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भारतीय मानक का मसौदा

स्टेपलर्स – विशिष्ट
(*पहला पुनरीक्षण*)

Draft Indian Standard
STAPLERS — SPECIFICATION
(*First Revision*)

ICS 97.180

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

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Price Group

FOREWORD

This Indian Standard (First 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. 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:

- References have been updated.
- Amendment no.(1) has been incorporated.
- BIS Certification marking clause modified.

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.

STAPLERS — SPECIFICATION
(First Revision)

1. SCOPE

This standard specifies the requirements for staplers using standard staples prescribed in IS 5348 : 2020.

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 4454 (Part 1) : 2001	Steel wire for mechanical springs - Specification: Part 1 cold drawn unalloyed steel wire (Third Revision) Third 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 150 : 1950	Specification for ready mixed paint, brushing, finishing, stoving, enamel, colour as required
IS 151 : 2017	Ready mixed paint, spraying, finishing, stoving, enamel for general purposes, colour as required - Specification (Second Revision)
IS 2932 (Part 1) : 2013	Enamel, synthetic, exterior: (A) undercoating (B) finishing - Specification: Part 1 for domestic and decorative applications (Fourth Revision)
IS 2933 (Part 1) : 2013	Enamel, exterior: (A) undercoating (B) finishing - Specification: Part 1 for domestic and decorative applications (Second Revision)
IS 1572 : 1986	Specification for electroplated coatings of cadmium on iron and steel (Second Revision)
IS 1068 : 1993	Electroplated coatings of nickel plus chromium and copper plus nickel plus chromium - Specification (Third Revision)

3. TERMINOLOGY

3.1 For the purpose of this standard nomenclature for various parts as indicated in Fig 1 and 2 shall apply.

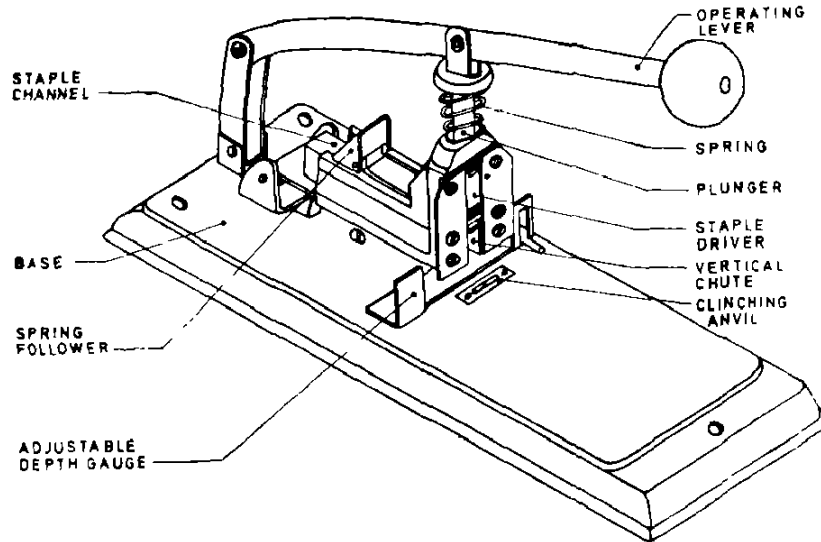


FIG.1 NOMENCLATURE OF STAPLER DESK TYPE HEAVY DUTY

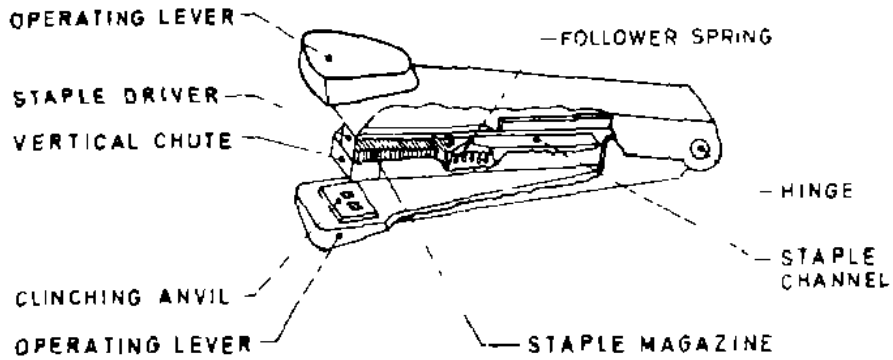


FIG.2 NOMENCLATURE OF STAPLER PLIER TYPE

4. TYPES

4.1 The staplers shall be of the following types:

- a) Type I — Desk type:
 - i) Light duty
 - ii) Heavy duty
 - iii) Heavy duty, long reach
- b) Type II — Plier type

5. MATERIAL

5.1 Various materials employed in the manufacture of staplers shall be of quality best suited for the purpose and these shall satisfy the requirements mentioned in the subsequent clauses.

6. DESIGN, MANUFACTURE AND OPERATION

6.1 Both types of staplers shall be designed for operation with the preformed staples. The driving and clinching actions on to a set of sheets shall be smooth and easy. After each stapling operation, the operating lever, staple driver and other connected components, shall spring back to the starting position and the base of vertical chute shall return to its normal position. The feeding mechanism shall be spring loaded and it shall be capable of feeding subsequent staples under the staple driver after each stapling operation. Removable parts of all heavy duty stapling machines of the same make and model shall be interchangeable. They shall be so constructed that the repair and interchange of parts may be possible.

6.1.1.1 *Springs* — All springs used in stapler shall be made of spring steel containing not less than 0.6 percent carbon conforming to Section II of IS 4454 (Part 1) : 2001.

