

PGD 14 (XXXX) WC  
IS 5348: 2020

*भारतीय मानक का मसौदा*

स्टेपल्स – विशिष्ठ  
(दूसरा पुनरीक्षण)

*Draft Indian Standard*

**STAPLES — SPECIFICATION**

*(Second Revision)*

**ICS 97.180**

© BIS 2020

**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

*April 2020*

**Price Group**

## FOREWORD

This Indian Standard (Second Revision) will be adopted by the Bureau of Indian Standards, after the draft is finalized by Consumer Products and Allied Equipment Sectional Committee and approval by the Production and General Engineering Division Council (PGDC).

This Indian Standard was first published in 1969 and subsequently revised in 1981. This revision has been taken up to incorporate feedback gained through experience and other developments taken at international level in this field.

The major changes in this revision are as follows:

- Tolerances on leg thickness has been changed from 0.05 to 0.03
- Concentration of Sodium Chloride has been changes from 5 percent to 10 percent for Corrosion resistance test
- Material specifications have been broadened.
- Amendment no.(1) has been incorporated.
- References have been updated.

In the preparation of this standard assistance has been derived from JIS S 6036: 1992 “Staples”.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2: 1960 ‘Rules for rounding off numerical values (revised).’ The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**STAPLES — SPECIFICATION**  
( Second Revision )

**1. SCOPE**

This standard covers the requirements of staples for use in stapling machines.

**2. REFERENCES**

The standards given below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standard indicated below:

<i>IS No.</i>	<i>Title</i>
IS 4224 : 1972	Specification for steel wire for staples, pins and clips (First Revision)
IS 1848 (Part 1) : 2018	Writing and printing papers - Specification: Part 1 account book, azure lead, bond, cream laid and cream wove/printing white/printing coloured/printing offset, printing maplitho, printing white super calendered and typewriting types (Fifth Revision)
IS 4905 : 2015	Random sampling and randomization procedures (First Revision)

**3. TYPES**

The staples shall be of the following types:

- a) Light duty, and
- b) Heavy duty.

**4. MATERIAL**

The staple shall be pre-formed from tinned, galvanized or copper coated steel conforming to IS 4224 : 1972 or those atleast equal thereto in performance.

**5. SHAPE AND DIMENSIONS**

The shape and dimensions of the two types of staples are given in Fig 1 and Table 1.

