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SPECIFICATION FOR SELF-CLOSING TAPS FOR WATER SUPPLY PURPOSES

(Second Revision)

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Indian Standard

SPECIFICATION FOR SELF-CLOSING TAPS FOR WATER SUPPLY PURPOSES

(Second Revision)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 31 May 1984, after the draft finalized by the Sanitary Appliances and Water Fittings Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Conservation of water is an important duty of the civic body in every growing city or town and prevention of the wastage of water in public amenities is a major step towards achieving this objective. In order to minimize the wastage of water, the taps provided at such places should be of the self-closing type so that they automatically close when not in use. With this objective this Indian Standard was first issued in 1960 prescribing performance, construction and other essential requirements. The standard was subsequently revised in 1970.

0.3 The revision of this standard has been taken up to incorporate further changes necessary in the light of the comments received by usage of this standard since its publication. This revision includes modifications relating to materials for different component parts, finish, etc.

0.4 Self-closing taps are available in many designs and the illustrations given in this standard are not intended to limit them to the types shown. The illustrations are only indicative of the general construction and component parts of self-closing taps and any type of design may be accepted provided the minimum requirements laid down in the standard are complied with.

0.5 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, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard lays down requirements for self-closing taps with or without stuffing box.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definition shall apply.

2.1 Self-Closing Tap — A self-closing tap is a draw-off tap which remains in the open position so long as a lever handle is kept pressed up, down or sideways, or a pushbutton is kept pressed in, and closes by itself or when the button or the lever handle is released; the self-closing taps may incorporate a device which closes the tap even without the release of the button or the handle after a fixed quantity is discharged.

3. NOMINAL SIZE

3.1 Self-closing taps shall be of the following nominal sizes:

a) 15 mm, and
b) 20 mm.

3.1.1 Nominal size shall refer to the nominal bore of the inlet connection.

4. MATERIAL

4.1 Suitable materials for the manufacture of the body and component parts of self-closing taps are given in Table 1.

5. MANUFACTURE AND WORKMANSHIP

5.1 All castings shall in all respects be sound, free from laps, blow holes and pittings. External and internal surfaces of the castings shall be clean, smooth and free from sand. The castings shall be neatly dressed and no casting shall be burned, plugged, stopped or patched.

6. DESIGN

6.1 Operation — The opening of the tap shall be performed by hand pressing of the handle up or down or turning sideways or by pressing in of the pushbutton, and the tap shall close when the handle or pushbutton is released. The force required for operating the self-closing tap for its full opening shall not exceed 70 N. For self-closing taps which operate against heads exceeding 2 m, a non-concussive function is essential and provision to this effect shall be made in the design.

TABLE 1 MATERIALS FOR COMPONENT PARTS OF SELF-CLOSING TAPS

(*Clause* 4.1)

Sl No.	Component (s)	Material (s)	Conforming to
(1)	(2)	(3)	(4)
i)	Body, cover and lever or push-button	a) Grey cast iron	Grade FG 200 of IS : 210-1978*
		b) Malleable iron castings	Grade BM 290 of IS : 2108-1977†
		c) Cast brass	Grade LCB 2 of IS : 292-1983‡
		d) Leaded tin bronze	Grade LTB 2 of IS : 318-1981§
ii)	Spindle	a) Mild steel (*see* Note)	IS : 280-1978‖
		b) Leaded tin bronze	Grade LTB 2 of IS : 318-1981§
iii)	Spindle spring	a) Phosphor bronze wire	IS : 7608-1975¶
		b) Spring steel wire	IS : 4454 (Part 3)-1975**
		c) Any corrosion resisting alloy having a tensile strength of not less than that of phosphor bronze wire	
iv)	Cage and valve	Leaded tin bronze	Grade LTB 2 or LTB 3 of IS : 318-1981§
v)	Brass washer	Brass	IS : 410-1977††
vi)	Seat washer and other washers	As specified in	IS : 4346-1982‡‡
vii)	Gasket	a) Vulcanized fibre	5.5 of IS : 4346-1982‡‡
		b) Any other equally suitable material	

NOTE — Mild steel spindles are suitable for use with cast iron and malleable iron pushbutton type self-closing taps only.

*Specification for grey iron castings (*third revision*).
†Specification for blackheart malleable iron castings (*first revision*).
‡Specification for leaded brass ingots and castings (*second revision*).
§Specification for leaded tin bronze ingots and castings (*second revision*).
‖Specification for mild steel wire for general engineering purposes (*third revision*).
¶Specification for phosphor bronze wires (for general engineering purposes).
**Specification for steel wires for cold formed springs: Part 3 Oil hardened and tempered spring steel wires — Alloyed (*first revision*).
††Specification for cold rolled brass sheet, strip and foil (*third revision*).
‡‡Specification for washers for use with fittings for water services (*first revision*).

