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भारतीय मानक

पानी गर्म करने के इस्टेंट हीटरों की विशिष्टि

(दूसरा पुनरीक्षण)

Indian Standard

**SPECIFICATION FOR ELECTRIC
INSTANTANEOUS WATER HEATERS**

(Second Revision)

UDC 683.97 : 621.365

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

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Price Group 1

Electrical Appliances Sectional Committee, ETD 32

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Electrical Appliances Sectional Committee had been approved by the Electrotechnical Division Council.

This standard covers general safety and performance requirements.

This standard was first published in 1978 and first revision took place in 1985. This revision has been undertaken in view of the reason that detail of general and safety requirements have now been covered under a separate Indian Standard IS : 302-2-35 (1992) 'Safety of household and similar electrical appliances: Part 2 Particular requirements, Section 35 Electric Instantaneous water heaters'. As per the decision of the third meeting of Electrotechnical Division Council, a separate safety standard on electric instantaneous water heaters has been brought out. The second revision of this composite standards instead of giving details of safety requirements, reference has been made to safety standard IS 302-2-35 (1992). It is intended to cover some more performance requirements in future based on future development within the country as well as at the International Electrotechnical Committee (IEC) level.

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 '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.

Indian Standard
**SPECIFICATION FOR ELECTRIC
INSTANTANEOUS WATER HEATERS**
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1 SCOPE

1.1 This standard covers general, safety and performance requirements of electric instantaneous water heaters up to 3 litres capacity for heating water to a temperature below boiling point. In addition, the provision of 1 of IS 302-2-35 (1992) shall also apply.

2 REFERENCE

2.1 The following Indian Standard is necessary adjunct to this standard:

<i>IS No.</i>	<i>Title</i>
302-2-35 (1992)	Safety of household and similar electrical appliances: Part 2 Particular requirement, Section 35 Electric instantaneous water heater

3 TERMINOLOGY

3.1 The provision of 2 of IS 302-2-35 (1992) shall apply.

4 GENERAL REQUIREMENTS

4.1 The provision of 3 of IS 302-2-35 (1992) shall apply.

5 GENERAL NOTE ON TEST

5.1 The provision of 4 of IS 302-2-35 (1992) shall apply.

6 RATING

6.1 The provision of 5 of IS 302-2-35 (1992) shall apply.

7 CLASSIFICATION

7.1 The provision of 6 of IS 302-2-35 (1992) shall apply.

8 MARKING

8.1 The provision of 7 of IS 302-2-35 (1992) shall apply.

8.1.1 The instantaneous water heater may also be marked with the Standard Mark.

9 SAFETY REQUIREMENTS

9.1 The electric instantaneous water heater shall comply with the requirement given in 8 to 32 of IS 302-2-35 (1992).

10 FINISH

10.1 The external finish used in metal components shall be of a heat and moisture resisting nature and shall not be adversely affected by variation in temperature occurring under normal operating conditions.

Compliance shall be checked by visual inspection.

11 OPERATION OF FLOW SWITCH

11.1 The flow switches are caused to operate 10000 times. At the end of test, the flow switch should operate satisfactorily.

12 ENDURANCE

12.1 Electrical instantaneous water heater shall be so constructed that in normal use, there will be no electrical or mechanical failure that might impair compliance with this standard. The insulation shall not be damaged and contacts and connections shall not work loose as a result of heating vibration, etc.

Compliance is adequately checked by the test of other clauses of this standard.

13 TESTS

13.0 Categories of Tests

Tests are classified as type, acceptance and routine tests.

13.1 Type Tests

The tests specified in Table 1 shall constitute the type tests and shall be carried out on two samples of water heater of the same type and rating selected preferably at random from a regular production lot. Before commencement of the test, the water heaters 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.

13.1.1 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

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falls 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).

13.2 Acceptance Tests

The following shall constitute the acceptance test:

<i>Test</i>	<i>Clause Reference</i>
a) Protection against electric shock	8 of IS 302-2-35 (1992)
b) Input	10 do
c) Temperature-rise	11 do
d) Insulation resistance and electric strength at operating temperature	13 do
e) Moisture resistance	15 do
f) Insulation resistance and electric strength treatment) (after humidity	16 do
g) Construction	22 do
h) Earthing connection	27 do

NOTE — For the purpose of the acceptance test, test humidity treatment is done for 24 hours while conducting the test for moisture resistance as given in 15 of IS 302-2-35 (1992).

13.2.1 A recommended sampling procedure for acceptance test is given in Appendix B of IS 302-1 (1979).

Table 1 Schedule of Type Test
(Clause 13.1)

<i>Sl No.</i>	<i>Test</i>	<i>Clause Reference</i>
1.	Safety requirement	8 to 32
2.	Finish	10
3.	Operation of flow switches	11
4.	Endurance.	12

13.3 Routine Test

The following test shall constitute the routine tests:

<i>Test</i>	<i>Clause Reference</i>
a) Protection against electric shock	8 of IS 302-2-35 (1992)
b) High voltage	13.3.2 of IS 302-1 (1979)
c) Earthing connection	27 of IS 302-2-35 (1992)
d) Pressure test	22.26 of IS 302-2-35 (1992)

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard 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 BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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