6.1.1.2 *Staple Drivers* — Staple drivers shall be made of spring steel containing not less than 0.6 percent carbon and hardened equally over the whole length to not less than 400 HV for light duty desk and plier type staplers and not less than 490 HV for heavy duty staplers.

6.1.1.3 *Anvils* — In case of Type I heavy duty staplers, anvils shall be a separate unit attached to the base. The anvil in heavy duty staplers shall be made of steel either hardened throughout or extra hard chromium plated. Hardness shall be not less than 700 HV. In case of Type I light duty or Type II staplers, the anvil may be an integral part of the base.

6.1.1.4 The desk type staplers and their anvils shall be designed in such a way that it shall be possible to perform the normal clinching, pinning and tacking actions.

6.2 Type I Desk Type Stapler — The stapler shall be constructed for use of preformed staples cemented in a scrip form. It shall consist of a base, a staple channel and a follower spring to hold the staples, a staple driver attached to a plunger or striking arm, clinching anvil and other components found necessary for proper functioning and operation. Besides fulfilling the requirements in **6.1**, it shall fulfil the requirements mentioned in **6.2.1** to **6.2.3**.

6.2.1 *Range of Stapling* — The range of stapling for the different desk type staplers shall be as given Table 1.

TABLE 1: Range of Stapling

Type	Range mm
Light duty	50
Heavy duty	100
Heavy duty, long reach	200, 300, 400

Heavy duty long reach staplers shall be provided with adjustable depth gauges. For light duty, and heavy duty staplers a depth gauge shall be provided at the option of the purchaser.

- 6.2.2 *Vertical Chute* — For desk type staplers, all parts of the chute with which the staples come into contact shall be hardened throughout or hard chrome plated to a hardness of 700 HV. The surfaces of the vertical chute shall be sufficiently smooth to provide easy passage of staples.
- 6.2.3 *Capacity* — The light duty staplers shall accommodate a magazine of 50 staples minimum. Heavy duty, and heavy duty long reach staplers shall accommodate a magazine of 100 heavy duty staples.

6.3 Type II Plier Type Stapler — The plier type stapler shall be designed and constructed for hand operation. Besides, fulfilling the requirements mentioned in **6.1**, it shall fulfil the requirements given in **6.3.1** to **6.3.5**.

- 6.3.1 *Jaw Opening* — The jaw opening of the plier type stapler in the normal position shall be 10 to 13 mm
- 6.3.2 *Stapling Range* — The stapling range or throat depth shall not be less than 30 mm
- 6.3.3 *Clinching Anvil* — The clinching anvil may be an integral part of the base and shall produce a standard clinch
- 6.3.4 *Staple Chute and Staple Driver* — The staple chute of the plier type stapler shall be formed by a separate piece of hardened steel fixed on the face of the chute-end of the channel. The staple chute and staple driver mechanism shall be so constructed as to operate without clogging and jamming.
- 6.3.5 *Capacity* — The plier type stapler shall hold a light duty staple magazine containing a minimum of 50 staples.

7. WORKMANSHIP

7.1 All staplers shall be free from burrs, sharp edges, imperfections and other defects which might affect its serviceability.

7.2 All metal surfaces shall be thoroughly cleaned and free from dirt, oil grease and moisture before applying the finish. All metal surfaces shall be either painted or plated. The paint shall be stove enamel (see IS 150 :1950 or IS 151 : 2017) or air drying enamel (*see* IS 2932 (Part 1) : 2013 or IS 2933 (Part 1) : 2013) of the specified shade. Prior to painting, all parts shall be degreased, rust-proofed and then protected by an anti-corrosive primer either by brushing or spraying and then finished. The finish shall be hard and shall not readily chip or flake. The plating, if used, shall be cadmium zinc or chromium over nickel. The cadmium plating shall be in accordance with IS 1572 : 1986 and the chromium and nickel plating shall be in accordance with Service Grade No 1 of IS 1068 : 1993¶

8. TESTS

8.1 Performance Test

8.1.1 *Binding and Durability* — A complete magazine of staples shall be inserted in different types of stapler to produce the standard clinch. The number of sheets of 50 g/m² white printing paper conforming to IS 1848 (Part 1) : 2018 for different types of staplers shall be cut and stapled for the number of times as mentioned in Table 2 After completion of the operation, the stapler shall not be jammed and the staples shall not show any malformation, that is, they shall be symmetrical towards left and right and the tips of staples shall be pressing firmly the paper surface towards the back side.

TABLE 2 : PERFORMANCE TEST PARAMETERS

Type	No. of 50g/m ² white printing paper sheets	No. of operations
Desk Type Light Duty stapler	20 (for 6 mm leg staples)	20000
Desk Type heavy duty stapler	25 (for 8 mm leg staples)	15000
	40 (for 10 mm leg staples)	10000
	80 (for 12 mm leg staples)	7000
	120 (for 15 mm leg staples)	5000
	160 (for 17 mm leg staples)	3000
Plier type stapler	20 (for 6 mm leg staples)	20000
	15 (for 8 mm leg staples)	30000

8.2 Shock Test — All staplers shall be tested by dropping the machine on to a concrete floor or slab from a height of 90 to 100 cm. Machine shall be dropped so as to strike twice on top and twice on base, twice on opposite end of machine and twice on both sides of machine .The machine shall not be damaged in any way by this test

9. MARKING

9.1 Each stapler shall be marked with the manufacturer's name, initials or trade-mark, and with the leg size of staples to be used with the stapler.

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

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