6.1.1 At the option of the purchaser, the self-closing tap may be designed to close by itself even without the release of the button or handle, after discharging not less than 5 litres or more than 10 litres of water at a time by providing a capillary groove in the valve, which shall slide in the bottom hollow chamber of the spindle, or by any other equally suitable device.

6.2 Body and Gland

6.2.1 The body shall be strong and durable and shall withstand rough usage.

6.2.2 Handle-operated self-closing tap may be constructed with or without stuffing box and gland and, in the latter type, adequate provision shall be made to prevent leakage through the lever handle slot by providing bushing to the spindle and a washer pegged to the spring, preferably on the underside.

6.2.3 In the case of pushbutton-operated self-closing tap, instead of a threaded gland and packing, a retaining metal ring with washer shall be provided on a seating in the stuffing box, pegged to the underside of the spring, to prevent leakage through the bonnet face.

6.3 Valve and Spindle

6.3.1 The valve operation shall be performed by a spring-loaded spindle or any other equally effective device.

6.3.2 The valve shall be integral with the spindle or shall be a snug fit to the spindle.

6.4 Screw Threads — The threading of the inlet connection shall conform to IS : 554-1975*.

6.5 Washers — Dimensions and other relevant requirements of washers shall conform to IS : 4346-1982†.

6.6 Two typical designs of self-closing taps are illustrated in Fig. 1.

7. FINISH

7.1 All machining shall be so carried out that the parts are true to shape and are in correct adjustment when assembled. All machined surfaces shall be smoothly finished.

7.2 If the body is of leaded tin bronze, the outside surface shall be polished bright.

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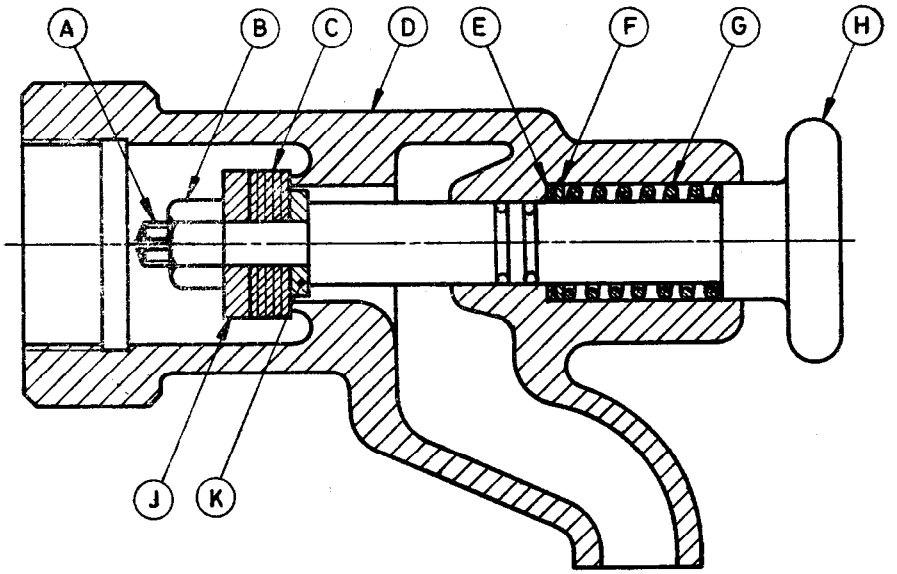
*Dimensions for pipe threads where pressure tight joints are required on the threads (*second revision*).

†Specification for washers for use with fittings for water services (*first revision*).