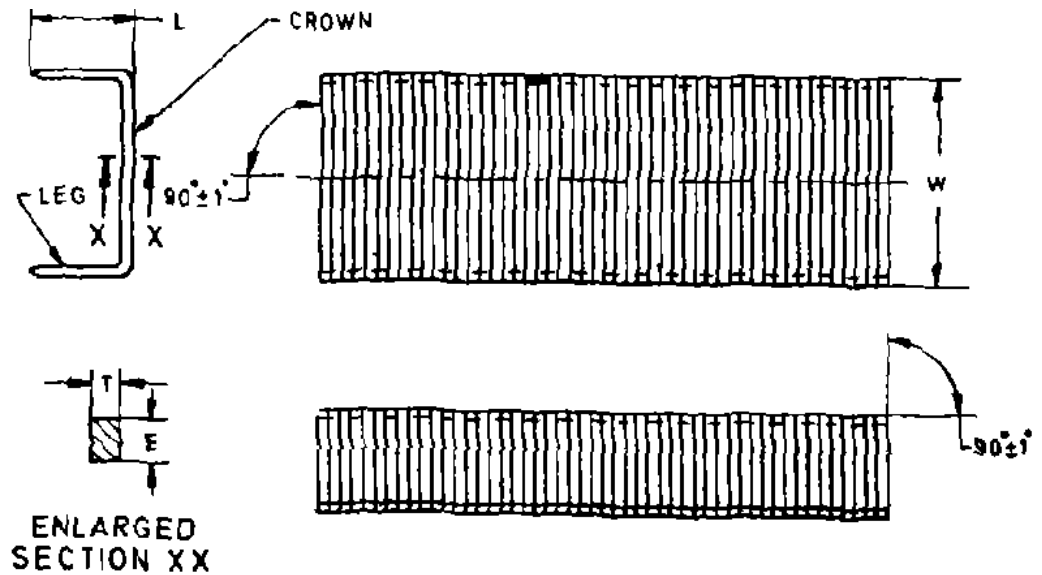


FIG. 1 STAPLES

TABLE 1. DIMENSIONS

All dimensions in millimeters

Type	W ± 0.1	L	After Fabrication	
			T ± 0.03	E ± 0.03
Light Duty	9.3	4.8 ± 0.2	0.35	0.50
	13.0	6.0 ± 0.2	0.45	0.70
Heavy Duty	13.0	8.0 ± 0.2	0.55	0.75
	13.0	10.0 ± 0.3	0.55	0.80
	13.0	12.0 ± 0.3	0.55	0.80
	13.0	15.0 ± 0.4	0.55	0.80
	13.0	17.0 ± 0.4	0.55	0.80
	13.5	16.0 ± 0.4	0.55	0.75

## 6. WORKMANSHIP AND FINISH

- 6.1** The staples shall be pre-formed and cemented together, one behind the other, in the form of a channel. Both ends of staples shall have either blunt or chiseled point ends. The cementing of staples shall be smooth and even, such that the staples adhere to each other without loosening in handling while being fitted into the stapler. Also the cementing shall be such as to afford easy exit of the staples from the vertical chute without clogging and jamming the stapler.
- 6.2** One link of staples shall be free from injurious defects in use as uneven rows of legs, camber, chippings, distortion of legs, clearances and ill adhesion.
- 6.3** The tip end of the staple shall be made double-bladed.

6.4 The temper of the wire shall be such as to permit penetration and clinching to a firm seat without buckling or fracturing of the crown or leg when tested as specified in 7.1.1 and 7.1.2.

## 7 TESTS

### 7.1 Performance Tests

7.1.1 *Light Duty Staples* — A complete magazine of light duty staples shall be inserted in a light duty stapler or plier type stapler to produce the standard clinch. Fifty staples shall be driven and clinched to a firm seat through 15 sheets for 4.8 mm leg staples and 20 sheets for 6 mm leg staples of 50 g/m<sup>2</sup> white printing paper conforming to IS 1848 (Part 1) : 2018. The staple shall penetrate and clinch to the set of sheets without buckling or fracturing of the crown or leg and shall not show any malformation.

7.1.2 *Heavy Duty Staples* — A complete magazine of heavy duty staples shall be inserted in a heavy duty stapler. Twenty five sheets of 50 g/m<sup>2</sup> white printing paper conforming to IS 1848 (Part 1) : 2018 shall be used for 8 mm leg staples, 40 sheets for 10 mm leg staples, 80 sheets for 12 mm leg staples, 120 sheets for 15 mm leg staples and 160 sheets for 16 mm and 17 mm leg staples. The staples shall penetrate and clinch to a firm seat without buckling or fracturing of the crown or leg and shall not show any malformation.

7.1.3 *Holding Power Test* — The number of 50 g/m<sup>2</sup> white printing paper conforming to IS 1848 (Part 1) : 2018 sheets as mentioned below shall be used for this test. The set of sheets shall be folded and stapled. One end of the set of sheets shall be fixed and on the other a pull is applied as shown in Fig.2. The staples shall not bend or get damaged when the pulls as mentioned in table 2 are applied:

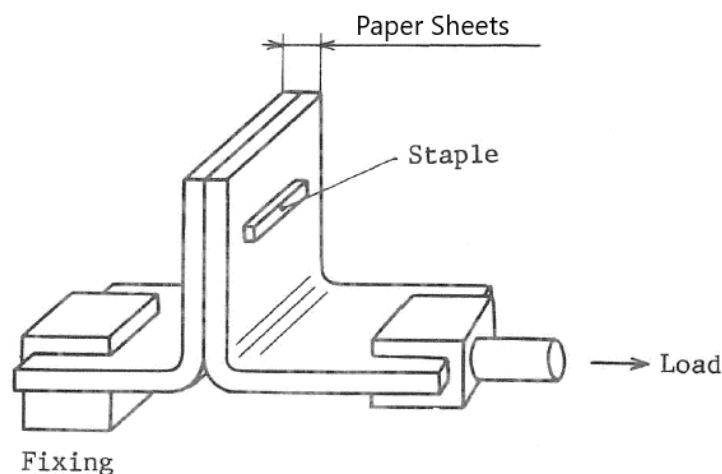


FIG 2 HOLDING POWER TEST FOR STAPLE

TABLE 2 .PERFORMANCE TEST PULL PARAMETERS

Type	Staple (Leg Size) mm	No. of 50 g/m <sup>2</sup> White Printing Paper Sheets	Pull kgf(N)
Light Duty	4.8	8	1.0 (10)
	6.0	10	2.0 (20)
Heavy Duty	8.0	13	2.4 (24)
	10.0	20	2.8 (28)
	12.0	40	3.4 (34)
	15.0	60	4.0 (40)
	16.0	80	4.6 (46)
	17.0	80	4.6 (46)

