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Indian Standard

SPECIFICATION FOR THERMOSTATS FOR USE WITH ELECTRIC WATER HEATERS

(First Revision)

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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Indian Standard

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SPECIFICATION FOR THERMOSTATS FOR USE WITH ELECTRIC WATER HEATERS

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 28 August 1985, after the draft finalized by the Electrical Appliances Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard was first published in 1965. This revision has been undertaken to align this standard with IS : 302-1979* which is primarily based on the latest IEC Publication. For the sake of convenience of reference, the format of the standard has been modified to bring in line with IEC Publications on household electrical appliances.

0.3 This standard covers thermostats (temperature controlling devices) of the stem type for use with electric immersion heaters and electric storage type water heaters.

0.4 In order to enable interchangeability between different makes, the preferred dimensions of the thermostats have been specified in **101**. The dimensions of the stem are derived from preferred series (*see* IS : 1076-1967†).

0.5 This standard covers the thermostats for use with the electric water heaters. Thermostats for use with other appliances are covered under separate specifications.

0.6 This standard is to be read in conjunction with IS : 302-1979*. For the sake of convenience, the clauses of this standard correspond to those of IS : 302-1979*. Instead of reproducing full text of each clause, clauses of IS : 302-1979* which are applicable (which means that relevant

*General and safety requirements for household and similar electrical appliances (*fifth revision*).

†Specification for preferred numbers (*first revision*).

provisions of the clause apply) or not applicable and the sub-clauses or portions thereof which are not applicable are indicated as under:

a) In case of a clause where it is applicable or not applicable, the wording used is "This clause of IS : 302-1979* is applicable/not applicable".

b) In case of a sub-clause or part thereof 'Not applicable'.

Wherever a sub-clause of IS : 302-1979* is to be replaced by a new text, it has been indicated as under:

'Replacement — followed by the new text'.

Any addition to the existing provisions of a sub-clause of IS : 302-1979* has been indicated as under:

'Addition — followed by the text of the additional matter'.

Clauses/tables which are additional to those of IS : 302-1979* are numbered starting from **101** and additional sub-clauses are numbered with the main clauses number followed by 101, 102, etc, for example **7.101.**

Additional appendices have been numbered starting from AA.

Should, however, any deviation exist between IS : 302-1979* and this standard, the provisions of the latter shall apply.

0.7 While preparing this standard, assistance has been derived from the following:

IEC Publication 335-1 (1976) Safety of household and similar electrical appliances, Part 1 General requirements. International Electrotechnical Commission.

IEC Publication 730 (1982) Automatic controls for electrical household appliances. International Electrotechnical Commission.

BS 3955 : Part 3 : 1979 Specification for electrical controls for household and similar general purposes, Part 3 General and specific requirements. British Standards Institution.

0.8 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.

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*General and safety requirements for household and similar electrical appliances (*fifth revision*).

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

1. SCOPE

This clause of IS : 302-1979* is applicable except as follows:

1.1 Replacement

This standard covers the general, safety and performance requirements of thermostats of the stem type for use with electric immersion water heaters electric instantaneous water heaters and electric storage type water heaters intended for use on ac circuits at voltages not exceeding 250 V and current rating not exceeding 25 A.

1.2 Replacement

The standard does not cover the thermostats for use with other electric appliances.

2. TERMINOLOGY

This clause of IS : 302-1979* is applicable except as follows:

2.4, 2.8, 2.9 to **2.11, 2.17** to **2.19, 2.21** to **2.25, 2.28, 2.30, 2.31, 2.38** to **2.41, 2.46** and **2.47** not applicable.

Additional sub-clauses

2.101 Stem Type Thermostat — A thermostat of which the thermally responsive member consists of a rod concentric with a tube.

2.102 Adjustable Thermostat — A thermostat whose operating temperature can be adjusted after installation by means of a knob or pointer moving relative to a graduated scale and without removing the thermostat.

2.103 Pre-set Thermostat — An adjustable thermostat whose operating temperature can be adjusted only by releasing its locking mechanism.

2.104 Non-adjustable Thermostat — A thermostat which has no external means for changing its operating temperature.

2.105 Switch Head — That portion of the thermostat which contains the switch and its operating mechanism.

2.106 Pocket — The water-tight enclosure for the stem of the thermostat.

2.107 Operating Temperature — The temperature at which the thermostat contacts open under the specified conditions of test.

