)	Preferred Length Range (from Up to and Including) L
			d ₁	Tolerance on d ₁	d ₂			
2	0.2	0.35	2.3	+0.1	1.9	—	—	4-30
2.5	0.25	0.45	2.8		2.3	—	—	4-30
3	0.3	0.5	3.3	+0.2	2.7	—	—	4-40
3.5	0.35	0.6	3.8		3.1	—	—	4-40
4	0.5	0.7	4.4		3.4	—	—	4-50
4.5	0.5	0.8	4.8		3.8	M3	3.2	4-50
5	0.5	1.6	5.4	+0.3	4.4	—	—	5-80
6	0.75	1.6	6.4		4.9	M4	4.3	10-100
7	0.75	1.6	7.5		6.0	M5	5.3	10-100
8	0.75	2	8.5		7.0	M6	6.4	10-120
10	1	2	10.5		8.5	—	—	10-160
11	1	2	11.5		9.5	M8	8.4	10-160
12	1	2	12.5	10.5	—	—	10-180	
13	1.25	2	13.5	+0.4	11.0	M10	10.5	10-180
14	1.5	2	14.5		11.5	—	—	10-180
16	1.5	2	16.5		13.5	M12	13	10-200
18	1.75	2	18.5		15.0	M14	15	10-200
20	2	2	20.5	16.5	—	—	10-200	
21	2	2	21.5	17.5	M16	17	14-200	
23	2	3	23.5	19.5	M18	19	14-200	
25	2	3	25.5	21.5	M20	21	14-200	
28	2.5	3	28.5	+0.4	23.5	M22	23	14-200
30	2.5	3	30.5		25.5	M24	25	14-200
35	3.5	3	35.5		28.5	M27	28	20-200
40	4	4	40.5		32.5	M30	31	20-200
45	4	4	45.5		37.5	M36	37	20-200
50	5	4	50.5		40.5	M39	40	20-200

Designation — Spring dowel sleeve (light pattern) of 10 mm nominal diameter and length 40 mm to be designated as:

Spring Dowel Sleeve Light 10 × 40 IS : 5988.

*Limits of sizes for commercial bolts and nuts (diameter range 1 to 39 mm).

†Specification for plain washers (first revision).

Adopted 15 December 1970

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TABLE 2 DIMENSIONS FOR SPRING DOWEL SLEEVES (HEAVY PATTERN)

(Clause 2.1)

Nominal Diameter mm	S	σ	Before Fitting			For Bolt Size [IS : 4218 (Part VI)-1967] 6g	Corresponding Washer (IS : 2016-1967)	Preferred Length Range (from Up to and Including) L
			d ₁	Tolerance on d ₁	d ₂ ≈			
1	0.2	0.15	1.2		0.8	—	—	4-20
1.5	0.3	0.25	1.7	+0.1	1.1	—	—	4-20
2	0.4	0.35	2.3		1.5	—	—	4-30
2.5	0.5	0.45	2.8		1.8	—	—	4-30
3	0.6	0.5	3.3		2.1	—	—	4-40
3.5	0.75	0.6	3.8		2.3	—	—	4-40
4	0.8	0.7	4.4	+0.2	2.8	—	—	4-50
4.5	1	0.8	4.9		2.9	—	—	5-50
5	1	1.6	5.4		3.4	—	—	5-80
6	1.25	1.6	6.4		3.9	M3	3.2	10-100
8	1.5	2	8.5		5.5	M4	4.3	10-120
10	2	2	10.5		6.5	M5	5.3	10-160
12	2.5	2	12.5	+0.3	7.5	M6	6.4	10-180
13	2.5	2	13.5		8.5	—	—	10-180
14	3	2	14.5		8.5	—	—	10-200
16	3	2	16.5		10.5	M8	8.4	10-200
18	3.5	2	18.5		11.5	M10	10.5	10-200
20	4	3	20.5		12.5	—	—	10-200
21	4	3	21.5		13.5	M12	13	14-200
25	5	3	25.5		15.5	M14	15	14-200
28	5.5	3	28.5		17.5	M16	17	14-200
30	6	3	30.5	+0.4	18.5	—	—	14-200
32	6	3	32.5		20.5	M18	19	20-200
35	7	3	35.5		21.5	M20	21	20-200
38	7.5	4	38.5		23.5	M22	23	20-200
40	7.5	4	40.5		25.5	M24	25	20-200
45	8.5	4	45.5		28.5	M27	28	20-200
50	9.5	4	50.5		31.5	M30	31	20-200

Designation — Spring dowel sleeve (heavy pattern) of 10 mm nominal diameter and length 40 mm to be designated as:

Spring dowel sleeve heavy 10 × 40 IS : 5988.

TABLE 3 PREFERRED LENGTHS
(Clause 2.1)

Length mm	In Steps of mm
4 to 6	1
6 " 32	2
32 " 40	4
40 " 100	5
100 " 200	20

TABLE 4 TOLERANCES ON LENGTH
(Clause 2.1)

Length mm	Tolerance mm
4 to 10	+ 0.5
12 " 50	+ 1.0
50 " 200	+ 1.5

3. Tolerance

3.1 The nominal diameter of sleeve is also the nominal diameter of the receiving bore. Tolerance on receiving bore shall be H12.

3.2 The width of the longitudinal gap in the sleeve shall be not less than the difference between dimension d_1 and nominal diameter of the sleeve with a maximum tolerance equal to the tolerance on dimension d_1 . This gap size is applicable when the sleeve is not inserted.

4. Material — Spring steel 55Si2Mn90, heat treated to 445 to 515 HV and tensile strength 150 to 190 kgf/mm².

5. Technical Requirements and Tests

5.1 The surface of spring dowel sleeves shall be smooth and free from scale and burr. The outer edges along the slit and around the ends shall normally be deburred, but alternatively may be slightly rounded.

5.2 Shear Strength — Shear strength shall not be less than 0.45 times the tensile strength. Test method in accordance with IS : 5242-1969 'Methods of test for determining shear strength of mild steel', but with shearing edges of 700 HV, Min.

5.3 Resilience and Recovery Test — Resilience and recovery shall be tested by driving the sleeve ten times through a hole of nominal size, within the tolerance zone H6 in a hardened steel plate of St 60. The maximum reduction in the oversize on the diameter shall not exceed 50 percent of the oversize in delivery condition, for example, the outside diameter shall not be less than 10.25 mm on reduction from 10.5 mm for a spring dowel sleeve of 10 mm nominal diameter.

6. Sampling — In accordance with IS : 2614-1964 'Methods for sampling of fasteners'.

7. Marking — The sleeves shall be marked with the following:

- a) Designation, and
- b) Trade-mark or name of the manufacturer.

7.1 Certification Marking — Details available with the Bureau of Indian Standards.

8. Packing

8.1 A thin film of rust preventive oil shall be applied.

8.2 Packed in waterproof paper and placed in cartons or wooden boxes in bundles of 10, 25 or 50.

8.3 Packets may be placed in wooden boxes weighing not more than 50 kg overall.

8.4 Packets shall bear the information described under 7, and also the number of pieces.

9. General Conditions of Delivery — In accordance with IS : 1387-1967 'General requirements for the supply of metallurgical materials (first revision)'.