**7.2 Corrosion Resistance Test** — The staples shall be immersed in an aqueous solution of 10 percent sodium chloride at room temperature for 5 hours. The staples shall not show any sign of rusting.

## 8 SAMPLING

**8.1** Unless otherwise agreed to between the purchaser and the supplier, the sampling procedure given in Appendix A shall be followed.

## 9 MARKING

**9.1** Each packet containing 1000 staples shall be marked with manufacturer's name initials or trade-mark.

### 9.2 BIS certification marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the Bureau of Indian Standards Act, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the standard mark.

## 10 PACKING

The staples shall be packed as agreed to between the purchaser and the supplier.

## APPENDIX A

( Clause 8.1 )

### SAMPLING AND CRITERIA FOR CONFORMITY OF STAPLES

#### A-1. LOT

**A-1.1** In any consignment, all the packets containing the staples of the same type and size, manufactured by the same factory, during the same period and under similar conditions of production shall be grouped together to constitute a lot.

**A-1.2** Number of packets to be selected from each lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 3.

**A-1.2.1** These packets shall be selected from the lot at random. In order to ensure the randomness of the selection, procedure as given in IS 4905 : 2015 shall be followed.

#### A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

**A-2.1** From each of the selected packets 3 magazines shall be selected at random, so that the number of magazines selected from each lot shall be in accordance with col 1 and 3 of Table 3. The magazines so selected from each lot shall then be divided into 2 groups at random, one containing two-third of magazines (for dimensional requirements) and another containing one-third of magazines (for performance test).

**A-2.2** From each of the magazines selected in **A-2.1** for dimensional requirements, select 2 staples at random, so that the number of staples to be selected from each lot shall be in accordance with col 1 and 5 of Table 3. These staples shall be examined for dimensional requirements. A staple failing to satisfy these requirements shall be termed as defective. The lot shall be considered as conforming to dimensional requirements if the number of defectives found in the sample is less than or equal to corresponding permissible number of defectives (*see* col 6 of Table 3).

**A-2.3** The lot which has been found as conforming to dimensional requirements, shall then be tested for performance tests.

**A-2.3.1** For the requirements given in **7.1.1** or **7.1.2**, the number of magazines as selected in **A-2.1** and permissible number of defectives shall be in accordance with col 7 and 8 of Table 3.

**A-2.3.2** For holding power test, the number of staples and the permissible number of defectives are given in col 9 and 10 of Table 3.

**A-2.4** A lot which has been found as conforming to dimensional requirements and performance tests shall then be tested for corrosion resistance. For this purpose, 20 staples shall be selected from the lot at random and subjected to this test. The lot shall be considered as conforming to the requirement if none of the staples show any sign of rusting.

**A-2.5** The lot shall be accepted if **A-2.2**, **A-2.3** and **A-2.4** are satisfied; otherwise the lot shall be rejected.

**TABLE 3 SAMPLE SIZE AND PERMISSIBLE NUMBER OF DEFECTIVES***(Clauses A-1.2, A-2.1, A-2.2, A-2.3.1 and A-2.3)*

Lot Size (Number of Packets)	Sample Size		For Dimensional Requirements		Performance Test (see 7.1.1 & 7.1.2)			Holding Power Test	
	Number of packets	Number of Magazine s	Sample Size (No. of Magazines)	Sample Size (No. of Staples)	Permissible No. of Defectives	Sample Size (No. of Magazines)	Permissi ble No. of Defectiv es	Sample Size (No. of Staples)	Permissibl e No. of Defectives
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Up to 100	5	15	10	20	1	5	0	5	0
101 to 300	8	24	16	32	2	8	0	8	0
301 to 1000	13	39	26	52	3	13	0	13	0
1000 and above	20	60	40	80	5	1	1	20	