*General and safety requirements for household and similar electrical appliances (*fifth revision*).

2.108 Differential — The difference between the temperature at which the contacts open and the temperature at which they close under the specified conditions of test.

2.109 Indicated Temperature — The temperature indicated by the knob or pointer on the scale of an adjustable or pre-set thermostat or the temperature marked on a non-adjustable thermostat.

3. GENERAL REQUIREMENT

This clause of IS : 302-1979* is applicable except as follows:

3.1 Para 2 not applicable.

4. GENERAL NOTES ON TESTS

This clause of IS : 302-1979* is applicable except as follows:

4.1 Notes 3 to 5 not applicable.

4.2 Addition

The water immersion test (**15.2.4**) shall be carried out on two additional samples.

4.7 to **4.9** and **4.12** to **4.14** not applicable.

5. RATING

This clause of IS : 302-1979* is applicable except as follows:

5.1 Replacement

The rated voltage will not exceed 250 V.

The preferred voltage will be 240 V.

5.2 Replacement

The current rating shall be 15, 20 or 25 amperes.

6. CLASSIFICATION

This clause of IS : 302-1979* is applicable except as follows:

6.1(a) (2) and **6.1**(a) (3) not applicable.

Addition

NOTE 4 — Ordinary thermostats are not provided with any special protection against moisture.

*General and safety requirements for household and similar electrical appliances (*fifth revision*).

NOTE 5 — For the purposes of this standard, unenclosed thermostats are considered to be ordinary thermostats. It is, however, understood that a higher degree of protection against moisture may be obtained when the themostat is mounted in the appliance.

6.1(c) According to the temperature differential

1) Class 1 — Thermostats having temperature differential not exceeding 5°C,
2) Class 2 — Thermostats having temperature differential exceeding 5°C but not exceeding 10°C.

7. MARKING

This clause of IS : 302-1979* is applicable except as follows:

7.1 Replacement

The following information shall be marked on the outer visible surface or on a label firmly attached to the switch head of the thermostat:

a) Name or registered trade-mark of the manufacturer;
b) Type number, model number and serial number, if any;
c) Rated voltage in volts and current in amperes;
d) The words 'ac only';
e) The operating temperature or range of temperature; and
f) Country of manufacture.

7.2, **7.4** and **7.9** not applicable.

Additional sub-clause

7.101 The thermostats 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.

8. PROTECTION AGAINST ELECTRIC SHOCK

This clause of IS : 302-1979* is applicable except as follows:

8.2, **8.3**, **8.4**, **8.7** to **8.9** not applicable.

*General and safety requirements for household and similar electrical appliances (*fifth revision*).

9. STARTING OF MOTOR OPERATED APPLIANCES

This clause of IS : 302-1979* is not applicable.

10. INPUT AND CURRENT

This clause of IS : 302-1979* is not applicable.

11. TEMPERATURE-RISE

This clause of IS : 302-1979* is applicable except as follows:

11.2 Replacement

The thermostat is set at its highest setting and is mounted in a suitable enclosure so that the temperature of the stem differs from the temperature set on the thermostat by 5 $\pm$ 1°C and the contacts are in the closed position but as near the point of opening as possible.

11.4 to **11.6** not applicable.

11.7 Replacement

The thermostat is operated at the rated voltage and rated current till the steady state conditions are established.

11.8 Replacement

The temperature rise for the various parts of the thermostat shall not exceed the values given in Table 1 and sealing compound, if any, shall not flow out.

The values in the table are based on an ambient temperature not normally exceeding 40°C but occasionally reaching 50°C. However, the temperature rise values specified are based on 40°C.

11.9 and **11.10** not applicable.

12. OPERATION UNDER OVERLOAD CONDITIONS OF APPLIANCES WITH HEATING ELEMENTS

This clause of IS : 302-1979* is not applicable.

13. ELECTRICAL INSULATION AND LEAKAGE CURRENT AT OPERATING TEMPERATURE

This clause of IS : 302-1979* is applicable except as follows:

13.1 Replacement

The thermostat is connected to supply at its rated voltage so that the contacts are closed and the rated current is passed through the same. The test is made while the thermostat is connected to the supply.