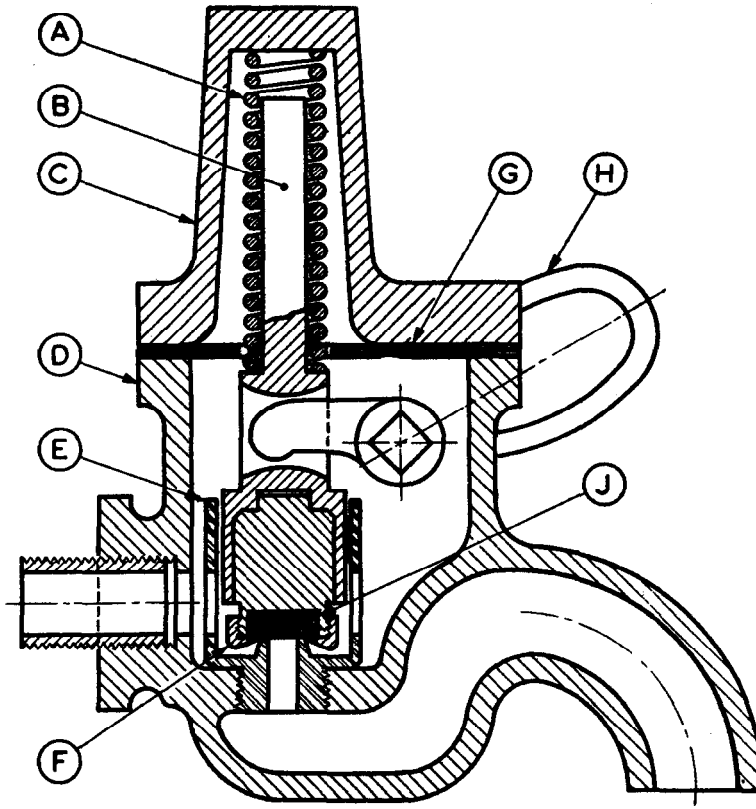
7.3 In case the fittings are nickel plated, the minimum thickness of nickel plating shall be 0·015 mm. If required, the fittings may further be chromium plated and the minimum thickness of plating shall be 0·000 25 mm. The plating shall be capable of taking a high polish which shall not easily tarnish or scale.



A	Spindle	*F*	Brass washer
B	Nut for washer	*G*	Spring
C	Seat washer	*H*	Pushbutton
D	Body	*J*	Brass washer
E	Washer	*K*	Brass washer

1A Concussive Pushbutton Type (For Heads Not Exceeding 2 m)

FIG. 1 SELF-CLOSING TAPS — *Continued*



A Spring
B Spindle
C Cover
D Body
E Cage
F Valve nut
G Gasket
H Lever
J Seat washer

1B Non-concussive Lever Type

FIG. 1 SELF-CLOSING TAPS

7.4 Galvanization of malleable iron and cast iron bodies shall be done by the hot-dip process (*see* IS : 2629-1966*). Pushbutton and spindle when made of mild steel shall be electro-galvanized (*see* IS : 1573-1970†). External surfaces of the body and handle may also be painted if so desired.

8. TESTS

8.1 When the tap is assembled complete with its component parts, it shall withstand an internally applied hydraulic pressure of 2 MPa for a minimum period of 2 minutes without leakage or sweating.

8.2 In the open position of the tap, the flow of water at the outlet end shall be steady and uniform, and when the handle or pushbutton is released, the flow shall cease completely without dripping.

8.3 Endurance Test — When the tap is subjected to 50 000 operations of actuating the handle or pushbutton from its normal shut position to the full open position and releasing it, it shall not show any leakage or failure of the spring or other working parts.

9. SAMPLING AND CRITERIA FOR CONFORMITY

9.1 Lot — In any consignment, all the taps of the same nominal size, manufactured under similar conditions of production, shall be grouped together to constitute a lot.

9.2 All the taps in a lot shall be examined for finish and subjected to the tests given in **8.1** and **8.2**. The taps which do not conform to the corresponding requirements be rejected.

9.3 The number of the taps to be subjected to endurance test (*see* **8.3**) shall be in accordance with Table 2. These taps shall be selected at random from the lot. For ensuring randomness of selection, procedures given in IS : 4905-1968‡ may be followed.

9.4 The lot shall be considered as conforming to the requirements of endurance test if all the taps selected as in **9.3** satisfy the test requirements. In case 1 or 2 taps fail, twice the number of taps shall be selected from the lot and subjected to the test. The lot shall be considered as conforming to the requirements of the test if all the taps retested satisfy the test requirements. If the number of taps failing in the first sample exceeds two or three is a failure in the retest, the lot shall not be accepted unless every tap is verified.

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*Recommended practice for hot-dip galvanizing of iron and steel.
†Specification for electroplated coatings of zinc on iron and steel (*first revision*).
‡Methods for random sampling.

TABLE 2 SAMPLE SIZE

(*Clause* 9.3)

LOT SIZE	NUMBER OF TAPS TO BE SELECTED
Up to 200	2
201 to 300	3
301 to 500	4
501 to 800	5
801 and above	7

10. MARKING

10.1 Each tap shall be clearly and permanently marked with the following information:

a) Manufacturer's name or trade-mark, and

b) Nominal size of the tap.

10.1.1 The taps may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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