*General and safety requirements for household and similar electrical appliances (*fifth revision*).

14. RADIO AND TELEVISION INTERFERENCE SUPPRESSION

This clause of IS : 302-1979* is not applicable.

15. MOISTURE RESISTANCE

This clause of IS : 302-1979* is applicable except as follows:

15.2.1 to **15.2.3** not applicable.

15.2.4 *Replacement*

This test is carried out on the two additional samples of thermostats.

The thermostat is immersed in water up to the stem length at a temperature of 27 $\pm$ 2°C.

After 1 hour of immersion, the thermostat is removed from water and dried, care being taken to ensure that all the moisture is removed from the insulation in the vicinity of the terminals. The leakage current is then measured as described in **16.2**. The leakage current shall not exceed the value specified in **13.2.**

The treatment described above and the measurement of the leakage current are made five times after which the sample shall withstand the electric strength test as specified in **16.4,** the test voltage being reduced to 1 000 V.

15.3 Not applicable.

16. INSULATION RESISTANCE AND ELECTRIC STRENGTH (AFTER HUMIDITY TREATMENT)

This clause of IS : 302-1979* is applicable except as follows:

16.1 Replacement

The insulation and electric strength of appliances shall be adequate.

Compliance is checked by tests given in **16.2** and **16.4** which are made on cold thermostat after the test given in **15.4** in the humidity cabinet or in the room in which the sample was brought to the prescribed temperature after re-assembly of those parts which may have been removed.

16.2 Replacement

An ac test voltage is applied as specified in items 1 to 4 of the table of **16.4,** the metal foil having a size not exceeding 20 $\times$ 10 cm and being moved if necessary, so as to test all parts of the surface.

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The test voltage is 1·06 times the rated voltage, or 1·06 times the upper limit of the rated voltage range for appliances for dc only, for single-phase appliances and for three-phase appliances which are also suitable for single-phase supply, if the rated voltage or the upper limit of the rated voltage range does not exceed 250 V.

The leakage current measured after the application of the test voltage shall not exceed the value given in **13.2**.

16.3 Not applicable.

16.4 Para 1 Replacement

Immediately after the test given in **16.2**, the insulation is subjected for 1 minute to a voltage of substantially sine-wave form having a frequency of 50 or 60 Hz. The value of the test voltage and the points of application are shown in the following table.

17. OVERLOAD PROTECTION

This clause of IS : 302-1979* is not applicable.

18. ENDURANCE

This clause of IS : 302-1979* is applicable except as follows:

18.2 Endurance Test — The thermostat shall be subjected by thermal operation to a total of 10 000 consecutive switching cycles, each cycle, consisting of the making and breaking of maximum rated current at a maximum rated voltage and at a frequency of operation of 30 cycles per hour. At the end of the test, the operating temperature and differential shall be determined in the manner prescribed in Appendix AA.

18.2.1 *Performance After Endurance Test*

a) The operating temperature determined in **18.2** shall not differ from the operating temperature determined before the endurance test by more than 6°C.

b) The operating temperature when determined again with the knob set for the maximum temperature shall not exceed 85°C.

c) The change in differential shall not exceed 3°C or 50 percent of the value of the differential before the endurance test whichever is greater.

d) The thermostat shall again satisfy the test for moisture resistance and insulation resistance.

e) The connections and contacts shall not work loose due to heating, vibration, etc.

18.3 to **18.5** not applicable.

*General and safety requirements for household and similar electrical appliances (*fifth revision*).

19. ABNORMAL OPERATION

This clause of IS : 302-1979* is not applicable.

20. STABILITY AND MECHANICAL HAZARDS

This clause of IS : 302-1979* is not applicable.

21. MECHANICAL STRENGTH

This clause of IS : 302-1979* is applicable.

22. CONSTRUCTION

This clause of IS : 302-1979* is applicable except as follows:

22.4, 22.9 to **22.12, 22.15** to **22.18, 22.20, 22.23** to **22.30** and **22.32** not applicable.

Additional sub-clauses

22.101 Provision for Attaching to Appliances — A spring clip-to-clip over a collar in the pocket shall be provided. The clip shall have intimate electrical contact with the base plate of the switch head or the outer tube of the stem.

22.102 Scale — For adjustable and pre-set thermostats, a scale indicating the range over which the operating temperature can be adjusted, shall be provided.

The scale shall be graduated at even 5°C intervals. At least three temperatures shall be figured in the scale, one close to the top limit, one close to the bottom limit and an intermediate temperature. The upper marking shall not exceed 85°C and the lower marking shall not be higher than 35°C.

NOTE — In accordance with **5.5** of IS : 2082-1978†, the maximum setting of thermostat dial shall not exceed 75°C. This requirement shall be deemed to have been fulfilled if the thermostat, which has a maximum setting in excess of this temperature, is provided with a stop or other locking device to keep the temperature limit at 75°C.

23. INTERNAL WIRING

This clause of IS : 302-1979* is applicable except as follows:

23.4, 23.5 and **23.7** not applicable.

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*General and safety requirements for household and similar electrical appliances (*fifth revision*).

†Specification for stationary storage type electric water heaters (*second revision*).

24. COMPONENTS

This clause of IS : 302-1979* is applicable except as follows:

24.2 and **24.4** to **24.10** not applicable.

25. SUPPLY CONNECTIONS AND EXTERNAL FLEXIBLE CABLES AND CORDS

This clause of IS : 302-1979* is applicable except as follows:

25.3 to **25.14** not applicable.

26. TERMINALS FOR EXTERNAL CONDUCTORS

This clause of IS : 302-1979* is applicable.

27. PROVISION FOR EARTHING

This clause of IS : 302-1979* is applicable except as follows:

27.3 Not applicable.

27.5 Para 1 Replacement

The earth resistance shall be less than 0·1 ohm:

a) between the spring clip and stem of the thermometer, and

b) between the spring clip of the thermostat and a brass pocket fitted with a collar with the thermostat fitted into the pocket and the clip gripping the collar.

28. SCREWS AND CONNECTIONS

This clause of IS : 302-1979* is applicable.

29. CREEPAGE DISTANCES AND CLEARANCES

This clause of IS : 302-1979* is applicable.

30. RESISTANCE TO HEAT, FIRE AND TRACKING

This clause of IS : 302-1979* is applicable.

31. RESISTANCE TO RUSTING

This clause of IS : 302-1979* is applicable.

32. RADIATION HAZARD

This clause of IS : 302-1979* is applicable.

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*General and safety requirements for household and similar electrical appliances (*fifth revision*).

33. FINISH

This clause of IS : 302-1979* is applicable except as follows:

33.1 Replacement

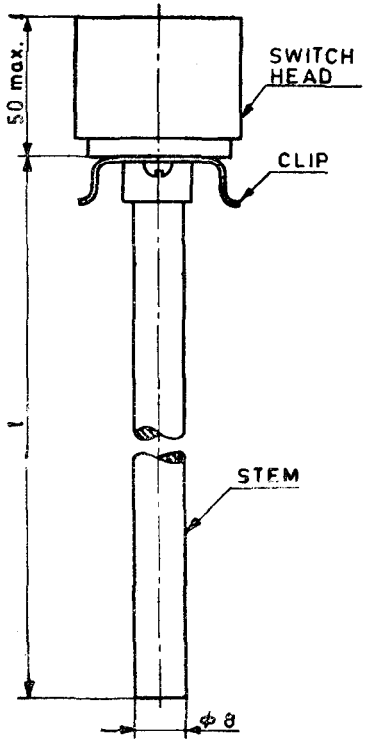
The external finish used on metal components shall be of a heat and moisture resisting nature and shall not be adversely affected by variations in temperature under normal operating conditions or during the endurance test.

33.2 Not applicable.

Additional clauses

101. DIMENSIONS

101.1 To facilitate interchangeability between different makes, the preferred dimensions (*see* Fig. 101) should be as given in **101.2** to **101.4** (*see also* **0.4**).



All dimensions in millimetres.

FIG. 101 OVERALL DIMENSIONS OF THERMOSTATS

*General and safety requirements for household and similar electrical appaliances (*fifth revision*).

101.2 Stem — The nominal stem length if measured from the tip of the switch head shall be 175, 275 or 450 mm. The outer diameter of the stem shall be 8 mm. The stem shall be uniform in diameter and straight so that it passes freely into a full length gauge of 8·5 mm internal diameter.

101.3 Switch Head

101.3.1 The height of the switch head including any projections, shall not exceed 50 mm.

101.3.2 For rectangular type switch heads, the length and breadth shall not exceed 55 mm and 40 mm respectively. The horizontal distance between the centre of the stem and any point of the switch head including terminal projection shall not exceed 50 mm.

101.3.3 For circular type switch heads, the diameter shall not exceed 55 mm including terminal projections, if any.

101.4 Spring Clip — The spring clip shall be designed to clip firmly over a collar of 25 mm diameter.

102. OPERATION UNDER OVERLOAD CONDITIONS

The thermostat shall be loaded with 1·25 times and rated current at 1·1 times the rated voltage and operated for 200 cycles of make and break at a rate of four cycles per minute. During this test there shall be no sustained arcing and the contacts shall not have deteriorated appreciably.

103. TEST FOR THERMAL CHARACTERISTICS

103.1 Normal Operation — The operating temperature and differential as determined in accordance with Appendix AA, shall be within the limits specified below:

a) Operating temperature — Shall not differ by more than 6°C from the indicated temperature

b) Differential:

Class I	Not exceeding 5°C
Class II	Exceeding 5°C but not exceeding 10°C

104. TESTS

104.0 Categories of Tests — Tests are classified as type, routine and acceptance tests.

104.1 Type Tests — The tests specified in Table 101 shall constitute the type tests and shall be carried out on two samples of thermostats of the same type and rating selected preferably at random from a regular production lot. Before commencement of the tests, the thermostats shall be visually examined and inspected for obvious visual defects in respect of components, parts and their assembly construction, stability markings, provision of suitable terminals for supply connection, earthing and the effectiveness of screws and connections. The external surface finish shall be even and free from finishing defects.

TABLE 101 SCHEDULE OF TYPE TESTS

Sl No.	Test	Clause Reference
(1)	(2)	(3)
i)	Protection against electric shock	8
ii)	Temperature-rise	11
iii)	Electrical insulation and leakage current at operating temperature	13
iv)	Moisture resistance	15
v)	Insulation resistance and electric strength (after humidity treatment)	16
vi)	Endurance	18
vii)	Stability and mechanical hazards	20
viii)	Mechanical strength	21
ix)	Cord grip and cord guard	25
x)	Earthing connection	27
xi)	Screws and connections	28
xii)	Creepage distances and clearances	29
xiii)	Resistance to heat, fire and tracking	30
xiv)	Resistance to rusting	31
xv)	Dimensions	101
xvi)	Operation under overload conditions	102
xvii)	Test for thermal characteristics	103

104.1.1 *Criteria of Acceptance* — Both samples shall successfully pass all the type tests for proving conformity with the requirements of the standard. If any of the samples fails in any of the type tests, the testing authority, at its discretion may call for fresh samples not exceeding twice the original number and subject them again to all tests or to the test(s) in which failure(s) occurred. No failure shall be permitted in the repeat test(s).

104.2 Acceptance Tests — The following shall constitute the acceptance tests:

Test	*Clause Reference*
a) Protection against electric shock	8
b) Temperature-rise	11
c) Insulation resistance and electric strength at operating temperature	13
d) Moisture resistance	15
e) Insulation resistance and electric strength (after humidity treatment)	16
f) Earthing connection	27
g) Test for thermal characteristics	103

NOTE — For the purpose of the acceptance tests, the conditioning shall be done for 24 hours while carrying out the moisture resistance test.

104.2.1 A recommended sampling procedure for acceptance test is given in Appendix B of IS : 302-1979*.

104.3 Routine Tests — The following tests shall constitute the routine tests:

Test	*Clause Reference*
a) Protection against electric shock	8
b) High voltage	13.3.2 of IS : 302-1979*
c) Earthing connection	27

*General and safety requirements for household and similar electrical appliances (*fifth revision*).

APPENDIX A

TABLES OF TYPE TESTS

This Appendix of IS : 302-1979* is not applicable.

APPENDIX B

(*Clause* 104.2.1)

SAMPLING PROCEDURE FOR ACCEPTANCE TESTS

This Appendix of IS : 302-1979* is applicable as indicated in **104.2.1.**

APPENDIX C

ELECTRONIC CIRCUITS

This Appendix of IS : 302-1979* is applicable if electronic circuits are used.

APPENDIX D

MEASUREMENT OF TEMPERATURE WITH THERMOMETER

This Appendix of IS : 302-1979* is applicable.

APPENDIX E

ALTERNATIVE TESTS FOR PROTECTED MOTOR UNITS

This Appendix of IS : 302-1979* is not applicable.

APPENDIX F

IMPACT TEST APPARATUS

This appendix of IS : 302-1979* is applicable.

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APPENDIX G

THERMAL CONTROLS AND OVERLOAD RELEASES

This Appendix of IS : 302-1979* is not applicable.

APPENDIX H

MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES

This Appendix of IS : 302-1979* is applicable.

APPENDIX J

TEST FOR FIRE-RESISTING PROPERTIES

This Appendix of IS : 302-1979* is applicable.

APPENDIX K

BNF JET TEST FOR DETERMINATION OF THICKNESS OF COPPER AND NICKEL PLATING

This Appendix of IS : 302-1979* is not applicable.

APPENDIX L

APPROXIMATE MEASUREMENT OF THICKNESS OF CHROMIUM ON NICKEL, STEEL AND COPPER

This Appendix of IS : 302-1979* is not applicable.

*General and safety requirements for household and similar electrical appliances (*fifth revision*).

APPENDIX AA

(*Clauses* 103.1 *and* 18)

METHOD OF DETERMINING OPERATING TEMPERATURE AND DIFFERENTIAL OF THERMOSTATS

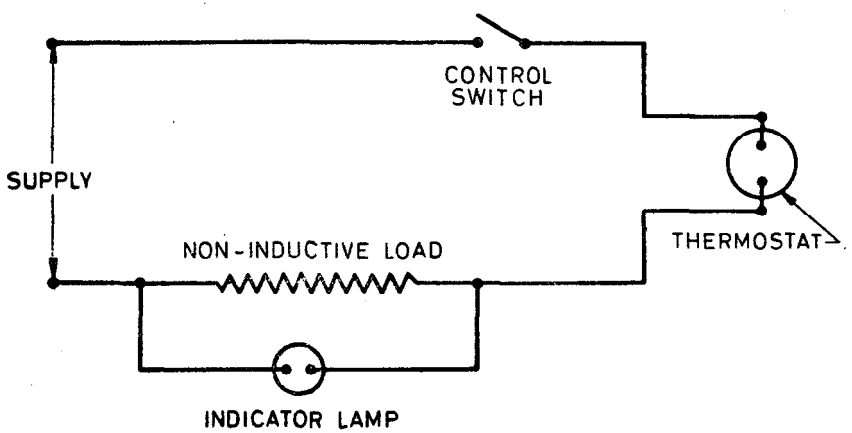
AA-1. GENERAL

AA-1.1 Test Tank — A test tank fitted with a horizontal pocket on one side into which the thermostat can be fitted to its full length shall be used. The pocket shall be of copper with an internal diameter of 8·5 mm and a wall thickness of 0·710 mm. The tank is filled with water to a level 10 mm above the top level of the pocket. A mercury-in-glass thermometer is used to read the temperature of the water. Arrangements are made for the uniform heating and cooling of the water-bath. The ambient temperature of the room shall be 27 ± 5°C.

AA-2. PROCEDURE

AA-2.1 Adjustable thermostats are tested with their controls set at 70°C or 5°C below their maximum setting whichever is lower. Non-adjustable thermostats are tested at the indicated temperature.

AA-2.1.1 A non-inductive load which will give the rated current of the thermostat at its indicated voltage together with a test lamp connected across it to give visual indication is connected to the thermostat together with another control switch in series (*see* Fig. 102).



All dimensions in millimetres.

FIG. 102 TEST CIRCUIT

AA-2.2 The temperature of the water-bath shall be brought to 15°C below the setting of the thermostat or its indicated temperature and maintained at that level for one hour with the heating load connected to the thermostat switched off by the control switch. At the end of one hour, the temperature of the bath is uniformly raised at a rate not exceeding 15°C per hour and the control switch is switched on, passing the rated current through the contacts of the thermostat. The temperature of the water at the moment when the contacts open (as indicated by the test lamp) is noted as the operating temperature (cut-out temperature).

AA-2.3 The temperature of the water is then allowed to fall uniformly at a rate not exceeding 15°C per hour and the temperature of the water at the moment the contacts close (as indicated by the test lamp) is noted as the cut-in temperature.

AA-2.4 The difference between the cut-out and cut-in temperature is the differential for the thermostat.

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TO
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(First Revision)

[*Page* 7 , *clause* **6.1**(c)] — Substitute the following for the existing matter :

'**6.1** (c) According to temperature differential

1) Class 1 — Thermostats having temperature differential not exceeding 5 °C.

2) Class 2 — Thermostats having temperature differential not exceeding 10 °C.'

(ETDC 32)

Reprography Unit, BIS, New Delhi

AMENDMENT NO. 2 AUGUST 1991

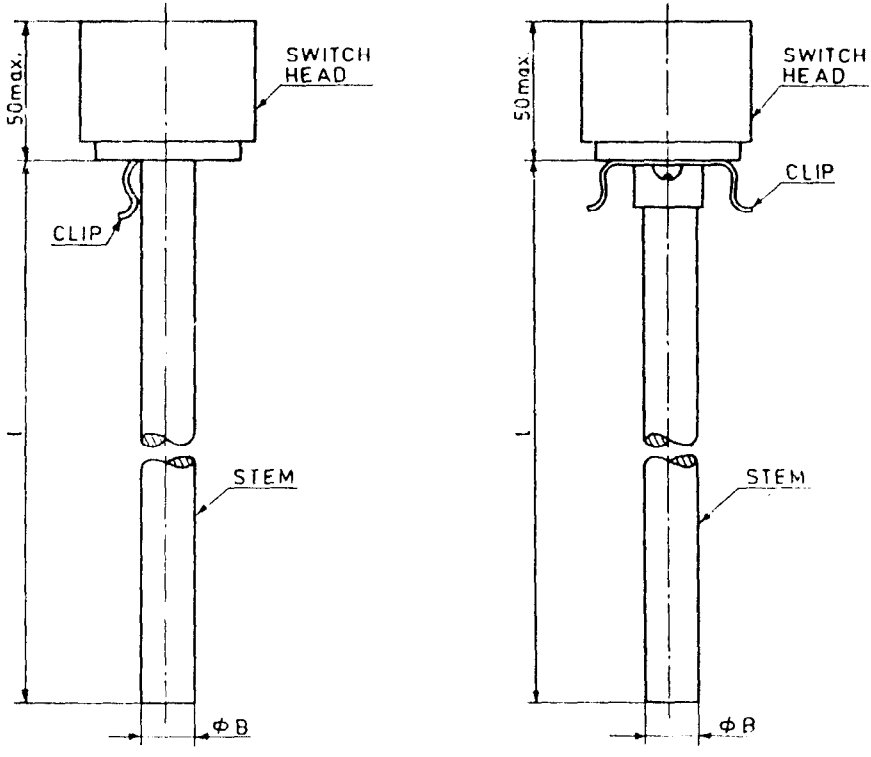
TO

IS 3017 : 1985 SPECIFICATION FOR THERMOSTATS FOR USE WITH ELECTRIC WATER HEATERS

(First Revision)

(*Page* 13, *clause* **101.1**, *line* 2) — Substitute '*see* Fig. 101A or 101B' *for* '*see* Fig. 101'.

(*Page* 13, *Fig.* 101) — Substitue the following for the existing figure:



101A 101B With two sided clip

All dimensions in millimetres.

FIG. 101 OVERALL DIMENSIONS OF THERMOSTATS

[*Page* 15, *Table* 101, *Sl No.* (ix) *and* (x)] — Delete and renumber the subsequent numbers accordingly.

(ET 32)

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AMENDMENT NO. 3 MAY 1992
TO
IS 3017 : 1985 SPECIFICATION FOR THERMOSTATS FOR USE WITH ELECTRIC WATER HEATERS

(First Revision)

Substitute 'IS 302-1(1979) Safety of household and similar electrical appliances: Part 1 General requirements (*fifth revision*)' *for* 'IS 302 : 1979 General and safety requirements for household and similar electrical appliances (*fifth revision*)' wherever it appears in the standard.

(ETD 32)

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